

TRANSPORTATION IMPACT STUDY

MAPLE LEAF RESIDENTIAL
CAMBRIDGE, MASSACHUSETTS

Prepared for:

ARCHSTONE
Cambridge, Massachusetts

August 2011

Prepared by:

VANASSE & ASSOCIATES, INC.
Transportation Engineers & Planners
10 New England Business Center Drive
Suite 314
Andover, MA 01810

CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	2
Project Description	2
EXISTING CONDITIONS	5
Roadway Network	5
Existing Traffic Volumes	8
Pedestrians And Bicycle Environment	8
Existing Public Transit System.....	9
Other Transit Services	10
PROPOSED PROJECT	12
Project Trip Generation	12
Traffic Distribution And Assignment.....	15
ARTICLE 19 SPECIAL PERMIT CRITERIA ANALYSIS	16
PARKING ANALYSIS.....	17
Existing Parking Supply	17
Projected Parking Demand	18
PROJECT MITIGATION AND CONCLUSION	21
Conclusion.....	21

TABLES

Number	Title
1	Summary of Peak-Hour Intersection Characteristics
2	MBTA Green Line Service Summary
3	MBTA Bus Service
4	Maple Leaf Office Use Trip Generation Comparison
5	Trip Rate Comparison, Actual and Projected Archstone Trip Rates
6	Residential Trip Generation Comparison, Empirical Trips vs ITE Trips
7	Vehicle Trip Comparison, Office Use vs Residential Use
8	Parking Space Lease Rate
9	Archstone Garage Parking Utilization
10	Observed Parking Use Rate
11	Projected Parking Demand
12	On-Street Parking Utilization

FIGURES

Number	Title	
1	Site Location Map	3
2	Site Plan.....	4
3	Intersection Inventory – O’Brien Highway at Cambridge Street and East Street	6
4	Intersection Inventory – O’Brien Highway at Land Boulevard, Austin Street, and..... Museum Way	7
5	Transit Map	11
6	On Street Parking Supply	20

EXECUTIVE SUMMARY

Vanasse & Associates, Inc. (VAI) has prepared a Transportation Impact Study (TIS) for the proposed residential conversion of the existing Maple Leaf office building with an address of 23 East Street in the North Point section of East Cambridge. This study reviews potential transportation impacts and parking demands, defines site access conditions, and recommends mitigation measures to minimize the effects of the project traffic impacts. In addition, the study reviews the project with respect to the Article 19 Large Project Review Special Permit Criteria. The study was completed in accordance with the City's guidelines for TIS and follows the scoping determination issued by the Cambridge Traffic, Parking, and Transportation (TPT) Department dated August 11, 2011.

The observations of existing traffic activity indicate the existing Archstone North Point apartment building generates a reduced vehicle trip impact as compared with the original estimates of the project, indicating a higher use of alternative transportation and the success of the current efforts to reduce vehicle use at the existing building. Vehicle trips associated with the proposed residential use are also considerably lower than the currently permitted office use. Results of parking utilization studies are provided that indicate a lower parking lease rate and a lower parking demand rate for the entire building as compared with the parking supply rate of 0.8 spaces per unit approved by the Planning Board for residential units in 2009. Traffic mitigation in the form of Transportation Demand Management (TDM) measures such as fees for parking and incentives to use alternative transportation such as the EZ Ride shuttle bus and indoor bicycle storage will be extended to residents of the proposed project. The conclusion of this TIS is that the proposed project can be developed as planned with negligible impact on the adjacent street system.

INTRODUCTION

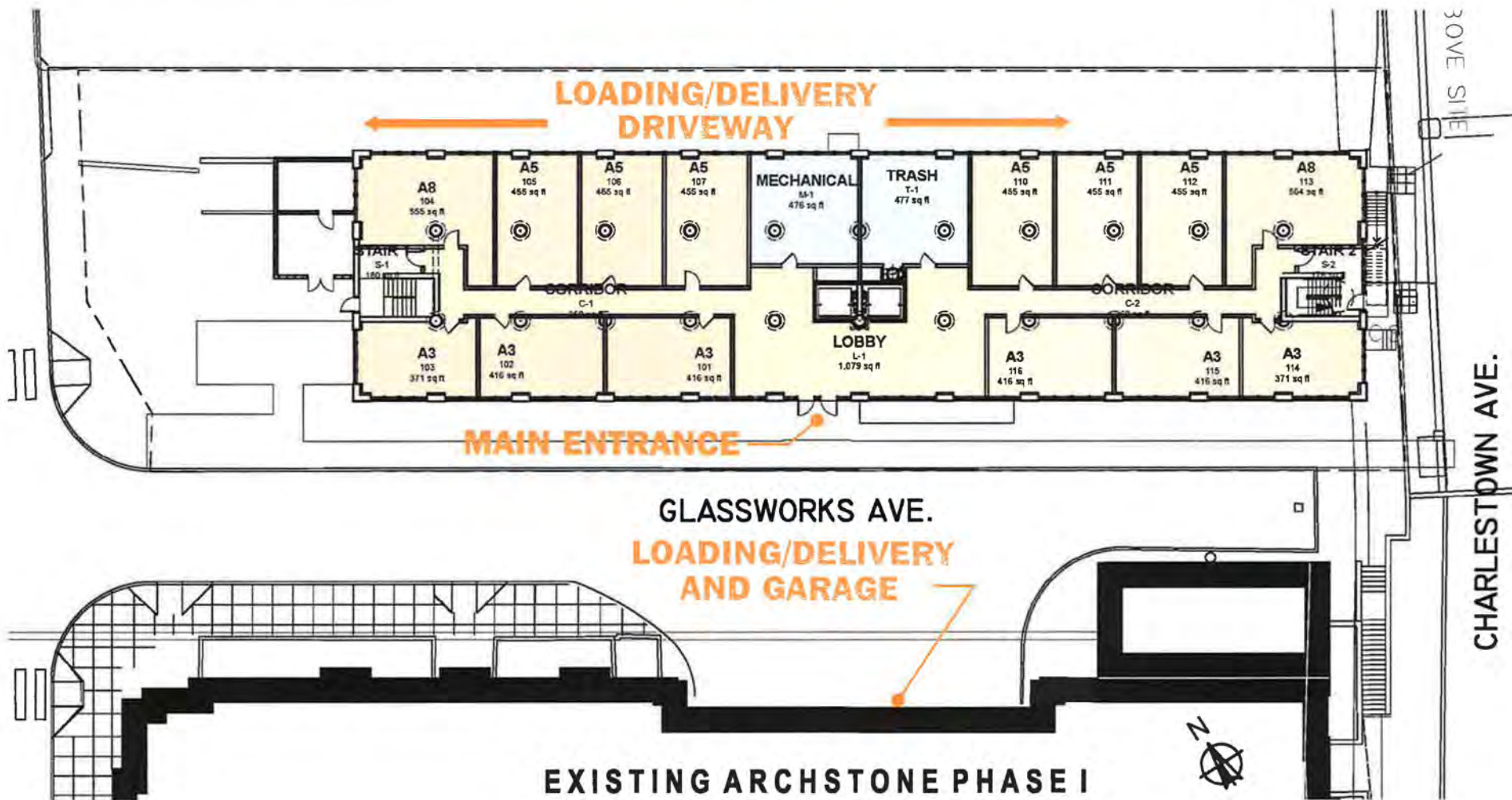
VAI has prepared a TIS for the proposed residential conversion of the existing Maple Leaf office building with an address of 23 East Street in the North Point section of East Cambridge. This study reviews potential transportation impacts and parking demands, defines site access conditions, and recommends mitigation measures to minimize the effects of the project traffic impacts. In addition, the study reviews the project with respect to the Article 19 Large Project Review Special Permit Criteria. The study was completed in accordance with the City's guidelines for TIS and follows the scoping determination issued by the Cambridge Traffic, Parking, and Transportation (TPT) Department dated August 11, 2011.

PROJECT DESCRIPTION

The site is bounded by Leighton Street to the west, North Point Boulevard to the north, the Gilmore Bridge to the east, and Glassworks Avenue to the south. The proposed project will consist of the construction of approximately 104 residential apartment units. It is expected that the project would function similarly as the existing Archstone building, with similar traffic and parking demands. Unlike the North Point building, only studio and one bedroom units are proposed for the Maple Leaf building. The main entrance to the building is located on the south side adjacent to Glassworks Avenue and across from the Archstone North Point garage. As stated in the Archstone Special Permit, parking for the Maple Leaf building will be provided in the Archstone garage. Loading and deliveries can be made through a separate driveway on Leighton Street. The site in relation to area transportation facilities is shown in Figure 1, while a preliminary site plan is depicted in Figure 2.



Figure 1
Site Location Map



Source: ICON Architecture
0 15 30 Scale in Feet



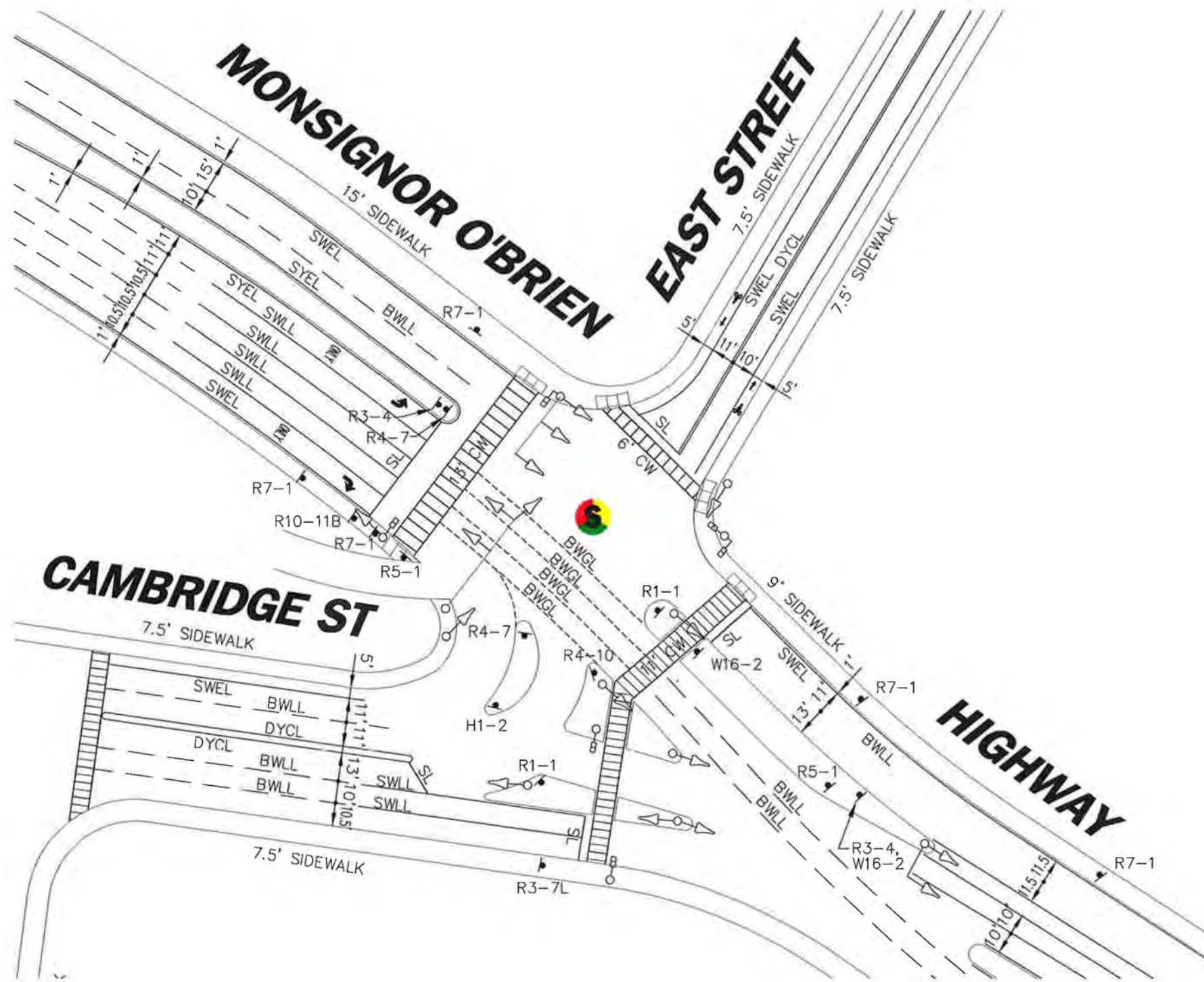
Figure 2
Site Plan

EXISTING CONDITIONS

ROADWAY NETWORK

Regional access to the area is provided via O'Brien Highway, Land Boulevard, and Charlestown Avenue/Austin Street, which are adjacent to the general street network connecting to the site. These roadways provide connections to regional roadways such as Interstate Route 93 (I-93), Route 1, Storrow Drive, and Memorial Drive, as well as connections into downtown Cambridge and downtown Boston. In the immediate vicinity of the site, local access is provided from Leighton Street, Glassworks Avenue, and North Point Boulevard.

The intersections of Museum Way at Monsignor O'Brien Highway and East Street at Cambridge Street and Monsignor O'Brien Highway provide all-directional access for the project site. From either of these locations, motorists can travel into or out of the immediate area from the larger transportation network. Graphical depictions of the geometry, parking, and control type for these intersections obtained through field inventory and observations conducted by VAI are provided on Figure 3 and Figure 4.



SIGN LEGEND					
R1-1		R3-7R		R8-3B	
R2-1		R4-7		R10-11b	
R3-1		R5-1		H1-2	
R3-4		R5-2		W16-2	
R3-7L		R8-3		R4-10	
		R7-1			

SIGN LEGEND	
BWGL	BROKEN WHITE GUIDE LINE
BWLL	BROKEN WHITE LANE LINE
DYCL	DOUBLE YELLOW CENTER LINE
SYCL	SOLID YELLOW CENTER LINE
DYL	DOUBLE YELLOW LINE
SWEL	SOLID WHITE EDGE LINE
SYEL	SOLID YELLOW EDGE LINE
SYLL	SOLID YELLOW LANE LINE
SWLL	SOLID WHITE LANE LINE
SYGL	SOLID YELLOW GORE LINE
SL	STOP LINE
CW	CROSS WALK

SIGNAL EQUIPMENT LEGEND	
	TRAFFIC SIGNAL MAST ARM OR PEDESTRIAN SIGNAL BASE
	TRAFFIC SIGNAL HEAD
	PEDESTRIAN SIGNAL

NOTE: 1. BASE PLAN INFORMATION OBTAINED FROM CAMBRIDGE, G.I.S. AND FIELD INVENTORIES CONDUCTED BY VAI.

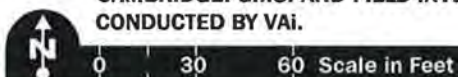
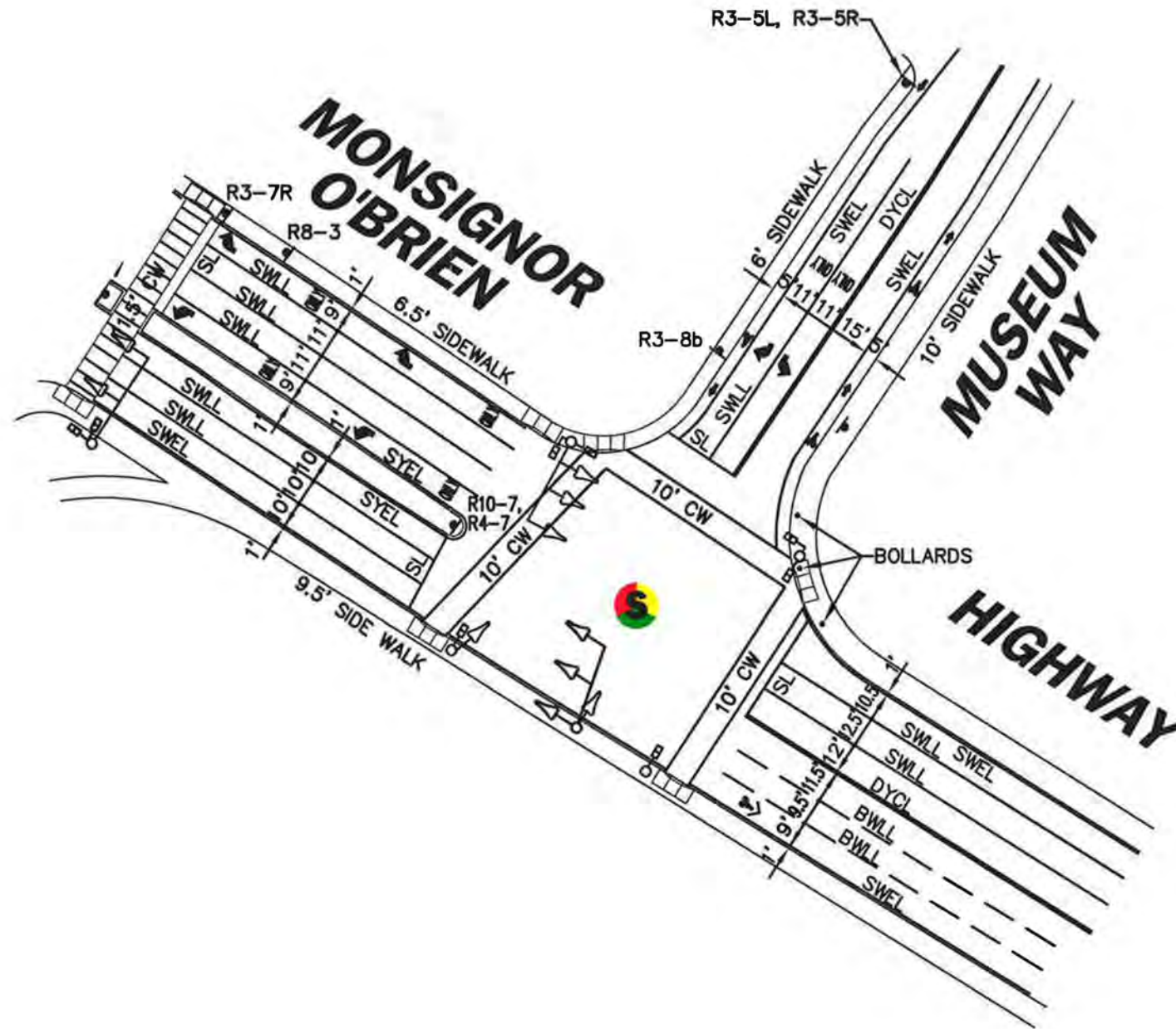


Figure 3
Intersection Inventory
O'Brien Highway at Cambridge Street
and East Street

SIGNAL EQUIPMENT LEGEND	
	TRAFFIC SIGNAL MAST ARM OR PEDESTRIAN SIGNAL BASE
	TRAFFIC SIGNAL HEAD
	PEDESTRIAN SIGNAL

SIGN LEGEND	
BWLL	BROKEN WHITE LANE LINE
DYCL	DOUBLE YELLOW CENTER LINE
SYCL	SOLID YELLOW CENTER LINE
DYL	DOUBLE YELLOW LINE
SWEL	SOLID WHITE EDGE LINE
SYEL	SOLID YELLOW EDGE LINE
SYLL	SOLID YELLOW LANE LINE
SWLL	SOLID WHITE LANE LINE
SYGL	SOLID YELLOW GORE LINE
SL	STOP LINE
CW	CROSS WALK



SIGN LEGEND					
R1-1		R3-7L	LEFT LANE MUST TURN LEFT	R8-3B	NO PARKING
R2-1		R3-7R	RIGHT LANE MUST TURN RIGHT	R10-7	DO NOT BLOCK INTERSECTION
R3-1		R4-7		R10-11b	NO TURN ON RED
R3-4		R5-1		H1-2	
R3-5L		R5-2		W16-2	
R3-5R		R8-3	NO PARKING	R4-10	ENTER HERE

NOTE: 1. BASE PLAN INFORMATION OBTAINED FROM CAMBRIDGE, G.I.S. AND FIELD INVENTORIES CONDUCTED BY VAI.

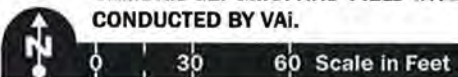


Figure 4
Intersection Inventory
O'Brien Highway at Museum Way

EXISTING TRAFFIC VOLUMES

Traffic volumes from the recently certified EF expansion TIS were reviewed for this report. That study used traffic counts conducted in December 2010. A summary of peak-hour intersection characteristics is provided below in Table 1.

Table 1
SUMMARY OF PEAK-HOUR INTERSECTION CHARACTERISTICS^a

Location	Morning Peak Hour	Evening Peak Hour
O'Brien Highway at Museum Way		
Time of Peak Hour	7:30 – 8:30 AM	5:00 – 6:00 PM
Roadway Volume	2,531 vph ^b	2,447 vph
Pedestrian Volume	46 pph ^c	59 pph
Bicycle Volume	45 bph ^d	38 bph
Cambridge Street, O'Brien Highway and East Street		
Time of Peak Hour	7:30 – 8:30 AM	5:15 – 6:15 PM
Roadway Volume	2,648 vph	2,673 vph
Pedestrian Volume	70 pph	106 pph
Bicycle Volume	8 bph	11 bph

^aCounted by VAI in December 2010.

^bvph = Vehicles per hour.

^cpph = Pedestrians per hour.

^dbph = Bicycles per hour.

PEDESTRIANS AND BICYCLE ENVIRONMENT

The majority of streets within the North Point district provide bicycle lanes on either one or both sides of the street, including East Street, Museum Way, and North Point Boulevard. Glassworks Avenue and Leighton Street do not provide bicycle lanes, but are between 22 and 24 feet in width. Sidewalks are generally eight to ten feet wide on these streets, with ladder type crosswalks and ADA-compliant wheelchair ramps at intersections.

The Lechmere Square MBTA station currently provides no bicycle parking but with the station relocation expected by 2014, bicycle parking will be provided.

The extension of the Green Line through Somerville into Cambridge also includes the construction of a multi-use path that will connect the northern area of Cambridge near the Alewife MBTA station and the eastern area of Cambridge at North Point. The Somerville Community Path will provide an 8 – 12 foot wide paved path for bicyclists, joggers, and pedestrians that will run adjacent to the Green Line Extension and thereby provide connections to the five new transit stations proposed in Somerville. This path is expected to connect into the Central Park proposed for the North Point project, which is approximately two blocks from the project site. This provides an excellent opportunity for residents to walk and bike to other areas rather than use personal vehicles.

EXISTING PUBLIC TRANSIT SYSTEM

The project site is located between the Museum of Science and Lechmere Station stops on the MBTA Green Line subway system. These stops are currently closed while the MBTA completes construction designed to bring both stations into compliance with ADA accessibility requirements but are expected to reopen in December 2011. The Green Line currently terminates at Lechmere Station but eventually is proposed to extend into Medford and the existing station will be relocated to the north side of O'Brien Highway by December 2014. The Green Line continues to North Station, where connections to the Orange Line and Commuter Rail routes can be made, and also to Park Street where connections to the Red Line are possible. The Lechmere station is also the terminating bus station for MBTA Bus Route 69, 80, 87 and 88. The Lechmere Square Green Line station is located directly across the street from the site. Table 2 summarizes the most recent Green Line headway and boarding data for the Lechmere Square station available from the MBTA. Table 3 summarizes the peak-hour headways and capacity information for the four bus routes supplied by the MBTA.

**Table 2
MBTA GREEN LINE SERVICE SUMMARY**

Station	MBTA Line	Rush Hour Headways (minutes) ^b	Boarding Counts ^a				
			Daily ^c	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
				Inbound	Outbound	Inbound	Outbound
Lechmere	Green	10	13,290	555	461	570	628

^aSource: MBTA ridership count results.

^bBased on MBTA schedule.

^c6:00 AM to 11:00 PM counts.

**Table 3
MBTA BUS SERVICE**

Route No.	Route	Hours of Operation	Peak-Hour Headway (minutes) ^a	Peak-Hour Peak-Direction Planning Capacity ^b	Daily Ridership ^c	Estimated Daily Capacity
69	Harvard/Holyoke Gate – Lechmere Station via Cambridge Street	5:25 AM to 1:11 AM	6-17	210-600	2,985	6,480
80	Arlington Center – Lechmere Station	5:05 AM to 1:21 AM	15	240	1,872	5,280
87	Arlington Center or Clarendon Hill – Lechmere Station	5:10 AM to 1:17 AM	15-16	240	3,373	6,300
88	Clarendon Hill – Lechmere Station via Highland Avenue	5:20 AM to 1:18 AM	4-15	240-900	3,785	7,260

^aBased on current MBTA schedule.

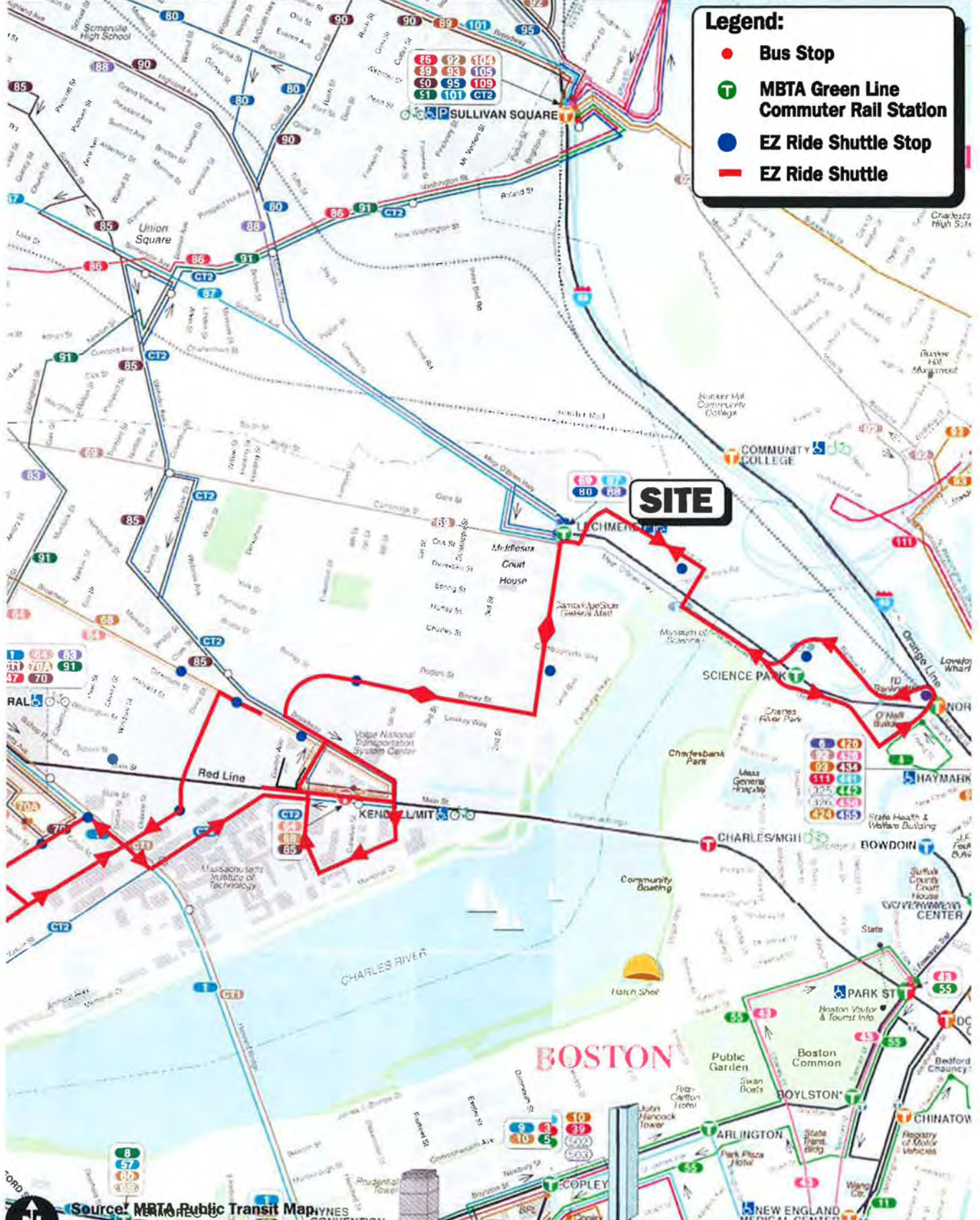
^bPlanning capacity is 60 passengers per bus.

^cSource: MBTA Ridecheck Program.

Other Transit Services

In addition to the MBTA, the CRTMA provides the EZRide Shuttle Bus that circulates between Cambridgeport and North Station in Boston via the Kendall Square Red Line station. The EZRide Shuttle Bus route passes close to the Archstone building as it circulates via Museum Way and North Point Boulevard. The EZRide Shuttle operates on weekdays between 6:20 AM and 10:50 AM and 3:00 PM and 8:00 PM on a 12 minute frequency. In addition, EZRide has recently added a midday loop between Kendall Square and MIT's Sidney Pacific housing from 11:00 AM until 3:00 PM on a 20 minute frequency. The shuttle route and schedule is provided in the Appendix.

Figure 5 provides a graphical depiction of the regional public transportation services available in the area.



Legend:

- Bus Stop
- T MBTA Green Line Commuter Rail Station
- EZ Ride Shuttle Stop
- EZ Ride Shuttle

SITE

Source: MBTA Public Transit Map
 0 800 1600 Scale In Feet

Figure 5



Transit Map

PROPOSED PROJECT

PROJECT TRIP GENERATION

The Maple Leaf building provides 60,930 square feet (sf) of commercial office space. It was partially occupied in 2002 when the TIS for the Archstone North Point project was prepared. Since that time it has been used as office space and more recently, a construction office for Archstone North Point construction activities. Archstone is also currently using approximately 4,000 sf of the building space to house their Boston regional office with two full-time employees and five part-time employees. This office will be relocated once construction begins on the project.

The main entrance to the building is located on the south side adjacent to Glassworks Avenue and across from the Archstone North Point garage accessway. As stated in the Archstone Special Permit, parking for the Maple Leaf building has always been proposed to be provided in the Archstone garage. Loading and deliveries are made through a separate driveway on Leighton Street, with the loading dock located on the north side of the building.

The proposed project will consist of the construction of approximately 104 residential apartment units. It is expected that the project would function similarly as the existing Archstone building, with similar traffic and parking demands. Unlike the North Point building, only studio and one bedroom units are proposed for the Maple Leaf building.

Maple Leaf Office Trip Generation

Traffic counts that were conducted for the C.E.Smith/Archstone North Point TIS in 2001 indicate vehicle trips generally consistent with ITE estimates, adjusted for mode splits of other transportation types such as transit and walking. A comparison of the observed traffic counts with ITE estimates including mode split adjustments based on census data is shown below in Table 4.

Table 4
MAPLE LEAF OFFICE USE TRIP GENERATION COMPARISON

Time Period/Direction	Observed Vehicle Trips ^a	ITE Vehicle Trips ^b
Weekday Morning Peak Hour:		
Entering	49	65
<u>Exiting</u>	<u>7</u>	<u>9</u>
Total	56	74
Weekday Evening Peak Hour:		
Entering	8	15
<u>Exiting</u>	<u>43</u>	<u>71</u>
Total	51	86

^aFrom counts conducted by VAI at Maple Leaf driveway, April 2001.

^bBased on ITE LUC 710 – General Office Building and 60,930 sf, with mode split adjustments using 2000 Census data for tract 3521, resulting in 63% vehicle mode share.

It is likely that were the building to be re-tenanted as an office building, the vehicle trips would be similar to those shown above in Table 4.

Residential Trip Generation

Traffic volumes expected to be generated by the proposed project were determined by using a combination of observed traffic counts and data from the Institute of Transportation Engineers (ITE) *Trip Generation* publication. The appropriate Land Use Code (LUC), ITE LUC 220, Apartments, was used to estimate project traffic generation. In addition, traffic counts conducted at the garage driveway were used to develop a vehicle trip rate, as a verification of the ITE data to estimate project vehicle trips. The existing Archstone building is approximately 90 percent occupied. The resulting trip rates for the existing Archstone building are provided in Table 5 below and are compared with the rates from the initial 2002 TIS.

Table 5
TRIP RATE COMPARISON,
ACTUAL AND PROJECTED ARCHSTONE TRIP RATES

Time Period/Direction	Projected Vehicle Trip Rate ^a (Trips/Unit)	Actual Vehicle Trip Rate ^b (Trips/Unit)	Percent Difference, Projected to Actual Rates
Daily	3.27	1.38	-58
Weekday Morning Peak Hour:			
Entering	0.04	0.03	-
<u>Exiting</u>	<u>0.22</u>	<u>0.08</u>	<u>-</u>
Total	0.26	0.11	-57
Weekday Afternoon Peak Hour:			
Entering	0.20	0.06	-
<u>Exiting</u>	<u>0.10</u>	<u>0.05</u>	<u>-</u>
Total	0.30	0.11	-63

^aFrom 2002 C.E. Smith/Archstone TIS using ITE and census mode split data and based on 750 units.

^bBased on counts conducted by VAI at site driveway, August 2011 and occupied unit count of 381 units.

As shown in Table 5, the existing Archstone site generates trips at rates significantly lower than those originally projected for the building. The observed rates were used to estimate trips associated with the Maple Leaf conversion project as well; the results are shown in Table 6, with a comparison of the standard ITE and Census data methodology.

Table 6
RESIDENTIAL TRIP GENERATION COMPARISON,
EMPIRICAL TRIPS VS ITE TRIPS

Time Period/Direction	Empirically -Derived Vehicle Trips ^a	ITE-Derived Vehicle Trips ^b
Daily	144	350
Weekday Morning Peak Hour:		
Entering	3	6
<u>Exiting</u>	<u>9</u>	<u>20</u>
Total	12	26
Weekday Afternoon Peak Hour:		
Entering	7	23
<u>Exiting</u>	<u>5</u>	<u>12</u>
Total	12	35

^aUsing observed rates from August 2011 counts and 104 units.

^bBased on ITE LUC 220 – Apartments and 104 units, with mode split adjustments using 2000 Census data for tract 3521, resulting in 46% vehicle mode share.

The project would be expected to generate vehicle trips similar to those shown in Table 6. The final comparison is related to the observed Maple Leaf office trips from 2001 compared with trips generated using the actual observed Archstone residential trip rates and 104 apartment units. This is presented in Table 7.

**Table 7
VEHICLE TRIP COMPARISON,
OFFICE USE VS RESIDENTIAL USE**

Time Period/Direction	Observed Maple Leaf Trips	Empirical Residential Trips	Percentage Difference
Weekday Morning Peak Hour:			
Entering	49	3	-
Exiting	7	9	-
Total	56	12	-79
Weekday Afternoon Peak Hour:			
Entering	8	7	-
Exiting	43	5	-
Total	51	12	-76

As shown in the above comparisons, the projected trips from the residential conversion are expected to result in a decrease in traffic generation as compared with the previous use of between 76 and 79 percent.

The project is expected to generate a greater proportion of non-vehicle trips based on the observed vehicle trip rates of the existing Archstone building. Census data that indicates splits for transit (25 percent), pedestrian (21 percent), and bicycling (7 percent) modes likely underestimates the proportions of commuting trips using these modes, since the most recent data is over 11 years old and does not reflect the recent increase in use of alternative transportation.

TRAFFIC DISTRIBUTION AND ASSIGNMENT

Vehicle trips are expected to follow existing traffic patterns to travel to employment and activity centers. It is expected that motorists would use the North Point internal street network to avoid the intersection of Monsignor O'Brien Highway and Land Boulevard/Austin Street. Therefore trips would use the intersections of East Street and Cambridge Street with O'Brien Highway and Museum Way with O'Brien Highway to travel away from the site.

Traffic volume increases resulting from either trip generation method would be expected to total well under one percent, due to the low projected volumes and the high existing volumes on adjacent streets.

ARTICLE 19 SPECIAL PERMIT CRITERIA ANALYSIS

The Article 19 Large Project Review Special Permit Criteria (SPC) consists of five measures as indicators to evaluate project impacts. The methodology for the analysis is from the Cambridge "Guidelines for Presenting Information to the Planning Board", approved November 27, 2001, and revised in 2004. Based upon the SPC, there are a number of indicators that could be reviewed. However, the following should be noted:

- The residential conversion represents a decrease in traffic as compared with the last known traffic counts of the previous use and the proposed use using the actual trip rates identified through counts of the existing Archstone facility.
- The Special Permit Criteria 1 for Project Vehicle – Trip Generation thresholds of 2,000 daily trips and 240 peak-hour trips during each of the weekday morning and weekday evening periods are not triggered by the project, since the trip totals are expected to be 144 daily trips, 12 morning peak-hour trips, and 12 evening peak-hour trips.
- The other criteria related to operational analyses such as Vehicle Level of Service, Traffic on Residential Streets, Vehicle Queues, and Pedestrian Level of Service would not be exceeded by the small increment of peak hour trips added to the respective traffic-volume conditions. The addition of all of the project trip generation added to either of the two intersections discussed earlier result in traffic increases of less than 0.5 percent. If the trips are split between the two intersections as would be expected, this impact would decrease to less than 0.3 percent.
- The criteria related to provision of safe pedestrian and bicycle facilities have been addressed by the initial Archstone project as well as the larger North Point development. As mentioned previously, the streets adjacent to the site each provide concrete sidewalks between 8 and 10 feet in width. All intersections adjacent to the site have ladder-type pedestrian crosswalks with recently constructed wheelchair ramps. The building has a handicap access ramp at the front door to the building and will be designed to encourage pedestrian use and activity with open plazas and connections to the adjacent North Point Park. These criteria are therefore met for the streets abutting the project.

PARKING ANALYSIS

EXISTING PARKING SUPPLY

The Archstone building has its own parking garage. Access is through one driveway to Glassworks Avenue and continues for 3 levels below the building. The garage facility contains a total of 434 vehicle spaces and 213 bicycle spaces. The bicycle spaces are provided within separate bicycle rooms on the first level of the garage.

Since the leasing of parking spaces is separate from the unit leases, not every unit is required to have a parking space. The following table identifies a parking space lease rate based on the number of leased parking spaces and the number of occupied units.

Table 8
PARKING SPACE LEASE RATE

Total Garage Spaces	Available Residential Spaces ^a	Number of Leased Spaces	Number of Occupied Units	Lease Rate (Leased Spaces/ Occupied Units)
434	414	297	381	0.78

^aBased on 3 Zipcar spaces and 17 employee spaces.

As shown in Table 8, less than 1.0 parking spaces per unit are leased by the buildings' residents, who also lease parking spaces at a lower rate per unit than the 0.8 spaces per unit rate approved by the Planning Board for residential units in this area.

As requested by the Traffic Department, a utilization study was conducted to determine usage of the garage for vehicles and bicycles. Parking counts were conducted during the morning hour at 4:00 AM, the lunchtime hour at 12:00 PM, and the late evening hour at 10:00 PM. These counts were conducted by technicians circulating through the facility and observing the number of vehicles parked. Spaces used for Zipcars and employees were counted separately from the residential spaces. The counts are summarized in Table 9.

Table 9
ARCHSTONE GARAGE PARKING UTILIZATION^a

Time	Occupied Spaces		Available Vehicle Spaces ^b	Vehicle Parking Utilization Percentage
	Bicycles	Vehicles		
4:00 AM	105	273	141	66%
12:00 PM	105	196	218	47%
10:00 PM	106	254	160	61%

^aBased on parking counts conducted in August 2011 by VAI.

^bBased on 414 available spaces for residents (excludes 3 Zipcar and 17 employee spaces).

As shown in Table 9, the highest utilization was observed at 4:00 AM when 66 percent of the spaces were utilized. The observed morning parking utilization along with the number of occupied apartment units were then used to calculate an observed parking demand rate. The calculated results are listed in Table 10.

Table 10
OBSERVED PARKING USE RATE

Observed Occupied Residential Parking Spaces	Leased and Occupied Residential Units	Observed Parking Use Rate (Spaces/Unit)
273	381	0.72

PROJECTED PARKING DEMAND

The proposed project consists of the construction of approximately 104 residential apartment units. The projected parking demand for the project based on the observed parking demand rate is shown in Table 11.

Table 11
PROJECTED PARKING DEMAND

Parking Demand Method	Proposed Unit Count	Rate (spaces/unit)	Projected Parking Demand
Lease Rate	104	0.78	81
Observed Use Rate	104	0.72	75

As can be seen in Table 10, the theoretical projected parking demand for the project is estimated at between 75 and 81 parking spaces. By providing a parking supply of 83 spaces (equal to 104 units * 0.8 parking spaces/unit), the parking demand for the project can be met within the existing Archstone North Point garage.

On Street Parking Supply

In addition to the garage parking supply, the streets surrounding the Archstone building provide a mix of permitted parking spaces. A graphic summary of the on-street parking supply in the immediate vicinity of the site is shown on Figure 6. The spaces along Leighton Street near the Archstone building are loading zone parking spaces only, while the area along the south side of Glassworks Avenue is residential permit parking only. As requested by the Traffic Department, a parking utilization study of the on-street parking spaces was also conducted, at certain hours throughout the day. This is summarized in Table 12.

Table 12
ON-STREET PARKING UTILIZATION^a

Time	Leighton Street		Glassworks Avenue		Total On-Street Utilization
	Spaces in Use ^b	Utilization Percentage ^c	Spaces in Use ^d	Utilization Percentage ^e	
8:00 AM	3	43%	2	13%	23%
12:00 PM	2	29%	5	33%	32%
4:00 PM	3	43%	2	13%	23%
7:00 PM	4	57%	1	7%	23%

^aBased on parking counts conducted in August 2011 by VAI.

^bIncludes loading zone spaces.

^cBased on 7 total spaces available.

^dIncludes residential permit parking spaces.

^eBased on 15 total spaces available.

Based on the observations summarized in Table 12, the spaces on Leighton Street and Glassworks Avenue are not heavily used. The spaces in front of the existing Archstone building on Leighton Street are policed thoroughly, in that vehicles parked after 11pm are typically towed within 5 minutes. The condominium developments in the Sierra and Tango buildings located on Glassworks Avenue are not substantially occupied and parking is provided below each building for residents which could also indicate why the spaces on Glassworks Avenue are not used.

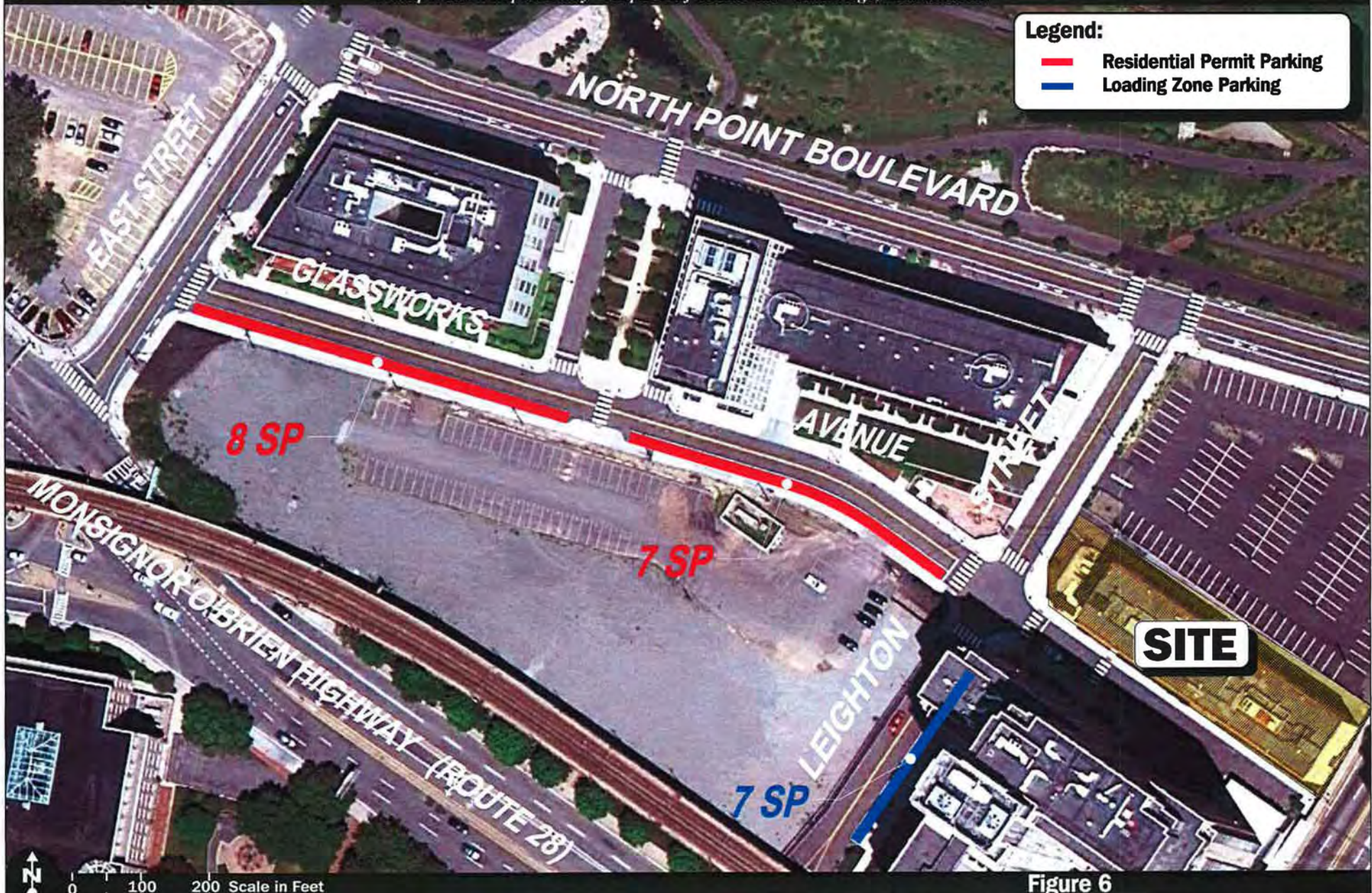


Figure 6

On Street Parking Summary

PROJECT MITIGATION AND CONCLUSION

In order to continue the low vehicle trip generation of the site as compared with the initial estimates for the Archstone North Point building, the same TDM measures will be extended to residents of the Maple Leaf building. These include the following:

- Use of services provided by the Charles River Transportation Management Association (CRTMA) and the EZ Ride Shuttle. All Archstone North Point residents use the EZ Ride free of cost.
- Continue to charge for parking.
- Use of three existing Zipcars on site.
- Provision of one free transit pass for a period of one month to each adult member of a new household (maximum of two passes), for the first month after the household has taken occupancy.
- The existing bicycle parking rooms in the Phase 1 garage will be reconfigured to provide an additional 59 bicycles to accommodate the new residents.

CONCLUSION

The observations of existing traffic activity indicate the existing Archstone North Point apartment building generates a reduced vehicle trip impact as compared with the original estimates of the project. Observed vehicle trip rates are between 57 and 63 percent lower than original estimates, indicating a higher use of alternative transportation and the success of the current efforts to reduce vehicle use at the existing building. Vehicle trips associated with the proposed residential use are also considerably lower than the currently permitted office use. Results of parking utilization studies are provided that indicate a lower parking lease rate and a lower parking use rate for the entire building as compared with the parking supply rate of 0.8 spaces per unit approved by the Planning Board for residential units in 2009. Traffic mitigation in the form of Transportation Demand Management (TDM) measures such as fees for parking and incentives to use alternative transportation such as the EZ Ride shuttle bus and indoor bicycle storage will be extended to residents of the proposed project. The conclusion of this TIS is that the proposed project can be developed as planned with negligible impact on the adjacent street system.