# TRAFFIC IMPACT ANALYSIS 26 WESTON AVENUE SOMERVILLE, MA OCTOBER, 2010

Prepared for

26 Weston Avenue DevCo, LLC

Prepared by

Design Consultants, Inc.

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#### **Table of Contents**

#### Page **Executive Summary......3** 1.0 Introduction......4 2.0 Methodology......4 3.0 Proposed Development......4 4.0 Study Area...... 5 5.0 Roadway Network......5 6.0 Existing Traffic Operations......8 7.0 8.0 Future Traffic Volumes......10 9.0 Trip Generation and Distribution ......10 10.0 11.0 12.0

#### List of Figures

- Figure 1 Locus Map
- Figure 2 Existing Peak Hour Traffic Volumes
- Figure 3 2015 "No-Build" Peak Hour Traffic Volumes
- Figure 4 Distribution of Site Peak Hour Trips
- Figure 6 2015 "Build" Peak Hour Traffic Volumes

#### **Executive Summary**

This report assesses the traffic impacts associated with the proposed development of 17 residential townhouse/condominiums to be located at 26 Weston Avenue in Somerville, MA. The report evaluates the projects traffic impacts on the following study area intersections:

- Broadway/Weston Avenue
- Clarendon Avenue/Weston Avenue
- Weston Avenue/Weston Manor Res. Dr/ATM Dr
- Weston Avenue/Site Driveway

The study includes an inventory and analysis of existing conditions, an estimation of site generated traffic and an evaluation of future 2015 design year 'No-Build' and 'Build' conditions at the studied intersections.

The proposed residential development will generate 7 vehicle trips in the AM peak hour, 9 in the PM peak hour and 100 trips daily. The peak hour trips have been distributed onto the study area based upon existing peak hour travel patterns and the desire to reach surrounding major routes.

The relatively low volumes generated by the proposed development during the peak hours will have little measureable impacts on traffic flows along Weston Avenue and the surrounding roadways. No changes in Level of Service will occur at the study area intersections.

Peak hour directional site traffic (6 vehicles per hour) will amount to approximately one vehicle every ten minutes at the proposed residential driveway. It should also be noted that these peak hour site trips may be reduced due to the nearby MBTA Red Line station at Davis Square that will encourage residents at the site to use transit for their commute trips.

#### 1.0 Introduction

This report assesses the traffic impacts associated with the proposed development of 17 residential townhouse/condominiums to be located at 26 Weston Avenue in Somerville, MA (see Figure 1 - Locus Plan). Institute of Transportation Engineers (ITE) trip generation rates and standard traffic engineering practice and procedures have been utilized in this traffic impact study.

#### 2.0 Methodology

This traffic assessment has been prepared in accordance with the ITE's Traffic Impact Analyses for Site Development. (An ITE recommended practice).

The study includes the following:

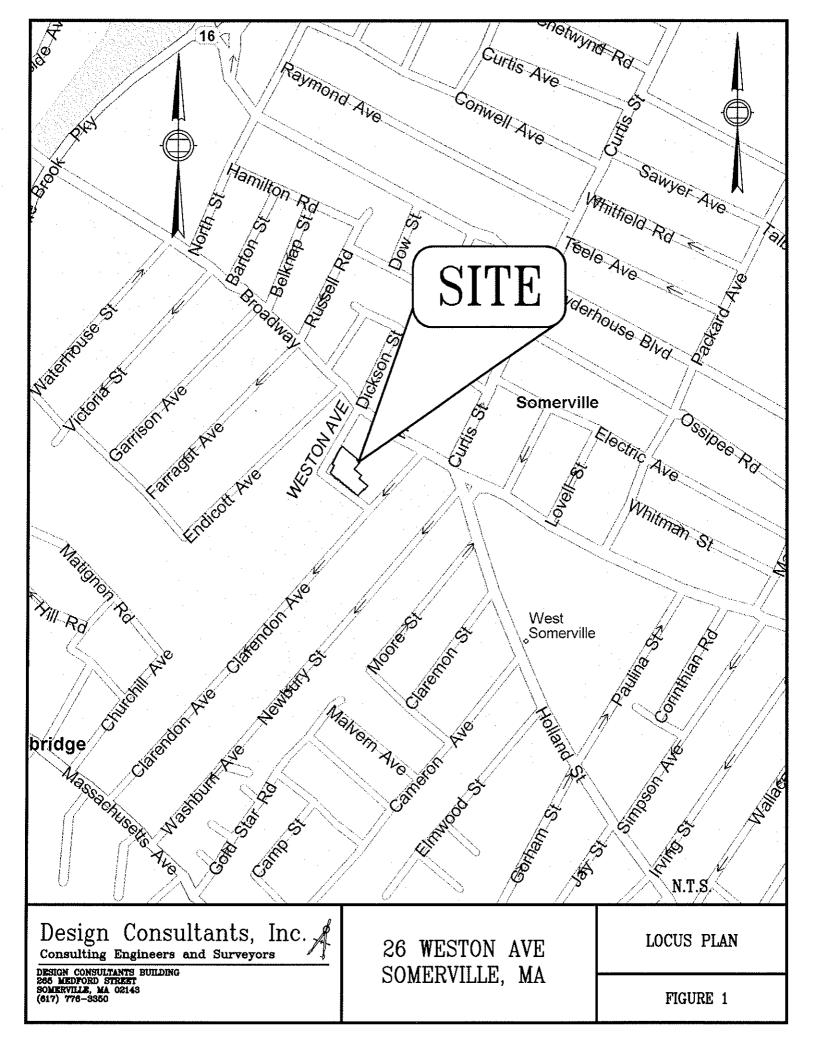
- An inventory and analysis of existing conditions for the study area intersections
- An estimation of daily and peak hour trips generated by the proposed development
- The distribution of AM and PM peak hour site generated traffic at the study area intersections
- An evaluation of future 2015 'No-Build' and 'Build' conditions at the study area intersections

#### 3.0 Proposed Development

The project proponent proposes to construct 17 townhouse/condominiums located on the northeast side of Weston Avenue, south of Broadway in Somerville, MA. (See Figure 1 – Locus Map). The proposed project will remove existing structures on the site and construct the proposed residential building. On-site parking for residents (30 stalls) will be provided, utilizing the existing access driveway onto Weston Avenue. Three parking spaces for visitors will be provided at an adjacent lot off Weston Avenue. A preliminary landscape plan for the proposed development, prepared by Blair Hines Design Associates dated October 6, 2010 was submitted to the City of Somerville Planning Board. (See Appendix A)

#### Current Site Activity

The current site is occupied by a 21,625 square foot building that houses retail, office and light industrial space. Parking is provided for approximately 12 vehicles on the site via the existing driveway off Weston Avenue. The property has an access and parking easement for eight parking spaces at the adjacent Weston View Condominium lot off Weston Avenue. Overall site activity is somewhat reduced due to the current vacancy of the available office space in the building (approximately 10,000 square feet that historically accommodated up to 22 employees during busier times).



#### 4.0 Study Area

The study area for this traffic assessment includes the following intersections:

- Broadway/Weston Avenue
- Clarendon Avenue/Weston Avenue
- Weston Avenue/Weston Manor Dr/ATM Dr
- Weston Avenue/Site Driveway

All of the above-noted intersections are unsignalized. See Figure 2 for study area intersections.

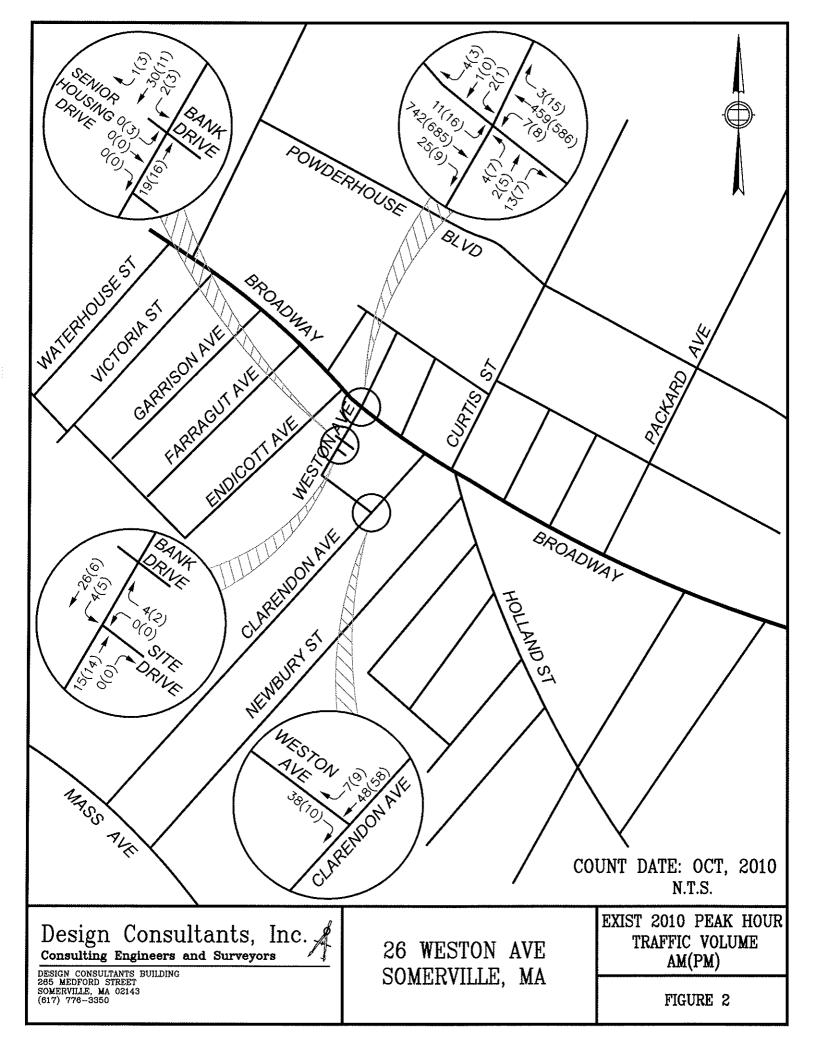
#### 5.0 Roadway Network

<u>Broadway</u> is a minor urban arterial with on-street parking that provides for east-west travel through the City of Somerville. In the site vicinity, Broadway is undivided, provides for two travel lanes (one in each direction) and on-street parking on both sides. In nearby Teele Square, Broadway intersects with Holland Street, with traffic signal control. Posted speed limits along Broadway are 30 mph. Near-side bus stops are provided at the intersection with Weston Avenue (MBTA Routes 87, 88 and 89)

<u>Clarendon Avenue</u> is a local residential street with on-street parking. It extends as a one-way road southwest from its unsignalized intersection with Broadway to Massachusetts Avenue in Cambridge, a distance of approximately 2,000 feet.

<u>Weston Avenue</u> is a two-way local private roadway that provides for traffic access and circulation between Broadway and Clarendon Avenue, as well as on-street residential parking on the south side of the street. The southbound direction has posted SLOW signing and a 15 mph limit.

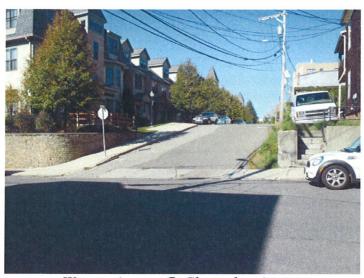
<u>Dickson Street</u> is a local residential street with on-street parking that extends for one-block north of Broadway to Fairmount Avenue.





Broadway @, Weston Ave/Dickson Street

Approximately 150 feet north of the proposed access to the project site is the Broadway/Weston Avenue/ intersection. This 4-legged intersection is unsignalized with posted stop sign control for the two local side streets, Weston Avenue and Dickson Street. Both side streets are approximately 26 feet wide, providing for one general purpose lane in each direction. The Broadway approaches are each one general purpose lane approximately 11 feet wide with a 10 foot-wide striped shoulder/parking lane. Pedestrian crosswalks and ADA ramps are provided across each leg with the exception of the west side crossing Broadway. The crosswalk on the east side crossing Broadway is enhanced with sidewalk extensions and push button actuated flashers. Abutting land uses are mixed with a bank on the southeast corner, retail on the southwest corner, and residential along the north side of Broadway.



Weston Avenue @ Clarendon Avenue

Approximately 75 feet east of the development site is the Weston Avenue/Clarendon Avenue intersection. This 3-legged intersection is unsignalized with stop control for the Weston Avenue approach. The eastbound Weston Avenue approach is approximately 12 feet wide, allowing for right turns only. One-way southbound Clarendon Avenue is about 27 feet wide, providing for a single lane approach with parking on both sides. Land use is the vicinity is residential.



Existing Site Driveway off Weston Avenue

Approximately 150 south of the Broadway/Weston Avenue intersection is the existing site driveway intersection onto Weston Avenue. This 3-way intersection is just south of the adjacent 4-way intersection of West Manor senior center driveway and the entrance to the ATM Bank off of Weston Avenue. All of the approaches to these unsignalized intersections allow for single general-purpose lanes.

#### **Traffic Volumes**

Traffic volumes, including bicycle and pedestrian counts, were recorded at the study area intersections from 7-9 AM and 4-6 PM on typical weekdays during the month of October, 2010. The counts for the existing site driveway also included activity at the nearby bank and senior center facility driveways off of Weston Avenue. This count data is provided in Appendix B.

The recorded peak hour volumes were undertaken during the peak fall season when students (as well as most workers) are in the city. The counts were not adjusted for average annual conditions in order to provide a conservative 'worst case' for impact analysis. The resulting 2010 peak hour volumes are shown in Figure 2.

#### 7.0 Existing Traffic Operations

DCI has performed capacity analyses to determine traffic operations (Levels-of-Service) at the study area intersections under existing 2010 peak hour conditions. Level-of-Service (LOS) is the standard technique used in traffic engineering to measure traffic flows and delays at intersections. Levels-of-Service are given letter designations with 'A' at best, with little or no delays to 'F' at worst, with forced flow conditions. Levels-of-Service were determined by performing capacity analyses utilizing HCS analysis software.

Definitions of Levels-of-Service at unsignalized intersections are presented in the 2000 Highway Capacity Manual and the following tables define the relationship between Level-of-Service and control delay.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec)	Qualitative Description
A	≤ 10	Good progression, few stops and short cycle lengths.
В	> 10-20	Good progression and/or short cycle lengths; more vehicle stops.
С	> 20-35	Fair progression and/or longer cycle lengths; some cycle failures; significant portion of vehicles must stop.
D	> 35-55	Congestion becomes noticeable; high-volume-to-capacity ratio; longer delays; noticeable cycle failures.
Е	> 55-80	At or beyond limit of acceptable delay; poor progression; long cycles; high volumes; long queues.
F	> 80	Unacceptable to drivers. Arrival volumes greater than discharge capacity; long cycle lengths; unstable-unpredictable flows.

SOURCE: Transportation Research Board 2000.

Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay per Vehicle (sec)	Impact on Minor Street Traffic
A	< 10	Little or no delay
В	> 10-15	Short traffic delays
С	> 15-25	Average traffic delays
D	> 25-35	Long traffic delays
Е	> 35-50	Very long traffic delays
F	> 50	Unacceptable traffic delays to most drivers

SOURCE: Transportation Research Board 2000.

Delays and Levels-of-Service for study area intersections are in the following Table 'A'.

## TABLE A EXISTING CONDITIONS

UNSIG	NALI.	ZED INT	ERSEC	<b>FIONS</b>					
Location/Movement	Existing Condition								
	A	M Peak I	Hour	PM Peak Hour					
	V/C	Delay	LOS	V/C	Delay	LOS			
	(!)	(2)	(3)						
Broadway/Weston Ave									
Broadway EB Left/Thru	.01	8.5	A	.02	9.0	A			
Broadway WB Left/Thru	.01	9.9	A	.01	9.5	A			
Weston Ave NB LTR	.11	26.7	D	.18	41.6	Е			
Dickson St SB LTR	.04	24.9	С	.02	24.3	С			
Clarendon/Weston Ave									
Clarendon Ave SB RT	0.0	7.2	A	0.0	7.2	A			
Weston Ave EB Right	.04	8.7	A	.01	8.7	A			
Weston/Res/ATM Drive		:							
Weston Ave NB LTR	0.0	7.3	A	0.0	7.2	A			
Weston Ave SB LTR	0.0	7.3	Α	0.0	7.3	A			
Residential Dr EB LTR	0.0	8.5	A	0.0	8.9	A			
ATM Drive WB LTR	0.0	8.5	A	0.0	8.5	A			
Weston Ave/Site Drive									
Weston Ave SB LT	0.0	7.2	Α	0.0	7.2	Α			
Site Drive WB Turns	0.0	8.5	A	0.0	8.4	A			

<sup>(1)</sup> Volume/Capacity Ratio

At the unsignalized intersections within the study area, all traffic movements are LOS 'A' (indicative of little or no delay for traffic movements), with the exception of the following approach locations/peak hour time periods:

- O The northbound approach along Weston Avenue at Broadway operates at LOS 'D' during the AM and LOS 'E' during the PM peak hour. LOS D/E is indicative of longer traffic delays during the peak hour commute period that is considered to be acceptable for urban traffic conditions.
- o The southbound approach along Dickson Street at Broadway operates at LOS 'C' during the PM peak hour. LOS 'C' represents average delays.

<sup>(2)</sup> Control Delay in Seconds

<sup>(3)</sup> Level-of-Service

#### 9.0 Future Traffic Volumes

The existing 2010 study area peak hour volumes have been increased by an annual growth factor of 1% per year to account for general background traffic growth to develop future 2015 peak hour volumes (five-year projection). This conservative assumption accounts for the peak hour traffic volumes that may be generated by background traffic growth. No specific planned developments were identified for the study area. The projected 2015 'No-Build' condition is shown on Figure 3.

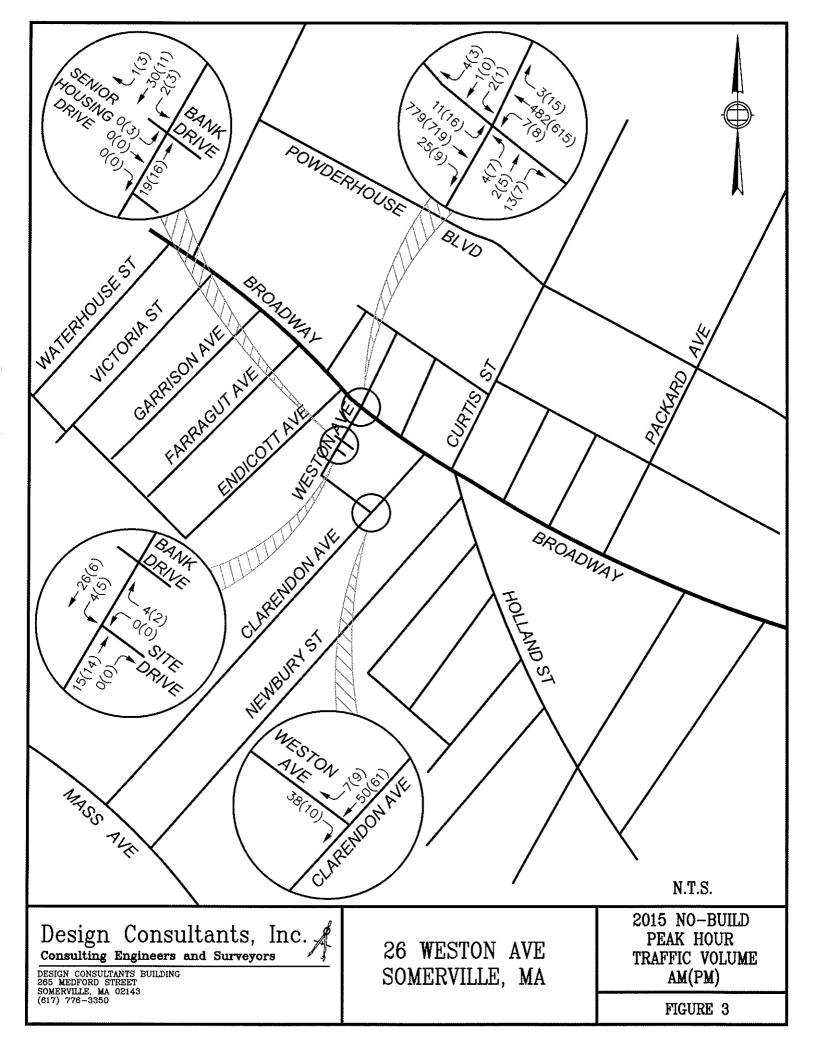
#### 10.0 Trip Generation and Distribution

DCI has estimated the daily and peak hour site generated trips based upon trip rates presented in the Institute of Transportation Engineers (ITE) Trip Generation Manual – 8<sup>th</sup> Edition. The information in this document has been obtained from the research and experiences of transportation engineering and planning professionals. The data is based on more than 4,800 trip generation studies submitted to ITE by public agencies; consulting firms; universities and colleges; developers; associations; and local sections, districts and student chapters of ITE. The published rates are intended for planners, transportation professionals, zoning boards and others who are interested in estimated the number of vehicle trips generated by a proposed development.

For a specific land use, the Trip Generation Manual provides trip generation rates and equations for daily and peak hour time periods for the generator and the traditional commuting peak hours of the adjacent street traffic (that is, 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM on weekdays). The average trips generation rates represent weighed averages from studies conducted throughout the United States and Canada since the 1960's. Data was primarily collected at suburban locations having little or no transit service, nearby pedestrian amenities, or travel demand management (TDM) programs. The rates may be modified to reflect the presence of public transportation service, ridesharing, or other TDM measures; enhanced pedestrian and bicycle trip-making opportunities; or other special characteristics of the site or surrounding area.

For this residential project, ITE Land Use 230 for Residential Condominium/Townhouse was used. The data is a combination of condominiums/townhouses that are low-rise or high-rise development. The number of dwelling uses is the independent variable of choice because it is readily available, easy to project and has a high correlation with average weekday vehicle trip ends. The peak hour of the generator typically coincides with the peak hour of the adjacent street traffic. The ITE data was based on surveys between the mid-1970s and the 2000s throughout the United States and Canada.

The following table identifies the trip generation for the proposed 17 residential condominium units. The data reflects use of the average rate versus a fitted curve equation. The fitted curve equation is typically applied for larger size developments (the



average size of development for Land Use 230 is 179 dwelling units for weekday trips, higher for peak hour trips).

<u>17 Units</u> Residential Condominium/Townhouse									
	Land Use 230								
Daily	AM Peak Hour	PM Peak Hour							
In - 50	In – 1	In – 6							
Out – 50	Out – 6	Out – 3							
Total – 100	Total – 7	Total – 9							

The development plan eliminates the existing 21,625 square feet of commercial use on the site. Peak hour counts for this activity (refer to Figure 2) show a similar activity for the proposed residential use with a total of 8 peak hour trips in the AM and 7 peak hour trips in the PM. The net changes to the surrounding area traffic condition during the peak hour periods will therefore be minimal.

During off-peak periods, the proposed residential use is typically one-half the peak hour activity. This compares to the existing commercial use that is typically equal to or greater than peak hour activity. Therefore it is anticipated that the proposed residential development will result in reduced traffic activity during off-peak periods.

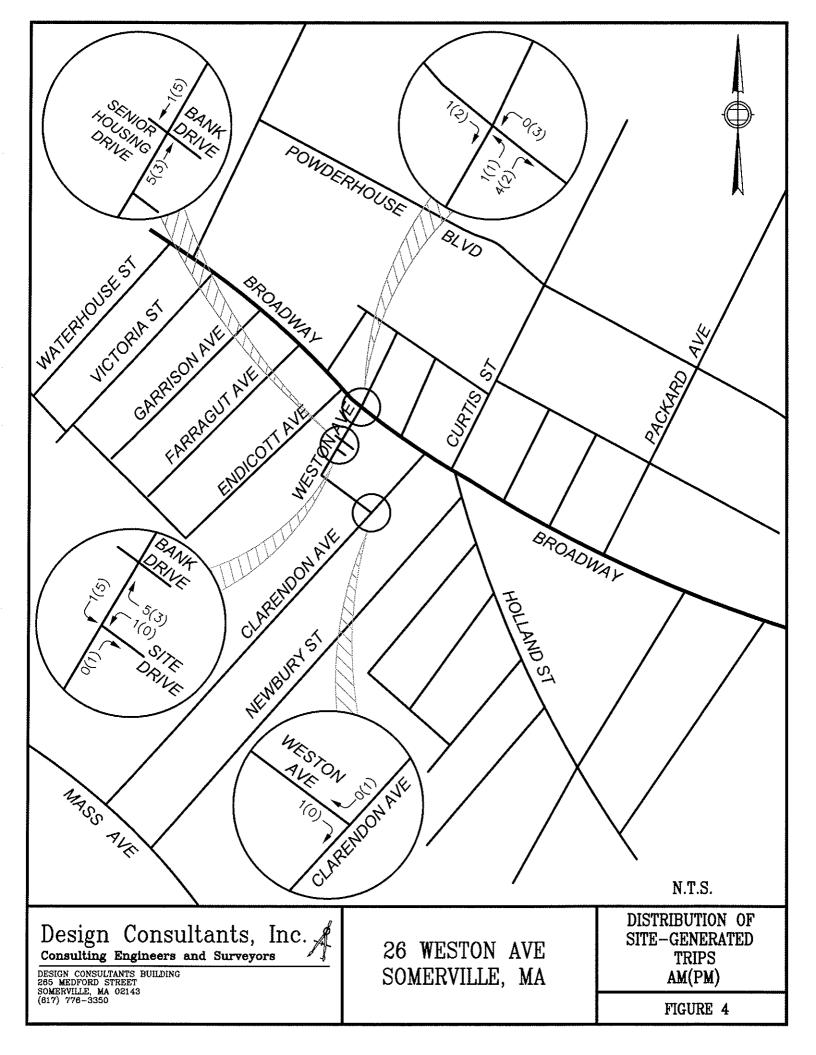
It should be noted that if the existing vacant site office space was fully occupied, the proposed development would result in a decrease of vehicle traffic throughout the day.

The site-generated trips have not been reduced due to other modes of transportation (such as walking, transit or bicycling) in order to present a conservative analysis for potential traffic impact. Otherwise, a reduction would be appropriate due to the proximity of Davis Square and the MBTA Red Line Station.

The site generated peak hour trips have been distributed on the study area intersections based upon existing travel patterns within the study area and routes to major arterials in the area. These site generated peak hour trips are shown on Figure 4. The site generated peak hour trips have been added to the 2015 No-Build volumes, less the existing commercial site traffic and the resulting 2015 Build peak hour volumes are shown in Figure 5.

#### 11.0 Traffic Impacts

In order to evaluate the traffic impacts associated with the proposed development, it is necessary to compute and compare delays and Levels-of-Service for 2015 'No-Build' and 'Build' scenarios. This is shown on the following Table B.



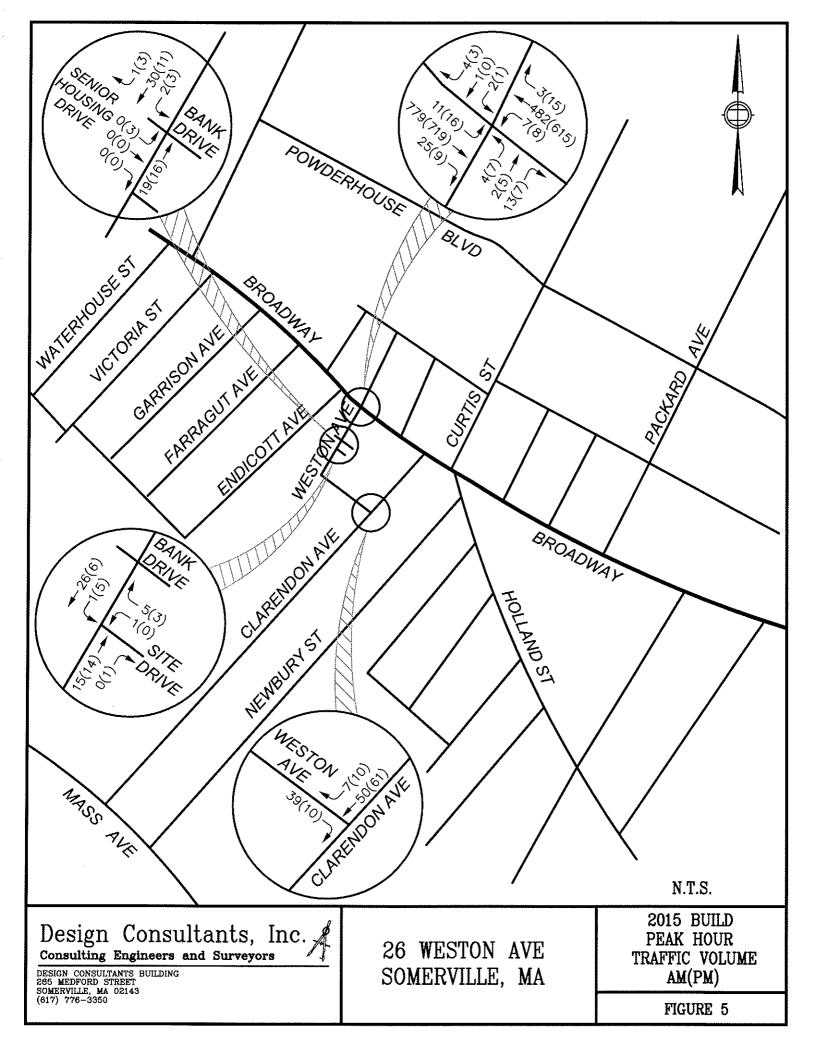


TABLE B

## LEVEL OF SERVICE UNSIGNALIZED INTERSECTIONS

Location/ Movement	2015 No-Build						2015 Build						
	A	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	
Broadway/Weston	(1)	(2)	(3)										
Broadway EB	.01	8.5	A	.02	9.1	A	.01	8.5	A	.02	9.1	A	
Broadway WB	.01	10.0	В	.01	9.6	A	.01	10.0	В	.01	9.6	A	
Weston Ave NB	.12	28.8	D	.20	46.7	E	.13	28.4	D	.20	45.7	Е	
Dickson St SB	.04	26.9	D	.02	26.2	D	.04	26.9	D	.02	26.2	D	
Clarendon/Weston													
Clarendon SB	0.0	7.2	A	0.0	7.2	A	0.0	7.2	A	0.0	7.2	A	
Weston Ave EB	.04	8.8	A	.01	8.7	A	.04	8.8	A	0.1	8.7	A	
Weston/Res/ATM		***************************************											
Weston Ave NB	0.0	7.3	A	0.0	7.2	A	0.0	7.3	A	0.0	7.2	A	
Weston Ave SB	0.0	7.3	A	0.0	7.3	A	0.0	7.3	A	0.0	7.2	Α	
Residential Dr EB	0.0	8.5	A	0.0	8.8	A	0.0	8.5	A	0.0	8.8	Α	
ATM Dr WB	0.0	8.5	A	0.0	8.5	A	0.0	8.5	A	0.0	8.5	A	
Weston/Site Drive													
Weston Ave SB	0.0	7.2	A	0.0	7.2	A	0.0	7.2	A	0.0	7.2	A	
Site Drive WB	0.0	8.5	A	0.0	8.4	A	0.0	8.5	A	0.0	8.4	A	
										***************************************			

<sup>(1)</sup> Volume/Capacity Ratio

As seen on Table B, no changes in Level-of-Service occur at the study intersections from No-Build to Build conditions. The results show that the increase (or decrease) in average delays will be one second or less for all traffic movements.

<sup>(2)</sup> Control Delay in Seconds

<sup>(3)</sup> Level-of-Service

#### 12.0 Sight Distance

Sight distances along Weston Avenue at the proposed site drive intersection were field measured to and from the point where vehicles will stop prior to entering the Weston Avenue traffic flows. Safe stopping distance enables a driver on the major road to perceive and react accordingly to a vehicle moving from the minor road to the major road. The values are based upon driver perception and reaction time and the braking distance for wet level pavement. Stopping sight distance is measured from an eye height of 3.5 feet to an object (vehicle) in the roadway. The AASHTO (1) safe stopping distance requirement is 120 feet for the 20 mph operating speed along Summer Street.

Sight distance at the site driveway will be in excess of the minimum 120-foot stopping sight distance for Weston Avenue. This is due to the straight horizontal and relatively flat vertical alignment of Weston Avenue along the site frontage, combined with the 10 foot setback of the proposed residential building from the back of sidewalk.

#### 13.0 Conclusions

The proposed residential site development at 26 Weston Avenue will generate 7 vehicle trips in the AM peak hour, 9 trips in the PM peak hour and 100 trips per day.

The low volumes generated by the proposed development during the peak hours will have little measureable impacts on traffic flows along Broadway, Weston Avenue and the surrounding roadways. Peak hour directional site traffic (6 vehicles per hour) will amount to approximately one vehicle every ten minutes at the residential driveway. It should also be noted that these peak hour site trips may be reduced due to the nearby MBTA Red Line station at Davis Square. The convenient bus stop and feeder service along Broadway will encourage residents at the site to use transit for their work commute.

Trip generation studies published by ITE show that peak hour rates for residential development coincide with the peak commute periods of adjacent traffic from 7:00 to 9:00 AM and 4:00 to 6:00 PM. Site traffic during off-peak periods will therefore be somewhat lower throughout the day and also reflect the lower traffic volumes on the adjacent roadways (typically about one half of peak hour activity).

(1) American Association of State and Highway Transportation Officials

### **APPENDIX**

- A Preliminary Landscape PlanB Traffic Count Data
- C HCS Analysis
  - 2010 Existing Conditions
     2015 No-Build Conditions

  - 3. 2015 Build Conditions
- D Trip Generation



6 Oct. 2010 WESTON AVENUE RESIDENCES, SOMERVILLE, MA ILLUSTRATIVE LANDSCAPE PLAN - scale: 1" = 10" | | |

Associates
LANDSCAPE ARCHITECTS

## Design Consultants, Inc.

## Consulting Engineers and Surveyors



265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

LOCATION:	BROADWAY/WESTON AVE
-----------	---------------------

PROJ NO.:

TIME:

7:00-9:00 AM

SHEET NO:

DATE:

10/7/2010

CALCULATED BY: STEPHEN SIMOGLOU

WEATHER:

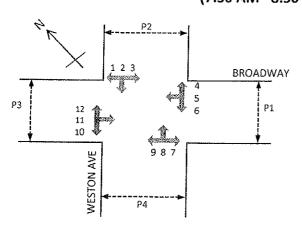
Peak Hour

PARTLY SUNNY

NOTES: COUNT TAKEN FROM WESTON AVE

TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
	1	<del>  ^</del>	<del>                                     </del>		1			0		1 10	1 11	1 12	TOTAL
7:15 AM	2	0	0	1	110	0	1	0	0	3	152	3	272
7:30 AM	1	1	1	0	101	2	4	0	2	11	177	8	308
7:45 AM	4	0	1	0	121	1	3	1	1	1	172	5	310
8:00 AM	0	0	1	1	107	2	1	0	1	8	195	1	317
8:15 AM	0	1	0	1	115	0	2	0	0	8	189	2	318
8:30 AM	0	0	0	1	116	4	7	1	2	8	186	3	328
8:45 AM	2	0	1	0	86	4	3	0	1	5	195	2	299
9:00 AM	0	0	0	1	96	0	2	0	6	8	175	3	291

(7:30 AM - 8:30 AM)



Ped	estrians	Bicycles
P1	34	0
P2	34	12
Р3	3	0
P4	98	35

1273

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265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

LOCATION:	BROADWAY/WESTON AVE	

PROJ NO.: 2010-041

TIME: 4:00-6:00 PM

SHEET NO: 2

DATE: 10/5/2010

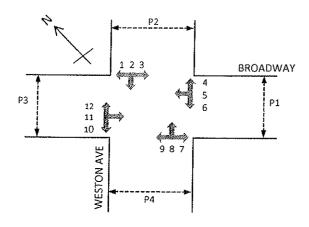
CALCULATED BY: STEPHEN SIMOGLOU

WEATHER: CLOUDY/MIST

NOTES: COUNT TAKEN FROM WESTON AVE

			****			-					· · · · · · · · · · · · · · · · · · ·		
	<del></del>			<del></del>			·	·		(NEXT TO	BANK)		
TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
4:15 PM	1	0	0	2	1.32	4	3	4	1	4	116	2	269
4:30 PM	1	0	0	1	129	5	4	0	3	7	150	1	301
4:45 PM	0	2	0	1	147	2	7	0	2	0	152	1	314
5:00 PM	0	0	0	3	148	2	1	3	1	0	143	5	306
5:15 PM	1	0	0	5	131	2	2	0	1	2	167	6	317
5:30 PM	0	0	0	1	174	3	4	1	0	6	176	5	370
5:45 PM	2	0	1	4	130	2	0	3	3	0	168	2	315
6:00 PM	0	0	0	5	151	1	1	1	3	1	174	3	340
Peak Hour	3	n	1	15	E96	0	7	Е	-,	0	COL	16	1242

Peak Hour 3 0 1 1 586 8 7 5 7 9 685 16 1342 (5:00 PM - 6:00 PM)



Ped	lestrians	Bicycles
P1	24	1
P2	74	16
Р3	2	0
P4	93	14

## Design Consultants, Inc.

## Consulting Engineers and Surveyors



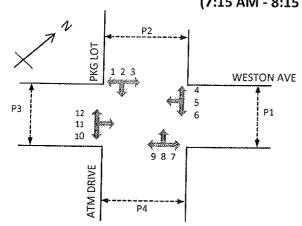
265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

LOCATION:	WESTON AVE/ ATM DR/ PKG LOT	PROJ NO.:	2010-041
TIME:	7:00-9:00 AM	SHEET NO:	3
DATE:	10/14/2010	CALCULATED BY:	STEPHEN SIMOGLOU

WEATHER: SUNNY NOTES: COUNT TAKEN FROM BANK PKG LOT

TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
7:15 AM	0	0	0	0	2	0	0	0	0	0	3	0	5
7:30 AM	0	0	0	0	12	0	0	0	0	0	4	0	16
7:45 AM	0	0	0	0	17	0	0	0	0	0	4	0	21
8:00 AM	0	0	0	1	2	1	0	0	0	0	5	0	9
8:15 AM	0	0	0	0	9	1	0	0	0	0	0	0	10
8:30 AM	0	0	0	1	3	1	0	0	0	0	6	0	11
8:45 AM	0	0	0	0	7	2	0	0	0	0	2	0	11
9:00 AM	0	0	1	0	14	2	0	0	0	0	2	0	19

Peak Hour 0 0 0 1 40 2 0 0 0 13 0 56 (7:15 AM - 8:15 AM)



Pec	lestrians	Bicycles
P1	0	0
P2	10	2
Р3	0	0
P4	2	0

## Design Consultants, Inc.

### Consulting Engineers and Surveyors

265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

LOCATION: WESTON AVE	/ ATM DR/ PKG LOT
----------------------	-------------------

PROJ NO.:

2010-041

TIME:

4:00-6:00 PM

SHEET NO:

DATE:

10/14/2010

CALCULATED BY: STEPHEN SIMOGLOU

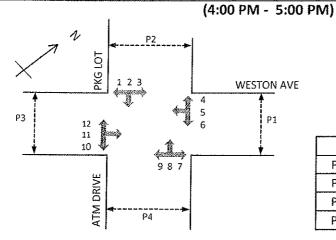
WEATHER:

Peak Hour

CLOUDY/WINDY

NOTES: COUNT TAKEN FROM BANK PKG LOT

TIME	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
4:15 PM	0	0	1	1	8	3	0	0	0	0	7	0	20
4:30 PM	0	0	0	1	5	0	0	0	0	0	12	0	18
4:45 PM	0	0	1	1	1	0	0	0	0	0	7	0	10
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	2
5:15 PM	0	0	1	0	1	2	0	0	0	0	1	0	5
5:30 PM	0	0	1	0	3	3	0	0	0	0	2	0	9
5:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
6:00 PM	0	0	1	0	1	1	0	0	0	0	3	0	6



Γ	P	edestrians	Bicycles			
Γ	P1	0	0			
Γ	P2	14	0			
	Р3	0	0			
Γ	P4	2	0			

## Design Consultants, Inc. Consulting Engineers and Surveyors



265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

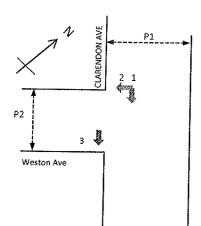
LOCATION: Cla	rendon Ave, Weston Ave	PROJ NO.:	2010-041	
TIME:	7:00 - 9:00 AM	SHEET NO:	1	
P. A ****				

DATE: 10/7/2010 CALCULATED BY: Steve Wen

WEATHER: Sunny NOTES:

TIME	1	2	3	TOTAL
7:15 AM	19	1	2	22
7:30 AM	49	2	10	61
7:45 AM	31	3	12	46
8:00 AM	37	1	6	44
8:15 AM	30	1	10	41
8:30 AM	27	4	6	37
8:45 AM	29	2	2	33
9:00 AM	24	1	2	27

Peak Hour 147 (7:15 AM - 8:15 AM)



Pe	destrians	Bicycles
P1	5	1
P2	28	3

## Design Consultants, Inc.

## Consulting Engineers and Surveyors

A

265 MEDFORD ST · SOMERVILLE, MA 02147 · (617) 776-3350

LOCATION: Clarendo	n Ave, Weston Ave	PROJ NO.:	2010-041
TIME:4	:00 - 6:00 PM	SHEET NO:	2

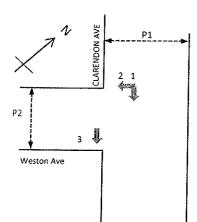
DATE: 10/5/2010 CALCULATED BY: Steve Wen

WEATHER: RAINY

NOTES:	
--------	--

TIME	1	2	3	TOTAL
4:15 AM	11	3	2	16
4:30 AM	16	2	2	20
4:45 AM	12	3	2	17
5:00 AM	14	0	0	14
5:15 AM	17	3	2	22
5:30 AM	14	0	3	17
5:45 AM	15	3	2	20
6:00 AM	12	3	3	18

Peak Hour 0 58 0 9 0 10 0 77 (4:00 PM - 5:00 PM)



Pe	destrians	Bicycles			
P1	0	0			
P2	19	0			

#### DESIGN CONSULTANTS, INC.

Design Consultants Building 265 Medford Street Suite 308 SOMERVILLE, MA 02143 (617) 776-3350 FAX (617) 776-7710

JOB <u>70</u>	10-041		
SHEET NO.			
CALCULATED BY STATION	Simola co	DATE	10/18/10
CHECKED BY		DATE	

16/18/10 730 Am 830 Am KNINUL 37 COROBOTS ITE MOUNTENT [WAL Z 730.745 745-800 ~ Azos 4 Venues in Lor 800-BIS AT START OF SURVEY 815-830 4 TOTAL iolistio 4:00 2m-5:00 PM PARTEY SUNNY MajikinéM IN AL 6 VEHICLES IN LOT 40-45 START OF SURJEY 4:15-4:30 4:30- 4:45 111, 4:45-5:00 , Z Toral 2

	TWC	-WAY STOP	CONTR	OL SI	JMMARY						
General Informati	on		Site I	nform	ation						
Analyst	DRI		Inters	ection		Broadway Avenue	/ & Westo	n			
Agency/Co.	DCI		Jurisd	iction		Somervill	e. MA				
Date Performed	10/15/20			sis Year	r	2010					
Analysis Time Period	AM Peal	k Hour									
Project Description 2	26 Weston Ave	enue - Existing 2	010 Cond	10 Condition   North/South Street: Weston/Dickson							
East/West Street: Bro											
Intersection Orientation	n: East-West		Study	Period (	(hrs): <i>0.25</i>						
Vehicle Volumes a	and Adjusti										
Major Street	Eastbound					Westbou	nd T				
Movement	1 1	2	3		4	5 T		6			
	<u> </u>	T	R		L	459		3			
Volume (veh/h)	11	742	25			0.90		0.90			
Peak-hour factor, PHF	0.90	0.90	0.90		0.90	0.90					
Hourly Flow Rate (veh/h)	12	824	27		7	510		3			
Proportion of heavy	1				1						
vehicles, P <sub>HV</sub>	1										
Median type				Undivi	ded						
RT Channelized?			0					0			
Lanes	0	1	0		0	1		0			
Configuration	LTR				LTR						
Upstream Signal		1				1					
Minor Street		Northbound				Southbou	ınd				
Movement	7	8	9		10	11		12			
	L	Т	R		L	Т		R			
Volume (veh/h)	4	2	13		2	1		4			
Peak-hour factor, PHF	0.85	0.85	0.85		0.85	0.85		0.85			
Hourly Flow Rate (veh/h)	4	2	15		2	1		4			
Proportion of heavy vehicles, P <sub>HV</sub>	1	1	1		1	1		1			
Percent grade (%)		0				0					
Flared approach		N				N					
Storage		0				0					
RT Channelized?			0					0			
Lanes	0	1	0		0	1		0			
Configuration		LTR				LTR					
Control Delay, Queue	Length, Leve	l of Service									
Approach	EB	WB	ſ	Vorthbo		Se	outhboun	<del></del>			
Movement	1	4	7	8	9	10	11	12			
Lane Configuration	LTR	LTR		LTR			LTR	<u> </u>			
Volume, v (vph)	12	7		21			7	<u> </u>			
Capacity, c <sub>m</sub> (vph)	1052	747		187			188	ļ.,,,			
//c ratio	0.01	0.01		0.11			0.04	<u> </u>			
Queue length (95%)	0.03	0.03		0.37			0.12				
Control Delay (s/veh)	8.5	9.9		26.7			24.9				
LOS	A	Α		D			С	Ī			
Approach delay		<i>∧</i>		26.7			24.9	. <b></b>			
s/veh) Approach LOS	****			D			С				

		TWC	-WAY STOP	CONTR	OL SU	WMARY						
General Informat	ion			Site	nforma	tion						
Analyst		DRI		Inters	ection		Broadwa Avenue	y & West	on			
Agency/Co.	1	DCI		lurios	liction		Somervii	In 111				
Date Performed	1	10/18/20	10	[ <del> </del>			2010	IE, IVIA				
Analysis Time Period	/	PM Peak	k Hour	Atlaly	sis Year		2010					
Project Description	26 We	ston Ave	enue - Existing 2	2010 Cond	ition							
East/West Street: Bi	oadway	/		North/South Street: Weston/Dickson								
Intersection Orientation	on: <i>E</i> e	st-West		Study Period (hrs): 0.25								
Vehicle Volumes	and A	Adjustr	nents									
Major Street			Eastbound				Westbou	ınd				
Movement		1	2	3		4	5		6			
		L.	T	R		L	Т		R			
Volume (veh/h)		16	685	9		8	586		15			
Peak-hour factor, PHI	=	0.90	0.90	0.90	)	0.90	0.90		0.90			
Hourly Flow Rate (veh/h)		17	761	10		8	651		16			
Proportion of heavy		1		<u> </u>		1						
vehicles, P <sub>HV</sub>												
Median type				Undivided								
RT Channelized?				0					0			
Lanes		0	1	0		0	1		0			
Configuration		LTR		<u> </u>		LTR						
Upstream Signal			1	<u> </u>	l		1					
Minor Street			Northbound			·····	Southbo	und				
Movement		7	8	9		10	11		12			
		L	T	R		<u> </u>	Т		R			
Volume (veh/h)		7	5	7		1	0		3			
Peak-hour factor, PHF		0.85	0.85	0.85	<u> </u>	0.85	0.85		0.85			
Hourly Flow Rate (veh/h)		8	5	8		1	0		3			
Proportion of heavy		1	1	1		1	1		1			
vehicles, P <sub>HV</sub>		,							,			
Percent grade (%)			0				0					
-lared approach			N	<u> </u>			N					
Storage			0				0					
RT Channelized?				0					0			
anes		0	1	0		0	1		0			
Configuration			<u>LTR</u>				LTR					
Control Delay, Queue	Lengt	h, Level	of Service									
\pproach	E	B	WB	1	Vorthbour	nd	S	outhboun				
Novement		1	4	7	8	9	10	11	12			
ane Configuration	LT		LTR		LTR			LTR	<u> </u>			
/olume, v (vph)	17	7	8		21	<b></b>		4	<b></b>			
Capacity, c <sub>m</sub> (vph)	92		814		119			191				
/c ratio	0.0	)2	0.01		0.18			0.02				
Queue length (95%)	0.0	06	0.03		0.61		0.06					
Control Delay (s/veh)	9.	0	9.5		41.6			24.3				
OS	Α		Α		E	<u></u>		С				
pproach delay s/veh)	_	-			41.6			24.3				
pproach LOS				·······	E			С				

	TW	O-WAY STO	CONTR	ROL SU	IMMAR'	Y	·				
General Informat	on		Site	Inform	ation						
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 AM Peak		Inters Jurisd Analy:			Dr	nervil	Avenue/Ba le, MA	nk/Res		
Project Description	26 Weston Aver	nue - Existing 20	10 Conditio	on	<del>v</del>	<del></del>					
East/West Street: Se	n Res DR/ATM	Entry			treet: We	eston Ave	nue				
Intersection Orientatio	n: North-South	7	Study Period (hrs): 0.25								
Vehicle Volumes	and Adjustm	ents									
Major Street		Northbound					uthbo	und			
Movement	1	2	3		4		5		6		
	L	Т	R		<u>L</u>		T		R		
Volume	0	19	0		2		30		1		
Peak-Hour Factor, PHI		0.85	0.8		0,85		0.85		0.85		
Hourly Flow Rate, HFF Percent Heavy Vehicle		22	0		2 1		35		1		
Median Type	5 / /			Undivi							
RT Channelized			1 0	Oriaivii	nea .	<del></del>			0		
Lanes	0	1 1	0		0		1		0		
Configuration	LTR		<del>                                     </del>		LTR				<u> </u>		
Upstream Signal		0			LIIV		ō				
Minor Street	<del></del>	Westbound					Eastbound				
Movement	7	vvestbound 8	9		10	ca	11	inu	12		
MOVERNETIE	Ĺ	<del>- </del>	R		L		T		R		
Volume	<del>-</del>	<del>- </del>	1 1		0		ō		1		
Peak-Hour Factor, PHF		0.85	0.85	<del>-  </del>	0.85		0.85		). 85		
Hourly Flow Rate, HFR	· · · · · · · · · · · · · · · · · · ·	0	1		0		0		1		
Percent Heavy Vehicle		1	0		1		1		0		
Percent Grade (%)		0					0				
Flared Approach		T N	1				N				
Storage		0	<del></del>				0				
RT Channelized		1	1 0						0		
Lanes	0	1	1 0		0		1		0		
Configuration		LTR	Ť				LTR				
Delay, Queue Length,	and Level of S		_1								
Approach	NB I	SB		Westbou	ınd		f	astbound			
Movement	1	4	7	8	9	1-		11	12		
ane Configuration	LTR	LTR	· · · · · · · · · · · · · · · · · · ·	LTR	<u> </u>	<u>_</u>	~	LTR	<del>  '-</del>		
(vph)	0	2		1				1	<b></b>		
C (m) (vph)		1600		1039				1038	<b>}</b>		
	1581								<b> </b>		
//C	0.00	0,00		0.00				0.00	<b> </b>		
95% queue length	0.00	0.00		0.00				0.00	<u> </u>		
Control Delay	7.3	7.3	,	8.5				8.5	ļ		
.OS	Α	Α		A				Α	L		
pproach Delay				8.5				8.5			
pproach LOS				Α				Α			

General Informati	on		Site	Informat	ion				
Analyst	DRI		Interse			Weston A	Avenue/Ba	ank/Re	
Agency/Co.	DCI		l l			Dr Samaan ii	U - A.A.A		
Date Performed	10/15/20		Jurisdi Analys	iction sis Year		Somerville, MA 2010			
Analysis Time Period			_			2010			
Project Description :	26 Weston Ave	nue - Existing 20							
East/West Street: Se						on Avenue			
Intersection Orientation			Study	Period (hr	s): 0.25		·		
Vehicle Volumes a	and Adjustn								
Major Street Movement		Northbound				Southbo	und		
viovement	1 L	2 T	3 R		4 L	5 T		6 R	
Volume	0	16	1 0		3	11		3	
Peak-Hour Factor, PHF		0.85	0.85	<del>,  -</del>	0.85	0.85		0.85	
lourly Flow Rate, HFR		18	0		3	12		3	
Percent Heavy Vehicle	s 1				1				
Median Type				Undivide	ed				
RT Channelized			0					0	
anes	0	1	0		0	1		0	
Configuration	LTR				LTR				
Jpstream Signal		0				0			
Minor Street						Eastbou	ınd		
Movement	7	8	9		10	11		12	
/olume	L L	T	R		L.	T		R	
roiume Peak-Hour Factor, PHF	0.85	0 0.85	0.85		3 0.85	0 0.85		0 0.85	
lourly Flow Rate, HFR		0.83	1	<u>'</u>	3	0.00		0.00	
Percent Heavy Vehicles		1	0		1	1		0	
Percent Grade (%)		0	<u></u>			0	1		
lared Approach		1 N			<del>*************************************</del>	N			
itorage		0	<u> </u>		······································	0			
RT Channelized			0		· · · · · · · · · · · · · · · · · · ·	1		0	
anes	0	1	0		0	1		0	
onfiguration		LTR	1			LTR			
elay, Queue Length,	and Level of S	Service				•			
pproach	NB	SB	١	Westboun	d		Eastbound	t	
lovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR		LTR	1		LTR	1	
(vph)	0	3		1		1	3	1	
(m) (vph)	1609	1605		1044	1		945	1	
c	0.00	0.00		0.00	<u> </u>		0.00	1	
5% queue length	0.00	0.01		0.00	<b> </b>		0.01	<del> </del>	
ontrol Delay	7.2	7.2		8.5	<del> </del>		8.8	1	
DS	A	A		A			A	<del> </del>	
oproach Delay			l l	8.5	L		8.8	1	
proach LOS		——————————————————————————————————————		A	······································		A		
Divacileou									

General Informati	on		Site	nforn	nation	****		······································		
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20		Interse Jurisdi Analys	ection iction		Weston A Somervii 2010	Ave/Clarer lle, MA	ndon Ave		
Project Description 2			10 Conditio	n	······································	***************************************				
East/West Street: We					Street: <i>Clai</i>	rendon Avent	<i>ie</i>			
Intersection Orientation	n: North-South	}	Study	Period	(hrs): 0.25					
Vehicle Volumes a	and Adjustm	ents								
Major Street		Northbound				Southbo	und			
Movement	1	2	3		4	5		6		
	L	Т	R		L.	丁		R		
Volume	0	0	0		0	48		7		
Peak-Hour Factor, PHF		0.85	0.85	5	0.85	0.85		0.85		
Hourly Flow Rate, HFR		0	0		0	56		8		
Percent Heavy Vehicles	s 0				1					
Median Type			1 -	Undi	/ided					
RT Channelized	<del> </del>		0					0		
_anes	0	1	0		0	1		0		
Configuration	LTR				LTR					
Jpstream Signal		0				<u> </u>				
Minor Street	<del></del>	Westbound	<del></del>			Eastbound		12		
Movement	7	8 T	9		10	11 T				
/al.ma	<u> </u>		R		L			R 38		
Volume Peak-Hour Factor, PHF	0.85	0.85	0.85		0 0.85	0 0.85		0.85		
lourly Flow Rate, HFR		0.83	0.80	,	0.83	0.03		44		
Percent Heavy Vehicles		1 0	0		1	1		1		
Percent Grade (%)		0				-10				
Flared Approach		T N	<u> </u>			N N				
		0				0				
Storage		<del></del>			<del>, , , , , , , , , , , , , , , , , , , </del>					
RT Channelized			0					0		
anes	0	0	0		0	1 1		0		
Configuration						LTR				
Delay, Queue Length,		····	·							
pproach	NB	SB		Westbo			Eastbound			
lovement	1	4	7	8	9	10	11	12		
ane Configuration	LTR	LTR					LTR			
(vph)	0	0					44			
(m) (vph)	1551	1630					1004			
/c	0.00	0.00					0.04	T		
5% queue length	0.00	0.00					0.14	T		
ontrol Delay	7.3	7.2		,			8.7			
OS	A	A				1	A	1		
pproach Delay					L		8.7			
oproach LOS							A A			
abta Pagamuad			<u> </u>			L	7			

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Version 4.1d

Camarallar		VO-WAY STO					•		
General Informat				nform	ation				
Analyst Agency/Co.	DRI DCI			Intersection Weston Ave/Clarent Jurisdiction Somerville, MA					
Date Performed	10/15/2	010		Jurisdiction Somerville, N Analysis Year 2010					
Analysis Time Period	PM Pea		Analys	sis real		2010			
Project Description		enue - Existina 20	010 Conditio	n					
East/West Street: W	eston Avenue	Ziras Zirasing za			treet: Clare	ndon Aveni	Je		
Intersection Orientatio	n: North-Sou	th			(hrs): 0.25	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Vehicle Volumes					\				
Major Street	ana Aajasa	Northbound	4	Г		Southbo	und		
Movement	1	2	3		4	5	I	6	
	Ĺ	T	R		Ĺ	T T		R	
Volume	0	0	0		0	58		9	
Peak-Hour Factor, PH	F 0.85	0.85	0.85	5	0.85	0.85		0.85	
lourly Flow Rate, HFF		0	0		0	68		10	
Percent Heavy Vehicle					1	<u> </u>			
Median Type		······································		Undivi	ided				
RT Channelized			0				<u> </u>	0	
anes	0	1	0	1	0	1		0	
Configuration	LTR				LTR				
Jpstream Signal		0				0	0		
Minor Street		Westbound				Eastbound			
Movement	7	8	9		10	11	1	12	
	L	T	R		L	T		R	
/olume	0	0	0		0	0		10	
eak-Hour Factor, PHI	0.85	0.85	0.85		0.85	0.85		0.85	
lourly Flow Rate, HFF	₹ 0	0	0		0	0		11	
ercent Heavy Vehicle	s <i>0</i>	0	0		1	1		1	
ercent Grade (%)		0				-10			
lared Approach		N				I N			
torage		0			·	1 0			
T Channelized		<del>-  </del>	0			-		0	
anes	0	0	0			<del>                                     </del>			
onfiguration	<del>-   - '</del> -	<u> </u>	- U		0	1 170		0	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						<u>LTR</u>			
elay, Queue Length,	T	· · · · · · · · · · · · · · · · · · ·	7			T			
pproach	NB	SB	ļ,	Nestbo			Eastbound	,	
ovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR				<u> </u>	LTR		
(vph)	0	0					11		
(m) (vph)	1533	1630		·		1	987		
C	0.00	0.00	<u> </u>				0.01	<del>                                     </del>	
% queue length	0.00	0.00	<u> </u>		<del>-  </del>		0.03	<del> </del>	
ontrol Delay	7.3	7.2	<del> </del>				8.7	<del> </del>	
)S								<u> </u>	
	Α	<u> </u>					A	<u> </u>	
proach Delay		H=-					8.7		
proach LOS		~~	1			A			

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	TWC	-WAY STOP	CONTR	OL SU	MMARY					
General Information	on		Site I	nforma	ation	•				
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/201 AM Peak		Interse Jurisdi Analys			Weston / Somervil 2010		ite Dr		
Project Description 2	?6 Weston Avent	ue - Existing 201	10 Conditio	n						
East/West Street: Site			North/	South St	reet: West	on Avenue				
Intersection Orientation	: North-South		Study Period (hrs): 0.25							
Vehicle Volumes a	ınd Adjustme	ents								
Major Street		Northbound				Southbound				
Movement	1	2	3		4	5		6		
	L	T	R		L	T		R		
Volume	0	15	0		4	26		0		
Peak-Hour Factor, PHF		0.85	0.85	)	0.85	0.85		0.85		
Hourly Flow Rate, HFR		17	0		4	30		0		
Percent Heavy Vehicles	3 1			11-11-11-11	1					
Median Type RT Channelized	<del> </del>	1	1 ^	Undivid	iea			0		
	<del></del>	<del> </del>	0		0	1		0		
Lanes	0 , 70	1	0		LTR	1	<del></del>	· ·		
Configuration	<u>LTR</u>	0			LIK	0	<del>-</del>			
Jpstream Signal						Eastbou				
Minor Street		Westbound	9		10	Eastbot 11	ina (	12		
Movement	7	8 T	R		L			R		
/alumaa	0	0			0	T 0		0		
Volume Peak-Hour Factor, PHF		0.85	<u>4</u> 0.85		0.85	0.85		0.85		
Hourly Flow Rate, HFR	0.85	0.85	4	<u>'</u>	0.05	0.00		0.00		
Percent Heavy Vehicles		1 7	0	······································	0	0		0		
Percent Grade (%)	<u></u>	0	<u> </u>			0		<u>`</u>		
Flared Approach		T N	T			T N				
		0				0				
Storage		1	4					0		
RT Channelized			0							
anes	0	1 1	0		0	0		0		
Configuration		<u>LTR</u>								
Delay, Queue Length,										
pproach	NB	SB		Westbou			Eastbour			
/lovement	1	4	7	8	9	10	11	12		
ane Configuration	LTR	LTR		LTR						
(vph)	0	4		4						
(m) (vph)	1589	1607		1045						
/c	0.00	0.00		0.00						
5% queue length	0.00	0.01		0.01						
ontrol Delay	7.3	7.2		8.5						
OS OS	A A	A A		A						
			·····	8.5	<u>1 </u>		I			
pproach Delay			····			<del></del>				
pproach LOS				A		<u> </u>				

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General Informati	on		Site	Informa	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 PM Peal		Interse Jurisd	ection		Weston A Somerville 2010		te Dr
Project Description 2			10 Conditio	on		<del>, ,</del>		
East/West Street: Site	Dr Dr				eet: West	on Avenue		
Intersection Orientation	: North-Souti	h	Study	Period (h	rs): 0.25			
Vehicle Volumes a	nd Adjustn	nents				***************************************	***************************************	
Major Street		Northbound			·	Southbou	ınd	
Movement	1	2	3		4	5		6
	L	Т	R		L	T		R
Volume	0	14	0		5	6		0
Peak-Hour Factor, PHF		0.85	0.85		0.85	0.85		0.85
Hourly Flow Rate, HFR	0	16	0		5	7		0
Percent Heavy Vehicles Median Type	1				1			
RT Channelized			^	Undivide	ea	7	<del></del>	
-anes	0	1	0		0	1	<del> </del>	0
Configuration	LTR					1		
Jpstream Signal	LIK	0			LTR	1 0		
Winor Street								
Movement	7	vvestbound 8	9		10	Eastbour	<u>10</u>	12
VIOVORICIA	<del></del>	T	R		L	11 T	-+-	R R
/olume	0	<del>-                                     </del>	2		0	1 0		0
Peak-Hour Factor, PHF	0.85	0.85	0.85		0.85	0.85		0.85
lourly Flow Rate, HFR	0	0.00	2		0.00	0.00		0.00
Percent Heavy Vehicles		1	0		0	0		0
ercent Grade (%)		0				0		
lared Approach		T N	T			Ιν		<del></del>
itorage	<del></del>	1 0				0		
RT Channelized		1	0			-		0
anes	1 0	1	1 0		0	1 0		0
Configuration		LTR	1 0		U	-		U
elay, Queue Length, a	and Lovel of S							
pproach	NB	SB	<u> </u>	Westboun	d	1 ==	astbound	4
lovement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR	· · · · · · · · · · · · · · · · · · ·	LTR	1 3	10		12
(vph)	0	5 LIK			<del> </del>			+
(m) (vph)				2		<b> </b>		
c (m) (vpn)	1620	1608		1047	<b> </b>	<del> </del>		
	0.00	0.00		0.00				
5% queue length	0.00	0.01		0.01	<u> </u>			<b></b>
ontrol Delay	7.2	7.2		8.4				<u> </u>
DS	Α	Α		Α				
proach Delay				8.4				
proach LOS		200		Α				

Version 4 1d

	<del> </del>	TW	O-WAY ST	ГОР	CONT	ROL S	SUI	MMARY	***************************************		······		
General Informa	tion			<b></b>		Infor					·····		
Analyst	······	DRI			Intere	section			Broadv		West	on	
Agency/Co.		DCI							Avenue				
Date Performed		10/15/2	010		Jurisdiction				Somen	∕ille, N	1 <u>A</u>		
Analysis Time Perio	d	AM Pea			- Analy		2010						
		***************************************		2015	No Build	Cand	ition						
Project Description East/West Street: B	roadw	eston At	enue - Proj .	20151	North/South Street: Weston/Dickson								
Intersection Orientati			st					rs): 0.25	(OI I/L/ICAS)	Л		····	
Vehicle Volumes					10.000		- (111						
Major Street	ana	Aujus	Eastbo	und			Γ		Westbe	nund			
Movement		1	2	una	3		<del> </del>	4	5	Jana	<u> </u>	6	
		L	<del>-  </del>		R			Ĺ	Ť			R	
Volume (veh/h)		11	779	***********	25			7	482			3	
Peak-hour factor, PH	F	0.90	0.90		0.90			0.90	0.90		<b></b>	0.90	
Hourly Flow Rate					i			***			<del>`</del>		
(veh/h)		12	865		27			7	535			3	
Proportion of heavy		1						1					
vehicles, P <sub>HV</sub>		1						1	_				
Median type					A	Undi	vide	d		<b>_</b>			
RT Channelized?					0				T			0	
Lanes		0	1		0			0	1			0	
Configuration		LTR						LTR				····	
Upstream Signal			1			***	•		1				
Minor Street			Northbo	und			-		Southbound				
Movement		7	7 <b>8</b>		9	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		10	11	Juna		12	
	_	<u> </u>		T				L	T T			R	
Volume (veh/h)		4	2		R 13			2	<del>                                     </del>			4	
Peak-hour factor, PH	=	0.85	0.85		0.85	5		0.85	0.85		1	7. 0.85	
Hourly Flow Rate (veh/h)		4	2		15			2	1		<u>`</u>	4	
Proportion of heavy vehicles, P <sub>HV</sub>		1	1		1			1	1			1	
Percent grade (%)	_		0						0				
Flared approach			T Ň	Т	·				l N				
Storage			0						0				
RT Channelized?	_				0				<u>-</u>			0	
_anes	_	0	1		0			0	1			0	
Configuration			LTR		0				LTR			<u> </u>	
Control Delay, Queue	Lenc	th Love				I		Cacillate de la cacillate de l	1 111				
Approach		EB	WB	. <u> </u>		Vorthb	Oi in		T	South	201100		
Movement		D	4		7	8	Juli	9	10	<del></del>	······································	<del></del>	
	,	<u></u>	·····				`	ä	10	. <b>.</b>	1	12	
ane Configuration		TR	LTR		· · · · · · · · · · · · · · · · · · ·	LTF	(			LT			
/olume, v (vph)		12	7			21			ļ	7			
Capacity, c <sub>m</sub> (vph)	10	030	721			172	)			17	′1		
/c ratio	0.	01	0.01			0.12	?		1	0.0	)4		
ueue length (95%)	0.	04	0.03	一		0.41	1			0.1	0.13		
Control Delay (s/veh)		.5	10.0			28.8			ļ	26		~	
os		4	В	-		D				L E		<b></b>	
pproach delay s/veh)				$\dashv$		28.8	 }			26.		I	
pproach LOS						D			<del> </del>	D	<del></del>	<del></del>	
PPI GOOTI EOO				1		-			I	را			

General Informat	ion	***************************************	C:4-	Info	otio				
General informat	ion		Site	Informa	ation	15	A 14.6		
Analyst	DRI		Inter	section		Broadw Avenue	ay & Wes	ton	
Agency/Co.	DCI		Juris	diction		Somerv			
Date Performed	10/18/2		11	ysis Year		2010	., ., ., .		
Analysis Time Period	PM Pe	ak Hour							
Project Description	26 Weston A	/enue - Proj 201							
East/West Street: Br			North/South Street: Weston/Dickson Study Period (hrs): 0.25						
Intersection Orientatio			Study	/ Period (i	nrs): 0.25				
Vehicle Volumes	and Adjus		thoused						
Major Street Movement	1	Eastbound 2	3		1	Westbo	und	6	
WOVERICAL		<del>-  </del>	R		<u>4</u> L	5 T		6 R	
Volume (veh/h)	16	719	9		8	615		15	
Peak-hour factor, PHF		0.90	0.9		0.90	0.90		0.90	
Hourly Flow Rate (veh/h)	17	798	10	)	8	683		16	
Proportion of heavy vehicles, P <sub>HV</sub>	1				1	_			
Median type				Undivid	ed				
RT Channelized?			0					0	
anes	0	1	0		0	1		0	
Configuration	LTR				LTR				
Jpstream Signal		1				1			
linor Street		Northbound				Southbo	und		
Movement	7	8	9		10	11		12	
/olumo (voh/h)	L	<u>T</u>	R		<u> </u>	T		R	
/olume (veh/h) ⁰eak-hour factor, PHF	7 0.85	5 0.85	7 0.85		1 0.85	0		3	
lourly Flow Rate	8	5	8	2	0.85 1	0.85 0		0.85 3	
roportion of heavy ehicles, P <sub>HV</sub>	1	1	1		1	1		1	
ercent grade (%)		0				0	l,		
lared approach		N			Attacked to the same of the sa	N			
Storage	1	0				0			
T Channelized?			0					0	
anes	0	1	0		0	1		0	
onfiguration		LTR				LTR			
ontrol Delay, Queue		l of Service							
pproach	EB	WB	1	Vorthbour	nd	S	outhboun	d	
ovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR		LTR			LTR		
olume, v (vph)	17	8		21			4	<u> </u>	
apacity, c <sub>m</sub> (vph)	899	789		107			174		
ratio	0.02	0.01		0.20			0.02		
ueue length (95%)	0.06	0.03		0.69			0.07		
ontrol Delay (s/veh)	9.1	9.6		46.7			26.2	1	
S	Α	А		Е			D	<b>T</b>	
proach delay veh)				46.7	-		26.2		
proach LOS			Е			D			

	TW	O-WAY STOP	CONTR	ROL SU	MMARY	······································		
General Informati	on		Site	Informa	ation		· · · · · · · · · · · · · · · · · · ·	
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 AM Peak		Inters Jurisd Analys			Weston . Dr Somervi 2010	Avenue/B lle, MA	ank/Res
Project Description	26 Weston Aver	nue - Proj No-Bui	ild 2015 Co	ondition				
East/West Street: Se	n Res DR/ATM	Entry			reet: Wesi			
Intersection Orientation	n: North-South	7	Study	Period (I	nrs): 0.25			
Vehicle Volumes	and Adjustm							
Major Street		Northbound				Southbo	und	
Movement		2	3		4	5		6
Volume	<u>L</u>	T (0	R		<u>L</u>	30		R 1
Peak-Hour Factor, PHF	0 0.85	19 0.85	0.88		2 0.85	0.85		0.85
Hourly Flow Rate, HFR		22	0.80	,	2	35		1
Percent Heavy Vehicle					1			
Median Type	<u> </u>		<u></u>	Undivid				
RT Channelized			1 0	0,,0,,,	704			0
Lanes	0	1	0		0	1	0	
Configuration	LTR		<b>1</b>		LTR			
Upstream Signal		0				0		
Minor Street		Westbound Eastbou					ınd	** • ***
Movement	7	8	9		10	11		12
	L	Т	R		L	Т		R
Volume	0	0	1		0	0		1
Peak-Hour Factor, PHF	0.85	0.85	0.85	5	0.85	0.85		0.85
Hourly Flow Rate, HFR		0	1		0	0		1
Percent Heavy Vehicle	s 1	11	0		1	11		0
Percent Grade (%)		0				0		
Flared Approach		N				N		
Storage		0				0		
RT Channelized			0		-			0
Lanes	0	1	0		0	1		0
Configuration		LTR				LTR		
Delay, Queue Length,	and Level of S	ervice		uncdaneerilaine/Contribito	****************************			
Approach	NB	SB		Westbou	ınd		Eastboun	d
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (vph)	0	2	***************************************	1			1	1
C (m) (vph)	1581	1600		1039	+	<del> </del>	1038	<b>†</b>
//c	0.00	0.00		0.00			0.00	<b>†</b>
95% queue length	0.00	0.00		0.00			0.00	<b> </b>
Control Delay	7.3	7.3		8,5			8.5	1
OS	7.5 A	7.3 A		A A	<del></del>		A	<del> </del>
Approach Delay		· · · · · · · · · · · · · · · · · · ·		8.5				
Approach LOS	<del></del>					8.5		······································
Approach LOS	***			A		<u> </u>	Α	

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General Informat	ion		Site	Inform	ation					
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20		Inters	Intersection Jurisdiction Analysis Year			Weston Avenue/Bank/Re. Dr Somerville, MA 2010			
Project Description	26 Weston Aver	nue - Proi No-Ru	ild 2015 Ci	ondition						
East/West Street: Se	n Res DR/ATM	Entry			treet: West	on Avenue				
Intersection Orientatio	n: North-Souti	<u></u> 7	Study Period (hrs): 0.25							
Vehicle Volumes	and Adiustm	ents	<u> </u>							
Major Street		Northbound				Southbo	ound			
Movement	1	2	3		4	5		6		
	L	Т	R		L	Т		R		
/olume	0	16	0		3	11		3		
Peak-Hour Factor, PH		0.85	0.8	5	0.85	0.85		0.85		
lourly Flow Rate, HFF		18	0		3	12		3		
Percent Heavy Vehicle	es 1				1					
Median Type				Undivi	ded					
RT Channelized			0		·			0		
anes	0	1	0		0	1		0		
Configuration	LTR				LTR					
Jpstream Signal		0				0				
/linor Street		Westbound				Eastbo	und			
Novement	7	8	9		10	11		12		
	L	T	R		<u> </u>	T		R		
/olume	0	0	1		3	0		0		
eak-Hour Factor, PH		0.85	0.85	5	0.85	0.85		0.85		
lourly Flow Rate, HFR ercent Heavy Vehicle		0	1		3	0		0		
······································	s 1	1	0		1	1 1		0		
ercent Grade (%)		0				0				
lared Approach		N				N				
torage		0				0				
T Channelized			0					0		
anes	0	1	0		0	1		0		
onfiguration		<u>LTR</u>				LTR				
elay, Queue Length,	and Level of S	ervice					-,-2			
oproach	NB	SB		Westbou	ınd		Eastbound	}		
ovement	1	4	7	8	9	10	11	12		
ne Configuration	LTR	LTR		LTR		1	LTR			
(vph)	0	3		1		<u> </u>	3	<b>†</b>		
(m) (vph)	1609	1605		1044			945	<del> </del>		
	0.00	0.00		0.00			0.00	<del> </del>		
% queue length	0.00							<del> </del>		
ontrol Delay		0.01	·	0.00		ļ	0.01			
	7.2	7.2		8.5			8.8	<u> </u>		
)S	A	A		A			A			
proach Delay		~-		8.5		8.8				
proach LOS	~~	***		Α		1	А			

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		O-WAY STOP				·		
General Informat			Site Infor					
Analyst Agency/Co. Date Performed	DRI DCI 10/15/20		Intersection Jurisdiction Analysis Ye		Weston Ave/0 Somerville, M 2010			
Analysis Time Period					·····			
Project Description East/West Street: We	26 Weston Aven	iue - Proj 2015 N						
Intersection Orientatio		· · · · · · · · · · · · · · · · · · ·			endon Avenue			
			Study Perio	d (hrs): 0.25		·····		
Vehicle Volumes	and Adjustm							
Major Street Movement		Northbound			Southbound			
Movement	11	2 T	3 R	4	5 T	6 R		
Volume	<del>-   -   -  </del>	0	0	L   O	50	7		
Peak-Hour Factor, PHI		0.85	0.85	0.85	0.85	0.85		
Hourly Flow Rate, HFF		0.00	0.00	0.00	58	8		
Percent Heavy Vehicle				1				
Median Type	<u> </u>		L	livided				
RT Channelized			0					
anes	0	1	0	0	1	0		
Configuration	LTR			LTR		<del> </del>		
Jpstream Signal		0			0			
Minor Street		Westbound			Eastbound			
Movement	<del>- </del> 7	8	9	10	11	12		
	Ĺ	Ť	R	i i	T	R		
/olume		1 0	1 0	0	i o	38		
Peak-Hour Factor, PHF		0.85	0.85	0.85	0.85	0.85		
lourly Flow Rate, HFR		0	0	0	0	44		
Percent Heavy Vehicle		0	0	1	1	1		
Percent Grade (%)		0	<u></u>		-10	I		
lared Approach		T N	T		N			
Storage		0		<del> </del>	0			
RT Channelized		<del> </del>	0		J	0		
anes	0	1 0		<del> </del>		ļ		
onfiguration	<u> </u>		0	0	1 170	0		
		<u> </u>	<u> </u>	<u> </u>	LTR			
elay, Queue Length,								
pproach	NB	SB	Westh			ound		
lovement	1	4	7 8	3 9		11 1:		
ane Configuration	LTR	LTR				TR .		
(vph)	0	0			4	4		
(m) (vph)	1549	1630			10	01		
c	0.00	0.00			0.	04		
5% queue length	0.00	0.00			O.	14		
ontrol Delay	7.3	7.2				8		
OS .	A	A			<del>                                     </del>			
oproach Delay				I	8.			
oproach LOS			**************************************		<del></del>			
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		O-WAY STOR	CONTRO	L SUMM	AKY					
General Informat			Site Inf	formation	)					
Analyst Agency/Co.	DRI DCI		Intersecti Jurisdicti	on		Weston Ave/Clarendon Ave Somerville, MA				
Date Performed	10/15/20		Analysis	Year		2010				
Analysis Time Period			<u>l</u>	177						
Project Description East/West Street: We	26 Weston Ave	nue - Proj 2015 f								
Intersection Orientatio	esion Avenue	h	North/South Street: Clarendon Avenue Study Period (hrs): 0.25							
		***************************************	Study Pe	enoa (nrs):	0.25		····			
Vehicle Volumes	and Adjustn				****		····	····		
Major Street		Northbound				Southbo	und			
Movement		2	3		4	5		6		
/olume	<u> </u>	T	R		<u>L</u>	T		R		
Peak-Hour Factor, PHI	0	0	0			61		9		
dourly Flow Rate, HFF		0.85 0	0.85 0	0.6		0.85		0.85		
Percent Heavy Vehicle					1	71		10		
Median Type	9 0			! Individed						
RT Channelized			0	maivided	··					
anes	0	1	0		<u> </u>	1		0		
Configuration	L.TR			L7		<del>                                     </del>				
Jpstream Signal	L.IIX	0		L I	Γ.	0		······································		
/linor Street		Westbound								
Movement	7	vvestbound 8	9		^	Eastbound 11		12		
MOVERIEFIL		T	R		0	<b>-</b>		!∠ R		
/olume	0	0	0							
eak-Hour Factor, PHF		0.85	0.85	0.8		0 0.85		10 0.85		
lourly Flow Rate, HFR		0.85	0.65	0.0	·····	0.83		11		
ercent Heavy Vehicles		0	0	1		1		1		
ercent Grade (%)	<u> </u>	0	1 0			-10		· · · · · · · · · · · · · · · · · · ·		
lared Approach		T N	1							
torage		<del></del>				N N				
		0				0				
T Channelized	<u> </u>		0					0		
anes	0	0	0	0		1		0		
onfiguration						LTR				
elay, Queue Length,										
oproach	NB	SB	We	stbound		۱	Eastbound	d		
ovement	1	4	7	8	9	10	11	12		
ane Configuration	LTR	LTR			······		LTR			
(vph)	0	0					11			
(m) (vph)	1529	1630					984	1		
2	0.00	0.00				1	0.01	<del>                                     </del>		
% queue length	0.00	0.00				1	0.07	<del>                                     </del>		
ontrol Delay										
	7.4	7.2					8.7			
)S	A	Α					Α			
proach Delay							8.7			
proach LOS										

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	TW	O-WAY STOF	CONTR	ROL SI	JMMARY				
General Informat	ion		Site	Inform	ation				
Analyst Agency/Co. Date Performed	DRI DCI 10/15/20		Jurisd	ection iction sis Year		Weston . Somervi 2010		Site Dr	
Analysis Time Period						<del></del>			
Project Description	<u>26 Weston Aver</u>	nue - Proj No Bu							
East/West Street: Sit					treet: West	on Avenue			
Intersection Orientatio			Study	Period	(hrs): 0.25				
Vehicle Volumes	and Adjustm								
Major Street		Northbound				Southbound			
Movement	1	2	3		4	5		6	
	L	Т	R		L_	Т		R	
Volume	0	15	0		4	26		0	
Peak-Hour Factor, PH		0.85	0.88	7	0.85	0.85		0.85	
Hourly Flow Rate, HFF		17	0		4	30		0	
Percent Heavy Vehicle	s 1	<u>. l</u>			1				
Median Type				Undivi	aed				
RT Channelized			0				0		
Lanes	0	1	0		0	1		0	
Configuration	LTR				LTR	<u></u>			
Upstream Signal		0				0			
Minor Street		Westbound				Eastbou	und		
Movement	7	8	9		10	11		12	
	L	T	R		L	T		R	
Volume	0	0	4		0	0		0	
Peak-Hour Factor, PHF		0.85	0.85	5	0.85	0.85		0.85	
Hourly Flow Rate, HFR		0	4		0	0		0	
Percent Heavy Vehicle	s 1		0		0	0		0	
Percent Grade (%)		0				0			
Flared Approach		N				N			
Storage		0			······································	0	· · · · · · · · · · · · · · · · · · ·		
RT Channelized			0					0	
anes	0	1	1 0		0	0		0	
Configuration		LTR	<b>1</b>		······································			· · · · · · · · · · · · · · · · · · ·	
	and level of C								
Delay, Queue Length,		<del></del>		. 6 ( - 11					
Approach	NB	SB		Westbo	······································		Eastbour		
/lovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR		LTR					
(vph)	0	4		4					
(m) (vph)	1589	1607	***************************************	1045	***************************************			T	
/c	0.00	0.00	***************************************	0.00	***************************************	·	<del></del>		
5% queue length	0.00	0.01		0.01		1	<b> </b>		
Control Delay	7.3	7.2	* Cat 1 -	8.5	······································		<b></b>		
OS	····					1			
	A	A		A			<u> </u>		
pproach Delay				8.5				·····	
pproach LOS				Α					

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Version 4 1d

General Informat	ion		Site	Inform	ation	***************************************		***	
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 PM Pea	k Hour	Inters Juriso Analy	ection liction sis Year		Weston Avenue/Site Dr Somerville, MA 2010			
Project Description	26 Weston Ave	nue - Proj No Bu	ild 2015 C	ondition	· · ·			····	
East/West Street: Sit	te Dr				treet: Wes	ton Avenue			
Intersection Orientatio	<del></del>		Study Period (hrs): 0.25						
Vehicle Volumes	and Adjustn	nents							
Major Street		Northbound			Southbo	und			
Movement	1	2	3		4	5		6	
	L	Т	R		L	Т		R	
Volume	0	14	0		5	6		0	
Peak-Hour Factor, PH		0.85	0.8	5	0.85	0.85		0.85	
Hourly Flow Rate, HFF Percent Heavy Vehicle		16	0		5	7		0	
Percent Heavy Venicie Median Type	es 1			1/=-/-	1			<del></del>	
RT Channelized		<del>- 1</del>		Undivi	aea		<u>-</u> -		
anes	<del>-  </del>	1	0			<del> </del>		0	
Configuration	LTR		0		0	1		0	
Jpstream Signal	LIK				LTR				
Minor Street		0							
Movement	<del></del>	Westbound			40	Eastbou	ınd T		
viovernerit	$\frac{7}{L}$	8 T	9		10	11	·	12	
/olume	0		R		L C	T		R	
Peak-Hour Factor, PHF		0 0.85	2 0.85		0 0.85	0		0 0.85	
lourly Flow Rate, HFR		0.85	2	<u>'</u>	0.05	0.85 0		0.85	
Percent Heavy Vehicle		1 1	0		0	1 0		0	
Percent Grade (%)	~	0	<u> </u>		U	0	L		
lared Approach		T N				T N			
torage		100							
						0			
T Channelized			0					0	
anes	0	1	0		0	0		0	
onfiguration		<u>LTR</u>					l		
elay, Queue Length,			T						
pproach	NB	SB	}	Westbou			Eastbour	nd	
ovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR		LTR					
(vph)	0	5		2					
(m) (vph)	1620	1608		1047			***************************************		
c	0.00	0.00		0.00					
5% queue length	0.00	0.01		0.01					
ontrol Delay	7.2	7.2		8.4					
DS S	A A					-			
oproach Delay	A	<u> </u>		A	<u> </u>			<u>L</u>	
				8.4					
proach LOS			A			1			

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Version 4.1d

		O-WAY STO						
General Informati	on		Site	Inform	ation			
Analyst	DRI		Inters	ection		Broadwa Avenue	y & West	on
Agency/Co.	DCI		Jurise	diction		Somervi	lle, MA	
Date Performed	10/15/2		[]	sis Year		2010		
Analysis Time Period	AM Pea	k Hour						
Project Description .		enue - Proj 201						
East/West Street: Bro					<del></del>	ston/Dicksor	7	
Intersection Orientation			Study	Period (	hrs): 0.25			
Vehicle Volumes	and Adjust							
Major Street		Eastbound				Westbou 5	ınd T	6
Movement	1	2 T	3 R		4 L	1 5 T		R
Volume (veh/h)	11	779	22		7	482		3
Peak-hour factor, PHF	0.90	0.90	0.90		0.90	0.90		0.90
Hourly Flow Rate								
(veh/h)	12	865	24 7		535		3	
Proportion of heavy	1				1			
vehicles, P <sub>HV</sub>								
Median type			<del> </del>	Undivid	ded			
RT Channelized?			0					0
Lanes	0	1	0		0	1		0
Configuration	<u>LTR</u>				LTR			
Upstream Signal	<u> </u>	1 1				1		
Minor Street	<del>-</del>	Northbound			40	Southbo	und	12
Movement	7	8 T	9		10 L	11 T		R
Volumo (voh/h)		2	R 14		<u>L</u> 2	<del>                                     </del>		4
Volume (veh/h) Peak-hour factor, PHF	0.85	0.85	0.85	5	0.85	0.85		<del>. 4</del> 0.85
Hourly Flow Rate					<del></del>			
(veh/h)	4	2	16		2	1		4
Proportion of heavy		1	1		1	1		1
vehicles, P <sub>HV</sub>	1	1	1		1			,
Percent grade (%)		0				0		
Flared approach		N				l N		
Storage		0				0		
RT Channelized?			0					0
anes	0	1	0		0	1		0
Configuration		LTR				<u>LTR</u>		
Control Delay, Queue	Length, Leve	el of Service						
\pproach	EB	WB		Northbou	ınd	S	outhboun	d
/lovement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR			LTR	
/olume, v (vph)	12	7		22			7	
Capacity, c <sub>m</sub> (vph)	1030	723		176			171	Ī
/c ratio	0.01	0.01		0.13			0.04	<b>1</b>
Queue length (95%)	0.04	0.03		0.42		1	0.13	1
Control Delay (s/veh)	8.5	10.0		28.4			26.9	<del> </del>
OS (S/Veri)	A.	B		D			D	<del> </del>
pproach delay		<u>.</u>			<u> </u>		·····	1
s/veh)	n		28.4			26.9 D		

		TWC	-WAY STO	CONT	ROL SU	MMARY			
General Informat	tion	***************************************		Site	Informa	ation			
Analyst		RI		Inter	section		Broadw Avenue	ay & West	on
Agency/Co.		Cl		luris	diction		Somerv		
Date Performed		)/18/20		[ <b>E</b>	sis Year		2010	ino, ivira	
Analysis Time Period	Pi	M Peak	( Hour	- Janear	7313 1 Cai	·····	2010		
Project Description	26 West	on Ave	nue - Proj 201:						
East/West Street: Bi						reet: Wes	ton/Dickso	n	
Intersection Orientation			·····	Study	Period (I	hrs): <i>0.25</i>			
Vehicle Volumes	and Ad	ljustr							
Major Street Movement		4	Eastbound				Westbo	und	
Movement		1 L	2 T	3 R		4	5 T		6 R
Volume (veh/h)		16	719	1 9		L 8	615		15
Peak-hour factor, PHF		.90	0.90	0.9	<del>-  </del>	0.90	0.90		0.90
Hourly Flow Rate		. <u>30</u> 17	798	10		8	683		16
(veh/h)		, ,	/ 30	1 10		0	903		10
Proportion of heavy vehicles, P <sub>HV</sub>		1				1			
Median type			l,	<u>L</u>	Undivid	led			
RT Channelized?				1 0	Orialitia		T	0	
Lanes		0	1	0		0	1		0
Configuration	L	TR				LTR			<del>.</del>
Jpstream Signal			1				1		
Minor Street			Northbound				Southbo	und	
Vlovement		7	8	9		10	11		12
		L	Т	R		L	Т		R
/olume (veh/h)		7	5	8		1	0		3
Peak-hour factor, PHF	0.	85	0.85	0.85	5	0.85	0.85		0.85
lourly Flow Rate veh/h)		3	5	9		1	0		3
Proportion of heavy		1	1			1	1		4
ehicles, P <sub>HV</sub>				1		1	1		1
Percent grade (%)			0				0		
lared approach			N				N		
Storage			0				0		
RT Channelized?				0					0
anes	(	)	1	0		0	1		0
configuration	<u></u>		<u>LTR</u>	1	L		LTR		
ontrol Delay, Queue		Level					T		<del></del>
pproach	EB		WB		Vorthbou			Southboun	
lovement	1		4	7	8	9	10	11	12
ane Configuration	LTR		LTR		LTR	-		LTR	
olume, v (vph)	17		8	***************************************	22	<u> </u>		4	
apacity, c <sub>m</sub> (vph) c ratio	899		789		110			174	
······	0.02		0.01		0.20		<b></b>	0.02	<b></b>
ueue length (95%)	0.06		0.03		0.70	<b></b>	<u> </u>	0.07	<b>_</b>
ontrol Delay (s/veh)	9.1		9.6		45.7	<u> </u>		26.2	ļ
DS oproach delay	<u> </u>		A		E	<u></u>	<u> </u>	D	L
/veh)					45.7			26.2	
pproach LOS					E			D	

	TWC	-WAY STOP	CONT	ROL S	UM	MARY				
General Informat	ion		Site	Inforn	nati	ion				
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 AM Peak		Jurisc	ection liction sis Yea	ır		Weston Dr Somervi 2010		e/Bar	nk/Res
Project Description			d 2015 Co	ndition						
East/West Street: Se			North	/South	Stre	et: <i>West</i>	on Avenue	)		
Intersection Orientation			Study	Period	(hrs	s): 0.25				
Vehicle Volumes	and Adjustr									
Major Street		Northbound					Southbo	und		
Movement		2	3			4	5			6
Volume	0	19	R			<u>L</u> 2	7			R 1
Peak-Hour Factor, PH		0.85	0.85			_ <del>_</del> 0.85	27 0.85			85
Hourly Flow Rate, HF		22	0.00	,		2	31			1
Percent Heavy Vehicle			<del>-</del>			1			<del></del>	
Median Type				Undiv	idea	<del>r</del>	<u> </u>			
RT Channelized			0	T	·			0		
Lanes	0	1	0			0	1			0
Configuration	LTR					LTR				
Upstream Signal		0					0			
Minor Street		Westbound				····	Eastbound			
Movement	7	8	9			10	11		12 -	
	L	T	R			L	Т			R
Volume	0	0	1			0	0			1
Peak-Hour Factor, PH		0.85	0.85	5	(	0.85	0.85			85
Hourly Flow Rate, HFI		0	1			0	0			1
Percent Heavy Vehicle	es 1	1 1	0			1	1			0
Percent Grade (%)		0					0			
Flared Approach		N					N			
Storage		0					0			
RT Channelized		j	0							0
Lanes	0	1	0			0	1		(	0
Configuration		<u>LTR</u>					LTR	L		
Delay, Queue Length	, and Level of	Service								
Approach	NB	SB	1	<b>W</b> estbo	und		[	Eastbo	und	
Vlovement	1	4	7	8		9	10	11		12
_ane Configuration	LTR	LTR		LTR				LTR	?	
/ (vph)	0	2	· · · · · · · · · · · · · · · · · · ·	1			***************************************	1		
C (m) (vph)	1587	1600		1039	,			1043	3	
//c	0.00	0.00		0.00			***************************************	0.00		***************************************
95% queue length	0.00	0.00		0.00	-+			0.00		
Control Delay	7.3	7.3		8.5				8.5	一十	
os	A	Α		A	_			A	十	,
Approach Delay		~		8.5			· ····	8.5		
pproach LOS				A			·			
iohta Dagamiad										

General Informati	on		Site	Inform	nation	·····		<del></del>	
		***************************************			iation	Weston	Avenue/E	Bank/R	
Analyst Agency/Co.	DRI DCI		Inter	section		Dr			
Date Performed	10/15/20	010		diction		Somerv	ille, MA		
Analysis Time Period			Analy	∕sis Yeaı	*	2010			
Project Description 2	6 Weston Av	enue - Proi 201	5 Build Co	ndition		<del></del>	<del> </del>		
East/West Street: Ser	Res DR/ATI	M Entry			Street: We	ston Avenu	e		
Intersection Orientation	: North-Sou	ıth			(hrs): 0.25		-		
Vehicle Volumes a	nd Adiust	ments							
Major Street	T .	Northboun	d	T	······································	Southbo	ound		
Movement	1	2	3	3	4	5		6	
	L	Т	F	₹	L.	Ţ		R	
Volume	0	16	0		3	11		3	
Peak-Hour Factor, PHF		0.85	0.8		0.85	0.85		0.85	
Hourly Flow Rate, HFR	0	18	0		3	12		3	
Percent Heavy Vehicles	3 1				1		l		
Median Type RT Channelized				Undivi	aed				
			0			<del>                                     </del>		0	
_anes Configuration	0	11			0	1		0	
Jonnguration  Jpstream Signal	LTR	0			LTR		0		
Minor Street	1		1	<del></del>			Eastbound		
Movement	7	Westbound 8	9		10		Lastbound 11		
NOVERICIT		<del>                                     </del>	F		L L	T		12 R	
/olume	1 0	<del> </del>	1 7		3	0		0	
Peak-Hour Factor, PHF		0.85	0.8	<del></del>	0.85	0.85		0.85	
lourly Flow Rate, HFR	0	0	1	<u> </u>	3	0		0	
Percent Heavy Vehicles	1	1	0		1	1		0	
Percent Grade (%)		0			<del></del>	0			
lared Approach		T N				I N			
Storage		0	1			0			
T Channelized	<u> </u>		0					o	
anes	0	1	0		0	1		0	
Configuration	<u>~</u>	LTR	┪		······································	LTR			
elay, Queue Length, a	nd Level of		1	L_					
pproach	NB	SB	<del>T</del>	Westbou	ınd	T	Eastboun	d	
lovement	1	4	7	8	9	10	11	12	
ane Configuration	LTR	LTR	<del> </del>	LTR		10	LTR	<del>                                     </del>	
(vph)	0	3	<del> </del>	1		-	3	<del> </del>	
(m) (vph)	1609	1605	<del> </del>	<del></del>		-	<del> </del>	+	
c (m) (vpn)			<b>_</b>	1044			945	<del>  </del>	
	0.00	0.00	<u> </u>	0.00		<u> </u>	0.00	<del> </del>	
5% queue length	0.00	0.01	ļ	0.00			0.01	<b></b>	
ontrol Delay	7.2	7.2	<u> </u>	8.5		<b>_</b>	8.8	<u> </u>	
DS	Α	A		A			Α		
proach Delay				8.5			8.8		
oproach LOS			i	Α			Α		

<u> </u>	1 * *	O-WAY STOP			• · · · · · · · · · · · · · · · · · · ·					
General Informati	on		Site I	nforn	nation					
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20 AM Peak		Interse Jurisdi Analys	ection ction		Weston Ave/Clarendon Somerville, MA 2010				
Project Description :	26 Weston Aver	nue - Proj 2015 E	Build Condit	tion						
East/West Street: We	ston Avenue				Street: Clare	ndon Avent	<i>ie</i>			
Intersection Orientation	n: <i>North-South</i>	7	Study	Period	(hrs): 0.25					
Vehicle Volumes	and Adjustm	ents					***************************************			
Major Street		Northbound				Southbound				
Movement	1	2	3		4	5		6		
	L	Т	R		L	Т	T I	R		
/olume	0	0	0		0	50		7		
Peak-Hour Factor, PHF		0.85	0.85		0.85	0.85		0.85		
lourly Flow Rate, HFR		0	0		0	58		8		
Percent Heavy Vehicle	s 0				1	44				
vledian Type				Undiv	/ided					
RT Channelized			0							
anes	0	1	0		0	1		0		
Configuration	LTR				LTR			······································		
Jpstream Signal		0				0				
Minor Street		Westbound	Westbound Eastbour							
Movement	7	8	9		10	11		12		
	L	T	R		L	T		R		
/olume	0	0	0		0	o		39		
Peak-Hour Factor, PHF		0.85	0.85		0.85	0.85		0.85		
lourly Flow Rate, HFR		0	0		0	0		45		
ercent Heavy Vehicles	s 0	0	0		1	1		1		
ercent Grade (%)		0				-10	<del></del>			
lared Approach		TN			**************************************	T N		····		
torage		0	<del> </del>			0	<del></del>			
RT Channelized		<del></del>	0			<u>-</u>		0		
			_1							
anes	0		0		0	1		0		
onfiguration			<u> </u>			LTR				
elay, Queue Length,	·······				***************************************					
pproach	NB	SB	1	/Vestbo	ound		Eastbound	d		
lovement	1	4	7	8	9	10	11	12		
ane Configuration	LTR	LTR					LTR			
(vph)	0	0					45	1		
(m) (vph)	1549	1630				1	1001			
c	0.00	0.00		····			0.04			
5% queue length	0.00			······································			<del> </del>			
		0.00					0.14			
ontrol Delay	7.3	7.2					8.8	<u></u>		
OS	Α	Α					Α	1		
proach Delay		44.64					8.8			

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General Informati	on		Sito	Inform	ation			
Analyst	DRI			ection	IAUVII	Meston	Ave/Clare	ndon A
Agency/Co.	DCI			diction		Somervi		nuon A
Date Performed	10/15/20	<i>10/15/2010</i> An:		Analysis Year 2010				
Analysis Time Period								
Project Description	26 Weston Ave	nue - Proj 2015	Build Cond	ition				
East/West Street: We		<i>t</i> .			Street: Clare	ndon Aven	ue	
Intersection Orientation			Study	Period	(hrs): 0.25			
Vehicle Volumes a	and Adjustn							
Major Street		Northboun				Southbo	ound	
Movement	1 1	2	3		4	5		6
Volumo		T	F		<u> </u>	T		R
Volume Peak-Hour Factor, PHF	0	0	0		0	61		10
Реак-Hour Factor, РНЕ Hourly Flow Rate, HFR		0.85	0.8	2	0.85	0.85		0.85
Percent Heavy Vehicle		0	0		0	71	<del> </del>	11
Percent Heavy Vehicle: Median Type	s <i>O</i>			11	1 idad			
vieαian Type RT Channelized	_			Undiv	iaea	<del></del>		
_anes			0			<b>_</b>		0
_anes Configuration	0 1 T D	1	0		0	1 1		0
Jontiguration  Jpstream Signal	LTR				LTR			
Upstream Signal  Winor Street		0			*****	0	L	
	***	Westbound				Eastboo	und	
Movement	7	8	9		10	11		12
/oluma		T	R		L	T		R
/olume Peak-Hour Factor, PHF	0	0	0		0	0		10
reak-Hour Factor, PHF Hourly Flow Rate, HFR		0.85	0.88	2	0.85	0.85		0.85
Percent Heavy Vehicles		0	0		0	0		11
Percent Grade (%)	<u>,                                      </u>	0	0		1	1 1		1
		0	1			-10		
lared Approach		N				N		
torage		0				0		
RT Channelized			0					0
anes	0	0	0		0	1		0
onfiguration	<u>l</u>					LTR		
elay, Queue Length,	and Level of S	ervice						
pproach	NB	SB		Westbo	und	T	Eastbound	<del></del>
lovement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR	<u> </u>	t – Ť	<del>-  </del>		LTR	1
(vph)	0	0				+	11	+
(vph) (m) (vph)	1528	<del></del>	<b></b>	<u></u>			·	<del></del>
		1630	<u> </u>	<b> </b>		<b></b>	984	<b>-</b>
C	0.00	0.00		<b></b>			0.01	<b> </b>
5% queue length	0.00	0.00				1	0.03	
ontrol Delay	7.4	7.2					8.7	<u> </u>
OS .	Α	А					Α	
proach Delay							8.7	
proach LOS			<u> </u>	····			A	
ghts Reserved			L			<u> </u>		

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Version 4 1d

General Informati	on		Site	Informa	ation			
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/20		Interse Jurisd	ection		Weston Somervi 2010	Avenue/S lle, MA	Site Dr
Project Description .		iue - Proj Build 2	2015 Condi	tion				
East/West Street: Site					reet: West	on Avenue		
Intersection Orientation	· · · · · · · · · · · · · · · · · · ·		Study	Period (I	nrs): 0.25			
Vehicle Volumes	and Adjustm	ents						
Major Street		Northbound				Southbo	und	
Movement	1	2	3		4	5		6
	<u> </u>	T	R		<u>L</u>	Т		R
Volume	0	15	0		1	26		0
Peak-Hour Factor, PHF		0.85	0.85	2	0.85	0.85		0.85
Hourly Flow Rate, HFR		17	0		11	30		0
Percent Heavy Vehicle	s 1				1			<del></del>
Median Type RT Channelized				Undivid	aed	<del></del>	<del></del>	
anes	1 0		0			<del>                                     </del>		<u>0</u>
		1 1	0		0	1		U
Configuration	LTR				LTR	<del> </del>		·····
Jpstream Signal		0				0		***************************************
Minor Street		Westbound				Eastbo	und	
Movement	7	8	9		10	11		12
1.1	L.	T	R		<u> </u>	T		R
Volume	1	0	5		0	0		0
Peak-Hour Factor, PHF		0.85	0.85	)	0.85	0.85		0.85
Hourly Flow Rate, HFR Percent Heavy Vehicle:		0	5 0		0	0		0
······································	5 /	1	0		U	<del> </del>		U
Percent Grade (%)		0	<u> </u>		*****************	0		······································
lared Approach		N				N		
Storage		0			*************	0		
RT Channelized			0					0
anes	0	1	0		0	0		0
Configuration		LTR						
elay, Queue Length,	and Level of S	ervice						
pproach	NB	SB	,	Westbou	nd		Eastbour	nd
/lovement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR				
(vph)	О	1		6				
(m) (vph)	1589	1607		1029			<del>                                     </del>	
/c	0.00	0.00		0.01			<b> </b>	
5% queue length	0.00	0.00		0.02		<del> </del>	<del> </del>	
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· · · · · · · · · · · · · · · · · · ·	7.3	7.2		8.5		<u> </u>		
os	<u> </u>	<u> </u>		Α			<u> </u>	
pproach Delay	***			8.5				
oproach LOS				Α				

HCS2000<sup>TM</sup>

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General Informat	ion		Sita	Informa	tion			
Analyst Agency/Co. Date Performed Analysis Time Period	DRI DCI 10/15/2		Inters Juris	section diction sis Year	tion	Weston Somervi 2010	Avenue/ ille, MA	Site Dr
Project Description			2015 Cond	lition		···········		
East/West Street: Sit	e Dr	nac - r roj bana 2			eet Mesi	on Avenue		
Intersection Orientatio		h		Period (h		on Avenue	•	~~~
Vehicle Volumes	and Adjustn	nente						
Major Street	ana rajaoth	Northbound	1			Southbo	und	
Movement	1	2	1 3	}	4	5	70110	6
	Ĺ		F		L	T		R
Volume	0	14	1		5	6		0
Peak-Hour Factor, PHI		0.85	0.8	5	0.85	0.85		0.85
Hourly Flow Rate, HFR		16	1		5	7		0
Percent Heavy Vehicle	s 1				1	***		
Median Type				Undivide	ed			
RT Channelized			0					0
anes	0	1	0		0	1		0
Configuration	LTR				LTR			
Jpstream Signal		0				0		
Minor Street		Westbound				Eastboi	ınd	
Movement	7	8	9		10	11		12
	L	T	R		L	Т		R
/olume	0	0	3		0	0		0
eak-Hour Factor, PHF		0.85	0.8	5	0.85	0.85		0.85
lourly Flow Rate, HFR		0	3		0	0		0
ercent Heavy Vehicles	s <u>1</u>	1	0		0	0		0
ercent Grade (%)		0				0		
lared Approach		N				N		
torage		0				0		
T Channelized			0					0
anes	0	1	0		0	0		0
onfiguration		LTR			•••		1	
elay, Queue Length,	and Level of S	ervice					***************************************	***************************************
pproach	NB	SB		Westboun	d		Eastbou	nd
ovement	1	4	7	8	9	10	11	12
ane Configuration	LTR	LTR		LTR	<b> </b>	<del>                                     </del>	<del> </del>	
(vph)	0	5		3	<del>                                     </del>		<del>                                     </del>	
(m) (vph)	1620	1607		1047	<del>                                     </del>		<b></b>	
C (451)	0.00	0.00		0.00	<del> </del>	<u> </u>	<u> </u>	
5% queue length	0.00						<b></b>	
		0.01	~~~~~~~~~~~~ <u>~~~~</u>	0.01	<b> </b>			
ontrol Delay	7.2	7.2		8.4	<u> </u>		ļ	
DS .	<u> </u>	Α		A	<u> </u>		<u> </u>	
proach Delay	***			8.4	<b>.</b>			
proach LOS				Α		1		

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## Residential Condominium/Townhouse

(230)

Average Vehicle Trip Ends vs: Dwelling Units

On a: Weekday

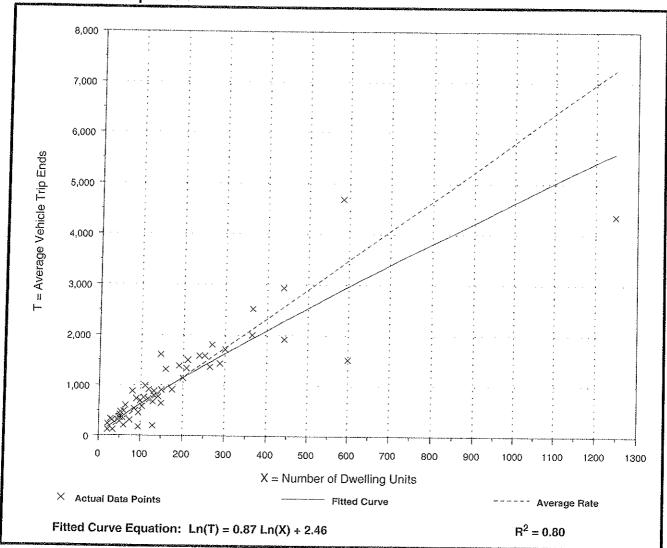
Number of Studies: 56 Avg. Number of Dwelling Units: 179

Directional Distribution: 50% entering, 50% exiting

#### Trip Generation per Dwelling Unit

	Average Rate	Range of Rates	Standard Deviation
i	5.81	153 - 1179	3.11

**Data Plot and Equation** 



# Residential Condominium/Townhouse

(230)

Average Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic, One Hour Between 7 and 9 a.m.

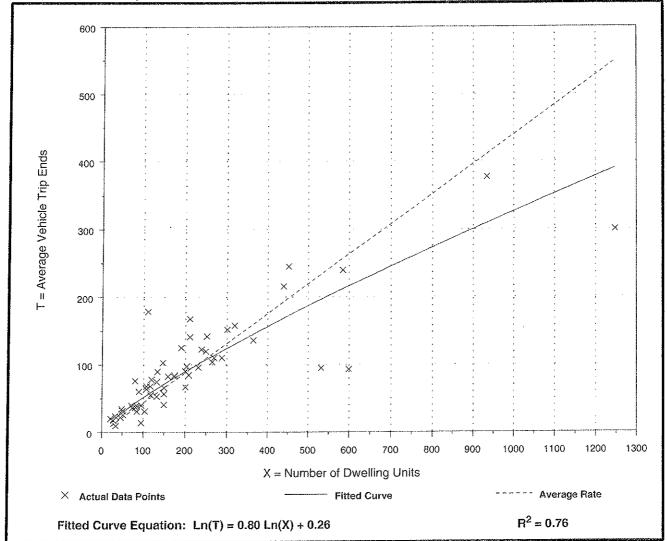
Number of Studies: 59 Avg. Number of Dwelling Units: 213

Directional Distribution: 17% entering, 83% exiting

#### **Trip Generation per Dwelling Unit**

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.61	0.69





# Residential Condominium/Townhouse

(230)

Average Vehicle Trip Ends vs: Dwelling Units

Weekday, On a:

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Number of Studies:

62

Avg. Number of Dwelling Units: 205

Directional Distribution: 67% entering, 33% exiting

## Trip Generation per Dwelling Unit

	3c	
Average Rate	Range of Rates	Standard Deviation
0.52	0.19	Grandard Deviation
	0.16 - 1.24	0.75

### **Data Plot and Equation**

