Design Consultants, Inc.

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MEMORANDUM

TO: John Langone, Boston Real Estate Collaborative LLC

CC:

FROM: David Giangrande, M.S., P.E.

SUBJECT: **Parking & Trip Generation Study**

DATE: January, 12 2015

Design Consultants Inc (DCI) has been retained by the Boston Real Estate Collaborative LLC to evaluate the transportation and parking impacts of the proposed project at 290 Highland Avenue in Somerville, Massachusetts. The current proposal calls for the redevelopment of an existing 1,126 square feet convenience store. The first floor will have 1,620 square feet of commercial space and floors two through four will contain seven units of condominiums. A project locus map of the Site is shown in Figure 1.

This memorandum serves to identify that 290 Highland Avenue redevelopment project provides adequate parking to satisfy the proposed redevelopment and that the site will not have an adverse traffic impact or an adverse impact on the surrounding neighborhood's on-street parking supply. The following characteristics of the Site and the study area are analyzed and discussed.

- Proximity to Public Transit;
- Mode Choice;
- On-Street Parking Utilization; and,
- Negligible Trip Generation

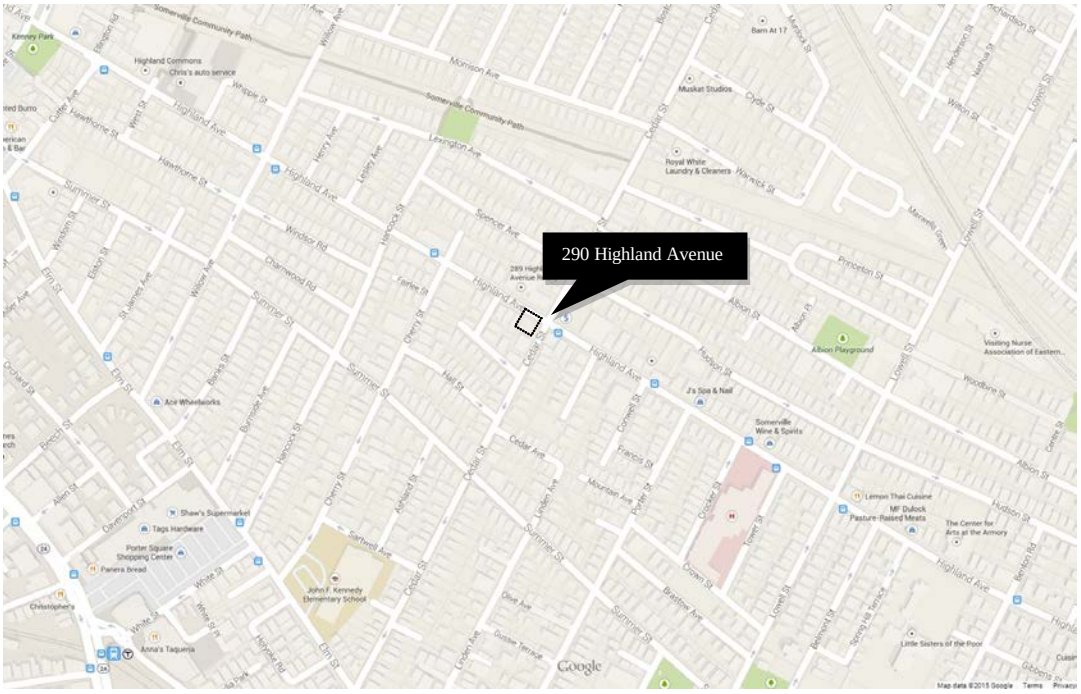

Figure 1 Project Locus Map

Proximity to Public Transit

The site is conveniently situated close to public transportation. It is served by MBTA Bus Route 88 and 90. The site is approximately 0.6 mile away from the MBTA Porter Square Transit Station which serves the MBTA Commuter Rail Fitchburg Line and the MBTA Subway Red Line. It is approximately 0.6 mile away from the MBTA Davis Square Station which serves the MBTA Subway Red Line, an important commuter route to Cambridge, Boston, and Quincy

The Green Line Extension (GLX) project will have a proposed transit station at Lowell Street approximately 0.5 mile away. The Lowell Street Station is expected to be complete by 2019. This project will extend the existing MBTA Green Line service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and College Avenue in Medford. This project is a major transportation priority of the Commonwealth and will offer a "one-seat" ride along the project corridor to downtown Boston. It will eliminate the need for transfers at Lechmere Station and at Orange Line and Red Line Stations, improving travel times within the project corridor. The new transit station will meet or exceed the Americans with Disabilities Act (ADA) standards. Mitigation measures during construction will reduce existing noise and vibration impacts from area railroads. Once completed, trains will operate every five to six minutes in the peak periods, providing fast and efficient service to downtown Boston.

Mode Choice

Local transportation data for the area encompassing 290 Highland Avenue was obtained and analyzed using information from the US Census Bureau and the latest American Community Survey (ACS) 5-Year Estimate (2009-2013).

290 Highland Avenue is located in Census Track 3510. Census Tracts are small, relatively permanent statistical subdivisions of a county or equivalent entity that are updated by local participants prior to each decennial census as part of the Census Bureau's Participant Statistical Areas Program. Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people.

According the 2009-2013 ACS data for Census Tract 3510, approximately 19.9% of the local population have no automobile. The vehicle ownership data for Census Tract 3510 is summarized in Table 1 and Figure 2.

Table 1: Vehicle Ownership Summary (2009-2013 ASC Data)

Automobile Ownership	US	Massachusetts	290 Highland Ave Census Tract 3510
0 Vehicles	4.4%	5.8%	19.9%
1 Vehicle	21.4%	23.9%	47.6%
2 Vehicles	42.3%	44.0%	26.3%
3+ Vehicles	31.9%	26.3%	6.2%
Total	100.0%	100.0%	100.0%

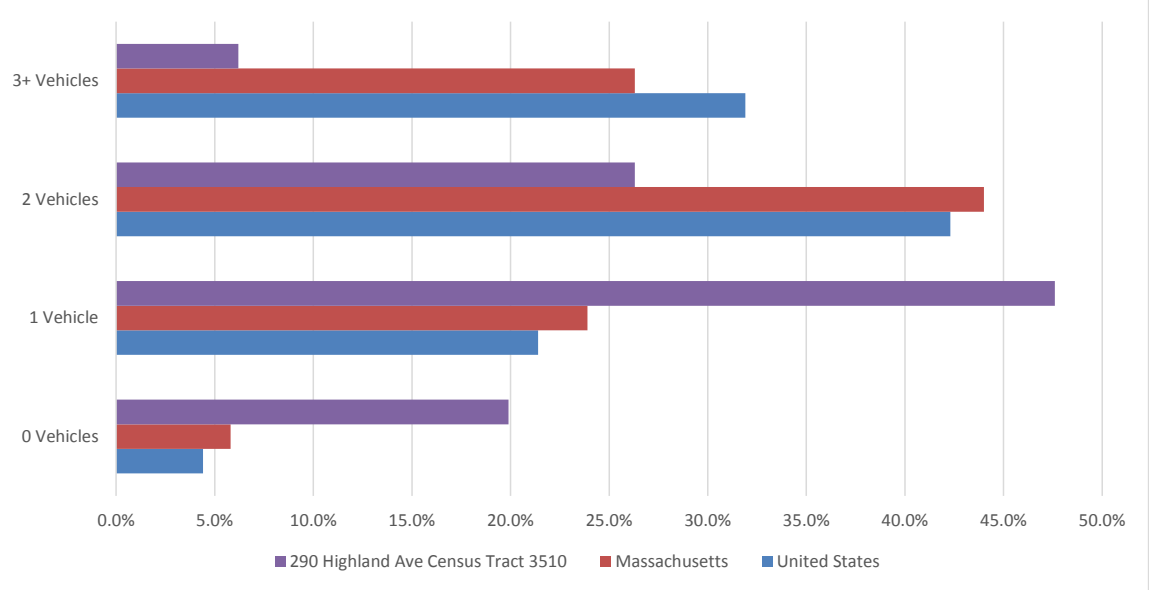

Figure 2: Vehicle Ownership Summary (2009-2013 ASC Data)

As summarized in Table 1, 290 Highland Avenue located in an area where vehicle ownership for occupied housing units is not as prevalent compared to the state and the nation. For the entire nation and the State of Massachusetts, 95% and 94% of occupied housing units have access to at least 1 automobile, respectively. For the local community that encompasses 290 Highland Avenue, 80% of occupied housing units have at least 1 automobile.

In terms of mode split for the commute to work, approximately 65.5% of the local working community commute to work without use of an automobile. Approximately 43% of the local working community use transit and 20.1% walk or bicycle to work. 2.4% of the local working population in the area of 290 Highland Avenue work from home. The mode split data for Census Tract 3510 is summarized in Table 2 and Figure 3.

Table 2: Mode Split for the Commute to Work (2009-2013 ASC Data)

Commuting to Work	US	Massachusetts	290 Highland Ave Census Tract 3510
Car, truck, or van -- drove alone	76.3%	72.1%	28.6%
Car, truck, or van -- carpooled	9.8%	7.9%	5.9%
Public transportation (excluding taxicab)	5.0%	9.3%	43.0%
Walked	2.8%	4.7%	12.8%
Other means	1.8%	1.6%	7.3%
Worked at home	4.3%	4.3%	2.4%

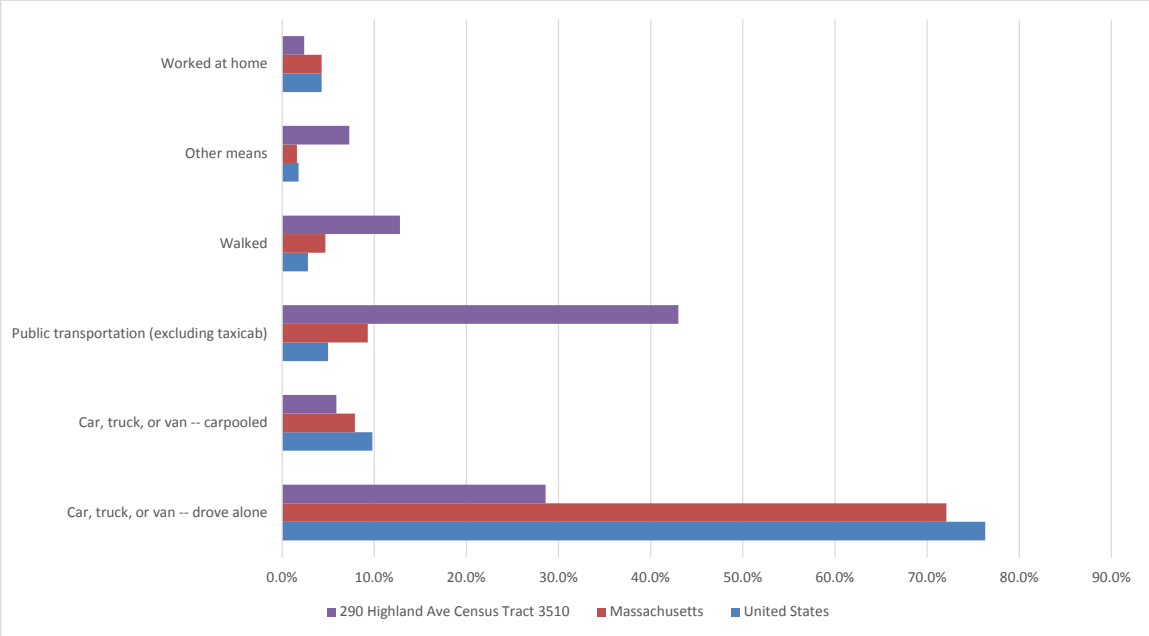

Figure 3: Mode Split for the Commute to Work (2009-2013 ASC Data)

Existing On-Street Parking Utilization

The study area included all on-street parking in the vicinity of 290 Highland Avenue within 500 linear feet. DCI performed a parking survey of all available on-street parking areas to determine the existing parking utilization. The study area included the following roadways:

- Highland Avenue from Cherry St to Conwell St;
- Cedar Street from Lexington Ave to Hall St;
- Aberdeen Road from Highland Ave to Cedar St;

- Eastman Road (Dead-end Street)
- Spencer St From 18 Spencer St to Cedar St; and,
- Hudson St from 166 Hudson St to Cedar St;

This study area is shown in Figure 4.

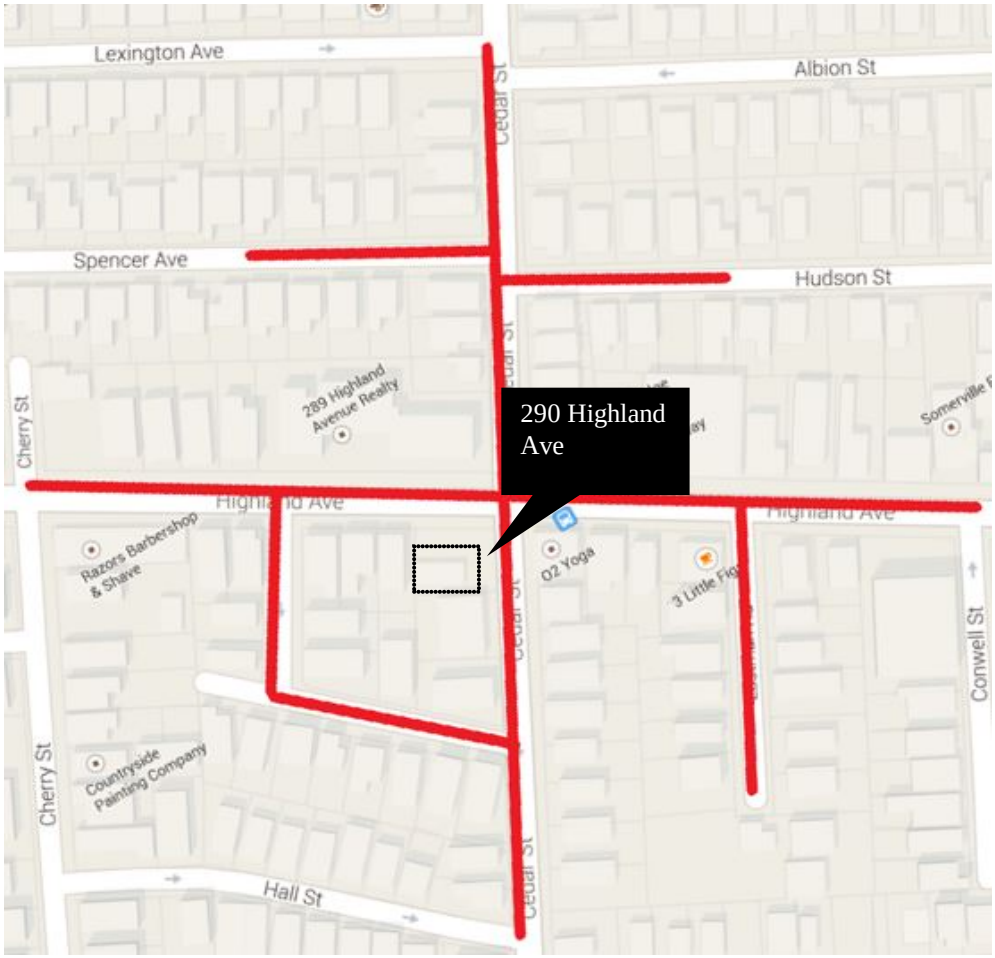

Figure 4: Project Study Area

On-Street Parking Inventory

DCI recorded the number of available parking spaces in the study area streets during a typical weekday and during a typical Saturday. The parking data were collected during the following time periods:

- Thursday, January 8, 2015 (12:00 – 2:00 PM)
- Thursday, January 8, 2015 (5:00 – 7:00 PM)
- Saturday, January 10, 2015 (11:00 – 2:00 PM)

The results of the parking surveys are summarized in Table 3. Detailed tables with the complete parking survey data are contained in the attached Appendix. As indicated by the parking survey summary, an average of 57 parking spaces were available during the weekday mid-day period (12:00 PM to 2:00 PM). An average of 48 parking spaces were available during the weekday evening period (5:00 PM to 7:00 PM). On Saturday, during the mid-day observation period (11:00 AM to 2:00 PM), an average of 33 parking spaces were available. The results of this parking survey indicate that there is a substantial amount of under-utilized permit parking spaces spread amongst the study area streets. There are four off-street parking spots in front of the convenience store and three off-street Zipcar parking spots at the side of the convenience store.

Table 3: Parking Survey Summary

	Street	Side	From	To	Parking Notes/Type	Total No. of Spaces	Avg. Number of Cars Parked		
							Weekday		Saturday
							Afternoon	Evening	Afternoon
1	Highland Avenue	West	Cherry St	Cedar St	2HR Parking except by Permit	34	21	19.5	23.0
		East	Cedar St	Conwell St	2HR Parking except by Permit	25	14.5	8.5	21.3
					Handicap Parking	2	0.5	0	1.0
					30MIN Parking	2	2	0.5	2.0
2	Cedar Street	North	Highland Ave	Lexington Ave	Permit Only	8	0.5	0	4.3
		South	Highland Ave	Hall St	Permit Only	17	7.5	14	13.7
3	Aberdeen Road	N/S	Highland Ave	Aberdeen Rd	Permit Only	12	9	10	10.7
		E/W	Aberdeen Rd	Cedar St	Permit Only	16	11.5	10	15.0
4	Eastman Road	N/S	Highland Ave	End of St	Permit Only	22	8.5	9	12.3
5	Spencer Avenue	West	Cedar St	18 Spencer Avenue	Permit Only	19	12.5	15	15.0
6	Hudson Street	East	Cedar St	166 Hudson St	Permit Only	18	6	6	7.7
					Gross Totals	175	94	93	126
					Permit Parking Only Total	112	56	64	79
					Number of Permit Parking Spaces Available		57	48	33
					% of Permit Parking Spaces Available		50%	43%	30%

Trip Generation

The site currently serves Qwik Mart, a convenience store. This redevelopment will consist of a total of 7 residential condos and 1,620 square feet of commercial space. No tenants have been secured yet, but it is assumed that the proposed development will be a non-food retail. These calculations are based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition, 2012). Detailed trip-generation calculations are in the appendix attached to this memorandum.

For the existing site, ITE Land Use Code 852 was used for the convenience store. For the proposed redevelopment, DCI went through all the options for non-food retails listed in Trip Generation Manual (9th Edition, 2012) and went for a worst case scenario for the non-food commercial space. As indicated in Table 4, the project as currently proposed is expected to generate approximately 15 trips during the weekday morning peak hour, 17 vehicle-trips during the weekday afternoon peak hour, 140 vehicle-trips on a weekday daily basis, 35 vehicle-trips during the Saturday midday peak hour and 246 vehicle-trips on the Saturday daily basis.

Table 4: Net Trip Generation

	AM Peak	PM Peak	Weekday	Sat.Midday Peak	Sat.Daily
Existing Trips					
Total Trips	34	38	442	46	516
Entering Trips	17	19	221	23	258
Exiting Trips	17	19	221	23	258
Proposed Trips					
Total Trips	15	17	140	35	246
Entering Trips	12	9	70	17	123
Exiting Trips	15	8	70	18	123
Net Total Trips	-19	-21	-302	-11	-270
Net Entering Trips	-5	-10	-151	-6	-135
Net Exiting Trips	-2	-11	-151	-5	-135

As shown in Table 2, the proposed redevelopment is expected to generate less traffic at the site compared to existing conditions for a typical weekday AM and PM Peak hour.

Conclusion

This memorandum determined that the redevelopment project at 290 Highland Avenue will have negligible impact on the surrounding area's permit parking supply. The factors that serve to justify the requested special permits and parking variance includes the creation of six (6) parking spaces in the rear of the building for its residents and three (3) new on-street parking spaces. The existing four (4) off-street parking spots that are in front of the convenience store and the current curb cuts will be eliminated. Those three new spots are proposed to have 30 minutes limitations during the day. Overnight parking is proposed to be limited to residents only. Key factors also include local mode choice, low car ownership, current levels of on-street permit parking availability, the negligible trip generation impact, and proximity to transit and the future Green Line Extension Station

During weekday mid-day, weekday evening, and Saturday midday hours there were between 33 and 57 parking spaces available within approximately 500 feet of site. Additionally, the newly provided on-street parking will serve the surrounding neighborhood since they will be available to all residential permit parking holders. No parking shortage is predicted.

Because use is changing from food-use (convenience store) to non-food use, the proposed redevelopment is expected to generate less traffic at the site compared to the current convenience store. No adverse traffic impact is predicted.

Appendix

Parking Survey Data Sheets & Calculations

Trip Generation Analysis

Design Consultants, Inc.
Parking Survey

Site Location:	290 Highland Avenue	Project No:	
City:	Somerville, MA	Sheet No.:	
Date:	Thursday, 8 January 2015	Field Tech:	FP
Weather:	Sunny	Notes:	

	Street	Side	From	To	Parking Notes/Type	Total No. of Spaces	Number of Cars Parked			
							Weekday			
							12-1 PM	1-2 PM	5-6 PM	6-7 PM
1	Highland Avenue	West	Cherry St	Cedar St	2HR Parking except by Permit	34	23	19	19	20
		East	Cedar St	Conwell St	2HR Parking except by Permit	25	18	11	9	8
					Handicap Parking	2	1	0	0	0
					30MIN Parking	2	2	2	1	0
2	Cedar Street	North	Highland Ave	Lexington Ave	Permit Only	8	1	0	0	0
		South	Highland Ave	Hall St	Permit Only	17	7	8	14	14
3	Aberdeen Road	N/S	Highland Ave	Aberdeen Rd	Permit Only	12	9	9	10	10
		E/W	Aberdeen Rd	Cedar St	Permit Only	16	11	12	10	10
4	Eastman Road	N/S	-	-	Permit Only	22	10	7	9	9
5	Spencer Avenue	West	Cedar St	18 Spencer Avenue	Permit Only	19	11	14	15	15
6	Hudson Street	East	Cedar St	166 Hudson St	Permit Only	18	6	6	6	6

Design Consultants, Inc.
Parking Survey

Site Location:	290 Highland Avenue	Project No:	
City:	Somerville, MA	Sheet No.:	
Date:	Saturday, 10 January 2015	Field Tech:	FP
Weather:	Sunny	Notes:	

	Street	Side	From	To	Parking Notes/Type	Total No. of Spaces	Number of Cars Parked		
							Saturday		
							11-12 AM	12-1 PM	1-2 PM
1	Highland Avenue	West	Cherry St	Cedar St	2HR Parking except by Permit	34	26	22	21
		East	Cedar St	Conwell St	2HR Parking except by Permit	25	20	22	22
					Handicap Parking	2	1	1	1
					30MIN Parking	2	2	2	2
2	Cedar Street	North	Highland Ave	Lexington Ave	Permit Only	8	4	5	4
		South	Highland Ave	Hall St	Permit Only	17	13	14	14
3	Aberdeen Road	N/S	Highland Ave	Aberdeen Rd	Permit Only	12	10	10	12
		E/W	Aberdeen Rd	Cedar St	Permit Only	16	15	15	15
4	Eastman Road	N/S	-	-	Permit Only	22	13	12	12
5	Spencer Avenue	West	Cedar St	18 Spencer Avenue	Permit Only	19	14	16	15
6	Hudson Street	East	Cedar St	166 Hudson St	Permit Only	18	9	8	6

Design Consultants, Inc.
Jan-15
290 Highland Avenue, Somerville, MA
Preliminary Trip Generation Calculations
Based on ITE's Trip Generation Manual, 9th Edition (2012)

Proposed Land Use

Land Use:232, High-Rise Residential Condominium/Townhouse

number of units: 7 units

	AM	PM	Weekday Daily	Sat. Midday Peak	Sat. Daily
Average Rate (per 1,000 SF)	0.34	0.38	4.18	0.35	4.31
muliply by	7	7	7	7	7
Total Trips	2	3	29	2	30
Entering%	19%	62%	50%	43%	50%
Exiting%	81%	38%	50%	57%	50%
Entering Trips	0	2	15	1	15
Exiting Trips	2	1	15	1	15

Land Use: Non-food retail

gross leasable are: 1620 SF

	AM	PM	Weekday Daily	Sat. Midday Peak	Sat. Daily
Average Rate (per 1,000 SF)	8.00	9.04	68.10	20.06	133.31
muliply by	1.62	1.62	1.62	1.62	1.62
Total Trips	13	15	110	32	216
Entering%	50%	49%	50%	50%	50%
Exiting%	50%	51%	50%	50%	50%
Entering Trips	12	7	55	16	108
Exiting Trips	13	7	55	16	108

Existing Land Use

Land Use:852, Convenience Market (Open 15-16 Hours)

gross leasable are: 1126 SF

	AM	PM	Weekday Daily	Sat. Midday Peak	Sat. Daily
Average Rate (per 1,000 SF)	31.02	34.57	401.42	41.94	469.47
muliply by	1.1	1.1	1.1	1.1	1.1
Total Trips	34	38	442	46	516
Entering%	50%	49%	50%	50%	50%
Exiting%	50%	51%	50%	50%	50%
Entering Trips	17	19	221	23	258
Exiting Trips	17	19	221	23	258