



**CITY OF SOMERVILLE, MASSACHUSETTS**  
***MAYOR'S OFFICE OF STRATEGIC PLANNING & COMMUNITY DEVELOPMENT***  
**KATJANA BALLANTYNE**  
**MAYOR**

THOMAS F. GALLIGANI, JR.  
EXECUTIVE DIRECTOR (ACTING)

October 2022

Tim Corcoran  
JMC/STM/TGCI Union Square I LLC  
100 Grandview Rd Suite 203  
Braintree, MA 02184

Dear Mr. Corcoran,

This letter is the Final Decision of the Director of Mobility for the Mobility Management Plan ('MMP') submitted by JMC/STM/TGCI Union Square I LLC (the 'Applicant') for 346 Somerville Ave (the 'Project') on 08/09/2022 as required by §11.4 Mobility Management of the Somerville Zoning Ordinance for a Development Review Application. The decision is an **Approval with Conditions**. This letter details the conditions necessary for the successful implementation of your plan.

### Background & Applicability

The Applicant proposes to redevelop approximately 21,335 square feet (0.49 acres) of land along Somerville Ave in Somerville, Massachusetts ("Project"), located in an MR5 Zoning district. The Project will consist of one building - an approximate 58,527 square-foot (sf), mixed-use development, containing approximately 2,000 square feet of first-floor retail and 94 residential units. There will be zero (0) on-site vehicle parking spaces.

The development site is located within a transit area, as defined by the Somerville Zoning Ordinance, and there is no requirement for motor vehicle parking for residential uses within a transit area in the MR5 District. The proposed project is located less than 0.3 miles from the Union Square Green Line Station and in proximity to five existing bus routes. The Project will provide 140 interior, long-term bicycle spaces.

**The Proposed Project meets the twenty (20) or more total dwelling unit threshold to trigger Mobility Management Plan (MMP) requirements of the property owner.**

### Plan Commitments



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## Programs and Services Required by SZO

The Applicant has made the following commitments in relation to the mode share requirements for all mobility management plans:

- To making reasonable efforts to control the percentage of trips made by automobile at fifty percent (50%) or less and to implement additional mobility management programs and services if annual monitoring and reporting identifies a shortfall in meeting this goal.

The Applicant has made the following commitments in relation to the programs and services required for the property owner of a residential building with 20 or more dwelling units:

- To post and distribute mobility management information, including information pertaining to pedestrian, cycling and transit access to the Project Site.

The SZO also requires the provision of car share vehicle spaces for residential property owners and the unbundling of vehicle parking spaces; however, the Applicant is not providing any vehicle parking related to the proposed development. Therefore, they do not need to comply with this requirement.

## Additional Commitments

In addition to the above, the Applicant states that the Project will provide 140 interior, long-term bicycle spaces provided for residents, and they could offer the following additional programs & services:

- An Annual Mobility Education Meeting –all residents in the building will be invited to attend a Mobility Education meeting to learn about options annually
- Post TDM Program information on the Project’s websites and related media
- Post Transportation Information, such as maps, schedules, and other information relevant to commuting options in the building lobbies
- Resident information packet, both paper and digital, including:
  - Carshare and bikeshare membership information
  - Local bicycle map and local transit maps and schedules
- Post mobility management information
- Clear wayfinding to bicycle parking, 24-hour access to bicycle parking, a bicycle repair station and cycle racks that meet Somerville-specific or national standards
- Distribute mobility management information.

## Approval Conditions

**CONDITION #1:** The Applicant’s initial vehicle mode share commitment will be 35% so that it is consistent with, and no more vehicle dependent than, the existing commuting characteristics in Census Tract 3512. The Applicant will implement additional mobility management programs and services if annual monitoring and reporting identifies a shortfall in meeting this goal.

**CONDITION #2:** In order to meet the City’s SomerVision 2040 goals, the Applicant shall make reasonable efforts to control the percentage of trips made by automobile at 25% or fewer by 2040. The Applicant will implement additional mobility management programs and services if annual monitoring and reporting identifies a shortfall in meeting this goal.

**CONDITION #3:** The Applicant shall submit posted and distributed mobility management information to the Director of Mobility for review and approval. In addition to local transit maps and schedules,



mobility management information must include the locations of nearby car-sharing stations, Bluebikes stations, and the availability of carpool/vanpool opportunities. After approval by the Director of Mobility and prior to the issuance of any Certificate of Occupancy for the building, mobility management information must be posted in building lobbies, on the project website, and on related media.

**CONDITION #4:** Mobility management information must also be provided to residents when they move in. Yearly emails or newsletters with this information must also be sent to residents, with additional emails sent if there are notable changes to public transportation schedules, bicycle/pedestrian infrastructure, or the availability of ride-share, car-share, or bike-share services in the area.

**CONDITION #5:** The Applicant shall provide a stored value MBTA Charlie Card, with the value of a combined bus/subway pass (currently set at \$90 but subject to MBTA fare increases) to each adult member of a new tenant household upon move in. Up to two Charlie Cards total per household are required. This requirement renews each time a new tenant household moves in to incentivize new households to use public transportation.

**CONDITION #6:** The Applicant shall provide a one-month Bluebikes membership (currently set at \$26.75 but subject to Bluebikes fare increases) to each adult member of a new tenant household during the first month of initial occupancy of a new household upon move in. Up to two one-month Bluebikes memberships total per household are required. This requirement renews each time a new tenant household moves in to incentivize new households to use the bikeshare system.

**CONDITION #7:** At least one (1) bicycle repair facility must be provided for tenants and employees in a convenient location such as the bike storage room in the building.

**CONDITION #8:** The Applicant shall provide real time transit information, consisting of two (2) TransitScreen displays (or equivalent service) that displays real time MBTA and bike share information. One (1) screen shall be located in the residential lobby near the entrance. One (1) screen shall be located in the commercial space facing the sidewalk so to be visible to pedestrians. Details on the locations of all real time transit information screens will be submitted to the Director for approval.

## Monitoring and Reporting

The property owner has committed to Annual Reporting to track, assess, and report on the implementation of the Mobility Management program as required by the Director's submittal requirements, which include:

- Annual travel surveys of tenants and employees of the property.
- Annual reporting of bicycle parking utilization
- Biennial (every other year) counts of automobile trips entering & exiting any parking facilities.
- Status update of Mobility Management program & service implementation.

All monitoring must be conducted at the same time each year, as determined by the Certificate of Occupancy for each building. If the Certificate of Occupancy for a building is issued between September

1 and February 29, the monitoring shall take place during the months of September or October and be reported to the Mobility Division no later than November 30. If the Certificate of Occupancy for a building is issued between March 1 and August 31, monitoring shall take place during the months of April or May and be reported to the Mobility Division no later than June 30. This will ensure that the monitoring captures a realistic assessment of the performance of the project, while giving time to compile the results and report them to the City.

It is important to note that while approved Mobility Management Plans are transferable by and among private parties, this transfer is contingent upon the new owner agreeing to continue to operate in accordance with the previously approved Mobility Management plan, as conditioned. Should the property owner elect to transfer some portion or all of the development subject to this Mobility Management Plan, commitment to the previously approved Mobility Management Plan is required by the new property owner.

I look forward to working with you in the future as you implement this plan. If you have any questions, please feel free to contact me at (617) 625-6600 or [brawson@somervillema.gov](mailto:brawson@somervillema.gov).

Sincerely,



Brad Rawson  
Director of Mobility  
Mayor's Office of Strategic Planning & Community Development  
City of Somerville, Massachusetts

I certify that I have read and agree to implement the Mobility Management Plan in the form approved by the Director of Mobility. I understand that failure to implement the approved plan may result in enforcement actions taken by the City of Somerville.

Agreed and accepted,



Tim Corcoran  
JMC/STM/TGCI Union Square I LLC

# Mobility Management Plan

346 Somerville Avenue

Somerville, Massachusetts

PREPARED FOR:

**JMC/STM Union Square, LLC**

100 Grandview Road, #203

Braintree, MA 02184

PREPARED BY:



120 Middlesex Avenue

Suite 20

Somerville, MA

617.776.3350

*In association with:*

Icon Architecture

September 2020

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## Contact Information

**Site Address and Project Name:** 346 Somerville Avenue, Somerville, MA

**Company Name:** JMC/STM Union Square, LLC

**Company Address:** 100 Grandview Road, #203, Braintree, MA 02184

**Company Telephone Number:** (781) 849-0011

**Company Designated Contact:** Peter Mahoney

**Company Email Address:** pmahoney@corcoranmgmt.com

## Project Description

In accordance with Article 11.4.3 of the Somerville Zoning Ordinance (the “SZO”), 346 Somerville LLC (the “Proponent”), respectfully submits this Mobility Management Plan to the City of Somerville (the “City”) for review and approval.

The Proponent proposes to redevelop approximately 21,335 square feet (0.49 acres) of land along Somerville Avenue and Lake Street in the south eastern end of Somerville, Massachusetts (the “Project”), with a 58,527 gross square feet (sf) mixed-use development consisting of one (1) building, containing approximately 2,000 square feet of first-floor retail and 94 residential units. There will be zero (0) parking spaces constructed on-site.

## Project Programming

The Project consists of one (1) building that will be constructed on-site. The specific unit mix, height, and sizing is described in Table 1 and shown in Figure G-003 of the Design Development Architectural Plan Set.

**Table 1: Program Table<sup>1</sup>**

	Proposed Building
Total Net Square Feet	58,527
Height (feet)	73'-10"
Number of Stories	6 + Basement
Residential Square Feet	54,141
Residential Units	94
Commercial Square Feet	2,000
Common Area Square Feet	2,386
On-Site Parking Spaces	0
Floor-to-Area Ratio (FAR)	2.74

<sup>1</sup>Data was gathered from the Design Development Architectural Plan Set dated April 15, 2020

## Project Schedule/Phasing

With the project nearing design completion, the Applicant expects to work diligently with the City to complete the review and approval processes.

## Vehicle and Bicycle Parking

The following section summarizes the proposed parking supply for the site. Plans for both the vehicle parking and bicycle parking can be found in the Transportation Access Plan.

### Vehicle Parking

The Project will provide zero (0) on-site parking spaces. The total on-site parking count is based on the parameters set forth in the SZO for a project located in an MR5 zone. Based on the current design, the SZO states that a maximum total of 94 vehicle parking spaces are allowed. In lieu of a neighborhood park, the development team is forgoing any on-site parking to encourage tenants to use non-vehicular modes of transportation. The Proponent feels that zero (0) on-site parking is appropriate given the Project Site's proximity to five (5) MBTA bus routes within 0.2 miles of the Site and the nearby MBTA Green Line stations being constructed at Union Square station 0.3 miles from the site and the East Somerville Station 0.6 miles from the site. Refer to the Existing Condition section for a summary of nearby transit services.

### Loading/Delivery/Pick-up/Drop-off

DCI prepared a memorandum in November 2019 that details the proposed loading/delivery/pick-up/drop-off zone along Somerville Avenue in front of the Project site. The proposed zone will be approximately 40 feet in length immediately to the east of the proposed curb cut, which will make it easier for vehicles to access and exit the zone. A majority of the vehicle-trips will be accessing the site by utilizing this zone and the trip distribution reflects this. The November 2019 memo details the size and location of the zone, as well as the anticipated usage.

### Bicycle Parking

The Project will provide long-term bicycle parking storage areas that exceed the requirements for bicycle parking as stated in the Somerville Zoning Ordinance. Based on the current design, the SZO requires that 9+2+94 (105) bicycle parking spaces are provided on-site. In order to encourage non-vehicular transportation by the tenants of the site, there will be 140 interior, long-term bicycle spaces provided for residents. The location of the bicycle parking is shown in Figure C-101.

## Local Transportation

There are multiple public transportation options provided by the Massachusetts Bay Transportation Authority (MBTA) within the vicinity of the Project site. A summary of the existing public transportation options is provided in the subsequent paragraphs, followed by a discussion of planned enhancements.

### Existing Conditions

Within an approximate 0.5-mile radius of the Project site, the MBTA services the area with five (5) separate bus routes: 85, 86, 87, 91, and CT2. Additionally, there will be future MBTA Green Line stations located 0.3 miles from the Project site at Union Square station and 0.6 miles from the Project site at the East Somerville station.

The MBTA services the study area with bus routes 85, 86, 87, 91, and CT2. Bus routes 85 and 87 stop at the Bow Street at Warren Avenue bus stop, which is approximately 0.1 miles from the Project site (two-minute walk). Bus route 85 runs along Bow Street between Kendall Station, a stop on the MBTA Red Line in Cambridge, and Avon Street at Central Street in Somerville. Bus route 87 runs along Bow Street between Arlington Center in Arlington and Lechmere Station in Cambridge, a stop on the MBTA Green Line. Bus route 86, 91 and CT2 stop at the Somerville Avenue at Stone Avenue bus stop, which is approximately 0.2 miles from the Project site (five-minute walk). Bus route 87 runs along Somerville Avenue between Broadway at Franklin Street in Arlington to Lechmere Station. Bus route 91 runs along Somerville Avenue between Central Square Station, a stop on the MBTA Red Line in Cambridge, and Sullivan Square station, a stop on the MBTA Orange Line in Somerville. Bus route CT2 runs along Somerville Avenue between Sullivan Square Station and Ruggles, a stop on the MBTA Orange Line as well as Needham and Providence/Stoughton Commuter Rail Lines in Roxbury. Peak period frequencies/headways and ridership for the MBTA bus and rapid transit services are summarized in Table 2. Detailed schedules and bus routes for each bus service are provided in the Appendix.

The closest MBTA Subway stations are approximately 1.25 to 1.5 miles from the Project site. These include Sullivan Square on the MBTA Orange Line, Central Square and Porter Square on the MBTA Red Line, and Lechmere Station on the MBTA Green Line. Sullivan Square, Central Square, and Porter Square all have bicycle storage facilities, with both Sullivan and Central Square stations having covered bicycle parking. Bus stops within walking distance of the Project Site provide connections to these subway stops.

**Table 2: Project Area MBTA Ridership Statistics**

Bus Route/ MBTA Line	Origin/ Destination	Peak Hour Frequency (minutes)		Ridership (Number of Passengers) <sup>a</sup>		
				Weekday	Saturday	Sunday
85	Spring Hill to Kendall MIT Station	30-40	Inbound	301	N/A	N/A
			Outbound	<u>288</u>	<u>N/A</u>	<u>N/A</u>
			Total	589	N/A	N/A
86	Sullivan Square Station to Reservoir Station	12-15	Inbound	2,951	1,430	895
			Outbound	<u>3027</u>	<u>1,780</u>	<u>1,022</u>
			Total	5618	3,210	1,917
87	Arlington Center/Clarendon Hill to Lechmere Station via Somerville Ave	20	Inbound	1,943	1,436	817
			Outbound	<u>1,853</u>	<u>1,422</u>	<u>925</u>
			Total	3,796	2,858	1,742
91	Sullivan Square Station to Central Square, Cambridge	25	Inbound	784	713	354
			Outbound	<u>909</u>	<u>860</u>	<u>389</u>
			Total	1,693	1,574	743
CT2	Kendall MIT Station to Ruggles Station	20-30	Inbound	1,425	N/A	N/A
			Outbound	<u>1,390</u>	<u>N/A</u>	<u>N/A</u>
			Total	2,815	N/A	N/A

<sup>a</sup>Based on MBTA's Ridership and Service Statistics, 14<sup>th</sup> Edition (2014)

## Green Line Extension

The Green Line Extension (GLX) project will extend the existing MBTA Green Line Service from a relocated Lechmere Station in East Cambridge to Union Square in Somerville and to College Avenue in Medford. Once completed, trains will operate every five to six minutes during the peak

periods, providing more efficient service to and from downtown Boston. The current anticipated completion date for this project is Fall 2021. A map of the proposed GLX project is attached in the Appendix.

This project will increase the public transportation availability in the City of Somerville. The planned stop at Union Square station will be approximately 0.3 miles from the Project Site. It will provide residents of the Project Site light rail transit access to East Cambridge and Downtown Boston. The planned stop at the East Somerville Station will be approximately 0.6 miles from the Project Site. It will provide light rail transit within Somerville as well as to Medford to the northwest and East Cambridge and Downtown Boston to the southeast.

### Bicycle Network

Within the area of the Project Site, there is a 5-foot wide bike lane painted on both sides of Somerville Avenue west of the intersection of Somerville Avenue at Church Street and on the south side of Somerville Avenue east of this intersection. With Somerville Avenue functioning as a one-way street between Church Street and Webster Avenue, the 5-foot painted bike lane on Bow Street serves as a link for westbound bicycle travel on Somerville Avenue. Somerville Avenue functions as a major bicycle route with dedicated bicycle lanes for its entire length. This provides bicycle access to the MBTA Red Line stop at Porter Square 1.2 miles northwest of the Project site. Additionally, a BlueBikes Station is located in Union Square approximately 0.18 miles southeast of the Project site adjacent to the Somerville Avenue at Stone Avenue bus stop. Figure 1 shows the bicycle network within Somerville near the Project site, which is shown in red.



Figure 1 – Somerville Bicycle Map Near Project Site

### Sidewalks

Pedestrian connectivity in the area is facilitated by existing sidewalks and crosswalks. As part of the existing conditions analysis, an inventory of the existing sidewalks and crosswalks was taken.

Marked crosswalks are provided at two (2) of the three (3) study intersections. Wheel chair ramps are provided at all study intersections.

In the vicinity of the Somerville Avenue at Hawkins Street intersection, the sidewalks on the north and south side of Somerville Avenue are approximately 12 feet wide. The sidewalk on the west side of Hawkins Street is approximately 7.5 feet wide and the sidewalk on the east side of Hawkins Street is approximately 6 feet wide.

In the vicinity of the Somerville Avenue at Church Street intersection sidewalks on the south side of Somerville Avenue are approximately 8.5 feet wide west of the intersection and 10.5 feet wide east of the intersection. The sidewalk on the north side of Somerville Avenue west of the intersection is approximately 11 feet wide. The sidewalk on the north side of Somerville Avenue east of the intersection is approximately 10.5 feet wide. South of the intersection, the sidewalk on the west side of Church Street is approximately 5 feet wide and the sidewalk on the east side of the intersection is approximately 6.5 feet wide. North of the intersection, the sidewalk on the west side of Church Street is approximately 6 feet wide and the sidewalk on the east side of the intersection is approximately 6.5 feet wide.

In the vicinity of the Hawkins Street at Lake Street intersection the sidewalk on the west side of Hawkins Street is approximately 7.5 feet wide north and south of the intersection. The sidewalk on the east side of Hawkins Street is approximately 6 feet wide north and south of the intersection. The sidewalk on the north side of Lake Street is approximately 7.5 feet wide and the sidewalk on the south side of Lake Street is approximately 6.5 feet wide.

Additional pedestrian amenities within the study area add to the pedestrian facilities along Somerville Avenue. Between the intersections with Church Street and Hawkins Street, there are two midblock crosswalks which are marked by pedestrian warning signs. Three (3) of the four (4) crosswalks across Somerville Avenue in the study area provide curb bump outs that shorten the crossing distance for pedestrians and prevent pedestrian visibility from being block by parked cars. Additionally, street trees and on-street parking create a barrier between pedestrians and vehicle traffic.

## Transportation Assumptions

DCI produced a Traffic Impact and Access Study (TIAS) in May 2019 that details the trip generation for the proposed Project. The subsequent Trip Generation and Trip Distribution sections are taken from the May 2019 TIAS.

### Trip Generation

Land Use Code (LUC) 221 – Multifamily Housing (Mid-Rise) and LUC 932 – High Turnover, Sit-Down Restaurant were used for this Project which is comprised of 94 residential dwelling units and approximately 2,000 square feet of restaurant space. The *Trip Generation Manual, 10<sup>th</sup> Edition*, published by the Institute of Transportation Engineers (ITE) in 2017 provides unadjusted vehicle-trip estimates for Weekday AM peak hour, Weekday PM peak hour, and Weekdays.

**Table 3: Residential Trip Generation Calculations (Per ITE)**

Land Use Code: 221		Multifamily Housing (Mid-Rise)	
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Size per # of Dwelling Units (X)	94	94	94
Fitted Curve Equation	$\ln(T) = 0.98^* \ln(X) - 0.98$	$\ln(T) = 0.96^* \ln(X) - 0.63$	$T = 5.45(X) - 1.75$
<b>Total Trips (T)</b>	<b>32</b>	<b>42</b>	<b>510</b>
Entering%	26%	61%	50%
Exiting%	74%	39%	50%
Entering Trips	8	26	255
Exiting Trips	24	16	255

**Table 4: Restaurant Trip Generation Calculations (Per ITE)**

Land Use Code: 932		High Turnover, Sit-down Restaurant	
	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Size per 1,000 Square Feet	2.000	2.000	2.000
Average Trip Rate	9.94	9.77	112.18
<b>Total Trips</b>	<b>20</b>	<b>20</b>	<b>224</b>
Entering%	55%	62%	50%
Exiting%	45%	38%	50%
Entering Trips	11	12	112
Exiting Trips	9	8	112

As shown in Table 3, the proposed dwelling units are expected to generate approximately 32 trips during the Weekday AM peak hour, 42 trips during the Weekday PM peak hour, and 510 trips during a typical weekday. As shown in Table 4, the proposed restaurant space is expected to generate approximately 20 trips during the Weekday AM peak hour, 20 trips during the Weekday PM peak hour, and 224 trips during a typical weekday. To account for location-specific travel mode trends, non-vehicular trips will be deducted in the subsequent section.

## Travel Mode Shares

Trip Generation rates set forth by the ITE are typically based on data from suburban developments with no nearby transit service and no appreciable share of people walking or bicycling to or from the site. If a project is in an area with transit service or a substantial share of trips made by bicycle or on foot, these non-vehicle trips should be estimated and deducted to get the predicted vehicle volume. MBTA bus routes 85, 86, 87, 91, and CT2 service the project area. Also, the future Union Square station on the MBTA Green Line is approximately 0.3 miles from the Project site, and the future East Somerville station on the MBTA Green Line is approximately 0.6 miles from the Project site. The estimated trips via transit service were deducted from the predicted vehicular traffic.

The proposed Project is in a census tract that has a high use of non-vehicular modes. Commuting characteristics were analyzed from the 2013-2017 American Community Survey 5-Year Estimates.

Census Tracts 3512.03, 3512.04, 3513, and 3515 in Somerville, which surround the Project site, were analyzed to estimate mode shares within the Project area. Table 5 shows the US Census mode share data used for this Project.

**Table 5: Mode Split Percentages**

MEANS OF TRANSPORTATION TO WORK	Census Tract 3512.03	Census Tract 3512.04	Census Tract 3513	Census Tract 3515	Census Tract Averages	Percentage (Used for Residential)	Percentage (Used for Retail)
Car, truck, or van	26.7%	37.5%	45.8%	35.2%	36.0%	<b>36.0%</b>	<b>53.9%</b>
Drove alone	24.7%	33.5%	42.1%	28.0%	32.3%	<b>32.3%</b>	<b>50.2%</b>
Carpooled:	1.9%	4.0%	3.7%	7.2%	3.7%	<b>3.7%</b>	<b>3.7%</b>
In 2-person carpool	1.6%	4.0%	1.0%	7.2%	2.9%	<b>2.9%</b>	<b>2.9%</b>
In 3-person carpool	0.0%	0.0%	0.8%	0.0%	0.2%	<b>0.2%</b>	<b>0.2%</b>
In 4 person carpool	0.3%	0.0%	2.0%	0.0%	0.6%	<b>0.6%</b>	<b>0.6%</b>
Public transportation	26.8%	20.6%	19.5%	29.3%	23.5%	<b>23.5%</b>	<b>23.5%</b>
Bicycle	14.7%	13.2%	11.8%	7.4%	12.5%	<b>12.5%</b>	<b>0.0%</b>
Walked	28.8%	21.1%	13.2%	19.0%	21.1%	<b>21.1%</b>	<b>21.1%</b>
Other means (including taxicab)	0.3%	0.3%	3.9%	2.0%	1.5%	<b>1.5%</b>	<b>1.5%</b>
Worked at home	2.7%	7.3%	5.8%	7.1%	5.4%	<b>5.4%</b>	<b>0.0%</b>

As shown in Table 5, many of the residents use non-vehicular modes to get to and from their residences. The mode split for public transportation for the residential units, as well as the bike/walking percentage for both land uses, were determined based on the mode split data from the Census Tracts previously mentioned.

### Adjusted Trips

As described above, adjustments were made to the base trips taking into account the US Census Tract data and future access to the MBTA Green Line. The *ITE Trip Generation Handbook, 3<sup>rd</sup> Edition* includes an Average Vehicle Occupancy (AVO) of 1.1 for residential buildings. Based on the average modal split data above, an AVO rate of 1.142 persons per vehicle was calculated for the residential units and an AVO of 1.095 persons per person was calculated for the retail space. The number of trips were adjusted using the AVO and census tract modal split data. By applying the non-vehicular mode split to the Trip Generation calculations, the amount of expected vehicle traffic associated with the Project is reduced. The resulting adjusted vehicular traffic on the surrounding roadways was estimated and is summarized in Table 6. The US Census Journey to Work data is attached in the Appendix.

Pass-by trips are expected to account for a portion of the generated trips by the restaurant. Pass-by trips are trips that are already in the traffic network, decide to stop at the location being studied, and then continue onto the traffic network. Pass-by trips are not new trips generated by the Project, thus they are subtracted from the generated trips. One of the main reasons for deducting pass-by trips for the restaurant is its location in a high traffic area which will likely result in many generated trips originating from trips already in the network.

Table 6: Adjusted Mixed-Use Site Trips

<i>Mixed-Use Development</i>	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Base Trips (per ITE)	43	52	630
Total Person-Trips	49	59	717
Total Person-Vehicle-Trips	21	24	286
<b>Total Vehicle-Trips</b>	<b>18</b>	<b>21</b>	<b>252</b>
Entering Vehicle-Trips	7	13	126
Exiting Vehicle-Trips	11	8	126
Total Public Transportation Trips	11	14	169
Total Bicycle Trips	4	6	70
Total Walking Trips	10	12	151
Total "Other" Trips	3	3	41

As indicated in Table 6, the Project is expected to generate **18 vehicle-trips** during the Weekday AM peak hour, **21 vehicle-trips** during the Weekday PM peak hour, and **252 vehicle-trips** during a typical weekday.

Although there are currently vehicle-trips entering and exiting the site during both the Weekday AM and Weekday PM peak hours, these trips were not deducted from the proposed vehicle-trips, providing a more conservative trip generation estimate. The current site has a driveway on Somerville Avenue and after reconstruction the driveway will be shifted approximately 10 feet to the east.

## Trip Distribution

Trip distribution patterns were estimated for site-generated trips both to and from the Project site. Given that there is no on-site parking, the only site driveway for the Project is designated for delivery vehicles. There is a proposed location along Somerville Avenue in front of the Project site for loading/delivery/pick-up/drop-off, which a majority of vehicle-trips to the site will utilize (see Figures C-102 and C-103 in the Appendix). Bicycle trips are assumed to originate at the entrance/exits to the building at Somerville Ave and Lake Street (see Figure C-104 in the Appendix). Pedestrian trips are assumed to originate from the building entrances along Somerville Avenue and Lake Street (see Figure C-105 in the Appendix). Public transportation trips were included in pedestrian trip distribution. The existing traffic data collected at the intersections of Somerville Avenue at Church Street and Lake Street at Hawkins Street were used to determine the trip distribution percentages and is consistent with the May 2019 TIAS.

## Mobility Management Commitments

The 346 Somerville Avenue Project is committed to achieving the City's goal of having the percentage of trips made to the site by automobile be 50% or less, consistent with SomerVision. To that end, the Project is recommending several programs and services to reduce single-occupancy vehicle use.

The Project site has been designed to form a walkable and bikeable node in Somerville. This includes:

- Pedestrian accommodations and site through-connectivity, connecting Lake Street directly to Somerville Avenue.
- Indoor bicycle parking spaces for residents with a bicycle repair facility on-site.

The SomerVision plan outlines a priority on non-auto transit. Specifically, 50% of all trips should be made via non-auto modes. The City is supporting this goal by creating additional bicycle, pedestrian, and transit facilities throughout Somerville. For those accessing this area of Union Square, the multimodal infrastructure will provide alternatives to the personal vehicle. The Project team has developed the Mobility Management Plan and will work with the City to implement these measures. These programs and services include:

- Marketing & Education
- On-Site Services
- Monitoring and Annual Reporting

## Marketing and Education

A key element of all Transportation Demand Management (TDM) programs is letting potential users know that they exist. While the specific programs have yet to be determined, the Project team intends to provide information through channels such as:

- Annual Mobility Education Meeting – all residents in the building will be invited to attend a Mobility Education meeting to learn about options annually. It is important to do this each year as mobility options will change.
- TDM Program information on the Project’s websites and related media
- Posted Transportation Information, such as maps, schedules, and other information relevant to commuting options in the building lobbies.
- Residential distributed information packet, both paper and digital, including:
  - Carshare and bikeshare membership information
  - Local bicycle map and local transit maps and schedules
- Posted mobility management information
- Distributed mobility management information

## On-Site Services

The larger Somerville area offers transit service, bicycle infrastructure, and sidewalk coverage. However, there are additional services that the Project development will offer, including:

- **Indoor Bicycle Parking:** There will be 140 interior bicycle parking spaces located on-site. Considerations for the final bicycle parking design to encourage its use are:
  - Clear wayfinding to bicycle parking, particularly in garage facilities,
  - 24-hour access,

- Bicycle racks that meet Somerville-specific or national standards
- Location close to entrances
- Bicycle repair station

## Monitoring and Annual Reporting

### Annual Travel Surveys

The Proponent will conduct annual travel surveys of the residents and employees of the property. These surveys will be developed through consultation with the City of Somerville to determine the number of residents and employees utilizing public transportation, those traveling to the site using car-sharing services, or those walking or biking to the site.

Following the opening of the Site, the Proponent will conduct biennial counts of bike parking occupancy at the Site. This will be done through a field inventory to be conducted during a representative weekday during the overnight period when it can reasonably be assumed that the peak parking demand for all residents and visitors would occur. A continuous 24-hour count of the proposed loading area will be conducted to capture the volume of pick-ups and drop-offs (car-sharing, deliveries, etc.). As part of the summary report to be provided to the City, a status summary of the Mobility Management Plan in place at the Site will also be provided.

### Status Update

Based on the findings from the survey and the most recent set of biennial counts, the building in the development will submit a Mobility Status update annually to the City of Somerville. The update will follow any guidelines provided by the City of Somerville and will include:

- Survey results
- Peak bicycle parking occupancy counts
- Digital files as required
- Comparison with and review of previous trends as data is available

# ***APPENDIX***

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**PUBLIC TRANSPORTATION**

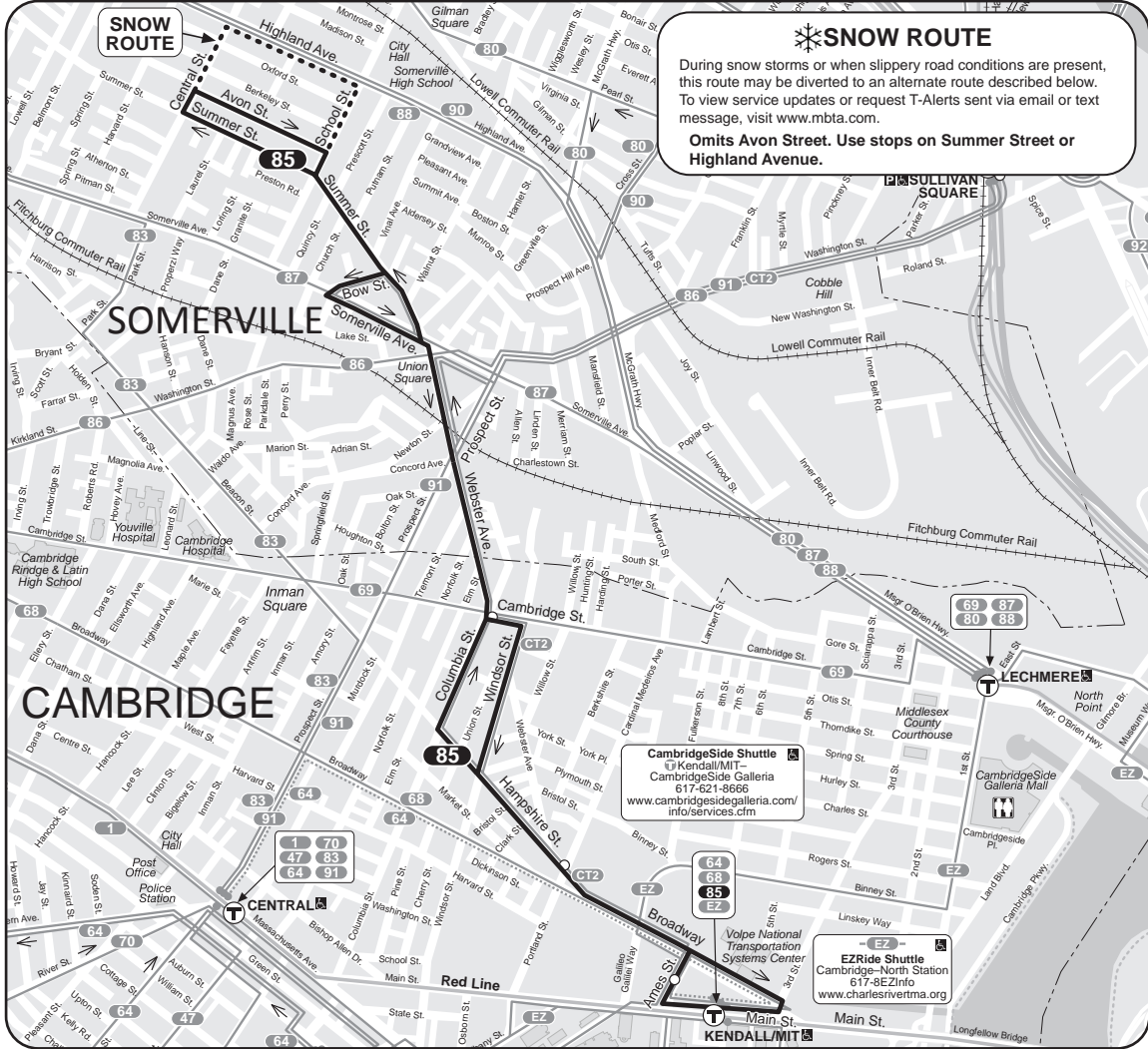
**TRIP GENERATION**

**COMPREHENSIVE SITE PLAN AND CORRESPONDING TRAFFIC FIGURES**

# ***PUBLIC TRANSPORTATION***

---

Route 85 Spring Hill- Kendall/MIT Station



85

Effective August 30, 2020

Spring Hill-  
Kendall/MIT Station

Serving

- Summer Street, Somerville
- Somerville High School
- Union Square, Somerville
- One Kendall Square
- Cambridge Marriott
- Red Line



Massachusetts Bay  
Transportation Authority

**massDOT**  
Massachusetts Department of Transportation





Information 617-222-3200 • 1-800-392-6100  
(TTY) 617-222-5146 • [www.mbta.com](http://www.mbta.com)

85 Weekday					
Inbound			Outbound		
Leave Spring Hill	Arrive Union Square	Arrive Kendall/MIT Sta.	Leave Kendall/MIT Sta.	Arrive Union Square	Arrive Spring Hill
5:45A	5:53A	6:02A	6:05A	6:13A	6:17A
6:25	6:33	6:43	6:45	6:53	6:57
7:05	7:13	7:23	7:25	7:32	7:39
7:45	7:53	8:04	8:15	8:22	8:29
8:20	8:30	8:43	9:00	9:07	9:14
8:35	8:45	8:58	9:45	9:52	9:59
9:20	9:28	9:39	10:25	10:31	10:38
10:05	10:13	10:24	11:02	11:08	11:15
10:40	10:48	10:59	11:42	11:48	11:55
11:20	11:28	11:39			
			12:22P	12:28P	12:35P
12:00N	12:08P	12:18P	1:02	1:08	1:15
12:40P	12:48	12:58	1:42	1:48	1:55
1:20	1:28	1:38	2:22	2:28	2:35
2:00	2:08	2:18	3:02	3:09	3:16
2:40	2:48	2:58	3:45	3:52	3:59
3:20	3:28	3:38	4:30	4:39	4:47
4:05	4:13	4:25	5:20	5:29	5:40
4:55	5:03	5:15	6:10	6:18	6:26
5:45	5:53	6:04	6:55	7:02	7:09
6:30	6:38	6:48	7:45	7:51	7:58
7:20	7:28	7:38			

No service on weekends.

Route 85  
Spring Hill-Kendall/MIT Station

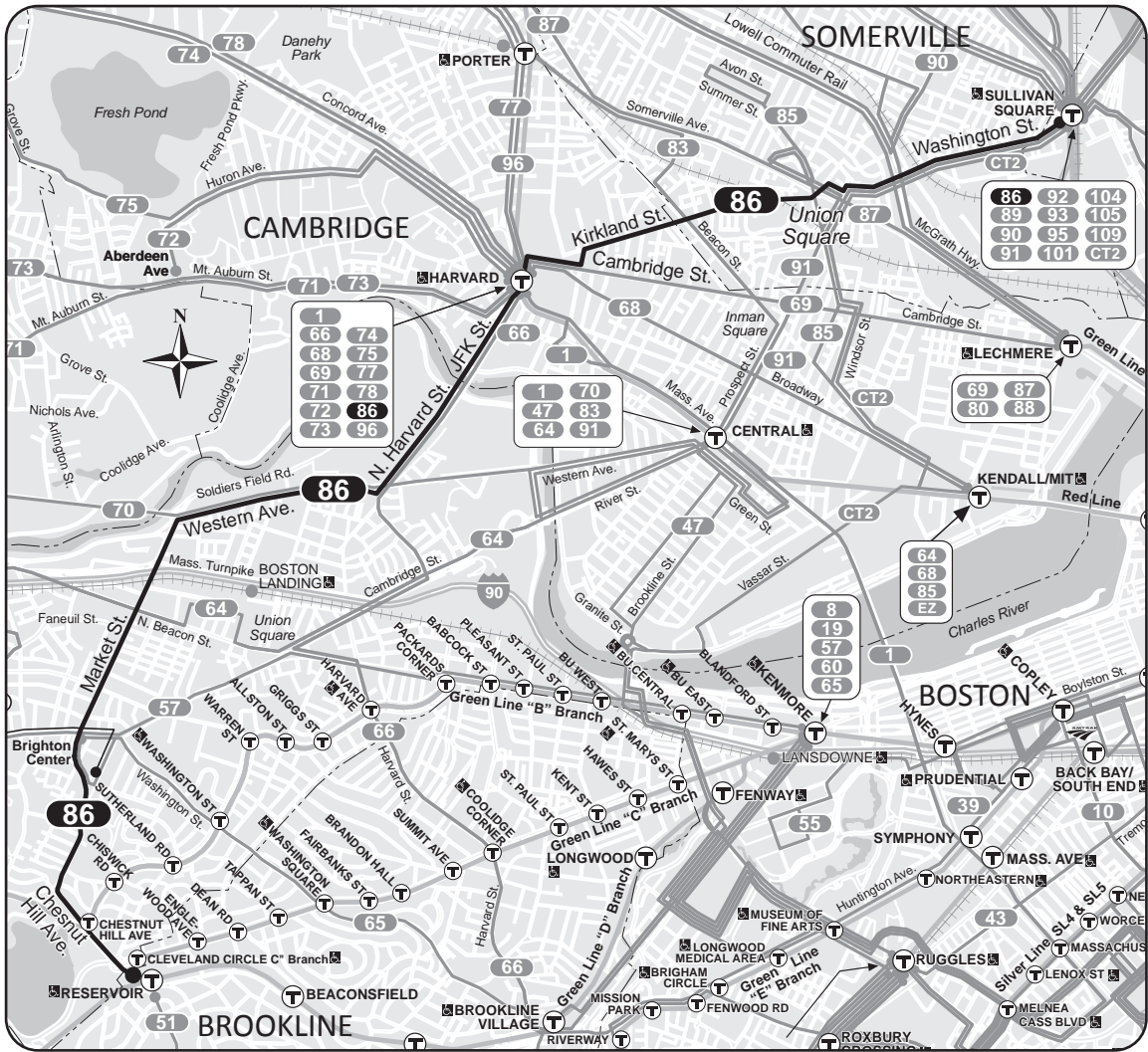
 All buses are accessible to persons with disabilities

				
Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

**VALID PASSES:** LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); \*Student/Youth LinkPass (\$30.00/mo.); \*\*Senior/TAP LinkPass (\$30/mo.); and express bus, commuter rail, and boat passes.  
**FREE FARES:** Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.  
\* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit [www.mbta.com/youthpass](http://www.mbta.com/youthpass) for details.  
\*\* Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Fall 2020 & Winter 2021 Holidays  
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday  
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Route 86 Sullivan Square Station - Reservoir Station (Cleveland Circle)



Schedule Change

86

Effective August 30, 2020

Sullivan Square Station-  
Reservoir Station  
(Cleveland Circle)

Serving

- Union Square, Somerville
- Harvard Square & Station
- Brighton Center
- St. Elizabeth's Medical Center
- Red Line
- Orange Line
- Green Line



 Massachusetts Bay  
Transportation Authority *massDOT*  
Massachusetts Department of Transportation  
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(TTY) 617-222-5146 • [www.mbta.com](http://www.mbta.com)

86

Weekday

Inbound			Outbound		
Leave Sullivan Sq. Station	Arrive Harvard Square	Arrive Reservoir Station	Leave Reservoir Station	Arrive Harvard Square	Arrive Sullivan Sq. Station
5:00A	5:09A	5:30A	5:39A	5:58A	6:13A
5:15	5:24	5:45	5:52	6:11	6:26
5:30	5:39	6:00	6:07	6:26	6:44
5:45	5:54	6:15	6:22	6:43	7:02
5:55	6:04	6:25	6:33	6:57	7:16
Every 10 mins or better until 8:17			Every 11 mins or better until 9:20		
8:17	8:35	9:09	9:20	9:48	10:08
8:33	8:51	9:25	9:35	10:03	10:23
8:55	9:13	9:44	10:00	10:28	10:48
9:30	9:44	10:13	10:25	10:53	11:13
10:05	10:19	10:48	11:00	11:28	11:48
10:40	10:54	11:23	11:35	12:03P	12:23P
11:20	11:34	12:03			
11:55	12:09P	12:38P	12:15P	12:43	1:03
			12:50	1:18	1:38
12:27P	12:41	1:10	1:20	1:48	2:09
12:50	1:04	1:33	1:43	2:11	2:34
1:10	1:24	1:53	2:05	2:32	2:55
1:25	1:39	2:10	2:25	2:52	3:19
1:40	1:54	2:26	2:44	3:11	3:39
1:55	2:12	2:46	3:00	3:27	3:55
2:10	2:28	3:02	3:15	3:42	4:10
2:25	2:43	3:17	3:30	3:57	4:25
2:40	2:58	3:32	3:45	4:12	4:43
2:55	3:13	3:47	4:00	4:27	5:00
3:10	3:28	4:02	4:15	4:42	5:15
3:25	3:43	4:17	4:30	4:58	5:31
3:37	3:55	4:29	4:44	5:12	5:45
3:49	4:07	4:41	4:58	5:26	5:59
4:01	4:19	4:53	5:10	5:38	6:11
4:13	4:31	5:07	5:22	5:50	6:22
4:25	4:43	5:22	5:34	6:02	6:32
4:37	4:55	5:35	5:46	6:12	6:42
4:49	5:08	5:48	5:58	6:21	6:51
5:01	5:21	6:01	6:10	6:33	7:03
5:13	5:33	6:13	6:24	6:47	7:15
5:28	5:48	6:28	6:38	7:01	7:28
5:43	6:03	6:39	6:53	7:16	7:43
6:01	6:21	6:54	7:08	7:31	7:58
6:20	6:37	7:09	7:23	7:46	8:07
6:45	7:01	7:33	7:40	8:03	8:20
7:10	7:26	7:54	8:00	8:20	8:37
7:35	7:47	8:15	8:25	8:45	9:02
8:05	8:17	8:45	8:55	9:15	9:32
8:35	8:47	9:15	9:25	9:45	10:02
9:15	9:27	9:50	10:00	10:20	10:37
10:00	10:10	10:33	10:45	11:04	11:19
10:45	10:55	11:15	11:25	11:40	11:55
11:25	11:35		12:05A	12:20A	12:35A
12:05A	12:15A	12:34A	12:40	12:55	1:10

86

Saturday

Inbound			Outbound		
Leave Sullivan Sq. Station	Arrive Harvard Square	Arrive Reservoir Station	Leave Reservoir Station	Arrive Harvard Square	Arrive Sullivan Sq. Station
5:00A	5:09A	5:22A	5:30A	5:44A	5:56A
6:00	6:09	6:26	6:30	6:47	7:00
6:30	6:39	6:56	7:05	7:22	7:35
6:55	7:05	7:26	7:31	7:48	8:01
7:20	7:30	7:51	7:57	8:18	8:35
7:45	7:55	8:16	8:27	8:48	9:05
8:15	8:25	8:46	8:54	9:15	9:32
8:40	8:50	9:12	9:21	9:46	10:02
9:05	9:19	9:43	9:48	10:14	10:30
9:25	9:39	10:03	10:15	10:41	11:00
9:50	10:04	10:28	10:42	11:08	11:27
10:15	10:29	10:57	11:09	11:35	11:54
10:42	10:57	11:25	11:36	12:02P	12:21P
11:09	11:24	11:52			
11:36	11:51	12:19P	12:03P	12:29	12:48
			12:30	12:56	1:15
12:03P	12:18P	12:46	12:57	1:23	1:42
12:30	12:45	1:13	1:24	1:50	2:09
12:57	1:12	1:40	1:51	2:17	2:36
1:24	1:39	2:07	2:18	2:44	3:03
1:51	2:06	2:34	2:45	3:11	3:30
2:18	2:33	3:01	3:12	3:38	3:57
2:45	3:00	3:28	3:39	4:05	4:24
3:12	3:27	3:55	4:06	4:32	4:51
3:39	3:54	4:22	4:33	4:56	5:15
4:06	4:21	4:49	5:00	5:23	5:42
4:33	4:48	5:16	5:27	5:50	6:09
5:00	5:15	5:43	5:54	6:17	6:36
5:27	5:42	6:10	6:21	6:44	7:01
5:55	6:09	6:37	6:48	7:10	7:27
6:25	6:38	7:06	7:15	7:37	7:54
6:55	7:08	7:34	7:40	8:02	8:19
7:40	7:50	8:14	8:25	8:47	9:04
8:25	8:35	8:59	9:10	9:30	9:46
9:10	9:20	9:44	9:55	10:15	10:31
9:55	10:05	10:25	10:35	10:55	11:11
10:40	10:50	11:10	11:15	11:34	11:48
11:20	11:28	11:46	11:55	12:11A	12:25A
12:00M	12:08A	12:26A	12:35A	12:51	1:05

Fall 2020 & Winter 2021 Holidays  
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday  
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat





Route 86  
Sullivan Station-  
Reservoir Station (Cleveland Circle)

86

Sunday

Inbound			Outbound		
Leave Sullivan Sq. Station	Arrive Harvard Square	Arrive Reservoir Station	Leave Reservoir Station	Arrive Harvard Square	Arrive Sullivan Sq. Station
7:30A	7:41A	8:01A	8:05A	8:24A	8:41A
8:09	8:20	8:40	8:45	9:05	9:22
8:45	8:56	9:16	9:20	9:41	9:58
9:11	9:22	9:44	9:50	10:11	10:28
9:38	9:49	10:13	10:18	10:41	10:59
10:05	10:18	10:41	10:46	11:11	11:29
10:34	10:47	11:11	11:18	11:43	12:01
11:04	11:17	11:41	11:48	12:15P	12:33P
11:34	11:48	12:14P			
12:06P	12:20P	12:46	12:21P	12:47	1:05
12:39	12:53	1:19	12:54	1:20	1:38
1:12	1:26	1:54	1:27	1:53	2:11
1:44	1:58	2:26	2:01	2:27	2:45
2:18	2:32	3:00	2:34	3:01	3:19
2:52	3:06	3:34	3:07	3:34	3:52
3:25	3:39	4:07	3:41	4:04	4:22
3:58	4:12	4:40	4:14	4:37	4:55
4:29	4:43	5:08	4:47	5:10	5:28
5:01	5:15	5:40	5:17	5:40	5:58
5:34	5:48	6:13	5:49	6:12	6:30
6:03	6:17	6:41	6:20	6:43	7:01
6:35	6:46	7:09	6:49	7:12	7:30
7:08	7:19	7:42	7:19	7:41	7:56
7:38	7:49	8:12	7:49	8:08	8:23
8:08	8:19	8:41	8:19	8:38	8:53
8:58	9:09	9:30	8:45	9:04	9:19
			9:35	9:54	10:09

 All buses are accessible to persons with disabilities

				
Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

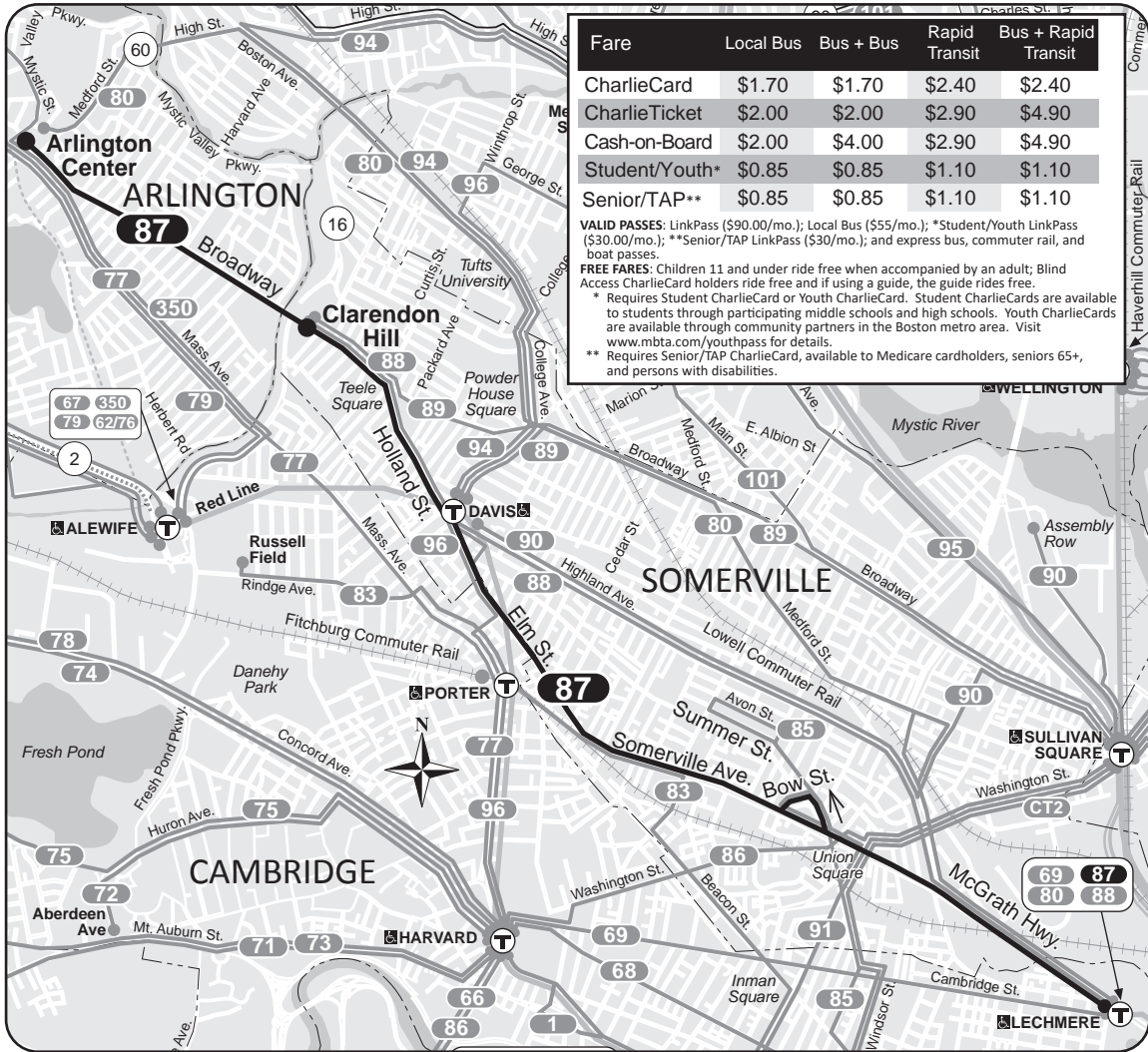
**VALID PASSES:** LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); \*Student/Youth LinkPass (\$30.00/mo.); \*\*Senior/TAP LinkPass (\$30/mo.); and express bus, commuter rail, and boat passes.

**FREE FARES:** Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

\* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit [www.mbta.com/youthpass](http://www.mbta.com/youthpass) for details.

\*\* Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities

Route 87 Arlington Center or Clarendon Hill - Lechmere Station



Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

**VALID PASSES:** LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); \*Student/Youth LinkPass (\$30.00/mo.); \*\*Senior/TAP LinkPass (\$30/mo.); and express bus, commuter rail, and boat passes.

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\*\* Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

87

Effective August 30, 2020

Arlington Center or  
Clarendon Hill-  
Lechmere Station

Serving

- Teele Square
- Davis Station
- Union Square, Somerville
- Red Line
- Green Line



**Massachusetts Bay Transportation Authority** *massDOT*  
Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100  
(TTY) 617-222-5146 • [www.mbtta.com](http://www.mbtta.com)

87 Weekday				87 Saturday				87 Sunday															
Inbound				Outbound				Inbound				Outbound				Inbound				Outbound			
Leave	Lv/Arrive	Arrive	Arrive	Leave	Arrive	Arrive	Arrive	Leave	Lv/Arrive	Arrive	Arrive	Arrive	Leave	Arrive	Arrive	Arrive	Leave	Arrive	Arrive	Leave	Arrive	Arrive	
Arlington Center	Clarendon Hill	Davis Station	Lechmere Station	Lechmere Station	Davis Station	Clarendon Hill	Arlington Center	Arlington Center	Clarendon Hill	Davis Station	Lechmere Station	Lechmere Station	Lechmere Station	Davis Station	Clarendon Hill	Arlington Center	Clarendon Hill	Davis Station	Lechmere Station	Lechmere Station	Davis Station	Clarendon Hill	
.....	5:07A	5:10A	5:24A	5:29A	5:40A	5:45A	.....	.....	5:15A	5:18A	5:29A	5:38A	5:50A	5:54A	5:58A	6:00A	6:03A	6:16A	6:38A	6:51A	6:57A		
.....	5:27	5:30	5:44	5:52	6:04	6:07	6:10A	.....	5:45	5:48	5:59	6:10	6:22	6:26	6:30	7:00	7:03	7:16	7:38	7:51	7:57		
.....	5:50	5:53	6:07	6:23	6:36	6:40	6:45	6:10A	6:15	6:18	6:33	6:40	6:54	6:58	7:02	8:00	8:03	8:16	8:38	8:51	8:57		
.....	6:08	6:11	6:25	6:38	6:53	6:57	7:02	6:40	6:45	6:48	7:03	7:10	7:24	7:28	7:32	8:55	8:58	9:11	9:34	9:47	9:53		
6:16A	6:23	6:28	6:50	6:55	7:10	7:14	7:19	6:40	6:45	6:48	7:03	7:10	7:24	7:28	7:32	9:28	9:32	9:49	10:14	10:30	10:37		
6:33	6:40	6:45	7:07	7:15	7:30	7:37	7:43	7:10	7:15	7:18	7:33	7:40	7:54	7:58	8:02	10:05	10:09	10:26	10:54	11:12	11:19		
6:49	6:56	7:01	7:23	7:31	7:51	7:58	8:04	7:40	7:45	7:48	8:03	8:10	8:24	8:28	8:33	10:45	10:49	11:08	11:34	11:53	12:00N		
7:06	7:13	7:18	7:47	7:51	8:11	8:18	8:24	8:10	8:15	8:18	8:38	8:41	8:57	9:02	9:07	11:25	11:29	11:53					
7:23	7:30	7:37	8:06	8:09	8:29	8:36	8:42	8:40	8:45	8:48	9:08	9:11	9:27	9:32	9:37	12:05P	12:09P	12:33P	12:14P	12:33P	12:40P		
7:38	7:47	7:54	8:28	8:23	8:43	8:50	8:56	8:40	8:45	8:48	9:08	9:11	9:27	9:32	9:37	12:45	12:49	1:13	1:34	1:53	2:00		
7:54	8:04	8:11	8:47	8:47	9:06	9:12	9:17	9:10	9:15	9:19	9:38	9:35	9:54	10:00	10:05	1:25	1:29	1:53	2:14	2:33	2:40		
8:12	8:22	8:29	9:03	9:16	9:36	9:42	9:47	9:40	9:45	9:49	10:13	10:00	10:19	10:25	10:30	2:05	2:08	2:30	2:54	3:13	3:20		
8:30	8:40	8:47	9:17	9:40	10:00	10:06	10:11	10:10	10:15	10:19	10:43	10:20	10:40	10:46	10:52	2:45	2:48	3:10	3:34	3:53	4:00		
8:48	8:58	9:04	9:33	10:09	10:29	10:35	10:40	10:35	10:40	10:44	11:08	10:50	11:10	11:16	11:22	3:25	3:28	3:50	4:13	4:33	4:40		
9:08	9:16	9:22	9:51	10:38	10:58	11:04	11:09	11:07	11:12	11:16	11:42	11:16	11:36	11:42	11:48	4:05	4:08	4:30	4:53	5:13	5:20		
9:29	9:37	9:43	10:11	11:08	11:28	11:34	11:39	11:35	11:41	11:45	12:14P	11:42	12:02P	12:08P	12:14P	4:45	4:48	5:10	5:34	5:54	6:01		
9:53	10:01	10:06	10:30	11:40	12:00N	12:06P	12:11P	12:00N	12:06P	12:10P	12:39P	12:07P	12:27P	12:33P	12:39P	5:25	5:28	5:50	6:14	6:31	6:38		
10:19	10:24	10:29	10:53	12:38	12:58	1:04	1:09	12:25P	12:31	12:35	1:03	12:32	12:52	12:58	1:04	6:05	6:08	6:30	6:55	7:12	7:19		
10:45	10:50	10:55	11:19	1:08	1:28	1:36	1:41	12:50	12:56	1:00	1:27	12:57	1:17	1:23	1:29	6:45	6:48	7:10	7:36	7:50	7:57		
11:15	11:20	11:25	11:49	1:37	1:59	2:08	2:13	1:15	1:20	1:23	1:50	1:22	1:42	1:48	1:54	7:25	7:28	7:43	8:16	8:30	8:37		
11:45	11:50	11:55	12:19P	2:05	2:27	2:36	2:41	1:41	1:46	1:49	2:16	1:47	2:07	2:13	2:19	8:05	8:08	8:23	8:55	9:09	9:16		
12:20P	12:25P	12:30P	12:54P	2:34	2:56	3:05	3:10	2:06	2:11	2:14	2:41	2:12	2:32	2:38	2:44	8:45	8:48	9:03	9:35	9:49	9:56		
12:50	12:55	1:00	1:24	3:00	3:22	3:31	3:36	2:31	2:36	2:39	3:06	2:37	2:57	3:03	3:09	9:25	9:28	9:45	10:15	10:28	10:32		
1:20	1:25	1:30	1:54	3:17	3:39	3:48	3:53	2:56	3:01	3:04	3:31	3:02	3:22	3:28	3:34	10:05	10:08	10:22	10:50	11:03	11:07		
1:52	1:57	2:02	2:26	3:17	3:39	3:48	3:53	2:31	2:36	2:39	3:06	2:37	2:57	3:03	3:09	10:45	10:48	11:02	11:30	11:43	11:47		
2:19	2:24	2:29	2:53	3:36	3:58	4:07	4:12	2:56	3:01	3:04	3:31	3:02	3:22	3:28	3:34	11:20	11:23	11:37	12:00M	12:11A	12:15A		
2:35	2:40	2:45	3:09	3:56	4:18	4:27	4:33	3:21	3:26	3:29	3:56	3:27	3:47	3:53	3:59	11:55	11:58	12:12A	12:35A	12:46	12:50		
2:55	3:00	3:05	3:29	4:21	4:44	4:55	5:02	3:46	3:51	3:54	4:21	3:52	4:12	4:18	4:24	12:25A	12:28A	12:42	w 1:18	1:29	1:33		
3:16	3:21	3:26	3:50	4:41	5:05	5:16	5:23	4:11	4:16	4:19	4:46	4:17	4:37	4:43	4:49	12:55	12:58	1:12					
3:40	3:45	3:50	4:14	5:03	5:27	5:38	5:45	4:36	4:41	4:44	5:11	4:42	5:02	5:08	5:14								
3:59	4:04	4:09	4:33	5:24	5:48	5:59	6:05	5:01	5:06	5:09	5:35	5:07	5:27	5:33	5:39								
4:18	4:23	4:28	4:54	5:43	6:08	6:17	6:23	5:26	5:31	5:34	6:00	5:32	5:51	5:57	6:03								
4:39	4:44	4:50	5:16	6:04	6:27	6:36	6:42	5:51	5:56	5:59	6:25	5:55	6:14	6:20	6:26								
4:57	5:02	5:08	5:34	6:24	6:47	6:56	7:01	6:16	6:21	6:24	6:50	6:18	6:37	6:43	6:49								
5:17	5:22	5:28	5:54	6:41	7:04	7:12	7:16	6:45	6:50	6:53	7:17	6:47	7:06	7:12	7:18								
5:37	5:42	5:48	6:14	7:00	7:20	7:28	7:32	7:22	7:26	7:29	7:52	7:22	7:41	7:47	7:53								
5:57	6:02	6:08	6:33	7:25	7:45	7:53	7:57	7:57	8:01	8:04	8:27	8:05	8:23	8:29	.....								
6:17	6:22	6:28	6:51	7:55	8:12	8:19	.....	.....	8:40	8:43	9:00	8:50	9:07	9:13	.....								
6:37	6:41	6:45	7:08	8:25	8:42	8:49	.....	.....	9:20	9:23	9:39	9:30	9:46	9:52	.....								
6:57	7:01	7:05	7:28	8:50	9:07	9:14	.....	.....	9:57	10:00	10:16	10:05	10:21	10:27	.....								
7:20	7:24	7:28	7:50	9:20	9:37	9:44	.....	.....	10:32	10:35	10:51	10:40	10:55	11:01	.....								
7:50	7:54	7:57	8:19	9:50	10:07	10:14	.....	.....	11:07	11:10	11:24	11:15	11:28	11:34	.....								
.....	8:25	8:28	8:44	10:20	10:37	10:44	.....	.....	11:40	11:43	11:57	11:50	12:03A	12:08A	.....								
.....	8:55	8:58	9:14	10:50	11:07	11:14	.....	.....	12:20A	12:23A	12:35A	12:30A	12:40	12:45	.....								
.....	9:25	9:28	9:44	11:20	11:36	11:41	.....	.....	12:55	12:58	1:10		w 1:20	1:30	1:35	.....							
.....	9:55	9:58	10:14	11:50	12:04A	12:09A	.....																
.....	10:25	10:28	10:44	12:20A	12:33	12:38	.....																
.....	10:55	10:58	11:14	12:55	1:07	1:12	.....																
.....	11:25	11:28	11:41	w 1:22	1:33	1:38	.....																
.....	12:00M	12:03A	12:16A																				
.....	12:30A	12:33	12:46																				
.....	1:00	1:03	1:16																				

Route 87

Arlington Ctr or Clarendon Hill - Lechmere Sta.

w - Waits for last trolley to arrive at Lechmere Station.

All buses are accessible to persons with disabilities

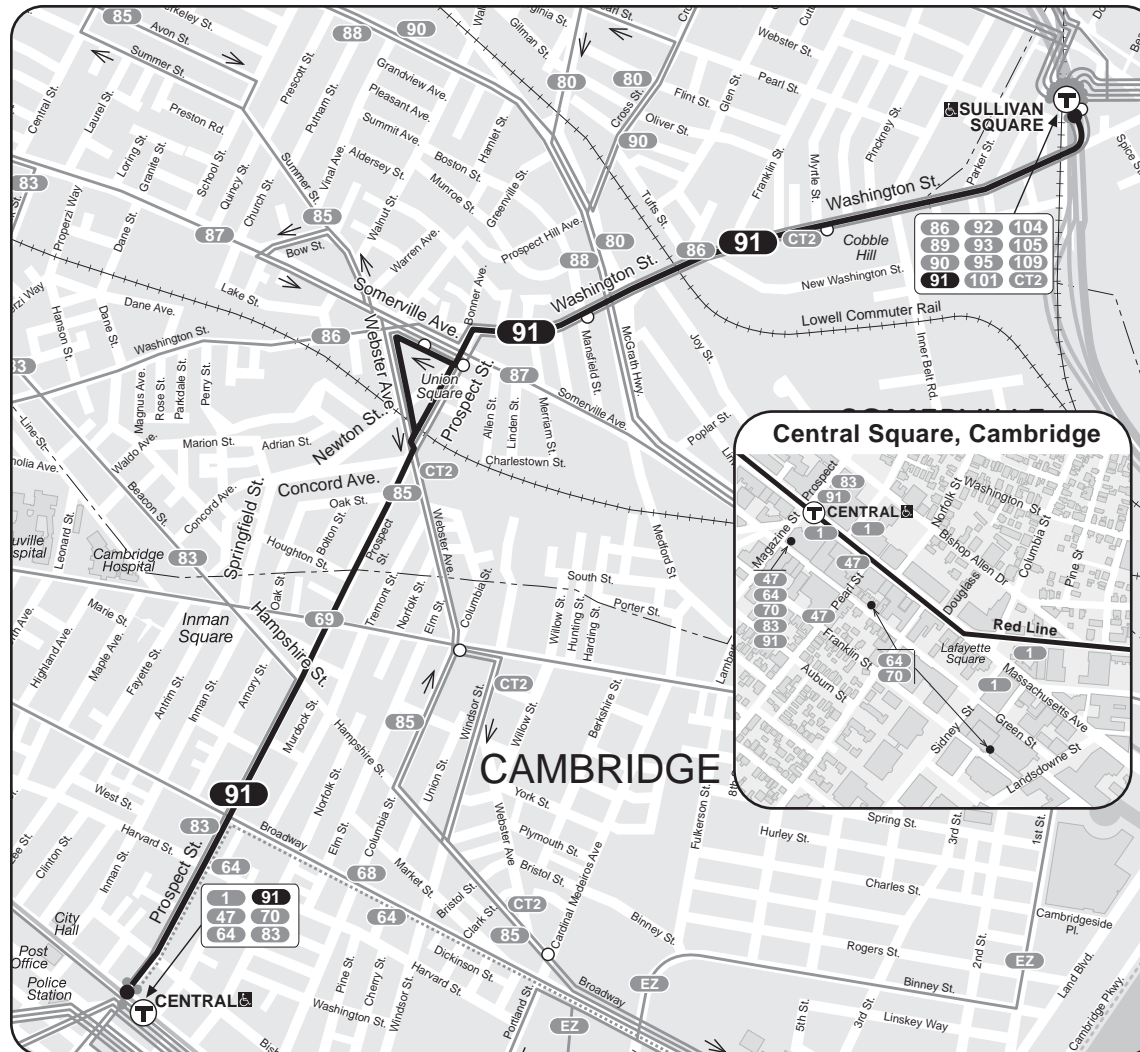
Fares on map side.

Fall 2020 & Winter 2021 Holidays

9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday

11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

## Route 91 Central Square, Cambridge - Sullivan Square Station



Schedule Change

# 91

Effective August 30, 2020

## Central Square, Cambridge- Sullivan Square Station

Serving

- Union Square
- Inman Square
- Red Line
- Orange Line



**Massachusetts Bay Transportation Authority** *massDOT*  
Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100  
(TTY) 617-222-5146 • [www.mbta.com](http://www.mbta.com)

91 Weekday					
Inbound			Outbound		
Leave Sullivan Station	Arrive Union Square	Arrive Central Square, Cambridge	Leave Central Square, Cambridge	Arrive Union Square	Arrive Sullivan Station
5:15A	5:19A	5:30A	5:35A	5:39A	5:48A
6:05	6:09	6:20	6:25	6:29	6:38
6:50	6:54	7:08	7:15	7:22	7:31
7:45	7:53	8:11	7:45	7:53	8:03
8:15	8:23	8:41	8:15	8:23	8:33
8:45	8:53	9:09	8:45	8:53	9:03
9:15	9:23	9:38	9:15	9:23	9:33
10:15	10:21	10:34	9:45	9:51	10:00
11:15	11:21	11:34	10:45	10:51	11:00
			11:45	11:53	12:03P
12:15P	12:21P	12:34P	12:45P	12:53P	1:03
1:15	1:21	1:34	1:45	1:53	2:03
2:15	2:21	2:34	2:45	2:53	3:03
3:15	3:23	3:38	3:15	3:23	3:35
3:45	3:53	4:08	3:45	3:56	4:10
4:15	4:23	4:38	4:15	4:26	4:40
4:45	4:53	5:08	4:45	4:56	5:10
5:15	5:23	5:38	5:15	5:26	5:40
5:45	5:53	6:08	5:45	5:56	6:10
6:15	6:21	6:34	6:15	6:26	6:37
6:45	6:51	7:02	6:45	6:53	7:03
7:25	7:30	7:39	7:15	7:23	7:33
8:10	8:15	8:24	7:45	7:53	8:03
9:00	9:05	9:14	8:30	8:38	8:48
9:50	9:55	10:04	9:20	9:28	9:38
10:40	10:45	10:54	10:10	10:18	10:28
11:35	11:40	11:49	11:00	11:08	11:18
12:30A	12:35A	12:44A	11:55	12:03A	12:13A
			12:50A	12:58	1:08

91 Saturday					
Inbound			Outbound		
Leave Sullivan Station	Arrive Union Square	Arrive Central Square, Cambridge	Leave Central Square, Cambridge	Arrive Union Square	Arrive Sullivan Station
5:00A	5:02A	5:12A	5:19A	5:22A	5:29A
5:36	5:38	5:48	5:55	5:58	6:05
6:12	6:14	6:24	6:31	6:34	6:41
6:48	6:50	7:00	7:07	7:10	7:17
7:23	7:25	7:35	7:43	7:46	7:53
7:58	8:01	8:11	8:19	8:22	8:29
8:33	8:36	8:46	8:55	8:58	9:06
9:13	9:17	9:28	9:36	9:42	9:50
9:54	9:58	10:09	10:20	10:26	10:34
10:38	10:43	10:54	11:05	11:12	11:20
11:28	11:33	11:44	11:55	12:02P	12:10P
12:18P	12:23P	12:34P	12:45P	12:52	1:00
1:08	1:13	1:24	1:35	1:42	1:50
1:58	2:03	2:14	2:25	2:32	2:41
2:48	2:53	3:04	3:15	3:22	3:31
3:40	3:45	3:56	4:05	4:12	4:21
4:28	4:33	4:44	4:55	5:02	5:11
5:18	5:22	5:34	5:44	5:50	5:59
5:43	5:47	5:59	6:08	6:14	6:23
6:28	6:32	6:44	6:50	6:56	7:05
7:28	7:32	7:44	7:50	7:58	8:04
8:35	8:39	8:47	8:52	8:58	9:04
9:43	9:47	9:55	10:00	10:06	10:12
10:50	10:54	11:02	11:07	11:13	11:19
11:57	12:01A	12:09A	12:14A	12:19A	12:24A
12:58A	1:02	1:10	1:14	1:19	1:24

91 Sunday					
Inbound			Outbound		
Leave Sullivan Station	Arrive Union Square	Arrive Central Square, Cambridge	Leave Central Square, Cambridge	Arrive Union Square	Arrive Sullivan Station
6:28A	6:30A	6:40A	6:45A	6:49A	6:56A
7:28	7:30	7:40	7:45	7:49	7:56
8:28	8:30	8:41	8:46	8:50	8:57
9:19	9:23	9:35	9:40	9:45	9:53
10:15	10:19	10:31	10:36	10:42	10:50
10:59	11:03	11:14	11:23	11:29	11:37
11:37	11:41	11:52			
12:24P	12:28P	12:39P	12:02P	12:09P	12:15P
1:07	1:11	1:22	1:31	1:38	1:45
1:54	1:58	2:09	2:18	2:25	2:32
2:40	2:44	2:55	3:04	3:11	3:18
3:25	3:29	3:40	3:47	3:54	4:01
4:11	4:15	4:26	4:31	4:38	4:45
4:54	4:58	5:09	5:14	5:21	5:27
5:38	5:41	5:52	5:58	6:05	6:11
6:17	6:20	6:29	6:34	6:41	6:47
7:23	7:26	7:35	7:40	7:46	7:52
8:28	8:31	8:40	8:45	8:51	8:57
9:33	9:36	9:45	9:50	9:55	10:01
10:34	10:37	10:46	10:51	10:56	11:02
11:33	11:36	11:43	11:48	11:52	11:57
12:30A	12:33A	12:40A	12:45A	12:49A	12:54A

 All buses are accessible to persons with disabilities

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

VALID PASSES: LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); \*Student/Youth LinkPass (\$30.00/mo.); \*\*Senior/TAP LinkPass (\$30/mo.); and express bus, commuter rail, and boat passes.

FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

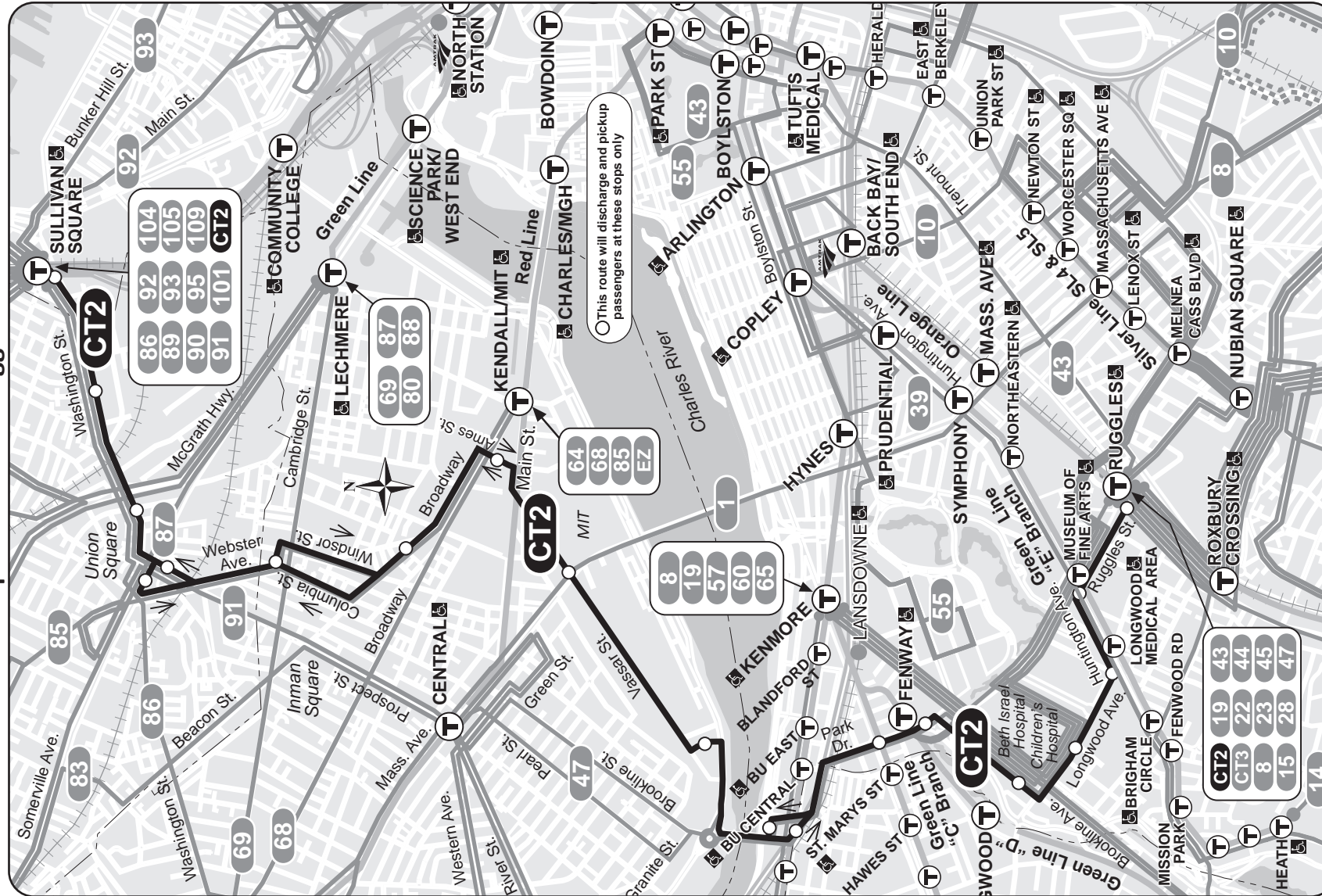
\* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit [www.mbta.com/youthpass](http://www.mbta.com/youthpass) for details.

\*\* Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Fall 2020 & Winter 2021 Holidays  
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday  
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Route 91–Sullivan Station-  
Central Square, Cambridge

# Route CT2 Sullivan Square Station - Ruggles Station



Schedule Change

# CT2

Effective August 30, 2020

## Sullivan Square Station- Ruggles Station

Serving

- MIT
- Fenway Station
- Beth Israel Deaconess Hospital
- Children's Hospital
- Museum of Fine Arts
- Wentworth Institute
- Red Line
- Orange Line
- Green Line



**Massachusetts Bay Transportation Authority** *massDOT*  
Massachusetts Department of Transportation

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CT2

Weekday Inbound

Leave Sullivan Station	Arrive Union Square	Arrive Ames St Kendall/MIT	Arrive Vassar/ Mass. Avenue	Arrive Vassar/ Memorial Drive	Arrive Mountfort Street	Arrive Park & Beacon Sts.	Arrive Fenway Station	Arrive Beth Israel Hospital	Arrive Children's Hospital	Arrive Huntington/ Longwood Avenue	Arrive Ruggles/ Huntington Avenue	Arrive Ruggles Station
6:35A	6:42A	6:52A	6:54A	6:57A	7:00A	7:01A	7:02A	7:05A	7:08A	7:10A	7:13A	7:18A
6:56	7:03	7:13	7:16	7:21	7:24	7:27	7:28	7:31	7:34	7:36	7:39	7:44
7:17	7:27	7:40	7:43	7:48	7:51	7:54	7:55	7:58	8:01	8:03	8:06	8:11
7:38	7:48	8:01	8:04	8:09	8:12	8:15	8:16	8:19	8:22	8:24	8:27	8:32
7:57	8:07	8:20	8:23	8:28	8:31	8:34	8:35	8:38	8:41	8:43	8:46	8:51
8:18	8:27	8:40	8:43	8:48	8:51	8:54	8:55	8:58	9:01	9:03	9:06	9:11
8:40	8:49	9:02	9:05	9:10	9:13	9:16	9:17	9:20	9:23	9:25	9:28	9:33
9:05	9:14	9:26	9:29	9:32	9:35	9:38	9:39	9:42	9:45	9:47	9:50	9:55
9:35	9:41	9:53	9:56	9:59	10:02	10:04	10:05	10:08	10:11	10:13	10:15	10:18
10:10	10:16	10:26	10:29	10:32	10:35	10:37	10:38	10:41	10:44	10:46	10:48	10:51
11:05	11:11	11:21	11:24	11:27	11:30	11:32	11:33	11:36	11:39	11:41	11:43	11:46
12:00N	12:06P	12:16P	12:19P	12:22P	12:25P	12:27P	12:28P	12:31P	12:34P	12:36P	12:38P	12:41P
1:00	1:06	1:16	1:19	1:22	1:25	1:27	1:28	1:31	1:34	1:36	1:38	1:41
2:00	2:06	2:16	2:19	2:22	2:25	2:27	2:28	2:31	2:34	2:36	2:38	2:41
2:45	2:52	3:04	3:07	3:10	3:16	3:19	3:20	3:23	3:28	3:30	3:32	3:36
3:25	3:32	3:44	3:47	3:50	3:56	3:59	4:00	4:03	4:08	4:10	4:12	4:16
4:00	4:07	4:19	4:22	4:25	4:31	4:34	4:35	4:38	4:43	4:45	4:47	4:51
4:35	4:42	4:54	4:57	5:00	5:07	5:11	5:15	5:18	5:23	5:25	5:28	5:32
5:10	5:18	5:32	5:36	5:40	5:46	5:50	5:53	5:56	6:00	6:01	6:04	6:07
5:55	6:01	6:14	6:17	6:20	6:23	6:27	6:29	6:32	6:35	6:36	6:38	6:41
6:35	6:41	6:53	6:56	6:59	7:02	7:06	7:08	7:11	7:14	7:15	7:17	7:20
7:20	7:26	7:36	7:39	7:41	7:44	7:46	7:48	7:51	7:53	7:54	7:56	7:59

CT2

Weekday Outbound

Leave Ruggles Station	Arrive Ruggles/ Huntington Avenue	Arrive Huntington/ Longwood Avenue	Arrive Children's Hospital	Arrive Beth Israel Hospital	Arrive Fenway Station	Arrive Park & Beacon Sts.	Arrive Comm. Ave. BU Bridge	Arrive Amesbury/ Vassar Streets	Arrive Vassar/ Mass. Avenue	Arrive Ames St Kendall/MIT	Arrive Union Square	Arrive Sullivan Station
5:55A	5:56A	5:58A	5:59A	6:00A	6:04A	6:05A	6:06A	6:08A	6:09A	6:14A	6:20A	6:29A
6:24	6:25	6:27	6:28	6:29	6:33	6:34	6:35	6:37	6:38	6:43	6:49	6:58
6:48	6:50	6:52	6:54	6:56	7:00	7:01	7:02	7:05	7:07	7:12	7:20	7:29
7:12	7:14	7:17	7:22	7:24	7:29	7:30	7:31	7:38	7:40	7:45	7:54	8:03
7:36	7:38	7:41	7:46	7:48	7:53	7:54	7:55	8:03	8:06	8:11	8:20	8:29
8:00	8:02	8:04	8:08	8:10	8:14	8:15	8:16	8:25	8:28	8:33	8:42	8:51
8:30	8:32	8:34	8:38	8:40	8:44	8:45	8:46	8:55	8:58	9:03	9:12	9:21
9:00	9:02	9:04	9:08	9:10	9:14	9:15	9:16	9:25	9:28	9:33	9:42	9:51
9:30	9:32	9:34	9:38	9:40	9:44	9:45	9:46	9:55	9:58	10:03	10:12	10:21
10:10	10:11	10:13	10:16	10:18	10:21	10:22	10:23	10:29	10:32	10:37	10:46	10:55
11:00	11:01	11:03	11:06	11:08	11:11	11:12	11:13	11:19	11:22	11:27	11:36	11:45
12:00N	12:01P	12:03P	12:06P	12:08P	12:11P	12:12P	12:13P	12:19P	12:22P	12:27P	12:36P	12:45P
1:00	1:01	1:03	1:06	1:08	1:11	1:12	1:13	1:19	1:22	1:27	1:36	1:45
2:00	2:02	2:04	2:08	2:10	2:14	2:15	2:16	2:23	2:27	2:33	2:44	2:53
2:50	2:52	2:54	2:58	3:00	3:04	3:05	3:06	3:13	3:17	3:23	3:34	3:43
3:45	3:47	3:49	3:53	3:55	3:59	4:00	4:01	4:08	4:12	4:18	4:29	4:41
4:30	4:33	4:36	4:41	4:44	4:48	4:49	4:50	4:57	5:01	5:07	5:24	5:36
5:10	5:13	5:16	5:21	5:24	5:28	5:29	5:30	5:37	5:41	5:47	6:03	6:14
5:45	5:48	5:51	5:54	5:55	5:59	6:00	6:01	6:06	6:10	6:16	6:30	6:40
6:20	6:22	6:24	6:27	6:28	6:32	6:33	6:34	6:39	6:43	6:49	7:03	7:10
7:00	7:02	7:04	7:07	7:08	7:11	7:12	7:13	7:18	7:20	7:26	7:40	7:47

In addition to the stops listed above, this route also stops in Somerville on Washington St. at Myrtle St. and at McGrath Highway. In Cambridge this route also stops at Cambridge & Columbia Streets and at One Kendall Square (Hampshire St. at Broadway)

Route CT2

Sullivan Station-Ruggles Station

 All buses are accessible to persons with disabilities

No service on weekends  
and most Holidays.

Fall 2020 & Winter 2021 Holidays  
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday  
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

**VALID PASSES:** LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); \*Student/Youth LinkPass (\$30.00/mo.); \*\*Senior/TAP LinkPass (\$30/mo.); and express bus, commuter rail, and boat passes.

**FREE FARES:** Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

\* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit [www.mbta.com/youthpass](http://www.mbta.com/youthpass) for details.

\*\* Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

# ***TRIP GENERATION***

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## Multifamily Housing (Mid-Rise) (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 53

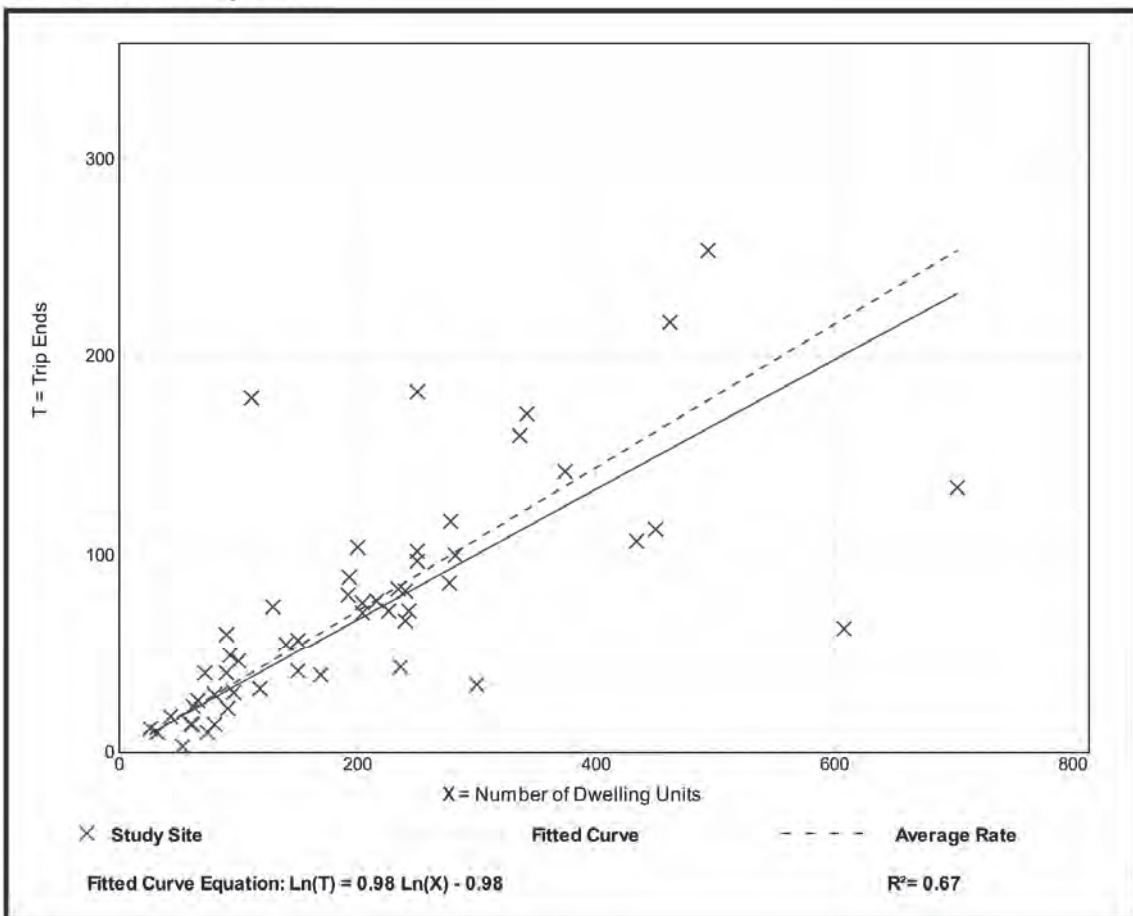
Avg. Num. of Dwelling Units: 207

Directional Distribution: 26% entering, 74% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.06 - 1.61	0.19

### Data Plot and Equation



## Multifamily Housing (Mid-Rise) (221)

Vehicle Trip Ends vs: Dwelling Units

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 60

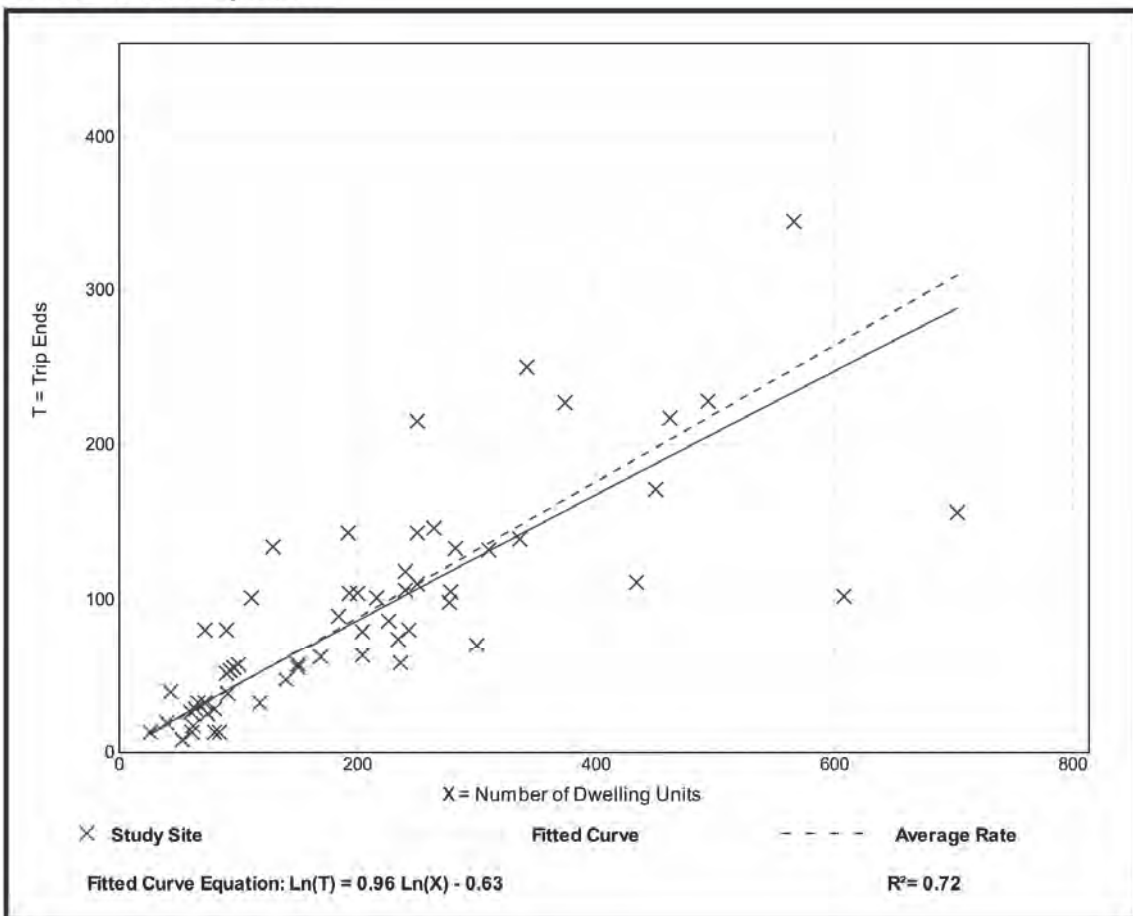
Avg. Num. of Dwelling Units: 208

Directional Distribution: 61% entering, 39% exiting

### Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.44	0.15 - 1.11	0.19

### Data Plot and Equation



## **Land Use: 932**

### **High-Turnover (Sit-Down) Restaurant**

#### **Description**

This land use consists of sit-down, full-service eating establishments with typical duration of stay of approximately one hour. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain. Generally, these restaurants serve lunch and dinner; they may also be open for breakfast and are sometimes open 24 hours a day. These restaurants typically do not take reservations. Patrons commonly wait to be seated, are served by a waiter/waitress, order from menus and pay for their meal after they eat. Some facilities contained within this land use may also contain a bar area for serving food and alcoholic drinks. Fast casual restaurant (Land Use 930), quality restaurant (Land Use 931), fast-food restaurant without drive-through window (Land Use 933), fast-food restaurant with drive-through window (Land Use 934), and fast-food restaurant with drive-through window and no indoor seating (Land Use 935) are related uses.

#### **Additional Data**

*Users should exercise caution when applying statistics during the AM peak periods, as the sites contained in the database for this land use may or may not be open for breakfast. In cases where it was confirmed that the sites were not open for breakfast, data for the AM peak hour of the adjacent street traffic were removed from the database.*

The outdoor seating area is not included in the overall gross floor area. Therefore, the number of seats may be a more reliable independent variable on which to establish trip generation rates for facilities having significant outdoor seating.

Time-of-day distribution data for this land use for a weekday, Saturday, and Sunday are presented in Appendix A. For the 38 general urban/suburban sites with data, the overall highest vehicle volumes during the AM and PM on a weekday were counted between 11:45 a.m. and 12:45 p.m. and 12:00 and 1:00 p.m., respectively.

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Florida, Georgia, Indiana, Kentucky, Massachusetts, Minnesota, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, Texas, Vermont, and Wisconsin.

#### **Source Numbers**

126, 269, 275, 280, 300, 301, 305, 338, 340, 341, 358, 384, 424, 432, 437, 438, 444, 507, 555, 577, 589, 617, 618, 728, 868, 884, 885, 903, 927, 944, 961, 962, 977

## High-Turnover (Sit-Down) Restaurant (932)

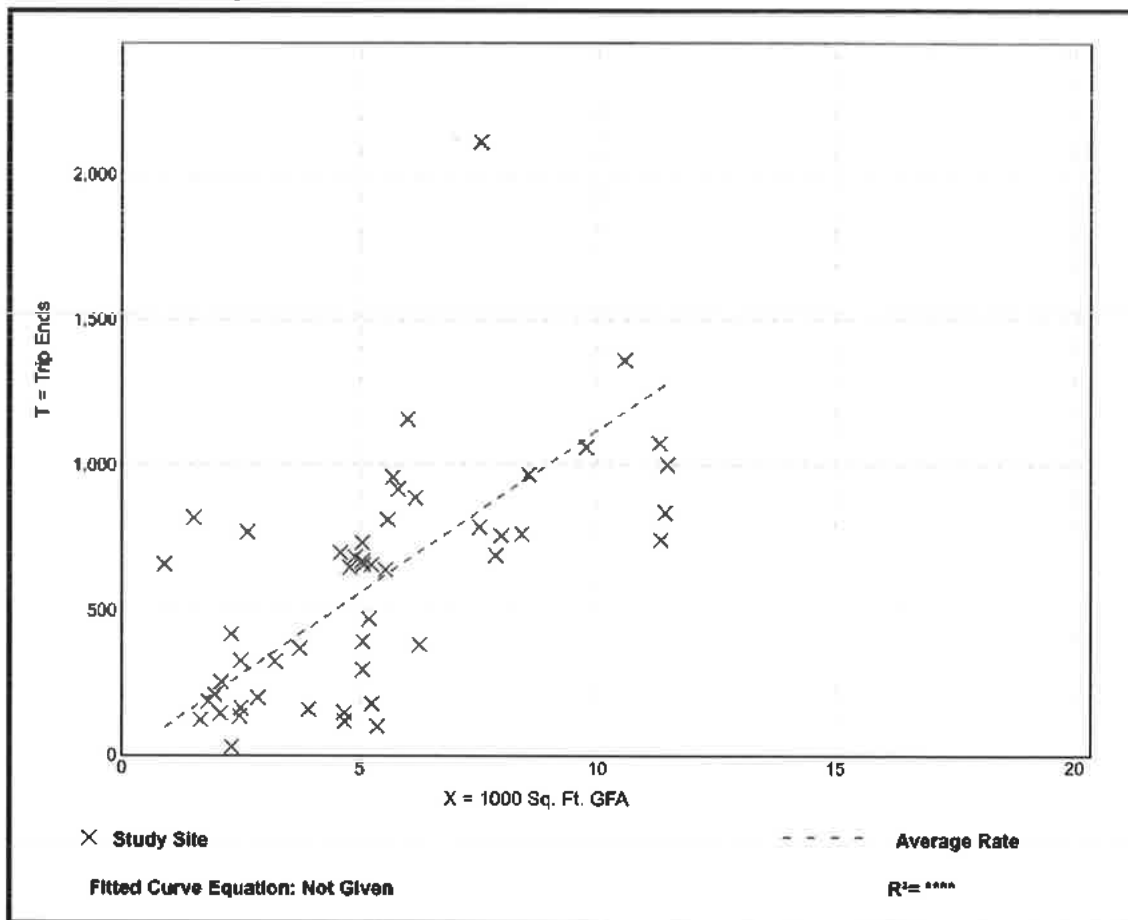
**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday**

**Setting/Location: General Urban/Suburban**  
Number of Studies: 50  
1000 Sq. Ft. GFA: 5  
Directional Distribution: 50% entering, 50% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
112.18	13.04 - 742.41	72.51

### Data Plot and Equation



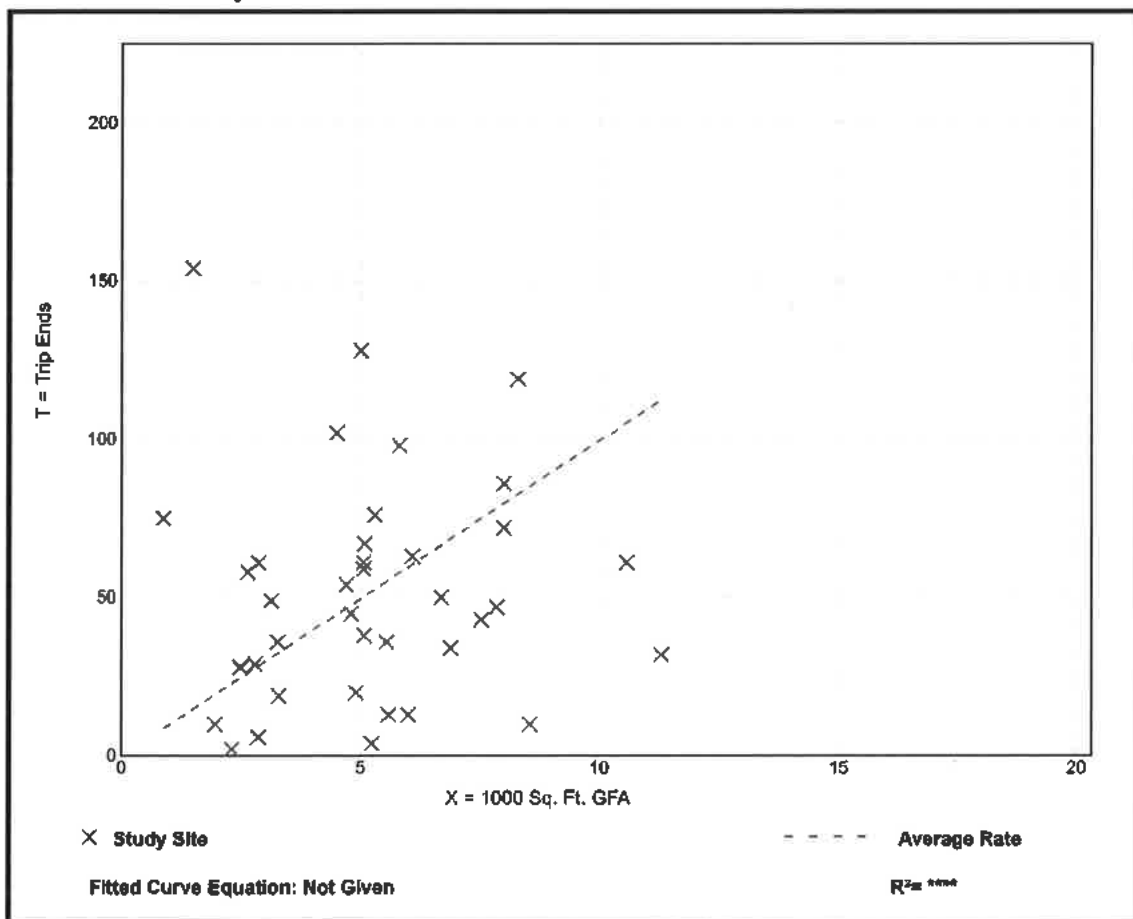
## High-Turnover (Sit-Down) Restaurant (932)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 7 and 9 a.m.**  
**Setting/Location: General Urban/Suburban**  
**Number of Studies: 39**  
**1000 Sq. Ft. GFA: 5**  
**Directional Distribution: 55% entering, 45% exiting**

### Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.94	0.76 - 102.39	11.33

### Data Plot and Equation



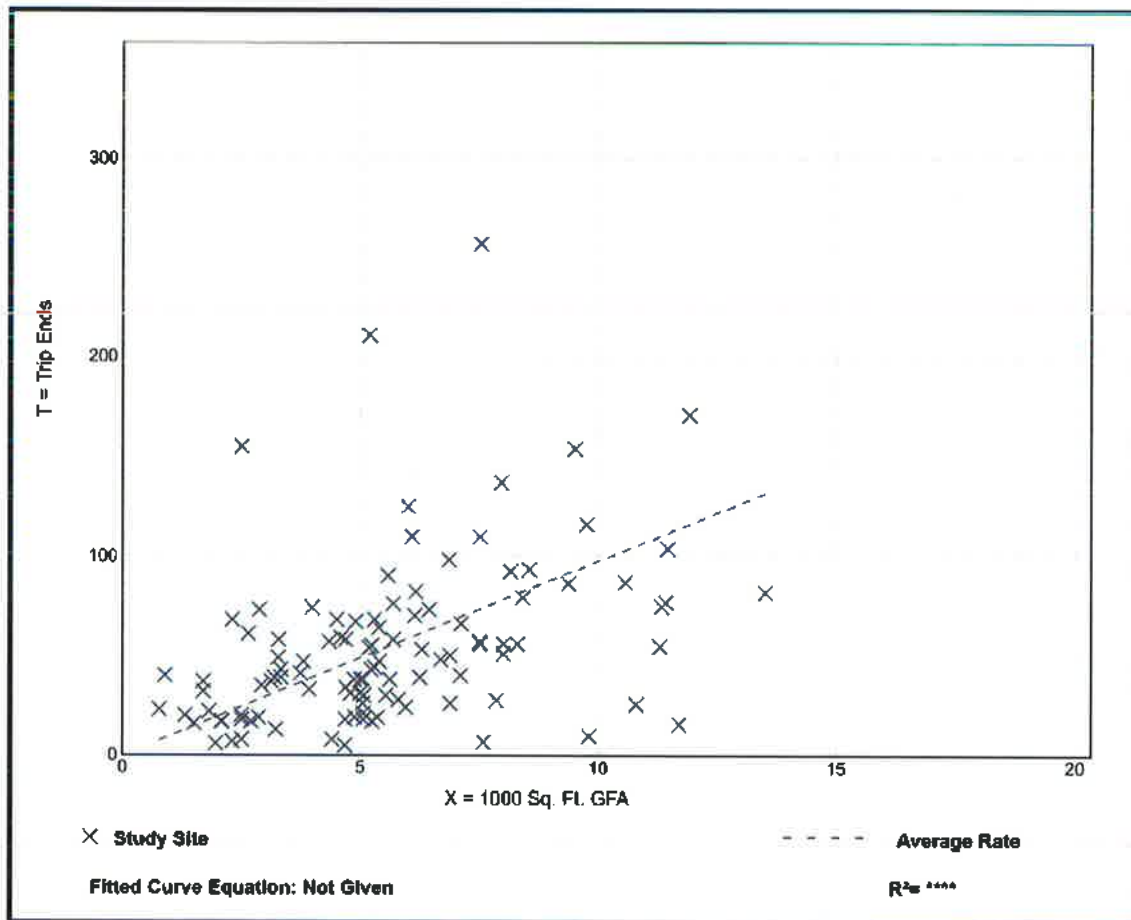
## High-Turnover (Sit-Down) Restaurant (932)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GFA**  
**On a: Weekday,**  
**Peak Hour of Adjacent Street Traffic,**  
**One Hour Between 4 and 6 p.m.**  
**Setting/Location: General Urban/Suburban**  
 Number of Studies: 107  
 1000 Sq. Ft. GFA: 6  
 Directional Distribution: 62% entering, 38% exiting

### Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
9.77	0.92 - 62.00	7.37

### Data Plot and Equation



MEANS OF TRANSPORTATION TO WORK	Census Tract 3512.03	Census Tract 3512.04	Census Tract 3513	Census Tract 3515	Total	Percentage (Used for Residential)	Percentage (Used for Retail)
Car, truck, or van	26.7%	37.5%	45.8%	35.2%	36.0%	<b>36.0%</b>	<b>53.9%</b>
Drove alone	24.7%	33.5%	42.1%	28.0%	32.3%	<b>32.3%</b>	<b>50.2%</b>
Carpooled:	1.9%	4.0%	3.7%	7.2%	3.7%	<b>3.7%</b>	<b>3.7%</b>
In 2-person carpool	1.6%	4.0%	1.0%	7.2%	2.9%	<b>2.9%</b>	<b>2.9%</b>
In 3-person carpool	0.0%	0.0%	0.8%	0.0%	0.2%	<b>0.2%</b>	<b>0.2%</b>
In 4 person carpool	0.3%	0.0%	2.0%	0.0%	0.6%	<b>0.6%</b>	<b>0.6%</b>
Public transportation	26.8%	20.6%	19.5%	29.3%	23.5%	<b>23.5%</b>	<b>23.5%</b>
Bicycle	14.7%	13.2%	11.8%	7.4%	12.5%	<b>12.5%</b>	<b>0.0%</b>
Walked	28.8%	21.1%	13.2%	19.0%	21.1%	<b>21.1%</b>	<b>21.1%</b>
Other means (including taxicab)	0.3%	0.3%	3.9%	2.0%	1.5%	<b>1.5%</b>	<b>1.5%</b>
Worked at home	2.7%	7.3%	5.8%	7.1%	5.4%	<b>5.4%</b>	<b>0.0%</b>

Average Vehicle Occupancy (AVO) - Residential Units			
# Occupants	Weight	Occupants	Product
Drove Alone	0.323	1	0.323
Carpool (2)	0.029	2	0.058
Carpool (3)	0.002	3	0.006
Carpool (4)	0.006	4	0.024
<i>Sums</i>	<i>0.360</i>		<i>0.411</i>
<b>AVO (Sum of Products/Sum of Weights)</b>			<b>1.142</b>

Average Vehicle Occupancy (AVO) - Retail Space			
# Occupants	Weight	Occupants	Product
Drove Alone	0.502	1	0.502
Carpool (2)	0.029	2	0.058
Carpool (3)	0.002	3	0.006
Carpool (4)	0.006	4	0.024
<i>Sums</i>	<i>0.539</i>		<i>0.590</i>
<b>AVO (Sum of Products/Sum of Weights)</b>			<b>1.095</b>

# MODE SPLIT

	AM	PM	Daily
Vehicle	36.0%	36.0%	36.0%
Transit	23.5%	23.5%	23.5%
Bicycle	12.5%	12.5%	12.5%
Walked	21.1%	21.1%	21.1%
Other	6.9%	6.9%	6.9%
	AM	PM	Daily
Enter %	26%	61%	50%
Exit %	74%	39%	50%

<b>Residential Units</b>	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Base Trips (per ITE)	32	42	510
Total Person-Trips	35	46	561
Total Person-Vehicle-Trips	13	17	202
<b>Total Vehicle-Trips</b>	<b>11</b>	<b>15</b>	<b>176</b>
Entering Vehicle-Trips	3	9	88
Exiting Vehicle-Trips	8	6	88
Total Public Transportation Trips	8	11	132
Total Bicycle Trips	4	6	70
Total Walking Trips	7	9	118
Total "Other" Trips	3	3	39

# MODE SPLIT

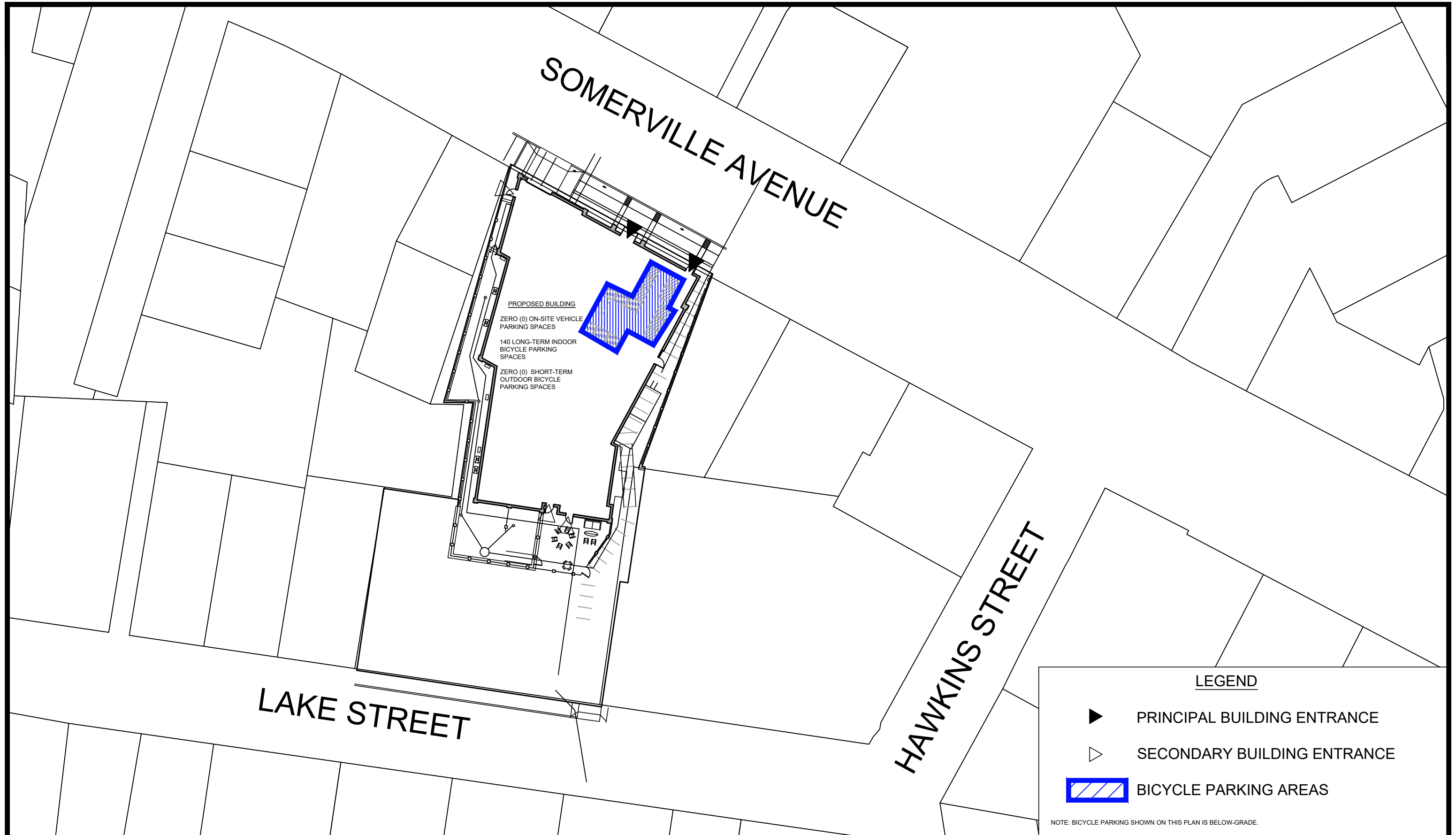
	AM	PM	Daily
Vehicle	53.9%	53.9%	53.9%
Transit	23.5%	23.5%	23.5%
Bicycle	0.0%	0.0%	0.0%
Walked	21.1%	21.1%	21.1%
Other	1.5%	1.5%	1.5%
	AM	PM	Daily
Enter %	55%	62%	50%
Exit %	45%	38%	50%

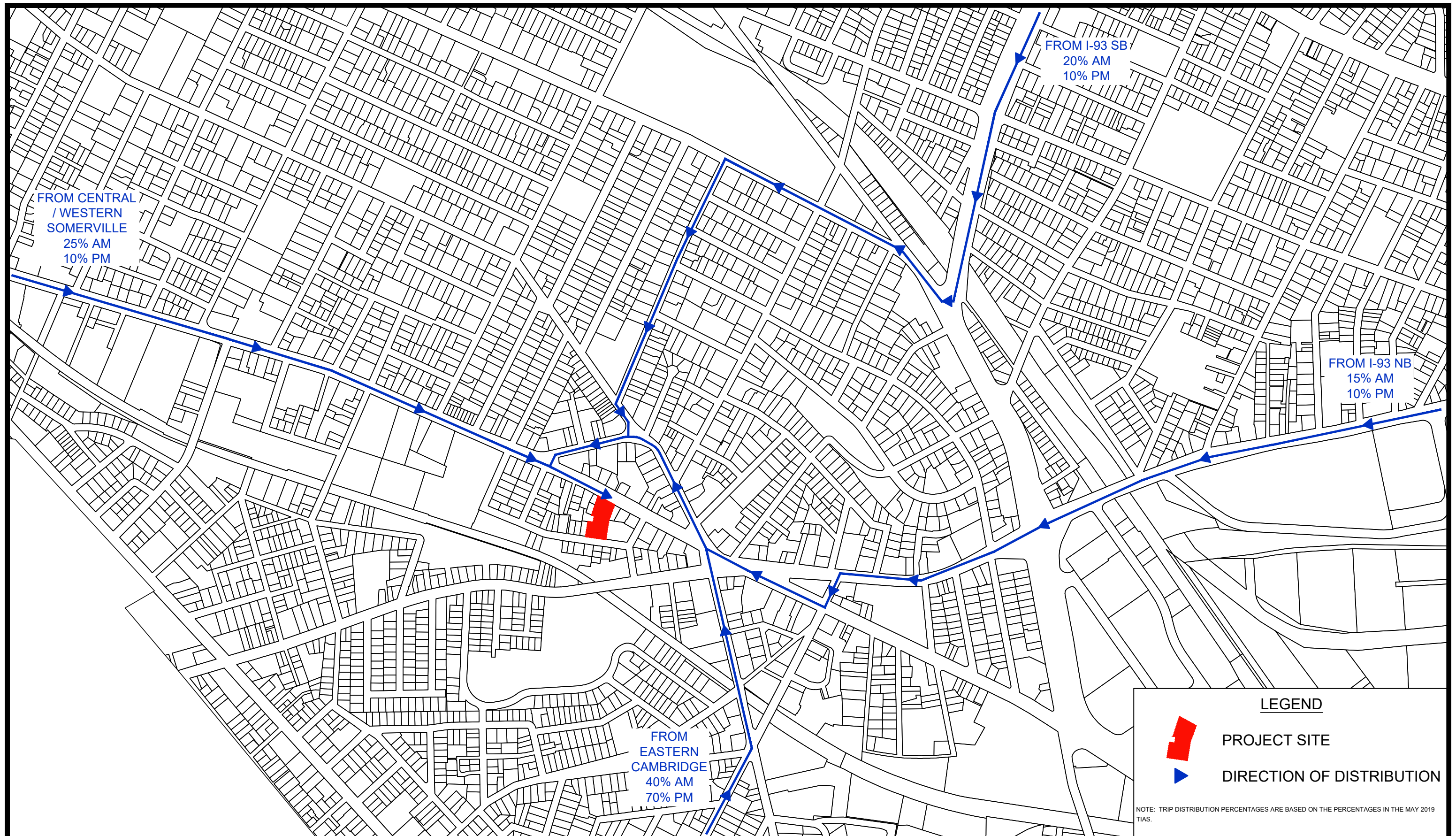
<b>Restaurant Space</b>	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Base Trips (per ITE)	11	10	120
Total Person-Trips	14	13	156
Total Person-Vehicle-Trips	8	7	84
<b>Total Vehicle-Trips</b>	<b>7</b>	<b>6</b>	<b>76</b>
Entering Vehicle-Trips	4	4	38
Exiting Vehicle-Trips	3	2	38
Total Public Transportation Trips	3	3	37
Total Bicycle Trips	0	0	0
Total Walking Trips	3	3	33
Total "Other" Trips	0	0	2

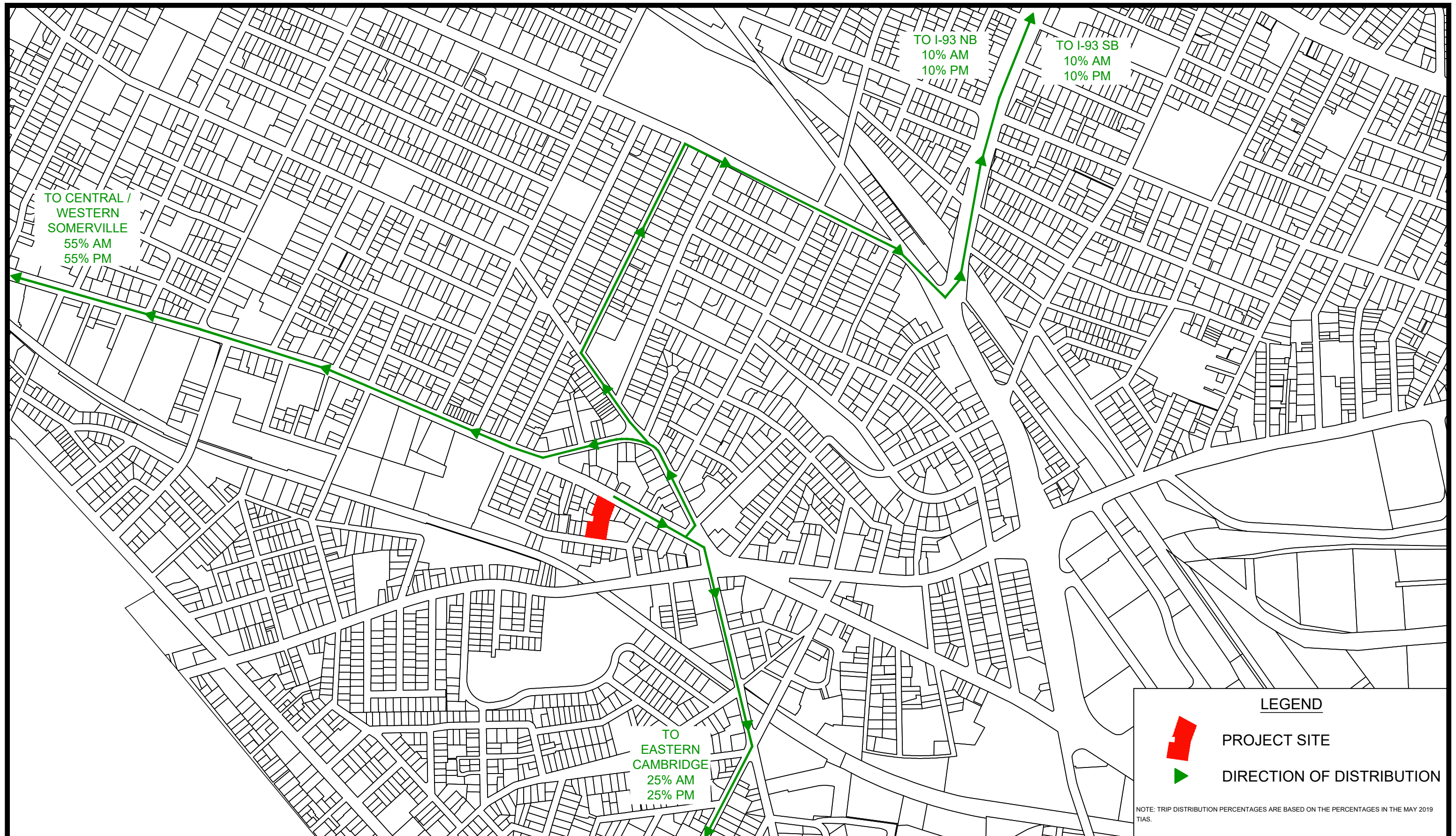
<b>Mixed-Use Development</b>	Weekday AM Peak Hour	Weekday PM Peak Hour	Weekday Daily
Base Trips (per ITE)	43	52	630
Total Person-Trips	49	59	717
Total Person-Vehicle-Trips	21	24	286
<b>Total Vehicle-Trips</b>	<b>18</b>	<b>21</b>	<b>252</b>
Entering Vehicle-Trips	7	13	126
Exiting Vehicle-Trips	11	8	126
Total Public Transportation Trips	11	14	169
Total Bicycle Trips	4	6	70
Total Walking Trips	10	12	151
Total "Other" Trips	3	3	41

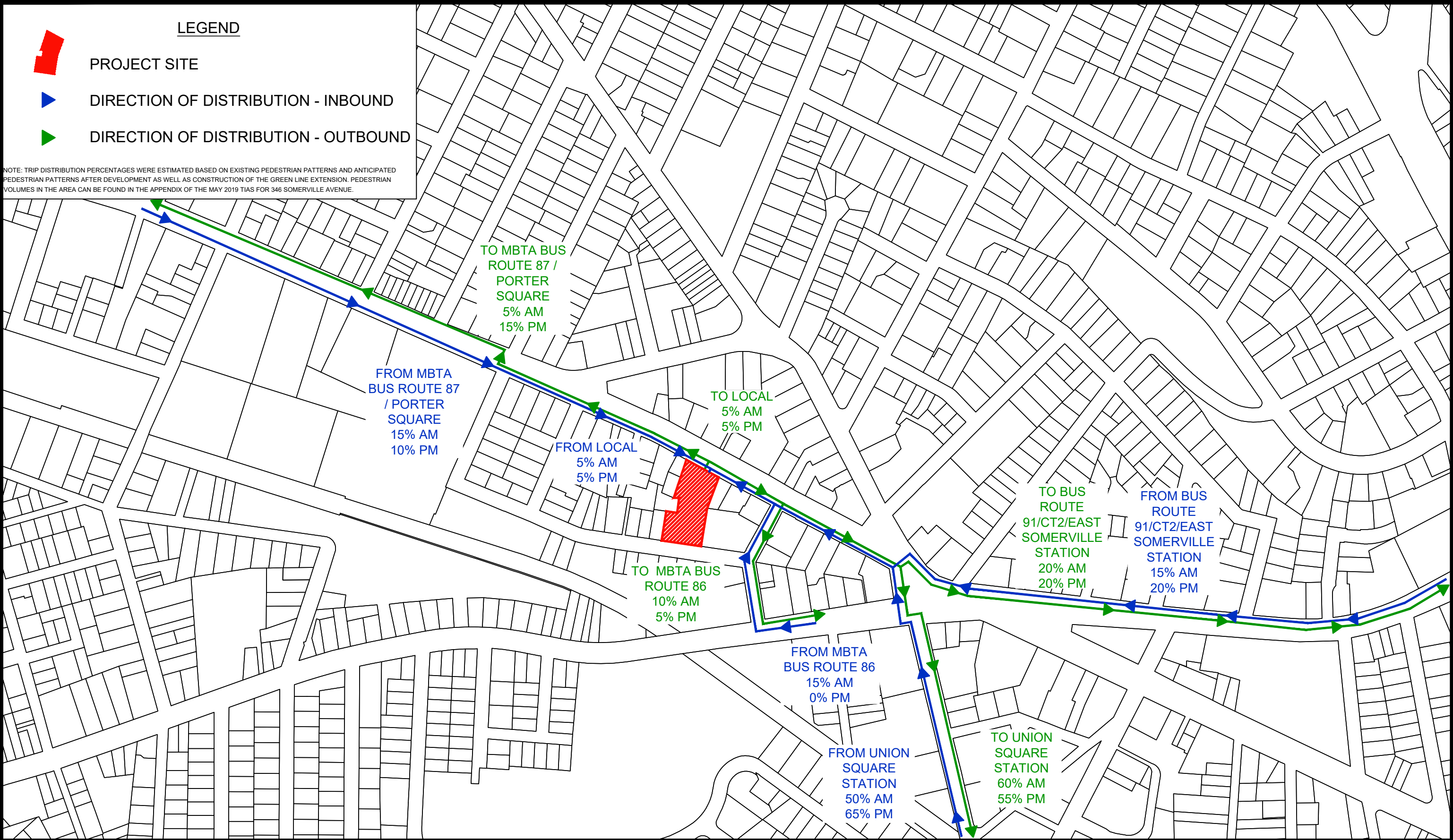
# ***COMPREHENSIVE SITE PLAN AND CORRESPONDING TRAFFIC FIGURES***

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DEVELOPER:  
JMC/STM Union Square, LLC  
100 GRANDVIEW ROAD, SUITE 203  
BRAINTREE, MA 02184

PROJECT TEAM

SITE NAME  
346 SOMERVILLE AVE  
SOMERVILLE, MA

SITE NAME/ADDRESS

Pedestrian Trip Distribution

SHEET NAME

Figure C-104

SHEET #

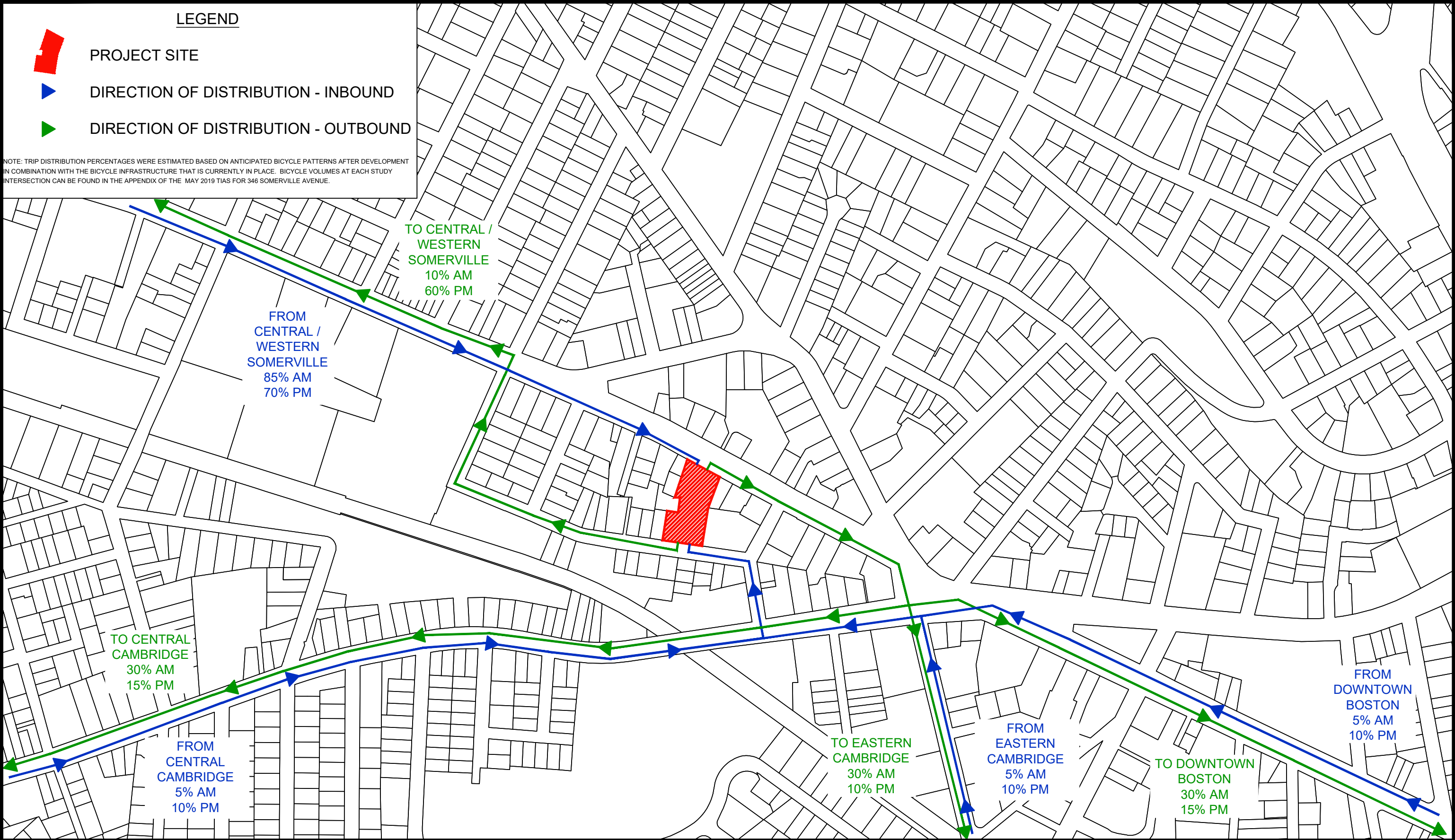
DR BY: LV

CHK BY: SGS

PROJ NO.: 2020-027

DATE: SEPTEMBER 2020

SCALE: 1"=200'



DEVELOPER:  
JMC/STM Union Square, LLC  
100 GRANDVIEW ROAD, SUITE 203  
BRAINTREE, MA 02184

SITE NAME  
346 SOMERVILLE AVE  
SOMERVILLE, MA

Bicycle Trip Distribution

Figure C-105

DR BY: LV
CHK BY: SGS
PROJ NO.: 2020-027
DATE: SEPTEMBER 2020
SCALE: 1"=250'