



## Memorandum

To: Mr. Jack Englert  
c/o CPC-T Holdings, LLC  
1601 Trapelo Road, Suite 280  
Waltham, Massachusetts 02451

Date: January 6, 2015

Project #: 12109.00

From: Matt Kealey, P.E., PTOE  
Project Manager

Re: Proposed Residential Development  
60-70 Cross Street East  
Somerville, Massachusetts

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### INTRODUCTION

Vanasse Hangen Brustlin, Inc. (VHB), on behalf of CPC-T Holdings, LLC (Proponent), has conducted an updated traffic impact and access study for a proposed residential development to be located at the corner of Mystic Avenue and Cross Street East in Somerville, Massachusetts. The proposed development involves the construction of a total of 75 condominium units. The site, which is located within the existing Stop & Shop Supermarket site, was previously approved for the development of 25,000 sf of office space as part of the 2001 Planned Unit Development (PUD). Figure 1 shows the site locus map.

Access to the site is proposed via a single driveway within the Stop & Shop parking lot. A traffic impact and access study was prepared for a previous proposal on this site in January 2013. At the request of the City of Somerville Traffic and Parking Department, that study has been expanded herein to include evaluation of additional intersections in the area as well as potential impacts during the Saturday midday peak hour. This traffic study quantifies existing and projected future traffic conditions, and identifies potential impacts within the study area.

### EXISTING CONDITIONS

Evaluation of the transportation impacts associated with the proposed project requires a thorough understanding of the existing transportation system in the project study area. A complete inventory and evaluation of the existing transportation system in the project study area was conducted. The analysis of existing transportation conditions is based on the existing roadway network, roadway/intersection geometry, traffic control, existing daily and peak hour traffic volumes, traffic safety conditions, and existing public transportation.

#### *Study Area Intersections*

The key roadways in the study area include Mystic Avenue, Cross Street East, Garfield Avenue, and Broadway. The transportation study area is based on the expected level of traffic to be generated by the project and an understanding of the surrounding area roadways. As discussed with the City, the study area includes the following intersections:

- Mystic Avenue at Stop & Shop Driveway
- Garfield Avenue at Blakeley Avenue
- Proposed Site Driveway at Stop & Shop Driveway
- Broadway at Cross Street
- Broadway at Garfield Avenue
- Broadway at McGrath Highway

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### Existing Traffic Volumes

As part of the January 2013 TIAS, 48-hour daily traffic volumes were collected on Mystic Avenue west of the Stop & Shop Driveway on December 5 and 6, 2012 (Wednesday and Thursday) using automatic traffic recorders (ATR). These dates represent typical weekdays for traffic count purposes (non-holidays while schools are in session). The volumes are summarized in Table 1.

**Table 1**  
**Existing Traffic Volume Summary**

| Location                                         | Direction | ADT <sup>a</sup> | Morning Peak Hour |                       |                         | Evening Peak Hour |          |            |
|--------------------------------------------------|-----------|------------------|-------------------|-----------------------|-------------------------|-------------------|----------|------------|
|                                                  |           |                  | Volume            | K Factor <sup>b</sup> | Dir. Dist. <sup>c</sup> | Volume            | K Factor | Dir. Dist. |
| Mystic Avenue<br>west of Stop &<br>Shop Driveway | Total     | 5,300            | 650               | 12.3%                 | 100% EB                 | 330               | 6.2%     | 100% EB    |

Source: VHB based on automatic traffic recorder counts conducted in December 5 and 6, 2012.

- a. Average Daily Traffic volume expressed in vehicles per day.
- b. Represents the percent of daily traffic that occurs during the peak hour.
- c. Directional distribution of peak hour traffic.

As shown in Table 1, Mystic Avenue, west of the Stop & Shop Driveway, carries approximately 5,300 vehicles on a typical weekday with the peak hours accounting for 12.3 percent (morning peak hour) and 6.2 percent (evening peak hour) of the daily traffic flow.

Concurrent with the ATR counts, turning movements counts (TMCs) were conducted at four of the study area intersections in December 2012 during the weekday morning peak period from 7:00 AM to 9:00 AM and the evening peak period from 4:00 PM to 6:00 PM. The TMC data indicates that, within the study area, the weekday morning peak hour generally occurs between 8:00 AM and 9:00 AM and the weekday evening peak hour occurs between 5:00 PM and 6:00 PM. The TMC and ATR data are provided in the Attachments. Based on discussions with the City of Somerville, additional analysis was requested to be completed at intersections that were not included in the January 2013 TIAS. Per discussions with the City, this analysis was conducted based on volumes available from other studies in this area. Traffic volumes used in this current study are as follows:

- **Mystic Avenue at Stop & Shop Driveway** – AM and PM TMCs conducted in December 2012, Saturday volumes were taken from the 2003 Expanded ENF for Stop & Shop Supermarket.
- **Garfield Avenue at Blakeley Avenue** – AM and PM TMCs conducted in December 2012, Saturday volumes were taken from the 2003 Expanded ENF for Stop & Shop Supermarket.
- **Proposed Site Driveway at Stop & Shop Driveway** - AM and PM TMCs conducted in December 2012, Saturday volumes were taken from the 2003 Expanded ENF for Stop & Shop Supermarket.
- **Broadway at Cross Street** – AM and PM TMCs conducted in December 2012, Saturday volumes were taken from the 2003 Expanded ENF for Stop & Shop Supermarket.



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- **Broadway at Garfield Avenue** – AM volumes were calculated based on volumes at adjacent intersections, PM and Saturday volumes were taken from the 2003 Expanded ENF for Stop & Shop Supermarket.
- **Broadway at McGrath Highway** - AM, PM, and Saturday volumes were taken from the Transportation Analysis prepared for the proposed Partners development <sup>1</sup>, which was submitted in May 2014.

### *Volume Adjustments*

All volumes used in this evaluation were adjusted for historic growth using a rate of 0.5 percent per year to reflect 2015 Existing Conditions. In addition, all volumes have been seasonally adjusted in accordance with standard engineering practices to reflect average conditions. The resulting 2015 Existing Conditions traffic volume networks are provided in the Attachments.

### *Crash History*

To identify motor vehicle crash trends in the project study area, the most current crash data for the study area intersections was obtained from MassDOT for the most recent five years available (2008 through 2012). A summary of the vehicle crash data is presented in Table 2.

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<sup>1</sup> Special Permit with Site Plan Review - A – Final Level PUD Approval Parcel 11A: Assembly Row, Somerville, MA: VHB (Watertown, MA). May 15, 2014.



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**Table 2: Study Area Intersection Crash Summary - 2008 through 2012**

|                                     | Broadway at<br>McGrath<br>Highway | Broadway at<br>Garfield<br>Avenue | Broadway at<br>Cross Street | Blakeley Ave.<br>at Garfield<br>Avenue | Garfield<br>Avenue at<br>Stop & Shop | Mystic at<br>Stop & Shop<br>Driveway |
|-------------------------------------|-----------------------------------|-----------------------------------|-----------------------------|----------------------------------------|--------------------------------------|--------------------------------------|
| <b>Year</b>                         |                                   |                                   |                             |                                        |                                      |                                      |
| 2008                                | 14                                | 5                                 | 5                           | 0                                      | 0                                    | 0                                    |
| 2009                                | 11                                | 4                                 | 3                           | 0                                      | 0                                    | 0                                    |
| 2010                                | 13                                | 7                                 | 3                           | 0                                      | 0                                    | 0                                    |
| 2011                                | 11                                | 2                                 | 1                           | 0                                      | 0                                    | 0                                    |
| <u>2012</u>                         | <u>11</u>                         | <u>0</u>                          | <u>1</u>                    | <u>0</u>                               | <u>0</u>                             | <u>0</u>                             |
| Total                               | 60                                | 18                                | 13                          | 0                                      | 0                                    | 0                                    |
| Average                             | 12.00                             | 4.50                              | 2.60                        | 0.00                                   | 0.00                                 | 0.00                                 |
| MassDOT Average Crash Rate          | 0.77                              | 0.77                              | 0.77                        | 0.58                                   | 0.58                                 | 0.58                                 |
| MassDOT Calculated Crash Rate       | 0.50                              | 0.53                              | 0.48                        | 0.00                                   | 0.00                                 | 0.00                                 |
| <b>Collision Type</b>               |                                   |                                   |                             |                                        |                                      |                                      |
| Angle                               | 11                                | 8                                 | 6                           | 0                                      | 0                                    | 0                                    |
| Head-on                             | 0                                 | 0                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Rear-end                            | 30                                | 4                                 | 1                           | 0                                      | 0                                    | 0                                    |
| Rear-to-rear                        | 1                                 | 0                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Sideswipe, opposite direction       | 0                                 | 2                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Sideswipe, same direction           | 4                                 | 0                                 | 3                           | 0                                      | 0                                    | 0                                    |
| Single vehicle crash                | 11                                | 2                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Not reported                        | 3                                 | 2                                 | 3                           | 0                                      | 0                                    | 0                                    |
| <b>Crash Severity</b>               |                                   |                                   |                             |                                        |                                      |                                      |
| Fatal injury                        | 0                                 | 0                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Non-fatal injury                    | 23                                | 7                                 | 4                           | 0                                      | 0                                    | 0                                    |
| Property damage only (none injured) | 31                                | 6                                 | 8                           | 0                                      | 0                                    | 0                                    |
| Not Reported                        | 6                                 | 5                                 | 1                           | 0                                      | 0                                    | 0                                    |
| <b>Time of Day</b>                  |                                   |                                   |                             |                                        |                                      |                                      |
| Weekday, 7:00 AM - 9:00 AM          | 10                                | 2                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Weekday, 4:00 PM - 6:00 PM          | 10                                | 2                                 | 1                           | 0                                      | 0                                    | 0                                    |
| Saturday, 11:00 AM - 2:00 PM        | 1                                 | 0                                 | 0                           | 0                                      | 0                                    | 0                                    |
| Weekday, other time                 | 29                                | 10                                | 9                           | 0                                      | 0                                    | 0                                    |
| Weekend, other time                 | 10                                | 4                                 | 3                           | 0                                      | 0                                    | 0                                    |
| <b>Pavement Conditions</b>          |                                   |                                   |                             |                                        |                                      |                                      |
| Dry                                 | 48                                | 9                                 | 8                           | 0                                      | 0                                    | 0                                    |
| Wet                                 | 9                                 | 6                                 | 3                           | 0                                      | 0                                    | 0                                    |
| Snow/Ice                            | 3                                 | 0                                 | 1                           | 0                                      | 0                                    | 0                                    |
| Not Reported                        | 0                                 | 3                                 | 1                           | 0                                      | 0                                    | 0                                    |

Source: MassDOT database records, compiled by VHB

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As shown in Table 2, no crashes were reported at the intersections of Mystic Avenue at Stop & Shop Driveway, Garfield Avenue at Blakeley Avenue, and the Proposed Site Driveway at Stop & Shop Driveway during the five-year study period. The intersection of Broadway at McGrath Highway experienced a total of 60 crashes over the five year study period. The intersection of Broadway at Garfield Avenue experienced a total of 18 crashes over the five year study period. The intersection of Broadway at Cross Street experienced a total of 13 crashes over the five year study period. As shown in the table, the crash rates for all three of the signalized intersections are well below the MassDOT Average Crash Rate.

### *Public Transportation*

Public transportation in the study area is provided by the Massachusetts Bay Transportation Authority (MBTA) via five bus routes that run near the site. The bus routes and the stops closest to the site are summarized below:

- Bus 80 – Arlington Center Lechmere Station via Medford Hillside
  - o Cross Street at Pearl Street
  - o Pearl Street at McGrath Highway
- Bus 89 – Clarendon Hill of Davis Square Sullivan Square Station via Broadway
  - o Broadway at Cross Street
  - o Broadway at Kensington Street
- Bus 90 – Davis Square Wellington Station via Sullivan Square Station and Assembly Mall
  - o Cross Street at Ellsworth Street
  - o Cross Street at Otis Street
- Bus 95 – West Medford Sullivan Square Station via Mystic Avenue
  - o Mystic Avenue at Kensington Avenue (Stop & Shop)
- Bus 101 – Malden Center Station Sullivan Square Station via Salem St., Main St., and Broadway
  - o Broadway at Cross Street
  - o Broadway at Kensington Street

Within a half mile of the site, these five bus routes provide 26 bus stops. Collectively, the bus routes mentioned above provide riders with the ability to connect to the MBTA Green Line, Orange Line, and Red Line.

### **FUTURE CONDITIONS**

To determine future roadway operations, traffic volumes in the study area were projected to the year 2022 to reflect a seven-year planning horizon from the existing conditions. The year 2022 was selected as the horizon year for the preparation of this study in conformance with EEA/EOTPW and MassDOT guidelines.

Traffic volumes on the roadway network under future conditions without the project (No-Build) are assumed to include all existing traffic, any new traffic due to regional and area background traffic growth, and traffic related to any specific nearby development projects expected to be completed by the 2022 horizon year. Anticipated traffic volumes from the proposed development were added to the No-Build traffic volumes to reflect future conditions with the project (Build).



### *No-Build Conditions*

No-Build traffic volumes were determined by considering existing traffic volumes and adding regional traffic growth and traffic from other nearby developments. Traffic growth is a function of expected new development, changes in demographics, and changes in auto usage and ownership in the region. Regional traffic growth is projected by examining historic traffic growth trends.

### *Regional Traffic Growth*

To determine trends in traffic growth in this area, VHB reviewed traffic available from MassDOT for the City of Somerville. Generally speaking, traffic volumes in the surrounding area have remained level or have decreased in recent years. However, for the purposes of this study, a growth rate of 0.5 percent per year was applied to the traffic volumes within the study area.

### *Planned/Approved Developments*

In addition to accounting for background growth, the traffic associated with the following planned and/or approved following developments in the area were considered. These developments were identified as part of the Transportation Analysis prepared for the proposed Partners development dated May 2014.

- **Assembly Square – Somerville:** At its full build-out the Assembly Square Mixed-Use Redevelopment project will consist of 2,801,333 square feet (sf) of office space, 527,024 sf of retail space, 1,843 residential units, a 170-room hotel, a 12-screen cinema, and a 50,000 sf health club. While a substantial portion of this development has now been constructed and occupied, none was in place at the time of the existing conditions analysis for this project.
- **North Point – Somerville/Cambridge/Boston:** At its full development by 2022 this project will consist of 3,540 residential units, 2,140,000 sf of office space, 75,000 sf of retail space and 90 hotel rooms. These numbers include the North Point, Lechmere, and Charles E. Smith sites. While some components of this project have changed in recent years, the overall project trip generation has remained comparable to that considered in the prior project studies so that the associated background volumes do not need to be revisited.
- **Cambridge Research Park – Cambridge:** This project involves the construction of approximately 400 hotel rooms and 157 apartments.
- **Station Landing – Medford:** this mixed-use development is located at the southeast corner of the Revere Beach Parkway (Route 16) and Middlesex Fells Parkway (Route 28) adjacent to the Wellington MBTA Station. To date, in addition to the existing 165,000 sf of office space on that site, 584 residential units, a 160-room hotel, and 80,250 sf of retail/restaurant space have been constructed, with an additional 50,300 sf of health club space. No further development is planned and the studies for that project indicate that the associated trip generation generally has remained unchanged.
- **Wellington Business Center – Medford:** This project is located between Santilli Circle and Wellington Circle and consists of approximately 385,000 sf of office space.



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- **Wellington Place – Medford:** This project proposed in the vicinity of the Wellington Business Center includes 137 residential units.
- **Stop & Shop Supermarket – Medford:** This project, which was constructed after the traffic data collection, consisted of the demolition of a former Ames store and the construction of a new 64,350 sf Stop & Shop supermarket in its place with the addition of one fuel pump to an existing fueling facility on that site. The site is located at the southwest quadrant of the Route 28/Riverside Avenue intersection in Medford.
- **River's Edge – Everett:** This project, originally known as "Telecom City", is now located entirely in Medford and consists of 525,000 sf of office space with 222 luxury apartment units.
- **Best Buy – Everett:** An approximately 32,000 sf Best Buy store was constructed adjacent to Santilli Circle in Everett since the data collection for the existing conditions analysis was conducted.
- **Little Neck Lofts:** Approximately 146 condominiums were constructed between Caldwell Street, Brighton Street and Perkins Street, near Sullivan Square since the traffic data collection occurred.
- **New MBTA Assembly Square Orange Line Station:** A new MBTA Orange Line Station recently opened within the Assembly Square District in 2014. Vehicle trips associated with train passengers being dropped off or picked up by automobile is anticipated and has been factored into the background traffic volumes.
- **Wynn Everett Casino/Resort – Everett:** This proposed project involves over 3,900 gaming positions, a new 500-room resort hotel, 89,140 sf of retail space, with associated convention/meeting space and other amenities.

The 2022 No-Build traffic volume networks were developed by applying the annual growth rate to the existing conditions volumes and by adding the traffic generated by the background projects identified above. The 2022 No-Build traffic volume networks are provided in the Attachments.

### *Build Conditions*

Build traffic volumes were determined by estimating site-generated traffic volumes and distributing these volumes over the study area roadways. The site generated volumes include new trips due to the proposed residential development.

### *Site-Generated Traffic Volumes*

The rate at which any development generates traffic is dependent upon a number of factors such as size, location and concentration of surrounding developments. The number of vehicle-trips estimated to be generated by proposed project was estimated based on trip generation rates published in the Institute of Transportation Engineers *Trip Generation*<sup>2</sup>, 9th Edition. ITE land use code 230 (Residential Condominium/Townhouse) was determined to be the most appropriate land use code for this development. Table 3 summarizes the projected trip generation associated with the proposed residential development. The trip generation calculations are provided in the Attachments.

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<sup>2</sup> Institute of Transportation Engineers, *Trip Generation*, Ninth Edition, Washington, D.C., 2012.



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**Table 3**  
**Project Trip Generation Summary**

| Time Period                     | Site Generated Traffic <sup>a</sup> |
|---------------------------------|-------------------------------------|
| Weekday Daily (vpd)             | 500                                 |
| Morning Peak Hour (vph)         |                                     |
| Entering                        | 7                                   |
| Exiting                         | <u>34</u>                           |
| Total                           | 41                                  |
| Evening Peak Hour (vph)         |                                     |
| Entering                        | 32                                  |
| Exiting                         | <u>16</u>                           |
| Total                           | 48                                  |
| Saturday Daily (vpd)            | 699                                 |
| Saturday Midday Peak Hour (vph) |                                     |
| Entering                        | 35                                  |
| Exiting                         | <u>30</u>                           |
| Total                           | 65                                  |

a ITE Trip Generation, 9<sup>th</sup> Edition, based on 75 condominium units (LUC 230).  
vpd vehicles per day  
vph vehicles per hour

As shown in Table 3, the proposed development is estimated to generate approximately 500 new weekday daily trips and 699 Saturday daily trips. It is estimated that approximately 41 site-generated trips (7 enter/34 exit) will occur during the morning peak hour, 48 trips (32 enter/16 exit) during the evening peak hour, and 65 (35 enter/30 exit) during the Saturday midday peak hour. It should be noted that the trip generation projections summarized in Table 3 do not include any trip credits for the proximity of the site to public transit routes. As mentioned previously, five different bus routes are available and there are 26 bus stops within a half mile of the site, making it very accessible to/from public transportation and reducing residents' dependence on automobiles. As such, the projections summarized in Table 3 very likely overstate the site-generated vehicular traffic resulting from the proposed project.

### Trip Distribution

The directional distribution of the traffic approaching and departing the site is a function of population densities, the location of employment, existing travel patterns, and the efficiency of the existing roadway system. Trips made from and to the proposed residential development during the peak hours are expected to be predominantly home-to-work and work-to-home trips in the morning and evening peak hours, respectively. Accordingly, the trip distribution for the proposed development was based on U.S. Census Journey-to-Work data for the City of Somerville, which was collected from the residential trip distribution evaluation completed for the Assembly Square PUD Traffic Impact and Access Study. Table 4 summarizes the trip distribution pattern used in the current analysis.

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**Table 4**  
**Trip Distribution Summary**

| Travel Route                | Direction<br>(to/from) | Percent of New Site<br>Generated<br>Traffic Assigned to Route |
|-----------------------------|------------------------|---------------------------------------------------------------|
| Broadway/McGrath Highway    | South and West         | 47%                                                           |
| I-93/McGrath Highway/Mystic | North and West         | 20%                                                           |
| I-93/Sullivan Square        | South and East         | 33%                                                           |
| <b>Total</b>                |                        | <b>100%</b>                                                   |

The site-generated traffic volumes were assigned to the roadway network according to the distribution and travel patterns described above, and added to the No-Build traffic volumes to develop the peak hour Build traffic volume networks. The trip distribution and the site generated traffic volumes are provided in the Attachments. The resulting 2022 Build traffic volumes for the weekday morning, weekday evening, and Saturday midday peak hours are provided in the Attachments.

## TRAFFIC OPERATIONS ANALYSIS

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic within the study area. To assess quality of flow, roadway capacity analyses were conducted with respect to existing conditions and projected No-Build and Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed on them. Calculated levels of service classify roadway operating conditions.

### Level of Service Criteria

Level of service (LOS) is the term used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. The evaluation criteria used to analyze area intersections and roadways are based on the 2010 Highway Capacity Manual (HCM)<sup>3</sup>.

### Intersection Capacity Analysis

Intersection capacity analyses were conducted at the three unsignalized intersections and three signalized intersections in the study area. Analyses were conducted for the 2015 Existing, 2022 No-Build and 2022 Build conditions. Tables 5 and 6 summarize the results of the unsignalized and signalized capacity analyses, respectively. The analysis worksheets are included in the Attachments.

<sup>3</sup> Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2000.



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**Table 5**  
**Unsignalized Intersection Capacity Analysis**

| Location/Peak Hour                  | 2015 Existing       |                    |                  | 2022 No-Build |       |     | 2022 Build |       |     |
|-------------------------------------|---------------------|--------------------|------------------|---------------|-------|-----|------------|-------|-----|
|                                     | Demand <sup>a</sup> | Delay <sup>b</sup> | LOS <sup>c</sup> | Demand        | Delay | LOS | Demand     | Delay | LOS |
| Mystic Ave. at Stop & Shop Driveway |                     |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour           | 31                  | 14                 | B                | 32            | 16    | C   | 34         | 16    | C   |
| Weekday Evening Peak Hour           | 67                  | 11                 | B                | 69            | 12    | B   | 70         | 12    | B   |
| Saturday MiddayPeak Hour            | 117                 | 13                 | B                | 121           | 15    | C   | 123        | 16    | C   |
| Site Driveway at Stop & Shop        |                     |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour           | 7                   | 10                 | B                | 7             | 11    | B   | 7          | 11    | B   |
| Weekday Evening Peak Hour           | 26                  | 10                 | B                | 26            | 10    | B   | 26         | 10    | B   |
| Saturday MiddayPeak Hour            | 165                 | 11                 | B                | 165           | 11    | B   | 165        | 12    | B   |
| Garfield Ave. at Blakeley Ave.      |                     |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour           | 195                 | 8                  | A                | 202           | 8     | A   | 234        | 9     | A   |
| Weekday Evening Peak Hour           | 229                 | 9                  | A                | 237           | 9     | A   | 252        | 9     | A   |
| Saturday MiddayPeak Hour            | 303                 | 10                 | A                | 314           | 10    | A   | 342        | 10    | B   |

- a. Demand of critical movement.  
b. Average Total Delay (seconds/vehicle).  
c. Level-of-service.  
+ Delay exceeds thresholds.

As shown in Table 5, a comparison of the 2022 No-Build and the 2022 Build conditions operations demonstrates negligible impacts at the unsignalized study area intersections.

**Table 6**  
**Signalized Intersection Capacity Analysis**

| Location/Peak Hour          | 2015 Existing    |                    |                  | 2022 No-Build |       |     | 2022 Build |       |     |
|-----------------------------|------------------|--------------------|------------------|---------------|-------|-----|------------|-------|-----|
|                             | V/C <sup>a</sup> | Delay <sup>b</sup> | LOS <sup>c</sup> | V/C           | Delay | LOS | V/C        | Delay | LOS |
| Broadway. at Cross Street   |                  |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour   | 0.40             | 11                 | B                | 0.44          | 11    | B   | 0.44       | 11    | B   |
| Weekday Evening Peak Hour   | 0.49             | 21                 | C                | 0.52          | 21    | C   | 0.52       | 21    | C   |
| Saturday MiddayPeak Hour    | 0.47             | 20                 | C                | 0.50          | 21    | C   | 0.50       | 21    | C   |
| Broadway at Garfield Avenue |                  |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour   | 0.29             | 8                  | A                | 0.32          | 8     | A   | 0.33       | 8     | A   |
| Weekday Evening Peak Hour   | 0.33             | 7                  | A                | 0.35          | 7     | A   | 0.35       | 7     | A   |
| Saturday MiddayPeak Hour    | 0.48             | 25                 | C                | 0.50          | 27    | C   | 0.50       | 27    | C   |
| Broadway at McGrath Highway |                  |                    |                  |               |       |     |            |       |     |
| Weekday Morning Peak Hour   | 1.06             | >120               | F                | >1.20         | >120  | F   | >1.20      | >120  | F   |
| Weekday Evening Peak Hour   | 1.20             | >120               | F                | >1.20         | >120  | F   | >1.20      | >120  | F   |
| Saturday MiddayPeak Hour    | 0.98             | 87                 | F                | >1.20         | >120  | F   | >1.20      | >120  | F   |

- a. Volume to capacity ratio
- b. Average Total Delay (seconds/vehicle)
- c. Level-of-service
- + Delay exceeds thresholds

As shown in Table 6, a comparison of the 2022 No-Build and the 2022 Build conditions operations demonstrates no impacts at the intersections of Broadway at Cross Street and Broadway at Garfield Avenue. Because the intersection of Broadway at McGrath Highway currently operates over capacity, Table 6 does not clearly show any effects of the proposed project. To provide perspective in terms of additional traffic volume at this location, the project is only expected to result in an increase of less than 1 percent at this intersection, and less than 1 vehicle per signal cycle. Such an increase is negligible and would not have an impact on traffic operations.

## CONCLUSIONS AND RECOMMENDATIONS

This study evaluated the impacts associated with the proposed residential development to be located at the corner of Mystic Avenue and Cross Street East in Somerville, Massachusetts. The proposed development involves the construction of a total of 75 condominium units. The site, which is located within the existing Stop & Shop Supermarket site, was previously approved for the development of 25,000 sf of office space as part of the 2001 Planned Unit Development (PUD). Access to the site is proposed via a single driveway within the Stop & Shop parking lot.

The proposed residential development is projected to generate approximately 500 new weekday daily trips and 699 Saturday daily trips. It is estimated that approximately 41 site-generated trips (7 enter/34 exit) will occur during the morning peak hour, 48 trips (32 enter/16 exit) during the evening peak hour, and 65 (35 enter/30 exit) during the



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Saturday midday peak hour. It should be reiterated that the trip generation projections summarized in this document do not include any trip credits for the proximity of the site to public transit routes. As such, these projections very likely overstate the site-generated vehicular traffic resulting from the proposed project. Overall, the study finds that the site generated traffic will have minimal effect on traffic operations within the study area and that the existing transportation infrastructure can adequately accommodate the traffic volumes projected to be generated by the proposed residential development.

# **Attachments**

- **Traffic Count Data**
- **Background Traffic Volumes**
- **Trip Generation Calculations**
- **Trip Distribution**
- **Traffic Volume Networks**
- **Intersection Capacity Analysis**



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## Traffic Count Data

# Accurate Counts

978-664-2565

N/S Street : Stop & Shop / Garfield Av  
 E/W Street : Blakeley Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109001  
 Site Code : 12109001  
 Start Date : 12/11/2012  
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## Groups Printed- Cars - Trucks

|             | Stop & Shop Dr<br>From North |      |       | Blakaley Ave<br>From East |      |       | Garfield Ave<br>From South |      |       | Blakaley Ave<br>From West |      |       |            |
|-------------|------------------------------|------|-------|---------------------------|------|-------|----------------------------|------|-------|---------------------------|------|-------|------------|
| Start Time  | Left                         | Thru | Right | Left                      | Thru | Right | Left                       | Thru | Right | Left                      | Thru | Right | Int. Total |
| 07:00 AM    | 1                            | 34   | 7     | 0                         | 0    | 0     | 8                          | 0    | 0     | 4                         | 0    | 6     | 60         |
| 07:15 AM    | 0                            | 39   | 9     | 0                         | 0    | 0     | 1                          | 1    | 0     | 2                         | 0    | 6     | 58         |
| 07:30 AM    | 0                            | 42   | 12    | 0                         | 0    | 0     | 7                          | 7    | 0     | 3                         | 0    | 8     | 79         |
| 07:45 AM    | 0                            | 40   | 8     | 0                         | 0    | 0     | 5                          | 9    | 1     | 2                         | 0    | 6     | 71         |
| Total       | 1                            | 155  | 36    | 0                         | 0    | 0     | 21                         | 17   | 1     | 11                        | 0    | 26    | 268        |
| 08:00 AM    | 0                            | 36   | 6     | 0                         | 0    | 0     | 1                          | 5    | 0     | 1                         | 0    | 4     | 53         |
| 08:15 AM    | 1                            | 38   | 3     | 2                         | 0    | 0     | 9                          | 7    | 0     | 0                         | 1    | 6     | 67         |
| 08:30 AM    | 0                            | 29   | 15    | 0                         | 0    | 0     | 5                          | 4    | 0     | 1                         | 1    | 8     | 63         |
| 08:45 AM    | 0                            | 22   | 7     | 1                         | 0    | 0     | 3                          | 6    | 1     | 3                         | 0    | 5     | 48         |
| Total       | 1                            | 125  | 31    | 3                         | 0    | 0     | 18                         | 22   | 1     | 5                         | 2    | 23    | 231        |
| Grand Total | 2                            | 280  | 67    | 3                         | 0    | 0     | 39                         | 39   | 2     | 16                        | 2    | 49    | 499        |
| Apprch %    | 0.6                          | 80.2 | 19.2  | 100                       | 0    | 0     | 48.8                       | 48.8 | 2.5   | 23.9                      | 3    | 73.1  |            |
| Total %     | 0.4                          | 56.1 | 13.4  | 0.6                       | 0    | 0     | 7.8                        | 7.8  | 0.4   | 3.2                       | 0.4  | 9.8   |            |
| Cars        | 2                            | 280  | 64    | 2                         | 0    | 0     | 39                         | 38   | 2     | 16                        | 1    | 45    | 489        |
| % Cars      | 100                          | 100  | 95.5  | 66.7                      | 0    | 0     | 100                        | 97.4 | 100   | 100                       | 50   | 91.8  | 98         |
| Trucks      | 0                            | 0    | 3     | 1                         | 0    | 0     | 0                          | 1    | 0     | 0                         | 1    | 4     | 10         |
| % Trucks    | 0                            | 0    | 4.5   | 33.3                      | 0    | 0     | 0                          | 2.6  | 0     | 0                         | 50   | 8.2   | 2          |

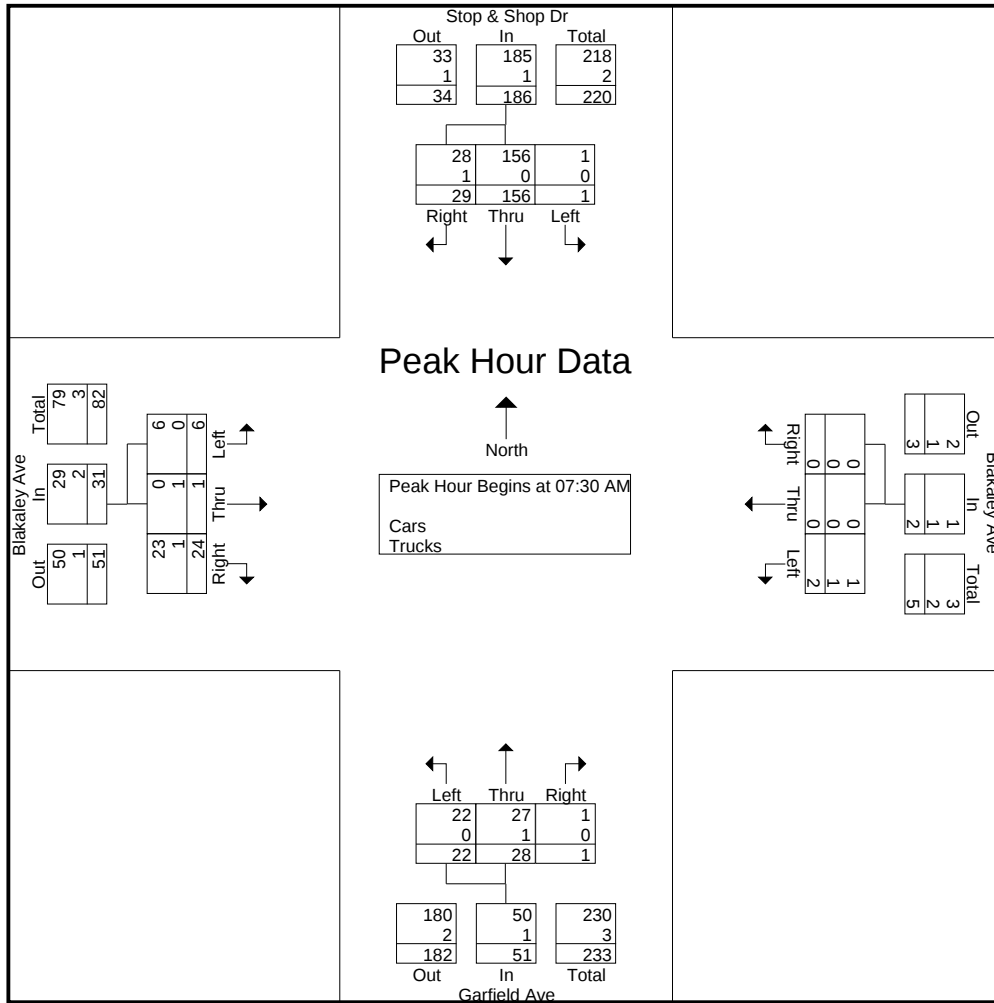
|                                                            | Stop & Shop Dr<br>From North |      |       |            | Blakaley Ave<br>From East |      |       |            | Garfield Ave<br>From South |      |       |            | Blakaley Ave<br>From West |      |       |            |            |
|------------------------------------------------------------|------------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|------------|
| Start Time                                                 | Left                         | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                              |      |       |            |                           |      |       |            |                            |      |       |            |                           |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                              |      |       |            |                           |      |       |            |                            |      |       |            |                           |      |       |            |            |
| 07:30 AM                                                   | 0                            | 42   | 12    | 54         | 0                         | 0    | 0     | 0          | 7                          | 7    | 0     | 14         | 3                         | 0    | 8     | 11         | 79         |
| 07:45 AM                                                   | 0                            | 40   | 8     | 48         | 0                         | 0    | 0     | 0          | 5                          | 9    | 1     | 15         | 2                         | 0    | 6     | 8          | 71         |
| 08:00 AM                                                   | 0                            | 36   | 6     | 42         | 0                         | 0    | 0     | 0          | 1                          | 5    | 0     | 6          | 1                         | 0    | 4     | 5          | 53         |
| 08:15 AM                                                   | 1                            | 38   | 3     | 42         | 2                         | 0    | 0     | 2          | 9                          | 7    | 0     | 16         | 0                         | 1    | 6     | 7          | 67         |
| Total Volume                                               | 1                            | 156  | 29    | 186        | 2                         | 0    | 0     | 2          | 22                         | 28   | 1     | 51         | 6                         | 1    | 24    | 31         | 270        |
| % App. Total                                               | 0.5                          | 83.9 | 15.6  |            | 100                       | 0    | 0     |            | 43.1                       | 54.9 | 2     |            | 19.4                      | 3.2  | 77.4  |            |            |
| PHF                                                        | .250                         | .929 | .604  | .861       | .250                      | .000 | .000  | .250       | .611                       | .778 | .250  | .797       | .500                      | .250 | .750  | .705       | .854       |
| Cars                                                       | 1                            | 156  | 28    | 185        | 1                         | 0    | 0     | 1          | 22                         | 27   | 1     | 50         | 6                         | 0    | 23    | 29         | 265        |
| % Cars                                                     | 100                          | 100  | 96.6  | 99.5       | 50.0                      | 0    | 0     | 50.0       | 100                        | 96.4 | 100   | 98.0       | 100                       | 0    | 95.8  | 93.5       | 98.1       |
| Trucks                                                     | 0                            | 0    | 1     | 1          | 1                         | 0    | 0     | 1          | 0                          | 1    | 0     | 1          | 0                         | 1    | 1     | 2          | 5          |
| % Trucks                                                   | 0                            | 0    | 3.4   | 0.5        | 50.0                      | 0    | 0     | 50.0       | 0                          | 3.6  | 0     | 2.0        | 0                         | 100  | 4.2   | 6.5        | 1.9        |

# Accurate Counts

978-664-2565

N/S Street : Stop & Shop / Garfield Av  
 E/W Street : Blakeley Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109001  
 Site Code : 12109001  
 Start Date : 12/11/2012  
 Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 07:00 AM |      |      |      | 08:00 AM |      |      |      | 07:30 AM |      |      |      | 07:00 AM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 34   | 7    | 42   | 0        | 0    | 0    | 0    | 7        | 7    | 0    | 14   | 4        | 0    | 6    | 10   |
| +15 mins.    | 0        | 39   | 9    | 48   | 2        | 0    | 0    | 2    | 5        | 9    | 1    | 15   | 2        | 0    | 6    | 8    |
| +30 mins.    | 0        | 42   | 12   | 54   | 0        | 0    | 0    | 0    | 1        | 5    | 0    | 6    | 3        | 0    | 8    | 11   |
| +45 mins.    | 0        | 40   | 8    | 48   | 1        | 0    | 0    | 1    | 9        | 7    | 0    | 16   | 2        | 0    | 6    | 8    |
| Total Volume | 1        | 155  | 36   | 192  | 3        | 0    | 0    | 3    | 22       | 28   | 1    | 51   | 11       | 0    | 26   | 37   |
| % App. Total | 0.5      | 80.7 | 18.8 |      | 100      | 0    | 0    |      | 43.1     | 54.9 | 2    |      | 29.7     | 0    | 70.3 |      |
| PHF          | .250     | .923 | .750 | .889 | .375     | .000 | .000 | .375 | .611     | .778 | .250 | .797 | .688     | .000 | .813 | .841 |
| Cars         | 1        | 155  | 35   | 191  | 2        | 0    | 0    | 2    | 22       | 27   | 1    | 50   | 11       | 0    | 26   | 37   |
| % Cars       | 100      | 100  | 97.2 | 99.5 | 66.7     | 0    | 0    | 66.7 | 100      | 96.4 | 100  | 98   | 100      | 0    | 100  | 100  |
| Trucks       | 0        | 0    | 1    | 1    | 1        | 0    | 0    | 1    | 0        | 1    | 0    | 1    | 0        | 0    | 0    | 0    |
| % Trucks     | 0        | 0    | 2.8  | 0.5  | 33.3     | 0    | 0    | 33.3 | 0        | 3.6  | 0    | 2    | 0        | 0    | 0    | 0    |

# Accurate Counts

978-664-2565

N/S Street : Stop & Shop / Garfield Av  
 E/W Street : Blakeley Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109001  
 Site Code : 12109001  
 Start Date : 12/11/2012  
 Page No : 1

## Groups Printed- Cars

|             | Stop & Shop Dr<br>From North |      |       | Blakaley Ave<br>From East |      |       | Garfield Ave<br>From South |      |       | Blakaley Ave<br>From West |      |       |            |
|-------------|------------------------------|------|-------|---------------------------|------|-------|----------------------------|------|-------|---------------------------|------|-------|------------|
| Start Time  | Left                         | Thru | Right | Left                      | Thru | Right | Left                       | Thru | Right | Left                      | Thru | Right | Int. Total |
| 04:00 PM    | 0                            | 29   | 10    | 0                         | 0    | 0     | 4                          | 24   | 0     | 3                         | 0    | 6     | 76         |
| 04:15 PM    | 0                            | 37   | 14    | 0                         | 0    | 0     | 1                          | 17   | 0     | 1                         | 0    | 3     | 73         |
| 04:30 PM    | 0                            | 42   | 18    | 0                         | 0    | 0     | 2                          | 23   | 0     | 0                         | 0    | 9     | 94         |
| 04:45 PM    | 0                            | 27   | 15    | 0                         | 0    | 1     | 7                          | 10   | 0     | 5                         | 0    | 7     | 72         |
| Total       | 0                            | 135  | 57    | 0                         | 0    | 1     | 14                         | 74   | 0     | 9                         | 0    | 25    | 315        |
| 05:00 PM    | 1                            | 37   | 13    | 1                         | 1    | 0     | 1                          | 22   | 0     | 5                         | 0    | 9     | 90         |
| 05:15 PM    | 0                            | 38   | 19    | 0                         | 0    | 0     | 8                          | 23   | 0     | 1                         | 0    | 7     | 96         |
| 05:30 PM    | 0                            | 40   | 17    | 0                         | 0    | 0     | 2                          | 26   | 0     | 1                         | 0    | 3     | 89         |
| 05:45 PM    | 0                            | 34   | 27    | 1                         | 0    | 0     | 5                          | 21   | 1     | 4                         | 0    | 5     | 98         |
| Total       | 1                            | 149  | 76    | 2                         | 1    | 0     | 16                         | 92   | 1     | 11                        | 0    | 24    | 373        |
| Grand Total | 1                            | 284  | 133   | 2                         | 1    | 1     | 30                         | 166  | 1     | 20                        | 0    | 49    | 688        |
| Apprch %    | 0.2                          | 67.9 | 31.8  | 50                        | 25   | 25    | 15.2                       | 84.3 | 0.5   | 29                        | 0    | 71    |            |
| Total %     | 0.1                          | 41.3 | 19.3  | 0.3                       | 0.1  | 0.1   | 4.4                        | 24.1 | 0.1   | 2.9                       | 0    | 7.1   |            |

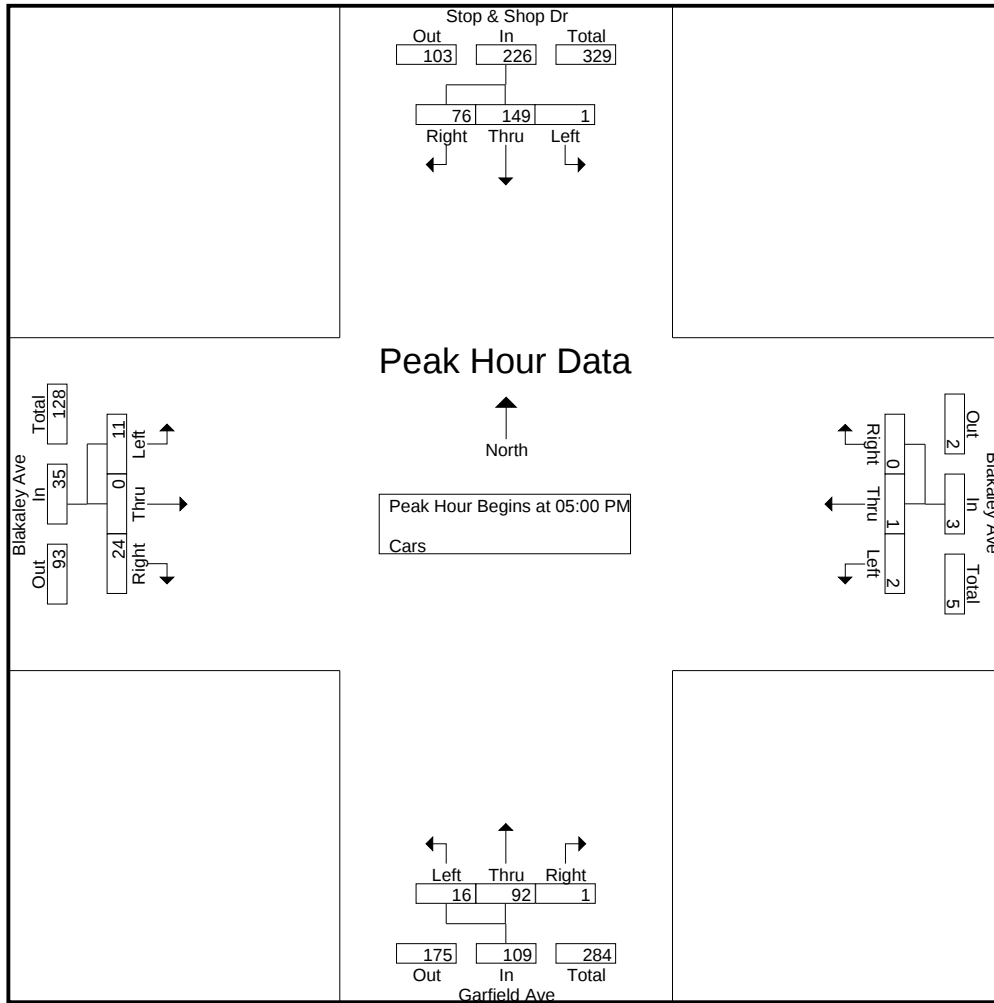
|                                                            | Stop & Shop Dr<br>From North |      |       |            | Blakaley Ave<br>From East |      |       |            | Garfield Ave<br>From South |      |       |            | Blakaley Ave<br>From West |      |       |            |            |
|------------------------------------------------------------|------------------------------|------|-------|------------|---------------------------|------|-------|------------|----------------------------|------|-------|------------|---------------------------|------|-------|------------|------------|
| Start Time                                                 | Left                         | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                       | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                              |      |       |            |                           |      |       |            |                            |      |       |            |                           |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 05:00 PM       |                              |      |       |            |                           |      |       |            |                            |      |       |            |                           |      |       |            |            |
| 05:00 PM                                                   | 1                            | 37   | 13    | 51         | 1                         | 1    | 0     | 2          | 1                          | 22   | 0     | 23         | 5                         | 0    | 9     | 14         | 90         |
| 05:15 PM                                                   | 0                            | 38   | 19    | 57         | 0                         | 0    | 0     | 0          | 8                          | 23   | 0     | 31         | 1                         | 0    | 7     | 8          | 96         |
| 05:30 PM                                                   | 0                            | 40   | 17    | 57         | 0                         | 0    | 0     | 0          | 2                          | 26   | 0     | 28         | 1                         | 0    | 3     | 4          | 89         |
| 05:45 PM                                                   | 0                            | 34   | 27    | 61         | 1                         | 0    | 0     | 1          | 5                          | 21   | 1     | 27         | 4                         | 0    | 5     | 9          | 98         |
| Total Volume                                               | 1                            | 149  | 76    | 226        | 2                         | 1    | 0     | 3          | 16                         | 92   | 1     | 109        | 11                        | 0    | 24    | 35         | 373        |
| % App. Total                                               | 0.4                          | 65.9 | 33.6  |            | 66.7                      | 33.3 | 0     |            | 14.7                       | 84.4 | 0.9   |            | 31.4                      | 0    | 68.6  |            |            |
| PHF                                                        | .250                         | .931 | .704  | .926       | .500                      | .250 | .000  | .375       | .500                       | .885 | .250  | .879       | .550                      | .000 | .667  | .625       | .952       |

# Accurate Counts

978-664-2565

N/S Street : Stop & Shop / Garfield Av  
 E/W Street : Blakeley Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109001  
 Site Code : 12109001  
 Start Date : 12/11/2012  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 05:00 PM |      |      |      | 04:15 PM |      |      |      | 05:00 PM |      |      |      | 04:30 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 37   | 13   | 51   | 0        | 0    | 0    | 0    | 1        | 22   | 0    | 23   | 0        | 0    | 9    | 9    |
| +15 mins.    | 0        | 38   | 19   | 57   | 0        | 0    | 0    | 0    | 8        | 23   | 0    | 31   | 5        | 0    | 7    | 12   |
| +30 mins.    | 0        | 40   | 17   | 57   | 0        | 0    | 1    | 1    | 2        | 26   | 0    | 28   | 5        | 0    | 9    | 14   |
| +45 mins.    | 0        | 34   | 27   | 61   | 1        | 1    | 0    | 2    | 5        | 21   | 1    | 27   | 1        | 0    | 7    | 8    |
| Total Volume | 1        | 149  | 76   | 226  | 1        | 1    | 1    | 3    | 16       | 92   | 1    | 109  | 11       | 0    | 32   | 43   |
| % App. Total | 0.4      | 65.9 | 33.6 |      | 33.3     | 33.3 | 33.3 |      | 14.7     | 84.4 | 0.9  |      | 25.6     | 0    | 74.4 |      |
| PHF          | .250     | .931 | .704 | .926 | .250     | .250 | .250 | .375 | .500     | .885 | .250 | .879 | .550     | .000 | .889 | .768 |

# Accurate Counts

978-664-2565

N/S Street : Stop & Spop Driveway  
 E/W Street: Mystic Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109002  
 Site Code : 12109002  
 Start Date : 12/11/2012  
 Page No : 1

## Groups Printed- Cars - Trucks

|             | Mystic Ave<br>From East |      | Stop & Shop Dr<br>From South |       | Mystic Ave<br>From West |       |            |
|-------------|-------------------------|------|------------------------------|-------|-------------------------|-------|------------|
| Start Time  | Left                    | Thru | Left                         | Right | Thru                    | Right | Int. Total |
| 07:00 AM    | 0                       | 0    | 0                            | 6     | 132                     | 50    | 188        |
| 07:15 AM    | 0                       | 0    | 0                            | 4     | 120                     | 51    | 175        |
| 07:30 AM    | 0                       | 0    | 0                            | 14    | 142                     | 49    | 205        |
| 07:45 AM    | 0                       | 0    | 0                            | 6     | 136                     | 36    | 178        |
| Total       | 0                       | 0    | 0                            | 30    | 530                     | 186   | 746        |
| 08:00 AM    | 0                       | 0    | 0                            | 6     | 112                     | 48    | 166        |
| 08:15 AM    | 0                       | 0    | 0                            | 4     | 118                     | 50    | 172        |
| 08:30 AM    | 0                       | 0    | 0                            | 7     | 114                     | 46    | 167        |
| 08:45 AM    | 0                       | 0    | 0                            | 6     | 93                      | 40    | 139        |
| Total       | 0                       | 0    | 0                            | 23    | 437                     | 184   | 644        |
| Grand Total | 0                       | 0    | 0                            | 53    | 967                     | 370   | 1390       |
| Apprch %    | 0                       | 0    | 0                            | 100   | 72.3                    | 27.7  |            |
| Total %     | 0                       | 0    | 0                            | 3.8   | 69.6                    | 26.6  |            |
| Cars        | 0                       | 0    | 0                            | 51    | 933                     | 361   | 1345       |
| % Cars      | 0                       | 0    | 0                            | 96.2  | 96.5                    | 97.6  | 96.8       |
| Trucks      | 0                       | 0    | 0                            | 2     | 34                      | 9     | 45         |
| % Trucks    | 0                       | 0    | 0                            | 3.8   | 3.5                     | 2.4   | 3.2        |

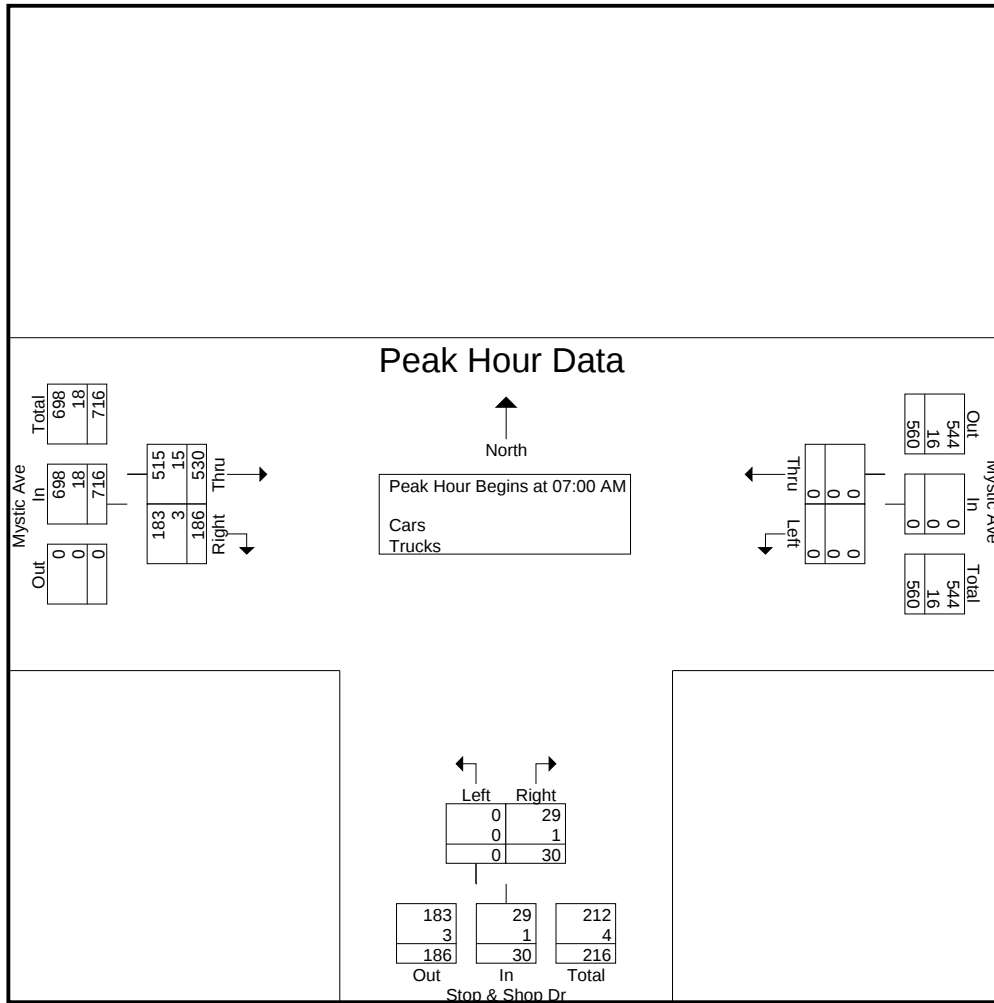
|                                                            | Mystic Ave<br>From East |      |            | Stop & Shop Dr<br>From South |       |            | Mystic Ave<br>From West |       |            |            |
|------------------------------------------------------------|-------------------------|------|------------|------------------------------|-------|------------|-------------------------|-------|------------|------------|
| Start Time                                                 | Left                    | Thru | App. Total | Left                         | Right | App. Total | Thru                    | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                         |      |            |                              |       |            |                         |       |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM       |                         |      |            |                              |       |            |                         |       |            |            |
| 07:00 AM                                                   | 0                       | 0    | 0          | 0                            | 6     | 6          | 132                     | 50    | 182        | 188        |
| 07:15 AM                                                   | 0                       | 0    | 0          | 0                            | 4     | 4          | 120                     | 51    | 171        | 175        |
| 07:30 AM                                                   | 0                       | 0    | 0          | 0                            | 14    | 14         | 142                     | 49    | 191        | 205        |
| 07:45 AM                                                   | 0                       | 0    | 0          | 0                            | 6     | 6          | 136                     | 36    | 172        | 178        |
| Total Volume                                               | 0                       | 0    | 0          | 0                            | 30    | 30         | 530                     | 186   | 716        | 746        |
| % App. Total                                               | 0                       | 0    |            | 0                            | 100   |            | 74                      | 26    |            |            |
| PHF                                                        | .000                    | .000 | .000       | .000                         | .536  | .536       | .933                    | .912  | .937       | .910       |
| Cars                                                       | 0                       | 0    | 0          | 0                            | 29    | 29         | 515                     | 183   | 698        | 727        |
| % Cars                                                     | 0                       | 0    | 0          | 0                            | 96.7  | 96.7       | 97.2                    | 98.4  | 97.5       | 97.5       |
| Trucks                                                     | 0                       | 0    | 0          | 0                            | 1     | 1          | 15                      | 3     | 18         | 19         |
| % Trucks                                                   | 0                       | 0    | 0          | 0                            | 3.3   | 3.3        | 2.8                     | 1.6   | 2.5        | 2.5        |

# Accurate Counts

978-664-2565

N/S Street : Stop & Spop Driveway  
E/W Street: Mystic Avenue  
City/State : Somerville, MA  
Weather : Cloudy

File Name : 12109002  
Site Code : 12109002  
Start Date : 12/11/2012  
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

|              | 07:00 AM |      |      | 07:00 AM |      |      | 07:00 AM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 6    | 6    | 132      | 50   | 182  |
| +15 mins.    | 0        | 0    | 0    | 0        | 4    | 4    | 120      | 51   | 171  |
| +30 mins.    | 0        | 0    | 0    | 0        | 14   | 14   | 142      | 49   | 191  |
| +45 mins.    | 0        | 0    | 0    | 0        | 6    | 6    | 136      | 36   | 172  |
| Total Volume | 0        | 0    | 0    | 0        | 30   | 30   | 530      | 186  | 716  |
| % App. Total | 0        | 0    | 0    | 0        | 100  |      | 74       | 26   |      |
| PHF          | .000     | .000 | .000 | .000     | .536 | .536 | .933     | .912 | .937 |
| Cars         | 0        | 0    | 0    | 0        | 29   | 29   | 515      | 183  | 698  |
| % Cars       | 0        | 0    | 0    | 0        | 96.7 | 96.7 | 97.2     | 98.4 | 97.5 |
| Trucks       | 0        | 0    | 0    | 0        | 1    | 1    | 15       | 3    | 18   |
| % Trucks     | 0        | 0    | 0    | 0        | 3.3  | 3.3  | 2.8      | 1.6  | 2.5  |

# Accurate Counts

978-664-2565

N/S Street : Stop & Spop Driveway  
 E/W Street: Mystic Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109002  
 Site Code : 12109002  
 Start Date : 12/11/2012  
 Page No : 1

## Groups Printed- Cars - Trucks

|             | Mystic Ave<br>From East |      | Stop & Shop Dr<br>From South |       | Mystic Ave<br>From West |       |            |
|-------------|-------------------------|------|------------------------------|-------|-------------------------|-------|------------|
| Start Time  | Left                    | Thru | Left                         | Right | Thru                    | Right | Int. Total |
| 04:00 PM    | 0                       | 0    | 0                            | 13    | 55                      | 50    | 118        |
| 04:15 PM    | 0                       | 0    | 0                            | 21    | 64                      | 51    | 136        |
| 04:30 PM    | 0                       | 0    | 1                            | 12    | 62                      | 53    | 128        |
| 04:45 PM    | 0                       | 0    | 0                            | 16    | 61                      | 46    | 123        |
| Total       | 0                       | 0    | 1                            | 62    | 242                     | 200   | 505        |
| 05:00 PM    | 0                       | 0    | 0                            | 21    | 72                      | 46    | 139        |
| 05:15 PM    | 0                       | 0    | 0                            | 14    | 71                      | 67    | 152        |
| 05:30 PM    | 0                       | 1    | 0                            | 13    | 56                      | 53    | 123        |
| 05:45 PM    | 0                       | 0    | 0                            | 18    | 43                      | 51    | 112        |
| Total       | 0                       | 1    | 0                            | 66    | 242                     | 217   | 526        |
| Grand Total | 0                       | 1    | 1                            | 128   | 484                     | 417   | 1031       |
| Apprch %    | 0                       | 100  | 0.8                          | 99.2  | 53.7                    | 46.3  |            |
| Total %     | 0                       | 0.1  | 0.1                          | 12.4  | 46.9                    | 40.4  |            |
| Cars        | 0                       | 1    | 1                            | 127   | 478                     | 415   | 1022       |
| % Cars      | 0                       | 100  | 100                          | 99.2  | 98.8                    | 99.5  | 99.1       |
| Trucks      | 0                       | 0    | 0                            | 1     | 6                       | 2     | 9          |
| % Trucks    | 0                       | 0    | 0                            | 0.8   | 1.2                     | 0.5   | 0.9        |

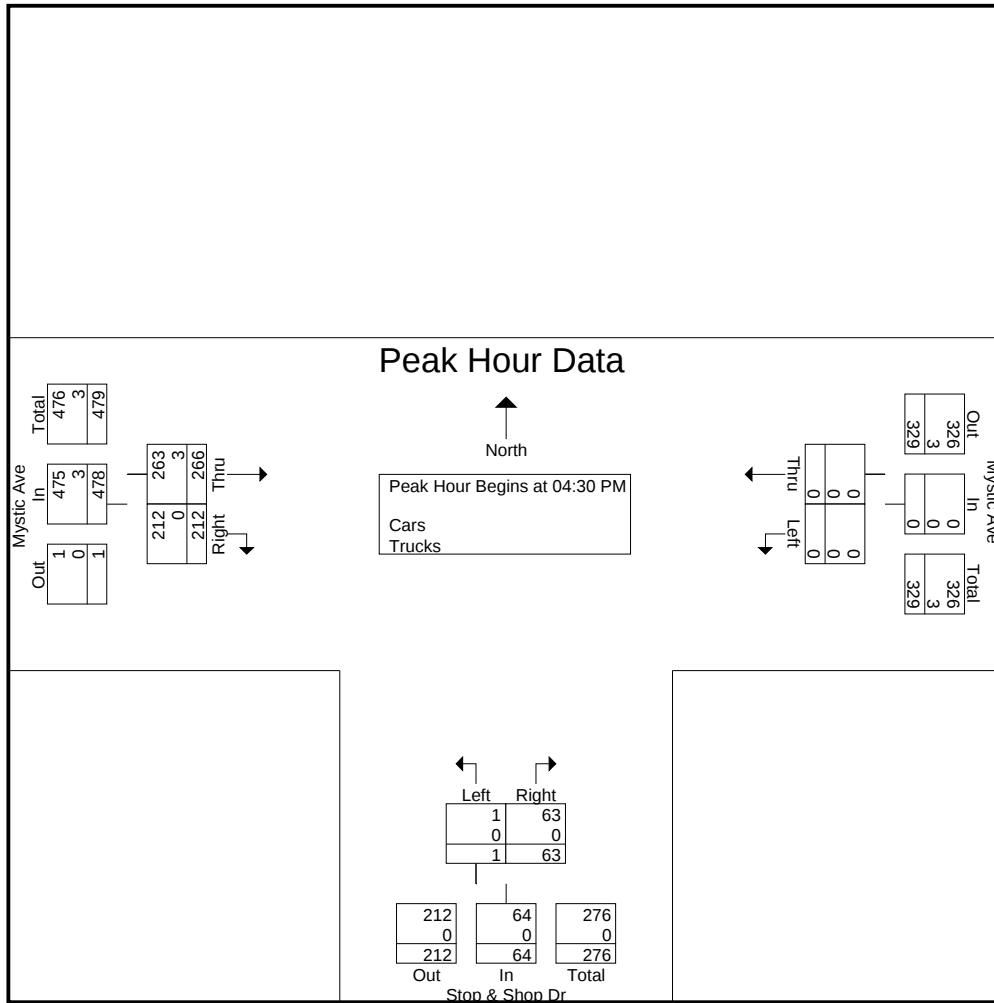
|                                                            | Mystic Ave<br>From East |      |            | Stop & Shop Dr<br>From South |       |            | Mystic Ave<br>From West |       |            |            |
|------------------------------------------------------------|-------------------------|------|------------|------------------------------|-------|------------|-------------------------|-------|------------|------------|
| Start Time                                                 | Left                    | Thru | App. Total | Left                         | Right | App. Total | Thru                    | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |            |                              |       |            |                         |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                         |      |            |                              |       |            |                         |       |            |            |
| 04:30 PM                                                   | 0                       | 0    | 0          | 1                            | 12    | 13         | 62                      | 53    | 115        | 128        |
| 04:45 PM                                                   | 0                       | 0    | 0          | 0                            | 16    | 16         | 61                      | 46    | 107        | 123        |
| 05:00 PM                                                   | 0                       | 0    | 0          | 0                            | 21    | 21         | 72                      | 46    | 118        | 139        |
| 05:15 PM                                                   | 0                       | 0    | 0          | 0                            | 14    | 14         | 71                      | 67    | 138        | 152        |
| Total Volume                                               | 0                       | 0    | 0          | 1                            | 63    | 64         | 266                     | 212   | 478        | 542        |
| % App. Total                                               | 0                       | 0    |            | 1.6                          | 98.4  |            | 55.6                    | 44.4  |            |            |
| PHF                                                        | .000                    | .000 | .000       | .250                         | .750  | .762       | .924                    | .791  | .866       | .891       |
| Cars                                                       | 0                       | 0    | 0          | 1                            | 63    | 64         | 263                     | 212   | 475        | 539        |
| % Cars                                                     | 0                       | 0    | 0          | 100                          | 100   | 100        | 98.9                    | 100   | 99.4       | 99.4       |
| Trucks                                                     | 0                       | 0    | 0          | 0                            | 0     | 0          | 3                       | 0     | 3          | 3          |
| % Trucks                                                   | 0                       | 0    | 0          | 0                            | 0     | 0          | 1.1                     | 0     | 0.6        | 0.6        |

# Accurate Counts

978-664-2565

N/S Street : Stop & Spop Driveway  
 E/W Street: Mystic Avenue  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109002  
 Site Code : 12109002  
 Start Date : 12/11/2012  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:45 PM |      |      | 04:15 PM |      |      | 04:30 PM |      |      |
|--------------|----------|------|------|----------|------|------|----------|------|------|
| +0 mins.     | 0        | 0    | 0    | 0        | 21   | 21   | 62       | 53   | 115  |
| +15 mins.    | 0        | 0    | 0    | 1        | 12   | 13   | 61       | 46   | 107  |
| +30 mins.    | 0        | 0    | 0    | 0        | 16   | 16   | 72       | 46   | 118  |
| +45 mins.    | 0        | 1    | 1    | 0        | 21   | 21   | 71       | 67   | 138  |
| Total Volume | 0        | 1    | 1    | 1        | 70   | 71   | 266      | 212  | 478  |
| % App. Total | 0        | 100  |      | 1.4      | 98.6 |      | 55.6     | 44.4 |      |
| PHF          | .000     | .250 | .250 | .250     | .833 | .845 | .924     | .791 | .866 |
| Cars         | 0        | 1    | 1    | 1        | 69   | 70   | 263      | 212  | 475  |
| % Cars       | 0        | 100  | 100  | 100      | 98.6 | 98.6 | 98.9     | 100  | 99.4 |
| Trucks       | 0        | 0    | 0    | 0        | 1    | 1    | 3        | 0    | 3    |
| % Trucks     | 0        | 0    | 0    | 0        | 1.4  | 1.4  | 1.1      | 0    | 0.6  |

**978-664-2565**

File Name : 12109003  
Site Code : 12109003  
Start Date : 12/11/2012  
Page No : 1

### Groups Printed- Cars - Trucks

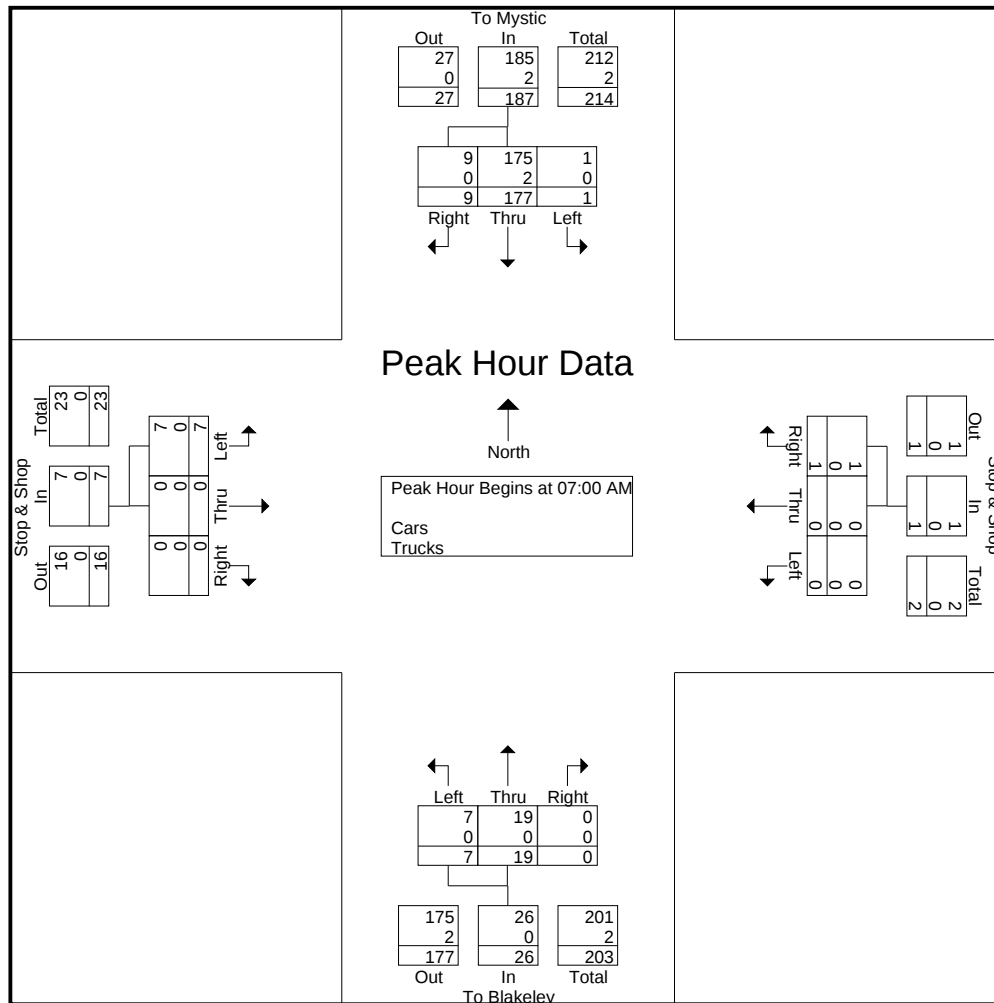
|             | To Mystic<br>From North |      |       | Stop & Shop<br>From East |      |       | To Blakeley<br>From South |      |       | Stop & Shop<br>From West |      |       |            |
|-------------|-------------------------|------|-------|--------------------------|------|-------|---------------------------|------|-------|--------------------------|------|-------|------------|
| Start Time  | Left                    | Thru | Right | Left                     | Thru | Right | Left                      | Thru | Right | Left                     | Thru | Right | Int. Total |
| 07:00 AM    | 0                       | 42   | 3     | 0                        | 0    | 1     | 0                         | 2    | 0     | 2                        | 0    | 0     | 50         |
| 07:15 AM    | 0                       | 49   | 3     | 0                        | 0    | 0     | 1                         | 4    | 0     | 0                        | 0    | 0     | 57         |
| 07:30 AM    | 1                       | 47   | 3     | 0                        | 0    | 0     | 3                         | 8    | 0     | 4                        | 0    | 0     | 66         |
| 07:45 AM    | 0                       | 39   | 0     | 0                        | 0    | 0     | 3                         | 5    | 0     | 1                        | 0    | 0     | 48         |
| Total       | 1                       | 177  | 9     | 0                        | 0    | 1     | 7                         | 19   | 0     | 7                        | 0    | 0     | 221        |
| 08:00 AM    | 1                       | 36   | 6     | 0                        | 0    | 0     | 0                         | 4    | 0     | 0                        | 0    | 2     | 49         |
| 08:15 AM    | 0                       | 42   | 3     | 0                        | 0    | 0     | 0                         | 4    | 0     | 0                        | 0    | 0     | 49         |
| 08:30 AM    | 0                       | 48   | 5     | 0                        | 0    | 0     | 1                         | 5    | 0     | 0                        | 0    | 2     | 61         |
| 08:45 AM    | 1                       | 18   | 1     | 0                        | 0    | 0     | 1                         | 0    | 0     | 3                        | 0    | 2     | 26         |
| Total       | 2                       | 144  | 15    | 0                        | 0    | 0     | 2                         | 13   | 0     | 3                        | 0    | 6     | 185        |
| Grand Total | 3                       | 321  | 24    | 0                        | 0    | 1     | 9                         | 32   | 0     | 10                       | 0    | 6     | 406        |
| Apprch %    | 0.9                     | 92.2 | 6.9   | 0                        | 0    | 100   | 22                        | 78   | 0     | 62.5                     | 0    | 37.5  |            |
| Total %     | 0.7                     | 79.1 | 5.9   | 0                        | 0    | 0.2   | 2.2                       | 7.9  | 0     | 2.5                      | 0    | 1.5   |            |
| Cars        | 3                       | 317  | 24    | 0                        | 0    | 1     | 9                         | 31   | 0     | 10                       | 0    | 6     | 401        |
| % Cars      | 100                     | 98.8 | 100   | 0                        | 0    | 100   | 100                       | 96.9 | 0     | 100                      | 0    | 100   | 98.8       |
| Trucks      | 0                       | 4    | 0     | 0                        | 0    | 0     | 0                         | 1    | 0     | 0                        | 0    | 0     | 5          |
| % Trucks    | 0                       | 1.2  | 0     | 0                        | 0    | 0     | 0                         | 3.1  | 0     | 0                        | 0    | 0     | 1.2        |

[illegible]

**Accurate Counts**  
978-664-2565

N/S Street : Internal to/from Mystic  
E/W Street : Internal to/from S&S  
City/State : Somerville, MA  
Weather : Cloudy

File Name : 12109003  
Site Code : 12109003  
Start Date : 12/11/2012  
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1  
Peak Hour for Each Approach Begins at:

[illegible]

# Accurate Counts

978-664-2565

N/S Street : Internal to/from Mystic  
 E/W Street : Internal to/from S&S  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109003  
 Site Code : 12109003  
 Start Date : 12/11/2012  
 Page No : 1

## Groups Printed- Cars

|             | To Mystic<br>From North |      |       | Stop & Shop<br>From East |      |       | To Blakeley<br>From South |      |       | Stop & Shop<br>From West |      |       |            |
|-------------|-------------------------|------|-------|--------------------------|------|-------|---------------------------|------|-------|--------------------------|------|-------|------------|
| Start Time  | Left                    | Thru | Right | Left                     | Thru | Right | Left                      | Thru | Right | Left                     | Thru | Right | Int. Total |
| 04:00 PM    | 0                       | 36   | 5     | 0                        | 0    | 0     | 3                         | 13   | 0     | 4                        | 0    | 1     | 62         |
| 04:15 PM    | 0                       | 36   | 7     | 0                        | 0    | 1     | 1                         | 18   | 0     | 1                        | 0    | 5     | 69         |
| 04:30 PM    | 1                       | 48   | 2     | 0                        | 0    | 0     | 4                         | 5    | 0     | 2                        | 0    | 4     | 66         |
| 04:45 PM    | 0                       | 36   | 2     | 0                        | 0    | 0     | 2                         | 13   | 0     | 1                        | 0    | 4     | 58         |
| Total       | 1                       | 156  | 16    | 0                        | 0    | 1     | 10                        | 49   | 0     | 8                        | 0    | 14    | 255        |
| 05:00 PM    | 1                       | 38   | 6     | 0                        | 0    | 1     | 2                         | 17   | 0     | 3                        | 0    | 6     | 74         |
| 05:15 PM    | 1                       | 51   | 5     | 1                        | 0    | 0     | 4                         | 16   | 0     | 2                        | 0    | 3     | 83         |
| 05:30 PM    | 0                       | 44   | 5     | 2                        | 0    | 0     | 1                         | 14   | 0     | 1                        | 0    | 5     | 72         |
| 05:45 PM    | 0                       | 37   | 2     | 1                        | 1    | 0     | 0                         | 11   | 0     | 2                        | 0    | 4     | 58         |
| Total       | 2                       | 170  | 18    | 4                        | 1    | 1     | 7                         | 58   | 0     | 8                        | 0    | 18    | 287        |
| Grand Total | 3                       | 326  | 34    | 4                        | 1    | 2     | 17                        | 107  | 0     | 16                       | 0    | 32    | 542        |
| Apprch %    | 0.8                     | 89.8 | 9.4   | 57.1                     | 14.3 | 28.6  | 13.7                      | 86.3 | 0     | 33.3                     | 0    | 66.7  |            |
| Total %     | 0.6                     | 60.1 | 6.3   | 0.7                      | 0.2  | 0.4   | 3.1                       | 19.7 | 0     | 3                        | 0    | 5.9   |            |

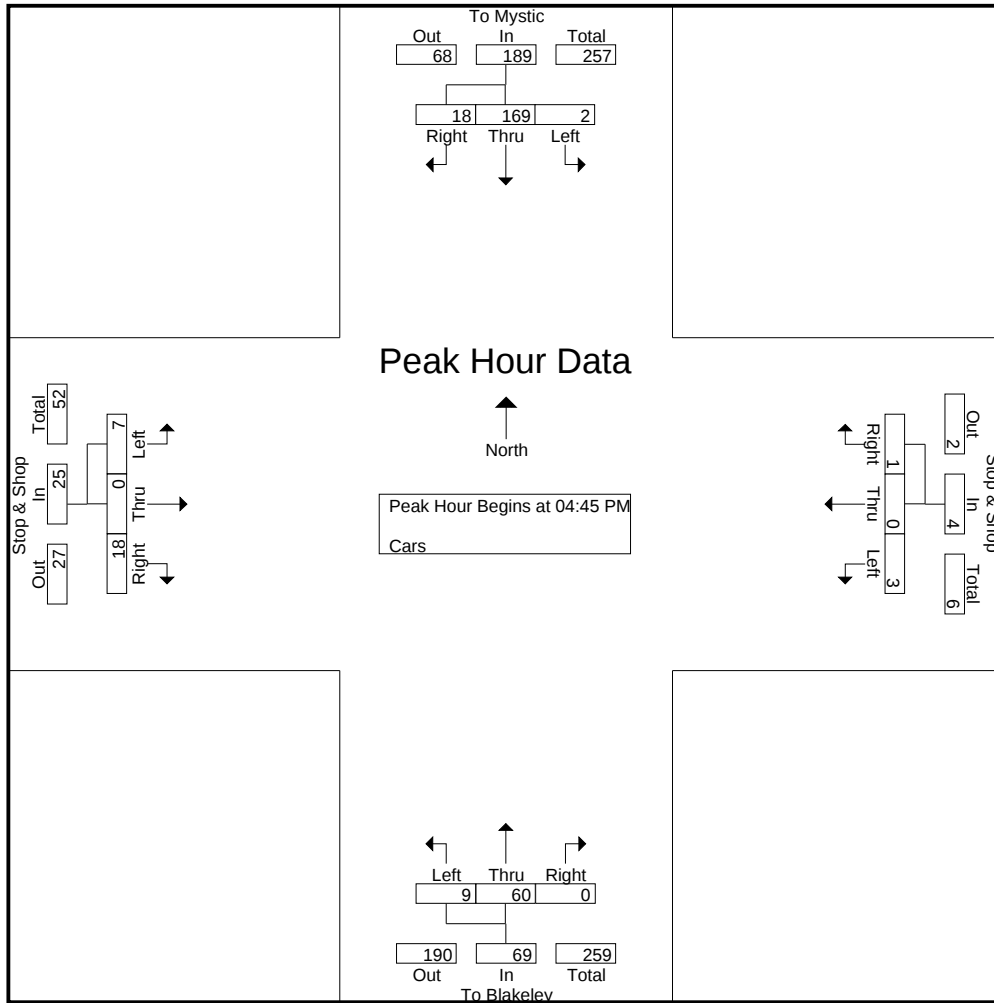
|                                                            | To Mystic<br>From North |      |       |            | Stop & Shop<br>From East |      |       |            | To Blakeley<br>From South |      |       |            | Stop & Shop<br>From West |      |       |            |            |
|------------------------------------------------------------|-------------------------|------|-------|------------|--------------------------|------|-------|------------|---------------------------|------|-------|------------|--------------------------|------|-------|------------|------------|
| Start Time                                                 | Left                    | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Left                      | Thru | Right | App. Total | Left                     | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                         |      |       |            |                          |      |       |            |                           |      |       |            |                          |      |       |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                         |      |       |            |                          |      |       |            |                           |      |       |            |                          |      |       |            |            |
| 04:45 PM                                                   | 0                       | 36   | 2     | 38         | 0                        | 0    | 0     | 0          | 2                         | 13   | 0     | 15         | 1                        | 0    | 4     | 5          | 58         |
| 05:00 PM                                                   | 1                       | 38   | 6     | 45         | 0                        | 0    | 1     | 1          | 2                         | 17   | 0     | 19         | 3                        | 0    | 6     | 9          | 74         |
| 05:15 PM                                                   | 1                       | 51   | 5     | 57         | 1                        | 0    | 0     | 1          | 4                         | 16   | 0     | 20         | 2                        | 0    | 3     | 5          | 83         |
| 05:30 PM                                                   | 0                       | 44   | 5     | 49         | 2                        | 0    | 0     | 2          | 1                         | 14   | 0     | 15         | 1                        | 0    | 5     | 6          | 72         |
| Total Volume                                               | 2                       | 169  | 18    | 189        | 3                        | 0    | 1     | 4          | 9                         | 60   | 0     | 69         | 7                        | 0    | 18    | 25         | 287        |
| % App. Total                                               | 1.1                     | 89.4 | 9.5   |            | 75                       | 0    | 25    |            | 13                        | 87   | 0     |            | 28                       | 0    | 72    |            |            |
| PHF                                                        | .500                    | .828 | .750  | .829       | .375                     | .000 | .250  | .500       | .563                      | .882 | .000  | .863       | .583                     | .000 | .750  | .694       | .864       |

# Accurate Counts

978-664-2565

N/S Street : Internal to/from Mystic  
 E/W Street : Internal to/from S&S  
 City/State : Somerville, MA  
 Weather : Cloudy

File Name : 12109003  
 Site Code : 12109003  
 Start Date : 12/11/2012  
 Page No : 2



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1  
 Peak Hour for Each Approach Begins at:

|              | 04:30 PM |      |      |      | 05:00 PM |      |      |      | 04:45 PM |      |      |      | 04:15 PM |      |      |      |
|--------------|----------|------|------|------|----------|------|------|------|----------|------|------|------|----------|------|------|------|
| +0 mins.     | 1        | 48   | 2    | 51   | 0        | 0    | 1    | 1    | 2        | 13   | 0    | 15   | 1        | 0    | 5    | 6    |
| +15 mins.    | 0        | 36   | 2    | 38   | 1        | 0    | 0    | 1    | 2        | 17   | 0    | 19   | 2        | 0    | 4    | 6    |
| +30 mins.    | 1        | 38   | 6    | 45   | 2        | 0    | 0    | 2    | 4        | 16   | 0    | 20   | 1        | 0    | 4    | 5    |
| +45 mins.    | 1        | 51   | 5    | 57   | 1        | 1    | 0    | 2    | 1        | 14   | 0    | 15   | 3        | 0    | 6    | 9    |
| Total Volume | 3        | 173  | 15   | 191  | 4        | 1    | 1    | 6    | 9        | 60   | 0    | 69   | 7        | 0    | 19   | 26   |
| % App. Total | 1.6      | 90.6 | 7.9  |      | 66.7     | 16.7 | 16.7 |      | 13       | 87   | 0    |      | 26.9     | 0    | 73.1 |      |
| PHF          | .750     | .848 | .625 | .838 | .500     | .250 | .250 | .750 | .563     | .882 | .000 | .863 | .583     | .000 | .792 | .722 |

Mystic Ave  
between Garfield Ave and Cross St  
City, State: Somerville, MA  
Client: VHB/ M. Kealey



123149 A VOLUME  
Site Code: 12109

| Start Time | A.M.  | EB   | P.M.   |      | Wed<br>05-Dec-<br>12 |
|------------|-------|------|--------|------|----------------------|
| 12:00      | 4     |      | 72     |      |                      |
| 12:15      | 5     |      | 68     |      |                      |
| 12:30      | 4     |      | 90     |      |                      |
| 12:45      | 4     | 17   | 73     | 303  |                      |
| 01:00      | 2     |      | 70     |      |                      |
| 01:15      | 3     |      | 77     |      |                      |
| 01:30      | 2     |      | 58     |      |                      |
| 01:45      | 0     | 7    | 80     | 285  |                      |
| 02:00      | 1     |      | 82     |      |                      |
| 02:15      | 2     |      | 58     |      |                      |
| 02:30      | 1     |      | 67     |      |                      |
| 02:45      | 1     | 5    | 64     | 271  |                      |
| 03:00      | 1     |      | 66     |      |                      |
| 03:15      | 0     |      | 58     |      |                      |
| 03:30      | 1     |      | 78     |      |                      |
| 03:45      | 0     | 2    | 74     | 276  |                      |
| 04:00      | 6     |      | 55     |      |                      |
| 04:15      | 4     |      | 76     |      |                      |
| 04:30      | 4     |      | 73     |      |                      |
| 04:45      | 8     | 22   | 71     | 275  |                      |
| 05:00      | 9     |      | 75     |      |                      |
| 05:15      | 14    |      | 79     |      |                      |
| 05:30      | 19    |      | 70     |      |                      |
| 05:45      | 20    | 62   | 59     | 283  |                      |
| 06:00      | 33    |      | 69     |      |                      |
| 06:15      | 50    |      | 74     |      |                      |
| 06:30      | 70    |      | 78     |      |                      |
| 06:45      | 136   | 289  | 64     | 285  |                      |
| 07:00      | 134   |      | 54     |      |                      |
| 07:15      | 151   |      | 47     |      |                      |
| 07:30      | 146   |      | 37     |      |                      |
| 07:45      | 150   | 581  | 41     | 179  |                      |
| 08:00      | 156   |      | 47     |      |                      |
| 08:15      | 149   |      | 43     |      |                      |
| 08:30      | 143   |      | 44     |      |                      |
| 08:45      | 142   | 590  | 28     | 162  |                      |
| 09:00      | 104   |      | 27     |      |                      |
| 09:15      | 106   |      | 20     |      |                      |
| 09:30      | 81    |      | 26     |      |                      |
| 09:45      | 76    | 367  | 12     | 85   |                      |
| 10:00      | 84    |      | 16     |      |                      |
| 10:15      | 80    |      | 19     |      |                      |
| 10:30      | 55    |      | 10     |      |                      |
| 10:45      | 74    | 293  | 13     | 58   |                      |
| 11:00      | 56    |      | 8      |      |                      |
| 11:15      | 74    |      | 9      |      |                      |
| 11:30      | 60    |      | 6      |      |                      |
| 11:45      | 65    | 255  | 8      | 31   |                      |
| Total      | 2490  |      | 2493   |      |                      |
| Percent    |       |      | 100.0% | 0.0% | 0.0%                 |
| Day Total  |       | 4983 |        |      |                      |
| Peak       | 07:15 |      | 00:30  |      |                      |
| Vol.       | 603   |      | 310    |      |                      |
| P.H.F.     | 0.966 |      | 0.861  |      |                      |

Mystic Ave  
between Garfield Ave and Cross St  
City, State: Somerville, MA  
Client: VHB/ M. Kealey



PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

123149 A VOLUME  
Site Code: 12109

| Start Time | A.M.  | EB   | P.M.   |      | Thu<br>06-Dec-<br>12 |
|------------|-------|------|--------|------|----------------------|
| 12:00      | 5     |      | 60     |      |                      |
| 12:15      | 6     |      | 78     |      |                      |
| 12:30      | 4     |      | 82     |      |                      |
| 12:45      | 7     | 22   | 78     | 298  |                      |
| 01:00      | 2     |      | 77     |      |                      |
| 01:15      | 3     |      | 64     |      |                      |
| 01:30      | 4     |      | 73     |      |                      |
| 01:45      | 2     | 11   | 62     | 276  |                      |
| 02:00      | 2     |      | 86     |      |                      |
| 02:15      | 1     |      | 70     |      |                      |
| 02:30      | 1     |      | 76     |      |                      |
| 02:45      | 1     | 5    | 68     | 300  |                      |
| 03:00      | 0     |      | 68     |      |                      |
| 03:15      | 0     |      | 72     |      |                      |
| 03:30      | 2     |      | 73     |      |                      |
| 03:45      | 4     | 6    | 91     | 304  |                      |
| 04:00      | 3     |      | 72     |      |                      |
| 04:15      | 4     |      | 90     |      |                      |
| 04:30      | 3     |      | 62     |      |                      |
| 04:45      | 4     | 14   | 88     | 312  |                      |
| 05:00      | 11    |      | 69     |      |                      |
| 05:15      | 12    |      | 104    |      |                      |
| 05:30      | 13    |      | 98     |      |                      |
| 05:45      | 13    | 49   | 98     | 369  |                      |
| 06:00      | 27    |      | 91     |      |                      |
| 06:15      | 52    |      | 89     |      |                      |
| 06:30      | 61    |      | 92     |      |                      |
| 06:45      | 126   | 266  | 54     | 326  |                      |
| 07:00      | 130   |      | 56     |      |                      |
| 07:15      | 143   |      | 44     |      |                      |
| 07:30      | 158   |      | 60     |      |                      |
| 07:45      | 190   | 621  | 51     | 211  |                      |
| 08:00      | 170   |      | 42     |      |                      |
| 08:15      | 146   |      | 32     |      |                      |
| 08:30      | 200   |      | 30     |      |                      |
| 08:45      | 142   | 658  | 30     | 134  |                      |
| 09:00      | 162   |      | 30     |      |                      |
| 09:15      | 135   |      | 21     |      |                      |
| 09:30      | 144   |      | 20     |      |                      |
| 09:45      | 157   | 598  | 21     | 92   |                      |
| 10:00      | 129   |      | 24     |      |                      |
| 10:15      | 86    |      | 20     |      |                      |
| 10:30      | 82    |      | 15     |      |                      |
| 10:45      | 78    | 375  | 13     | 72   |                      |
| 11:00      | 53    |      | 16     |      |                      |
| 11:15      | 69    |      | 12     |      |                      |
| 11:30      | 60    |      | 14     |      |                      |
| 11:45      | 81    | 263  | 6      | 48   |                      |
| Total      | 2888  |      | 2742   |      |                      |
| Percent    |       |      | 100.0% | 0.0% | 0.0%                 |
| Day Total  |       | 5630 |        |      |                      |
| Peak       | 07:45 |      | 05:15  |      |                      |
| Vol.       | 706   |      | 391    |      |                      |
| P.H.F.     | 0.883 |      | 0.940  |      |                      |



PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street East  
E: Pennsylvania Avenue  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 A  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

|                  | Cross Street East<br>From North |      |        | Pennsylvania Avenue<br>From East |      |        | Cross Street East<br>From South |      |        |            |
|------------------|---------------------------------|------|--------|----------------------------------|------|--------|---------------------------------|------|--------|------------|
| Start Time       | Thru                            | Left | U-Turn | Right                            | Left | U-Turn | Right                           | Thru | U-Turn | Int. Total |
| 07:00 AM         | 2                               | 0    | 0      | 0                                | 0    | 0      | 3                               | 1    | 0      | 6          |
| 07:15 AM         | 1                               | 0    | 0      | 0                                | 0    | 0      | 3                               | 0    | 0      | 4          |
| 07:30 AM         | 0                               | 0    | 0      | 0                                | 0    | 0      | 6                               | 1    | 0      | 7          |
| 07:45 AM         | 0                               | 0    | 0      | 0                                | 0    | 0      | 0                               | 0    | 0      | 0          |
| Total            | 3                               | 0    | 0      | 0                                | 0    | 0      | 12                              | 2    | 0      | 17         |
| 08:00 AM         | 1                               | 0    | 0      | 0                                | 0    | 0      | 1                               | 0    | 0      | 2          |
| 08:15 AM         | 0                               | 0    | 0      | 0                                | 0    | 0      | 3                               | 0    | 0      | 3          |
| 08:30 AM         | 0                               | 0    | 0      | 0                                | 0    | 0      | 6                               | 0    | 1      | 7          |
| 08:45 AM         | 0                               | 0    | 0      | 0                                | 0    | 0      | 4                               | 0    | 0      | 4          |
| Total            | 1                               | 0    | 0      | 0                                | 0    | 0      | 14                              | 0    | 1      | 16         |
| Grand Total      | 4                               | 0    | 0      | 0                                | 0    | 0      | 26                              | 2    | 1      | 33         |
| Apprch %         | 100                             | 0    | 0      | 0                                | 0    | 0      | 89.7                            | 6.9  | 3.4    |            |
| Total %          | 12.1                            | 0    | 0      | 0                                | 0    | 0      | 78.8                            | 6.1  | 3      |            |
| Cars             | 4                               | 0    | 0      | 0                                | 0    | 0      | 25                              | 2    | 1      | 32         |
| % Cars           | 100                             | 0    | 0      | 0                                | 0    | 0      | 96.2                            | 100  | 100    | 97         |
| Heavy Vehicles   | 0                               | 0    | 0      | 0                                | 0    | 0      | 1                               | 0    | 0      | 1          |
| % Heavy Vehicles | 0                               | 0    | 0      | 0                                | 0    | 0      | 3.8                             | 0    | 0      | 3          |

|                                                            | Cross Street East<br>From North |      |        |            | Pennsylvania Avenue<br>From East |      |        |            | Cross Street East<br>From South |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|--------|------------|----------------------------------|------|--------|------------|---------------------------------|------|--------|------------|------------|
| Start Time                                                 | Thru                            | Left | U-Turn | App. Total | Right                            | Left | U-Turn | App. Total | Right                           | Thru | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM       |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| 07:00 AM                                                   | 2                               | 0    | 0      | 2          | 0                                | 0    | 0      | 0          | 3                               | 1    | 0      | 4          | 6          |
| 07:15 AM                                                   | 1                               | 0    | 0      | 1          | 0                                | 0    | 0      | 0          | 3                               | 0    | 0      | 3          | 4          |
| 07:30 AM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 6                               | 1    | 0      | 7          | 7          |
| 07:45 AM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 0                               | 0    | 0      | 0          | 0          |
| Total Volume                                               | 3                               | 0    | 0      | 3          | 0                                | 0    | 0      | 0          | 12                              | 2    | 0      | 14         | 17         |
| % App. Total                                               | 100                             | 0    | 0      |            | 0                                | 0    | 0      |            | 85.7                            | 14.3 | 0      |            |            |
| PHF                                                        | .375                            | .000 | .000   | .375       | .000                             | .000 | .000   | .000       | .500                            | .500 | .000   | .500       | .607       |
| Cars                                                       | 3                               | 0    | 0      | 3          | 0                                | 0    | 0      | 0          | 11                              | 2    | 0      | 13         | 16         |
| % Cars                                                     | 100                             | 0    | 0      | 100        | 0                                | 0    | 0      | 0          | 91.7                            | 100  | 0      | 92.9       | 94.1       |
| Heavy Vehicles                                             | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 1                               | 0    | 0      | 1          | 1          |
| % Heavy Vehicles                                           | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 8.3                             | 0    | 0      | 7.1        | 5.9        |

N/S: Cross Street East  
 E: Pennsylvania Avenue  
 City, State: Somerville, MA  
 Client: VHB/ M. Kealey



File Name : 123149 A  
 Site Code : 12109  
 Start Date : 12/5/2012  
 Page No : 1

Groups Printed- Peds and Bicycles

|             | Cross Street East<br>From North |      |      | Pennsylvania Avenue<br>From East |      |      | Cross Street East<br>From South |      |      |            |
|-------------|---------------------------------|------|------|----------------------------------|------|------|---------------------------------|------|------|------------|
| Start Time  | Thru                            | Left | Peds | Right                            | Left | Peds | Right                           | Thru | Peds | Int. Total |
| 07:00 AM    | 0                               | 0    | 1    | 0                                | 1    | 0    | 0                               | 0    | 1    | 3          |
| 07:15 AM    | 0                               | 1    | 1    | 0                                | 0    | 0    | 0                               | 0    | 2    | 4          |
| 07:30 AM    | 0                               | 0    | 4    | 0                                | 0    | 0    | 0                               | 0    | 2    | 6          |
| 07:45 AM    | 0                               | 0    | 0    | 0                                | 0    | 2    | 0                               | 0    | 2    | 4          |
| Total       | 0                               | 1    | 6    | 0                                | 1    | 2    | 0                               | 0    | 7    | 17         |
| 08:00 AM    | 0                               | 1    | 1    | 0                                | 0    | 0    | 1                               | 0    | 3    | 6          |
| 08:15 AM    | 0                               | 0    | 1    | 0                                | 0    | 0    | 0                               | 0    | 0    | 1          |
| 08:30 AM    | 0                               | 0    | 2    | 0                                | 0    | 0    | 0                               | 0    | 3    | 5          |
| 08:45 AM    | 0                               | 0    | 2    | 0                                | 0    | 1    | 0                               | 0    | 1    | 4          |
| Total       | 0                               | 1    | 6    | 0                                | 0    | 1    | 1                               | 0    | 7    | 16         |
| Grand Total | 0                               | 2    | 12   | 0                                | 1    | 3    | 1                               | 0    | 14   | 33         |
| Apprch %    | 0                               | 14.3 | 85.7 | 0                                | 25   | 75   | 6.7                             | 0    | 93.3 |            |
| Total %     | 0                               | 6.1  | 36.4 | 0                                | 3    | 9.1  | 3                               | 0    | 42.4 |            |

|                                                            | Cross Street East<br>From North |      |      |            | Pennsylvania Avenue<br>From East |      |      |            | Cross Street East<br>From South |      |      |            |            |
|------------------------------------------------------------|---------------------------------|------|------|------------|----------------------------------|------|------|------------|---------------------------------|------|------|------------|------------|
| Start Time                                                 | Thru                            | Left | Peds | App. Total | Right                            | Left | Peds | App. Total | Right                           | Thru | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |      |            |                                  |      |      |            |                                 |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                                 |      |      |            |                                  |      |      |            |                                 |      |      |            |            |
| 07:15 AM                                                   | 0                               | 1    | 1    | 2          | 0                                | 0    | 0    | 0          | 0                               | 0    | 2    | 2          | 4          |
| 07:30 AM                                                   | 0                               | 0    | 4    | 4          | 0                                | 0    | 0    | 0          | 0                               | 0    | 2    | 2          | 6          |
| 07:45 AM                                                   | 0                               | 0    | 0    | 0          | 0                                | 0    | 2    | 2          | 0                               | 0    | 2    | 2          | 4          |
| 08:00 AM                                                   | 0                               | 1    | 1    | 2          | 0                                | 0    | 0    | 0          | 1                               | 0    | 3    | 4          | 6          |
| Total Volume                                               | 0                               | 2    | 6    | 8          | 0                                | 0    | 2    | 2          | 1                               | 0    | 9    | 10         | 20         |
| % App. Total                                               | 0                               | 25   | 75   |            | 0                                | 0    | 100  |            | 10                              | 0    | 90   |            |            |
| PHF                                                        | .000                            | .500 | .375 | .500       | .000                             | .000 | .250 | .250       | .250                            | .000 | .750 | .625       | .833       |



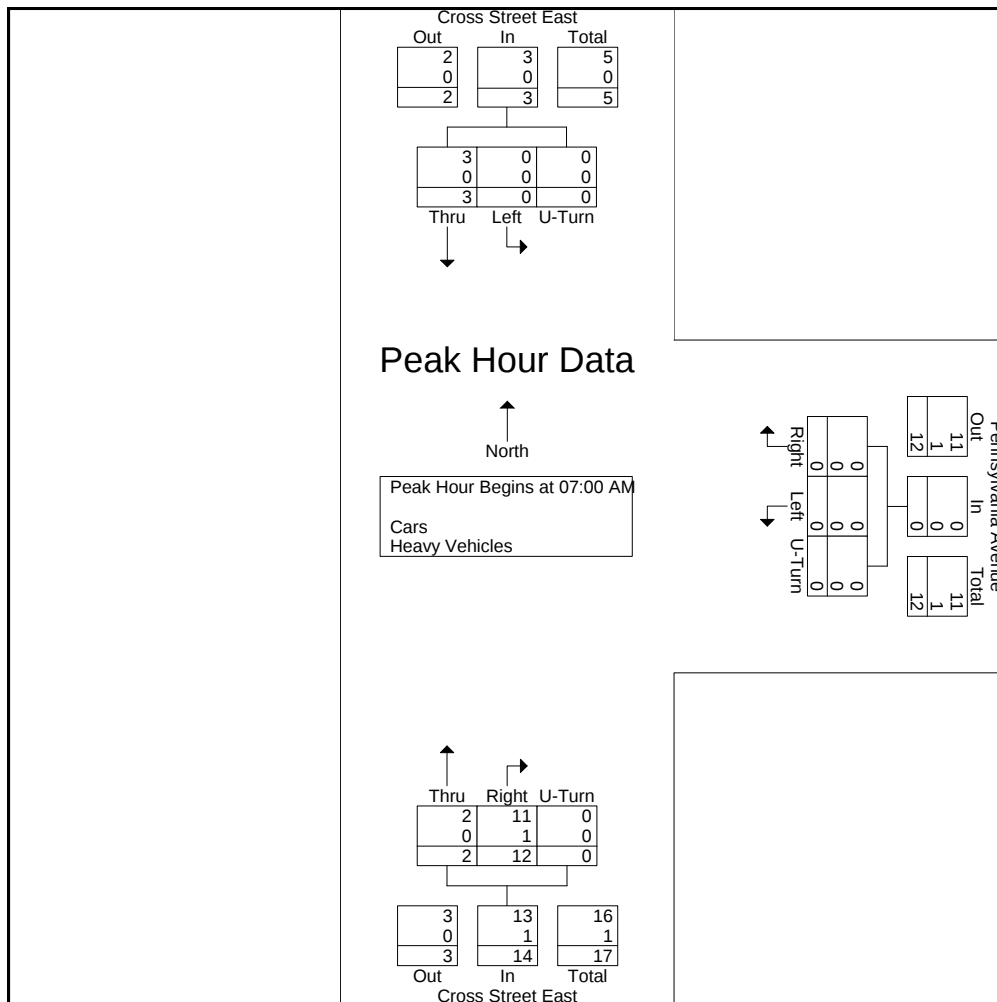
PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street East  
E: Pennsylvania Avenue  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 A  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

|                                                            | Cross Street East<br>From North |      |        |            | Pennsylvania Avenue<br>From East |      |        |            | Cross Street East<br>From South |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|--------|------------|----------------------------------|------|--------|------------|---------------------------------|------|--------|------------|------------|
| Start Time                                                 | Thru                            | Left | U-Turn | App. Total | Right                            | Left | U-Turn | App. Total | Right                           | Thru | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM       |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| 07:00 AM                                                   | 2                               | 0    | 0      | 2          | 0                                | 0    | 0      | 0          | 3                               | 1    | 0      | 4          | 6          |
| 07:15 AM                                                   | 1                               | 0    | 0      | 1          | 0                                | 0    | 0      | 0          | 3                               | 0    | 0      | 3          | 4          |
| 07:30 AM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 6                               | 1    | 0      | 7          | 7          |
| 07:45 AM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 0                               | 0    | 0      | 0          | 0          |
| Total Volume                                               | 3                               | 0    | 0      | 3          | 0                                | 0    | 0      | 0          | 12                              | 2    | 0      | 14         | 17         |
| % App. Total                                               | 100                             | 0    | 0      |            | 0                                | 0    | 0      |            | 85.7                            | 14.3 | 0      |            |            |
| PHF                                                        | .375                            | .000 | .000   | .375       | .000                             | .000 | .000   | .000       | .500                            | .500 | .000   | .500       | .607       |
| Cars                                                       | 3                               | 0    | 0      | 3          | 0                                | 0    | 0      | 0          | 11                              | 2    | 0      | 13         | 16         |
| % Cars                                                     | 100                             | 0    | 0      | 100        | 0                                | 0    | 0      | 0          | 91.7                            | 100  | 0      | 92.9       | 94.1       |
| Heavy Vehicles                                             | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 1                               | 0    | 0      | 1          | 1          |
| % Heavy Vehicles                                           | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 8.3                             | 0    | 0      | 7.1        | 5.9        |





P.O.Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: [datarequests@pdillc.com](mailto:datarequests@pdillc.com)

**Groups Printed- Cars - Heavy Vehicles**

[illegible]

N/S: Cross Street East  
 E: Pennsylvania Avenue  
 City, State: Somerville, MA  
 Client: VHB/ M. Kealey



File Name : 123149 AA  
 Site Code : 12109  
 Start Date : 12/5/2012  
 Page No : 1

Groups Printed- Peds and Bicycles

|             | Cross Street East<br>From North |      |      | Pennsylvania Avenue<br>From East |      |      | Cross Street East<br>From South |      |      |            |
|-------------|---------------------------------|------|------|----------------------------------|------|------|---------------------------------|------|------|------------|
| Start Time  | Thru                            | Left | Peds | Right                            | Left | Peds | Right                           | Thru | Peds | Int. Total |
| 04:00 PM    | 0                               | 0    | 9    | 1                                | 0    | 4    | 0                               | 0    | 2    | 16         |
| 04:15 PM    | 0                               | 1    | 3    | 0                                | 1    | 1    | 0                               | 0    | 3    | 9          |
| 04:30 PM    | 0                               | 0    | 8    | 0                                | 0    | 1    | 0                               | 0    | 4    | 13         |
| 04:45 PM    | 1                               | 0    | 2    | 0                                | 0    | 1    | 0                               | 0    | 3    | 7          |
| Total       | 1                               | 1    | 22   | 1                                | 1    | 7    | 0                               | 0    | 12   | 45         |
| 05:00 PM    | 0                               | 0    | 5    | 1                                | 0    | 0    | 0                               | 0    | 2    | 8          |
| 05:15 PM    | 0                               | 0    | 6    | 0                                | 0    | 5    | 0                               | 0    | 1    | 12         |
| 05:30 PM    | 0                               | 0    | 5    | 0                                | 0    | 5    | 0                               | 1    | 2    | 13         |
| 05:45 PM    | 0                               | 0    | 8    | 0                                | 0    | 1    | 0                               | 0    | 3    | 12         |
| Total       | 0                               | 0    | 24   | 1                                | 0    | 11   | 0                               | 1    | 8    | 45         |
| Grand Total | 1                               | 1    | 46   | 2                                | 1    | 18   | 0                               | 1    | 20   | 90         |
| Apprch %    | 2.1                             | 2.1  | 95.8 | 9.5                              | 4.8  | 85.7 | 0                               | 4.8  | 95.2 |            |
| Total %     | 1.1                             | 1.1  | 51.1 | 2.2                              | 1.1  | 20   | 0                               | 1.1  | 22.2 |            |

|                                                            | Cross Street East<br>From North |      |      |            | Pennsylvania Avenue<br>From East |      |      |            | Cross Street East<br>From South |      |      |            |            |
|------------------------------------------------------------|---------------------------------|------|------|------------|----------------------------------|------|------|------------|---------------------------------|------|------|------------|------------|
| Start Time                                                 | Thru                            | Left | Peds | App. Total | Right                            | Left | Peds | App. Total | Right                           | Thru | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                                 |      |      |            |                                  |      |      |            |                                 |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM       |                                 |      |      |            |                                  |      |      |            |                                 |      |      |            |            |
| 04:00 PM                                                   | 0                               | 0    | 9    | 9          | 1                                | 0    | 4    | 5          | 0                               | 0    | 2    | 2          | 16         |
| 04:15 PM                                                   | 0                               | 1    | 3    | 4          | 0                                | 1    | 1    | 2          | 0                               | 0    | 3    | 3          | 9          |
| 04:30 PM                                                   | 0                               | 0    | 8    | 8          | 0                                | 0    | 1    | 1          | 0                               | 0    | 4    | 4          | 13         |
| 04:45 PM                                                   | 1                               | 0    | 2    | 3          | 0                                | 0    | 1    | 1          | 0                               | 0    | 3    | 3          | 7          |
| Total Volume                                               | 1                               | 1    | 22   | 24         | 1                                | 1    | 7    | 9          | 0                               | 0    | 12   | 12         | 45         |
| % App. Total                                               | 4.2                             | 4.2  | 91.7 |            | 11.1                             | 11.1 | 77.8 |            | 0                               | 0    | 100  |            |            |
| PHF                                                        | .250                            | .250 | .611 | .667       | .250                             | .250 | .438 | .450       | .000                            | .000 | .750 | .750       | .703       |



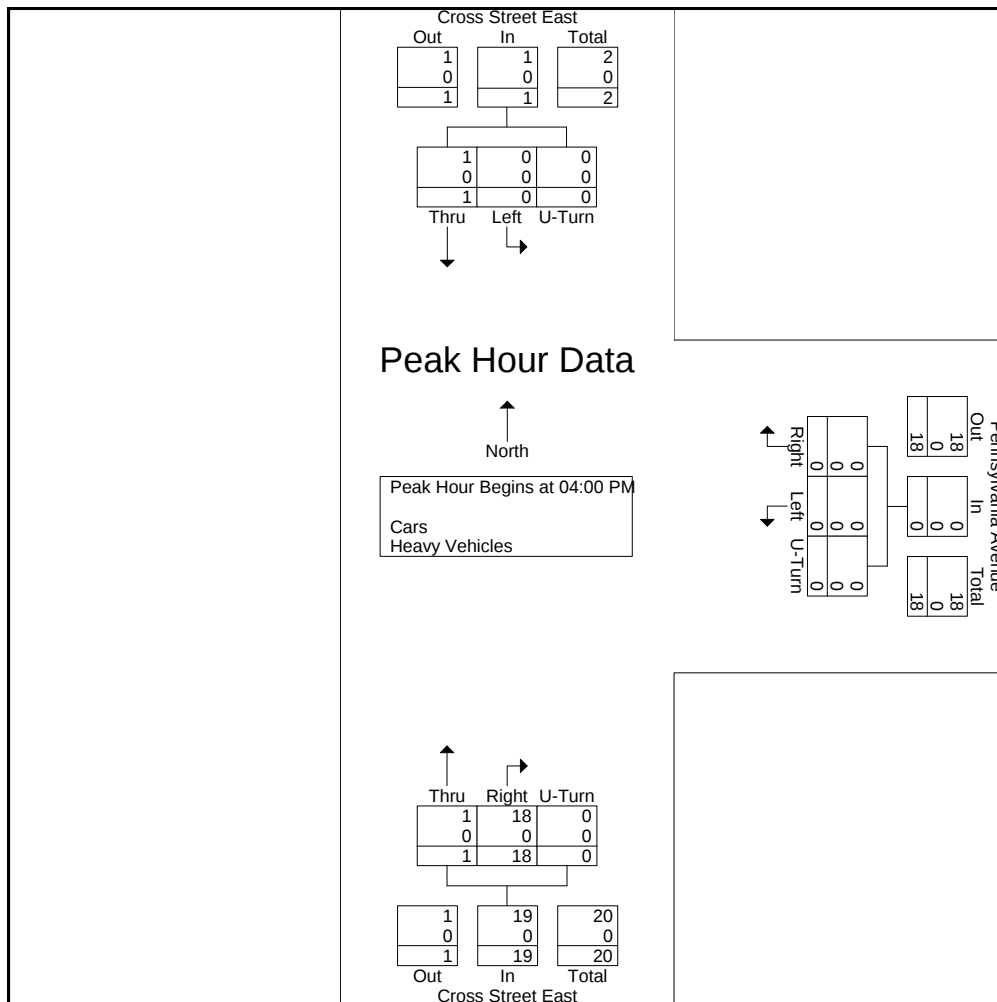
PRECISION  
D A T A  
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P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street East  
E: Pennsylvania Avenue  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 AA  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

|                                                            | Cross Street East<br>From North |      |        |            | Pennsylvania Avenue<br>From East |      |        |            | Cross Street East<br>From South |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|--------|------------|----------------------------------|------|--------|------------|---------------------------------|------|--------|------------|------------|
| Start Time                                                 | Thru                            | Left | U-Turn | App. Total | Right                            | Left | U-Turn | App. Total | Right                           | Thru | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 04:00 PM       |                                 |      |        |            |                                  |      |        |            |                                 |      |        |            |            |
| 04:00 PM                                                   | 1                               | 0    | 0      | 1          | 0                                | 0    | 0      | 0          | 5                               | 0    | 0      | 5          | 6          |
| 04:15 PM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 4                               | 1    | 0      | 5          | 5          |
| 04:30 PM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 5                               | 0    | 0      | 5          | 5          |
| 04:45 PM                                                   | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 4                               | 0    | 0      | 4          | 4          |
| Total Volume                                               | 1                               | 0    | 0      | 1          | 0                                | 0    | 0      | 0          | 18                              | 1    | 0      | 19         | 20         |
| % App. Total                                               | 100                             | 0    | 0      |            | 0                                | 0    | 0      |            | 94.7                            | 5.3  | 0      |            |            |
| PHF                                                        | .250                            | .000 | .000   | .250       | .000                             | .000 | .000   | .000       | .900                            | .250 | .000   | .950       | .833       |
| Cars                                                       | 1                               | 0    | 0      | 1          | 0                                | 0    | 0      | 0          | 18                              | 1    | 0      | 19         | 20         |
| % Cars                                                     | 100                             | 0    | 0      | 100        | 0                                | 0    | 0      | 0          | 100                             | 100  | 0      | 100        | 100        |
| Heavy Vehicles                                             | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 0                               | 0    | 0      | 0          | 0          |
| % Heavy Vehicles                                           | 0                               | 0    | 0      | 0          | 0                                | 0    | 0      | 0          | 0                               | 0    | 0      | 0          | 0          |





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P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street E/ Cross Street  
E/W: Broadway  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 B  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

|                  | Cross Street East<br>From North |      |      |        | Broadway<br>From East |      |      |        | Cross Street<br>From South |      |      |        | Broadway<br>From West |      |      |        | Int. Total |
|------------------|---------------------------------|------|------|--------|-----------------------|------|------|--------|----------------------------|------|------|--------|-----------------------|------|------|--------|------------|
| Start Time       | Right                           | Thru | Left | U-Turn | Right                 | Thru | Left | U-Turn | Right                      | Thru | Left | U-Turn | Right                 | Thru | Left | U-Turn |            |
| 07:00 AM         | 1                               | 0    | 1    | 0      | 1                     | 82   | 6    | 1      | 2                          | 1    | 22   | 0      | 28                    | 81   | 2    | 5      | 233        |
| 07:15 AM         | 3                               | 0    | 1    | 0      | 0                     | 84   | 9    | 0      | 5                          | 0    | 22   | 0      | 35                    | 139  | 5    | 0      | 303        |
| 07:30 AM         | 1                               | 0    | 0    | 0      | 0                     | 108  | 15   | 0      | 9                          | 2    | 26   | 0      | 33                    | 129  | 9    | 2      | 334        |
| 07:45 AM         | 1                               | 0    | 0    | 0      | 0                     | 95   | 14   | 0      | 11                         | 0    | 31   | 0      | 46                    | 137  | 0    | 7      | 342        |
| Total            | 6                               | 0    | 2    | 0      | 1                     | 369  | 44   | 1      | 27                         | 3    | 101  | 0      | 142                   | 486  | 16   | 14     | 1212       |
| 08:00 AM         | 2                               | 1    | 1    | 0      | 2                     | 77   | 12   | 1      | 8                          | 1    | 28   | 0      | 31                    | 111  | 3    | 0      | 278        |
| 08:15 AM         | 1                               | 0    | 0    | 0      | 0                     | 56   | 13   | 0      | 11                         | 0    | 29   | 0      | 37                    | 116  | 5    | 0      | 268        |
| 08:30 AM         | 0                               | 0    | 1    | 0      | 2                     | 72   | 9    | 0      | 7                          | 0    | 24   | 0      | 44                    | 143  | 6    | 0      | 308        |
| 08:45 AM         | 1                               | 1    | 0    | 0      | 1                     | 57   | 5    | 0      | 6                          | 0    | 25   | 0      | 34                    | 91   | 3    | 0      | 224        |
| Total            | 4                               | 2    | 2    | 0      | 5                     | 262  | 39   | 1      | 32                         | 1    | 106  | 0      | 146                   | 461  | 17   | 0      | 1078       |
| Grand Total      | 10                              | 2    | 4    | 0      | 6                     | 631  | 83   | 2      | 59                         | 4    | 207  | 0      | 288                   | 947  | 33   | 14     | 2290       |
| Apprch %         | 62.5                            | 12.5 | 25   | 0      | 0.8                   | 87.4 | 11.5 | 0.3    | 21.9                       | 1.5  | 76.7 | 0      | 22.5                  | 73.9 | 2.6  | 1.1    |            |
| Total %          | 0.4                             | 0.1  | 0.2  | 0      | 0.3                   | 27.6 | 3.6  | 0.1    | 2.6                        | 0.2  | 9    | 0      | 12.6                  | 41.4 | 1.4  | 0.6    |            |
| Cars             | 9                               | 1    | 4    | 0      | 6                     | 575  | 78   | 2      | 53                         | 4    | 199  | 0      | 278                   | 900  | 27   | 3      | 2139       |
| % Cars           | 90                              | 50   | 100  | 0      | 100                   | 91.1 | 94   | 100    | 89.8                       | 100  | 96.1 | 0      | 96.5                  | 95   | 81.8 | 21.4   | 93.4       |
| Heavy Vehicles   | 1                               | 1    | 0    | 0      | 0                     | 56   | 5    | 0      | 6                          | 0    | 8    | 0      | 10                    | 47   | 6    | 11     | 151        |
| % Heavy Vehicles | 10                              | 50   | 0    | 0      | 0                     | 8.9  | 6    | 0      | 10.2                       | 0    | 3.9  | 0      | 3.5                   | 5    | 18.2 | 78.6   | 6.6        |

|                                                            | Cross Street East<br>From North |      |      |        |            | Broadway<br>From East |      |      |        |            | Cross Street<br>From South |      |      |        |            | Broadway<br>From West |      |      |        |            | Int. Total |
|------------------------------------------------------------|---------------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|----------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Right                      | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total |            |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| 07:15 AM                                                   | 3                               | 0    | 1    | 0      | 4          | 0                     | 84   | 9    | 0      | 93         | 5                          | 0    | 22   | 0      | 27         | 35                    | 139  | 5    | 0      | 179        | 303        |
| 07:30 AM                                                   | 1                               | 0    | 0    | 0      | 1          | 0                     | 108  | 15   | 0      | 123        | 9                          | 2    | 26   | 0      | 37         | 33                    | 129  | 9    | 2      | 173        | 334        |
| 07:45 AM                                                   | 1                               | 0    | 0    | 0      | 1          | 0                     | 95   | 14   | 0      | 109        | 11                         | 0    | 31   | 0      | 42         | 46                    | 137  | 0    | 7      | 190        | 342        |
| 08:00 AM                                                   | 2                               | 1    | 1    | 0      | 4          | 2                     | 77   | 12   | 1      | 92         | 8                          | 1    | 28   | 0      | 37         | 31                    | 111  | 3    | 0      | 145        | 278        |
| Total Volume                                               | 7                               | 1    | 2    | 0      | 10         | 2                     | 364  | 50   | 1      | 417        | 33                         | 3    | 107  | 0      | 143        | 145                   | 516  | 17   | 9      | 687        | 1257       |
| % App. Total                                               | 70                              | 10   | 20   | 0      |            | 0.5                   | 87.3 | 12   | 0.2    |            | 23.1                       | 2.1  | 74.8 | 0      |            | 21.1                  | 75.1 | 2.5  | 1.3    |            |            |
| PHF                                                        | .583                            | .250 | .500 | .000   | .625       | .250                  | .843 | .833 | .250   | .848       | .750                       | .375 | .863 | .000   | .851       | .788                  | .928 | .472 | .321   | .904       | .919       |
| Cars                                                       | 6                               | 1    | 2    | 0      | 9          | 2                     | 340  | 48   | 1      | 391        | 30                         | 3    | 102  | 0      | 135        | 140                   | 491  | 13   | 0      | 644        | 1179       |
| % Cars                                                     | 85.7                            | 100  | 100  | 0      | 90.0       | 100                   | 93.4 | 96.0 | 100    | 93.8       | 90.9                       | 100  | 95.3 | 0      | 94.4       | 96.6                  | 95.2 | 76.5 | 0      | 93.7       | 93.8       |
| Heavy Vehicles                                             | 1                               | 0    | 0    | 0      | 1          | 0                     | 24   | 2    | 0      | 26         | 3                          | 0    | 5    | 0      | 8          | 5                     | 25   | 4    | 9      | 43         | 78         |
| % Heavy Vehicles                                           | 14.3                            | 0    | 0    | 0      | 10.0       | 0                     | 6.6  | 4.0  | 0      | 6.2        | 9.1                        | 0    | 4.7  | 0      | 5.6        | 3.4                   | 4.8  | 23.5 | 100    | 6.3        | 6.2        |

N/S: Cross Street E/ Cross Street  
 E/W: Broadway  
 City, State: Somerville, MA  
 Client: VHB/ M. Kealey



File Name : 123149 B  
 Site Code : 12109  
 Start Date : 12/5/2012  
 Page No : 1

Groups Printed- Peds and Bicycles

|             | Cross Street East<br>From North |      |      |      | Broadway<br>From East |      |      |      | Cross Street<br>From South |      |      |      | Broadway<br>From West |      |      |      | Int. Total |
|-------------|---------------------------------|------|------|------|-----------------------|------|------|------|----------------------------|------|------|------|-----------------------|------|------|------|------------|
| Start Time  | Right                           | Thru | Left | Peds | Right                 | Thru | Left | Peds | Right                      | Thru | Left | Peds | Right                 | Thru | Left | Peds |            |
| 07:00 AM    | 0                               | 0    | 0    | 17   | 0                     | 0    | 0    | 1    | 0                          | 0    | 0    | 4    | 0                     | 0    | 0    | 4    | 26         |
| 07:15 AM    | 0                               | 0    | 0    | 8    | 0                     | 0    | 0    | 2    | 1                          | 0    | 0    | 13   | 0                     | 0    | 0    | 8    | 32         |
| 07:30 AM    | 0                               | 0    | 0    | 19   | 0                     | 0    | 0    | 1    | 0                          | 0    | 0    | 17   | 0                     | 0    | 0    | 5    | 42         |
| 07:45 AM    | 0                               | 0    | 0    | 5    | 0                     | 0    | 0    | 2    | 0                          | 0    | 0    | 15   | 0                     | 0    | 0    | 3    | 25         |
| Total       | 0                               | 0    | 0    | 49   | 0                     | 0    | 0    | 6    | 1                          | 0    | 0    | 49   | 0                     | 0    | 0    | 20   | 125        |
| 08:00 AM    | 0                               | 0    | 0    | 9    | 0                     | 0    | 0    | 3    | 0                          | 0    | 0    | 7    | 1                     | 1    | 0    | 4    | 25         |
| 08:15 AM    | 0                               | 0    | 0    | 8    | 0                     | 0    | 0    | 1    | 0                          | 0    | 0    | 6    | 2                     | 0    | 0    | 7    | 24         |
| 08:30 AM    | 0                               | 0    | 0    | 7    | 0                     | 0    | 0    | 3    | 0                          | 1    | 1    | 10   | 0                     | 2    | 0    | 4    | 28         |
| 08:45 AM    | 0                               | 0    | 0    | 8    | 0                     | 0    | 0    | 1    | 0                          | 0    | 1    | 9    | 0                     | 3    | 0    | 6    | 28         |
| Total       | 0                               | 0    | 0    | 32   | 0                     | 0    | 0    | 8    | 0                          | 1    | 2    | 32   | 3                     | 6    | 0    | 21   | 105        |
| Grand Total | 0                               | 0    | 0    | 81   | 0                     | 0    | 0    | 14   | 1                          | 1    | 2    | 81   | 3                     | 6    | 0    | 41   | 230        |
| Apprch %    | 0                               | 0    | 0    | 100  | 0                     | 0    | 0    | 100  | 1.2                        | 1.2  | 2.4  | 95.3 | 6                     | 12   | 0    | 82   |            |
| Total %     | 0                               | 0    | 0    | 35.2 | 0                     | 0    | 0    | 6.1  | 0.4                        | 0.4  | 0.9  | 35.2 | 1.3                   | 2.6  | 0    | 17.8 |            |

|                                                            | Cross Street East<br>From North |      |      |      |            | Broadway<br>From East |      |      |      |            | Cross Street<br>From South |      |      |      |            | Broadway<br>From West |      |      |      |            |            |
|------------------------------------------------------------|---------------------------------|------|------|------|------------|-----------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Right                      | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |      |      |            |                       |      |      |      |            |                            |      |      |      |            |                       |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:00 AM       |                                 |      |      |      |            |                       |      |      |      |            |                            |      |      |      |            |                       |      |      |      |            |            |
| 07:00 AM                                                   | 0                               | 0    | 0    | 17   | 17         | 0                     | 0    | 0    | 1    | 1          | 0                          | 0    | 0    | 4    | 4          | 0                     | 0    | 0    | 4    | 4          | 26         |
| 07:15 AM                                                   | 0                               | 0    | 0    | 8    | 8          | 0                     | 0    | 0    | 2    | 2          | 1                          | 0    | 0    | 13   | 14         | 0                     | 0    | 0    | 8    | 8          | 32         |
| 07:30 AM                                                   | 0                               | 0    | 0    | 19   | 19         | 0                     | 0    | 0    | 1    | 1          | 0                          | 0    | 0    | 17   | 17         | 0                     | 0    | 0    | 5    | 5          | 42         |
| 07:45 AM                                                   | 0                               | 0    | 0    | 5    | 5          | 0                     | 0    | 0    | 2    | 2          | 0                          | 0    | 0    | 15   | 15         | 0                     | 0    | 0    | 3    | 3          | 25         |
| Total Volume                                               | 0                               | 0    | 0    | 49   | 49         | 0                     | 0    | 0    | 6    | 6          | 1                          | 0    | 0    | 49   | 50         | 0                     | 0    | 0    | 20   | 20         | 125        |
| % App. Total                                               | 0                               | 0    | 0    | 100  |            | 0                     | 0    | 0    | 100  |            | 2                          | 0    | 0    | 98   |            | 0                     | 0    | 0    | 100  |            |            |
| PHF                                                        | .000                            | .000 | .000 | .645 | .645       | .000                  | .000 | .000 | .750 | .750       | .250                       | .000 | .000 | .721 | .735       | .000                  | .000 | .000 | .625 | .625       | .744       |



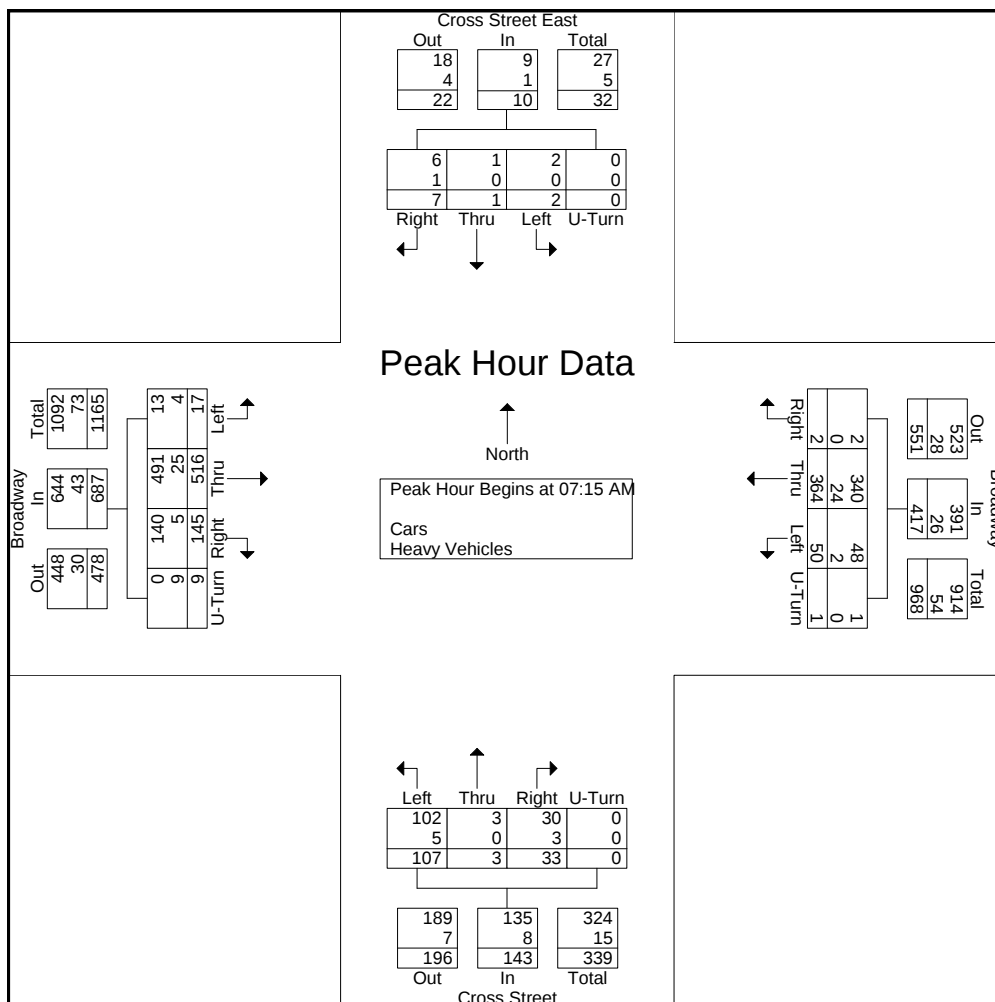
PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street E/ Cross Street  
E/W: Broadway  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 B  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

|                                                            | Cross Street East<br>From North |      |      |        |            | Broadway<br>From East |      |      |        |            | Cross Street<br>From South |      |      |        |            | Broadway<br>From West |      |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|----------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Right                      | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| 07:15 AM                                                   | 3                               | 0    | 1    | 0      | 4          | 0                     | 84   | 9    | 0      | 93         | 5                          | 0    | 22   | 0      | 27         | 35                    | 139  | 5    | 0      | 179        | 303        |
| 07:30 AM                                                   | 1                               | 0    | 0    | 0      | 1          | 0                     | 108  | 15   | 0      | 123        | 9                          | 2    | 26   | 0      | 37         | 33                    | 129  | 9    | 2      | 173        | 334        |
| 07:45 AM                                                   | 1                               | 0    | 0    | 0      | 1          | 0                     | 95   | 14   | 0      | 109        | 11                         | 0    | 31   | 0      | 42         | 46                    | 137  | 0    | 7      | 190        | 342        |
| 08:00 AM                                                   | 2                               | 1    | 1    | 0      | 4          | 2                     | 77   | 12   | 1      | 92         | 8                          | 1    | 28   | 0      | 37         | 31                    | 111  | 3    | 0      | 145        | 278        |
| Total Volume                                               | 7                               | 1    | 2    | 0      | 10         | 2                     | 364  | 50   | 1      | 417        | 33                         | 3    | 107  | 0      | 143        | 145                   | 516  | 17   | 9      | 687        | 1257       |
| % App. Total                                               | 70                              | 10   | 20   | 0      |            | 0.5                   | 87.3 | 12   | 0.2    |            | 23.1                       | 2.1  | 74.8 | 0      |            | 21.1                  | 75.1 | 2.5  | 1.3    |            |            |
| PHF                                                        | .583                            | .250 | .500 | .000   | .625       | .250                  | .843 | .833 | .250   | .848       | .750                       | .375 | .863 | .000   | .851       | .788                  | .928 | .472 | .321   | .904       | .919       |
| Cars                                                       | 6                               | 1    | 2    | 0      | 9          | 2                     | 340  | 48   | 1      | 391        | 30                         | 3    | 102  | 0      | 135        | 140                   | 491  | 13   | 0      | 644        | 1179       |
| % Cars                                                     | 85.7                            | 100  | 100  | 0      | 90.0       | 100                   | 93.4 | 96.0 | 100    | 93.8       | 90.9                       | 100  | 95.3 | 0      | 94.4       | 96.6                  | 95.2 | 76.5 | 0      | 93.7       | 93.8       |
| Heavy Vehicles                                             | 1                               | 0    | 0    | 0      | 1          | 0                     | 24   | 2    | 0      | 26         | 3                          | 0    | 5    | 0      | 8          | 5                     | 25   | 4    | 9      | 43         | 78         |
| % Heavy Vehicles                                           | 14.3                            | 0    | 0    | 0      | 10.0       | 0                     | 6.6  | 4.0  | 0      | 6.2        | 9.1                        | 0    | 4.7  | 0      | 5.6        | 3.4                   | 4.8  | 23.5 | 100    | 6.3        | 6.2        |





PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street E/ Cross Street  
E/W: Broadway  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 BB  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

Groups Printed- Cars - Heavy Vehicles

|                  | Cross Street East<br>From North |      |      |        | Broadway<br>From East |      |      |        | Cross Street<br>From South |      |      |        | Broadway<br>From West |      |      |        | Int. Total |
|------------------|---------------------------------|------|------|--------|-----------------------|------|------|--------|----------------------------|------|------|--------|-----------------------|------|------|--------|------------|
| Start Time       | Right                           | Thru | Left | U-Turn | Right                 | Thru | Left | U-Turn | Right                      | Thru | Left | U-Turn | Right                 | Thru | Left | U-Turn |            |
| 04:00 PM         | 1                               | 0    | 0    | 0      | 1                     | 86   | 8    | 1      | 20                         | 0    | 52   | 0      | 22                    | 75   | 2    | 2      | 270        |
| 04:15 PM         | 1                               | 0    | 1    | 0      | 0                     | 103  | 16   | 1      | 15                         | 1    | 45   | 0      | 26                    | 76   | 5    | 3      | 293        |
| 04:30 PM         | 2                               | 0    | 0    | 0      | 2                     | 89   | 13   | 1      | 17                         | 1    | 58   | 0      | 27                    | 86   | 3    | 1      | 300        |
| 04:45 PM         | 0                               | 0    | 0    | 0      | 1                     | 94   | 14   | 0      | 27                         | 1    | 45   | 0      | 27                    | 75   | 2    | 2      | 288        |
| Total            | 4                               | 0    | 1    | 0      | 4                     | 372  | 51   | 3      | 79                         | 3    | 200  | 0      | 102                   | 312  | 12   | 8      | 1151       |
| 05:00 PM         | 2                               | 0    | 0    | 0      | 3                     | 116  | 16   | 0      | 23                         | 3    | 46   | 0      | 19                    | 92   | 4    | 2      | 326        |
| 05:15 PM         | 4                               | 0    | 0    | 0      | 1                     | 124  | 16   | 3      | 15                         | 0    | 69   | 0      | 34                    | 94   | 6    | 1      | 367        |
| 05:30 PM         | 4                               | 0    | 0    | 0      | 1                     | 115  | 6    | 1      | 26                         | 4    | 52   | 0      | 25                    | 101  | 3    | 0      | 338        |
| 05:45 PM         | 2                               | 0    | 1    | 0      | 1                     | 101  | 6    | 1      | 22                         | 3    | 36   | 0      | 32                    | 73   | 4    | 3      | 285        |
| Total            | 12                              | 0    | 1    | 0      | 6                     | 456  | 44   | 5      | 86                         | 10   | 203  | 0      | 110                   | 360  | 17   | 6      | 1316       |
| Grand Total      | 16                              | 0    | 2    | 0      | 10                    | 828  | 95   | 8      | 165                        | 13   | 403  | 0      | 212                   | 672  | 29   | 14     | 2467       |
| Apprch %         | 88.9                            | 0    | 11.1 | 0      | 1.1                   | 88   | 10.1 | 0.9    | 28.4                       | 2.2  | 69.4 | 0      | 22.9                  | 72.5 | 3.1  | 1.5    |            |
| Total %          | 0.6                             | 0    | 0.1  | 0      | 0.4                   | 33.6 | 3.9  | 0.3    | 6.7                        | 0.5  | 16.3 | 0      | 8.6                   | 27.2 | 1.2  | 0.6    |            |
| Cars             | 16                              | 0    | 2    | 0      | 10                    | 798  | 92   | 8      | 159                        | 13   | 398  | 0      | 208                   | 640  | 29   | 14     | 2387       |
| % Cars           | 100                             | 0    | 100  | 0      | 100                   | 96.4 | 96.8 | 100    | 96.4                       | 100  | 98.8 | 0      | 98.1                  | 95.2 | 100  | 100    | 96.8       |
| Heavy Vehicles   | 0                               | 0    | 0    | 0      | 0                     | 30   | 3    | 0      | 6                          | 0    | 5    | 0      | 4                     | 32   | 0    | 0      | 80         |
| % Heavy Vehicles | 0                               | 0    | 0    | 0      | 0                     | 3.6  | 3.2  | 0      | 3.6                        | 0    | 1.2  | 0      | 1.9                   | 4.8  | 0    | 0      | 3.2        |

|                                                            | Cross Street East<br>From North |      |      |        |            | Broadway<br>From East |      |      |        |            | Cross Street<br>From South |      |      |        |            | Broadway<br>From West |      |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|----------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Right                      | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| 04:45 PM                                                   | 0                               | 0    | 0    | 0      | 0          | 1                     | 94   | 14   | 0      | 109        | 27                         | 1    | 45   | 0      | 73         | 27                    | 75   | 2    | 2      | 106        | 288        |
| 05:00 PM                                                   | 2                               | 0    | 0    | 0      | 2          | 3                     | 116  | 16   | 0      | 135        | 23                         | 3    | 46   | 0      | 72         | 19                    | 92   | 4    | 2      | 117        | 326        |
| 05:15 PM                                                   | 4                               | 0    | 0    | 0      | 4          | 1                     | 124  | 16   | 3      | 144        | 15                         | 0    | 69   | 0      | 84         | 34                    | 94   | 6    | 1      | 135        | 367        |
| 05:30 PM                                                   | 4                               | 0    | 0    | 0      | 4          | 1                     | 115  | 6    | 1      | 123        | 26                         | 4    | 52   | 0      | 82         | 25                    | 101  | 3    | 0      | 129        | 338        |
| Total Volume                                               | 10                              | 0    | 0    | 0      | 10         | 6                     | 449  | 52   | 4      | 511        | 91                         | 8    | 212  | 0      | 311        | 105                   | 362  | 15   | 5      | 487        | 1319       |
| % App. Total                                               | 100                             | 0    | 0    | 0      |            | 1.2                   | 87.9 | 10.2 | 0.8    |            | 29.3                       | 2.6  | 68.2 | 0      |            | 21.6                  | 74.3 | 3.1  | 1      |            |            |
| PHF                                                        | .625                            | .000 | .000 | .000   | .625       | .500                  | .905 | .813 | .333   | .887       | .843                       | .500 | .768 | .000   | .926       | .772                  | .896 | .625 | .625   | .902       | .899       |
| Cars                                                       | 10                              | 0    | 0    | 0      | 10         | 6                     | 432  | 50   | 4      | 492        | 87                         | 8    | 210  | 0      | 305        | 103                   | 346  | 15   | 5      | 469        | 1276       |
| % Cars                                                     | 100                             | 0    | 0    | 0      | 100        | 100                   | 96.2 | 96.2 | 100    | 96.3       | 95.6                       | 100  | 99.1 | 0      | 98.1       | 98.1                  | 95.6 | 100  | 100    | 96.3       | 96.7       |
| Heavy Vehicles                                             | 0                               | 0    | 0    | 0      | 0          | 0                     | 17   | 2    | 0      | 19         | 4                          | 0    | 2    | 0      | 6          | 2                     | 16   | 0    | 0      | 18         | 43         |
| % Heavy Vehicles                                           | 0                               | 0    | 0    | 0      | 0          | 0                     | 3.8  | 3.8  | 0      | 3.7        | 4.4                        | 0    | 0.9  | 0      | 1.9        | 1.9                   | 4.4  | 0    | 0      | 3.7        | 3.3        |

N/S: Cross Street E/ Cross Street  
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File Name : 123149 BB  
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 Page No : 1

Groups Printed- Peds and Bicycles

|             | Cross Street East<br>From North |      |      |      | Broadway<br>From East |      |      |      | Cross Street<br>From South |      |      |      | Broadway<br>From West |      |      |      | Int. Total |
|-------------|---------------------------------|------|------|------|-----------------------|------|------|------|----------------------------|------|------|------|-----------------------|------|------|------|------------|
| Start Time  | Right                           | Thru | Left | Peds | Right                 | Thru | Left | Peds | Right                      | Thru | Left | Peds | Right                 | Thru | Left | Peds |            |
| 04:00 PM    | 0                               | 0    | 0    | 10   | 0                     | 0    | 0    | 4    | 0                          | 0    | 0    | 10   | 0                     | 1    | 0    | 5    | 30         |
| 04:15 PM    | 0                               | 0    | 0    | 12   | 0                     | 1    | 0    | 6    | 0                          | 1    | 0    | 22   | 0                     | 0    | 0    | 8    | 50         |
| 04:30 PM    | 0                               | 0    | 0    | 14   | 0                     | 0    | 0    | 8    | 0                          | 0    | 0    | 24   | 0                     | 2    | 0    | 9    | 57         |
| 04:45 PM    | 0                               | 0    | 0    | 10   | 0                     | 0    | 1    | 3    | 0                          | 1    | 0    | 10   | 0                     | 0    | 0    | 7    | 32         |
| Total       | 0                               | 0    | 0    | 46   | 0                     | 1    | 1    | 21   | 0                          | 2    | 0    | 66   | 0                     | 3    | 0    | 29   | 169        |
| 05:00 PM    | 0                               | 0    | 0    | 15   | 0                     | 0    | 0    | 4    | 0                          | 0    | 1    | 31   | 0                     | 0    | 0    | 6    | 57         |
| 05:15 PM    | 0                               | 0    | 0    | 12   | 0                     | 0    | 0    | 1    | 0                          | 0    | 0    | 24   | 0                     | 0    | 0    | 3    | 40         |
| 05:30 PM    | 0                               | 0    | 0    | 12   | 0                     | 1    | 0    | 3    | 0                          | 0    | 1    | 20   | 0                     | 0    | 0    | 6    | 43         |
| 05:45 PM    | 0                               | 0    | 0    | 7    | 0                     | 1    | 1    | 6    | 0                          | 0    | 2    | 21   | 0                     | 0    | 0    | 10   | 48         |
| Total       | 0                               | 0    | 0    | 46   | 0                     | 2    | 1    | 14   | 0                          | 0    | 4    | 96   | 0                     | 0    | 0    | 25   | 188        |
| Grand Total | 0                               | 0    | 0    | 92   | 0                     | 3    | 2    | 35   | 0                          | 2    | 4    | 162  | 0                     | 3    | 0    | 54   | 357        |
| Apprch %    | 0                               | 0    | 0    | 100  | 0                     | 7.5  | 5    | 87.5 | 0                          | 1.2  | 2.4  | 96.4 | 0                     | 5.3  | 0    | 94.7 |            |
| Total %     | 0                               | 0    | 0    | 25.8 | 0                     | 0.8  | 0.6  | 9.8  | 0                          | 0.6  | 1.1  | 45.4 | 0                     | 0.8  | 0    | 15.1 |            |

|                                                            | Cross Street East<br>From North |      |      |      |            | Broadway<br>From East |      |      |      |            | Cross Street<br>From South |      |      |      |            | Broadway<br>From West |      |      |      |            |            |
|------------------------------------------------------------|---------------------------------|------|------|------|------------|-----------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Right                      | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                                 |      |      |      |            |                       |      |      |      |            |                            |      |      |      |            |                       |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:15 PM       |                                 |      |      |      |            |                       |      |      |      |            |                            |      |      |      |            |                       |      |      |      |            |            |
| 04:15 PM                                                   | 0                               | 0    | 0    | 12   | 12         | 0                     | 1    | 0    | 6    | 7          | 0                          | 1    | 0    | 22   | 23         | 0                     | 0    | 0    | 8    | 8          | 50         |
| 04:30 PM                                                   | 0                               | 0    | 0    | 14   | 14         | 0                     | 0    | 0    | 8    | 8          | 0                          | 0    | 0    | 24   | 24         | 0                     | 2    | 0    | 9    | 11         | 57         |
| 04:45 PM                                                   | 0                               | 0    | 0    | 10   | 10         | 0                     | 0    | 1    | 3    | 4          | 0                          | 1    | 0    | 10   | 11         | 0                     | 0    | 0    | 7    | 7          | 32         |
| 05:00 PM                                                   | 0                               | 0    | 0    | 15   | 15         | 0                     | 0    | 0    | 4    | 4          | 0                          | 0    | 1    | 31   | 32         | 0                     | 0    | 0    | 6    | 6          | 57         |
| Total Volume                                               | 0                               | 0    | 0    | 51   | 51         | 0                     | 1    | 1    | 21   | 23         | 0                          | 2    | 1    | 87   | 90         | 0                     | 2    | 0    | 30   | 32         | 196        |
| % App. Total                                               | 0                               | 0    | 0    | 100  |            | 0                     | 4.3  | 4.3  | 91.3 |            | 0                          | 2.2  | 1.1  | 96.7 |            | 0                     | 6.2  | 0    | 93.8 |            |            |
| PHF                                                        | .000                            | .000 | .000 | .850 | .850       | .000                  | .250 | .250 | .656 | .719       | .000                       | .500 | .250 | .702 | .703       | .000                  | .250 | .000 | .833 | .727       | .860       |



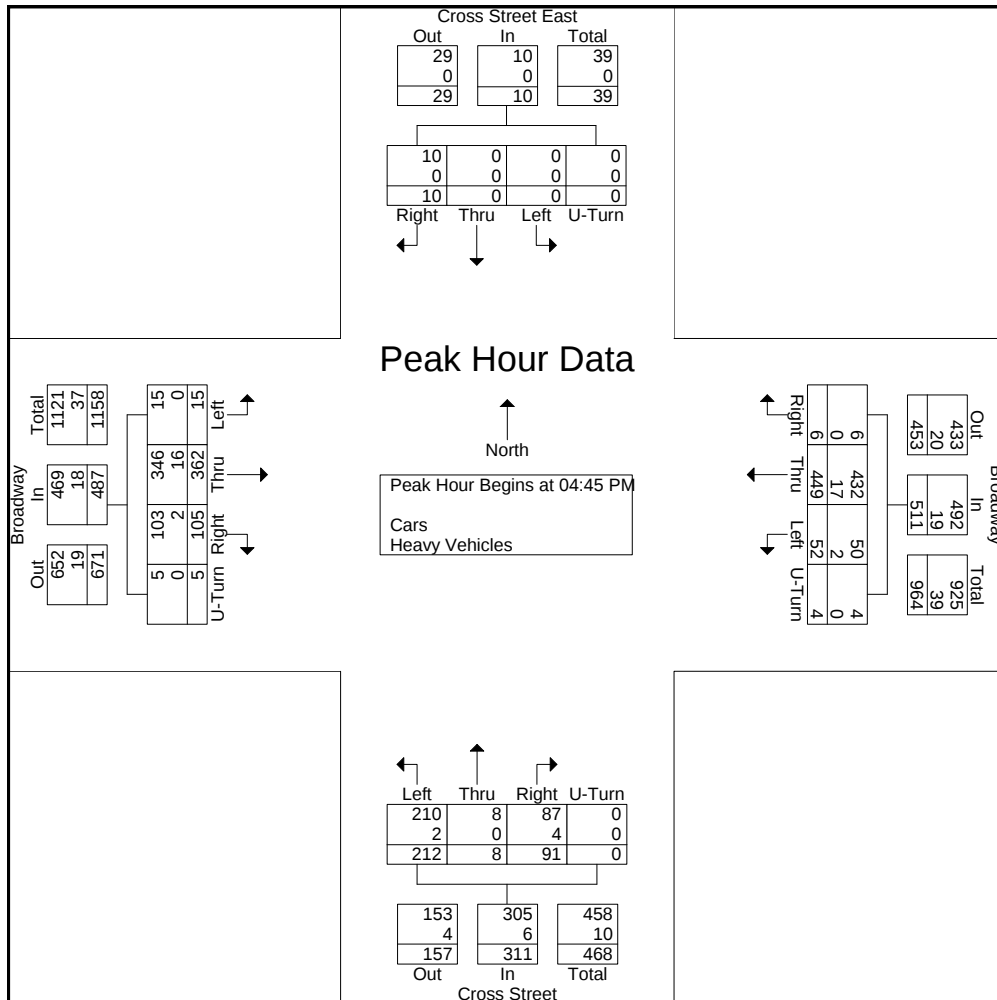
PRECISION  
D A T A  
INDUSTRIES, LLC

P.O. Box 301 Berlin, MA 01503  
Office: 508.481.3999 Fax: 508.545.1234  
Email: datarequests@pdillc.com

N/S: Cross Street E/ Cross Street  
E/W: Broadway  
City, State: Somerville, MA  
Client: VHB/ M. Kealey

File Name : 123149 BB  
Site Code : 12109  
Start Date : 12/5/2012  
Page No : 1

|                                                            | Cross Street East<br>From North |      |      |        |            | Broadway<br>From East |      |      |        |            | Cross Street<br>From South |      |      |        |            | Broadway<br>From West |      |      |        |            |            |
|------------------------------------------------------------|---------------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|----------------------------|------|------|--------|------------|-----------------------|------|------|--------|------------|------------|
| Start Time                                                 | Right                           | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Right                      | Thru | Left | U-Turn | App. Total | Right                 | Thru | Left | U-Turn | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                                 |      |      |        |            |                       |      |      |        |            |                            |      |      |        |            |                       |      |      |        |            |            |
| 04:45 PM                                                   | 0                               | 0    | 0    | 0      | 0          | 1                     | 94   | 14   | 0      | 109        | 27                         | 1    | 45   | 0      | 73         | 27                    | 75   | 2    | 2      | 106        | 288        |
| 05:00 PM                                                   | 2                               | 0    | 0    | 0      | 2          | 3                     | 116  | 16   | 0      | 135        | 23                         | 3    | 46   | 0      | 72         | 19                    | 92   | 4    | 2      | 117        | 326        |
| 05:15 PM                                                   | 4                               | 0    | 0    | 0      | 4          | 1                     | 124  | 16   | 3      | 144        | 15                         | 0    | 69   | 0      | 84         | 34                    | 94   | 6    | 1      | 135        | 367        |
| 05:30 PM                                                   | 4                               | 0    | 0    | 0      | 4          | 1                     | 115  | 6    | 1      | 123        | 26                         | 4    | 52   | 0      | 82         | 25                    | 101  | 3    | 0      | 129        | 338        |
| Total Volume                                               | 10                              | 0    | 0    | 0      | 10         | 6                     | 449  | 52   | 4      | 511        | 91                         | 8    | 212  | 0      | 311        | 105                   | 362  | 15   | 5      | 487        | 1319       |
| % App. Total                                               | 100                             | 0    | 0    | 0      |            | 1.2                   | 87.9 | 10.2 | 0.8    |            | 29.3                       | 2.6  | 68.2 | 0      |            | 21.6                  | 74.3 | 3.1  | 1      |            |            |
| PHF                                                        | .625                            | .000 | .000 | .000   | .625       | .500                  | .905 | .813 | .333   | .887       | .843                       | .500 | .768 | .000   | .926       | .772                  | .896 | .625 | .625   | .902       | .899       |
| Cars                                                       | 10                              | 0    | 0    | 0      | 10         | 6                     | 432  | 50   | 4      | 492        | 87                         | 8    | 210  | 0      | 305        | 103                   | 346  | 15   | 5      | 469        | 1276       |
| % Cars                                                     | 100                             | 0    | 0    | 0      | 100        | 100                   | 96.2 | 96.2 | 100    | 96.3       | 95.6                       | 100  | 99.1 | 0      | 98.1       | 98.1                  | 95.6 | 100  | 100    | 96.3       | 96.7       |
| Heavy Vehicles                                             | 0                               | 0    | 0    | 0      | 0          | 0                     | 17   | 2    | 0      | 19         | 4                          | 0    | 2    | 0      | 6          | 2                     | 16   | 0    | 0      | 18         | 43         |
| % Heavy Vehicles                                           | 0                               | 0    | 0    | 0      | 0          | 0                     | 3.8  | 3.8  | 0      | 3.7        | 4.4                        | 0    | 0.9  | 0      | 1.9        | 1.9                   | 4.4  | 0    | 0      | 3.7        | 3.3        |





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# **Background Traffic Volumes**



Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet **of**

Calculated by **R. DUNFORD**

Date **1/6/15**

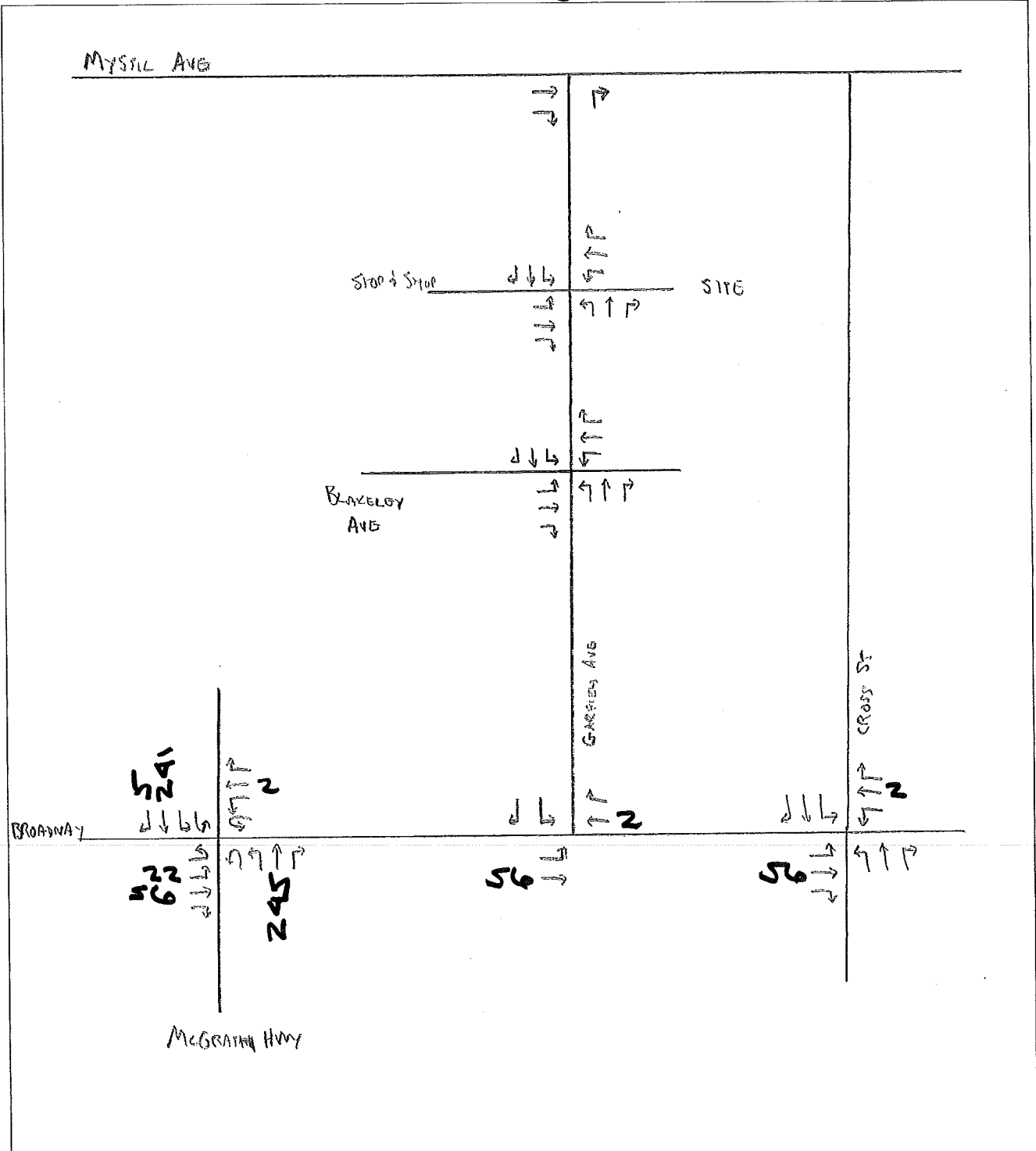
Checked by

Date **Background trip assignment**

Title

Computations

**Weekday AM**



**\* Not including Assembly Square**



Project **60-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet of

Calculated by **P. DUNFORD**

Date **1/6/15**

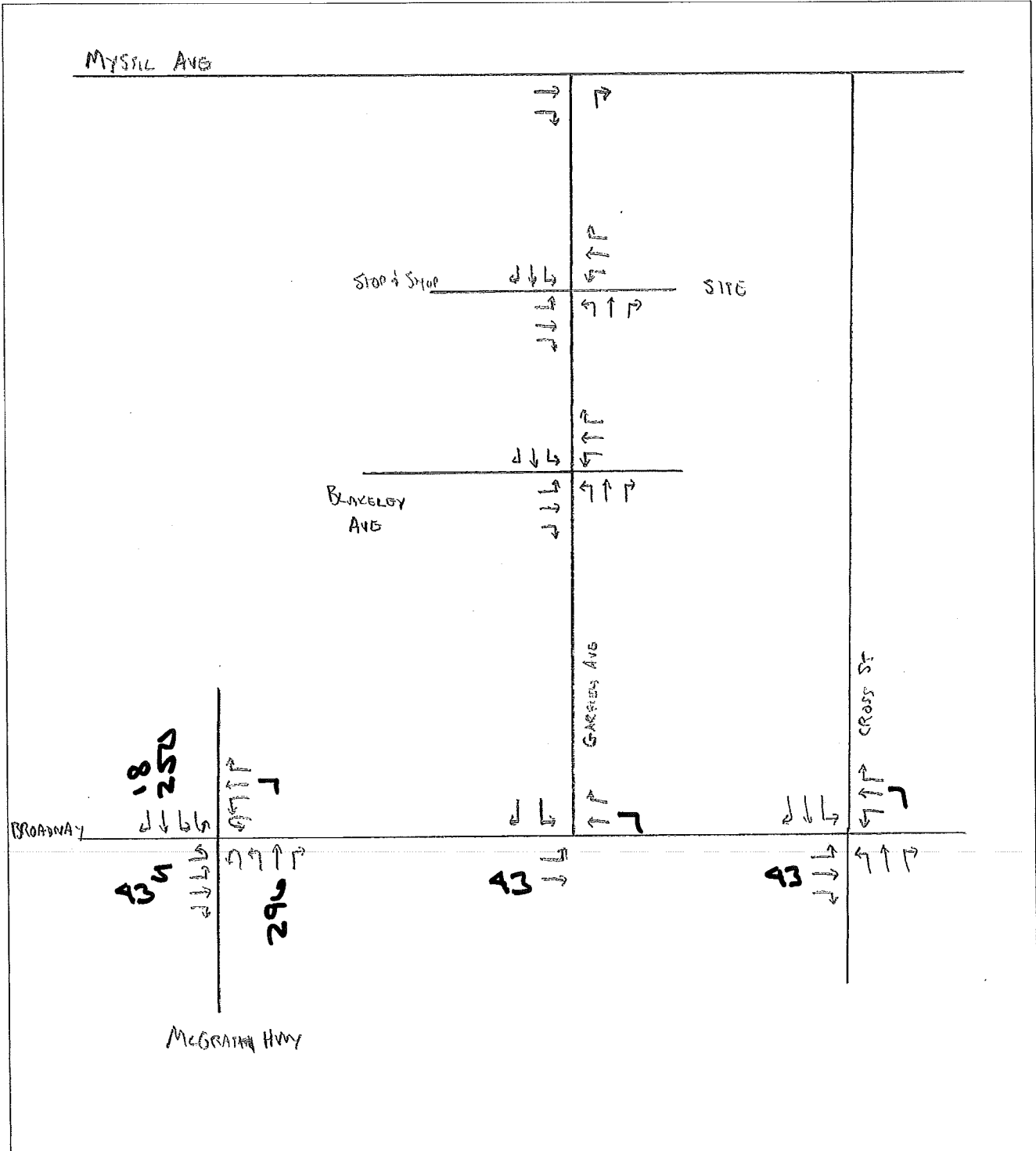
Checked by

Date

Title

**Background trip assignment +  
Weekday PM**

Computations



\* NOT including Assembly Square



Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by **P. DUNFORD**

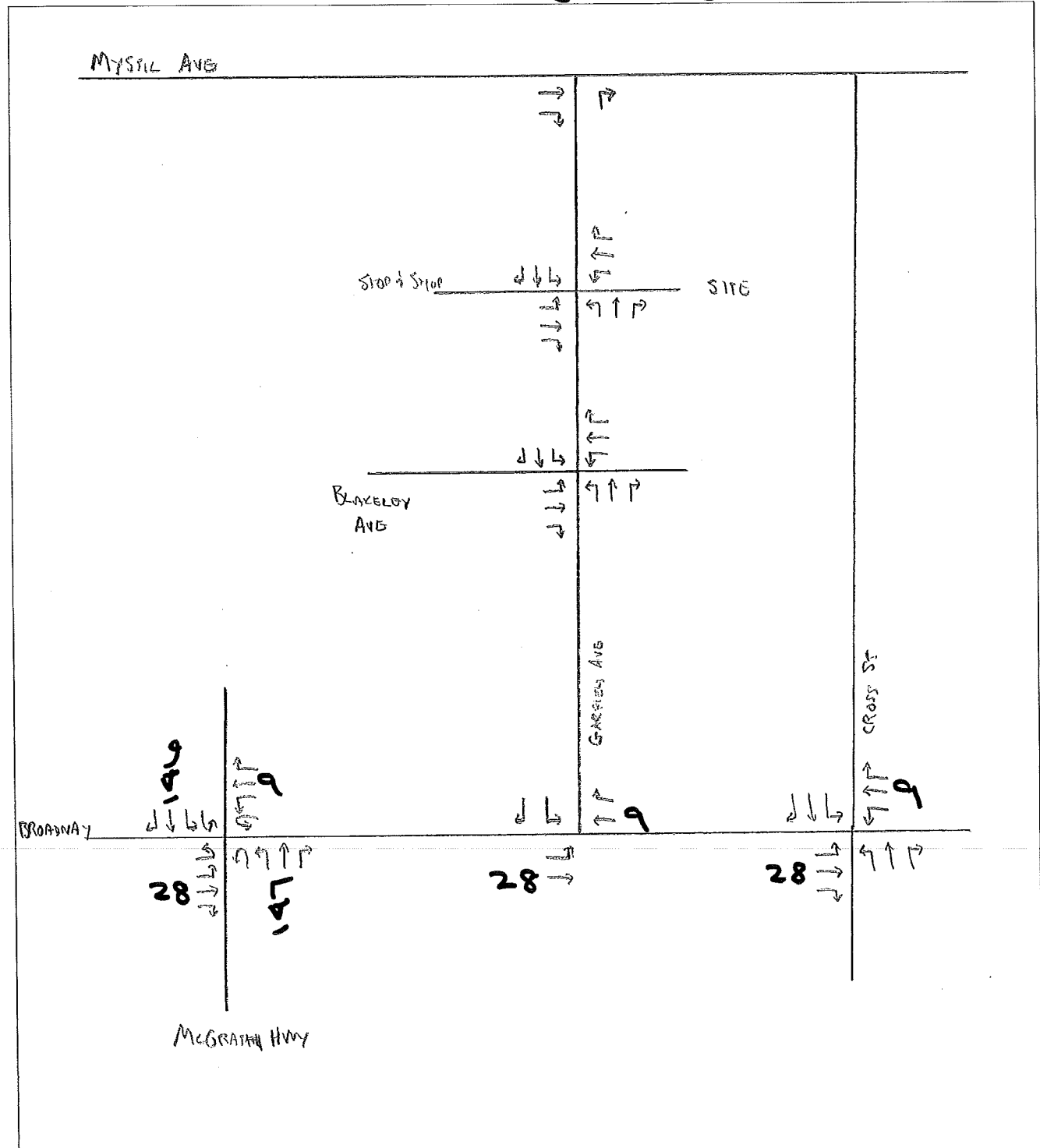
Date **1/6/15**

Computations

Checked by \_\_\_\_\_

Date \_\_\_\_\_

**Background trip assignment\***  
**Saturday Midday**



**\* NOT including Assembly Square**



Project GO-70 CROSS ST EAST

Project # 12109.00

Location SOMERVILLE

Sheet of

Calculated by P. DUNFORD

Date 1/6/15

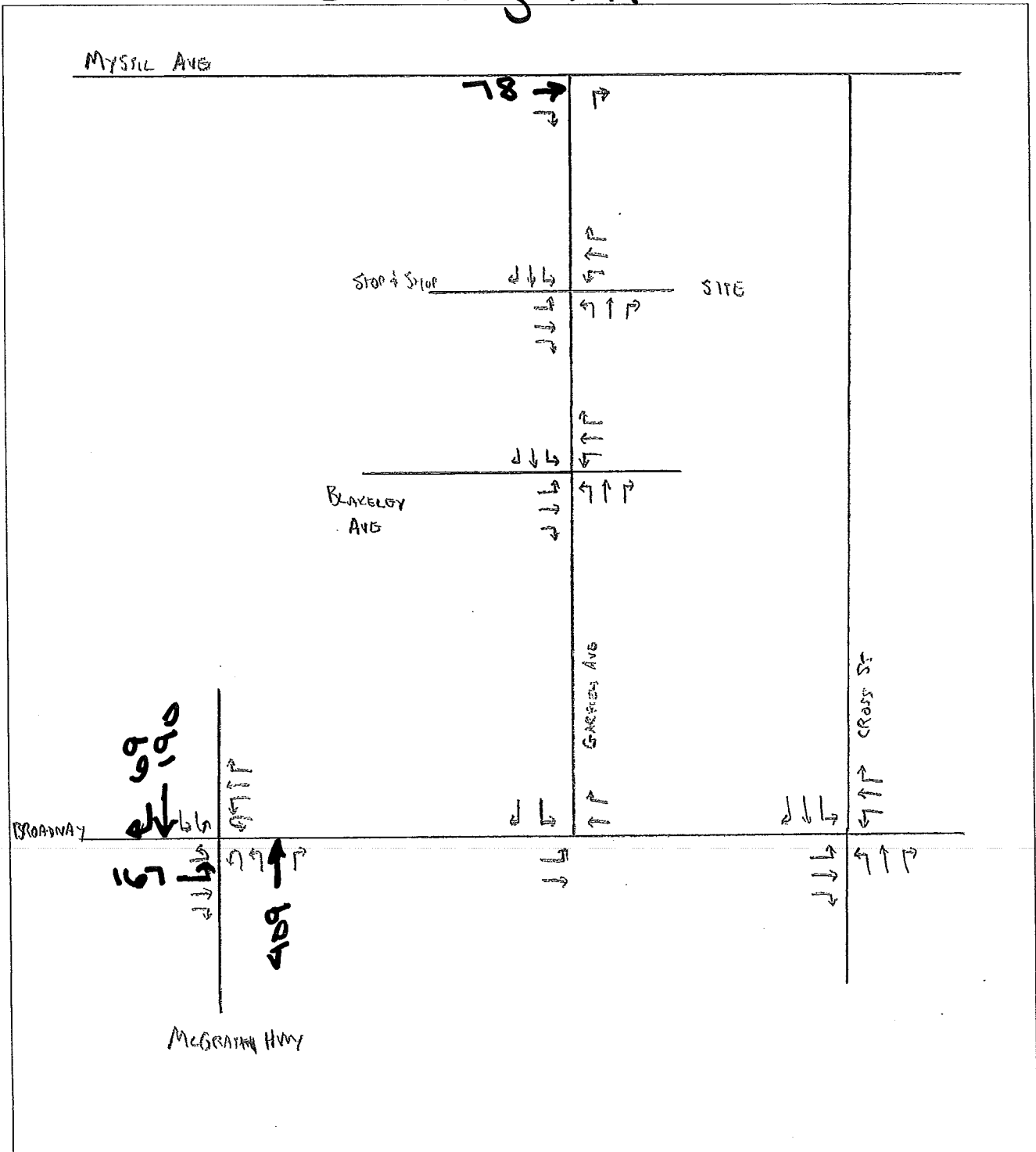
Checked by

Date

Title

Assembly Square trip assignment  
Weekday AM

Computations





Project 60-70 CROSS ST EAST

Project # 12109.00

Location SOMERVILLE

Sheet of

Calculated by P DUNFORD

Date 1/6/15

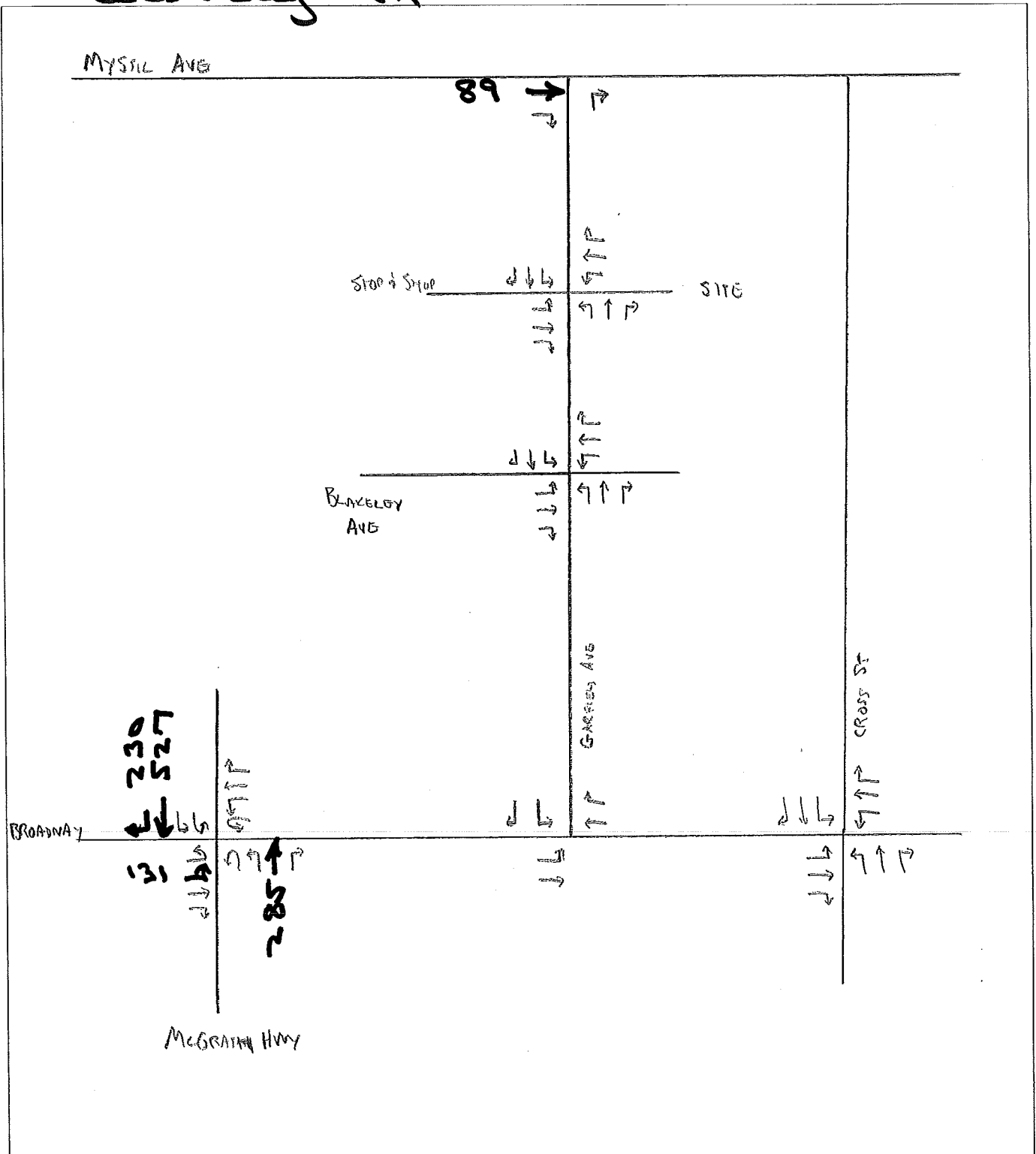
Checked by

Date

Title

Assembly Square trip assignment  
Week Day PM

Computations





Project 60-70 CROSS ST EAST

Project # 12109.00

Location SOMERVILLE

Sheet of

Calculated by PDUNFORD

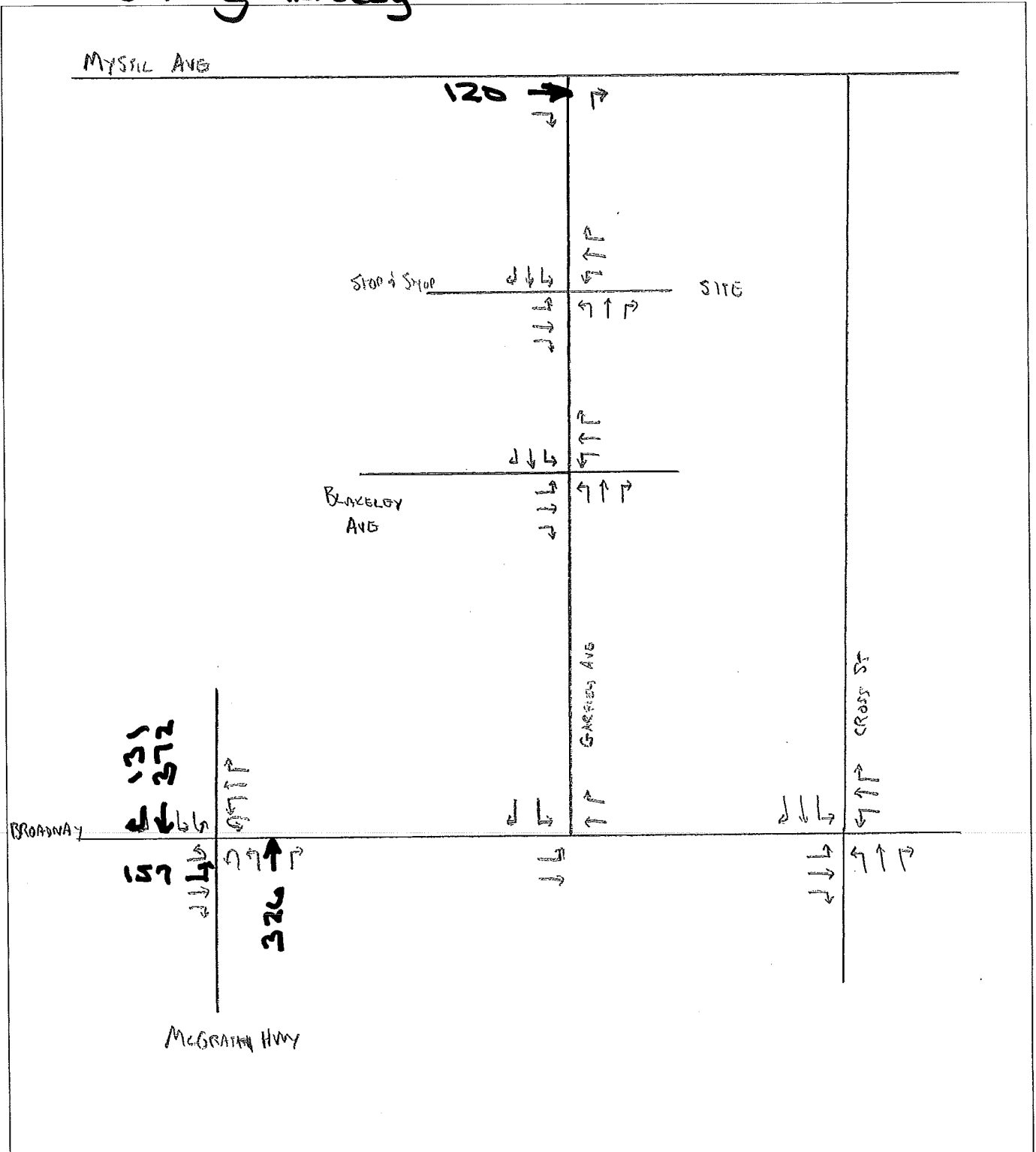
Date

Checked by

Date

Title Assembly Square trip assignment  
Saturday m. day

Computations





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## **Trip Generation Calculations**

**ITE TRIP GENERATION WORKSHEET**

(9th Edition, Updated 2012)

**LANDUSE:** Residential Condominium/Townhouse  
**LANDUSE CODE:** 230 Independent Variable --- Dwelling Units

**JOB NAME:** 60-70 Cross St. East **Dwelling Units** 75  
**JOB NUMBER:** 12109

**WEEKDAY**

| RATES:                | # Studies | R <sup>2</sup> | Total Trip Ends |      |       | Independent Variable Range |     |       | Directional Distribution |      |
|-----------------------|-----------|----------------|-----------------|------|-------|----------------------------|-----|-------|--------------------------|------|
|                       |           |                | Average         | Low  | High  | Average                    | Low | High  | Enter                    | Exit |
| DAILY                 | 56        | 0.80           | 5.81            | 1.53 | 11.79 | 179                        | 0   | 1,300 | 50%                      | 50%  |
| AM PEAK (ADJACENT ST) | 59        | 0.76           | 0.44            | 0.15 | 1.61  | 213                        | 0   | 1,300 | 17%                      | 83%  |
| PM PEAK (ADJACENT ST) | 62        | 0.80           | 0.52            | 0.18 | 1.24  | 205                        | 0   | 1,300 | 67%                      | 33%  |

| TRIPS:                | BY AVERAGE |       |      | BY REGRESSION |       |      |
|-----------------------|------------|-------|------|---------------|-------|------|
|                       | Total      | Enter | Exit | Total         | Enter | Exit |
| DAILY                 | 436        | 218   | 218  | 500           | 250   | 250  |
| AM PEAK (ADJACENT ST) | 33         | 6     | 27   | 41            | 7     | 34   |
| PM PEAK (ADJACENT ST) | 39         | 26    | 13   | 48            | 32    | 16   |

**SATURDAY**

| RATES:            | # Studies | R <sup>2</sup> | Total Trip Ends |      |       | Independent Variable Range |     |       | Directional Distribution |      |
|-------------------|-----------|----------------|-----------------|------|-------|----------------------------|-----|-------|--------------------------|------|
|                   |           |                | Average         | Low  | High  | Average                    | Low | High  | Enter                    | Exit |
| DAILY             | 30        | 0.84           | 5.67            | 1.17 | 11.40 | 209                        | 0   | 1,300 | 50%                      | 50%  |
| PEAK OF GENERATOR | 27        | 0.84           | 0.47            | 0.14 | 0.93  | 228                        | 0   | 1,300 | 54%                      | 46%  |

| TRIPS:            | BY AVERAGE |       |      | BY REGRESSION |       |      |
|-------------------|------------|-------|------|---------------|-------|------|
|                   | Total      | Enter | Exit | Total         | Enter | Exit |
| DAILY             | 425        | 213   | 213  | 699           | 350   | 350  |
| PEAK OF GENERATOR | 35         | 19    | 16   | 65            | 35    | 30   |

**SUNDAY**

| RATES:            | # Studies | R <sup>2</sup> | Total Trip Ends |      |      | Independent Variable Range |     |       | Directional Distribution |      |
|-------------------|-----------|----------------|-----------------|------|------|----------------------------|-----|-------|--------------------------|------|
|                   |           |                | Average         | Low  | High | Average                    | Low | High  | Enter                    | Exit |
| DAILY             | 30        | 0.88           | 4.84            | 1.36 | 8.56 | 209                        | 0   | 1,300 | 50%                      | 50%  |
| PEAK OF GENERATOR | 27        | 0.78           | 0.45            | 0.16 | 1.07 | 228                        | 0   | 1,300 | 49%                      | 51%  |

| TRIPS:            | BY AVERAGE |       |      | BY REGRESSION |       |      |
|-------------------|------------|-------|------|---------------|-------|------|
|                   | Total      | Enter | Exit | Total         | Enter | Exit |
| DAILY             | 363        | 182   | 182  | 592           | 296   | 296  |
| PEAK OF GENERATOR | 34         | 17    | 17   | 67            | 33    | 34   |



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## **Trip Distribution**



Project 60-70 CROSS ST EAST

Project # 12109.00

Location SOMERVILLE

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

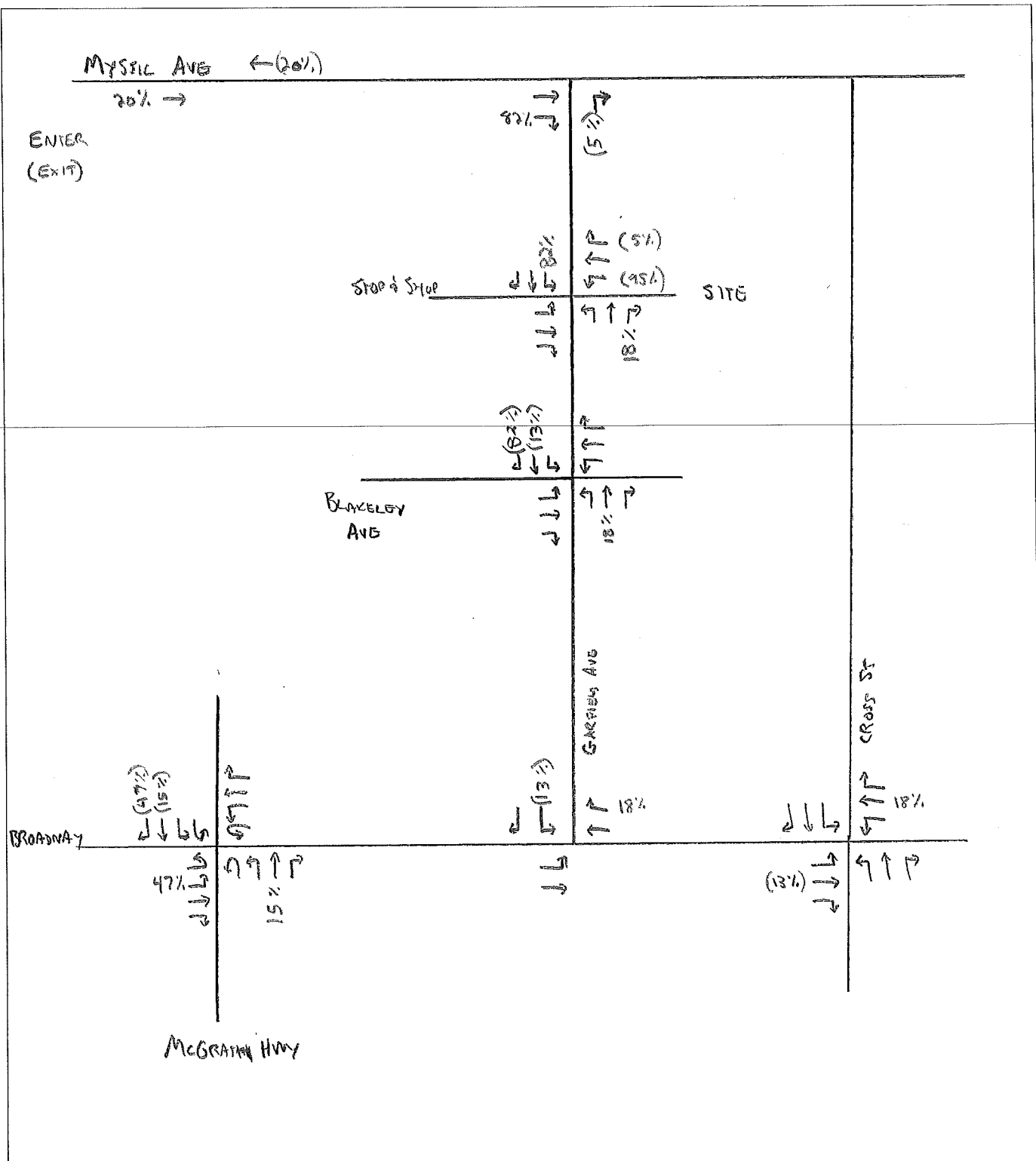
Date \_\_\_\_\_

Checked by \_\_\_\_\_

Date \_\_\_\_\_

Title TRIP DISTRIBUTION

## Computations





# Computations

Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet .. of ..

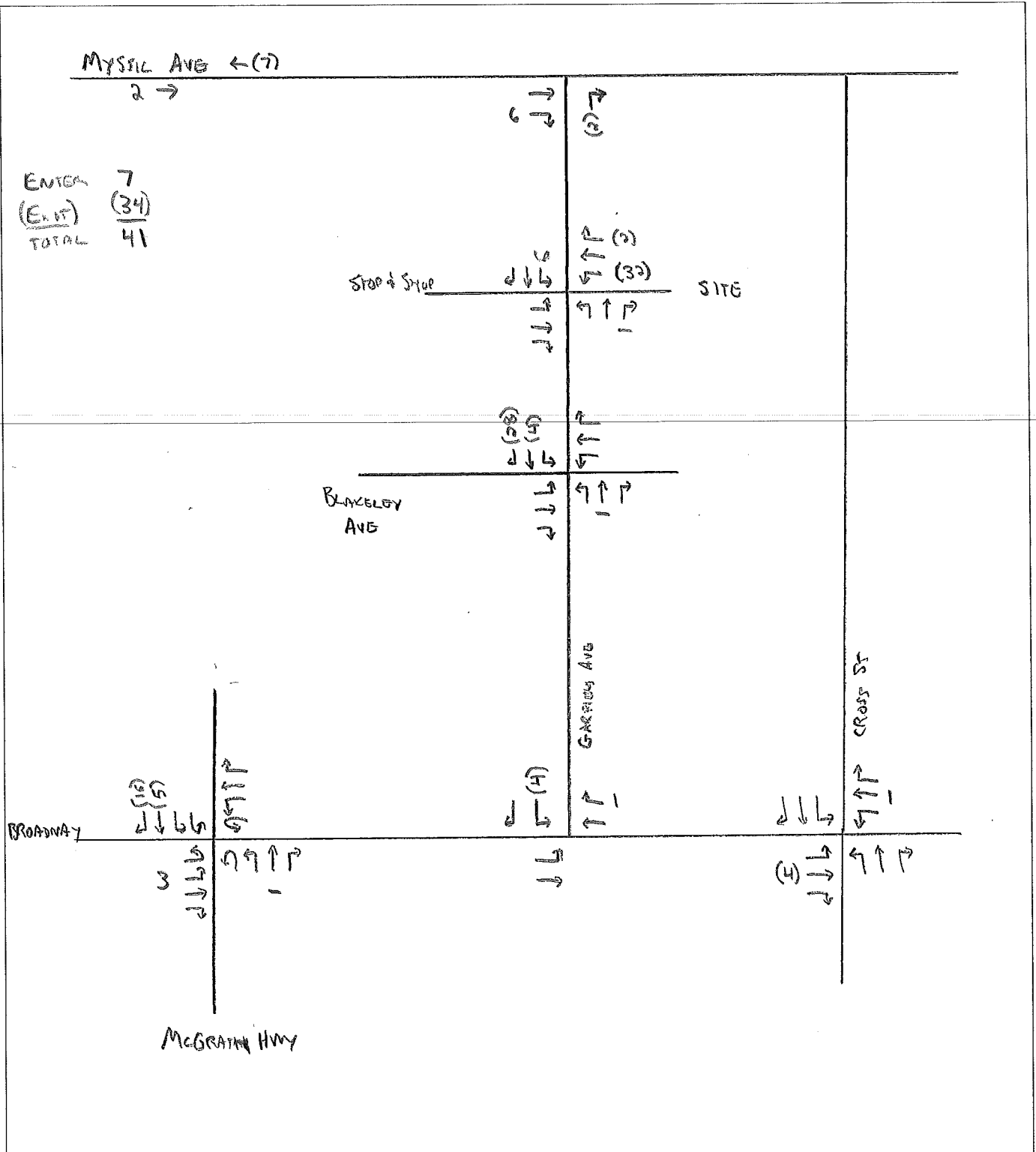
Calculated by ..

Date ..

Checked by ..

Date ..

Title **WEEKDAY AM PROJECT TRIPS**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet **1** of **1**

Calculated by

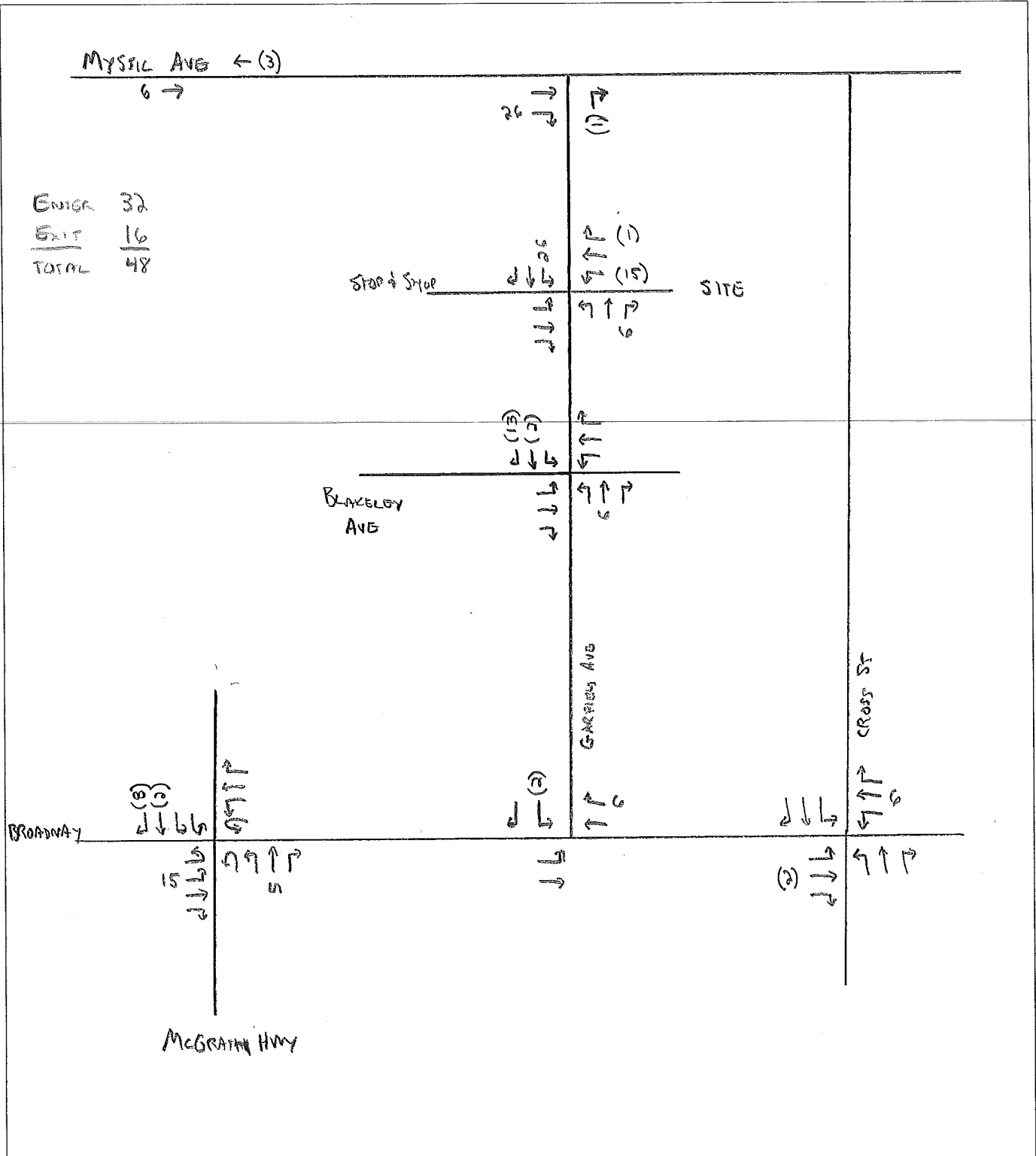
Date

Checked by

Date

Title **WEEKDAY PM PROJECT TRIPS**

# Computations





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet ... of ...

Calculated by ...

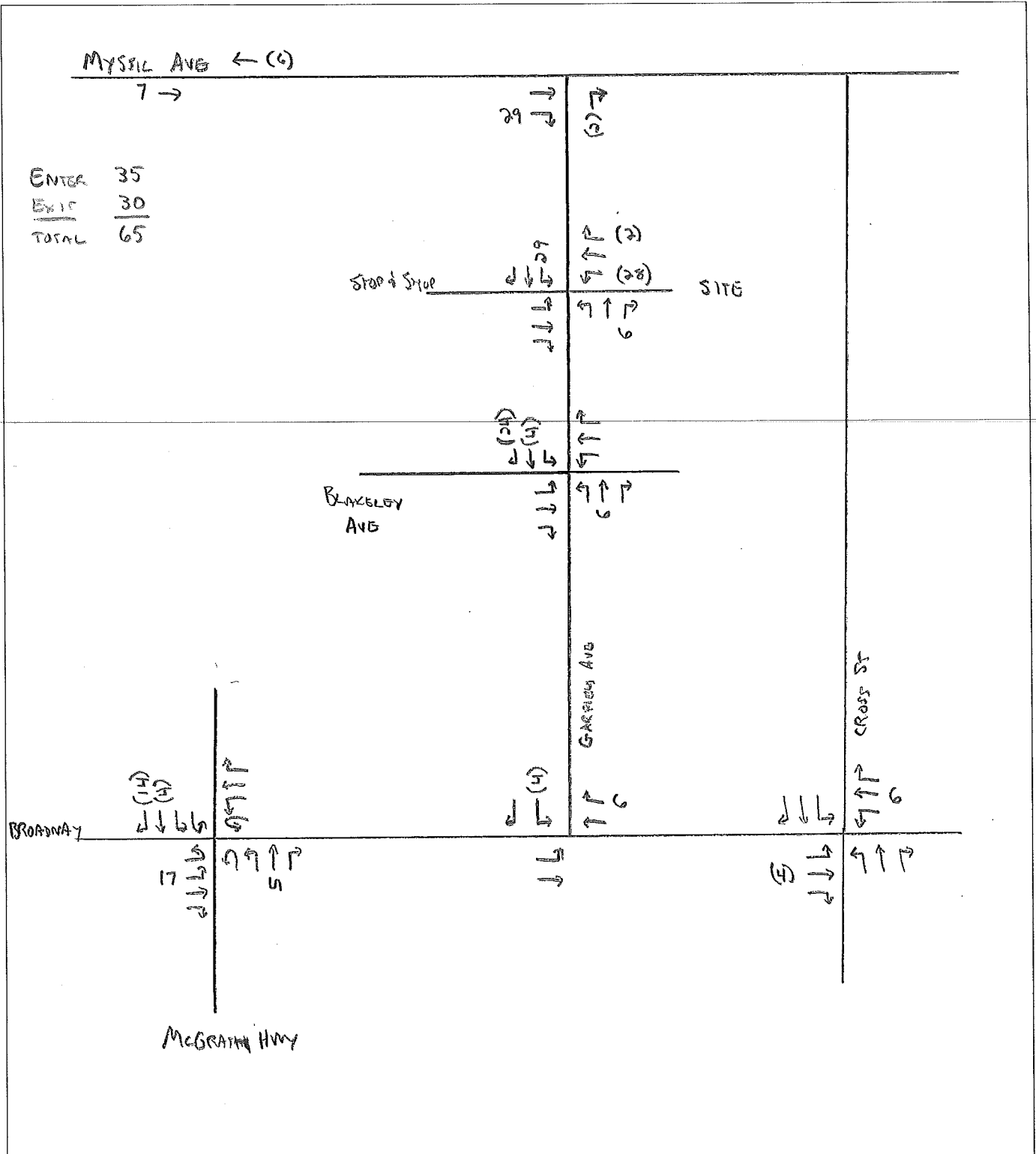
Date ...

Checked by ...

Date ...

Title **SATURDAY MIDDAY PROJECT TRIPS**

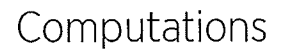
# Computations



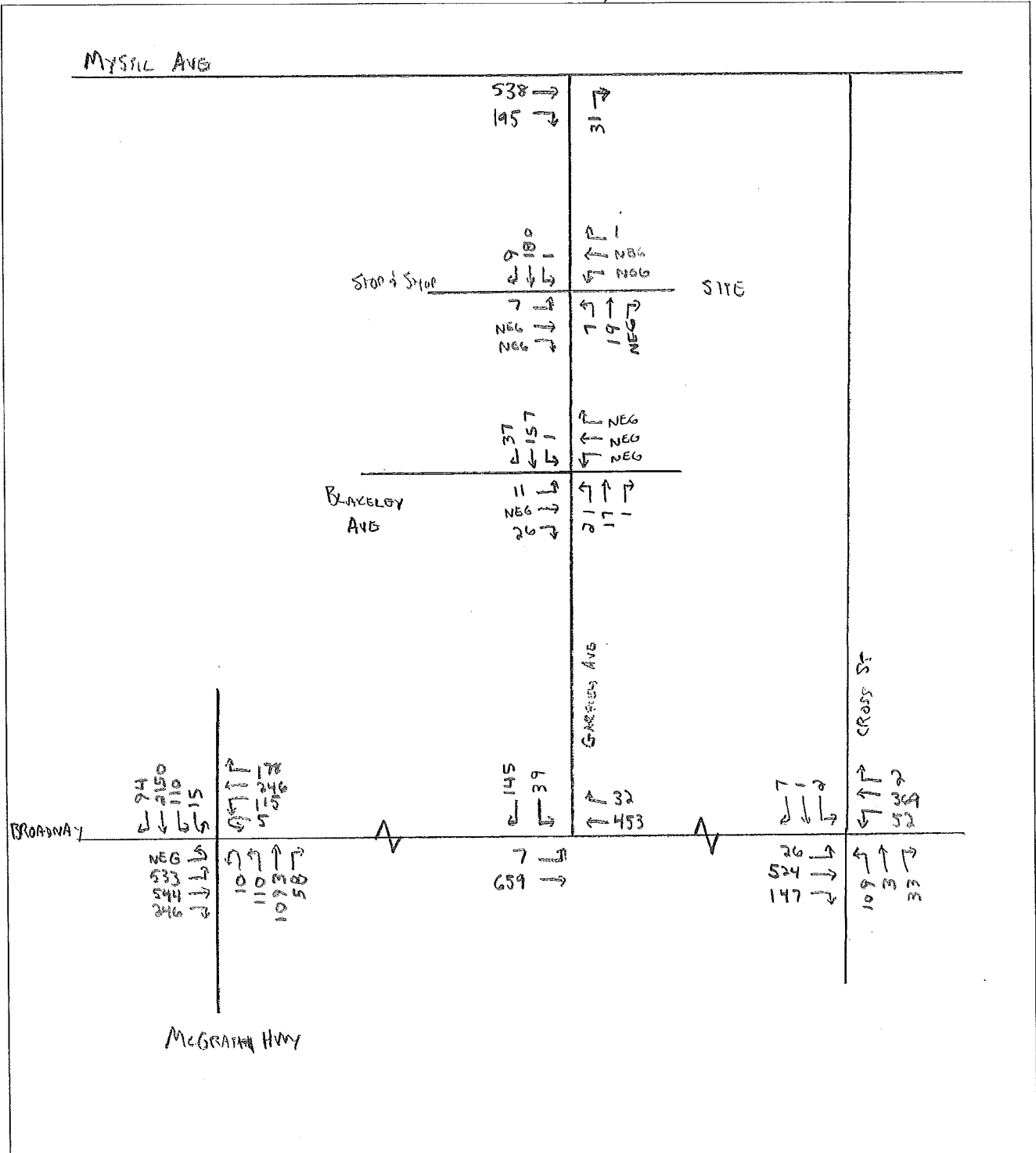


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# **Traffic Volume Networks**



2015 EXISTING CONDITIONS - WEEKDAY AM PEAK HOUR





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

Date \_\_\_\_\_

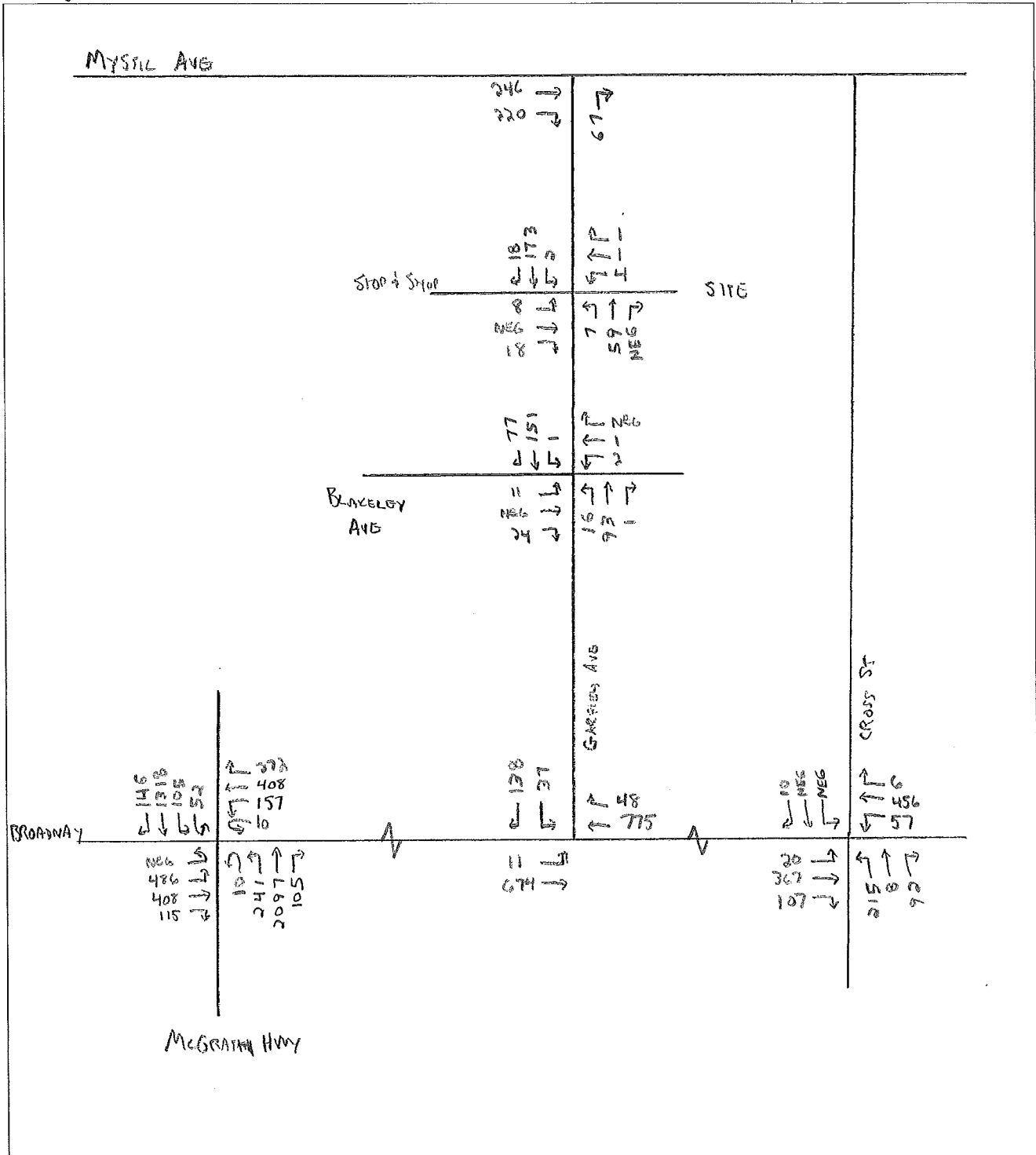
Checked by \_\_\_\_\_

Date \_\_\_\_\_

## Computations

Title

**2015 EXISTING CONDITIONS - WEEKDAY PM PEAK HOUR**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

Date \_\_\_\_\_

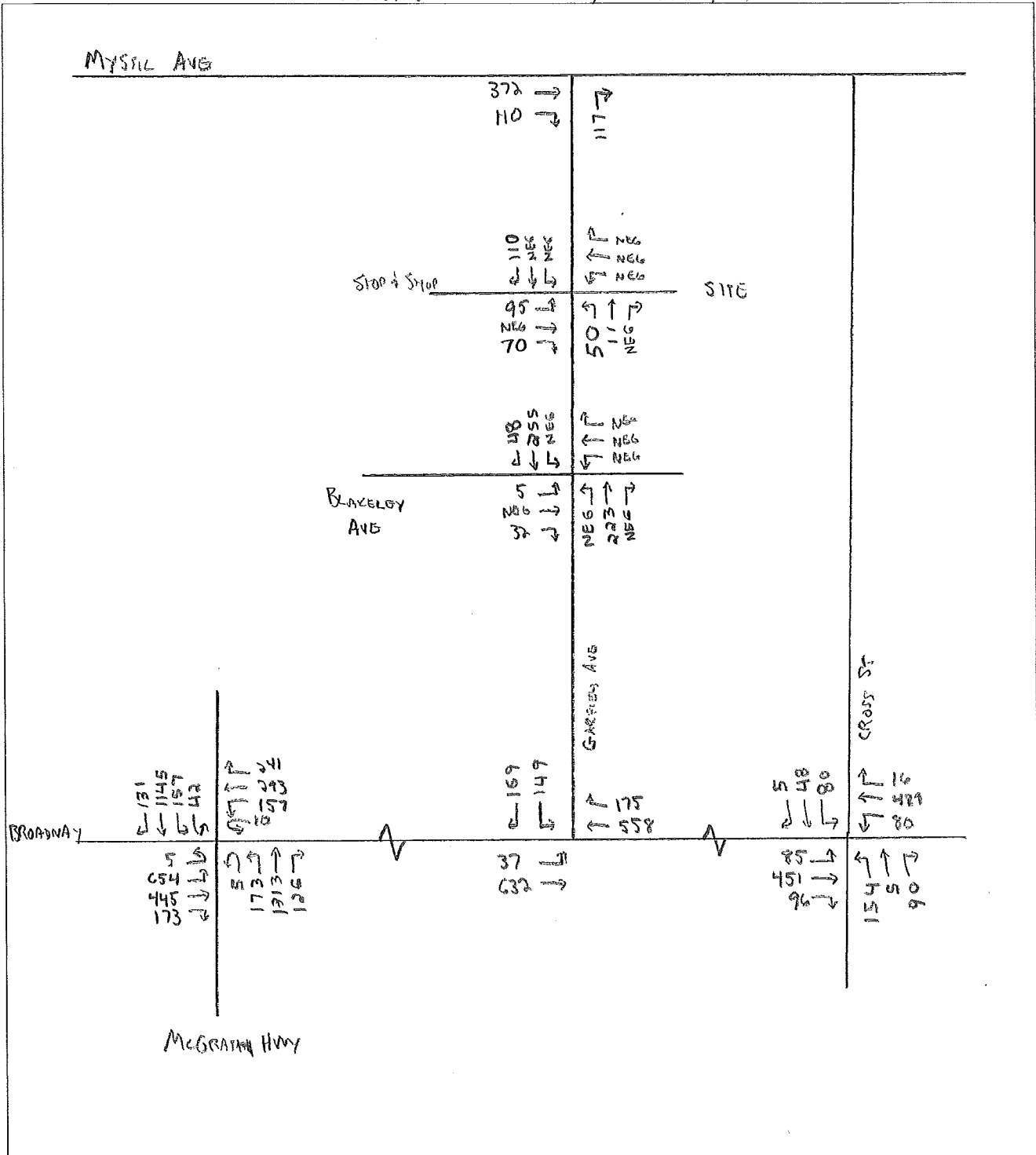
Checked by \_\_\_\_\_

Date \_\_\_\_\_

## Computations

Title

**2015 EXISTING CONDITIONS - SATURDAY MIDDAY PEAK HOUR**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

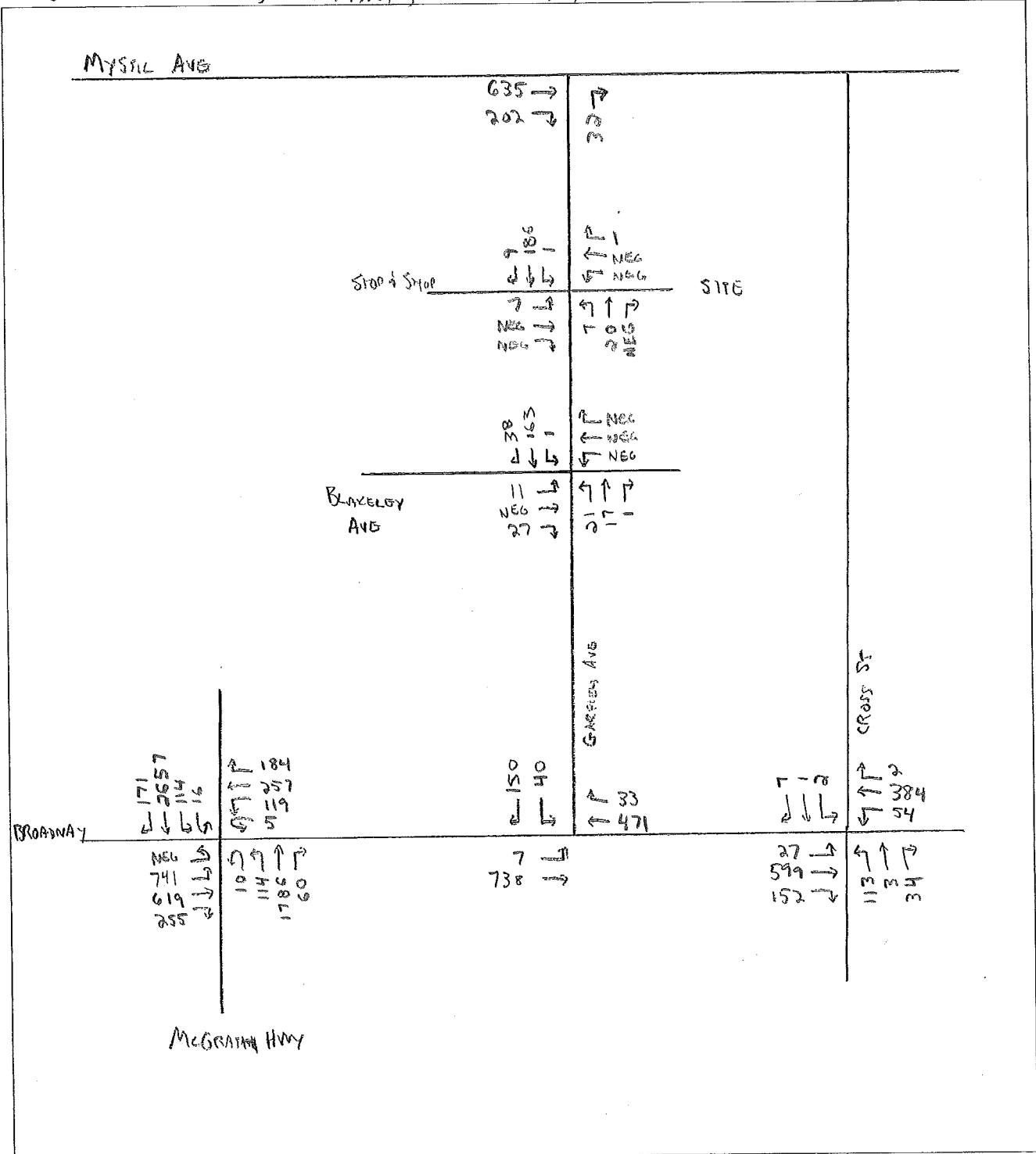
Date \_\_\_\_\_

Checked by \_\_\_\_\_

Date \_\_\_\_\_

# Computations

Title **2022 NO BUILD CONDITIONS - WEEKDAY AM PEAK HOUR**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

Date \_\_\_\_\_

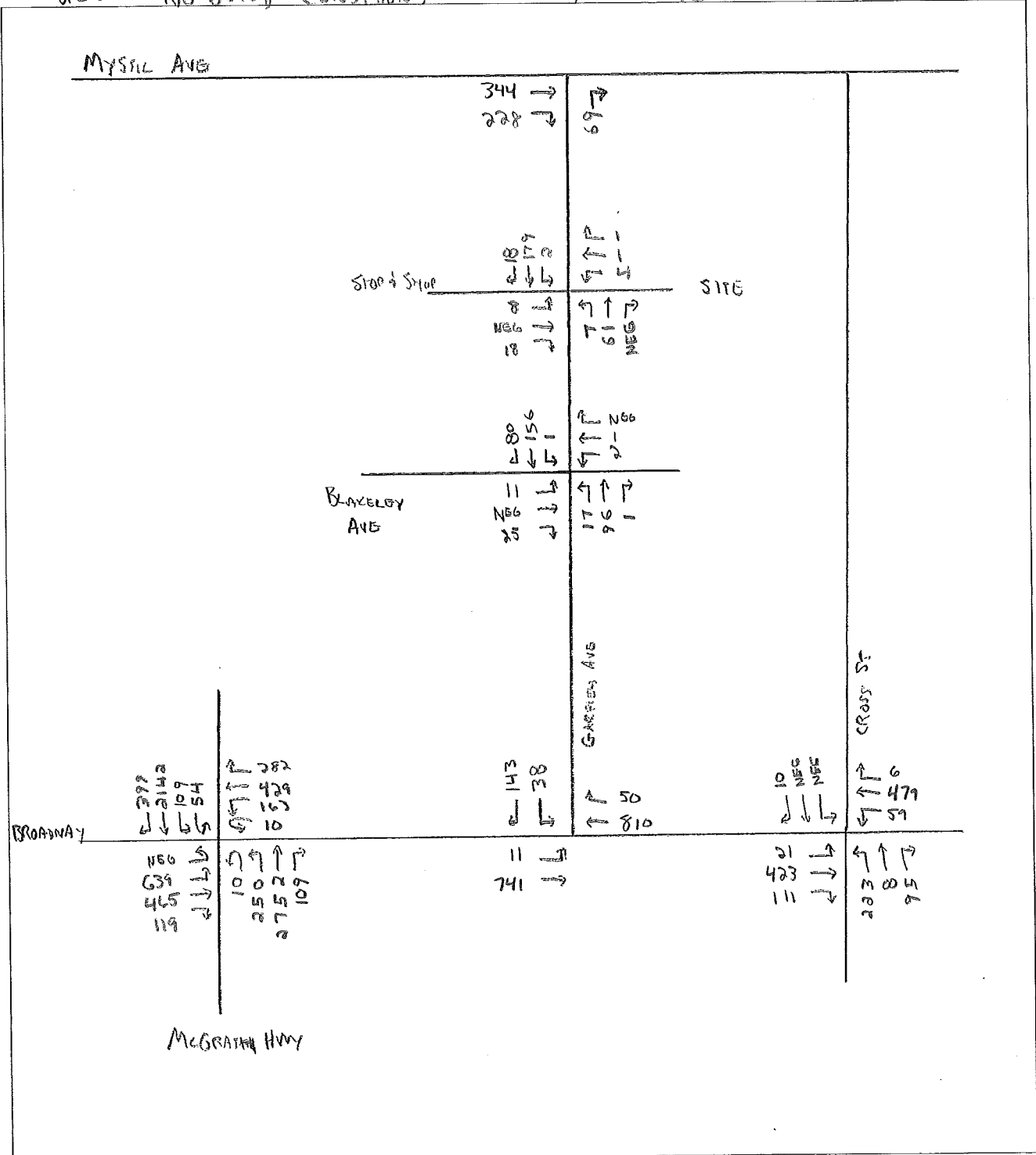
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# Computations

Title

**2022 NO BUILD CONDITIONS - WEEKDAY PM PEAK HOUR**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet \_\_\_\_\_ of \_\_\_\_\_

Calculated by \_\_\_\_\_

Date \_\_\_\_\_

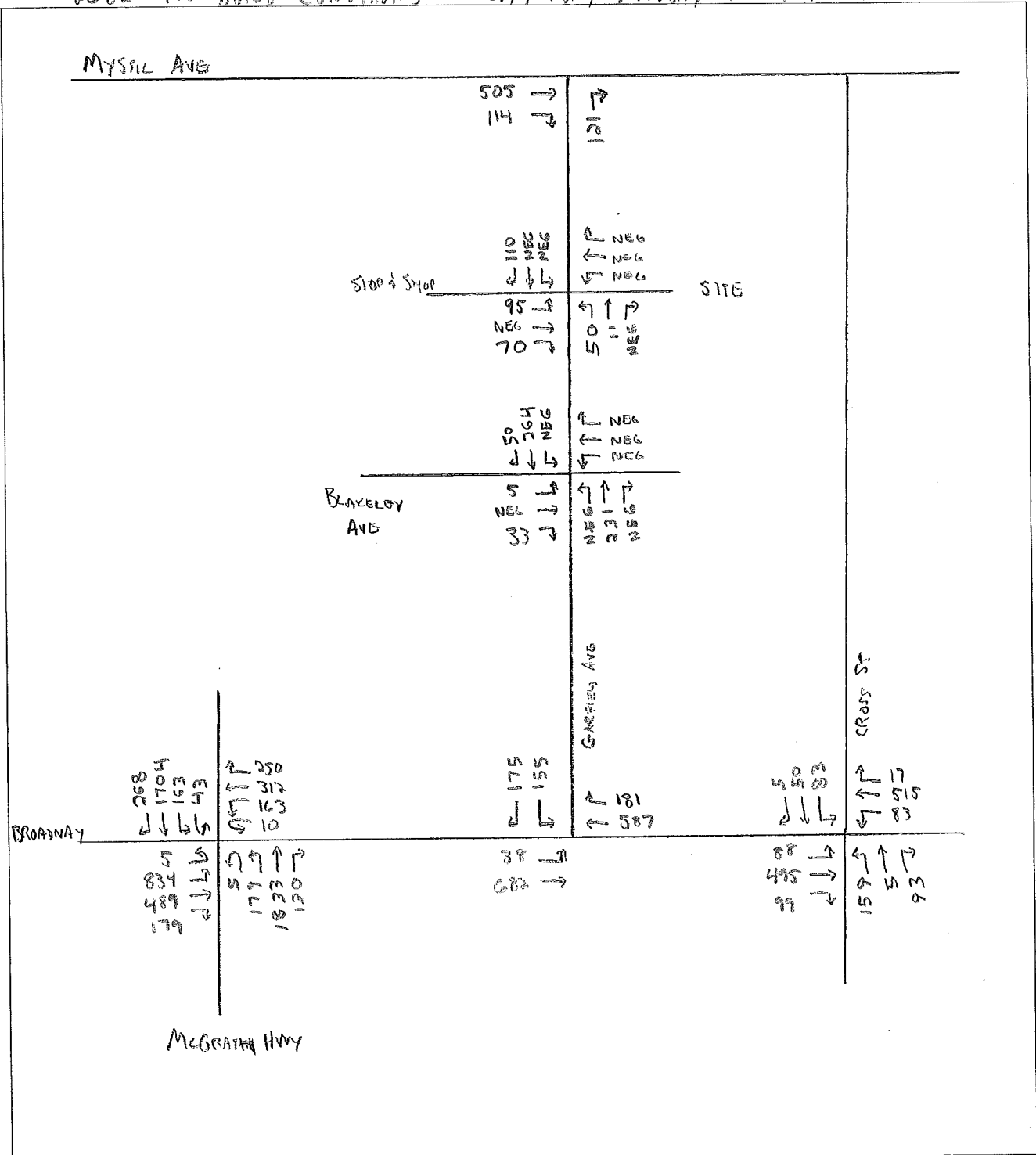
Checked by \_\_\_\_\_

Date \_\_\_\_\_

# Computations

Title

**2022 NO BUILD CONDITIONS - SATURDAY MIDDAY PEAK HOUR**





Project **GO-70 CROSS ST EAST**

Project # **12109.00**

Location **SOMERVILLE**

Sheet of

Calculated by

Date

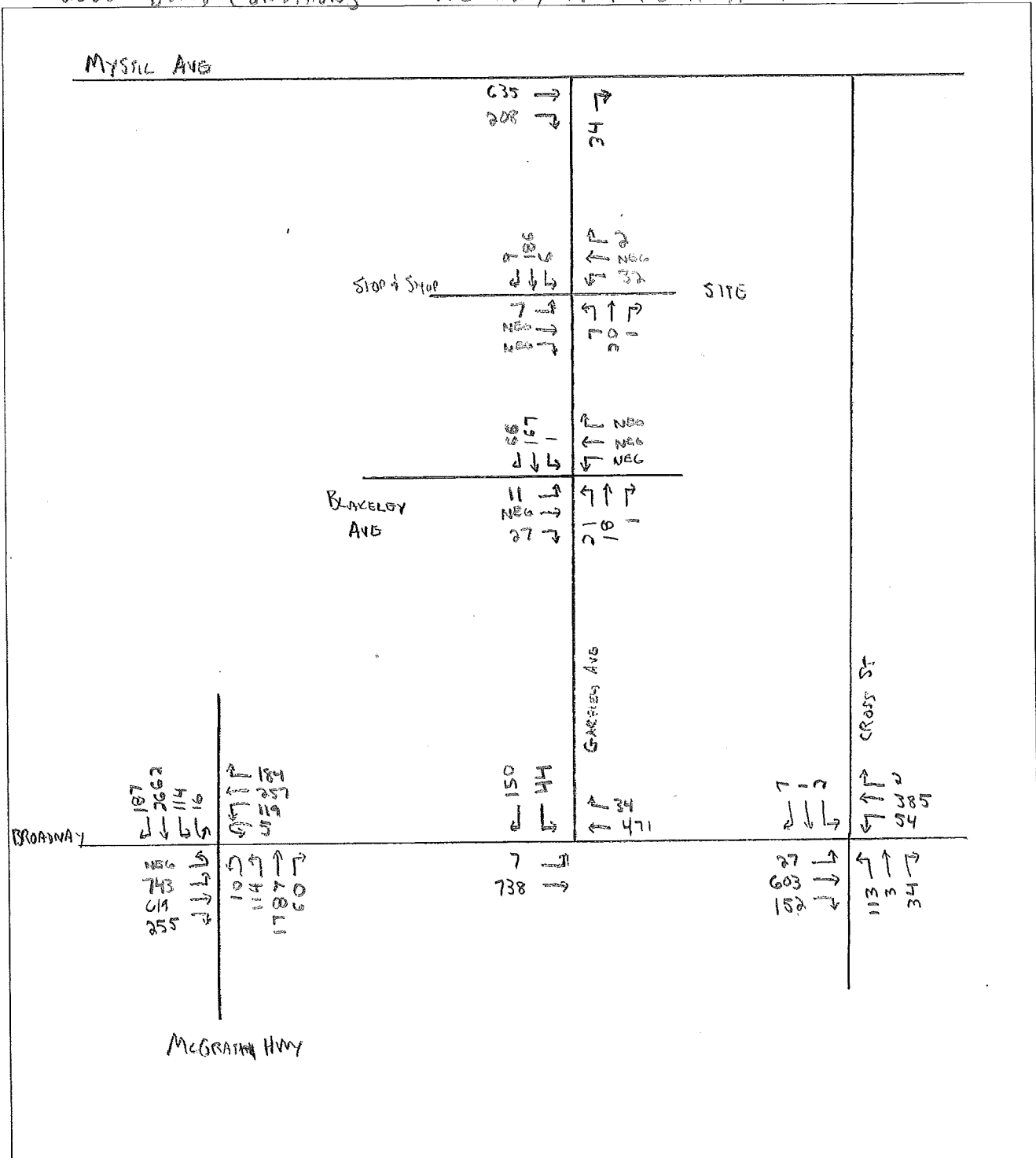
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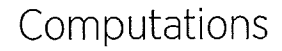
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# Computations

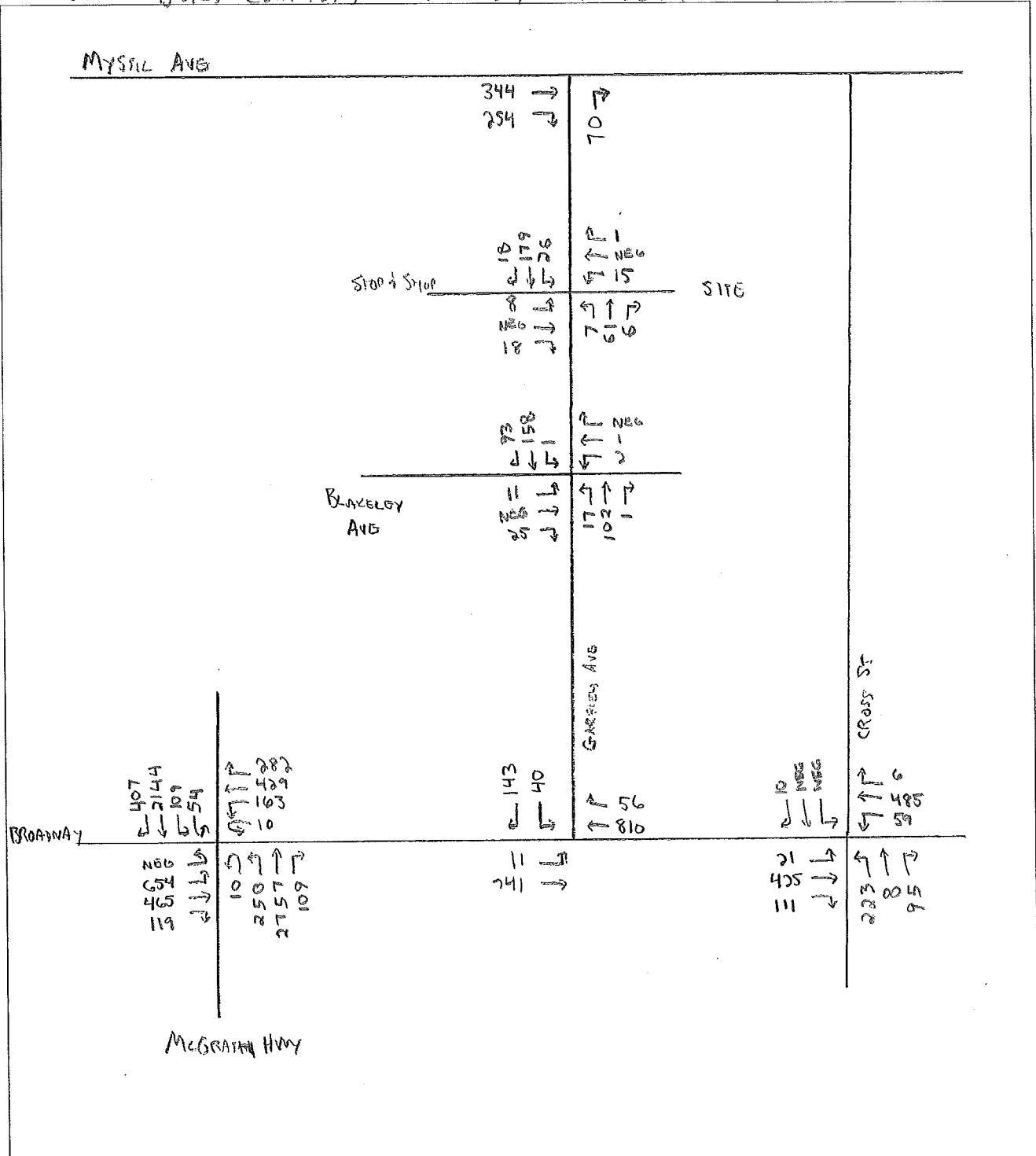
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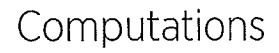
**2022 BUILD CONDITIONS - WEEKDAY AM PEAK HOUR**



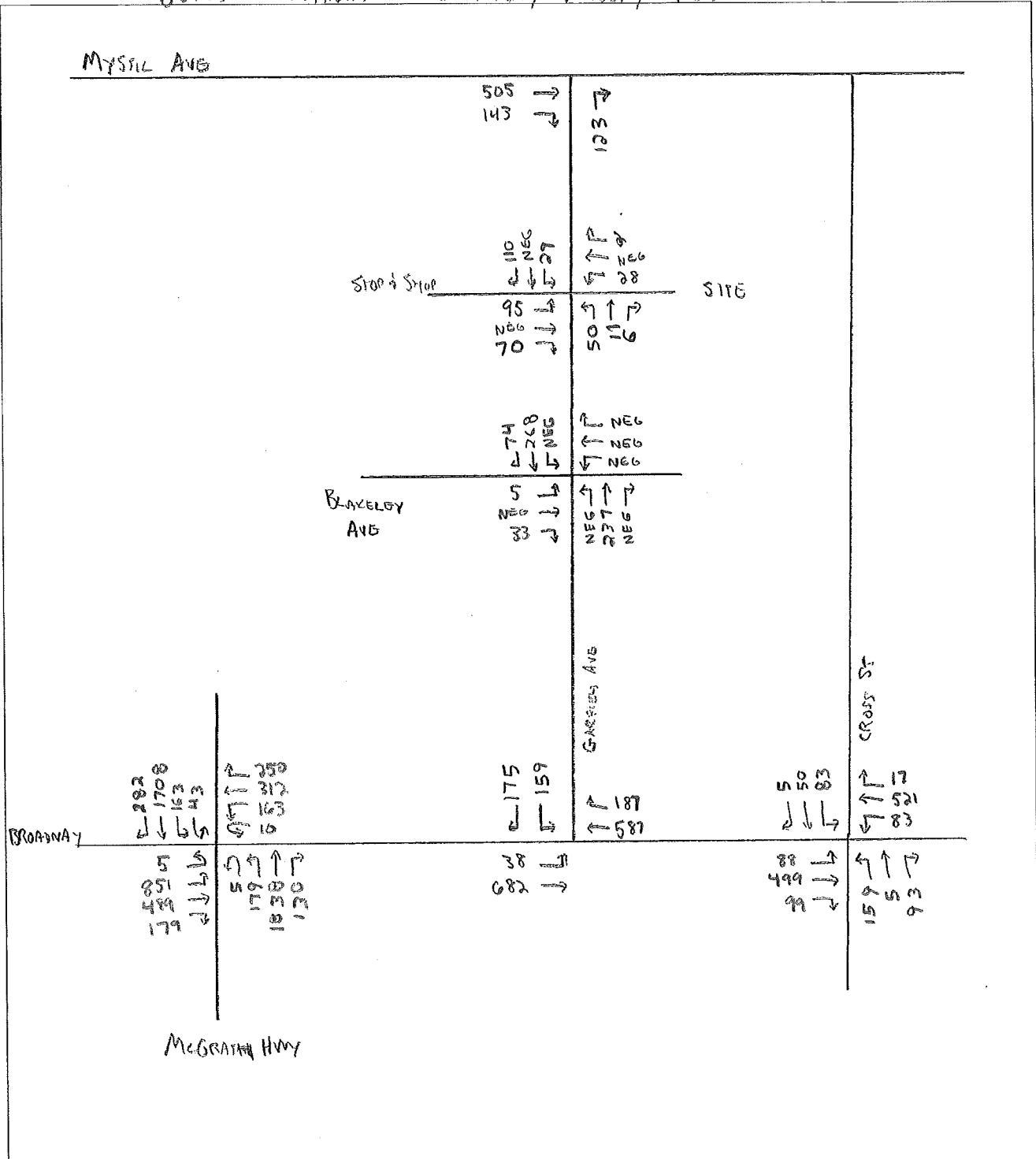


2022 BUILD CONDITIONS - WEEKDAY PM PEAK HOUR





2022 BUILD CONDITIONS - SATURDAY MIDDAY PEAK HOUR





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# **Intersection Capacity Analysis**

2015 Existing Conditions  
1: Garfield Avenue & Mystic Avenue

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 538                                                                               | 195                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 31                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.54                                                                              | 0.54                                                                              |
| Hourly flow rate (vph)            | 572                                                                               | 207                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 57                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 780                                                                               |                                                                                   | 676                                                                               | 676                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 780                                                                               |                                                                                   | 676                                                                               | 676                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 87                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 837                                                                               |                                                                                   | 417                                                                               | 452                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 780                                                                               | 57                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 207                                                                               | 57                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 452                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.46                                                                              | 0.13                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 11                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 14.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 14.1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 50.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2015 Existing Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 7                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 7                                                                                 | 19                                                                                | 0                                                                                 | 1                                                                                   | 180                                                                                 | 9                                                                                   |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.25                                                                              | 0.25                                                                              | 0.25                                                                              | 0.59                                                                              | 0.59                                                                              | 0.59                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Hourly flow rate (vph)            | 16                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 4                                                                                 | 12                                                                                | 32                                                                                | 0                                                                                 | 1                                                                                   | 200                                                                                 | 10                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 267                                                                               | 263                                                                               | 205                                                                               | 263                                                                               | 268                                                                               | 32                                                                                | 210                                                                               |                                                                                   |                                                                                   | 32                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 267                                                                               | 263                                                                               | 205                                                                               | 263                                                                               | 268                                                                               | 32                                                                                | 210                                                                               |                                                                                   |                                                                                   | 32                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 682                                                                               | 639                                                                               | 841                                                                               | 689                                                                               | 635                                                                               | 1047                                                                              | 1373                                                                              |                                                                                   |                                                                                   | 1586                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 16                                                                                | 4                                                                                 | 44                                                                                | 211                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 16                                                                                | 0                                                                                 | 12                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 4                                                                                 | 0                                                                                 | 10                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 682                                                                               | 1047                                                                              | 1373                                                                              | 1586                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.02                                                                              | 0.00                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 2                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.4                                                                              | 8.5                                                                               | 2.1                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.4                                                                              | 8.5                                                                               | 2.1                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 22.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2015 Existing Conditions  
3: Garfield Ave/Garfield Avenue & Blakeley Avenue

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 26                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 21                                                                                | 17                                                                                | 1                                                                                 | 1                                                                                   | 157                                                                                 | 37                                                                                  |
| Peak Hour Factor                  | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                |
| Hourly flow rate (vph)            | 13                                                                                | 0                                                                                 | 31                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                | 26                                                                                | 2                                                                                 | 1                                                                                   | 176                                                                                 | 42                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 44                                                                                | 0                                                                                 | 60                                                                                | 219                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 13                                                                                | 0                                                                                 | 32                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 31                                                                                | 0                                                                                 | 2                                                                                 | 42                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.36                                                                             | 0.00                                                                              | 0.09                                                                              | -0.10                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.1                                                                               | 4.5                                                                               | 4.3                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.05                                                                              | 0.00                                                                              | 0.07                                                                              | 0.24                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 806                                                                               | 753                                                                               | 812                                                                               | 895                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.3                                                                               | 7.5                                                                               | 7.6                                                                               | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.3                                                                               | 0.0                                                                               | 7.6                                                                               | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 27.2%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

|                         |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 | ø9                                                                                  |
| Lane Configurations     |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |                                                                                     |
| Volume (vph)            | 26                                                                                | 524                                                                               | 147                                                                               | 52                                                                                | 369                                                                               | 2                                                                                 | 109                                                                               | 3                                                                                 | 33                                                                                 | 2                                                                                   | 1                                                                                   | 7                                                                                   |                                                                                     |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |                                                                                     |
| Storage Length (ft)     | 75                                                                                |                                                                                   | 0                                                                                 | 100                                                                               |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Storage Lanes           | 1                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |
| Link Speed (mph)        |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                    |                                                                                     | 30                                                                                  |                                                                                     |                                                                                     |
| Link Distance (ft)      |                                                                                   | 247                                                                               |                                                                                   |                                                                                   | 411                                                                               |                                                                                   |                                                                                   | 244                                                                               |                                                                                    |                                                                                     | 507                                                                                 |                                                                                     |                                                                                     |
| Travel Time (s)         |                                                                                   | 5.6                                                                               |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                   | 5.5                                                                               |                                                                                    |                                                                                     | 11.5                                                                                |                                                                                     |                                                                                     |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |                                                                                     |
| Parking (#/hr)          |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 28                                                                                | 730                                                                               | 0                                                                                 | 57                                                                                | 403                                                                               | 0                                                                                 | 0                                                                                 | 157                                                                               | 0                                                                                  | 0                                                                                   | 11                                                                                  | 0                                                                                   |                                                                                     |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |                                                                                     |
| Protected Phases        |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     | 9                                                                                   |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Detector Phase          | 2                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                    | 4                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               | 10.0                                                                              |                                                                                   | 6.0                                                                               | 6.0                                                                               |                                                                                    | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 7.0                                                                                 |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              |                                                                                   | 11.0                                                                              | 20.0                                                                              |                                                                                   | 20.0                                                                              | 20.0                                                                              |                                                                                    | 20.0                                                                                | 20.0                                                                                |                                                                                     | 27.0                                                                                |
| Total Split (s)         | 36.0                                                                              | 36.0                                                                              |                                                                                   | 11.0                                                                              | 47.0                                                                              |                                                                                   | 26.0                                                                              | 26.0                                                                              |                                                                                    | 26.0                                                                                | 26.0                                                                                |                                                                                     | 27.0                                                                                |
| Total Split (%)         | 36.0%                                                                             | 36.0%                                                                             |                                                                                   | 11.0%                                                                             | 47.0%                                                                             |                                                                                   | 26.0%                                                                             | 26.0%                                                                             |                                                                                    | 26.0%                                                                               | 26.0%                                                                               |                                                                                     | 27%                                                                                 |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 2.0                                                                                 |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               |                                                                                   | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     | 1.0                                                                                 |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |                                                                                     |
| Lead/Lag                | Lag                                                                               | Lag                                                                               |                                                                                   | Lead                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              | None                                                                              |                                                                                    | None                                                                                | None                                                                                |                                                                                     | None                                                                                |
| v/c Ratio               | 0.04                                                                              | 0.32                                                                              |                                                                                   | 0.11                                                                              | 0.15                                                                              |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                    |                                                                                     | 0.05                                                                                |                                                                                     |                                                                                     |
| Control Delay           | 5.8                                                                               | 6.4                                                                               |                                                                                   | 4.7                                                                               | 4.2                                                                               |                                                                                   |                                                                                   | 57.4                                                                              |                                                                                    |                                                                                     | 21.8                                                                                |                                                                                     |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     |
| Total Delay             | 5.8                                                                               | 6.7                                                                               |                                                                                   | 4.7                                                                               | 4.2                                                                               |                                                                                   |                                                                                   | 57.4                                                                              |                                                                                    |                                                                                     | 21.8                                                                                |                                                                                     |                                                                                     |
| Queue Length 50th (ft)  | 6                                                                                 | 100                                                                               |                                                                                   | 8                                                                                 | 32                                                                                |                                                                                   |                                                                                   | 89                                                                                |                                                                                    |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |
| Queue Length 95th (ft)  | m14                                                                               | 160                                                                               |                                                                                   | 22                                                                                | 57                                                                                |                                                                                   |                                                                                   | 150                                                                               |                                                                                    |                                                                                     | 17                                                                                  |                                                                                     |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 167                                                                               |                                                                                   |                                                                                   | 331                                                                               |                                                                                   |                                                                                   | 164                                                                               |                                                                                    |                                                                                     | 427                                                                                 |                                                                                     |                                                                                     |
| Turn Bay Length (ft)    | 75                                                                                |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 629                                                                               | 2259                                                                              |                                                                                   | 520                                                                               | 2637                                                                              |                                                                                   |                                                                                   | 289                                                                               |                                                                                    |                                                                                     | 325                                                                                 |                                                                                     |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 807                                                                               |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |
| Reduced v/c Ratio       | 0.04                                                                              | 0.50                                                                              |                                                                                   | 0.11                                                                              | 0.15                                                                              |                                                                                   |                                                                                   | 0.54                                                                              |                                                                                    |                                                                                     | 0.03                                                                                |                                                                                     |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|                                                                                     |                                                                                     |                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| ø1                                                                                  | ø2                                                                                  | ø4                                                                                  | ø9                                                                                    |
| 11 s                                                                                | 36 s                                                                                | 26 s                                                                                | 27 s                                                                                  |
|  |                                                                                     |  |                                                                                       |
| ø6 (R)                                                                              |                                                                                     | ø8                                                                                  |                                                                                       |
| 47 s                                                                                |                                                                                     | 26 s                                                                                |                                                                                       |

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 26                                                                                | 524                                                                               | 147                                                                               | 52                                                                                | 369                                                                               | 2                                                                                 | 109                                                                               | 3                                                                                 | 33                                                                                 | 2                                                                                   | 1                                                                                   | 7                                                                                   |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 0.90                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                    |                                                                                     | 0.99                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3423                                                                              |                                                                                   | 1770                                                                              | 3537                                                                              |                                                                                   |                                                                                   | 1740                                                                              |                                                                                    |                                                                                     | 1665                                                                                |                                                                                     |
| Flt Permitted                     | 0.51                                                                              | 1.00                                                                              |                                                                                   | 0.32                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.77                                                                              |                                                                                    |                                                                                     | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 959                                                                               | 3423                                                                              |                                                                                   | 601                                                                               | 3537                                                                              |                                                                                   |                                                                                   | 1395                                                                              |                                                                                    |                                                                                     | 1596                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 28                                                                                | 570                                                                               | 160                                                                               | 57                                                                                | 401                                                                               | 2                                                                                 | 118                                                                               | 3                                                                                 | 36                                                                                 | 2                                                                                   | 1                                                                                   | 8                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 13                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 11                                                                                | 0                                                                                  | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 28                                                                                | 717                                                                               | 0                                                                                 | 57                                                                                | 403                                                                               | 0                                                                                 | 0                                                                                 | 146                                                                               | 0                                                                                  | 0                                                                                   | 4                                                                                   | 0                                                                                   |
| Parking (#/hr)                    |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 64.7                                                                              | 64.7                                                                              |                                                                                   | 74.6                                                                              | 74.6                                                                              |                                                                                   |                                                                                   | 14.4                                                                              |                                                                                    |                                                                                     | 14.4                                                                                |                                                                                     |
| Effective Green, g (s)            | 64.7                                                                              | 64.7                                                                              |                                                                                   | 74.6                                                                              | 74.6                                                                              |                                                                                   |                                                                                   | 14.4                                                                              |                                                                                    |                                                                                     | 14.4                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.65                                                                              | 0.65                                                                              |                                                                                   | 0.75                                                                              | 0.75                                                                              |                                                                                   |                                                                                   | 0.14                                                                              |                                                                                    |                                                                                     | 0.14                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 620                                                                               | 2214                                                                              |                                                                                   | 505                                                                               | 2638                                                                              |                                                                                   |                                                                                   | 200                                                                               |                                                                                    |                                                                                     | 229                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.21                                                                             |                                                                                   | 0.01                                                                              | c0.11                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.03                                                                              |                                                                                   |                                                                                   | 0.08                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.10                                                                             |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                         | 0.05                                                                              | 0.32                                                                              |                                                                                   | 0.11                                                                              | 0.15                                                                              |                                                                                   |                                                                                   | 0.73                                                                              |                                                                                    |                                                                                     | 0.02                                                                                |                                                                                     |
| Uniform Delay, d1                 | 6.4                                                                               | 7.9                                                                               |                                                                                   | 3.8                                                                               | 3.6                                                                               |                                                                                   |                                                                                   | 40.9                                                                              |                                                                                    |                                                                                     | 36.7                                                                                |                                                                                     |
| Progression Factor                | 0.67                                                                              | 0.73                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   | 10.7                                                                              |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         | 4.3                                                                               | 5.8                                                                               |                                                                                   | 3.9                                                                               | 3.8                                                                               |                                                                                   |                                                                                   | 51.6                                                                              |                                                                                    |                                                                                     | 36.7                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 5.8                                                                               |                                                                                   |                                                                                   | 3.8                                                                               |                                                                                   |                                                                                   | 51.6                                                                              |                                                                                    |                                                                                     | 36.7                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 10.5                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | B                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.40                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 52.4%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

c Critical Lane Group

2015 Existing Conditions  
5: Broadway & Garfield Ave

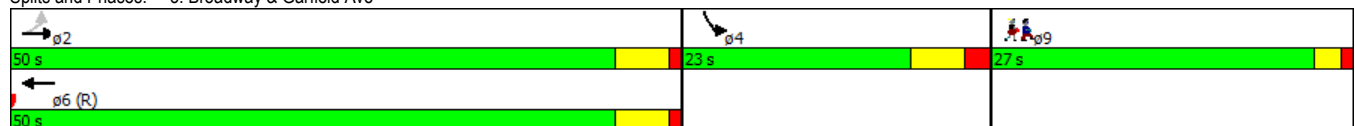
Weekday Morning Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  | ø9   |
|-------------------------|-------|-------|-------|------|-------|------|------|
| Lane Configurations     |       |       |       |      |       |      |      |
| Volume (vph)            | 7     | 659   | 453   | 32   | 39    | 145  |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900 | 1900  | 1900 |      |
| Storage Length (ft)     | 50    |       |       | 0    | 0     | 0    |      |
| Storage Lanes           | 1     |       |       | 0    | 1     | 0    |      |
| Taper Length (ft)       | 25    |       |       |      | 25    |      |      |
| Right Turn on Red       |       |       |       | Yes  |       | Yes  |      |
| Link Speed (mph)        |       | 30    | 30    |      | 30    |      |      |
| Link Distance (ft)      |       | 509   | 247   |      | 538   |      |      |
| Travel Time (s)         |       | 11.6  | 5.6   |      | 12.2  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 |      |
| Parking (#/hr)          |       | 0     |       | 0    |       |      |      |
| Shared Lane Traffic (%) |       |       |       |      |       |      |      |
| Lane Group Flow (vph)   | 8     | 716   | 527   | 0    | 200   | 0    |      |
| Turn Type               | Perm  | NA    | NA    |      | Prot  |      |      |
| Protected Phases        |       | 2     | 6     |      | 4     |      | 9    |
| Permitted Phases        | 2     |       |       |      |       |      |      |
| Detector Phase          | 2     | 2     | 6     |      | 4     |      |      |
| Switch Phase            |       |       |       |      |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  |      | 6.0   |      | 4.0  |
| Minimum Split (s)       | 15.0  | 15.0  | 21.0  |      | 12.0  |      | 27.0 |
| Total Split (s)         | 50.0  | 50.0  | 50.0  |      | 23.0  |      | 27.0 |
| Total Split (%)         | 50.0% | 50.0% | 50.0% |      | 23.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   | 4.0   |      | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   |      | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |      | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   |      | 6.0   |      |      |
| Lead/Lag                |       |       |       |      |       |      |      |
| Lead-Lag Optimize?      |       |       |       |      |       |      |      |
| Recall Mode             | None  | None  | C-Max |      | None  |      | None |
| v/c Ratio               | 0.01  | 0.27  | 0.19  |      | 0.69  |      |      |
| Control Delay           | 2.9   | 3.0   | 2.5   |      | 24.7  |      |      |
| Queue Delay             | 0.0   | 0.0   | 0.3   |      | 0.0   |      |      |
| Total Delay             | 2.9   | 3.0   | 2.8   |      | 24.8  |      |      |
| Queue Length 50th (ft)  | 1     | 40    | 31    |      | 26    |      |      |
| Queue Length 95th (ft)  | 5     | 84    | 57    |      | 93    |      |      |
| Internal Link Dist (ft) |       | 429   | 167   |      | 458   |      |      |
| Turn Bay Length (ft)    | 50    |       |       |      |       |      |      |
| Base Capacity (vph)     | 681   | 2697  | 2813  |      | 411   |      |      |
| Starvation Cap Reductn  | 0     | 0     | 1611  |      | 0     |      |      |
| Spillback Cap Reductn   | 0     | 98    | 0     |      | 4     |      |      |
| Storage Cap Reductn     | 0     | 0     | 0     |      | 0     |      |      |
| Reduced v/c Ratio       | 0.01  | 0.28  | 0.44  |      | 0.49  |      |      |

Intersection Summary

Area Type: Other  
Cycle Length: 100  
Actuated Cycle Length: 100  
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
Natural Cycle: 60  
Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave



2015 Existing Conditions  
5: Broadway & Garfield Ave

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |  |
| Volume (vph)                      | 7                                                                                 | 659                                                                               | 453                                                                               | 32                                                                                | 39                                                                                | 145                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.89                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3362                                                                              | 3504                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Flt Permitted                     | 0.46                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 850                                                                               | 3362                                                                              | 3504                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 8                                                                                 | 716                                                                               | 492                                                                               | 35                                                                                | 42                                                                                | 158                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 144                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 8                                                                                 | 716                                                                               | 525                                                                               | 0                                                                                 | 56                                                                                | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Effective Green, g (s)            | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              |                                                                                   | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 681                                                                               | 2696                                                                              | 2810                                                                              |                                                                                   | 144                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | c0.21                                                                             | 0.15                                                                              |                                                                                   | c0.03                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.01                                                                              | 0.27                                                                              | 0.19                                                                              |                                                                                   | 0.39                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.0                                                                               | 2.5                                                                               | 2.3                                                                               |                                                                                   | 43.1                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.93                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.1                                                                               |                                                                                   | 0.6                                                                               |                                                                                   |
| Delay (s)                         | 2.0                                                                               | 2.5                                                                               | 2.3                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.5                                                                               | 2.3                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   | 8.1                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |                                                                                   |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.29                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 38.5%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

c Critical Lane Group

2015 Existing Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT   | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |       |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 533   | 544   | 246   | 120   | 246   | 178  | 120   | 1093  | 58   | 125   | 2150  | 94   |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |       | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |       | 1     | 1     |       | 1    | 1     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |       |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |       | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30    |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696   |       |       | 509   |      |       | 780   |      |       | 673   |      |
| Travel Time (s)         |       | 15.8  |       |       | 11.6  |      |       | 17.7  |      |       | 15.3  |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |       |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 289   | 881   | 267   | 117   | 280   | 193  | 130   | 1251  | 0    | 136   | 2439  | 0    |
| Turn Type               | Split | NA    | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4     |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |       | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4     | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |       |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0  | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0  | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0% | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5   | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag   | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes   | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None  | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 0.76  | 0.74  | 0.45  | 0.60  | 0.68  | 0.12 | 1.00  | 0.73  |      | 1.05  | 1.43  |      |
| Control Delay           | 55.7  | 46.0  | 8.1   | 62.5  | 59.0  | 0.2  | 134.7 | 37.9  |      | 145.2 | 227.3 |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 55.7  | 46.0  | 8.1   | 62.5  | 59.0  | 0.2  | 134.7 | 37.9  |      | 145.2 | 227.3 |      |
| Queue Length 50th (ft)  | 233   | 237   | 7     | 95    | 116   | 0    | ~132  | 309   |      | ~142  | ~941  |      |
| Queue Length 95th (ft)  | #419  | 308   | 79    | 158   | 157   | 0    | #261  | 365   |      | #273  | #1035 |      |
| Internal Link Dist (ft) |       | 616   |       |       | 429   |      |       | 700   |      |       | 593   |      |
| Turn Bay Length (ft)    | 250   |       | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 381   | 1185  | 587   | 315   | 662   | 1583 | 130   | 1707  |      | 130   | 1710  |      |
| Starvation Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 0.76  | 0.74  | 0.45  | 0.37  | 0.42  | 0.12 | 1.00  | 0.73  |      | 1.05  | 1.43  |      |

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: McGrath Highway & Broadway

|      |      |      |      |      |      |
|------|------|------|------|------|------|
|      |      |      |      |      |      |
| 13 s | 47 s | 30 s | 30 s | 30 s | 30 s |
|      |      |      |      |      |      |
| 13 s | 47 s | 30 s | 30 s | 30 s | 30 s |

2015 Existing Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                      | 533                                                                               | 544                                                                               | 246                                                                               | 120                                                                               | 246                                                                               | 178                                                                               | 120                                                                               | 1093                                                                              | 58                                                                                 | 125                                                                                 | 2150                                                                                | 94                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                 | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1522                                                                              | 4728                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5047                                                                              |                                                                                    | 1770                                                                                | 5053                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1522                                                                              | 4728                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5047                                                                              |                                                                                    | 1770                                                                                | 5053                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 579                                                                               | 591                                                                               | 267                                                                               | 130                                                                               | 267                                                                               | 193                                                                               | 130                                                                               | 1188                                                                              | 63                                                                                 | 136                                                                                 | 2337                                                                                | 102                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 191                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 5                                                                                 | 0                                                                                  | 0                                                                                   | 4                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 289                                                                               | 881                                                                               | 76                                                                                | 117                                                                               | 280                                                                               | 193                                                                               | 130                                                                               | 1246                                                                              | 0                                                                                  | 136                                                                                 | 2435                                                                                | 0                                                                                   |
| Turn Type                         | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 30.1                                                                              | 30.1                                                                              | 30.1                                                                              | 14.5                                                                              | 14.5                                                                              | 120.0                                                                             | 8.9                                                                               | 40.5                                                                              |                                                                                    | 8.9                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)            | 30.1                                                                              | 30.1                                                                              | 30.1                                                                              | 14.5                                                                              | 14.5                                                                              | 120.0                                                                             | 8.9                                                                               | 40.5                                                                              |                                                                                    | 8.9                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.25                                                                              | 0.25                                                                              | 0.25                                                                              | 0.12                                                                              | 0.12                                                                              | 1.00                                                                              | 0.07                                                                              | 0.34                                                                              |                                                                                    | 0.07                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 381                                                                               | 1185                                                                              | 397                                                                               | 194                                                                               | 408                                                                               | 1583                                                                              | 131                                                                               | 1703                                                                              |                                                                                    | 131                                                                                 | 1705                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.19                                                                             | 0.19                                                                              |                                                                                   | 0.07                                                                              | c0.08                                                                             |                                                                                   | 0.07                                                                              | 0.25                                                                              |                                                                                    | c0.08                                                                               | c0.48                                                                               |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.05                                                                              |                                                                                   |                                                                                   | 0.12                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.76                                                                              | 0.74                                                                              | 0.19                                                                              | 0.60                                                                              | 0.69                                                                              | 0.12                                                                              | 0.99                                                                              | 0.73                                                                              |                                                                                    | 1.04                                                                                | 1.43                                                                                |                                                                                     |
| Uniform Delay, d1                 | 41.6                                                                              | 41.4                                                                              | 35.4                                                                              | 50.0                                                                              | 50.6                                                                              | 0.0                                                                               | 55.5                                                                              | 35.0                                                                              |                                                                                    | 55.5                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 7.5                                                                               | 2.2                                                                               | 0.1                                                                               | 3.6                                                                               | 3.8                                                                               | 0.2                                                                               | 75.9                                                                              | 2.8                                                                               |                                                                                    | 89.2                                                                                | 196.1                                                                               |                                                                                     |
| Delay (s)                         | 49.1                                                                              | 43.6                                                                              | 35.5                                                                              | 53.6                                                                              | 54.4                                                                              | 0.2                                                                               | 131.4                                                                             | 37.8                                                                              |                                                                                    | 144.7                                                                               | 235.9                                                                               |                                                                                     |
| Level of Service                  | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | D                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 43.2                                                                              |                                                                                   |                                                                                   | 36.5                                                                              |                                                                                   |                                                                                   | 46.6                                                                              |                                                                                    |                                                                                     | 231.1                                                                               |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 124.2                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   |                                                                                    | F                                                                                   |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 1.06                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   |                                                                                    | 26.0                                                                                |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 96.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                    | F                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

2015 Existing Conditions  
1: Garfield Avenue & Mystic Avenue

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 246                                                                               | 220                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 67                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 256                                                                               | 229                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 91                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 485                                                                               |                                                                                   | 371                                                                               | 371                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 485                                                                               |                                                                                   | 371                                                                               | 371                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 87                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 1077                                                                              |                                                                                   | 630                                                                               | 675                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 485                                                                               | 91                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 229                                                                               | 91                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 675                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.29                                                                              | 0.13                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 12                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 11.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 11.2                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 37.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2015 Existing Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 8                                                                                 | 0                                                                                 | 18                                                                                | 4                                                                                 | 1                                                                                 | 1                                                                                 | 7                                                                                 | 59                                                                                | 0                                                                                 | 2                                                                                   | 173                                                                                 | 18                                                                                  |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 11                                                                                | 0                                                                                 | 25                                                                                | 5                                                                                 | 1                                                                                 | 1                                                                                 | 9                                                                                 | 73                                                                                | 0                                                                                 | 2                                                                                   | 208                                                                                 | 22                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 316                                                                               | 314                                                                               | 219                                                                               | 339                                                                               | 325                                                                               | 73                                                                                | 230                                                                               |                                                                                   |                                                                                   | 73                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 316                                                                               | 314                                                                               | 219                                                                               | 339                                                                               | 325                                                                               | 73                                                                                | 230                                                                               |                                                                                   |                                                                                   | 73                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 97                                                                                | 99                                                                                | 100                                                                               | 100                                                                               | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 635                                                                               | 600                                                                               | 825                                                                               | 596                                                                               | 591                                                                               | 995                                                                               | 1350                                                                              |                                                                                   |                                                                                   | 1540                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 36                                                                                | 8                                                                                 | 81                                                                                | 233                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 11                                                                                | 5                                                                                 | 9                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 25                                                                                | 1                                                                                 | 0                                                                                 | 22                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 756                                                                               | 638                                                                               | 1350                                                                              | 1540                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.05                                                                              | 0.01                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 4                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.0                                                                              | 10.7                                                                              | 0.9                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.0                                                                              | 10.7                                                                              | 0.9                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 1.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 20.6%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2015 Existing Conditions  
3: Blakeley Avenue & Garfield Avenue

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 24                                                                                | 2                                                                                 | 1                                                                                 | 0                                                                                 | 16                                                                                | 93                                                                                | 1                                                                                 | 1                                                                                   | 151                                                                                 | 77                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 17                                                                                | 0                                                                                 | 38                                                                                | 5                                                                                 | 3                                                                                 | 0                                                                                 | 18                                                                                | 106                                                                               | 1                                                                                 | 1                                                                                   | 162                                                                                 | 83                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 56                                                                                | 8                                                                                 | 125                                                                               | 246                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 17                                                                                | 5                                                                                 | 18                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 38                                                                                | 0                                                                                 | 1                                                                                 | 83                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.35                                                                             | 0.13                                                                              | 0.02                                                                              | -0.20                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.3                                                                               | 4.9                                                                               | 4.3                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.07                                                                              | 0.01                                                                              | 0.15                                                                              | 0.27                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 755                                                                               | 670                                                                               | 809                                                                               | 887                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.7                                                                               | 7.9                                                                               | 8.1                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.7                                                                               | 7.9                                                                               | 8.1                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 27.2%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 20    | 367   | 107  | 57    | 456   | 6    | 215   | 8     | 92   | 1     | 1     | 10   |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 22    | 515   | 0    | 62    | 503   | 0    | 0     | 343   | 0    | 0     | 13    | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 26.0  | 26.0  |      | 11.0  | 37.0  |      | 36.0  | 36.0  |      | 36.0  | 36.0  |      | 27.0 |
| Total Split (%)         | 26.0% | 26.0% |      | 11.0% | 37.0% |      | 36.0% | 36.0% |      | 36.0% | 36.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      |       | 6.0   |      |       | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.05  | 0.28  |      | 0.12  | 0.23  |      |       | 0.89  |      |       | 0.03  |      |      |
| Control Delay           | 11.9  | 11.4  |      | 8.9   | 8.9   |      |       | 58.9  |      |       | 14.2  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 11.9  | 11.8  |      | 8.9   | 8.9   |      |       | 58.9  |      |       | 14.2  |      |      |
| Queue Length 50th (ft)  | 7     | 91    |      | 15    | 71    |      |       | 193   |      |       | 1     |      |      |
| Queue Length 95th (ft)  | m20   | 138   |      | 33    | 102   |      |       | #330  |      |       | 15    |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 466   | 1849  |      | 527   | 2219  |      |       | 438   |      |       | 491   |      |      |
| Starvation Cap Reductn  | 0     | 778   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 9     |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.05  | 0.48  |      | 0.12  | 0.23  |      |       | 0.78  |      |       | 0.03  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|        |      |      |      |
|--------|------|------|------|
|        |      |      |      |
| ø1     | ø2   | ø4   | ø9   |
| 11 s   | 26 s | 36 s | 27 s |
|        |      |      |      |
| ø6 (R) | ø8   |      |      |
| 37 s   | 36 s |      |      |

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 20                                                                                | 367                                                                               | 107                                                                               | 57                                                                                | 456                                                                               | 6                                                                                 | 215                                                                               | 8                                                                                 | 92                                                                                 | 1                                                                                   | 1                                                                                   | 10                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                    |                                                                                     | 0.89                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3420                                                                              |                                                                                   | 1770                                                                              | 3532                                                                              |                                                                                   |                                                                                   | 1730                                                                              |                                                                                    |                                                                                     | 1644                                                                                |                                                                                     |
| Flt Permitted                     | 0.47                                                                              | 1.00                                                                              |                                                                                   | 0.39                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.79                                                                              |                                                                                    |                                                                                     | 0.98                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 870                                                                               | 3420                                                                              |                                                                                   | 735                                                                               | 3532                                                                              |                                                                                   |                                                                                   | 1410                                                                              |                                                                                    |                                                                                     | 1614                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 22                                                                                | 399                                                                               | 116                                                                               | 62                                                                                | 496                                                                               | 7                                                                                 | 234                                                                               | 9                                                                                 | 100                                                                                | 1                                                                                   | 1                                                                                   | 11                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 16                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                  | 0                                                                                   | 8                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 22                                                                                | 499                                                                               | 0                                                                                 | 62                                                                                | 503                                                                               | 0                                                                                 | 0                                                                                 | 328                                                                               | 0                                                                                  | 0                                                                                   | 5                                                                                   | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 52.6                                                                              | 52.6                                                                              |                                                                                   | 62.8                                                                              | 62.8                                                                              |                                                                                   |                                                                                   | 26.2                                                                              |                                                                                    |                                                                                     | 26.2                                                                                |                                                                                     |
| Effective Green, g (s)            | 52.6                                                                              | 52.6                                                                              |                                                                                   | 62.8                                                                              | 62.8                                                                              |                                                                                   |                                                                                   | 26.2                                                                              |                                                                                    |                                                                                     | 26.2                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.53                                                                              | 0.53                                                                              |                                                                                   | 0.63                                                                              | 0.63                                                                              |                                                                                   |                                                                                   | 0.26                                                                              |                                                                                    |                                                                                     | 0.26                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 457                                                                               | 1798                                                                              |                                                                                   | 515                                                                               | 2218                                                                              |                                                                                   |                                                                                   | 369                                                                               |                                                                                    |                                                                                     | 422                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.15                                                                             |                                                                                   | 0.01                                                                              | c0.14                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.03                                                                              |                                                                                   |                                                                                   | 0.07                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.23                                                                             |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                         | 0.05                                                                              | 0.28                                                                              |                                                                                   | 0.12                                                                              | 0.23                                                                              |                                                                                   |                                                                                   | 0.89                                                                              |                                                                                    |                                                                                     | 0.01                                                                                |                                                                                     |
| Uniform Delay, d1                 | 11.5                                                                              | 13.2                                                                              |                                                                                   | 7.6                                                                               | 8.1                                                                               |                                                                                   |                                                                                   | 35.5                                                                              |                                                                                    |                                                                                     | 27.3                                                                                |                                                                                     |
| Progression Factor                | 0.81                                                                              | 0.83                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.2                                                                               |                                                                                   |                                                                                   | 21.3                                                                              |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         | 9.4                                                                               | 10.9                                                                              |                                                                                   | 7.6                                                                               | 8.3                                                                               |                                                                                   |                                                                                   | 56.7                                                                              |                                                                                    |                                                                                     | 27.3                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | B                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 10.9                                                                              |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   | 56.7                                                                              |                                                                                    |                                                                                     | 27.3                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 20.8                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.49                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 59.1%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

2015 Existing Conditions  
5: Broadway & Garfield Ave

Weekday Evening Peak Hour  
Timing Plan: Default

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 11                                                                                | 674                                                                               | 775                                                                               | 48                                                                                | 37                                                                                | 138                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 12                                                                                | 733                                                                               | 894                                                                               | 0                                                                                 | 190                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.03                                                                              | 0.26                                                                              | 0.32                                                                              |                                                                                   | 0.68                                                                              |                                                                                   |      |
| Control Delay           | 2.8                                                                               | 2.9                                                                               | 3.8                                                                               |                                                                                   | 24.7                                                                              |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.4                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Delay             | 2.8                                                                               | 2.9                                                                               | 4.1                                                                               |                                                                                   | 24.7                                                                              |                                                                                   |      |
| Queue Length 50th (ft)  | 1                                                                                 | 41                                                                                | 73                                                                                |                                                                                   | 25                                                                                |                                                                                   |      |
| Queue Length 95th (ft)  | 6                                                                                 | 84                                                                                | 110                                                                               |                                                                                   | 89                                                                                |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 465                                                                               | 2845                                                                              | 2821                                                                              |                                                                                   | 404                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1264                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 21                                                                                | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.03                                                                              | 0.26                                                                              | 0.57                                                                              |                                                                                   | 0.47                                                                              |                                                                                   |      |

Intersection Summary

Area Type: Other  
Cycle Length: 100  
Actuated Cycle Length: 100  
Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
Natural Cycle: 60  
Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave

|                                                                                            |                                                                                        |                                                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  ø2     |  ø4 |  ø9 |
| 50 s                                                                                       | 23 s                                                                                   | 27 s                                                                                     |
|  ø6 (R) |                                                                                        |                                                                                          |
| 50 s                                                                                       |                                                                                        |                                                                                          |

2015 Existing Conditions  
5: Broadway & Garfield Ave

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 11                                                                                | 674                                                                               | 775                                                                               | 48                                                                                | 37                                                                                | 138                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.89                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3508                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Flt Permitted                     | 0.31                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 579                                                                               | 3539                                                                              | 3508                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 12                                                                                | 733                                                                               | 842                                                                               | 52                                                                                | 40                                                                                | 150                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 137                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 12                                                                                | 733                                                                               | 892                                                                               | 0                                                                                 | 53                                                                                | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 80.4                                                                              | 80.4                                                                              | 80.4                                                                              |                                                                                   | 8.6                                                                               |                                                                                   |
| Effective Green, g (s)            | 80.4                                                                              | 80.4                                                                              | 80.4                                                                              |                                                                                   | 8.6                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              |                                                                                   | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 465                                                                               | 2845                                                                              | 2820                                                                              |                                                                                   | 141                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.21                                                                              | c0.25                                                                             |                                                                                   | c0.03                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.03                                                                              | 0.26                                                                              | 0.32                                                                              |                                                                                   | 0.38                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.0                                                                               | 2.4                                                                               | 2.6                                                                               |                                                                                   | 43.2                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 1.23                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.6                                                                               |                                                                                   |
| Delay (s)                         | 2.0                                                                               | 2.4                                                                               | 3.4                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.4                                                                               | 3.4                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.2                                                                               | HCM 2000 Level of Service                                                         | A                                                                                 |                                                                                   |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.33                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             | Sum of lost time (s)                                                              | 14.0                                                                              |                                                                                   |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 42.7%                                                                             | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2015 Existing Conditions  
6: McGrath Highway & Broadway

Weekday Evening Peak Hour  
Timing Plan: Default

|                         | EBL   | EBT   | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|-------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |       |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 486   | 408   | 115   | 167   | 408   | 272  | 251   | 2097  | 105  | 157   | 1318  | 146  |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |       | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |       | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |       |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |       | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30    |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696   |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8  |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |       |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 264   | 707   | 125   | 164   | 461   | 296  | 273   | 2393  | 0    | 171   | 1592  | 0    |
| Turn Type               | Split | NA    | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4     |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |       | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4     | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |       |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0  | 26.0  | 26.0  | 26.0  |      | 13.0  | 30.0  |      | 13.0  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0  | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0% | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5   | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0   | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5   | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag   | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes   | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None  | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 0.89  | 0.77  | 0.29  | 0.60  | 0.80  | 0.19 | 1.95  | 1.40  |      | 1.22  | 0.94  |      |
| Control Delay           | 77.2  | 51.8  | 5.6   | 55.0  | 58.6  | 0.3  | 481.8 | 216.1 |      | 194.0 | 49.5  |      |
| Queue Delay             | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 77.2  | 51.8  | 5.6   | 55.0  | 58.6  | 0.3  | 481.8 | 216.1 |      | 194.0 | 49.5  |      |
| Queue Length 50th (ft)  | 227   | 198   | 0     | 128   | 188   | 0    | ~363  | ~913  |      | ~198  | 431   |      |
| Queue Length 95th (ft)  | #412  | 253   | 34    | 205   | 246   | 0    | #535  | #1008 |      | #342  | #531  |      |
| Internal Link Dist (ft) |       | 616   |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |       | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 308   | 955   | 440   | 315   | 662   | 1583 | 140   | 1709  |      | 140   | 1701  |      |
| Starvation Cap Reductn  | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0     | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 0.86  | 0.74  | 0.28  | 0.52  | 0.70  | 0.19 | 1.95  | 1.40  |      | 1.22  | 0.94  |      |

Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 6: McGrath Highway & Broadway

|      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|
|      |      |      |      |      |      |      |      |      |
| 13 s | 47 s | 30 s | 13 s | 47 s | 30 s | 13 s | 47 s | 30 s |
|      |      |      |      |      |      |      |      |      |
| 13 s | 47 s | 30 s | 13 s | 47 s | 30 s | 13 s | 47 s | 30 s |

2015 Existing Conditions  
6: McGrath Highway & Broadway

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                      | 486                                                                               | 408                                                                               | 115                                                                               | 167                                                                               | 408                                                                               | 272                                                                               | 251                                                                               | 2097                                                                              | 105                                                                                | 157                                                                                 | 1318                                                                                | 146                                                                                 |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                 | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Fr <sub>t</sub>                   | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1522                                                                              | 4718                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5049                                                                              |                                                                                    | 1770                                                                                | 5009                                                                                |                                                                                     |
| Flt Permitted                     | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 1522                                                                              | 4718                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5049                                                                              |                                                                                    | 1770                                                                                | 5009                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 528                                                                               | 443                                                                               | 125                                                                               | 182                                                                               | 443                                                                               | 296                                                                               | 273                                                                               | 2279                                                                              | 114                                                                                | 171                                                                                 | 1433                                                                                | 159                                                                                 |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 101                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 5                                                                                 | 0                                                                                  | 0                                                                                   | 11                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)             | 264                                                                               | 707                                                                               | 24                                                                                | 164                                                                               | 461                                                                               | 296                                                                               | 273                                                                               | 2388                                                                              | 0                                                                                  | 171                                                                                 | 1581                                                                                | 0                                                                                   |
| Turn Type                         | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                  |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 23.5                                                                              | 23.5                                                                              | 23.5                                                                              | 20.5                                                                              | 20.5                                                                              | 120.0                                                                             | 9.5                                                                               | 40.5                                                                              |                                                                                    | 9.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)            | 23.5                                                                              | 23.5                                                                              | 23.5                                                                              | 20.5                                                                              | 20.5                                                                              | 120.0                                                                             | 9.5                                                                               | 40.5                                                                              |                                                                                    | 9.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.20                                                                              | 0.20                                                                              | 0.20                                                                              | 0.17                                                                              | 0.17                                                                              | 1.00                                                                              | 0.08                                                                              | 0.34                                                                              |                                                                                    | 0.08                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 298                                                                               | 923                                                                               | 310                                                                               | 275                                                                               | 578                                                                               | 1583                                                                              | 140                                                                               | 1704                                                                              |                                                                                    | 140                                                                                 | 1690                                                                                |                                                                                     |
| v/s Ratio Prot                    | c0.17                                                                             | 0.15                                                                              |                                                                                   | 0.10                                                                              | c0.14                                                                             |                                                                                   | c0.15                                                                             | c0.47                                                                             |                                                                                    | 0.10                                                                                | 0.32                                                                                |                                                                                     |
| v/s Ratio Perm                    |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                         | 0.89                                                                              | 0.77                                                                              | 0.08                                                                              | 0.60                                                                              | 0.80                                                                              | 0.19                                                                              | 1.95                                                                              | 1.40                                                                              |                                                                                    | 1.22                                                                                | 0.94                                                                                |                                                                                     |
| Uniform Delay, d <sub>1</sub>     | 46.9                                                                              | 45.6                                                                              | 39.4                                                                              | 45.9                                                                              | 47.8                                                                              | 0.0                                                                               | 55.2                                                                              | 39.8                                                                              |                                                                                    | 55.2                                                                                | 38.5                                                                                |                                                                                     |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d <sub>2</sub> | 24.8                                                                              | 3.5                                                                               | 0.0                                                                               | 2.3                                                                               | 7.1                                                                               | 0.3                                                                               | 452.4                                                                             | 184.3                                                                             |                                                                                    | 147.5                                                                               | 11.1                                                                                |                                                                                     |
| Delay (s)                         | 71.7                                                                              | 49.1                                                                              | 39.5                                                                              | 48.2                                                                              | 54.8                                                                              | 0.3                                                                               | 507.7                                                                             | 224.1                                                                             |                                                                                    | 202.8                                                                               | 49.6                                                                                |                                                                                     |
| Level of Service                  | E                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 53.5                                                                              |                                                                                   |                                                                                   | 36.1                                                                              |                                                                                   |                                                                                   | 253.1                                                                             |                                                                                    |                                                                                     | 64.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | E                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 136.6                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 1.20                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 98.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 372                                                                               | 110                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 117                                                                               |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 388                                                                               | 115                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 158                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 502                                                                               |                                                                                   | 445                                                                               | 445                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 502                                                                               |                                                                                   | 445                                                                               | 445                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 74                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 1062                                                                              |                                                                                   | 571                                                                               | 613                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 502                                                                               | 158                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 115                                                                               | 158                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 613                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.30                                                                              | 0.26                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 26                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 12.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 12.9                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 3.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 40.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2015 Existing Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Saturday MIDDAY Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 95                                                                                | 0                                                                                 | 70                                                                                | 1                                                                                 | 1                                                                                 | 1                                                                                 | 50                                                                                | 11                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 110                                                                                 |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 132                                                                               | 0                                                                                 | 97                                                                                | 1                                                                                 | 1                                                                                 | 1                                                                                 | 62                                                                                | 14                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 133                                                                                 |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 205                                                                               | 203                                                                               | 66                                                                                | 301                                                                               | 270                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 205                                                                               | 203                                                                               | 66                                                                                | 301                                                                               | 270                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 82                                                                                | 100                                                                               | 90                                                                                | 100                                                                               | 100                                                                               | 100                                                                               | 96                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 730                                                                               | 667                                                                               | 1003                                                                              | 573                                                                               | 613                                                                               | 1072                                                                              | 1465                                                                              |                                                                                   |                                                                                   | 1618                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 229                                                                               | 4                                                                                 | 75                                                                                | 133                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 132                                                                               | 1                                                                                 | 62                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 97                                                                                | 1                                                                                 | 0                                                                                 | 133                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 826                                                                               | 696                                                                               | 1465                                                                              | 1618                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.28                                                                              | 0.01                                                                              | 0.04                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 28                                                                                | 0                                                                                 | 3                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 11.0                                                                              | 10.2                                                                              | 6.3                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 11.0                                                                              | 10.2                                                                              | 6.3                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 6.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 32.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2015 Existing Conditions  
3: Blakeley Avenue & Garfield Avenue

Saturday MIDDAY Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 5                                                                                 | 0                                                                                 | 32                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 223                                                                               | 0                                                                                 | 0                                                                                   | 255                                                                                 | 48                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 8                                                                                 | 0                                                                                 | 51                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 253                                                                               | 0                                                                                 | 0                                                                                   | 274                                                                                 | 52                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 59                                                                                | 0                                                                                 | 253                                                                               | 326                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 8                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 51                                                                                | 0                                                                                 | 0                                                                                 | 52                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.49                                                                             | 0.00                                                                              | 0.00                                                                              | -0.10                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.7                                                                               | 5.2                                                                               | 4.4                                                                               | 4.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.08                                                                              | 0.00                                                                              | 0.31                                                                              | 0.38                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 685                                                                               | 612                                                                               | 799                                                                               | 830                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 8.0                                                                               | 8.2                                                                               | 9.3                                                                               | 9.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 8.0                                                                               | 0.0                                                                               | 9.3                                                                               | 9.8                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 9.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.3%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 85    | 451   | 96   | 80    | 489   | 16   | 154   | 5     | 90   | 80    | 48    | 5    |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 92    | 594   | 0    | 87    | 549   | 0    | 0     | 270   | 0    | 0     | 144   | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 34.0  | 34.0  |      | 11.0  | 45.0  |      | 28.0  | 28.0  |      | 28.0  | 28.0  |      | 27.0 |
| Total Split (%)         | 34.0% | 34.0% |      | 11.0% | 45.0% |      | 28.0% | 28.0% |      | 28.0% | 28.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      |       | 6.0   |      |       | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.19  | 0.29  |      | 0.16  | 0.23  |      |       | 0.92  |      |       | 0.53  |      |      |
| Control Delay           | 10.9  | 9.8   |      | 6.4   | 6.4   |      |       | 72.6  |      |       | 42.1  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 10.9  | 10.2  |      | 6.4   | 6.4   |      |       | 72.6  |      |       | 42.1  |      |      |
| Queue Length 50th (ft)  | 30    | 117   |      | 17    | 63    |      |       | 153   |      |       | 80    |      |      |
| Queue Length 95th (ft)  | m62   | m151  |      | 33    | 85    |      |       | #302  |      |       | 143   |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 490   | 2038  |      | 537   | 2402  |      |       | 307   |      |       | 288   |      |      |
| Starvation Cap Reductn  | 0     | 895   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 14    |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.19  | 0.52  |      | 0.16  | 0.23  |      |       | 0.88  |      |       | 0.50  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|        |      |      |      |
|--------|------|------|------|
|        |      |      |      |
| ø1     | ø2   | ø4   | ø9   |
| 11 s   | 34 s | 28 s | 27 s |
|        |      |      |      |
| ø6 (R) |      | ø8   |      |
| 45 s   |      | 28 s |      |

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 85                                                                                | 451                                                                               | 96                                                                                | 80                                                                                | 489                                                                               | 16                                                                                | 154                                                                               | 5                                                                                 | 90                                                                                 | 80                                                                                  | 48                                                                                  | 5                                                                                   |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.95                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 0.97                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3446                                                                              |                                                                                   | 1770                                                                              | 3523                                                                              |                                                                                   |                                                                                   | 1718                                                                              |                                                                                    |                                                                                     | 1800                                                                                |                                                                                     |
| Flt Permitted                     | 0.45                                                                              | 1.00                                                                              |                                                                                   | 0.37                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                    |                                                                                     | 0.70                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 832                                                                               | 3446                                                                              |                                                                                   | 684                                                                               | 3523                                                                              |                                                                                   |                                                                                   | 1306                                                                              |                                                                                    |                                                                                     | 1304                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 92                                                                                | 490                                                                               | 104                                                                               | 87                                                                                | 532                                                                               | 17                                                                                | 167                                                                               | 5                                                                                 | 98                                                                                 | 87                                                                                  | 52                                                                                  | 5                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 21                                                                                | 0                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 92                                                                                | 583                                                                               | 0                                                                                 | 87                                                                                | 548                                                                               | 0                                                                                 | 0                                                                                 | 249                                                                               | 0                                                                                  | 0                                                                                   | 142                                                                                 | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 57.9                                                                              | 57.9                                                                              |                                                                                   | 68.2                                                                              | 68.2                                                                              |                                                                                   |                                                                                   | 20.8                                                                              |                                                                                    |                                                                                     | 20.8                                                                                |                                                                                     |
| Effective Green, g (s)            | 57.9                                                                              | 57.9                                                                              |                                                                                   | 68.2                                                                              | 68.2                                                                              |                                                                                   |                                                                                   | 20.8                                                                              |                                                                                    |                                                                                     | 20.8                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.58                                                                              | 0.58                                                                              |                                                                                   | 0.68                                                                              | 0.68                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                    |                                                                                     | 0.21                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 481                                                                               | 1995                                                                              |                                                                                   | 524                                                                               | 2402                                                                              |                                                                                   |                                                                                   | 271                                                                               |                                                                                    |                                                                                     | 271                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   | 0.01                                                                              | c0.16                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.11                                                                              |                                                                                   |                                                                                   | 0.10                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.19                                                                             |                                                                                    |                                                                                     | 0.11                                                                                |                                                                                     |
| v/c Ratio                         | 0.19                                                                              | 0.29                                                                              |                                                                                   | 0.17                                                                              | 0.23                                                                              |                                                                                   |                                                                                   | 0.92                                                                              |                                                                                    |                                                                                     | 0.53                                                                                |                                                                                     |
| Uniform Delay, d1                 | 10.0                                                                              | 10.7                                                                              |                                                                                   | 5.8                                                                               | 6.0                                                                               |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                    |                                                                                     | 35.2                                                                                |                                                                                     |
| Progression Factor                | 0.87                                                                              | 0.88                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.1                                                                               | 0.0                                                                               |                                                                                   | 0.1                                                                               | 0.2                                                                               |                                                                                   |                                                                                   | 33.8                                                                              |                                                                                    |                                                                                     | 0.8                                                                                 |                                                                                     |
| Delay (s)                         | 8.8                                                                               | 9.4                                                                               |                                                                                   | 5.8                                                                               | 6.2                                                                               |                                                                                   |                                                                                   | 72.6                                                                              |                                                                                    |                                                                                     | 36.1                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                   | 6.2                                                                               |                                                                                   |                                                                                   | 72.6                                                                              |                                                                                    |                                                                                     | 36.1                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 20.2                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.47                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 53.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 37                                                                                | 632                                                                               | 558                                                                               | 175                                                                               | 149                                                                               | 169                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 40                                                                                | 687                                                                               | 797                                                                               | 0                                                                                 | 346                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.09                                                                              | 0.27                                                                              | 0.32                                                                              |                                                                                   | 1.06                                                                              |                                                                                   |      |
| Control Delay           | 4.8                                                                               | 5.2                                                                               | 4.1                                                                               |                                                                                   | 101.7                                                                             |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.4                                                                               |                                                                                   | 1.1                                                                               |                                                                                   |      |
| Total Delay             | 4.8                                                                               | 5.2                                                                               | 4.4                                                                               |                                                                                   | 102.8                                                                             |                                                                                   |      |
| Queue Length 50th (ft)  | 7                                                                                 | 68                                                                                | 62                                                                                |                                                                                   | ~215                                                                              |                                                                                   |      |
| Queue Length 95th (ft)  | 17                                                                                | 90                                                                                | m77                                                                               |                                                                                   | #394                                                                              |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 446                                                                               | 2548                                                                              | 2471                                                                              |                                                                                   | 327                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1023                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 114                                                                               | 0                                                                                 |                                                                                   | 1                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.09                                                                              | 0.28                                                                              | 0.55                                                                              |                                                                                   | 1.06                                                                              |                                                                                   |      |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

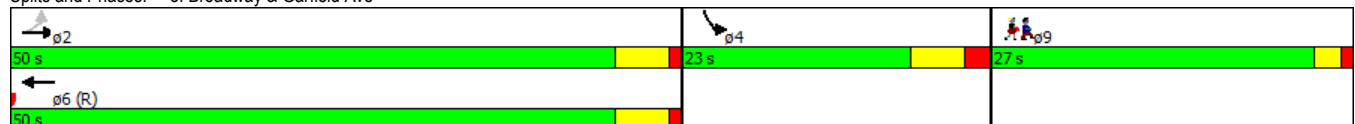
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Broadway & Garfield Ave



2015 Existing Conditions  
5: Broadway & Garfield Ave

Saturday MIDDAY Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 37                                                                                | 632                                                                               | 558                                                                               | 175                                                                               | 149                                                                               | 169                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.96                                                                              |                                                                                   | 0.93                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3413                                                                              |                                                                                   | 1689                                                                              |                                                                                   |
| Flt Permitted                     | 0.33                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 621                                                                               | 3539                                                                              | 3413                                                                              |                                                                                   | 1689                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 40                                                                                | 687                                                                               | 607                                                                               | 190                                                                               | 162                                                                               | 184                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                 | 41                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 40                                                                                | 687                                                                               | 782                                                                               | 0                                                                                 | 305                                                                               | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Effective Green, g (s)            | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Actuated g/C Ratio                | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              |                                                                                   | 0.17                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 447                                                                               | 2548                                                                              | 2457                                                                              |                                                                                   | 287                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.19                                                                              | 0.23                                                                              |                                                                                   | 0.18                                                                              |                                                                                   |
| v/s Ratio Perm                    | 0.06                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.09                                                                              | 0.27                                                                              | 0.32                                                                              |                                                                                   | 1.06                                                                              |                                                                                   |
| Uniform Delay, d1                 | 4.2                                                                               | 4.9                                                                               | 5.1                                                                               |                                                                                   | 41.5                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.78                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 71.0                                                                              |                                                                                   |
| Delay (s)                         | 4.2                                                                               | 4.9                                                                               | 4.3                                                                               |                                                                                   | 112.5                                                                             |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 4.8                                                                               | 4.3                                                                               |                                                                                   | 112.5                                                                             |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 24.5                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | C                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.48                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 58.5%                                                                             |                                                                                   | ICU Level of Service                                                              | B                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2015 Existing Conditions  
6: McGrath Highway & Broadway

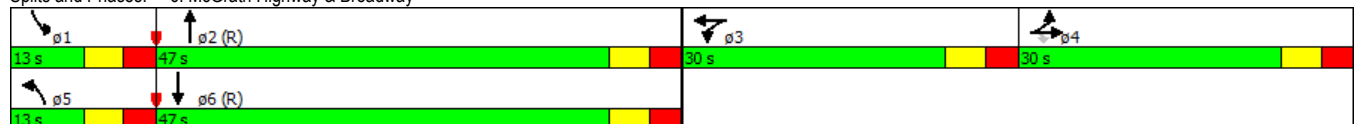
Saturday Middy Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 659   | 445    | 173   | 167   | 293   | 241  | 178   | 1313  | 126  | 199   | 1145  | 131  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 11%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 358   | 842    | 188   | 162   | 338   | 262  | 193   | 1564  | 0    | 216   | 1387  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 0.95  | 0.86dl | 0.35  | 0.70  | 0.70  | 0.17 | 2.03  | 0.92  |      | 2.27  | 0.81  |      |
| Control Delay           | 80.7  | 46.3   | 7.6   | 64.5  | 56.3  | 0.2  | 527.7 | 47.6  |      | 630.9 | 40.5  |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 80.7  | 46.3   | 7.6   | 64.5  | 56.3  | 0.2  | 527.7 | 47.6  |      | 630.9 | 40.5  |      |
| Queue Length 50th (ft)  | 315   | 230    | 0     | 134   | 140   | 0    | ~234  | 420   |      | ~271  | 353   |      |
| Queue Length 95th (ft)  | #610  | #332   | 62    | 203   | 181   | 0    | #384  | #500  |      | #427  | 414   |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 377   | 1166   | 533   | 315   | 661   | 1583 | 95    | 1703  |      | 95    | 1702  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 0.95  | 0.72   | 0.35  | 0.51  | 0.51  | 0.17 | 2.03  | 0.92  |      | 2.27  | 0.81  |      |

Intersection Summary

Area Type: Other  
Cycle Length: 120  
Actuated Cycle Length: 120  
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
Natural Cycle: 140  
Control Type: Actuated-Coordinated  
~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.  
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.  
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: McGrath Highway & Broadway



2015 Existing Conditions  
6: McGrath Highway & Broadway

Saturday Midday Peak Hour  
Timing Plan: Default

|                        |  |  |  |  |  |  |  |  |   |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement               | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations    |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)           | 659                                                                               | 445                                                                               | 173                                                                               | 167                                                                               | 293                                                                               | 241                                                                               | 178                                                                               | 1313                                                                              | 126                                                                                | 199                                                                                 | 1145                                                                                | 131                                                                                 |
| Ideal Flow (vphpl)     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)    | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor      | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                    | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected          | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)      | 1522                                                                              | 4706                                                                              | 1583                                                                              | 1610                                                                              | 3380                                                                              | 1583                                                                              | 1770                                                                              | 5018                                                                              |                                                                                    | 1770                                                                                | 5007                                                                                |                                                                                     |
| Flt Permitted          | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)      | 1522                                                                              | 4706                                                                              | 1583                                                                              | 1610                                                                              | 3380                                                                              | 1583                                                                              | 1770                                                                              | 5018                                                                              |                                                                                    | 1770                                                                                | 5007                                                                                |                                                                                     |
| Peak-hour factor, PHF  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)        | 716                                                                               | 484                                                                               | 188                                                                               | 182                                                                               | 318                                                                               | 262                                                                               | 193                                                                               | 1427                                                                              | 137                                                                                | 216                                                                                 | 1245                                                                                | 142                                                                                 |
| RTOR Reduction (vph)   | 0                                                                                 | 0                                                                                 | 141                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 9                                                                                 | 0                                                                                  | 0                                                                                   | 12                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)  | 358                                                                               | 842                                                                               | 47                                                                                | 162                                                                               | 338                                                                               | 262                                                                               | 193                                                                               | 1555                                                                              | 0                                                                                  | 216                                                                                 | 1375                                                                                | 0                                                                                   |
| Turn Type              | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases       | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases       |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)  | 29.8                                                                              | 29.8                                                                              | 29.8                                                                              | 17.2                                                                              | 17.2                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s) | 29.8                                                                              | 29.8                                                                              | 29.8                                                                              | 17.2                                                                              | 17.2                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio     | 0.25                                                                              | 0.25                                                                              | 0.25                                                                              | 0.14                                                                              | 0.14                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)     | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)  | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)     | 377                                                                               | 1168                                                                              | 393                                                                               | 230                                                                               | 484                                                                               | 1583                                                                              | 95                                                                                | 1693                                                                              |                                                                                    | 95                                                                                  | 1689                                                                                |                                                                                     |
| v/s Ratio Prot         | c0.24                                                                             | 0.18                                                                              |                                                                                   | c0.10                                                                             | 0.10                                                                              |                                                                                   | 0.11                                                                              | c0.31                                                                             |                                                                                    | c0.12                                                                               | 0.27                                                                                |                                                                                     |
| v/s Ratio Perm         |                                                                                   |                                                                                   | 0.03                                                                              |                                                                                   |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio              | 0.95                                                                              | 0.86dl                                                                            | 0.12                                                                              | 0.70                                                                              | 0.70                                                                              | 0.17                                                                              | 2.03                                                                              | 0.92                                                                              |                                                                                    | 2.27                                                                                | 0.81                                                                                |                                                                                     |
| Uniform Delay, d1      | 44.4                                                                              | 41.3                                                                              | 34.9                                                                              | 49.0                                                                              | 48.9                                                                              | 0.0                                                                               | 56.8                                                                              | 38.2                                                                              |                                                                                    | 56.8                                                                                | 36.3                                                                                |                                                                                     |
| Progression Factor     | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2  | 32.8                                                                              | 1.9                                                                               | 0.0                                                                               | 7.8                                                                               | 3.5                                                                               | 0.2                                                                               | 498.9                                                                             | 9.5                                                                               |                                                                                    | 605.2                                                                               | 4.4                                                                                 |                                                                                     |
| Delay (s)              | 77.2                                                                              | 43.2                                                                              | 35.0                                                                              | 56.7                                                                              | 52.5                                                                              | 0.2                                                                               | 555.7                                                                             | 47.7                                                                              |                                                                                    | 661.9                                                                               | 40.7                                                                                |                                                                                     |
| Level of Service       | E                                                                                 | D                                                                                 | C                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | D                                                                                 |                                                                                    | F                                                                                   | D                                                                                   |                                                                                     |
| Approach Delay (s)     |                                                                                   | 50.8                                                                              |                                                                                   |                                                                                   | 35.4                                                                              |                                                                                   |                                                                                   | 103.5                                                                             |                                                                                    |                                                                                     | 124.4                                                                               |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |

Intersection Summary

|                                   |       |                           |      |
|-----------------------------------|-------|---------------------------|------|
| HCM 2000 Control Delay            | 86.9  | HCM 2000 Level of Service | F    |
| HCM 2000 Volume to Capacity ratio | 0.98  |                           |      |
| Actuated Cycle Length (s)         | 120.0 | Sum of lost time (s)      | 26.0 |
| Intersection Capacity Utilization | 87.8% | ICU Level of Service      | E    |
| Analysis Period (min)             | 15    |                           |      |

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 635                                                                               | 202                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.54                                                                              | 0.54                                                                              |
| Hourly flow rate (vph)            | 676                                                                               | 215                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 59                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 890                                                                               |                                                                                   | 783                                                                               | 783                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 890                                                                               |                                                                                   | 783                                                                               | 783                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 85                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 761                                                                               |                                                                                   | 361                                                                               | 392                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 890                                                                               | 59                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 215                                                                               | 59                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 392                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.52                                                                              | 0.15                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 13                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 15.8                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 55.7%                                                                             |                                                                                   | ICU Level of Service                                                              | B                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 No Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 7                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 1                                                                                 | 7                                                                                 | 20                                                                                | 0                                                                                 | 1                                                                                   | 186                                                                                 | 9                                                                                   |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.25                                                                              | 0.25                                                                              | 0.25                                                                              | 0.59                                                                              | 0.59                                                                              | 0.59                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Hourly flow rate (vph)            | 16                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 4                                                                                 | 12                                                                                | 34                                                                                | 0                                                                                 | 1                                                                                   | 207                                                                                 | 10                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 276                                                                               | 272                                                                               | 212                                                                               | 272                                                                               | 277                                                                               | 34                                                                                | 217                                                                               |                                                                                   |                                                                                   | 34                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 276                                                                               | 272                                                                               | 212                                                                               | 272                                                                               | 277                                                                               | 34                                                                                | 217                                                                               |                                                                                   |                                                                                   | 34                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 100                                                                               | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 673                                                                               | 633                                                                               | 834                                                                               | 680                                                                               | 629                                                                               | 1045                                                                              | 1365                                                                              |                                                                                   |                                                                                   | 1584                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 16                                                                                | 4                                                                                 | 46                                                                                | 218                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 16                                                                                | 0                                                                                 | 12                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 4                                                                                 | 0                                                                                 | 10                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 673                                                                               | 1045                                                                              | 1365                                                                              | 1584                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.02                                                                              | 0.00                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 2                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.5                                                                              | 8.5                                                                               | 2.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.5                                                                              | 8.5                                                                               | 2.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 1.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 22.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2022 No Build Conditions  
3: Garfield Ave/Garfield Avenue & Blakeley Avenue

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 27                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 21                                                                                | 17                                                                                | 1                                                                                 | 1                                                                                   | 163                                                                                 | 38                                                                                  |
| Peak Hour Factor                  | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                |
| Hourly flow rate (vph)            | 13                                                                                | 0                                                                                 | 32                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                | 26                                                                                | 2                                                                                 | 1                                                                                   | 183                                                                                 | 43                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 45                                                                                | 0                                                                                 | 60                                                                                | 227                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 13                                                                                | 0                                                                                 | 32                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 32                                                                                | 0                                                                                 | 2                                                                                 | 43                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.37                                                                             | 0.00                                                                              | 0.09                                                                              | -0.09                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.1                                                                               | 4.6                                                                               | 4.3                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.05                                                                              | 0.00                                                                              | 0.07                                                                              | 0.25                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 803                                                                               | 749                                                                               | 810                                                                               | 894                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.4                                                                               | 7.6                                                                               | 7.6                                                                               | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.4                                                                               | 0.0                                                                               | 7.6                                                                               | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 27.6%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 27    | 599   | 152  | 54    | 384   | 2    | 113   | 3     | 34   | 2     | 1     | 7    |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 507   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 11.5  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Parking (#/hr)          |       |       | 0    |       |       | 0    |       |       |      |       |       |      |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 29    | 816   | 0    | 59    | 419   | 0    | 0     | 163   | 0    | 0     | 11    | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 36.0  | 36.0  |      | 11.0  | 47.0  |      | 26.0  | 26.0  |      | 26.0  | 26.0  |      | 27.0 |
| Total Split (%)         | 36.0% | 36.0% |      | 11.0% | 47.0% |      | 26.0% | 26.0% |      | 26.0% | 26.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.05  | 0.36  |      | 0.12  | 0.16  |      |       | 0.75  |      |       | 0.05  |      |      |
| Control Delay           | 5.7   | 6.8   |      | 4.9   | 4.4   |      |       | 58.3  |      |       | 21.7  |      |      |
| Queue Delay             | 0.0   | 0.2   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 5.7   | 7.1   |      | 4.9   | 4.4   |      |       | 58.3  |      |       | 21.7  |      |      |
| Queue Length 50th (ft)  | 6     | 118   |      | 9     | 35    |      |       | 92    |      |       | 2     |      |      |
| Queue Length 95th (ft)  | m13   | 185   |      | 23    | 60    |      |       | 155   |      |       | 17    |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 427   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 616   | 2254  |      | 474   | 2626  |      |       | 289   |      |       | 326   |      |      |
| Starvation Cap Reductn  | 0     | 700   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.05  | 0.53  |      | 0.12  | 0.16  |      |       | 0.56  |      |       | 0.03  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|        |      |      |      |
|--------|------|------|------|
|        |      |      |      |
| ø1     | ø2   | ø4   | ø9   |
| 11 s   | 36 s | 26 s | 27 s |
|        |      |      |      |
| ø6 (R) | ø8   |      |      |
| 47 s   | 26 s |      |      |

2022 No Build Conditions  
4: Cross Street /Cross Street & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

|                                                                                                                                                                                       |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                                                                                                                                              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                                                                                                                                                   |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (vph)                                                                                                                                                                          | 27                                                                                | 599                                                                               | 152                                                                               | 54                                                                                | 384                                                                               | 2                                                                                 | 113                                                                               | 3                                                                                 | 34                                                                                | 2                                                                                   | 1                                                                                   | 7                                                                                   |
| Ideal Flow (vphpl)                                                                                                                                                                    | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                                                                                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                                                                                                                                                                     | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                                                                                                                                                                                   | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                   |                                                                                     | 0.90                                                                                |                                                                                     |
| Flt Protected                                                                                                                                                                         | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                   |                                                                                     | 0.99                                                                                |                                                                                     |
| Satd. Flow (prot)                                                                                                                                                                     | 1770                                                                              | 3432                                                                              |                                                                                   | 1770                                                                              | 3537                                                                              |                                                                                   |                                                                                   | 1740                                                                              |                                                                                   |                                                                                     | 1665                                                                                |                                                                                     |
| Flt Permitted                                                                                                                                                                         | 0.51                                                                              | 1.00                                                                              |                                                                                   | 0.29                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.77                                                                              |                                                                                   |                                                                                     | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                                                                                                                                                                     | 944                                                                               | 3432                                                                              |                                                                                   | 538                                                                               | 3537                                                                              |                                                                                   |                                                                                   | 1394                                                                              |                                                                                   |                                                                                     | 1598                                                                                |                                                                                     |
| Peak-hour factor, PHF                                                                                                                                                                 | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                                                                                                                                       | 29                                                                                | 651                                                                               | 165                                                                               | 59                                                                                | 417                                                                               | 2                                                                                 | 123                                                                               | 3                                                                                 | 37                                                                                | 2                                                                                   | 1                                                                                   | 8                                                                                   |
| RTOR Reduction (vph)                                                                                                                                                                  | 0                                                                                 | 12                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)                                                                                                                                                                 | 29                                                                                | 804                                                                               | 0                                                                                 | 59                                                                                | 419                                                                               | 0                                                                                 | 0                                                                                 | 152                                                                               | 0                                                                                 | 0                                                                                   | 4                                                                                   | 0                                                                                   |
| Parking (#/hr)                                                                                                                                                                        |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Turn Type                                                                                                                                                                             | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                                                                                                                                      |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                                                                                                                                                                      | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                                                                                                                                                 | 64.4                                                                              | 64.4                                                                              |                                                                                   | 74.3                                                                              | 74.3                                                                              |                                                                                   |                                                                                   | 14.7                                                                              |                                                                                   |                                                                                     | 14.7                                                                                |                                                                                     |
| Effective Green, g (s)                                                                                                                                                                | 64.4                                                                              | 64.4                                                                              |                                                                                   | 74.3                                                                              | 74.3                                                                              |                                                                                   |                                                                                   | 14.7                                                                              |                                                                                   |                                                                                     | 14.7                                                                                |                                                                                     |
| Actuated g/C Ratio                                                                                                                                                                    | 0.64                                                                              | 0.64                                                                              |                                                                                   | 0.74                                                                              | 0.74                                                                              |                                                                                   |                                                                                   | 0.15                                                                              |                                                                                   |                                                                                     | 0.15                                                                                |                                                                                     |
| Clearance Time (s)                                                                                                                                                                    | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)                                                                                                                                                                 | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                   |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                                                                                                                                                    | 607                                                                               | 2210                                                                              |                                                                                   | 460                                                                               | 2627                                                                              |                                                                                   |                                                                                   | 204                                                                               |                                                                                   |                                                                                     | 234                                                                                 |                                                                                     |
| v/s Ratio Prot                                                                                                                                                                        |                                                                                   | c0.23                                                                             |                                                                                   | 0.01                                                                              | c0.12                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                                                                                                                                                                        | 0.03                                                                              |                                                                                   |                                                                                   | 0.09                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.11                                                                             |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                                                                                                                                                                             | 0.05                                                                              | 0.36                                                                              |                                                                                   | 0.13                                                                              | 0.16                                                                              |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                   |                                                                                     | 0.02                                                                                |                                                                                     |
| Uniform Delay, d1                                                                                                                                                                     | 6.5                                                                               | 8.3                                                                               |                                                                                   | 4.1                                                                               | 3.7                                                                               |                                                                                   |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Progression Factor                                                                                                                                                                    | 0.65                                                                              | 0.73                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                                                                                                                                                 | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   | 12.1                                                                              |                                                                                   |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                                                                                                                                                                             | 4.3                                                                               | 6.1                                                                               |                                                                                   | 4.1                                                                               | 3.9                                                                               |                                                                                   |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Level of Service                                                                                                                                                                      | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                                                                                                                                                                    |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                   | 3.9                                                                               |                                                                                   |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Approach LOS                                                                                                                                                                          |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                                                                                                                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                                                                                                                                                |                                                                                   | 10.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                                                                                                                                                     |                                                                                   | 0.44                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                                                                                                                                             |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                                                                                                                                                     |                                                                                   | 54.9%                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                                                                                                                                                 |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| <div> <div>HCM 2000 Level of Service</div> <div>B</div> </div> <div> <div>Sum of lost time (s)</div> <div>19.0</div> </div> <div> <div>ICU Level of Service</div> <div>A</div> </div> |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

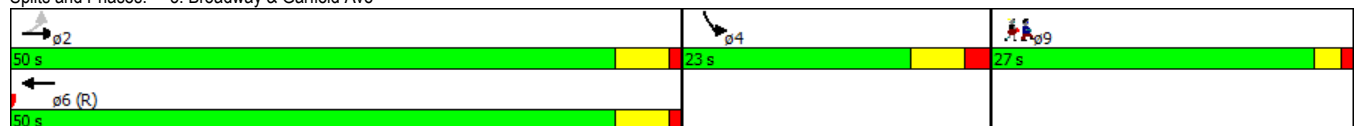
c Critical Lane Group

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 7                                                                                 | 738                                                                               | 471                                                                               | 33                                                                                | 40                                                                                | 150                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Parking (#/hr)          |                                                                                   | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 8                                                                                 | 802                                                                               | 548                                                                               | 0                                                                                 | 206                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.01                                                                              | 0.30                                                                              | 0.20                                                                              |                                                                                   | 0.70                                                                              |                                                                                   |      |
| Control Delay           | 2.9                                                                               | 3.2                                                                               | 2.5                                                                               |                                                                                   | 24.6                                                                              |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Delay             | 2.9                                                                               | 3.2                                                                               | 2.8                                                                               |                                                                                   | 24.7                                                                              |                                                                                   |      |
| Queue Length 50th (ft)  | 1                                                                                 | 47                                                                                | 33                                                                                |                                                                                   | 27                                                                                |                                                                                   |      |
| Queue Length 95th (ft)  | 5                                                                                 | 98                                                                                | 58                                                                                |                                                                                   | 94                                                                                |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 667                                                                               | 2694                                                                              | 2810                                                                              |                                                                                   | 415                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1575                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 123                                                                               | 0                                                                                 |                                                                                   | 5                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.01                                                                              | 0.31                                                                              | 0.44                                                                              |                                                                                   | 0.50                                                                              |                                                                                   |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave



|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 7                                                                                 | 738                                                                               | 471                                                                               | 33                                                                                | 40                                                                                | 150                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.89                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3362                                                                              | 3504                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Flt Permitted                     | 0.45                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 833                                                                               | 3362                                                                              | 3504                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 8                                                                                 | 802                                                                               | 512                                                                               | 36                                                                                | 43                                                                                | 163                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 149                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 8                                                                                 | 802                                                                               | 546                                                                               | 0                                                                                 | 57                                                                                | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Effective Green, g (s)            | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              |                                                                                   | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 668                                                                               | 2696                                                                              | 2810                                                                              |                                                                                   | 144                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | c0.24                                                                             | 0.16                                                                              |                                                                                   | c0.03                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.01                                                                              | 0.30                                                                              | 0.19                                                                              |                                                                                   | 0.40                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.0                                                                               | 2.6                                                                               | 2.3                                                                               |                                                                                   | 43.1                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.92                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.2                                                                               |                                                                                   | 0.7                                                                               |                                                                                   |
| Delay (s)                         | 2.0                                                                               | 2.6                                                                               | 2.3                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.6                                                                               | 2.3                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.9                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.32                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 41.0%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |

c Critical Lane Group

2022 No Build Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 741   | 619    | 255   | 124   | 257   | 184  | 124   | 1786  | 60   | 130   | 2657  | 171  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 1     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 780   |      |       | 673   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 15.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 402   | 1076   | 277   | 121   | 293   | 200  | 135   | 2006  | 0    | 141   | 3074  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 0.99  | 0.90dl | 0.46  | 0.60  | 0.70  | 0.13 | 1.42  | 1.17  |      | 1.48  | 1.80  |      |
| Control Delay           | 87.1  | 50.0   | 9.2   | 62.1  | 59.0  | 0.2  | 280.6 | 120.8 |      | 304.5 | 390.2 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 87.1  | 50.0   | 9.2   | 62.1  | 59.0  | 0.2  | 280.6 | 120.8 |      | 304.5 | 390.2 |      |
| Queue Length 50th (ft)  | 361   | 306    | 16    | 98    | 121   | 0    | ~140  | ~681  |      | ~150  | ~1323 |      |
| Queue Length 95th (ft)  | #661  | #438   | 93    | 162   | 163   | 0    | #271  | #779  |      | #282  | #1408 |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 700   |      |       | 593   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 406   | 1260   | 606   | 315   | 662   | 1583 | 95    | 1710  |      | 95    | 1706  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 0.99  | 0.85   | 0.46  | 0.38  | 0.44  | 0.13 | 1.42  | 1.17  |      | 1.48  | 1.80  |      |

Intersection Summary

Area Type: Other  
Cycle Length: 120  
Actuated Cycle Length: 120  
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
Natural Cycle: 150  
Control Type: Actuated-Coordinated  
~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.  
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.  
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: McGrath Highway & Broadway

|      |      |  |      |  |  |      |  |  |
|------|------|--|------|--|--|------|--|--|
|      |      |  |      |  |  |      |  |  |
| 13 s | 47 s |  | 30 s |  |  | 30 s |  |  |
| 13 s | 47 s |  |      |  |  |      |  |  |

2022 No Build Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

|                        |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement               | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations    |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)           | 741                                                                               | 619                                                                               | 255                                                                               | 124                                                                               | 257                                                                               | 184                                                                               | 124                                                                               | 1786                                                                              | 60                                                                                 | 130                                                                                 | 2657                                                                                | 171                                                                                 |
| Ideal Flow (vphpl)     | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)    | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor      | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                    | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected          | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)      | 1522                                                                              | 4718                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5061                                                                              |                                                                                    | 1770                                                                                | 5039                                                                                |                                                                                     |
| Flt Permitted          | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)      | 1522                                                                              | 4718                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5061                                                                              |                                                                                    | 1770                                                                                | 5039                                                                                |                                                                                     |
| Peak-hour factor, PHF  | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)        | 805                                                                               | 673                                                                               | 277                                                                               | 135                                                                               | 279                                                                               | 200                                                                               | 135                                                                               | 1941                                                                              | 65                                                                                 | 141                                                                                 | 2888                                                                                | 186                                                                                 |
| RTOR Reduction (vph)   | 0                                                                                 | 0                                                                                 | 183                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 | 0                                                                                  | 0                                                                                   | 6                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)  | 402                                                                               | 1076                                                                              | 94                                                                                | 121                                                                               | 293                                                                               | 200                                                                               | 135                                                                               | 2003                                                                              | 0                                                                                  | 141                                                                                 | 3068                                                                                | 0                                                                                   |
| Turn Type              | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases       | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases       |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)  | 32.1                                                                              | 32.1                                                                              | 32.1                                                                              | 14.9                                                                              | 14.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s) | 32.1                                                                              | 32.1                                                                              | 32.1                                                                              | 14.9                                                                              | 14.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio     | 0.27                                                                              | 0.27                                                                              | 0.27                                                                              | 0.12                                                                              | 0.12                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)     | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)  | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)     | 407                                                                               | 1262                                                                              | 423                                                                               | 199                                                                               | 419                                                                               | 1583                                                                              | 95                                                                                | 1708                                                                              |                                                                                    | 95                                                                                  | 1700                                                                                |                                                                                     |
| v/s Ratio Prot         | c0.26                                                                             | 0.23                                                                              |                                                                                   | 0.08                                                                              | c0.09                                                                             |                                                                                   | 0.08                                                                              | 0.40                                                                              |                                                                                    | c0.08                                                                               | c0.61                                                                               |                                                                                     |
| v/s Ratio Perm         |                                                                                   |                                                                                   | 0.06                                                                              |                                                                                   |                                                                                   | 0.13                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio              | 0.99                                                                              | 0.90dl                                                                            | 0.22                                                                              | 0.61                                                                              | 0.70                                                                              | 0.13                                                                              | 1.42                                                                              | 1.17                                                                              |                                                                                    | 1.48                                                                                | 1.80                                                                                |                                                                                     |
| Uniform Delay, d1      | 43.8                                                                              | 41.7                                                                              | 34.2                                                                              | 49.8                                                                              | 50.4                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                    | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor     | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2  | 40.9                                                                              | 5.6                                                                               | 0.1                                                                               | 3.6                                                                               | 4.1                                                                               | 0.2                                                                               | 240.0                                                                             | 84.4                                                                              |                                                                                    | 265.5                                                                               | 364.5                                                                               |                                                                                     |
| Delay (s)              | 84.6                                                                              | 47.3                                                                              | 34.3                                                                              | 53.4                                                                              | 54.5                                                                              | 0.2                                                                               | 296.7                                                                             | 124.2                                                                             |                                                                                    | 322.3                                                                               | 404.2                                                                               |                                                                                     |
| Level of Service       | F                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)     |                                                                                   | 53.8                                                                              |                                                                                   |                                                                                   | 36.6                                                                              |                                                                                   |                                                                                   | 135.0                                                                             |                                                                                    |                                                                                     | 400.6                                                                               |                                                                                     |
| Approach LOS           |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |

Intersection Summary

|                                   |        |                           |      |
|-----------------------------------|--------|---------------------------|------|
| HCM 2000 Control Delay            | 219.3  | HCM 2000 Level of Service | F    |
| HCM 2000 Volume to Capacity ratio | 1.33   |                           |      |
| Actuated Cycle Length (s)         | 120.0  | Sum of lost time (s)      | 26.0 |
| Intersection Capacity Utilization | 112.5% | ICU Level of Service      | H    |
| Analysis Period (min)             | 15     |                           |      |

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 344                                                                               | 228                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 69                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 358                                                                               | 238                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 93                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 596                                                                               |                                                                                   | 477                                                                               | 477                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 596                                                                               |                                                                                   | 477                                                                               | 477                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 84                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 981                                                                               |                                                                                   | 547                                                                               | 588                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 596                                                                               | 93                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 238                                                                               | 93                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 588                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.35                                                                              | 0.16                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 14                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 12.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 12.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 43.0%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 No Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 8                                                                                 | 0                                                                                 | 18                                                                                | 4                                                                                 | 1                                                                                 | 1                                                                                 | 7                                                                                 | 61                                                                                | 0                                                                                 | 2                                                                                   | 179                                                                                 | 18                                                                                  |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 11                                                                                | 0                                                                                 | 25                                                                                | 5                                                                                 | 1                                                                                 | 1                                                                                 | 9                                                                                 | 75                                                                                | 0                                                                                 | 2                                                                                   | 216                                                                                 | 22                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 326                                                                               | 324                                                                               | 227                                                                               | 349                                                                               | 335                                                                               | 75                                                                                | 237                                                                               |                                                                                   |                                                                                   | 75                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 326                                                                               | 324                                                                               | 227                                                                               | 349                                                                               | 335                                                                               | 75                                                                                | 237                                                                               |                                                                                   |                                                                                   | 75                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 97                                                                                | 99                                                                                | 100                                                                               | 100                                                                               | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 625                                                                               | 592                                                                               | 818                                                                               | 587                                                                               | 584                                                                               | 992                                                                               | 1342                                                                              |                                                                                   |                                                                                   | 1537                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 36                                                                                | 8                                                                                 | 84                                                                                | 240                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 11                                                                                | 5                                                                                 | 9                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 25                                                                                | 1                                                                                 | 0                                                                                 | 22                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 747                                                                               | 629                                                                               | 1342                                                                              | 1537                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.05                                                                              | 0.01                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 4                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.1                                                                              | 10.8                                                                              | 0.8                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.1                                                                              | 10.8                                                                              | 0.8                                                                               | 0.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 1.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 20.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 25                                                                                | 2                                                                                 | 1                                                                                 | 0                                                                                 | 17                                                                                | 96                                                                                | 1                                                                                 | 1                                                                                   | 156                                                                                 | 80                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 17                                                                                | 0                                                                                 | 40                                                                                | 5                                                                                 | 3                                                                                 | 0                                                                                 | 19                                                                                | 109                                                                               | 1                                                                                 | 1                                                                                   | 168                                                                                 | 86                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 57                                                                                | 8                                                                                 | 130                                                                               | 255                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 17                                                                                | 5                                                                                 | 19                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 40                                                                                | 0                                                                                 | 1                                                                                 | 86                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.36                                                                             | 0.13                                                                              | 0.02                                                                              | -0.20                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.4                                                                               | 4.9                                                                               | 4.3                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.07                                                                              | 0.01                                                                              | 0.16                                                                              | 0.28                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 750                                                                               | 664                                                                               | 805                                                                               | 885                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.7                                                                               | 8.0                                                                               | 8.1                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.7                                                                               | 8.0                                                                               | 8.1                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 28.2%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 21    | 423   | 111  | 59    | 479   | 6    | 223   | 8     | 95   | 1     | 1     | 10   |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 23    | 581   | 0    | 64    | 528   | 0    | 0     | 354   | 0    | 0     | 13    | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 26.0  | 26.0  |      | 11.0  | 37.0  |      | 36.0  | 36.0  |      | 36.0  | 36.0  |      | 27.0 |
| Total Split (%)         | 26.0% | 26.0% |      | 11.0% | 37.0% |      | 36.0% | 36.0% |      | 36.0% | 36.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      |       | 6.0   |      |       | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.05  | 0.32  |      | 0.13  | 0.24  |      |       | 0.90  |      |       | 0.03  |      |      |
| Control Delay           | 11.9  | 12.1  |      | 9.1   | 9.2   |      |       | 60.2  |      |       | 14.2  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 11.9  | 12.4  |      | 9.1   | 9.2   |      |       | 60.2  |      |       | 14.2  |      |      |
| Queue Length 50th (ft)  | 7     | 109   |      | 16    | 77    |      |       | 199   |      |       | 1     |      |      |
| Queue Length 95th (ft)  | m19   | 158   |      | 34    | 107   |      |       | #347  |      |       | 15    |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 450   | 1834  |      | 487   | 2201  |      |       | 438   |      |       | 491   |      |      |
| Starvation Cap Reductn  | 0     | 709   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 16    |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.05  | 0.52  |      | 0.13  | 0.24  |      |       | 0.81  |      |       | 0.03  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 90

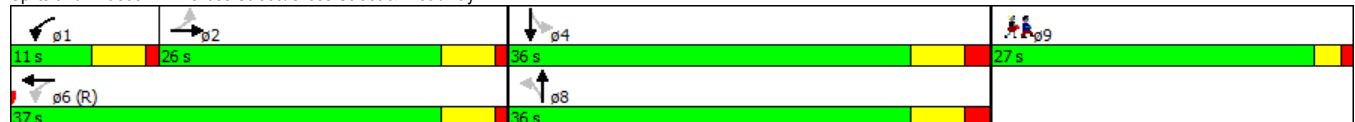
Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway



|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 21                                                                                | 423                                                                               | 111                                                                               | 59                                                                                | 479                                                                               | 6                                                                                 | 223                                                                               | 8                                                                                 | 95                                                                                 | 1                                                                                   | 1                                                                                   | 10                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                    |                                                                                     | 0.89                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3429                                                                              |                                                                                   | 1770                                                                              | 3532                                                                              |                                                                                   |                                                                                   | 1730                                                                              |                                                                                    |                                                                                     | 1644                                                                                |                                                                                     |
| Flt Permitted                     | 0.46                                                                              | 1.00                                                                              |                                                                                   | 0.36                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.79                                                                              |                                                                                    |                                                                                     | 0.98                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 849                                                                               | 3429                                                                              |                                                                                   | 668                                                                               | 3532                                                                              |                                                                                   |                                                                                   | 1410                                                                              |                                                                                    |                                                                                     | 1614                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 23                                                                                | 460                                                                               | 121                                                                               | 64                                                                                | 521                                                                               | 7                                                                                 | 242                                                                               | 9                                                                                 | 103                                                                                | 1                                                                                   | 1                                                                                   | 11                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                  | 0                                                                                   | 8                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 23                                                                                | 567                                                                               | 0                                                                                 | 64                                                                                | 528                                                                               | 0                                                                                 | 0                                                                                 | 339                                                                               | 0                                                                                  | 0                                                                                   | 5                                                                                   | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 52.1                                                                              | 52.1                                                                              |                                                                                   | 62.3                                                                              | 62.3                                                                              |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                    |                                                                                     | 26.7                                                                                |                                                                                     |
| Effective Green, g (s)            | 52.1                                                                              | 52.1                                                                              |                                                                                   | 62.3                                                                              | 62.3                                                                              |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                    |                                                                                     | 26.7                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.52                                                                              | 0.52                                                                              |                                                                                   | 0.62                                                                              | 0.62                                                                              |                                                                                   |                                                                                   | 0.27                                                                              |                                                                                    |                                                                                     | 0.27                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 442                                                                               | 1786                                                                              |                                                                                   | 473                                                                               | 2200                                                                              |                                                                                   |                                                                                   | 376                                                                               |                                                                                    |                                                                                     | 430                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   | 0.01                                                                              | c0.15                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.03                                                                              |                                                                                   |                                                                                   | 0.08                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.24                                                                             |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                         | 0.05                                                                              | 0.32                                                                              |                                                                                   | 0.14                                                                              | 0.24                                                                              |                                                                                   |                                                                                   | 0.90                                                                              |                                                                                    |                                                                                     | 0.01                                                                                |                                                                                     |
| Uniform Delay, d1                 | 11.8                                                                              | 13.7                                                                              |                                                                                   | 7.9                                                                               | 8.4                                                                               |                                                                                   |                                                                                   | 35.4                                                                              |                                                                                    |                                                                                     | 26.9                                                                                |                                                                                     |
| Progression Factor                | 0.80                                                                              | 0.83                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.3                                                                               |                                                                                   |                                                                                   | 23.4                                                                              |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         | 9.5                                                                               | 11.4                                                                              |                                                                                   | 7.9                                                                               | 8.6                                                                               |                                                                                   |                                                                                   | 58.7                                                                              |                                                                                    |                                                                                     | 27.0                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | B                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 11.4                                                                              |                                                                                   |                                                                                   | 8.5                                                                               |                                                                                   |                                                                                   | 58.7                                                                              |                                                                                    |                                                                                     | 27.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 21.2                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.52                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 60.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 11                                                                                | 741                                                                               | 810                                                                               | 50                                                                                | 38                                                                                | 143                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 12                                                                                | 805                                                                               | 934                                                                               | 0                                                                                 | 196                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.03                                                                              | 0.28                                                                              | 0.33                                                                              |                                                                                   | 0.69                                                                              |                                                                                   |      |
| Control Delay           | 2.9                                                                               | 3.1                                                                               | 3.8                                                                               |                                                                                   | 24.6                                                                              |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.4                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Delay             | 2.9                                                                               | 3.1                                                                               | 4.2                                                                               |                                                                                   | 24.6                                                                              |                                                                                   |      |
| Queue Length 50th (ft)  | 1                                                                                 | 46                                                                                | 74                                                                                |                                                                                   | 25                                                                                |                                                                                   |      |
| Queue Length 95th (ft)  | 6                                                                                 | 95                                                                                | 113                                                                               |                                                                                   | 91                                                                                |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 443                                                                               | 2841                                                                              | 2817                                                                              |                                                                                   | 408                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1207                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 102                                                                               | 0                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.03                                                                              | 0.29                                                                              | 0.58                                                                              |                                                                                   | 0.49                                                                              |                                                                                   |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave

|                                                                                            |                                                                                        |                                                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  ø2     |  ø4 |  ø9 |
| 50 s                                                                                       | 23 s                                                                                   | 27 s                                                                                     |
|  ø6 (R) |                                                                                        |                                                                                          |
| 50 s                                                                                       |                                                                                        |                                                                                          |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 11                                                                                | 741                                                                               | 810                                                                               | 50                                                                                | 38                                                                                | 143                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.89                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3509                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Flt Permitted                     | 0.30                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 553                                                                               | 3539                                                                              | 3509                                                                              |                                                                                   | 1647                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 12                                                                                | 805                                                                               | 880                                                                               | 54                                                                                | 41                                                                                | 155                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 142                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 12                                                                                | 805                                                                               | 932                                                                               | 0                                                                                 | 54                                                                                | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 80.3                                                                              | 80.3                                                                              | 80.3                                                                              |                                                                                   | 8.7                                                                               |                                                                                   |
| Effective Green, g (s)            | 80.3                                                                              | 80.3                                                                              | 80.3                                                                              |                                                                                   | 8.7                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              |                                                                                   | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 444                                                                               | 2841                                                                              | 2817                                                                              |                                                                                   | 143                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.23                                                                              | c0.27                                                                             |                                                                                   | c0.03                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.03                                                                              | 0.28                                                                              | 0.33                                                                              |                                                                                   | 0.38                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.0                                                                               | 2.5                                                                               | 2.6                                                                               |                                                                                   | 43.1                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 1.21                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.6                                                                               |                                                                                   |
| Delay (s)                         | 2.0                                                                               | 2.5                                                                               | 3.5                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.5                                                                               | 3.5                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.1                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 44.1%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 No Build Conditions  
6: McGrath Highway & Broadway

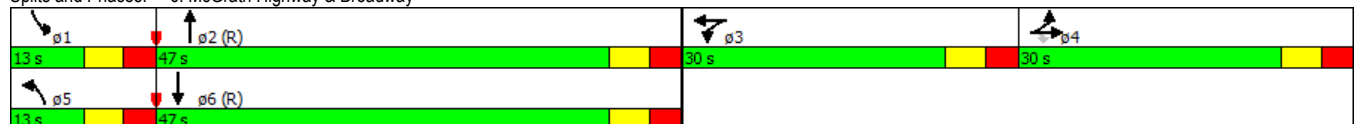
Weekday Evening Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 639   | 465    | 119   | 173   | 429   | 282  | 260   | 2752  | 109  | 163   | 2142  | 399  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 347   | 853    | 129   | 169   | 485   | 307  | 283   | 3109  | 0    | 177   | 2762  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 13.0  | 30.0  |      | 13.0  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 1.05  | 0.95dl | 0.28  | 0.60  | 0.82  | 0.19 | 2.98  | 1.82  |      | 1.86  | 1.63  |      |
| Control Delay           | 109.1 | 53.6   | 5.9   | 54.8  | 59.8  | 0.3  | 938.0 | 397.8 |      | 457.0 | 314.0 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 109.1 | 53.6   | 5.9   | 54.8  | 59.8  | 0.3  | 938.0 | 397.8 |      | 457.0 | 314.0 |      |
| Queue Length 50th (ft)  | ~356  | 250    | 0     | 131   | 198   | 0    | ~379  | ~1343 |      | ~208  | ~1133 |      |
| Queue Length 95th (ft)  | #590  | #339   | 38    | 210   | 259   | 0    | #555  | #1428 |      | #353  | #1223 |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 331   | 1023   | 461   | 315   | 662   | 1583 | 95    | 1709  |      | 95    | 1697  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 1.05  | 0.83   | 0.28  | 0.54  | 0.73  | 0.19 | 2.98  | 1.82  |      | 1.86  | 1.63  |      |

Intersection Summary

Area Type: Other  
Cycle Length: 120  
Actuated Cycle Length: 120  
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
Natural Cycle: 150  
Control Type: Actuated-Coordinated  
~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.  
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.  
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: McGrath Highway & Broadway



2022 No Build Conditions  
6: McGrath Highway & Broadway

Weekday Evening Peak Hour  
Timing Plan: Default

|                                                                 |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                        | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                             |  |  |  |  |  |  |  |  |   |  |  |  |
| Volume (vph)                                                    | 639                                                                               | 465                                                                               | 119                                                                               | 173                                                                               | 429                                                                               | 282                                                                               | 260                                                                               | 2752                                                                              | 109                                                                                | 163                                                                                 | 2142                                                                                | 399                                                                                 |
| Ideal Flow (vphpl)                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                             | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                                               | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                                                             | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                                               | 1522                                                                              | 4710                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5056                                                                              |                                                                                    | 1770                                                                                | 4965                                                                                |                                                                                     |
| Flt Permitted                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                                               | 1522                                                                              | 4710                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5056                                                                              |                                                                                    | 1770                                                                                | 4965                                                                                |                                                                                     |
| Peak-hour factor, PHF                                           | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                 | 695                                                                               | 505                                                                               | 129                                                                               | 188                                                                               | 466                                                                               | 307                                                                               | 283                                                                               | 2991                                                                              | 118                                                                                | 177                                                                                 | 2328                                                                                | 434                                                                                 |
| RTOR Reduction (vph)                                            | 0                                                                                 | 0                                                                                 | 101                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 | 0                                                                                  | 0                                                                                   | 23                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)                                           | 347                                                                               | 853                                                                               | 28                                                                                | 169                                                                               | 485                                                                               | 307                                                                               | 283                                                                               | 3106                                                                              | 0                                                                                  | 177                                                                                 | 2739                                                                                | 0                                                                                   |
| Turn Type                                                       | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                                                |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                           | 26.1                                                                              | 26.1                                                                              | 26.1                                                                              | 20.9                                                                              | 20.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)                                          | 26.1                                                                              | 26.1                                                                              | 26.1                                                                              | 20.9                                                                              | 20.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                                              | 0.22                                                                              | 0.22                                                                              | 0.22                                                                              | 0.17                                                                              | 0.17                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                                              | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)                                           | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                              | 331                                                                               | 1024                                                                              | 344                                                                               | 280                                                                               | 589                                                                               | 1583                                                                              | 95                                                                                | 1706                                                                              |                                                                                    | 95                                                                                  | 1675                                                                                |                                                                                     |
| v/s Ratio Prot                                                  | c0.23                                                                             | 0.18                                                                              |                                                                                   | 0.10                                                                              | c0.14                                                                             |                                                                                   | c0.16                                                                             | c0.61                                                                             |                                                                                    | 0.10                                                                                | 0.55                                                                                |                                                                                     |
| v/s Ratio Perm                                                  |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                                                       | 1.05                                                                              | 0.95dl                                                                            | 0.08                                                                              | 0.60                                                                              | 0.82                                                                              | 0.19                                                                              | 2.98                                                                              | 1.82                                                                              |                                                                                    | 1.86                                                                                | 1.64                                                                                |                                                                                     |
| Uniform Delay, d1                                               | 46.9                                                                              | 44.9                                                                              | 37.4                                                                              | 45.7                                                                              | 47.8                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                    | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                           | 62.7                                                                              | 5.7                                                                               | 0.0                                                                               | 2.5                                                                               | 8.7                                                                               | 0.3                                                                               | 918.2                                                                             | 371.5                                                                             |                                                                                    | 425.7                                                                               | 288.7                                                                               |                                                                                     |
| Delay (s)                                                       | 109.6                                                                             | 50.5                                                                              | 37.4                                                                              | 48.2                                                                              | 56.5                                                                              | 0.3                                                                               | 974.9                                                                             | 411.3                                                                             |                                                                                    | 482.5                                                                               | 328.5                                                                               |                                                                                     |
| Level of Service                                                | F                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                                              |                                                                                   | 64.7                                                                              |                                                                                   |                                                                                   | 37.1                                                                              |                                                                                   |                                                                                   | 458.3                                                                             |                                                                                    |                                                                                     | 337.7                                                                               |                                                                                     |
| Approach LOS                                                    |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                          |                                                                                   |                                                                                   | 309.6                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                               |                                                                                   |                                                                                   | 1.46                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                       |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                               |                                                                                   |                                                                                   | 115.9%                                                                            |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | H                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                           |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

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| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 505                                                                               | 114                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 121                                                                               |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 526                                                                               | 119                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 164                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 645                                                                               |                                                                                   | 585                                                                               | 585                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 645                                                                               |                                                                                   | 585                                                                               | 585                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 68                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 940                                                                               |                                                                                   | 473                                                                               | 511                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 645                                                                               | 164                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 119                                                                               | 164                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 511                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.38                                                                              | 0.32                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 34                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 15.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 15.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 3.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 47.7%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 No Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Saturday MIDDAY Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
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| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 95                                                                                | 0                                                                                 | 70                                                                                | 1                                                                                 | 1                                                                                 | 1                                                                                 | 50                                                                                | 11                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 110                                                                                 |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 132                                                                               | 0                                                                                 | 97                                                                                | 1                                                                                 | 1                                                                                 | 1                                                                                 | 62                                                                                | 14                                                                                | 0                                                                                 | 0                                                                                   | 0                                                                                   | 133                                                                                 |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 205                                                                               | 203                                                                               | 66                                                                                | 301                                                                               | 270                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 205                                                                               | 203                                                                               | 66                                                                                | 301                                                                               | 270                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 82                                                                                | 100                                                                               | 90                                                                                | 100                                                                               | 100                                                                               | 100                                                                               | 96                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 730                                                                               | 667                                                                               | 1003                                                                              | 573                                                                               | 613                                                                               | 1072                                                                              | 1465                                                                              |                                                                                   |                                                                                   | 1618                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 229                                                                               | 4                                                                                 | 75                                                                                | 133                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 132                                                                               | 1                                                                                 | 62                                                                                | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 97                                                                                | 1                                                                                 | 0                                                                                 | 133                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 826                                                                               | 696                                                                               | 1465                                                                              | 1618                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.28                                                                              | 0.01                                                                              | 0.04                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 28                                                                                | 0                                                                                 | 3                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 11.0                                                                              | 10.2                                                                              | 6.3                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 11.0                                                                              | 10.2                                                                              | 6.3                                                                               | 0.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 6.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 32.9%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

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| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 5                                                                                 | 0                                                                                 | 33                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 231                                                                               | 0                                                                                 | 0                                                                                   | 264                                                                                 | 50                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 8                                                                                 | 0                                                                                 | 52                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 262                                                                               | 0                                                                                 | 0                                                                                   | 284                                                                                 | 54                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 60                                                                                | 0                                                                                 | 263                                                                               | 338                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 8                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 52                                                                                | 0                                                                                 | 0                                                                                 | 54                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.49                                                                             | 0.00                                                                              | 0.00                                                                              | -0.10                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.7                                                                               | 5.3                                                                               | 4.4                                                                               | 4.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.08                                                                              | 0.00                                                                              | 0.32                                                                              | 0.40                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 678                                                                               | 603                                                                               | 796                                                                               | 826                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 8.1                                                                               | 8.3                                                                               | 9.4                                                                               | 10.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 8.1                                                                               | 0.0                                                                               | 9.4                                                                               | 10.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.9%                                                                             | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 88    | 495   | 99   | 83    | 515   | 17   | 159   | 5     | 93   | 83    | 50    | 5    |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 96    | 646   | 0    | 90    | 578   | 0    | 0     | 279   | 0    | 0     | 149   | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 34.0  | 34.0  |      | 11.0  | 45.0  |      | 28.0  | 28.0  |      | 28.0  | 28.0  |      | 27.0 |
| Total Split (%)         | 34.0% | 34.0% |      | 11.0% | 45.0% |      | 28.0% | 28.0% |      | 28.0% | 28.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.20  | 0.32  |      | 0.18  | 0.24  |      |       | 0.94  |      |       | 0.54  |      |      |
| Control Delay           | 11.0  | 10.0  |      | 6.6   | 6.6   |      |       | 76.1  |      |       | 42.3  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 11.0  | 10.5  |      | 6.6   | 6.6   |      |       | 76.1  |      |       | 42.3  |      |      |
| Queue Length 50th (ft)  | 30    | 130   |      | 18    | 67    |      |       | 160   |      |       | 83    |      |      |
| Queue Length 95th (ft)  | m65   | m164  |      | 34    | 91    |      |       | #318  |      |       | 147   |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 471   | 2026  |      | 506   | 2389  |      |       | 306   |      |       | 287   |      |      |
| Starvation Cap Reductn  | 0     | 840   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 16    |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.20  | 0.54  |      | 0.18  | 0.24  |      |       | 0.91  |      |       | 0.52  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

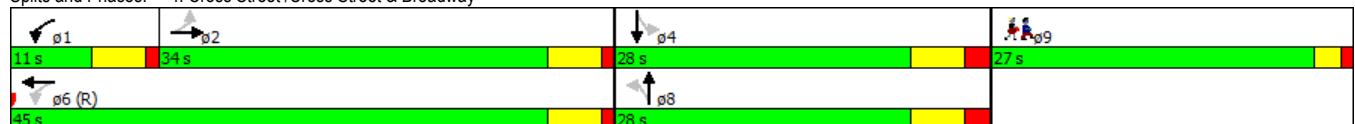
Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway



|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 88                                                                                | 495                                                                               | 99                                                                                | 83                                                                                | 515                                                                               | 17                                                                                | 159                                                                               | 5                                                                                 | 93                                                                                 | 83                                                                                  | 50                                                                                  | 5                                                                                   |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.95                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 0.97                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3450                                                                              |                                                                                   | 1770                                                                              | 3523                                                                              |                                                                                   |                                                                                   | 1718                                                                              |                                                                                    |                                                                                     | 1800                                                                                |                                                                                     |
| Flt Permitted                     | 0.43                                                                              | 1.00                                                                              |                                                                                   | 0.34                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.73                                                                              |                                                                                    |                                                                                     | 0.70                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 809                                                                               | 3450                                                                              |                                                                                   | 637                                                                               | 3523                                                                              |                                                                                   |                                                                                   | 1300                                                                              |                                                                                    |                                                                                     | 1303                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 96                                                                                | 538                                                                               | 108                                                                               | 90                                                                                | 560                                                                               | 18                                                                                | 173                                                                               | 5                                                                                 | 101                                                                                | 90                                                                                  | 54                                                                                  | 5                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 10                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 96                                                                                | 636                                                                               | 0                                                                                 | 90                                                                                | 577                                                                               | 0                                                                                 | 0                                                                                 | 259                                                                               | 0                                                                                  | 0                                                                                   | 147                                                                                 | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 57.4                                                                              | 57.4                                                                              |                                                                                   | 67.8                                                                              | 67.8                                                                              |                                                                                   |                                                                                   | 21.2                                                                              |                                                                                    |                                                                                     | 21.2                                                                                |                                                                                     |
| Effective Green, g (s)            | 57.4                                                                              | 57.4                                                                              |                                                                                   | 67.8                                                                              | 67.8                                                                              |                                                                                   |                                                                                   | 21.2                                                                              |                                                                                    |                                                                                     | 21.2                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.57                                                                              | 0.57                                                                              |                                                                                   | 0.68                                                                              | 0.68                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                    |                                                                                     | 0.21                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 464                                                                               | 1980                                                                              |                                                                                   | 493                                                                               | 2388                                                                              |                                                                                   |                                                                                   | 275                                                                               |                                                                                    |                                                                                     | 276                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.18                                                                             |                                                                                   | 0.01                                                                              | c0.16                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.12                                                                              |                                                                                   |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.20                                                                             |                                                                                    |                                                                                     | 0.11                                                                                |                                                                                     |
| v/c Ratio                         | 0.21                                                                              | 0.32                                                                              |                                                                                   | 0.18                                                                              | 0.24                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                    |                                                                                     | 0.53                                                                                |                                                                                     |
| Uniform Delay, d1                 | 10.3                                                                              | 11.1                                                                              |                                                                                   | 6.0                                                                               | 6.2                                                                               |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                    |                                                                                     | 35.0                                                                                |                                                                                     |
| Progression Factor                | 0.86                                                                              | 0.87                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.1                                                                               | 0.0                                                                               |                                                                                   | 0.1                                                                               | 0.2                                                                               |                                                                                   |                                                                                   | 38.0                                                                              |                                                                                    |                                                                                     | 1.0                                                                                 |                                                                                     |
| Delay (s)                         | 8.9                                                                               | 9.7                                                                               |                                                                                   | 6.1                                                                               | 6.4                                                                               |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                    |                                                                                     | 36.0                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   | 6.4                                                                               |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                    |                                                                                     | 36.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 20.8                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 54.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  | ø9   |
|-------------------------|-------|-------|-------|------|-------|------|------|
| Lane Configurations     |       |       |       |      |       |      |      |
| Volume (vph)            | 38    | 682   | 587   | 181  | 155   | 175  |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900 | 1900  | 1900 |      |
| Storage Length (ft)     | 50    |       |       | 0    | 0     | 0    |      |
| Storage Lanes           | 1     |       |       | 0    | 1     | 0    |      |
| Taper Length (ft)       | 25    |       |       |      | 25    |      |      |
| Right Turn on Red       |       |       |       | Yes  |       | Yes  |      |
| Link Speed (mph)        |       | 30    | 30    |      | 30    |      |      |
| Link Distance (ft)      |       | 509   | 247   |      | 538   |      |      |
| Travel Time (s)         |       | 11.6  | 5.6   |      | 12.2  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |       |      |       |      |      |
| Lane Group Flow (vph)   | 41    | 741   | 835   | 0    | 358   | 0    |      |
| Turn Type               | Perm  | NA    | NA    |      | Prot  |      |      |
| Protected Phases        |       | 2     | 6     |      | 4     |      | 9    |
| Permitted Phases        | 2     |       |       |      |       |      |      |
| Detector Phase          | 2     | 2     | 6     |      | 4     |      |      |
| Switch Phase            |       |       |       |      |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  |      | 6.0   |      | 4.0  |
| Minimum Split (s)       | 15.0  | 15.0  | 21.0  |      | 12.0  |      | 27.0 |
| Total Split (s)         | 50.0  | 50.0  | 50.0  |      | 23.0  |      | 27.0 |
| Total Split (%)         | 50.0% | 50.0% | 50.0% |      | 23.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   | 4.0   |      | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   |      | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |      | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   |      | 6.0   |      |      |
| Lead/Lag                |       |       |       |      |       |      |      |
| Lead-Lag Optimize?      |       |       |       |      |       |      |      |
| Recall Mode             | None  | None  | C-Max |      | None  |      | None |
| v/c Ratio               | 0.10  | 0.29  | 0.34  |      | 1.09  |      |      |
| Control Delay           | 4.9   | 5.3   | 4.0   |      | 112.7 |      |      |
| Queue Delay             | 0.0   | 0.0   | 0.3   |      | 1.3   |      |      |
| Total Delay             | 4.9   | 5.3   | 4.4   |      | 114.0 |      |      |
| Queue Length 50th (ft)  | 7     | 75    | 65    |      | ~232  |      |      |
| Queue Length 95th (ft)  | 17    | 98    | m79   |      | #413  |      |      |
| Internal Link Dist (ft) |       | 429   | 167   |      | 458   |      |      |
| Turn Bay Length (ft)    | 50    |       |       |      |       |      |      |
| Base Capacity (vph)     | 427   | 2548  | 2473  |      | 327   |      |      |
| Starvation Cap Reductn  | 0     | 0     | 972   |      | 0     |      |      |
| Spillback Cap Reductn   | 0     | 128   | 0     |      | 1     |      |      |
| Storage Cap Reductn     | 0     | 0     | 0     |      | 0     |      |      |
| Reduced v/c Ratio       | 0.10  | 0.31  | 0.56  |      | 1.10  |      |      |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

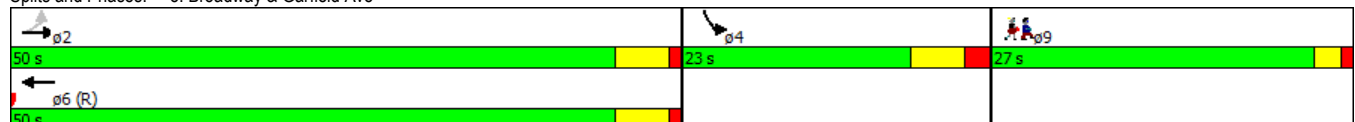
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Broadway & Garfield Ave



|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |  |
| Volume (vph)                      | 38                                                                                | 682                                                                               | 587                                                                               | 181                                                                               | 155                                                                               | 175                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.96                                                                              |                                                                                   | 0.93                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3414                                                                              |                                                                                   | 1690                                                                              |                                                                                   |
| Flt Permitted                     | 0.32                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 593                                                                               | 3539                                                                              | 3414                                                                              |                                                                                   | 1690                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 41                                                                                | 741                                                                               | 638                                                                               | 197                                                                               | 168                                                                               | 190                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                 | 41                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 41                                                                                | 741                                                                               | 820                                                                               | 0                                                                                 | 317                                                                               | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Effective Green, g (s)            | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Actuated g/C Ratio                | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              |                                                                                   | 0.17                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 426                                                                               | 2548                                                                              | 2458                                                                              |                                                                                   | 287                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.21                                                                              | 0.24                                                                              |                                                                                   | 0.19                                                                              |                                                                                   |
| v/s Ratio Perm                    | 0.07                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.10                                                                              | 0.29                                                                              | 0.33                                                                              |                                                                                   | 1.11                                                                              |                                                                                   |
| Uniform Delay, d1                 | 4.2                                                                               | 5.0                                                                               | 5.2                                                                               |                                                                                   | 41.5                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.76                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 84.5                                                                              |                                                                                   |
| Delay (s)                         | 4.2                                                                               | 5.0                                                                               | 4.3                                                                               |                                                                                   | 126.0                                                                             |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 4.9                                                                               | 4.3                                                                               |                                                                                   | 126.0                                                                             |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 26.6                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | C                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 60.1%                                                                             |                                                                                   | ICU Level of Service                                                              | B                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 839   | 489    | 179   | 173   | 312   | 250  | 184   | 1833  | 130  | 206   | 1704  | 268  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 456   | 988    | 195   | 169   | 358   | 272  | 200   | 2133  | 0    | 224   | 2143  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 1.23  | 1.11dl | 0.37  | 0.71  | 0.72  | 0.17 | 2.11  | 1.25  |      | 2.36  | 1.26  |      |
| Control Delay           | 163.9 | 52.9   | 7.7   | 64.7  | 56.8  | 0.2  | 558.9 | 152.9 |      | 667.2 | 156.9 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 163.9 | 52.9   | 7.7   | 64.7  | 56.8  | 0.2  | 558.9 | 152.9 |      | 667.2 | 156.9 |      |
| Queue Length 50th (ft)  | ~497  | 282    | 0     | 139   | 148   | 0    | ~245  | ~758  |      | ~284  | ~762  |      |
| Queue Length 95th (ft)  | #813  | #427   | 63    | 210   | 190   | 0    | #397  | #854  |      | #443  | #858  |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 371   | 1145   | 533   | 315   | 661   | 1583 | 95    | 1705  |      | 95    | 1699  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 1.23  | 0.86   | 0.37  | 0.54  | 0.54  | 0.17 | 2.11  | 1.25  |      | 2.36  | 1.26  |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

#### Splits and Phases: 6: McGrath Highway & Broadway

|      |      |  |      |  |      |
|------|------|--|------|--|------|
|      |      |  |      |  |      |
| 13 s | 47 s |  | 30 s |  | 30 s |
|      |      |  |      |  |      |
| 13 s | 47 s |  |      |  |      |

|                                                                 |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                        | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                             |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                    | 839                                                                               | 489                                                                               | 179                                                                               | 173                                                                               | 312                                                                               | 250                                                                               | 184                                                                               | 1833                                                                              | 130                                                                                | 206                                                                                 | 1704                                                                                | 268                                                                                 |
| Ideal Flow (vphpl)                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                             | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                                               | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                                                             | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                                               | 1522                                                                              | 4697                                                                              | 1583                                                                              | 1610                                                                              | 3381                                                                              | 1583                                                                              | 1770                                                                              | 5035                                                                              |                                                                                    | 1770                                                                                | 4982                                                                                |                                                                                     |
| Flt Permitted                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                                               | 1522                                                                              | 4697                                                                              | 1583                                                                              | 1610                                                                              | 3381                                                                              | 1583                                                                              | 1770                                                                              | 5035                                                                              |                                                                                    | 1770                                                                                | 4982                                                                                |                                                                                     |
| Peak-hour factor, PHF                                           | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                 | 912                                                                               | 532                                                                               | 195                                                                               | 188                                                                               | 339                                                                               | 272                                                                               | 200                                                                               | 1992                                                                              | 141                                                                                | 224                                                                                 | 1852                                                                                | 291                                                                                 |
| RTOR Reduction (vph)                                            | 0                                                                                 | 0                                                                                 | 147                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 7                                                                                 | 0                                                                                  | 0                                                                                   | 18                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)                                           | 456                                                                               | 988                                                                               | 48                                                                                | 169                                                                               | 358                                                                               | 272                                                                               | 200                                                                               | 2126                                                                              | 0                                                                                  | 224                                                                                 | 2125                                                                                | 0                                                                                   |
| Turn Type                                                       | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                                                |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                           | 29.3                                                                              | 29.3                                                                              | 29.3                                                                              | 17.7                                                                              | 17.7                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)                                          | 29.3                                                                              | 29.3                                                                              | 29.3                                                                              | 17.7                                                                              | 17.7                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.15                                                                              | 0.15                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                                              | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)                                           | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                              | 371                                                                               | 1146                                                                              | 386                                                                               | 237                                                                               | 498                                                                               | 1583                                                                              | 95                                                                                | 1699                                                                              |                                                                                    | 95                                                                                  | 1681                                                                                |                                                                                     |
| v/s Ratio Prot                                                  | c0.30                                                                             | 0.21                                                                              |                                                                                   | 0.10                                                                              | c0.11                                                                             |                                                                                   | 0.11                                                                              | 0.42                                                                              |                                                                                    | c0.13                                                                               | c0.43                                                                               |                                                                                     |
| v/s Ratio Perm                                                  |                                                                                   |                                                                                   | 0.03                                                                              |                                                                                   |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                                                       | 1.23                                                                              | 1.11dl                                                                            | 0.12                                                                              | 0.71                                                                              | 0.72                                                                              | 0.17                                                                              | 2.11                                                                              | 1.25                                                                              |                                                                                    | 2.36                                                                                | 1.26                                                                                |                                                                                     |
| Uniform Delay, d1                                               | 45.4                                                                              | 43.4                                                                              | 35.3                                                                              | 48.7                                                                              | 48.8                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                    | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                           | 124.6                                                                             | 6.6                                                                               | 0.1                                                                               | 8.2                                                                               | 4.1                                                                               | 0.2                                                                               | 531.2                                                                             | 118.2                                                                             |                                                                                    | 642.4                                                                               | 123.8                                                                               |                                                                                     |
| Delay (s)                                                       | 170.0                                                                             | 50.1                                                                              | 35.4                                                                              | 56.9                                                                              | 52.9                                                                              | 0.2                                                                               | 587.9                                                                             | 158.0                                                                             |                                                                                    | 699.1                                                                               | 163.6                                                                               |                                                                                     |
| Level of Service                                                | F                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                                              |                                                                                   | 81.7                                                                              |                                                                                   |                                                                                   | 35.8                                                                              |                                                                                   |                                                                                   | 194.8                                                                             |                                                                                    |                                                                                     | 214.2                                                                               |                                                                                     |
| Approach LOS                                                    |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                          |                                                                                   |                                                                                   | 157.5                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                               |                                                                                   |                                                                                   | 1.22                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                       |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                               |                                                                                   |                                                                                   | 103.7%                                                                            |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | G                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                           |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

|                                   |  |  |  |  |  |  |
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| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 635                                                                               | 208                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 34                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.94                                                                              | 0.94                                                                              | 0.92                                                                              | 0.92                                                                              | 0.54                                                                              | 0.54                                                                              |
| Hourly flow rate (vph)            | 676                                                                               | 221                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 63                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 897                                                                               |                                                                                   | 786                                                                               | 786                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 897                                                                               |                                                                                   | 786                                                                               | 786                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 84                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 757                                                                               |                                                                                   | 359                                                                               | 391                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 897                                                                               | 63                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 221                                                                               | 63                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 391                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.53                                                                              | 0.16                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 14                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 16.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 16.0                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 56.1%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   | B                                                                                 |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
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|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 7                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                | 0                                                                                 | 2                                                                                 | 7                                                                                 | 20                                                                                | 1                                                                                 | 6                                                                                   | 186                                                                                 | 9                                                                                   |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.44                                                                              | 0.44                                                                              | 0.44                                                                              | 0.25                                                                              | 0.25                                                                              | 0.25                                                                              | 0.59                                                                              | 0.59                                                                              | 0.59                                                                              | 0.90                                                                                | 0.90                                                                                | 0.90                                                                                |
| Hourly flow rate (vph)            | 16                                                                                | 0                                                                                 | 0                                                                                 | 128                                                                               | 0                                                                                 | 8                                                                                 | 12                                                                                | 34                                                                                | 2                                                                                 | 7                                                                                   | 207                                                                                 | 10                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 291                                                                               | 284                                                                               | 212                                                                               | 283                                                                               | 288                                                                               | 35                                                                                | 217                                                                               |                                                                                   |                                                                                   | 36                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 291                                                                               | 284                                                                               | 212                                                                               | 283                                                                               | 288                                                                               | 35                                                                                | 217                                                                               |                                                                                   |                                                                                   | 36                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 100                                                                               | 81                                                                                | 100                                                                               | 99                                                                                | 99                                                                                |                                                                                   |                                                                                   | 100                                                                                 |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 653                                                                               | 620                                                                               | 834                                                                               | 666                                                                               | 617                                                                               | 1044                                                                              | 1365                                                                              |                                                                                   |                                                                                   | 1582                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 16                                                                                | 136                                                                               | 47                                                                                | 223                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 16                                                                                | 128                                                                               | 12                                                                                | 7                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 0                                                                                 | 8                                                                                 | 2                                                                                 | 10                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 653                                                                               | 681                                                                               | 1365                                                                              | 1582                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.02                                                                              | 0.20                                                                              | 0.01                                                                              | 0.00                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 2                                                                                 | 19                                                                                | 1                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.6                                                                              | 11.6                                                                              | 2.0                                                                               | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.6                                                                              | 11.6                                                                              | 2.0                                                                               | 0.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 4.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 20.9%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2022 Build Conditions  
3: Garfield Ave/Garfield Avenue & Blakeley Avenue

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
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| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 27                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 21                                                                                | 18                                                                                | 1                                                                                 | 1                                                                                   | 167                                                                                 | 66                                                                                  |
| Peak Hour Factor                  | 0.84                                                                              | 0.84                                                                              | 0.84                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.65                                                                              | 0.65                                                                              | 0.65                                                                              | 0.89                                                                                | 0.89                                                                                | 0.89                                                                                |
| Hourly flow rate (vph)            | 13                                                                                | 0                                                                                 | 32                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 32                                                                                | 28                                                                                | 2                                                                                 | 1                                                                                   | 188                                                                                 | 74                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 45                                                                                | 0                                                                                 | 62                                                                                | 263                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 13                                                                                | 0                                                                                 | 32                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 32                                                                                | 0                                                                                 | 2                                                                                 | 74                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.37                                                                             | 0.00                                                                              | 0.09                                                                              | -0.15                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.2                                                                               | 4.6                                                                               | 4.3                                                                               | 3.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.05                                                                              | 0.00                                                                              | 0.07                                                                              | 0.29                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 785                                                                               | 733                                                                               | 804                                                                               | 906                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.4                                                                               | 7.6                                                                               | 7.7                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.4                                                                               | 0.0                                                                               | 7.7                                                                               | 8.5                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 28.3%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
|                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

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| Lane Group              | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 | ø9                                                                                  |                                                                                     |                                                                                     |                                                                                     |
| Lane Configurations     |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Volume (vph)            | 27                                                                                | 603                                                                               | 152                                                                               | 54                                                                                | 385                                                                               | 2                                                                                 | 113                                                                               | 3                                                                                 | 34                                                                                 | 2                                                                                   | 1                                                                                   | 7                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Storage Length (ft)     | 75                                                                                |                                                                                   | 0                                                                                 | 100                                                                               |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Storage Lanes           | 1                                                                                 |                                                                                   | 0                                                                                 | 1                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                  | 0                                                                                   |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |                                                                                    | 25                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Right Turn on Red       |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   | Yes                                                                                |                                                                                     |                                                                                     | Yes                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Link Speed (mph)        |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                   |                                                                                   | 30                                                                                |                                                                                    |                                                                                     | 30                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Link Distance (ft)      |                                                                                   | 247                                                                               |                                                                                   |                                                                                   | 411                                                                               |                                                                                   |                                                                                   | 244                                                                               |                                                                                    |                                                                                     | 507                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Travel Time (s)         |                                                                                   | 5.6                                                                               |                                                                                   |                                                                                   | 9.3                                                                               |                                                                                   |                                                                                   | 5.5                                                                               |                                                                                    |                                                                                     | 11.5                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Parking (#/hr)          |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lane Group Flow (vph)   | 29                                                                                | 820                                                                               | 0                                                                                 | 59                                                                                | 420                                                                               | 0                                                                                 | 0                                                                                 | 163                                                                               | 0                                                                                  | 0                                                                                   | 11                                                                                  | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Turn Type               | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Protected Phases        |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     | 9                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Detector Phase          | 2                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   | 8                                                                                 | 8                                                                                 |                                                                                    | 4                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               | 10.0                                                                              |                                                                                   | 6.0                                                                               | 6.0                                                                               |                                                                                    | 6.0                                                                                 | 6.0                                                                                 |                                                                                     | 7.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              |                                                                                   | 11.0                                                                              | 20.0                                                                              |                                                                                   | 20.0                                                                              | 20.0                                                                              |                                                                                    | 20.0                                                                                | 20.0                                                                                |                                                                                     | 27.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Total Split (s)         | 36.0                                                                              | 36.0                                                                              |                                                                                   | 11.0                                                                              | 47.0                                                                              |                                                                                   | 26.0                                                                              | 26.0                                                                              |                                                                                    | 26.0                                                                                | 26.0                                                                                |                                                                                     | 27.0                                                                                |                                                                                     |                                                                                     |                                                                                     |
| Total Split (%)         | 36.0%                                                                             | 36.0%                                                                             |                                                                                   | 11.0%                                                                             | 47.0%                                                                             |                                                                                   | 26.0%                                                                             | 26.0%                                                                             |                                                                                    | 26.0%                                                                               | 26.0%                                                                               |                                                                                     | 27%                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               | 4.0                                                                               |                                                                                    | 4.0                                                                                 | 4.0                                                                                 |                                                                                     | 2.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               |                                                                                   | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     | 1.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                    | 0.0                                                                                 | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               | 6.0                                                                               |                                                                                    | 6.0                                                                                 | 6.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead/Lag                | Lag                                                                               | Lag                                                                               |                                                                                   | Lead                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Lead-Lag Optimize?      | Yes                                                                               | Yes                                                                               |                                                                                   | Yes                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Recall Mode             | None                                                                              | None                                                                              |                                                                                   | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              | None                                                                              |                                                                                    | None                                                                                | None                                                                                |                                                                                     | None                                                                                |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio               | 0.05                                                                              | 0.36                                                                              |                                                                                   | 0.12                                                                              | 0.16                                                                              |                                                                                   |                                                                                   | 0.75                                                                              |                                                                                    |                                                                                     | 0.05                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Control Delay           | 5.5                                                                               | 6.7                                                                               |                                                                                   | 4.9                                                                               | 4.4                                                                               |                                                                                   |                                                                                   | 58.3                                                                              |                                                                                    |                                                                                     | 21.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Delay             | 0.0                                                                               | 0.2                                                                               |                                                                                   | 0.0                                                                               | 0.0                                                                               |                                                                                   |                                                                                   | 0.0                                                                               |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Total Delay             | 5.5                                                                               | 7.0                                                                               |                                                                                   | 4.9                                                                               | 4.4                                                                               |                                                                                   |                                                                                   | 58.3                                                                              |                                                                                    |                                                                                     | 21.7                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 50th (ft)  | 5                                                                                 | 121                                                                               |                                                                                   | 9                                                                                 | 35                                                                                |                                                                                   |                                                                                   | 92                                                                                |                                                                                    |                                                                                     | 2                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)  | m11                                                                               | 188                                                                               |                                                                                   | 23                                                                                | 61                                                                                |                                                                                   |                                                                                   | 155                                                                               |                                                                                    |                                                                                     | 17                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Internal Link Dist (ft) |                                                                                   | 167                                                                               |                                                                                   |                                                                                   | 331                                                                               |                                                                                   |                                                                                   | 164                                                                               |                                                                                    |                                                                                     | 427                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Turn Bay Length (ft)    | 75                                                                                |                                                                                   |                                                                                   | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Base Capacity (vph)     | 615                                                                               | 2253                                                                              |                                                                                   | 472                                                                               | 2626                                                                              |                                                                                   |                                                                                   | 289                                                                               |                                                                                    |                                                                                     | 326                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Starvation Cap Reductn  | 0                                                                                 | 687                                                                               |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Spillback Cap Reductn   | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                    |                                                                                     | 0                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Reduced v/c Ratio       | 0.05                                                                              | 0.52                                                                              |                                                                                   | 0.13                                                                              | 0.16                                                                              |                                                                                   |                                                                                   | 0.56                                                                              |                                                                                    |                                                                                     | 0.03                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|                                                                                     |                                                                                     |                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| ø1                                                                                  | ø2                                                                                  | ø4                                                                                  | ø9                                                                                    |
| 11 s                                                                                | 36 s                                                                                | 26 s                                                                                | 27 s                                                                                  |
|  |                                                                                     |  |                                                                                       |
| ø6 (R)                                                                              |                                                                                     | ø8                                                                                  |                                                                                       |
| 47 s                                                                                |                                                                                     | 26 s                                                                                |                                                                                       |

2022 Build Conditions  
4: Cross Street /Cross Street & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 27                                                                                | 603                                                                               | 152                                                                               | 54                                                                                | 385                                                                               | 2                                                                                 | 113                                                                               | 3                                                                                 | 34                                                                                | 2                                                                                   | 1                                                                                   | 7                                                                                   |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                   |                                                                                     | 0.90                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                   |                                                                                     | 0.99                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3432                                                                              |                                                                                   | 1770                                                                              | 3537                                                                              |                                                                                   |                                                                                   | 1740                                                                              |                                                                                   |                                                                                     | 1665                                                                                |                                                                                     |
| Flt Permitted                     | 0.51                                                                              | 1.00                                                                              |                                                                                   | 0.29                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.77                                                                              |                                                                                   |                                                                                     | 0.95                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 943                                                                               | 3432                                                                              |                                                                                   | 535                                                                               | 3537                                                                              |                                                                                   |                                                                                   | 1394                                                                              |                                                                                   |                                                                                     | 1598                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 29                                                                                | 655                                                                               | 165                                                                               | 59                                                                                | 418                                                                               | 2                                                                                 | 123                                                                               | 3                                                                                 | 37                                                                                | 2                                                                                   | 1                                                                                   | 8                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 11                                                                                | 0                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 29                                                                                | 809                                                                               | 0                                                                                 | 59                                                                                | 420                                                                               | 0                                                                                 | 0                                                                                 | 152                                                                               | 0                                                                                 | 0                                                                                   | 4                                                                                   | 0                                                                                   |
| Parking (#/hr)                    |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                   | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                   | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 64.4                                                                              | 64.4                                                                              |                                                                                   | 74.3                                                                              | 74.3                                                                              |                                                                                   |                                                                                   | 14.7                                                                              |                                                                                   |                                                                                     | 14.7                                                                                |                                                                                     |
| Effective Green, g (s)            | 64.4                                                                              | 64.4                                                                              |                                                                                   | 74.3                                                                              | 74.3                                                                              |                                                                                   |                                                                                   | 14.7                                                                              |                                                                                   |                                                                                     | 14.7                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.64                                                                              | 0.64                                                                              |                                                                                   | 0.74                                                                              | 0.74                                                                              |                                                                                   |                                                                                   | 0.15                                                                              |                                                                                   |                                                                                     | 0.15                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                   |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                   |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 607                                                                               | 2210                                                                              |                                                                                   | 458                                                                               | 2627                                                                              |                                                                                   |                                                                                   | 204                                                                               |                                                                                   |                                                                                     | 234                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.24                                                                             |                                                                                   | 0.01                                                                              | c0.12                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.03                                                                              |                                                                                   |                                                                                   | 0.09                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.11                                                                             |                                                                                   |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                         | 0.05                                                                              | 0.37                                                                              |                                                                                   | 0.13                                                                              | 0.16                                                                              |                                                                                   |                                                                                   | 0.74                                                                              |                                                                                   |                                                                                     | 0.02                                                                                |                                                                                     |
| Uniform Delay, d1                 | 6.5                                                                               | 8.3                                                                               |                                                                                   | 4.1                                                                               | 3.7                                                                               |                                                                                   |                                                                                   | 40.9                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Progression Factor                | 0.62                                                                              | 0.72                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                   |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.1                                                                               |                                                                                   |                                                                                   | 12.1                                                                              |                                                                                   |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         | 4.1                                                                               | 6.0                                                                               |                                                                                   | 4.2                                                                               | 3.9                                                                               |                                                                                   |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 5.9                                                                               |                                                                                   |                                                                                   | 3.9                                                                               |                                                                                   |                                                                                   | 53.0                                                                              |                                                                                   |                                                                                     | 36.5                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 10.6                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.44                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 55.0%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

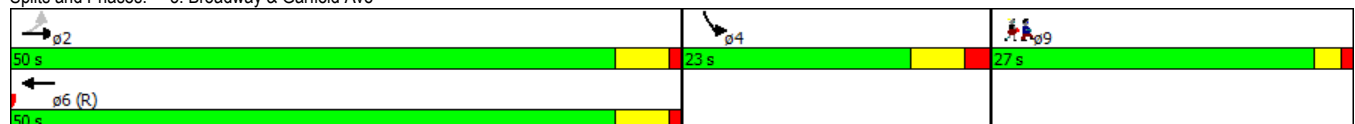
c Critical Lane Group

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 7                                                                                 | 738                                                                               | 471                                                                               | 34                                                                                | 44                                                                                | 150                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Parking (#/hr)          |                                                                                   | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 8                                                                                 | 802                                                                               | 549                                                                               | 0                                                                                 | 211                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.01                                                                              | 0.30                                                                              | 0.20                                                                              |                                                                                   | 0.72                                                                              |                                                                                   |      |
| Control Delay           | 3.1                                                                               | 3.5                                                                               | 2.7                                                                               |                                                                                   | 28.9                                                                              |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Delay             | 3.1                                                                               | 3.5                                                                               | 3.0                                                                               |                                                                                   | 29.0                                                                              |                                                                                   |      |
| Queue Length 50th (ft)  | 1                                                                                 | 52                                                                                | 40                                                                                |                                                                                   | 40                                                                                |                                                                                   |      |
| Queue Length 95th (ft)  | 5                                                                                 | 104                                                                               | 61                                                                                |                                                                                   | 108                                                                               |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 660                                                                               | 2668                                                                              | 2783                                                                              |                                                                                   | 402                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1543                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 112                                                                               | 0                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.01                                                                              | 0.31                                                                              | 0.44                                                                              |                                                                                   | 0.53                                                                              |                                                                                   |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave



|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |  |
| Volume (vph)                      | 7                                                                                 | 738                                                                               | 471                                                                               | 34                                                                                | 44                                                                                | 150                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.90                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3362                                                                              | 3503                                                                              |                                                                                   | 1650                                                                              |                                                                                   |
| Flt Permitted                     | 0.45                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 832                                                                               | 3362                                                                              | 3503                                                                              |                                                                                   | 1650                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 8                                                                                 | 802                                                                               | 512                                                                               | 37                                                                                | 48                                                                                | 163                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 133                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 8                                                                                 | 802                                                                               | 547                                                                               | 0                                                                                 | 78                                                                                | 0                                                                                 |
| Parking (#/hr)                    |                                                                                   | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 79.4                                                                              | 79.4                                                                              | 79.4                                                                              |                                                                                   | 9.6                                                                               |                                                                                   |
| Effective Green, g (s)            | 79.4                                                                              | 79.4                                                                              | 79.4                                                                              |                                                                                   | 9.6                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.79                                                                              | 0.79                                                                              | 0.79                                                                              |                                                                                   | 0.10                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 660                                                                               | 2669                                                                              | 2781                                                                              |                                                                                   | 158                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | c0.24                                                                             | 0.16                                                                              |                                                                                   | c0.05                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.01                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.01                                                                              | 0.30                                                                              | 0.20                                                                              |                                                                                   | 0.49                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.1                                                                               | 2.8                                                                               | 2.5                                                                               |                                                                                   | 42.9                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.2                                                                               |                                                                                   | 0.9                                                                               |                                                                                   |
| Delay (s)                         | 2.1                                                                               | 2.8                                                                               | 2.4                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.8                                                                               | 2.4                                                                               |                                                                                   | 43.8                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   | 8.2                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |                                                                                   |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.33                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 41.2%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

c Critical Lane Group

2022 Build Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 743   | 619    | 255   | 124   | 257   | 184  | 124   | 1787  | 60   | 130   | 2662  | 187  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 1     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 780   |      |       | 673   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 15.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 404   | 1077   | 277   | 121   | 293   | 200  | 135   | 2007  | 0    | 141   | 3096  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 1.00  | 0.90dl | 0.46  | 0.60  | 0.70  | 0.13 | 1.42  | 1.17  |      | 1.48  | 1.82  |      |
| Control Delay           | 88.3  | 50.0   | 9.2   | 62.1  | 59.0  | 0.2  | 280.6 | 121.1 |      | 304.5 | 396.3 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 88.3  | 50.0   | 9.2   | 62.1  | 59.0  | 0.2  | 280.6 | 121.1 |      | 304.5 | 396.3 |      |
| Queue Length 50th (ft)  | 363   | 307    | 16    | 98    | 121   | 0    | ~140  | ~682  |      | ~150  | ~1336 |      |
| Queue Length 95th (ft)  | #665  | #439   | 93    | 162   | 163   | 0    | #271  | #780  |      | #282  | #1420 |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 700   |      |       | 593   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 406   | 1260   | 606   | 315   | 662   | 1583 | 95    | 1710  |      | 95    | 1705  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 1.00  | 0.85   | 0.46  | 0.38  | 0.44  | 0.13 | 1.42  | 1.17  |      | 1.48  | 1.82  |      |

Intersection Summary

Area Type: Other  
Cycle Length: 120  
Actuated Cycle Length: 120  
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
Natural Cycle: 150  
Control Type: Actuated-Coordinated  
~ Volume exceeds capacity, queue is theoretically infinite.  
Queue shown is maximum after two cycles.  
# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.  
dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: McGrath Highway & Broadway

|      |      |  |      |  |  |      |  |  |
|------|------|--|------|--|--|------|--|--|
|      |      |  |      |  |  |      |  |  |
| 13 s | 47 s |  | 30 s |  |  | 30 s |  |  |
| 13 s | 47 s |  |      |  |  |      |  |  |

2022 Build Conditions  
6: McGrath Highway & Broadway

Weekday Morning Peak Hour  
Timing Plan: Default

|                                                                 |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                        | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                               | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                             |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                    | 743                                                                               | 619                                                                               | 255                                                                               | 124                                                                               | 257                                                                               | 184                                                                               | 124                                                                               | 1787                                                                              | 60                                                                                | 130                                                                                 | 2662                                                                                | 187                                                                                 |
| Ideal Flow (vphpl)                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                             | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                                               | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                   | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                                                             | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 0.99                                                                                |                                                                                     |
| Flt Protected                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                                               | 1522                                                                              | 4717                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5061                                                                              |                                                                                   | 1770                                                                                | 5035                                                                                |                                                                                     |
| Flt Permitted                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                                               | 1522                                                                              | 4717                                                                              | 1583                                                                              | 1610                                                                              | 3382                                                                              | 1583                                                                              | 1770                                                                              | 5061                                                                              |                                                                                   | 1770                                                                                | 5035                                                                                |                                                                                     |
| Peak-hour factor, PHF                                           | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                 | 808                                                                               | 673                                                                               | 277                                                                               | 135                                                                               | 279                                                                               | 200                                                                               | 135                                                                               | 1942                                                                              | 65                                                                                | 141                                                                                 | 2893                                                                                | 203                                                                                 |
| RTOR Reduction (vph)                                            | 0                                                                                 | 0                                                                                 | 183                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 | 0                                                                                 | 0                                                                                   | 7                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)                                           | 404                                                                               | 1077                                                                              | 94                                                                                | 121                                                                               | 293                                                                               | 200                                                                               | 135                                                                               | 2004                                                                              | 0                                                                                 | 141                                                                                 | 3089                                                                                | 0                                                                                   |
| Turn Type                                                       | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                   | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                   | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                                                |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                           | 32.1                                                                              | 32.1                                                                              | 32.1                                                                              | 14.9                                                                              | 14.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                   | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)                                          | 32.1                                                                              | 32.1                                                                              | 32.1                                                                              | 14.9                                                                              | 14.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                   | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                                              | 0.27                                                                              | 0.27                                                                              | 0.27                                                                              | 0.12                                                                              | 0.12                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                   | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                                              | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)                                           | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                              | 407                                                                               | 1261                                                                              | 423                                                                               | 199                                                                               | 419                                                                               | 1583                                                                              | 95                                                                                | 1708                                                                              |                                                                                   | 95                                                                                  | 1699                                                                                |                                                                                     |
| v/s Ratio Prot                                                  | c0.27                                                                             | 0.23                                                                              |                                                                                   | 0.08                                                                              | c0.09                                                                             |                                                                                   | 0.08                                                                              | 0.40                                                                              |                                                                                   | c0.08                                                                               | c0.61                                                                               |                                                                                     |
| v/s Ratio Perm                                                  |                                                                                   |                                                                                   | 0.06                                                                              |                                                                                   |                                                                                   | 0.13                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                                                       | 0.99                                                                              | 0.90dl                                                                            | 0.22                                                                              | 0.61                                                                              | 0.70                                                                              | 0.13                                                                              | 1.42                                                                              | 1.17                                                                              |                                                                                   | 1.48                                                                                | 1.82                                                                                |                                                                                     |
| Uniform Delay, d1                                               | 43.8                                                                              | 41.7                                                                              | 34.2                                                                              | 49.8                                                                              | 50.4                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                   | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                           | 42.4                                                                              | 5.6                                                                               | 0.1                                                                               | 3.6                                                                               | 4.1                                                                               | 0.2                                                                               | 240.0                                                                             | 84.7                                                                              |                                                                                   | 265.5                                                                               | 370.6                                                                               |                                                                                     |
| Delay (s)                                                       | 86.2                                                                              | 47.3                                                                              | 34.3                                                                              | 53.4                                                                              | 54.5                                                                              | 0.2                                                                               | 296.7                                                                             | 124.4                                                                             |                                                                                   | 322.3                                                                               | 410.3                                                                               |                                                                                     |
| Level of Service                                                | F                                                                                 | D                                                                                 | C                                                                                 | D                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                   | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                                              |                                                                                   | 54.2                                                                              |                                                                                   |                                                                                   | 36.6                                                                              |                                                                                   |                                                                                   | 135.3                                                                             |                                                                                   |                                                                                     | 406.5                                                                               |                                                                                     |
| Approach LOS                                                    |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                   |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                          |                                                                                   |                                                                                   | 222.3                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                               |                                                                                   |                                                                                   | 1.33                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                       |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                               |                                                                                   |                                                                                   | 113.0%                                                                            |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | H                                                                                 |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                           |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

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| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 344                                                                               | 254                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 70                                                                                |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 358                                                                               | 265                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 95                                                                                |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 623                                                                               |                                                                                   | 491                                                                               | 491                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 623                                                                               |                                                                                   | 491                                                                               | 491                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 84                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 958                                                                               |                                                                                   | 537                                                                               | 578                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 623                                                                               | 95                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 265                                                                               | 95                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 578                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.37                                                                              | 0.16                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 12.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 12.4                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 1.6                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 44.6%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Weekday Evening Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 8                                                                                 | 0                                                                                 | 18                                                                                | 15                                                                                | 0                                                                                 | 1                                                                                 | 7                                                                                 | 61                                                                                | 6                                                                                 | 26                                                                                  | 179                                                                                 | 18                                                                                  |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 11                                                                                | 0                                                                                 | 25                                                                                | 20                                                                                | 0                                                                                 | 1                                                                                 | 9                                                                                 | 75                                                                                | 7                                                                                 | 31                                                                                  | 216                                                                                 | 22                                                                                  |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 387                                                                               | 389                                                                               | 227                                                                               | 410                                                                               | 396                                                                               | 79                                                                                | 237                                                                               |                                                                                   |                                                                                   | 83                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 387                                                                               | 389                                                                               | 227                                                                               | 410                                                                               | 396                                                                               | 79                                                                                | 237                                                                               |                                                                                   |                                                                                   | 83                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 98                                                                                | 100                                                                               | 97                                                                                | 96                                                                                | 100                                                                               | 100                                                                               | 99                                                                                |                                                                                   |                                                                                   | 98                                                                                  |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 563                                                                               | 534                                                                               | 818                                                                               | 527                                                                               | 529                                                                               | 987                                                                               | 1342                                                                              |                                                                                   |                                                                                   | 1527                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 36                                                                                | 21                                                                                | 91                                                                                | 269                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 11                                                                                | 20                                                                                | 9                                                                                 | 31                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 25                                                                                | 1                                                                                 | 7                                                                                 | 22                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 718                                                                               | 543                                                                               | 1342                                                                              | 1527                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.05                                                                              | 0.04                                                                              | 0.01                                                                              | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 4                                                                                 | 3                                                                                 | 0                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 10.3                                                                              | 11.9                                                                              | 0.8                                                                               | 1.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 10.3                                                                              | 11.9                                                                              | 0.8                                                                               | 1.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 2.3                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 26.8%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

2022 Build Conditions  
3: Blakeley Avenue & Garfield Avenue

Weekday Evening Peak Hour  
Timing Plan: Default

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| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 11                                                                                | 0                                                                                 | 25                                                                                | 2                                                                                 | 1                                                                                 | 0                                                                                 | 17                                                                                | 102                                                                               | 1                                                                                 | 1                                                                                   | 158                                                                                 | 93                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 17                                                                                | 0                                                                                 | 40                                                                                | 5                                                                                 | 3                                                                                 | 0                                                                                 | 19                                                                                | 116                                                                               | 1                                                                                 | 1                                                                                   | 170                                                                                 | 100                                                                                 |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 57                                                                                | 8                                                                                 | 136                                                                               | 271                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 17                                                                                | 5                                                                                 | 19                                                                                | 1                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 40                                                                                | 0                                                                                 | 1                                                                                 | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.36                                                                             | 0.13                                                                              | 0.02                                                                              | -0.22                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.4                                                                               | 5.0                                                                               | 4.3                                                                               | 4.0                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.07                                                                              | 0.01                                                                              | 0.16                                                                              | 0.30                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 740                                                                               | 655                                                                               | 802                                                                               | 888                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 7.7                                                                               | 8.0                                                                               | 8.2                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 7.7                                                                               | 8.0                                                                               | 8.2                                                                               | 8.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 8.4                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 28.5%                                                                             | ICU Level of Service                                                              |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 21    | 425   | 111  | 59    | 485   | 6    | 223   | 8     | 95   | 1     | 1     | 10   |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 23    | 583   | 0    | 64    | 534   | 0    | 0     | 354   | 0    | 0     | 13    | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 26.0  | 26.0  |      | 11.0  | 37.0  |      | 36.0  | 36.0  |      | 36.0  | 36.0  |      | 27.0 |
| Total Split (%)         | 26.0% | 26.0% |      | 11.0% | 37.0% |      | 36.0% | 36.0% |      | 36.0% | 36.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      |       | 6.0   |      |       | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.05  | 0.32  |      | 0.13  | 0.24  |      |       | 0.90  |      |       | 0.03  |      |      |
| Control Delay           | 11.9  | 12.1  |      | 9.1   | 9.2   |      |       | 60.2  |      |       | 14.2  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 11.9  | 12.5  |      | 9.1   | 9.2   |      |       | 60.2  |      |       | 14.2  |      |      |
| Queue Length 50th (ft)  | 7     | 110   |      | 16    | 78    |      |       | 199   |      |       | 1     |      |      |
| Queue Length 95th (ft)  | m19   | 160   |      | 34    | 108   |      |       | #347  |      |       | 15    |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 447   | 1834  |      | 486   | 2201  |      |       | 438   |      |       | 491   |      |      |
| Starvation Cap Reductn  | 0     | 708   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 17    |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.05  | 0.52  |      | 0.13  | 0.24  |      |       | 0.81  |      |       | 0.03  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

## Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway

|        |      |      |      |
|--------|------|------|------|
|        |      |      |      |
| ø1     | ø2   | ø4   | ø9   |
| 11 s   | 26 s | 36 s | 27 s |
|        |      |      |      |
| ø6 (R) |      | ø8   |      |
| 37 s   |      | 36 s |      |

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 21                                                                                | 425                                                                               | 111                                                                               | 59                                                                                | 485                                                                               | 6                                                                                 | 223                                                                               | 8                                                                                 | 95                                                                                 | 1                                                                                   | 1                                                                                   | 10                                                                                  |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.96                                                                              |                                                                                    |                                                                                     | 0.89                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3429                                                                              |                                                                                   | 1770                                                                              | 3532                                                                              |                                                                                   |                                                                                   | 1730                                                                              |                                                                                    |                                                                                     | 1644                                                                                |                                                                                     |
| Flt Permitted                     | 0.45                                                                              | 1.00                                                                              |                                                                                   | 0.36                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.79                                                                              |                                                                                    |                                                                                     | 0.98                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 845                                                                               | 3429                                                                              |                                                                                   | 666                                                                               | 3532                                                                              |                                                                                   |                                                                                   | 1410                                                                              |                                                                                    |                                                                                     | 1614                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 23                                                                                | 462                                                                               | 121                                                                               | 64                                                                                | 527                                                                               | 7                                                                                 | 242                                                                               | 9                                                                                 | 103                                                                                | 1                                                                                   | 1                                                                                   | 11                                                                                  |
| RTOR Reduction (vph)              | 0                                                                                 | 14                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                  | 0                                                                                   | 8                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 23                                                                                | 569                                                                               | 0                                                                                 | 64                                                                                | 534                                                                               | 0                                                                                 | 0                                                                                 | 339                                                                               | 0                                                                                  | 0                                                                                   | 5                                                                                   | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 52.1                                                                              | 52.1                                                                              |                                                                                   | 62.3                                                                              | 62.3                                                                              |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                    |                                                                                     | 26.7                                                                                |                                                                                     |
| Effective Green, g (s)            | 52.1                                                                              | 52.1                                                                              |                                                                                   | 62.3                                                                              | 62.3                                                                              |                                                                                   |                                                                                   | 26.7                                                                              |                                                                                    |                                                                                     | 26.7                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.52                                                                              | 0.52                                                                              |                                                                                   | 0.62                                                                              | 0.62                                                                              |                                                                                   |                                                                                   | 0.27                                                                              |                                                                                    |                                                                                     | 0.27                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 440                                                                               | 1786                                                                              |                                                                                   | 472                                                                               | 2200                                                                              |                                                                                   |                                                                                   | 376                                                                               |                                                                                    |                                                                                     | 430                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.17                                                                             |                                                                                   | 0.01                                                                              | c0.15                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.03                                                                              |                                                                                   |                                                                                   | 0.08                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.24                                                                             |                                                                                    |                                                                                     | 0.00                                                                                |                                                                                     |
| v/c Ratio                         | 0.05                                                                              | 0.32                                                                              |                                                                                   | 0.14                                                                              | 0.24                                                                              |                                                                                   |                                                                                   | 0.90                                                                              |                                                                                    |                                                                                     | 0.01                                                                                |                                                                                     |
| Uniform Delay, d1                 | 11.8                                                                              | 13.8                                                                              |                                                                                   | 7.9                                                                               | 8.4                                                                               |                                                                                   |                                                                                   | 35.4                                                                              |                                                                                    |                                                                                     | 26.9                                                                                |                                                                                     |
| Progression Factor                | 0.80                                                                              | 0.83                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               | 0.3                                                                               |                                                                                   |                                                                                   | 23.4                                                                              |                                                                                    |                                                                                     | 0.0                                                                                 |                                                                                     |
| Delay (s)                         | 9.5                                                                               | 11.4                                                                              |                                                                                   | 7.9                                                                               | 8.6                                                                               |                                                                                   |                                                                                   | 58.7                                                                              |                                                                                    |                                                                                     | 27.0                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | B                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 11.4                                                                              |                                                                                   |                                                                                   | 8.6                                                                               |                                                                                   |                                                                                   | 58.7                                                                              |                                                                                    |                                                                                     | 27.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | B                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | C                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 21.1                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.52                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 60.5%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | B                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               | ø9   |
|-------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------|
| Lane Configurations     |  |  |  |  |  |  |      |
| Volume (vph)            | 11                                                                                | 741                                                                               | 810                                                                               | 56                                                                                | 40                                                                                | 143                                                                               |      |
| Ideal Flow (vphpl)      | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |      |
| Storage Length (ft)     | 50                                                                                |                                                                                   |                                                                                   | 0                                                                                 | 0                                                                                 | 0                                                                                 |      |
| Storage Lanes           | 1                                                                                 |                                                                                   |                                                                                   | 0                                                                                 | 1                                                                                 | 0                                                                                 |      |
| Taper Length (ft)       | 25                                                                                |                                                                                   |                                                                                   |                                                                                   | 25                                                                                |                                                                                   |      |
| Right Turn on Red       |                                                                                   |                                                                                   |                                                                                   | Yes                                                                               |                                                                                   | Yes                                                                               |      |
| Link Speed (mph)        |                                                                                   | 30                                                                                | 30                                                                                |                                                                                   | 30                                                                                |                                                                                   |      |
| Link Distance (ft)      |                                                                                   | 509                                                                               | 247                                                                               |                                                                                   | 538                                                                               |                                                                                   |      |
| Travel Time (s)         |                                                                                   | 11.6                                                                              | 5.6                                                                               |                                                                                   | 12.2                                                                              |                                                                                   |      |
| Peak Hour Factor        | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |      |
| Shared Lane Traffic (%) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lane Group Flow (vph)   | 12                                                                                | 805                                                                               | 941                                                                               | 0                                                                                 | 198                                                                               | 0                                                                                 |      |
| Turn Type               | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |      |
| Protected Phases        |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   | 9    |
| Permitted Phases        | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Detector Phase          | 2                                                                                 | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Switch Phase            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Minimum Initial (s)     | 10.0                                                                              | 10.0                                                                              | 10.0                                                                              |                                                                                   | 6.0                                                                               |                                                                                   | 4.0  |
| Minimum Split (s)       | 15.0                                                                              | 15.0                                                                              | 21.0                                                                              |                                                                                   | 12.0                                                                              |                                                                                   | 27.0 |
| Total Split (s)         | 50.0                                                                              | 50.0                                                                              | 50.0                                                                              |                                                                                   | 23.0                                                                              |                                                                                   | 27.0 |
| Total Split (%)         | 50.0%                                                                             | 50.0%                                                                             | 50.0%                                                                             |                                                                                   | 23.0%                                                                             |                                                                                   | 27%  |
| Yellow Time (s)         | 4.0                                                                               | 4.0                                                                               | 4.0                                                                               |                                                                                   | 4.0                                                                               |                                                                                   | 2.0  |
| All-Red Time (s)        | 1.0                                                                               | 1.0                                                                               | 1.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   | 1.0  |
| Lost Time Adjust (s)    | 0.0                                                                               | 0.0                                                                               | 0.0                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Lost Time (s)     | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |      |
| Lead/Lag                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Lead-Lag Optimize?      |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Recall Mode             | None                                                                              | None                                                                              | C-Max                                                                             |                                                                                   | None                                                                              |                                                                                   | None |
| v/c Ratio               | 0.03                                                                              | 0.28                                                                              | 0.33                                                                              |                                                                                   | 0.69                                                                              |                                                                                   |      |
| Control Delay           | 2.9                                                                               | 3.1                                                                               | 3.8                                                                               |                                                                                   | 25.0                                                                              |                                                                                   |      |
| Queue Delay             | 0.0                                                                               | 0.0                                                                               | 0.4                                                                               |                                                                                   | 0.0                                                                               |                                                                                   |      |
| Total Delay             | 2.9                                                                               | 3.1                                                                               | 4.2                                                                               |                                                                                   | 25.0                                                                              |                                                                                   |      |
| Queue Length 50th (ft)  | 1                                                                                 | 46                                                                                | 75                                                                                |                                                                                   | 27                                                                                |                                                                                   |      |
| Queue Length 95th (ft)  | 6                                                                                 | 95                                                                                | 114                                                                               |                                                                                   | 93                                                                                |                                                                                   |      |
| Internal Link Dist (ft) |                                                                                   | 429                                                                               | 167                                                                               |                                                                                   | 458                                                                               |                                                                                   |      |
| Turn Bay Length (ft)    | 50                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |      |
| Base Capacity (vph)     | 439                                                                               | 2839                                                                              | 2812                                                                              |                                                                                   | 408                                                                               |                                                                                   |      |
| Starvation Cap Reductn  | 0                                                                                 | 0                                                                                 | 1190                                                                              |                                                                                   | 0                                                                                 |                                                                                   |      |
| Spillback Cap Reductn   | 0                                                                                 | 106                                                                               | 0                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |      |
| Storage Cap Reductn     | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   | 0                                                                                 |                                                                                   |      |
| Reduced v/c Ratio       | 0.03                                                                              | 0.29                                                                              | 0.58                                                                              |                                                                                   | 0.49                                                                              |                                                                                   |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 100  
 Actuated Cycle Length: 100  
 Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green  
 Natural Cycle: 60  
 Control Type: Actuated-Coordinated

Splits and Phases: 5: Broadway & Garfield Ave

|                                                                                            |                                                                                        |                                                                                          |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  ø2     |  ø4 |  ø9 |
| 50 s                                                                                       | 23 s                                                                                   | 27 s                                                                                     |
|  ø6 (R) |                                                                                        |                                                                                          |
| 50 s                                                                                       |                                                                                        |                                                                                          |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 11                                                                                | 741                                                                               | 810                                                                               | 56                                                                                | 40                                                                                | 143                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                   | 0.89                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3505                                                                              |                                                                                   | 1648                                                                              |                                                                                   |
| Flt Permitted                     | 0.29                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.99                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 548                                                                               | 3539                                                                              | 3505                                                                              |                                                                                   | 1648                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 12                                                                                | 805                                                                               | 880                                                                               | 61                                                                                | 43                                                                                | 155                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 2                                                                                 | 0                                                                                 | 141                                                                               | 0                                                                                 |
| Lane Group Flow (vph)             | 12                                                                                | 805                                                                               | 939                                                                               | 0                                                                                 | 57                                                                                | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Effective Green, g (s)            | 80.2                                                                              | 80.2                                                                              | 80.2                                                                              |                                                                                   | 8.8                                                                               |                                                                                   |
| Actuated g/C Ratio                | 0.80                                                                              | 0.80                                                                              | 0.80                                                                              |                                                                                   | 0.09                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 439                                                                               | 2838                                                                              | 2811                                                                              |                                                                                   | 145                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.23                                                                              | c0.27                                                                             |                                                                                   | c0.03                                                                             |                                                                                   |
| v/s Ratio Perm                    | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.03                                                                              | 0.28                                                                              | 0.33                                                                              |                                                                                   | 0.39                                                                              |                                                                                   |
| Uniform Delay, d1                 | 2.0                                                                               | 2.5                                                                               | 2.7                                                                               |                                                                                   | 43.1                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 1.20                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 0.6                                                                               |                                                                                   |
| Delay (s)                         | 2.0                                                                               | 2.6                                                                               | 3.5                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 2.5                                                                               | 3.5                                                                               |                                                                                   | 43.7                                                                              |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | D                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 7.2                                                                               |                                                                                   | HCM 2000 Level of Service                                                         | A                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.35                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 44.4%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 Build Conditions  
6: McGrath Highway & Broadway

Weekday Evening Peak Hour  
Timing Plan: Default

|                         | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 654   | 465    | 119   | 173   | 429   | 282  | 260   | 2757  | 109  | 163   | 2144  | 407  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 355   | 861    | 129   | 169   | 485   | 307  | 283   | 3115  | 0    | 177   | 2772  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 13.0  | 30.0  |      | 13.0  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 1.07  | 0.98dl | 0.28  | 0.60  | 0.82  | 0.19 | 2.98  | 1.82  |      | 1.86  | 1.63  |      |
| Control Delay           | 115.7 | 54.1   | 5.9   | 54.8  | 59.8  | 0.3  | 938.0 | 399.3 |      | 457.0 | 316.2 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 115.7 | 54.1   | 5.9   | 54.8  | 59.8  | 0.3  | 938.0 | 399.3 |      | 457.0 | 316.2 |      |
| Queue Length 50th (ft)  | ~372  | 253    | 0     | 131   | 198   | 0    | ~379  | ~1347 |      | ~208  | ~1139 |      |
| Queue Length 95th (ft)  | #606  | #344   | 38    | 210   | 259   | 0    | #555  | #1432 |      | #353  | #1228 |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 331   | 1023   | 461   | 315   | 662   | 1583 | 95    | 1709  |      | 95    | 1698  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 1.07  | 0.84   | 0.28  | 0.54  | 0.73  | 0.19 | 2.98  | 1.82  |      | 1.86  | 1.63  |      |

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

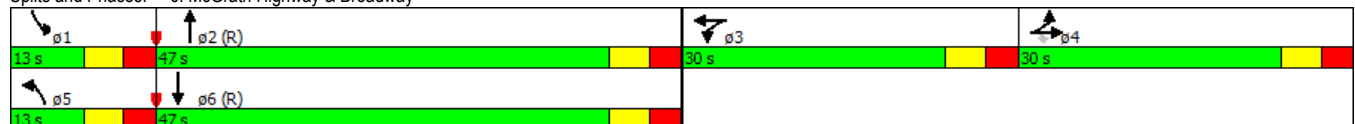
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 6: McGrath Highway & Broadway



|                                                                 |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                        | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                             |  |  |  |  |  |  |  |  |   |  |  |  |
| Volume (vph)                                                    | 654                                                                               | 465                                                                               | 119                                                                               | 173                                                                               | 429                                                                               | 282                                                                               | 260                                                                               | 2757                                                                              | 109                                                                                | 163                                                                                 | 2144                                                                                | 407                                                                                 |
| Ideal Flow (vphpl)                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                             | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                                               | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                                                             | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                                               | 1522                                                                              | 4709                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5056                                                                              |                                                                                    | 1770                                                                                | 4964                                                                                |                                                                                     |
| Flt Permitted                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                                               | 1522                                                                              | 4709                                                                              | 1583                                                                              | 1610                                                                              | 3384                                                                              | 1583                                                                              | 1770                                                                              | 5056                                                                              |                                                                                    | 1770                                                                                | 4964                                                                                |                                                                                     |
| Peak-hour factor, PHF                                           | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                 | 711                                                                               | 505                                                                               | 129                                                                               | 188                                                                               | 466                                                                               | 307                                                                               | 283                                                                               | 2997                                                                              | 118                                                                                | 177                                                                                 | 2330                                                                                | 442                                                                                 |
| RTOR Reduction (vph)                                            | 0                                                                                 | 0                                                                                 | 101                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 3                                                                                 | 0                                                                                  | 0                                                                                   | 23                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)                                           | 355                                                                               | 861                                                                               | 28                                                                                | 169                                                                               | 485                                                                               | 307                                                                               | 283                                                                               | 3112                                                                              | 0                                                                                  | 177                                                                                 | 2749                                                                                | 0                                                                                   |
| Turn Type                                                       | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                                                |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                           | 26.1                                                                              | 26.1                                                                              | 26.1                                                                              | 20.9                                                                              | 20.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)                                          | 26.1                                                                              | 26.1                                                                              | 26.1                                                                              | 20.9                                                                              | 20.9                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                                              | 0.22                                                                              | 0.22                                                                              | 0.22                                                                              | 0.17                                                                              | 0.17                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                                              | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)                                           | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                              | 331                                                                               | 1024                                                                              | 344                                                                               | 280                                                                               | 589                                                                               | 1583                                                                              | 95                                                                                | 1706                                                                              |                                                                                    | 95                                                                                  | 1675                                                                                |                                                                                     |
| v/s Ratio Prot                                                  | c0.23                                                                             | 0.18                                                                              |                                                                                   | 0.10                                                                              | c0.14                                                                             |                                                                                   | c0.16                                                                             | c0.62                                                                             |                                                                                    | 0.10                                                                                | 0.55                                                                                |                                                                                     |
| v/s Ratio Perm                                                  |                                                                                   |                                                                                   | 0.02                                                                              |                                                                                   |                                                                                   | 0.19                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                                                       | 1.07                                                                              | 0.98dl                                                                            | 0.08                                                                              | 0.60                                                                              | 0.82                                                                              | 0.19                                                                              | 2.98                                                                              | 1.82                                                                              |                                                                                    | 1.86                                                                                | 1.64                                                                                |                                                                                     |
| Uniform Delay, d1                                               | 46.9                                                                              | 45.0                                                                              | 37.4                                                                              | 45.7                                                                              | 47.8                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                    | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                           | 70.1                                                                              | 6.1                                                                               | 0.0                                                                               | 2.5                                                                               | 8.7                                                                               | 0.3                                                                               | 918.2                                                                             | 373.1                                                                             |                                                                                    | 425.7                                                                               | 291.2                                                                               |                                                                                     |
| Delay (s)                                                       | 117.0                                                                             | 51.1                                                                              | 37.4                                                                              | 48.2                                                                              | 56.5                                                                              | 0.3                                                                               | 974.9                                                                             | 412.9                                                                             |                                                                                    | 482.5                                                                               | 331.0                                                                               |                                                                                     |
| Level of Service                                                | F                                                                                 | D                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                                              |                                                                                   | 67.2                                                                              |                                                                                   |                                                                                   | 37.1                                                                              |                                                                                   |                                                                                   | 459.7                                                                             |                                                                                    |                                                                                     | 340.1                                                                               |                                                                                     |
| Approach LOS                                                    |                                                                                   | E                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                          |                                                                                   |                                                                                   | 311.0                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                               |                                                                                   |                                                                                   | 1.47                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                       |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                               |                                                                                   |                                                                                   | 116.5%                                                                            |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | H                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                           |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NEL                                                                               | NER                                                                               |
| Lane Configurations               |  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |  |
| Volume (veh/h)                    | 505                                                                               | 143                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 123                                                                               |
| Sign Control                      | Free                                                                              |                                                                                   |                                                                                   | Free                                                                              | Stop                                                                              |                                                                                   |
| Grade                             | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                | 0%                                                                                |                                                                                   |
| Peak Hour Factor                  | 0.96                                                                              | 0.96                                                                              | 0.92                                                                              | 0.92                                                                              | 0.74                                                                              | 0.74                                                                              |
| Hourly flow rate (vph)            | 526                                                                               | 149                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 166                                                                               |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Median type                       | None                                                                              |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                   |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC, conflicting volume            |                                                                                   |                                                                                   | 675                                                                               |                                                                                   | 601                                                                               | 601                                                                               |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| vCu, unblocked vol                |                                                                                   |                                                                                   | 675                                                                               |                                                                                   | 601                                                                               | 601                                                                               |
| tC, single (s)                    |                                                                                   |                                                                                   | 4.1                                                                               |                                                                                   | 6.4                                                                               | 6.2                                                                               |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| tF (s)                            |                                                                                   |                                                                                   | 2.2                                                                               |                                                                                   | 3.5                                                                               | 3.3                                                                               |
| p0 queue free %                   |                                                                                   |                                                                                   | 100                                                                               |                                                                                   | 100                                                                               | 67                                                                                |
| cM capacity (veh/h)               |                                                                                   |                                                                                   | 916                                                                               |                                                                                   | 464                                                                               | 501                                                                               |
| Direction, Lane #                 | SE 1                                                                              | NE 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Total                      | 675                                                                               | 166                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Left                       | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume Right                      | 149                                                                               | 166                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| cSH                               | 1700                                                                              | 501                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Volume to Capacity                | 0.40                                                                              | 0.33                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Queue Length 95th (ft)            | 0                                                                                 | 36                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Control Delay (s)                 | 0.0                                                                               | 15.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Lane LOS                          |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach Delay (s)                | 0.0                                                                               | 15.7                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Approach LOS                      |                                                                                   | C                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Average Delay                     |                                                                                   | 3.1                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Intersection Capacity Utilization |                                                                                   | 49.6%                                                                             |                                                                                   | ICU Level of Service                                                              | A                                                                                 |                                                                                   |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

2022 Build Conditions  
2: Garfield Avenue & Internal Parking Lot/Stop&Shop

Saturday MIDDAY Peak Hour  
Timing Plan: Default

|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Volume (veh/h)                    | 95                                                                                | 0                                                                                 | 70                                                                                | 28                                                                                | 0                                                                                 | 2                                                                                 | 50                                                                                | 11                                                                                | 0                                                                                 | 29                                                                                  | 0                                                                                   | 110                                                                                 |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                     | Free                                                                                |                                                                                     |
| Grade                             |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                   | 0%                                                                                |                                                                                   |                                                                                     | 0%                                                                                  |                                                                                     |
| Peak Hour Factor                  | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              | 0.75                                                                              | 0.75                                                                              | 0.75                                                                              | 0.81                                                                              | 0.81                                                                              | 0.81                                                                              | 0.83                                                                                | 0.83                                                                                | 0.83                                                                                |
| Hourly flow rate (vph)            | 132                                                                               | 0                                                                                 | 97                                                                                | 37                                                                                | 0                                                                                 | 3                                                                                 | 62                                                                                | 14                                                                                | 0                                                                                 | 35                                                                                  | 0                                                                                   | 133                                                                                 |
| Pedestrians                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane Width (ft)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Walking Speed (ft/s)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Percent Blockage                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Right turn flare (veh)            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Median type                       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   | None                                                                              |                                                                                   |                                                                                     | None                                                                                |                                                                                     |
| Median storage (veh)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Upstream signal (ft)              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| pX, platoon unblocked             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC, conflicting volume            | 276                                                                               | 273                                                                               | 66                                                                                | 370                                                                               | 339                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| vC1, stage 1 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vC2, stage 2 conf vol             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| vCu, unblocked vol                | 276                                                                               | 273                                                                               | 66                                                                                | 370                                                                               | 339                                                                               | 14                                                                                | 133                                                                               |                                                                                   |                                                                                   | 14                                                                                  |                                                                                     |                                                                                     |
| tC, single (s)                    | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 7.1                                                                               | 6.5                                                                               | 6.2                                                                               | 4.1                                                                               |                                                                                   |                                                                                   | 4.1                                                                                 |                                                                                     |                                                                                     |
| tC, 2 stage (s)                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| tF (s)                            | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 3.5                                                                               | 4.0                                                                               | 3.3                                                                               | 2.2                                                                               |                                                                                   |                                                                                   | 2.2                                                                                 |                                                                                     |                                                                                     |
| p0 queue free %                   | 80                                                                                | 100                                                                               | 90                                                                                | 93                                                                                | 100                                                                               | 100                                                                               | 96                                                                                |                                                                                   |                                                                                   | 98                                                                                  |                                                                                     |                                                                                     |
| cM capacity (veh/h)               | 646                                                                               | 597                                                                               | 1003                                                                              | 507                                                                               | 549                                                                               | 1072                                                                              | 1465                                                                              |                                                                                   |                                                                                   | 1618                                                                                |                                                                                     |                                                                                     |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total                      | 229                                                                               | 40                                                                                | 75                                                                                | 167                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left                       | 132                                                                               | 37                                                                                | 62                                                                                | 35                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right                      | 97                                                                                | 3                                                                                 | 0                                                                                 | 133                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| cSH                               | 761                                                                               | 526                                                                               | 1465                                                                              | 1618                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume to Capacity                | 0.30                                                                              | 0.08                                                                              | 0.04                                                                              | 0.02                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Queue Length 95th (ft)            | 32                                                                                | 6                                                                                 | 3                                                                                 | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 11.8                                                                              | 12.4                                                                              | 6.3                                                                               | 1.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Lane LOS                          | B                                                                                 | B                                                                                 | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 11.8                                                                              | 12.4                                                                              | 6.3                                                                               | 1.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | B                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Average Delay                     |                                                                                   |                                                                                   | 7.7                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 25.5%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                   |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

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| Movement                          | SEL                                                                               | SET                                                                               | SER                                                                               | NWL                                                                               | NWT                                                                               | NWR                                                                               | NEL                                                                               | NET                                                                               | NER                                                                               | SWL                                                                                 | SWT                                                                                 | SWR                                                                                 |
| Lane Configurations               |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                   |  |                                                                                   |                                                                                     |  |                                                                                     |
| Sign Control                      |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                   | Stop                                                                              |                                                                                   |                                                                                     | Stop                                                                                |                                                                                     |
| Volume (vph)                      | 5                                                                                 | 0                                                                                 | 33                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 237                                                                               | 0                                                                                 | 0                                                                                   | 268                                                                                 | 74                                                                                  |
| Peak Hour Factor                  | 0.63                                                                              | 0.63                                                                              | 0.63                                                                              | 0.38                                                                              | 0.38                                                                              | 0.38                                                                              | 0.88                                                                              | 0.88                                                                              | 0.88                                                                              | 0.93                                                                                | 0.93                                                                                | 0.93                                                                                |
| Hourly flow rate (vph)            | 8                                                                                 | 0                                                                                 | 52                                                                                | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 269                                                                               | 0                                                                                 | 0                                                                                   | 288                                                                                 | 80                                                                                  |
| Direction, Lane #                 | SE 1                                                                              | NW 1                                                                              | NE 1                                                                              | SW 1                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Total (vph)                | 60                                                                                | 0                                                                                 | 269                                                                               | 368                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Left (vph)                 | 8                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Volume Right (vph)                | 52                                                                                | 0                                                                                 | 0                                                                                 | 80                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Hadj (s)                          | -0.49                                                                             | 0.00                                                                              | 0.00                                                                              | -0.13                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Departure Headway (s)             | 4.8                                                                               | 5.4                                                                               | 4.4                                                                               | 4.2                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Degree Utilization, x             | 0.08                                                                              | 0.00                                                                              | 0.33                                                                              | 0.43                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Capacity (veh/h)                  | 664                                                                               | 591                                                                               | 790                                                                               | 831                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Control Delay (s)                 | 8.2                                                                               | 8.4                                                                               | 9.6                                                                               | 10.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach Delay (s)                | 8.2                                                                               | 0.0                                                                               | 9.6                                                                               | 10.3                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Approach LOS                      | A                                                                                 | A                                                                                 | A                                                                                 | B                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Summary              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Delay                             |                                                                                   |                                                                                   | 9.9                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Level of Service                  |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 28.6%                                                                             |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   |                                                                                   | A                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | EBR  | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  | ø9   |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|------|
| Lane Configurations     |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Volume (vph)            | 88    | 495   | 99   | 83    | 515   | 17   | 159   | 5     | 93   | 83    | 50    | 5    |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |      |
| Storage Length (ft)     | 75    |       | 0    | 100   |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Storage Lanes           | 1     |       | 0    | 1     |       | 0    | 0     |       | 0    | 0     |       | 0    |      |
| Taper Length (ft)       | 25    |       |      | 25    |       |      | 25    |       |      | 25    |       |      |      |
| Right Turn on Red       |       |       | Yes  |       |       | Yes  |       |       | Yes  |       |       | Yes  |      |
| Link Speed (mph)        |       | 30    |      |       | 30    |      |       | 30    |      |       | 30    |      |      |
| Link Distance (ft)      |       | 247   |      |       | 411   |      |       | 244   |      |       | 451   |      |      |
| Travel Time (s)         |       | 5.6   |      |       | 9.3   |      |       | 5.5   |      |       | 10.3  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Lane Group Flow (vph)   | 96    | 646   | 0    | 90    | 578   | 0    | 0     | 279   | 0    | 0     | 149   | 0    |      |
| Turn Type               | Perm  | NA    |      | pm+pt | NA    |      | Perm  | NA    |      | Perm  | NA    |      |      |
| Protected Phases        |       | 2     |      | 1     | 6     |      |       | 8     |      |       | 4     |      | 9    |
| Permitted Phases        | 2     |       |      | 6     |       |      | 8     |       |      | 4     |       |      |      |
| Detector Phase          | 2     | 2     |      | 1     | 6     |      | 8     | 8     |      | 4     | 4     |      |      |
| Switch Phase            |       |       |      |       |       |      |       |       |      |       |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 6.0   |      | 6.0   | 6.0   |      | 7.0  |
| Minimum Split (s)       | 15.0  | 15.0  |      | 11.0  | 20.0  |      | 20.0  | 20.0  |      | 20.0  | 20.0  |      | 27.0 |
| Total Split (s)         | 34.0  | 34.0  |      | 11.0  | 45.0  |      | 28.0  | 28.0  |      | 28.0  | 28.0  |      | 27.0 |
| Total Split (%)         | 34.0% | 34.0% |      | 11.0% | 45.0% |      | 28.0% | 28.0% |      | 28.0% | 28.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 4.0   | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   |      | 1.0   | 1.0   |      | 2.0   | 2.0   |      | 2.0   | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   |      | 5.0   | 5.0   |      |       | 6.0   |      |       | 6.0   |      |      |
| Lead/Lag                | Lag   | Lag   |      | Lead  |       |      |       |       |      |       |       |      |      |
| Lead-Lag Optimize?      | Yes   | Yes   |      | Yes   |       |      |       |       |      |       |       |      |      |
| Recall Mode             | None  | None  |      | None  | C-Max |      | None  | None  |      | None  | None  |      | None |
| v/c Ratio               | 0.20  | 0.32  |      | 0.18  | 0.24  |      |       | 0.94  |      |       | 0.54  |      |      |
| Control Delay           | 11.0  | 10.0  |      | 6.6   | 6.6   |      |       | 76.1  |      |       | 42.3  |      |      |
| Queue Delay             | 0.0   | 0.4   |      | 0.0   | 0.0   |      |       | 0.0   |      |       | 0.0   |      |      |
| Total Delay             | 11.0  | 10.5  |      | 6.6   | 6.6   |      |       | 76.1  |      |       | 42.3  |      |      |
| Queue Length 50th (ft)  | 30    | 130   |      | 18    | 67    |      |       | 160   |      |       | 83    |      |      |
| Queue Length 95th (ft)  | m65   | m164  |      | 34    | 91    |      |       | #318  |      |       | 147   |      |      |
| Internal Link Dist (ft) |       | 167   |      |       | 331   |      |       | 164   |      |       | 371   |      |      |
| Turn Bay Length (ft)    | 75    |       |      | 100   |       |      |       |       |      |       |       |      |      |
| Base Capacity (vph)     | 471   | 2026  |      | 506   | 2389  |      |       | 306   |      |       | 287   |      |      |
| Starvation Cap Reductn  | 0     | 840   |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Spillback Cap Reductn   | 0     | 0     |      | 0     | 16    |      |       | 0     |      |       | 0     |      |      |
| Storage Cap Reductn     | 0     | 0     |      | 0     | 0     |      |       | 0     |      |       | 0     |      |      |
| Reduced v/c Ratio       | 0.20  | 0.54  |      | 0.18  | 0.24  |      |       | 0.91  |      |       | 0.52  |      |      |

## Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green

Natural Cycle: 80

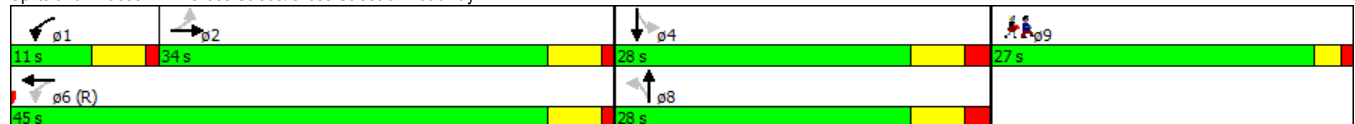
Control Type: Actuated-Coordinated

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: Cross Street /Cross Street &amp; Broadway



|                                   |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations               |  |  |                                                                                   |  |  |                                                                                   |                                                                                   |  |                                                                                    |                                                                                     |  |                                                                                     |
| Volume (vph)                      | 88                                                                                | 495                                                                               | 99                                                                                | 83                                                                                | 515                                                                               | 17                                                                                | 159                                                                               | 5                                                                                 | 93                                                                                 | 83                                                                                  | 50                                                                                  | 5                                                                                   |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              | 0.95                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Frt                               | 1.00                                                                              | 0.97                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.95                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              |                                                                                   | 0.95                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.97                                                                              |                                                                                    |                                                                                     | 0.97                                                                                |                                                                                     |
| Satd. Flow (prot)                 | 1770                                                                              | 3450                                                                              |                                                                                   | 1770                                                                              | 3523                                                                              |                                                                                   |                                                                                   | 1718                                                                              |                                                                                    |                                                                                     | 1800                                                                                |                                                                                     |
| Flt Permitted                     | 0.43                                                                              | 1.00                                                                              |                                                                                   | 0.34                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 0.73                                                                              |                                                                                    |                                                                                     | 0.70                                                                                |                                                                                     |
| Satd. Flow (perm)                 | 809                                                                               | 3450                                                                              |                                                                                   | 637                                                                               | 3523                                                                              |                                                                                   |                                                                                   | 1300                                                                              |                                                                                    |                                                                                     | 1303                                                                                |                                                                                     |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                   | 96                                                                                | 538                                                                               | 108                                                                               | 90                                                                                | 560                                                                               | 18                                                                                | 173                                                                               | 5                                                                                 | 101                                                                                | 90                                                                                  | 54                                                                                  | 5                                                                                   |
| RTOR Reduction (vph)              | 0                                                                                 | 10                                                                                | 0                                                                                 | 0                                                                                 | 1                                                                                 | 0                                                                                 | 0                                                                                 | 20                                                                                | 0                                                                                  | 0                                                                                   | 2                                                                                   | 0                                                                                   |
| Lane Group Flow (vph)             | 96                                                                                | 636                                                                               | 0                                                                                 | 90                                                                                | 577                                                                               | 0                                                                                 | 0                                                                                 | 259                                                                               | 0                                                                                  | 0                                                                                   | 147                                                                                 | 0                                                                                   |
| Turn Type                         | Perm                                                                              | NA                                                                                |                                                                                   | pm+pt                                                                             | NA                                                                                |                                                                                   | Perm                                                                              | NA                                                                                |                                                                                    | Perm                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                  |                                                                                   | 2                                                                                 |                                                                                   | 1                                                                                 | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                    |                                                                                     | 4                                                                                   |                                                                                     |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   | 6                                                                                 |                                                                                   |                                                                                   | 8                                                                                 |                                                                                   |                                                                                    | 4                                                                                   |                                                                                     |                                                                                     |
| Actuated Green, G (s)             | 57.4                                                                              | 57.4                                                                              |                                                                                   | 67.8                                                                              | 67.8                                                                              |                                                                                   |                                                                                   | 21.2                                                                              |                                                                                    |                                                                                     | 21.2                                                                                |                                                                                     |
| Effective Green, g (s)            | 57.4                                                                              | 57.4                                                                              |                                                                                   | 67.8                                                                              | 67.8                                                                              |                                                                                   |                                                                                   | 21.2                                                                              |                                                                                    |                                                                                     | 21.2                                                                                |                                                                                     |
| Actuated g/C Ratio                | 0.57                                                                              | 0.57                                                                              |                                                                                   | 0.68                                                                              | 0.68                                                                              |                                                                                   |                                                                                   | 0.21                                                                              |                                                                                    |                                                                                     | 0.21                                                                                |                                                                                     |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               |                                                                                   | 5.0                                                                               | 5.0                                                                               |                                                                                   |                                                                                   | 6.0                                                                               |                                                                                    |                                                                                     | 6.0                                                                                 |                                                                                     |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                   |                                                                                   | 2.0                                                                               |                                                                                    |                                                                                     | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                | 464                                                                               | 1980                                                                              |                                                                                   | 493                                                                               | 2388                                                                              |                                                                                   |                                                                                   | 275                                                                               |                                                                                    |                                                                                     | 276                                                                                 |                                                                                     |
| v/s Ratio Prot                    |                                                                                   | c0.18                                                                             |                                                                                   | 0.01                                                                              | c0.16                                                                             |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/s Ratio Perm                    | 0.12                                                                              |                                                                                   |                                                                                   | 0.11                                                                              |                                                                                   |                                                                                   |                                                                                   | c0.20                                                                             |                                                                                    |                                                                                     | 0.11                                                                                |                                                                                     |
| v/c Ratio                         | 0.21                                                                              | 0.32                                                                              |                                                                                   | 0.18                                                                              | 0.24                                                                              |                                                                                   |                                                                                   | 0.94                                                                              |                                                                                    |                                                                                     | 0.53                                                                                |                                                                                     |
| Uniform Delay, d1                 | 10.3                                                                              | 11.1                                                                              |                                                                                   | 6.0                                                                               | 6.2                                                                               |                                                                                   |                                                                                   | 38.8                                                                              |                                                                                    |                                                                                     | 35.0                                                                                |                                                                                     |
| Progression Factor                | 0.86                                                                              | 0.87                                                                              |                                                                                   | 1.00                                                                              | 1.00                                                                              |                                                                                   |                                                                                   | 1.00                                                                              |                                                                                    |                                                                                     | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2             | 0.1                                                                               | 0.0                                                                               |                                                                                   | 0.1                                                                               | 0.2                                                                               |                                                                                   |                                                                                   | 38.0                                                                              |                                                                                    |                                                                                     | 1.0                                                                                 |                                                                                     |
| Delay (s)                         | 8.9                                                                               | 9.7                                                                               |                                                                                   | 6.1                                                                               | 6.4                                                                               |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                    |                                                                                     | 36.0                                                                                |                                                                                     |
| Level of Service                  | A                                                                                 | A                                                                                 |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| Approach Delay (s)                |                                                                                   | 9.6                                                                               |                                                                                   |                                                                                   | 6.4                                                                               |                                                                                   |                                                                                   | 76.8                                                                              |                                                                                    |                                                                                     | 36.0                                                                                |                                                                                     |
| Approach LOS                      |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | A                                                                                 |                                                                                   |                                                                                   | E                                                                                 |                                                                                    |                                                                                     | D                                                                                   |                                                                                     |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay            |                                                                                   | 20.8                                                                              |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   |                                                                                   | C                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio |                                                                                   | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)         |                                                                                   | 100.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   |                                                                                   | 19.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization |                                                                                   | 54.3%                                                                             |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   |                                                                                   | A                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)             |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |

| Lane Group              | EBL   | EBT   | WBT   | WBR  | SBL   | SBR  | ø9   |
|-------------------------|-------|-------|-------|------|-------|------|------|
| Lane Configurations     |       |       |       |      |       |      |      |
| Volume (vph)            | 38    | 682   | 587   | 181  | 155   | 175  |      |
| Ideal Flow (vphpl)      | 1900  | 1900  | 1900  | 1900 | 1900  | 1900 |      |
| Storage Length (ft)     | 50    |       |       | 0    | 0     | 0    |      |
| Storage Lanes           | 1     |       |       | 0    | 1     | 0    |      |
| Taper Length (ft)       | 25    |       |       |      | 25    |      |      |
| Right Turn on Red       |       |       |       | Yes  |       | Yes  |      |
| Link Speed (mph)        |       | 30    | 30    |      | 30    |      |      |
| Link Distance (ft)      |       | 509   | 247   |      | 538   |      |      |
| Travel Time (s)         |       | 11.6  | 5.6   |      | 12.2  |      |      |
| Peak Hour Factor        | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92 |      |
| Shared Lane Traffic (%) |       |       |       |      |       |      |      |
| Lane Group Flow (vph)   | 41    | 741   | 835   | 0    | 358   | 0    |      |
| Turn Type               | Perm  | NA    | NA    |      | Prot  |      |      |
| Protected Phases        |       | 2     | 6     |      | 4     |      | 9    |
| Permitted Phases        | 2     |       |       |      |       |      |      |
| Detector Phase          | 2     | 2     | 6     |      | 4     |      |      |
| Switch Phase            |       |       |       |      |       |      |      |
| Minimum Initial (s)     | 10.0  | 10.0  | 10.0  |      | 6.0   |      | 4.0  |
| Minimum Split (s)       | 15.0  | 15.0  | 21.0  |      | 12.0  |      | 27.0 |
| Total Split (s)         | 50.0  | 50.0  | 50.0  |      | 23.0  |      | 27.0 |
| Total Split (%)         | 50.0% | 50.0% | 50.0% |      | 23.0% |      | 27%  |
| Yellow Time (s)         | 4.0   | 4.0   | 4.0   |      | 4.0   |      | 2.0  |
| All-Red Time (s)        | 1.0   | 1.0   | 1.0   |      | 2.0   |      | 1.0  |
| Lost Time Adjust (s)    | 0.0   | 0.0   | 0.0   |      | 0.0   |      |      |
| Total Lost Time (s)     | 5.0   | 5.0   | 5.0   |      | 6.0   |      |      |
| Lead/Lag                |       |       |       |      |       |      |      |
| Lead-Lag Optimize?      |       |       |       |      |       |      |      |
| Recall Mode             | None  | None  | C-Max |      | None  |      | None |
| v/c Ratio               | 0.10  | 0.29  | 0.34  |      | 1.09  |      |      |
| Control Delay           | 4.9   | 5.3   | 4.0   |      | 112.7 |      |      |
| Queue Delay             | 0.0   | 0.0   | 0.3   |      | 1.3   |      |      |
| Total Delay             | 4.9   | 5.3   | 4.4   |      | 114.0 |      |      |
| Queue Length 50th (ft)  | 7     | 75    | 65    |      | ~232  |      |      |
| Queue Length 95th (ft)  | 17    | 98    | m79   |      | #413  |      |      |
| Internal Link Dist (ft) |       | 429   | 167   |      | 458   |      |      |
| Turn Bay Length (ft)    | 50    |       |       |      |       |      |      |
| Base Capacity (vph)     | 427   | 2548  | 2473  |      | 327   |      |      |
| Starvation Cap Reductn  | 0     | 0     | 972   |      | 0     |      |      |
| Spillback Cap Reductn   | 0     | 128   | 0     |      | 1     |      |      |
| Storage Cap Reductn     | 0     | 0     | 0     |      | 0     |      |      |
| Reduced v/c Ratio       | 0.10  | 0.31  | 0.56  |      | 1.10  |      |      |

#### Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 6:WBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.

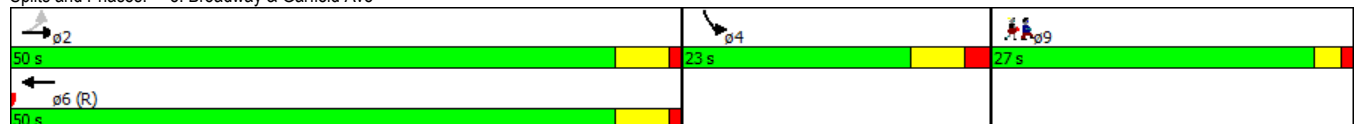
Queue shown is maximum after two cycles.

# 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Broadway & Garfield Ave



|                                   |  |  |  |  |  |  |
|-----------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Movement                          | EBL                                                                               | EBT                                                                               | WBT                                                                               | WBR                                                                               | SBL                                                                               | SBR                                                                               |
| Lane Configurations               |  |  |  |                                                                                   |  |                                                                                   |
| Volume (vph)                      | 38                                                                                | 682                                                                               | 587                                                                               | 181                                                                               | 155                                                                               | 175                                                                               |
| Ideal Flow (vphpl)                | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              |
| Total Lost time (s)               | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Lane Util. Factor                 | 1.00                                                                              | 0.95                                                                              | 0.95                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Frt                               | 1.00                                                                              | 1.00                                                                              | 0.96                                                                              |                                                                                   | 0.93                                                                              |                                                                                   |
| Flt Protected                     | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (prot)                 | 1770                                                                              | 3539                                                                              | 3414                                                                              |                                                                                   | 1690                                                                              |                                                                                   |
| Flt Permitted                     | 0.32                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                   | 0.98                                                                              |                                                                                   |
| Satd. Flow (perm)                 | 593                                                                               | 3539                                                                              | 3414                                                                              |                                                                                   | 1690                                                                              |                                                                                   |
| Peak-hour factor, PHF             | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              |
| Adj. Flow (vph)                   | 41                                                                                | 741                                                                               | 638                                                                               | 197                                                                               | 168                                                                               | 190                                                                               |
| RTOR Reduction (vph)              | 0                                                                                 | 0                                                                                 | 15                                                                                | 0                                                                                 | 41                                                                                | 0                                                                                 |
| Lane Group Flow (vph)             | 41                                                                                | 741                                                                               | 820                                                                               | 0                                                                                 | 317                                                                               | 0                                                                                 |
| Turn Type                         | Perm                                                                              | NA                                                                                | NA                                                                                |                                                                                   | Prot                                                                              |                                                                                   |
| Protected Phases                  |                                                                                   | 2                                                                                 | 6                                                                                 |                                                                                   | 4                                                                                 |                                                                                   |
| Permitted Phases                  | 2                                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| Actuated Green, G (s)             | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Effective Green, g (s)            | 72.0                                                                              | 72.0                                                                              | 72.0                                                                              |                                                                                   | 17.0                                                                              |                                                                                   |
| Actuated g/C Ratio                | 0.72                                                                              | 0.72                                                                              | 0.72                                                                              |                                                                                   | 0.17                                                                              |                                                                                   |
| Clearance Time (s)                | 5.0                                                                               | 5.0                                                                               | 5.0                                                                               |                                                                                   | 6.0                                                                               |                                                                                   |
| Vehicle Extension (s)             | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               |                                                                                   |
| Lane Grp Cap (vph)                | 426                                                                               | 2548                                                                              | 2458                                                                              |                                                                                   | 287                                                                               |                                                                                   |
| v/s Ratio Prot                    |                                                                                   | 0.21                                                                              | 0.24                                                                              |                                                                                   | 0.19                                                                              |                                                                                   |
| v/s Ratio Perm                    | 0.07                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| v/c Ratio                         | 0.10                                                                              | 0.29                                                                              | 0.33                                                                              |                                                                                   | 1.11                                                                              |                                                                                   |
| Uniform Delay, d1                 | 4.2                                                                               | 5.0                                                                               | 5.2                                                                               |                                                                                   | 41.5                                                                              |                                                                                   |
| Progression Factor                | 1.00                                                                              | 1.00                                                                              | 0.76                                                                              |                                                                                   | 1.00                                                                              |                                                                                   |
| Incremental Delay, d2             | 0.0                                                                               | 0.0                                                                               | 0.3                                                                               |                                                                                   | 84.5                                                                              |                                                                                   |
| Delay (s)                         | 4.2                                                                               | 5.0                                                                               | 4.3                                                                               |                                                                                   | 126.0                                                                             |                                                                                   |
| Level of Service                  | A                                                                                 | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| Approach Delay (s)                |                                                                                   | 4.9                                                                               | 4.3                                                                               |                                                                                   | 126.0                                                                             |                                                                                   |
| Approach LOS                      |                                                                                   | A                                                                                 | A                                                                                 |                                                                                   | F                                                                                 |                                                                                   |
| <b>Intersection Summary</b>       |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
| HCM 2000 Control Delay            |                                                                                   |                                                                                   | 26.6                                                                              |                                                                                   | HCM 2000 Level of Service                                                         | C                                                                                 |
| HCM 2000 Volume to Capacity ratio |                                                                                   |                                                                                   | 0.50                                                                              |                                                                                   |                                                                                   |                                                                                   |
| Actuated Cycle Length (s)         |                                                                                   |                                                                                   | 100.0                                                                             |                                                                                   | Sum of lost time (s)                                                              | 14.0                                                                              |
| Intersection Capacity Utilization |                                                                                   |                                                                                   | 60.1%                                                                             |                                                                                   | ICU Level of Service                                                              | B                                                                                 |
| Analysis Period (min)             |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |
| c Critical Lane Group             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |

| Lane Group              | EBL   | EBT    | EBR   | WBL   | WBT   | WBR  | NBL   | NBT   | NBR  | SBL   | SBT   | SBR  |
|-------------------------|-------|--------|-------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations     |       |        |       |       |       |      |       |       |      |       |       |      |
| Volume (vph)            | 851   | 489    | 179   | 173   | 312   | 250  | 184   | 1838  | 130  | 206   | 1708  | 282  |
| Ideal Flow (vphpl)      | 1900  | 1900   | 1900  | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 | 1900  | 1900  | 1900 |
| Storage Length (ft)     | 250   |        | 250   | 160   |       | 160  | 310   |       | 0    | 245   |       | 0    |
| Storage Lanes           | 2     |        | 1     | 1     |       | 1    | 3     |       | 0    | 1     |       | 0    |
| Taper Length (ft)       | 25    |        |       | 25    |       |      | 25    |       |      | 25    |       |      |
| Right Turn on Red       |       |        | Yes   |       |       | Yes  |       |       | Yes  |       |       | Yes  |
| Link Speed (mph)        |       | 30     |       |       | 30    |      |       | 30    |      |       | 30    |      |
| Link Distance (ft)      |       | 696    |       |       | 509   |      |       | 777   |      |       | 585   |      |
| Travel Time (s)         |       | 15.8   |       |       | 11.6  |      |       | 17.7  |      |       | 13.3  |      |
| Peak Hour Factor        | 0.92  | 0.92   | 0.92  | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 | 0.92  | 0.92  | 0.92 |
| Shared Lane Traffic (%) | 50%   |        |       | 10%   |       |      |       |       |      |       |       |      |
| Lane Group Flow (vph)   | 462   | 995    | 195   | 169   | 358   | 272  | 200   | 2139  | 0    | 224   | 2164  | 0    |
| Turn Type               | Split | NA     | Perm  | Split | NA    | Free | Prot  | NA    |      | Prot  | NA    |      |
| Protected Phases        | 4     | 4      |       | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Permitted Phases        |       |        | 4     |       |       | Free |       |       |      |       |       |      |
| Detector Phase          | 4     | 4      | 4     | 3     | 3     |      | 5     | 2     |      | 1     | 6     |      |
| Switch Phase            |       |        |       |       |       |      |       |       |      |       |       |      |
| Minimum Initial (s)     | 10.0  | 10.0   | 10.0  | 10.0  | 10.0  |      | 6.0   | 10.0  |      | 6.0   | 10.0  |      |
| Minimum Split (s)       | 26.0  | 26.0   | 26.0  | 26.0  | 26.0  |      | 12.5  | 30.0  |      | 12.5  | 34.0  |      |
| Total Split (s)         | 30.0  | 30.0   | 30.0  | 30.0  | 30.0  |      | 13.0  | 47.0  |      | 13.0  | 47.0  |      |
| Total Split (%)         | 25.0% | 25.0%  | 25.0% | 25.0% | 25.0% |      | 10.8% | 39.2% |      | 10.8% | 39.2% |      |
| Yellow Time (s)         | 3.5   | 3.5    | 3.5   | 3.5   | 3.5   |      | 3.5   | 3.5   |      | 3.5   | 3.5   |      |
| All-Red Time (s)        | 3.0   | 3.0    | 3.0   | 3.0   | 3.0   |      | 3.0   | 3.0   |      | 3.0   | 3.0   |      |
| Lost Time Adjust (s)    | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   |      | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Lost Time (s)     | 6.5   | 6.5    | 6.5   | 6.5   | 6.5   |      | 6.5   | 6.5   |      | 6.5   | 6.5   |      |
| Lead/Lag                | Lag   | Lag    | Lag   | Lead  | Lead  |      | Lead  | Lag   |      | Lead  | Lag   |      |
| Lead-Lag Optimize?      | Yes   | Yes    | Yes   | Yes   | Yes   |      | Yes   | Yes   |      | Yes   | Yes   |      |
| Recall Mode             | None  | None   | None  | None  | None  |      | None  | C-Max |      | None  | C-Max |      |
| v/c Ratio               | 1.25  | 1.13dl | 0.37  | 0.71  | 0.72  | 0.17 | 2.11  | 1.25  |      | 2.36  | 1.27  |      |
| Control Delay           | 169.9 | 53.4   | 7.7   | 64.7  | 56.8  | 0.2  | 558.9 | 154.3 |      | 667.2 | 162.1 |      |
| Queue Delay             | 0.0   | 0.0    | 0.0   | 0.0   | 0.0   | 0.0  | 0.0   | 0.0   |      | 0.0   | 0.0   |      |
| Total Delay             | 169.9 | 53.4   | 7.7   | 64.7  | 56.8  | 0.2  | 558.9 | 154.3 |      | 667.2 | 162.1 |      |
| Queue Length 50th (ft)  | ~509  | 285    | 0     | 139   | 148   | 0    | ~245  | ~761  |      | ~284  | ~774  |      |
| Queue Length 95th (ft)  | #826  | #431   | 63    | 210   | 190   | 0    | #397  | #858  |      | #443  | #871  |      |
| Internal Link Dist (ft) |       | 616    |       |       | 429   |      |       | 697   |      |       | 505   |      |
| Turn Bay Length (ft)    | 250   |        | 250   | 160   |       | 160  | 310   |       |      | 245   |       |      |
| Base Capacity (vph)     | 371   | 1145   | 533   | 315   | 661   | 1583 | 95    | 1705  |      | 95    | 1699  |      |
| Starvation Cap Reductn  | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Spillback Cap Reductn   | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Storage Cap Reductn     | 0     | 0      | 0     | 0     | 0     | 0    | 0     | 0     |      | 0     | 0     |      |
| Reduced v/c Ratio       | 1.25  | 0.87   | 0.37  | 0.54  | 0.54  | 0.17 | 2.11  | 1.25  |      | 2.36  | 1.27  |      |

#### Intersection Summary

Area Type: Other  
 Cycle Length: 120  
 Actuated Cycle Length: 120  
 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green, Master Intersection  
 Natural Cycle: 150  
 Control Type: Actuated-Coordinated  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 dl Defacto Left Lane. Recode with 1 though lane as a left lane.

#### Splits and Phases: 6: McGrath Highway & Broadway

|      |      |  |      |  |      |
|------|------|--|------|--|------|
|      |      |  |      |  |      |
| 13 s | 47 s |  | 30 s |  | 30 s |
|      |      |  |      |  |      |
| 13 s | 47 s |  |      |  |      |

|                                                                 |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Movement                                                        | EBL                                                                               | EBT                                                                               | EBR                                                                               | WBL                                                                               | WBT                                                                               | WBR                                                                               | NBL                                                                               | NBT                                                                               | NBR                                                                                | SBL                                                                                 | SBT                                                                                 | SBR                                                                                 |
| Lane Configurations                                             |  |  |  |  |  |  |  |  |  |  |  |  |
| Volume (vph)                                                    | 851                                                                               | 489                                                                               | 179                                                                               | 173                                                                               | 312                                                                               | 250                                                                               | 184                                                                               | 1838                                                                              | 130                                                                                | 206                                                                                 | 1708                                                                                | 282                                                                                 |
| Ideal Flow (vphpl)                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                              | 1900                                                                               | 1900                                                                                | 1900                                                                                | 1900                                                                                |
| Total Lost time (s)                                             | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 4.0                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Lane Util. Factor                                               | 0.86                                                                              | 0.86                                                                              | 1.00                                                                              | 0.91                                                                              | 0.91                                                                              | 1.00                                                                              | 1.00                                                                              | 0.91                                                                              |                                                                                    | 1.00                                                                                | 0.91                                                                                |                                                                                     |
| Frt                                                             | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 1.00                                                                              | 0.85                                                                              | 1.00                                                                              | 0.99                                                                              |                                                                                    | 1.00                                                                                | 0.98                                                                                |                                                                                     |
| Flt Protected                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (prot)                                               | 1522                                                                              | 4697                                                                              | 1583                                                                              | 1610                                                                              | 3381                                                                              | 1583                                                                              | 1770                                                                              | 5035                                                                              |                                                                                    | 1770                                                                                | 4977                                                                                |                                                                                     |
| Flt Permitted                                                   | 0.95                                                                              | 0.98                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              | 1.00                                                                              | 0.95                                                                              | 1.00                                                                              |                                                                                    | 0.95                                                                                | 1.00                                                                                |                                                                                     |
| Satd. Flow (perm)                                               | 1522                                                                              | 4697                                                                              | 1583                                                                              | 1610                                                                              | 3381                                                                              | 1583                                                                              | 1770                                                                              | 5035                                                                              |                                                                                    | 1770                                                                                | 4977                                                                                |                                                                                     |
| Peak-hour factor, PHF                                           | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                              | 0.92                                                                               | 0.92                                                                                | 0.92                                                                                | 0.92                                                                                |
| Adj. Flow (vph)                                                 | 925                                                                               | 532                                                                               | 195                                                                               | 188                                                                               | 339                                                                               | 272                                                                               | 200                                                                               | 1998                                                                              | 141                                                                                | 224                                                                                 | 1857                                                                                | 307                                                                                 |
| RTOR Reduction (vph)                                            | 0                                                                                 | 0                                                                                 | 147                                                                               | 0                                                                                 | 0                                                                                 | 0                                                                                 | 0                                                                                 | 7                                                                                 | 0                                                                                  | 0                                                                                   | 19                                                                                  | 0                                                                                   |
| Lane Group Flow (vph)                                           | 462                                                                               | 995                                                                               | 48                                                                                | 169                                                                               | 358                                                                               | 272                                                                               | 200                                                                               | 2132                                                                              | 0                                                                                  | 224                                                                                 | 2145                                                                                | 0                                                                                   |
| Turn Type                                                       | Split                                                                             | NA                                                                                | Perm                                                                              | Split                                                                             | NA                                                                                | Free                                                                              | Prot                                                                              | NA                                                                                |                                                                                    | Prot                                                                                | NA                                                                                  |                                                                                     |
| Protected Phases                                                | 4                                                                                 | 4                                                                                 |                                                                                   | 3                                                                                 | 3                                                                                 |                                                                                   | 5                                                                                 | 2                                                                                 |                                                                                    | 1                                                                                   | 6                                                                                   |                                                                                     |
| Permitted Phases                                                |                                                                                   |                                                                                   | 4                                                                                 |                                                                                   |                                                                                   | Free                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Green, G (s)                                           | 29.3                                                                              | 29.3                                                                              | 29.3                                                                              | 17.7                                                                              | 17.7                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Effective Green, g (s)                                          | 29.3                                                                              | 29.3                                                                              | 29.3                                                                              | 17.7                                                                              | 17.7                                                                              | 120.0                                                                             | 6.5                                                                               | 40.5                                                                              |                                                                                    | 6.5                                                                                 | 40.5                                                                                |                                                                                     |
| Actuated g/C Ratio                                              | 0.24                                                                              | 0.24                                                                              | 0.24                                                                              | 0.15                                                                              | 0.15                                                                              | 1.00                                                                              | 0.05                                                                              | 0.34                                                                              |                                                                                    | 0.05                                                                                | 0.34                                                                                |                                                                                     |
| Clearance Time (s)                                              | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               | 6.5                                                                               |                                                                                   | 6.5                                                                               | 6.5                                                                               |                                                                                    | 6.5                                                                                 | 6.5                                                                                 |                                                                                     |
| Vehicle Extension (s)                                           | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               | 2.0                                                                               |                                                                                   | 2.0                                                                               | 2.0                                                                               |                                                                                    | 2.0                                                                                 | 2.0                                                                                 |                                                                                     |
| Lane Grp Cap (vph)                                              | 371                                                                               | 1146                                                                              | 386                                                                               | 237                                                                               | 498                                                                               | 1583                                                                              | 95                                                                                | 1699                                                                              |                                                                                    | 95                                                                                  | 1679                                                                                |                                                                                     |
| v/s Ratio Prot                                                  | c0.30                                                                             | 0.21                                                                              |                                                                                   | 0.10                                                                              | c0.11                                                                             |                                                                                   | 0.11                                                                              | 0.42                                                                              |                                                                                    | c0.13                                                                               | c0.43                                                                               |                                                                                     |
| v/s Ratio Perm                                                  |                                                                                   |                                                                                   | 0.03                                                                              |                                                                                   |                                                                                   | 0.17                                                                              |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| v/c Ratio                                                       | 1.25                                                                              | 1.13dl                                                                            | 0.12                                                                              | 0.71                                                                              | 0.72                                                                              | 0.17                                                                              | 2.11                                                                              | 1.26                                                                              |                                                                                    | 2.36                                                                                | 1.28                                                                                |                                                                                     |
| Uniform Delay, d1                                               | 45.4                                                                              | 43.5                                                                              | 35.3                                                                              | 48.7                                                                              | 48.8                                                                              | 0.0                                                                               | 56.8                                                                              | 39.8                                                                              |                                                                                    | 56.8                                                                                | 39.8                                                                                |                                                                                     |
| Progression Factor                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              | 1.00                                                                              |                                                                                    | 1.00                                                                                | 1.00                                                                                |                                                                                     |
| Incremental Delay, d2                                           | 131.1                                                                             | 6.9                                                                               | 0.1                                                                               | 8.2                                                                               | 4.1                                                                               | 0.2                                                                               | 531.2                                                                             | 119.8                                                                             |                                                                                    | 642.4                                                                               | 129.6                                                                               |                                                                                     |
| Delay (s)                                                       | 176.5                                                                             | 50.4                                                                              | 35.4                                                                              | 56.9                                                                              | 52.9                                                                              | 0.2                                                                               | 587.9                                                                             | 159.5                                                                             |                                                                                    | 699.1                                                                               | 169.3                                                                               |                                                                                     |
| Level of Service                                                | F                                                                                 | D                                                                                 | D                                                                                 | E                                                                                 | D                                                                                 | A                                                                                 | F                                                                                 | F                                                                                 |                                                                                    | F                                                                                   | F                                                                                   |                                                                                     |
| Approach Delay (s)                                              |                                                                                   | 83.9                                                                              |                                                                                   |                                                                                   | 35.8                                                                              |                                                                                   |                                                                                   | 196.2                                                                             |                                                                                    |                                                                                     | 219.0                                                                               |                                                                                     |
| Approach LOS                                                    |                                                                                   | F                                                                                 |                                                                                   |                                                                                   | D                                                                                 |                                                                                   |                                                                                   | F                                                                                 |                                                                                    |                                                                                     | F                                                                                   |                                                                                     |
| <b>Intersection Summary</b>                                     |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Control Delay                                          |                                                                                   |                                                                                   | 160.1                                                                             |                                                                                   |                                                                                   | HCM 2000 Level of Service                                                         |                                                                                   | F                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| HCM 2000 Volume to Capacity ratio                               |                                                                                   |                                                                                   | 1.23                                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Actuated Cycle Length (s)                                       |                                                                                   |                                                                                   | 120.0                                                                             |                                                                                   |                                                                                   | Sum of lost time (s)                                                              |                                                                                   | 26.0                                                                              |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Intersection Capacity Utilization                               |                                                                                   |                                                                                   | 104.2%                                                                            |                                                                                   |                                                                                   | ICU Level of Service                                                              |                                                                                   | G                                                                                 |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| Analysis Period (min)                                           |                                                                                   |                                                                                   | 15                                                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| dl Defacto Left Lane. Recode with 1 though lane as a left lane. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |
| c Critical Lane Group                                           |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |                                                                                     |                                                                                     |                                                                                     |