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June 14, 2011

Strategic Capital Group, LLC  
1264 Main Street  
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Attn: Roberto Arista

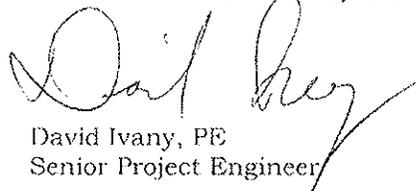
**RE: Traffic Impact Assessment  
351 Summer Street  
Somerville, MA**

Dear Roberto:

This letter confirms that Design Consultants, Inc. (DCI) prepared the Traffic Impact Report dated June 2010. This report was based on the development plan submittal at that time. An Addendum Report was subsequently prepared by DCI dated February, 2011 that updated the 2010 report with findings that reflect the current plans under consideration by the ZBA.

If you have any questions pertaining to this subject, please contact me at 617.776.3350, ext. 107.

Sincerely,  
**DESIGN CONSULTANTS, INC.**



David Ivany, PE  
Senior Project Engineer

**TRAFFIC IMPACT ASSESSMENT**

**351 SUMMER STREET  
SOMERVILLE, MA**

**JUNE, 2010**

Prepared for

**Strategic Capital Partners, LLC**

Prepared by

**Design Consultants, Inc.**

265 Medford Street  
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## Table of Contents

	<u>Page</u>
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 Traffic Volumes.....	7
7.0 Existing Traffic Operations.....	9
8.0 Accident Data.....	11
9.0 Future Traffic Volumes.....	11
10.0 Trip Generation and Distribution .....	11
11.0 Traffic Impacts .....	13
12.0 Sight Distance.....	15
13.0 Conclusions.....	15

## List of Figures

- Figure 1 – Locus Map
- Figure 2 – Existing Peak Hour Traffic Volumes
- Figure 3 – 2014 “No-Build” Peak Hour Traffic Volumes
- Figure 4 – Site Trip Distribution
- Figure 5 – Site Generated Peak Hour Trips
- Figure 6 – 2014 “Build” Peak Hour Traffic Volumes

## **Executive Summary**

This report assesses the traffic impacts associated with the proposed development of 31 residential condominiums to be located at 351 Summer Street in Somerville, MA. The report evaluates the projects traffic impacts on the following study area intersections:

- Summer Street/Site Driveways
- Summer Street/Cutter Avenue
- Summer Street/Willow Avenue
- Willow Avenue/Highland Avenue

The study includes an inventory and analysis of existing conditions, an estimation of site generated traffic and an evaluation of future 2014 design year 'No-Build' and 'Build' conditions at the studied intersections.

The proposed development will generate 20 vehicle trips in the AM peak hour, 22 in the PM peak hour and 225 trips daily. This includes trips generated by the potential office use for the space vacated by the Dilboy Post at 361 Summer Street. 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 Summer Street and the surrounding roadways. No changes in Level of Service will occur at the study area intersections. Analysis shows that the increase in average delays will be one second or less for all traffic movements.

Peak hour directional site traffic (12 vehicles per hour) will amount to approximately one vehicle every five minutes along Summer Street for the proposed residential use. It should also be noted that these peak hour site trips are expected to be reduced due to the nearby MBTA Red Line station at Davis Square that will encourage both residents and workers 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 31 residential condominiums to be located at 351 Summer Street 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:

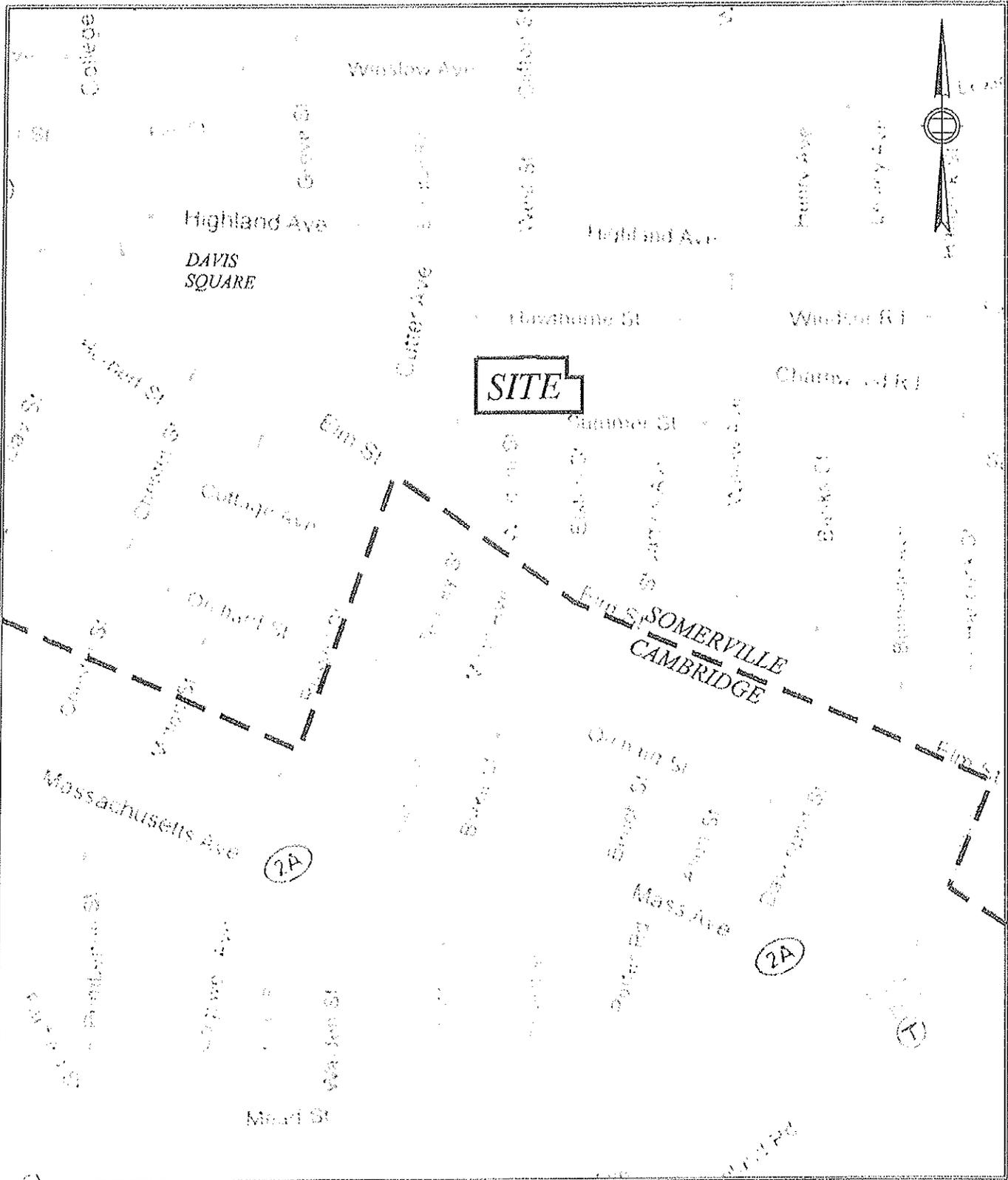
- An inventory and analysis of existing conditions for the study area intersections
- An estimation of daily and peak hour trips generated by the proposed development
- The distribution of AM and PM peak hour site generated traffic at the study area intersections
- An evaluation of future 2014 'No-Build' and 'Build' conditions at the study area intersections

## **3.0 Proposed Development**

The project proponent proposes to construct 31 residential condominiums located on the north side of Summer Street, east of Cutter Avenue in Somerville, MA. (See Figure 1 – Locus Map). The development site consists of two lots. The new development will be constructed on the west lot that is currently used for parking by the George Dilboy VFW Post (at adjacent 371 Summer Street). Development on the east lot (currently vacant) will include a new parking area and building for the relocated George Dilboy VFW Post. It is therefore expected that current activities for the parking lot in relation to the surrounding street network will remain unchanged.

The proposed development plan provides for three separate curb cuts onto Summer Street as follows:

- West Driveway accessing underground resident parking – a total of 45 parking stalls.
- East Driveway accessing rear surface parking on the west lot – a total of 44 parking spaces (for combined Dilboy Post, commercial users and resident visitors) and accessing 19 parking spaces for the new Dilboy Post building on the east lot.



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351 SUMMER ST  
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LOCUS PLAN

FIGURE 1

### *Dilboy Post Activity*

The post runs approximately 170 events per year in their hall (which translates to an average of 14 events per month). These events range from community service fundraisers (like Habitat for Humanity and Avon walk for cancer) to birthday parties, christenings, communions, graduations, reunions, and funerals to a once a year beer and honk festival. The hall is also a polling station. Except for very few annually scheduled events, the rest are all booked on a first-come-first serve basis, a few weeks or a few days in advance. The great majority of event have no more than 80 guests, but they range from 20 to over 100 guests. The Post also runs a club where members gather for cards and other games. The club is frequented every day almost without exception by small gatherings. They have a license to serve liquor.

Closing time is 1 AM, but most often they close earlier.

Parking for the existing Dilboy Post is provided on the west lot with entries/exits via the existing 2 driveways off Summer Street. The relocated facility will continue to have access off Summer Street only.

## **4.0 Study Area**

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

- Summer Street/Site Driveways
- Summer Street/Cutter Avenue
- Summer Street/Willow Street
- Willow Street/Highland Avenue

The Summer Street/Site Driveway intersections are unsignalized while the three off-site locations are traffic signal controlled. See Figure 2 for study area intersections.

## **5.0 Roadway Network**

Highland Avenue is a two-lane undivided minor arterial with on-street parking that provides an east-west connection through the City of Somerville between Davis Square and Route 28/McGrath Highway. In Davis Square, Highland Avenue is one-way westbound, beginning at its intersection with Cutter Avenue.

Elm Street is a two-lane undivided major collector roadway with on-street parking that extends southeast from Davis Square connecting to Somerville Avenue, a distance of about one mile. The street is also one-way in Davis Square, allowing for southeast movements to its intersection with Cutter Avenue.

Cutter Avenue is a one-way collector roadway that provides for northbound traffic circulation between Elm Street and Highland Avenue, as well as metered parking on both sides of the street (due to the proximity of Davis Square).

Willow Avenue is a one-way collector roadway that similarly provides for northbound traffic circulation between Elm Street and Highland Avenue, as well as residential parking on both sides of the street. Willow Avenue extends north as a two-way collector, connecting to Broadway.

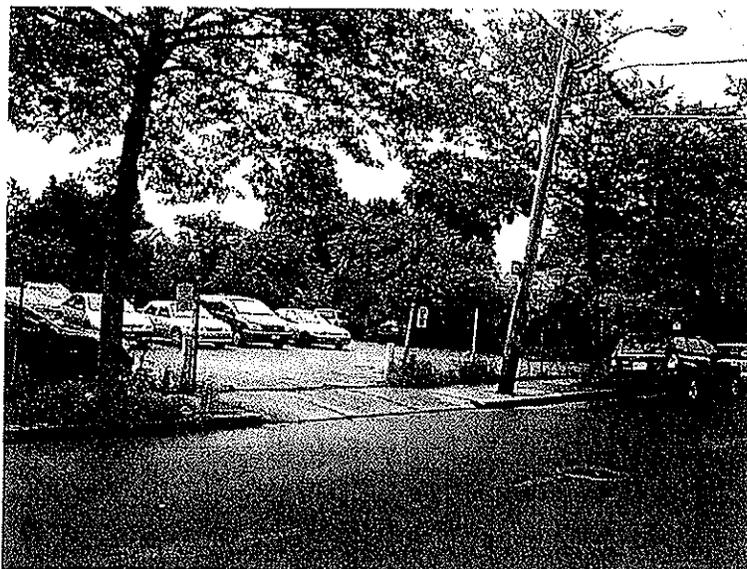
Summer Street is a collector street that extends easterly as a one-way street from Elm Street to Willow Avenue, with metered parking on both sides. East of Willow Avenue Summer Street extends as a two-way local/collector, connecting to Bow Street in Union Square, as distance of about 1 ¼ miles. At the project site, Summer Street is 29 feet wide with 7 to 8 foot wide sidewalks on both sides. The posted speed limit is 25 mph.

All of the above-noted streets are under the jurisdiction of the City of Somerville.



*Existing West Site Driveway*

Approximately 225 feet east of the proposed access to the project site is the Summer Street/Cutter Avenue intersection. This 4-legged intersection of two one-way streets is traffic signal controlled. Summer Street is 24 feet wide west of the intersection, providing for a separate left turn movement onto Cutter Avenue. The Cutter Avenue approach is 27 feet wide, allowing for separate through and right turn movements. Signal phasing is two phase for vehicles and an exclusive pedestrian crossing phase. Abutting land uses are mixed with a pizza outlet on the southeast corner, bank on the northeast corner, a proposed mixed use site on the northwest corner and a municipal parking lot (metered) on the southwest corner. The signal timing is pre-timed and interconnected with the nearby traffic signal at Elm and Cutter Avenue.



*Existing East Site Driveway*

Approximately 500 feet east of the proposed east site drive is the Summer Street/Willow Avenue intersection. This 4-legged intersection is traffic signal controlled. Signal phasing is two phase (pre-timed) for vehicles and an exclusive pedestrian crossing phase. The eastbound Summer Street approach is 30 feet wide, allowing for a separate through and left turn lane. The Willow Avenue approach is 33 feet wide, providing for a single approach and departure lane with parking on both sides. The Summer Street westbound approach allows for right turns only. Land use in the vicinity is residential.



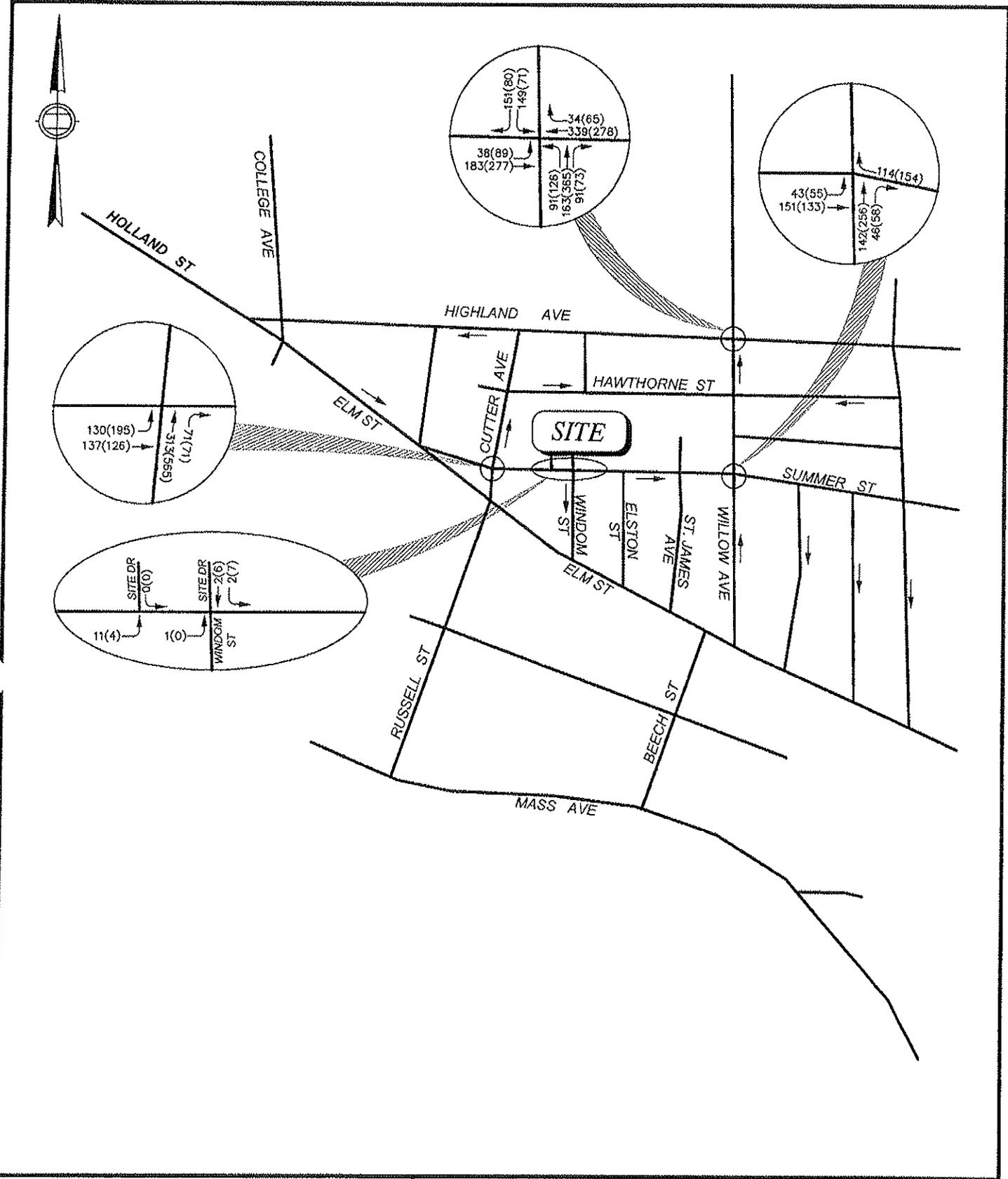
*Summer Street @ Cutter Avenue*

Approximately 400 feet north of the Summer Street/Willow Avenue intersection is the intersection of Willow Avenue with Highland Avenue. This 4-way intersection is signalized and provides for one general purpose lane for the northbound Willow Avenue approach due to adjacent curbed parking near the intersection. Each of the Highland Street approaches similarly allow for a single general-purpose lane. The southbound Willow Avenue approach is a single lane allowing left or right turn movements. Signal phasing is two phase (actuated) for vehicles and an exclusive pedestrian crossing phase. Land use along Highland Street is mainly commercial while Willow Avenue is residential.

## **6.0 Traffic Volumes**

Traffic volumes were recorded at the study area intersections from 7-9 AM and 4-6 PM on typical weekdays during the month of July, 2009. Verification counts were undertaken in February, 2010, as well as supplemental bicycle/pedestrian counts in June, 2010. This count data is provided in Appendix A.

The recorded summer peak hour volumes were adjusted for the peak fall season when students (as well as most workers) are in the city. The resulting 2009 peak hour volumes are shown in Figure 2. They reflect a 10% increase over the summer season counts for the Summer Street intersections and the higher February, 2010 count for the intersection of Willow and Highland Avenue. This represents a conservative 'worst case' for analysis as requested by the Somerville Traffic and Parking Department.



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EXIST 2009 PEAK HOUR  
 TRAFFIC VOLUME  
 AM(PM)

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 2009 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 SYNCHRO and HCS analysis software.

Definitions of Levels-of-Service at signalized and 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.
B	> 10-20	Good progression and/or short cycle lengths; more vehicle stops.
C	> 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.
E	> 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
B	> 10-15	Short traffic delays
C	> 15-25	Average traffic delays
D	> 25-35	Long traffic delays
E	> 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**

<b>UNSIGNALIZED INTERSECTIONS</b>						
Location/Movement	Existing Condition					
	AM Peak Hour			PM Peak Hour		
	Delay (2)	LOS (3)		Delay	LOS	
<b>Summer/West Site Dr</b>						
Driveway exit	10.0-	A		9.7	A	
<b>Summer/East Site Dr</b>						
Driveway exit	9.8	A		9.9	A	
<b>SIGNALIZED INTERSECTIONS</b>						
	V/C	Delay	LOS	V/C	Delay	LOS
<b>Summer/Cutter</b>						
Summer EB Left/Thru	.33	31.8	C	.36	31.5	C
Cutter NB Thru/Right	.28	8.0	A	.51	10.5	B
OVERALL	.29	17.8	B	.45	17.6	B
<b>Summer/Willow</b>						
Summer EB Left/Thru	.21	7.4	A	.18	7.2	A
Summer WB Right	.15	19.0	B	.24	19.0	B
Willow NB Thru/Right	.27	8.1	A	.45	9.7	A
OVERALL	.24	10.3	B	.32	11.2	B
<b>Willow/Highland</b>						
Highland EB Left/Thru	.46	14.2	B	.82	29.9	C
Highland WB LTR	.68	18.0	B	.58	14.4	B
Willow NB LTR	.44	7.8	A	.72	15.3	B
Willow SB Left/Right	.43	5.8	A	.24	4.6	A
OVERALL	.52	10.5	B	.76	15.0	B

- (1) Volume/Capacity Ratio
- (2) Control Delay in Seconds
- (3) Level-of-Service

As indicated in Table A, the unsignalized site drive intersections on Summer Street operate at a Level-of-Service 'A' in the AM and PM peak hours.

At the signalized intersections within the study area, all traffic movements are LOS 'B' or better with the exception of the following approach locations/peak hour time periods:

- o The eastbound approach along Summer Street at Cutter Avenue operates at LOS 'C' during the AM and PM peak hours.

- The eastbound approach along Highland Avenue at Willow Avenue operates at LOS 'C' during the PM peak hour.

## 8.0 Accident Data

Accident data for the 3-year period from 07/13/2006 to 07/13/2009 was obtained from the Somerville Police Department as follows:

<u>Location</u>	<u>No. of Accidents</u>	<u>Crash Rate<sup>1</sup></u>
Summer St./Cutter Ave.	0	0.00
Summer St./Willow Ave.	2	0.28
Willow Ave./Highland Ave.	6	0.40

The MHD crash rate formula was used to calculate crash rates for the study area intersections. This crash rate is expressed in Million Entering Vehicles, which is standard to the Traffic Engineering profession. The District 4 average crash rate for signalized intersections is 0.88 and 0.63 for unsignalized locations. The crash rates for the study area intersections are lower than average and therefore do not indicate a safety concern.

## 9.0 Future Traffic Volumes

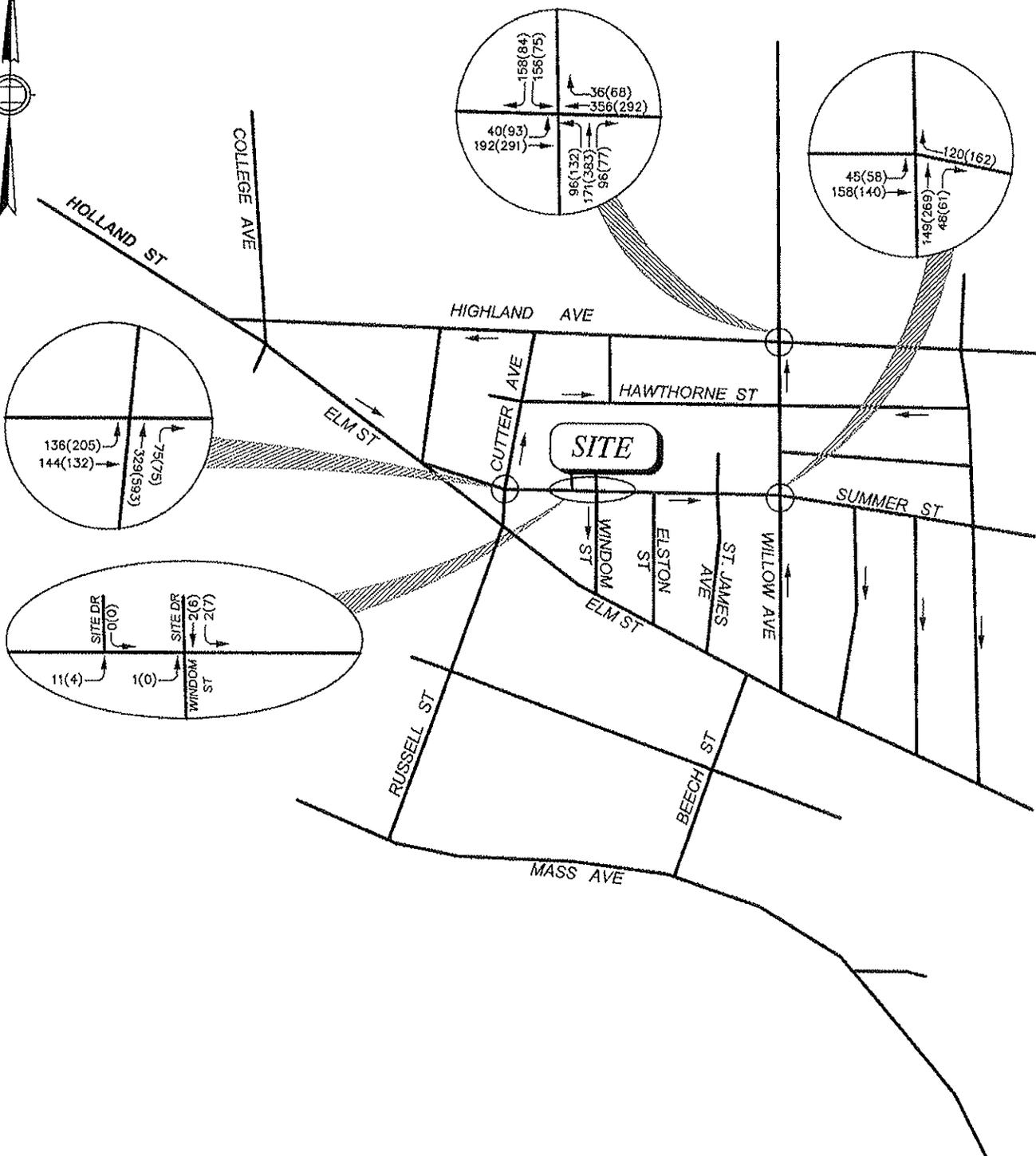
The existing 2009 study area peak hour volumes have been increased by an annual growth factor of 1% per year to account for general background traffic growth to develop future 2014 peak hour volumes (five-year projection). This conservative assumption accounts for the peak hour traffic volumes generated by the nearby 16,000 SF mixed-use development at the northwest corner of Summer Street and Cutter Avenue. No other planned developments were identified for the study area. The projected 2014 '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.

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<sup>1</sup> Based on peak hour count and 3 year crash data.



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2014 NO-BUILD  
 PEAK HOUR  
 TRAFFIC VOLUME  
 AM(PM)

FIGURE 3

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 31 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).

<b>31 Units</b>		
<b><u>Residential Condominium/Townhouse</u></b>		
<b><u>Land Use 230</u></b>		
Daily	AM Peak Hour	PM Peak Hour
In – 91	In – 2	In – 11
Out – 91	Out – 12	Out – 5
Total – 182	Total – 14	Total – 16

The development plan calls for relocation of the existing Dilboy Post that currently occupies approximately 3,911 GSF of space at 361 Summer Street. Since this area has the potential of being occupied as office space within current zoning, the future development condition has considered this additional component. If needed, parking for this use would use designated Dilboy stalls under the proposed development plan that would be available for daytime use. The following tables identify the Trip Generation for this future potential use (ITE Land Use 710) and the total development scenario.

<b>Potential Future Use</b>		
<b>3,911 SF General Office Building</b>		
<b>Land Use 710</b>		
Daily	AM Peak Hour	PM Peak Hour
In – 22	In – 5	In – 1
Out – 21	Out – 1	Out – 5
Total – 43	Total – 6	Total – 6

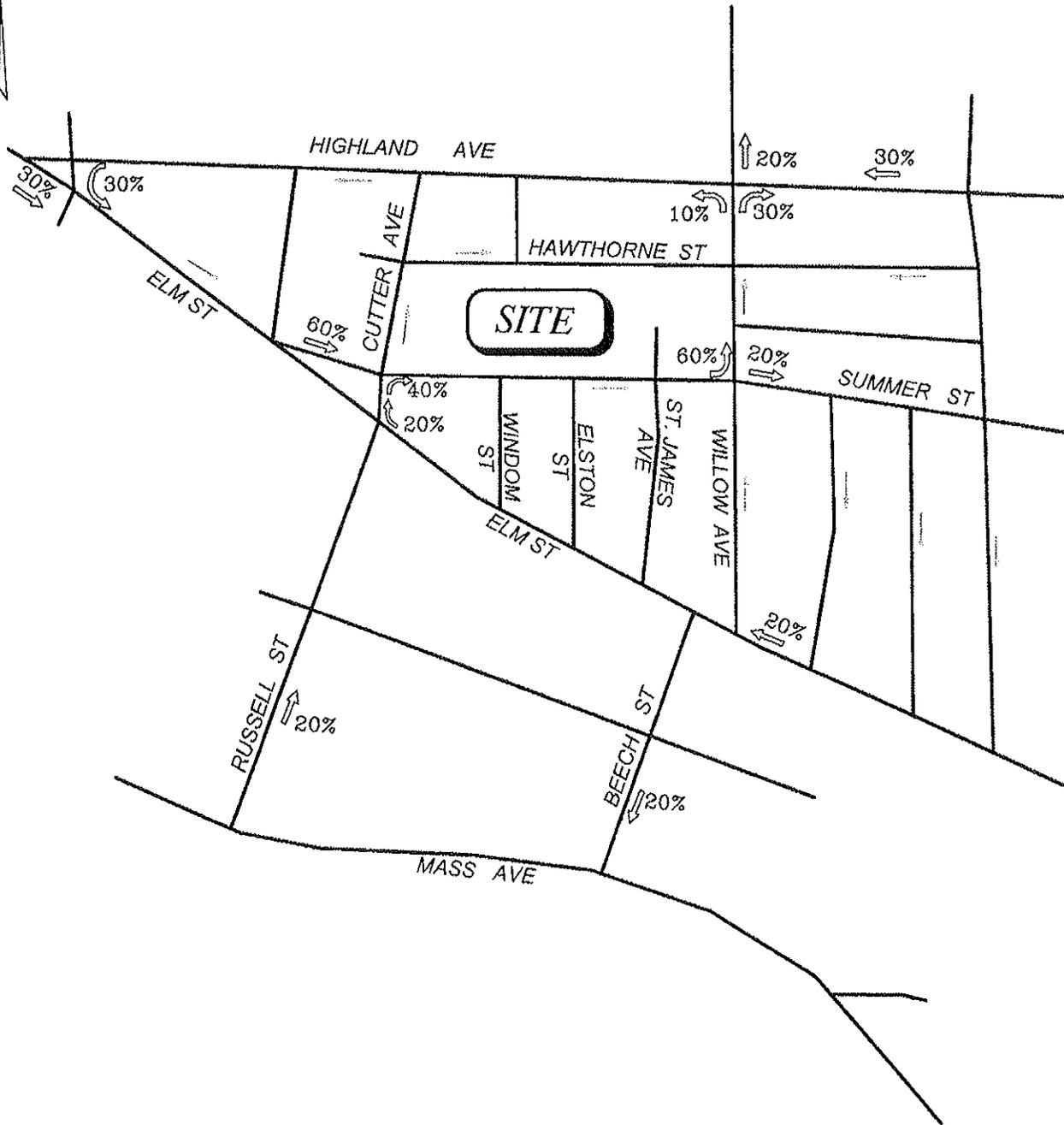
<b>TOTAL SITE</b>		
<b>31 Residential Units and 3,911 SF Office</b>		
Daily	AM Peak Hour	PM Peak Hour
In – 113	In – 7	In – 12
Out – 112	Out – 13	Out – 10
Total – 225	Total – 20	Total – 22

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 (see Figure 4). The site generated peak hour trips are shown in Figure 5. The site generated peak hour trips have been added to the 2014 No-Build volumes and the resulting 2014 Build peak hour volumes are shown in Figure 6.

## 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 2012 ‘No-Build’ and ‘Build’ scenarios. This is shown on the following Table B.



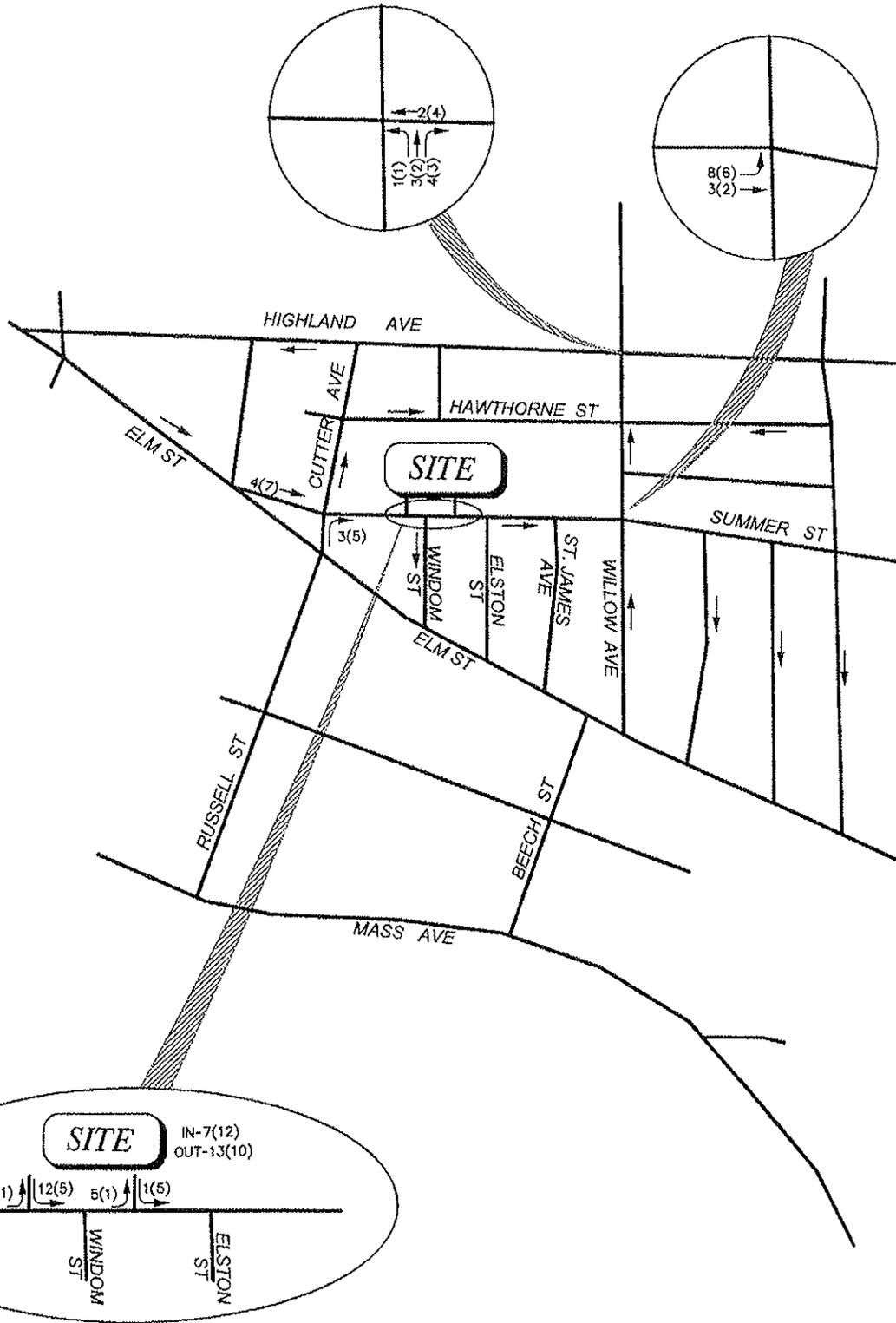
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DISTRIBUTION OF  
SITE-GENERATED  
TRIPS

FIGURE 4



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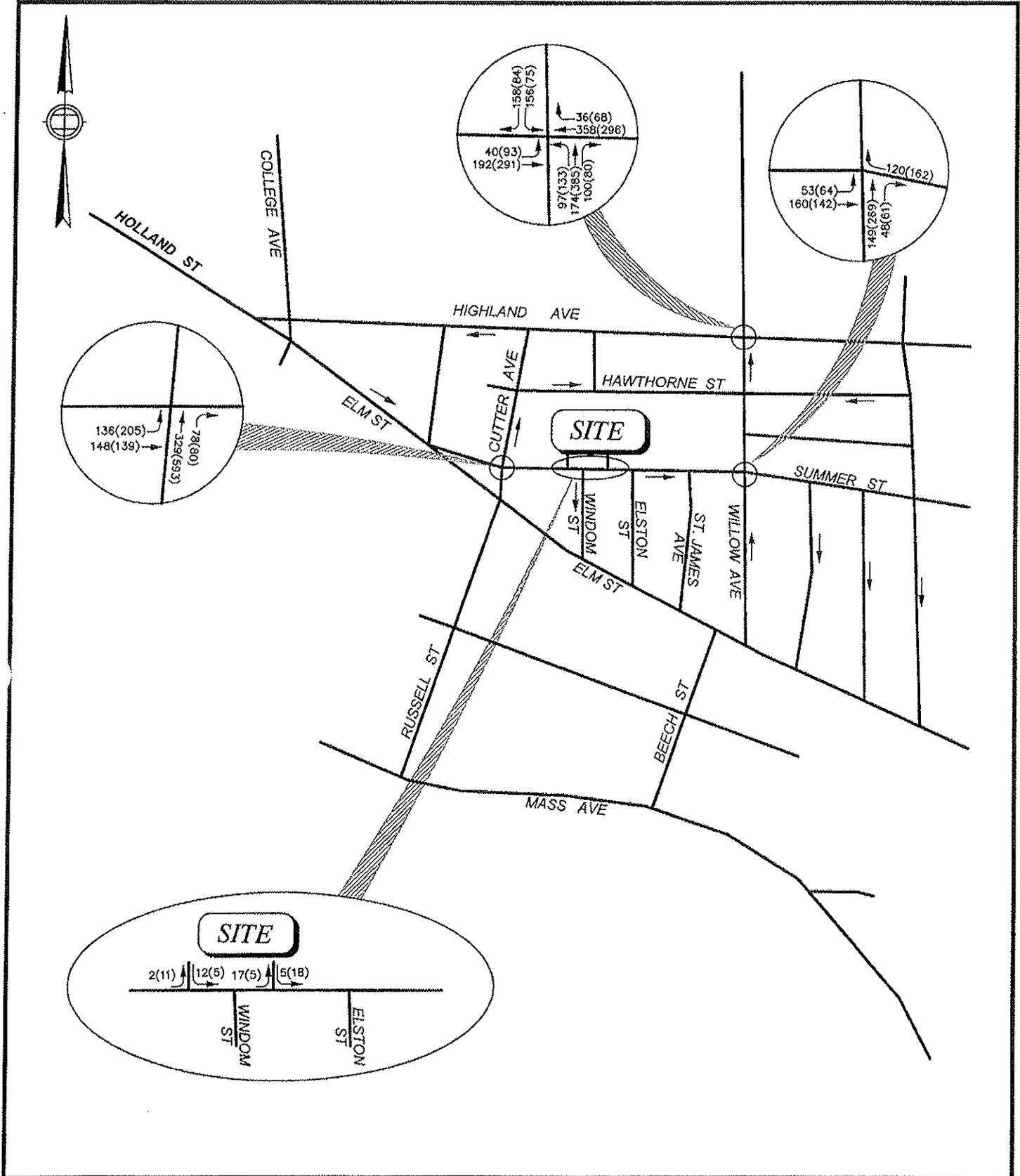


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SITE-GENERATED  
PEAK HOUR TRIPS  
AM(PM)

FIGURE 5



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2014 BUILD  
 PEAK HOUR TRIPS  
 AM(PM)

FIGURE 6

**TABLE B**  
**LEVEL OF SERVICE**  
**UNSIGNALIZED INTERSECTIONS**

Location/ Movement	2014 No-Build				2014 Build			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay (2)	LOS (3)	Delay	LOS	Delay	LOS	Delay	LOS
<b>Summer/West Dr</b>								
Driveway exit	9.9	A	9.7	A	9.9	A	10.0-	A
<b>Summer/East Dr</b>								
Driveway exit	10.0+	B	10.0+	B	10.1	B	9.8	A

<b>SIGNALIZED INTERSECTIONS</b>												
	V/C	Delay	LOS									
<b>Summer/Cutter</b>												
Summer EB	.34	32.0	C	.37	31.6	C	.35	32.1	C	.37	31.8	C
Cutter NB	.30	8.2	A	.54	10.9	B	.30	8.1	A	.54	10.9	B
OVERALL	.31	17.9	B	.47	17.8	B	.31	18.0	B	.48	17.9	B
<b>Summer/Willow</b>												
Summer EB	.22	7.5	A	.19	7.3	A	.22	7.5	A	.20	7.3	A
Summer WB	.16	19.0	B	.26	19.0	B	.16	19.0	B	.26	19.0	B
Willow NB	.28	8.2	A	.47	10.0	A	.28	8.2	A	.47	10.0	A
OVERALL	.25	10.4	B	.33	11.3	B	.25	10.3	B	.33	11.3	B
<b>Willow/Highland</b>												
Highland EB	.50	14.8	B	.87	34.5	C	.50	14.8	B	.87	34.9	C
Highland WB	.70	18.7	B	.59	14.7	B	.70	18.7	B	.60	14.8	B
Willow NB	.47	8.4	A	.76	17.6	B	.47	8.4	A	.78	18.3	B
Willow SB	.46	6.3	A	.25	4.7	A	.46	6.3	A	.25	4.8	A
OVERALL	.55	10.9	B	.80	16.9	B	.55	11.0	B	.81	17.2	B

- (1) Volume/Capacity Ratio  
(2) Control Delay in Seconds  
(3) Level-of-Service

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 in average delays will be one second or less for all traffic movements.

## **12.0 Sight Distance**

Sight distances along Summer Street at the proposed site drive intersection were field measured to and from the point where vehicles will stop prior to entering the Summer Street 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 150 feet for the 25 mph operating speed along Summer Street.

Sight distance at both site driveways will be well in excess of the minimum 150 foot stopping sight distance for Summer Street. This is due to the straight horizontal and relatively flat vertical alignment of Summer Street 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, combined with the potential future office use at 361 Summer Street will generate 20 vehicle trips in the AM peak hour, 22 trips in the PM peak hour and 225 trips per day.

The low volumes generated by the proposed development during the peak hours will have little measureable impacts on traffic flows along Summer Street and the surrounding roadways. Peak hour directional site traffic (12 vehicles per hour) will amount to approximately one vehicle every five minutes at the residential driveway connecting to the underground garage. It should also be noted that these peak hour site trips are expected to be reduced due to the nearby MBTA Red Line station at Davis Square that will encourage both residents and workers at the site to use transit for their work commute.

Trip generation studies published by ITE show that peak hour rates for residential and office 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).

The Dilboy Post will continue activities at its new location along Summer Street, with peak traffic activity occurring during off-peak hours that can be well accommodated by the surrounding street network.

(1) American Association of State and Highway Transportation Officials

**ADDENDUM REPORT  
TRAFFIC IMPACT ASSESSMENT**

**351 SUMMER STREET  
SOMERVILLE, MA**

**FEBRUARY, 2011**

Prepared for

**Strategic Capital Group, LLC**

Prepared by

**Design Consultants, Inc.**

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## **1.0 Introduction**

This Addendum Report has been prepared to update the traffic impacts associated with the proposed development at 351 Summer Street in Somerville, MA. Since the Traffic Impact Assessment (*TIA*) submittal dated June, 2010; a number of modifications to the development plan have occurred that require an update. These modifications include the following:

- Revised site layout for the project site – maintaining 31 condominium units as previously proposed.
- An updated description of the assignment of vehicle trips onto the surrounding street network.
- An updated safety and operational assessment of proposed site access off Summer Street, with relocation of the two (2) separate site driveways proposed for the site development.

### **Updated Site Development Plan**

The updated development plan proposes to construct 31 residential condominiums and the relocated George Dilboy VFW Post primarily on the west lot that is currently used for parking by the Dilboy Post (at adjacent 371 Summer Street). Development on the east lot (currently vacant) will primarily be used as a parking area for the relocated Post facility.

The proposed layout relocates the previous two separate curb cuts onto Summer Street as follows:

- West Driveway accessing underground residential parking – a total of 45 parking stalls as previously proposed. The new curb cut is now proposed further east, at the existing east site driveway, opposite Windom Street.
- East Driveway accessing the Dilboy Post parking area on the east lot and rear surface parking extending to the west lot for commercial users and resident visitors – a total of 63 parking spaces as previously proposed. The new curb cut is similarly proposed further east, opposite Elston Street.

### **Trip Generation**

The trip generation for the 31 residential condominium units remains the same as presented in the *TIA*, and is shown in the following table.

<b><u>31 Units</u></b> <b><u>Residential Condominium/Townhouse</u></b> <b><u>Land Use 230</u></b>		
Daily	AM Peak Hour	PM Peak Hour
In – 91	In – 2	In – 11
Out – 91	Out – 12	Out – 5
Total – 182	Total – 13	Total – 16

The development plan continues to call for relocation of the existing Dilboy Post that currently occupies approximately 3,911 GSF of space at 371 Summer Street. As stated in the *TIA*, this area has the potential of being occupied as office space within current zoning, the future development condition therefore considers this additional component. The following tables identify the Trip Generation for this future potential use and the updated total development scenario.

<b><u>Potential Future Use</u></b> <b><u>3,911 General Office</u></b> <b><u>Land Use 710</u></b>		
Daily	AM Peak Hour	PM Peak Hour
In – 22	In – 5	In – 1
Out – 21	Out – 1	Out – 5
Total – 43	Total – 6	Total – 6

<b><u>Total</u></b> <b><u>31 Residential Units and 3,911 SF Office</u></b>		
Daily	AM Peak Hour	PM Peak Hour
In – 113	In – 7	In – 12
Out – 112	Out – 13	Out – 10
Total – 225	Total – 20	Total – 22

### **Updated Trip Assignment**

As described in the *TIA*, 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. An update of the site generated peak hour trips are shown on Figure 5-A (see Appendix) that identifies the traffic use at the two proposed site drives.

## **Updated Site Development Access**

Sight distance at both site driveways will continue to be well in excess of the minimum 150 feet stopping sight distance for the 25 mph operating speed along Summer Street. This is due to the straight horizontal and relatively flat vertical alignment of Summer Street along the site frontage, combined with the 7 to 8 foot setback of the proposed buildings from the back of sidewalk.

The location of the eastern site driveway opposite Elston Street is aligned slightly to the west. This results in a slight diversion for traffic movements from Elston Street, crossing Summer Street, to enter the driveway. Since the movement is relatively direct (less than 30 degrees diversion) the condition should not contribute to unsafe operations and is considered acceptable.

Some minor changes for Dilboy Post activities are anticipated as follows:

- A small percentage of vehicles using the parking lot (estimated at 10%) may utilize Elston Street to access the east driveway versus entering from Summer Street (via Cutter Avenue).
- Vehicles that currently exit the existing parking lot and utilize Windom Street (for access to area streets to the south) will now utilize Elston Street or St. James Avenue to the east.

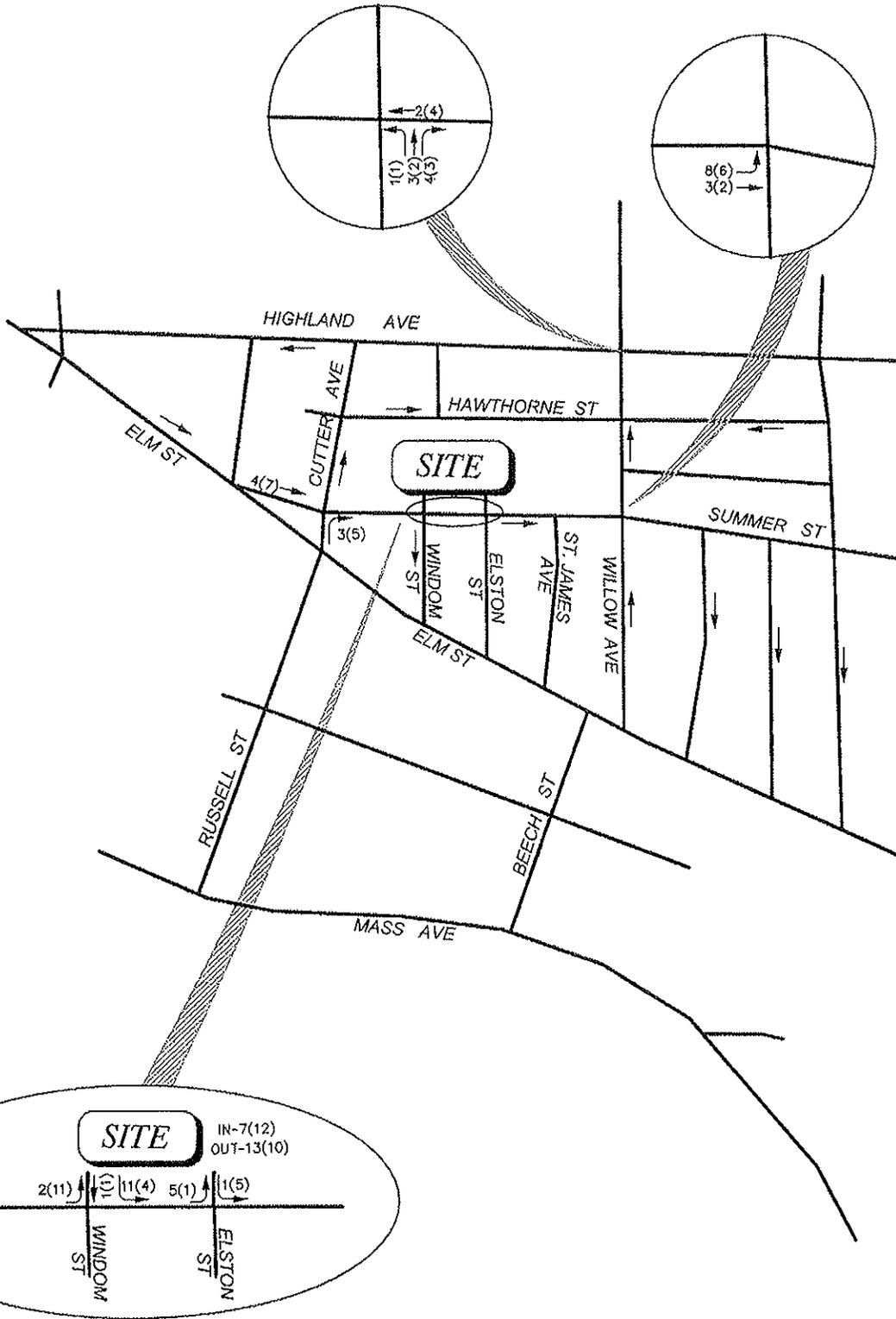
## **Conclusions**

This update for the proposed site development confirms that the low volumes generated by the proposed development during the peak hours will have little measureable impacts on traffic flows along Summer Street and the surrounding roadways. Peak hour directional site traffic (12 vehicles per hour) will amount to approximately one vehicle every five minutes connecting to the underground garage. It should also be noted that these peak hour site trips are expected to be less. This is due to the nearby MBTA Red Line station at Davis Square that will encourage both residents and other users at the site to use transit.

Trip generation studies published by ITE show that peak hour rates for residential and office 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).

The Dilboy Post will continue activities at its new location along Summer Street, with peak traffic activity occurring during off-peak hours that can be well accommodated by the surrounding street network.

# *APPENDIX*



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351 SUMMER ST  
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SITE-GENERATED  
PEAK HOUR TRIPS  
AM(PM)

FIGURE 5-A