Transportation Impact Study for Proposed Target Renovation

TARGET REAL ESTATE

180 SOMERVILLE AVENUE SOMERVILLE, MASSACHUSETTS



Kimley»Horn

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Revised October 28, 2026
October 2026
110400017

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Proposed Target Renovation
Transportation Impact Study

PREPARED FOR
TARGET REAL ESTATE

PREPARED BY
KIMLEY-HORN AND ASSOCIATES, INC.



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EXECUTIVE SUMMARY

PURPOSE OF REPORT AND STUDY OBJECTIVES

The report presents the results of the transportation impact study (TIS) for expanding the existing Target store located at 180 Somerville Avenue in the City of Somerville into the adjacent commercial space. This report describes the area transportation system, data collection, trip generation, trip distribution and assignment, and intersection capacity analysis. The Design Build year for this project is 2031. This transportation study has been prepared in conformance with the Massachusetts Department of Transportation's (MassDOT) Transportation Impact Assessment (TIA) Guidelines and is consistent with the City of Somerville's Transportation Impact Study (TIS) Guidelines.

SITE LOCATION AND STUDY AREA

The 7.07-acre parcel on which Target currently sits hosts two (2) contiguous buildings separated by a shared wall. The parcel also includes the Advance Auto Parts building, which is located within the same property boundary. Target owns the property and currently occupies one building, which is 92,000 square feet. Target plans to expand into the vacant storefront, which is currently 34,000 square feet, by removing the interior partition wall. This would combine the two (2) separate commercial spaces into a single space, with no expansion of the exterior building footprint or exterior work. The Site is currently served by three (3) unsignalized full-access driveways, including two (2) along Somerville Avenue and one (1) along Medford Street. No changes to the existing site access configuration, including driveway additions, removals, or relocations, are proposed.

PRINCIPAL FINDINGS AND CONCLUSIONS

The analysis of traffic with respect to expanding the existing Target store located at 180 Somerville Avenue in the City of Somerville into the adjacent commercial space was completed following standard practice. The key findings of this TIS are as follows:

- The proposed expansion of Target into the existing 34,000 square feet vacant storefront by removing the interior partition wall would allow additional grocery sales and expand the back-of-house area, bringing the Target store to 126,000 square feet. The proposed expansion is expected to generate 630 daily net new vehicle-trips, 32 net new vehicle-trips (18 entering and 14 exiting) during the weekday AM peak hour, 55 net new vehicle-trips (27 entering and 28 exiting) during the weekday PM peak hour, and 74 net new vehicle-trips (37 entering and 37 exiting) during the Saturday midday peak hour.
- In the Design year No-Build traffic conditions, with the analysis of the vacant storefront that could be re-tenanted as retail, the number of AM peak hour, PM peak hour, and Saturday midday peak hour trips are higher than the expansion of the Target Store.
- There were 16 reported crashes at the ten (10) study intersections, with 38% being angle crashes and 38% being sideswipe crashes. The calculated intersection crash rates for all 10 study intersections were below the statewide and MassDOT District 4 average crash rates for both signalized and unsignalized intersections. The intersection of Somerville Avenue and Washington Street / Prospect Street is listed as a 2012-2021 HSIP-eligible pedestrian and bicycle cluster.
- It is anticipated as part of the proposed expansion program that no change in truck trip generation or routing is anticipated between the 2026 Existing Conditions and 2031 Design Year Build Conditions.

- All signalized study intersections operate at an overall LOS D or better under all peak periods. No individual movements at either signalized or unsignalized intersections operate below LOS E or above a V/C ratio of 1.0.
    - Under 2026 Existing Conditions, Somerville Avenue at Washington Street/Prospect Street operates at LOS C under all peak periods, with the westbound movement operating at LOS E under the PM peak hour. Under the 2031 Design Year No-Build Conditions and 2031 Design Year Build Conditions, this intersection operates at LOS D under the PM peak period; however, V/C ratios remain below 1.0.
    - The Route 28 NB approach of Medford Street Extension at Route 28 NB experiences existing queuing during the weekday PM peak hour. The northwest approach has a v/c ratio of 0.88 and a 95th percentile queue length of 546 feet under both 2031 Design Year No-Build and 2031 Design Year Build conditions.
    - Under all peak periods, the 2031 Design Year No-Build Conditions experienced similar or slightly higher delays and 95th percentile queues compared to the 2031 Design Year Build Conditions.
    - Under the AM peak hour conditions, in both the 2031 Design Year No-Build and 2031 Design Year Build Conditions, the delay at the NBL movement at the intersection of Medford Street Extension at Route 28 NB does decrease dramatically when compared to the 2026 Existing and 2026 Build Conditions. This was due to an increase in actuated cycle length between 2026 Conditions and 2031 Design Year Conditions. Delays remained below 10 seconds, and V/C ratios remained at or below 0.10 for all conditions under the AM peak hour.
    - The three (3) Site driveways operate at LOS C or better under all conditions for all peak periods

Overall, the additional new traffic generated by the proposed expansion can be accommodated on the surrounding roadway.

TRANSPORTATION DEMAND MANAGEMENT

The Proponent has agreed to implement the various transportation demand management measures to reduce its impact on the transportation network.

- Posting of MBTA schedules and routing information within the Target store.
- Include transit directions on the hiring materials for employees.
- Provide subsidized MBTA passes for employees.
- New short-term bicycle parking for visitors and long-term bicycle parking for employees.

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INTRODUCTION

Kimley-Horn and Associates, Inc. prepared this Transportation Impact Study (TIS) to evaluate the potential transportation impacts associated with the expansion of the existing Target store at 180 Somerville Avenue in Somerville, Massachusetts. The proposed fit-out would remove the demising wall between the two commercial boxes within the existing building. The 7.07-acre property contains two (2) contiguous commercial buildings separated by a shared wall, along with an Advance Auto Parts store on the same parcel. Target currently occupies approximately 92,000 square feet and proposes expanding into the adjacent 34,000 square foot vacant storefront, creating a single commercial space. No expansion of the building footprint or exterior site improvements is proposed as part of the Project. The Site is currently served by three (3) unsignalized full-access driveways, including two (2) along Somerville Avenue and one (1) along Medford Street. No changes to the existing site access configuration, including driveway additions, removals, or relocations, are proposed.

The Site Plan is included in **Appendix I**.

Figure 1 illustrates the location of the proposed expansion of Target and study intersections. **Figure 2** illustrates the study area land uses, and this Site is within the Commercial District.

This transportation study has been prepared in conformance with the Massachusetts Department of Transportation's (MassDOT) Transportation Impact Assessment (TIA) Guidelines and is consistent with the City of Somerville's Transportation Impact Study (TIS) Guidelines. The Scoping Request Letter is included in **Appendix A** for reference.

This report summarizes the data collection, trip generation, trip distribution and assignment, and intersection capacity analysis for the Target store expansion.



Figure 1
Site Location
180 Somerville Avenue
Somerville, MA

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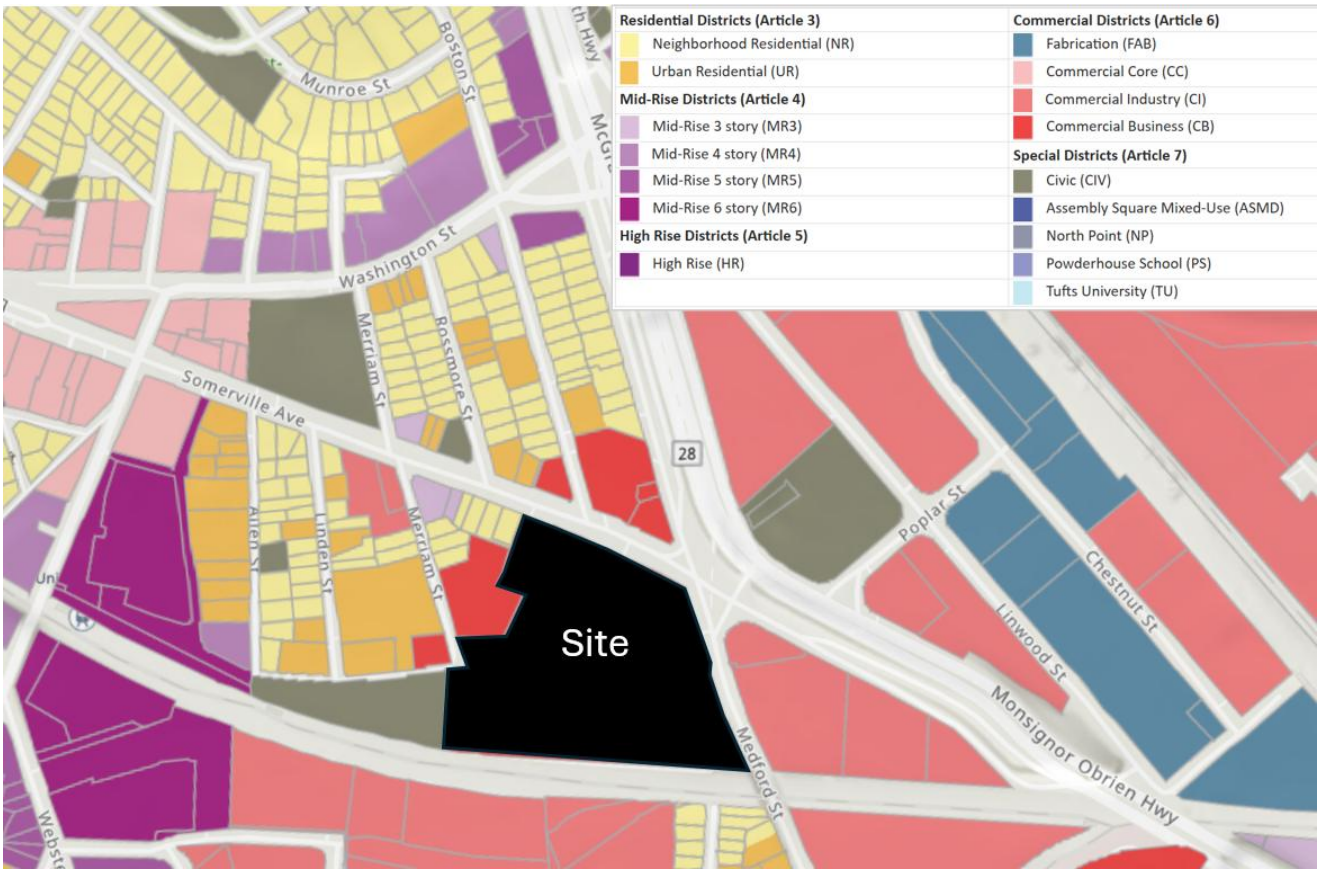


Figure 2. Study Area Land Uses

EXISTING CONDITIONS

ROADWAYS

Evaluation of the traffic impacts associated with the proposed expansion of the Target store in the surrounding roadway network in the City of Somerville requires a thorough understanding of the existing roadway system, including speed limits, intersection geometry, and traffic control devices. Key roadways in the study area include Somerville Avenue, McGrath Highway (Route 28), Prospect Street, Washington Street, Merriam Street, Rossmore Street, Mansfield Street, Medford Street, and the three (3) existing site driveways.

Somerville Avenue is an east-west roadway with a posted speed limit of 25 miles per hour (MPH), which the Massachusetts Department of Transportation (MassDOT) classifies as an urban Principal Arterial and falls under the jurisdiction of the City of Somerville. Somerville Avenue generally runs as a two-lane roadway but provides additional lanes at major intersections. On-street parking is provided on both sides of the roadway. Sidewalks are provided along both sides of the roadway and crosswalks are provided at all intersections. Bike lanes run on both sides of the roadway with separation west of Mansfield Street. Bus stops for MBTA Route 87 are located on both sides of the roadway. The Somerville Police Department and Somerville Fire Department are located along the westbound side of Somerville Avenue just west of Merriam Street. Other land use along the roadway is primarily commercial. Somerville Avenue was extended east of McGrath Highway and Medford Street; this portion is called the Somerville Avenue Extension.

McGrath Highway (Route 28) is a north-south, four-lane divided roadway with a posted speed limit of 30 MPH and is classified as an urban Principal Arterial under MassDOT jurisdiction. This study evaluates the at-grade southbound and northbound frontage roads at their intersections with Somerville Avenue and Medford Street, respectively. The southbound frontage road (SB McGrath Highway) provides two lanes. Bike lanes are provided with a striped lane within the rightmost travel lane. The northbound frontage road (NB McGrath Highway) provides two lanes which split into one lane continuing as the frontage road and a two-lane on-ramp to the McGrath Highway mainline. Sidewalks are provided on both sides of SB McGrath Highway, and crosswalks are provided at major intersections. Bus stops for MBTA Routes 80, 87, and 88 are provided at McGrath Highway at Medford Street and McGrath Highway at Poplar Street. Land use along McGrath Highway within the study area is primarily commercial.

Prospect Street is a north-south, two-lane undivided roadway with a posted speed limit of 25 MPH and is classified as an urban Principal Arterial under the jurisdiction of the City of Somerville. Sidewalks are provided on both sides of the roadway, and crosswalks are provided at major intersections. A northbound bus lane is provided south of Somerville Avenue, and a northbound bike lane is provided within the study limits. Prospect Street provides bus stops served by MBTA Routes 85 and 91 along with access to the D branch of the Green Line via Union Square station. Land use along Prospect Street within the study area is primarily commercial.

Washington Street is a north-south, two-lane undivided roadway with a posted speed limit of 25 MPH and is classified as an urban Principal Arterial under the jurisdiction of the City of Somerville. Sidewalks are provided on both sides of the roadway, and crosswalks are provided at major intersections. A northbound bike lane is provided within the study limits. Washington Street provides bus stops served by MBTA Routes 85, 91, and 109. Land use along Washington Street within the study area is primarily commercial.

Merriam Street is a southbound one-way, one-lane roadway with a posted speed limit of 20 MPH and is classified as an urban Local road under the jurisdiction of the City of Somerville. This study evaluates only the segment of Merriam Street north of Somerville Avenue. Sidewalks are provided on both sides of the roadway and crosswalks are provided at the terminal intersections. On-street parking is provided on both sides of the roadway with a Somerville parking permit. Land use along Merriam Street is primarily residential on the east side and Civic district on the west side. The Somerville Police Department and Somerville Fire Department are located along the west side.

Rossmore Street is a southbound one-way, one-lane roadway with a posted speed limit of 20 MPH and is classified as an urban Local road under the jurisdiction of the City of Somerville. Sidewalks are provided on both sides of the roadway, and crosswalks are provided at the terminal intersections. On-street parking is provided on both sides of the roadway with a Somerville parking permit. Land use along Rossmore Street is primarily residential.

Mansfield Street is a northbound one-way, one-lane roadway with a posted speed limit of 20 MPH and is classified as an urban Local road under the jurisdiction of the City of Somerville. Sidewalks are provided on both sides of the roadway, and crosswalks are provided at the terminal intersections. On-street parking is provided on both sides of the roadway with a Somerville parking permit. Land use along Mansfield Street is primarily residential with commercial uses at the terminal intersection of Somerville Avenue at Mansfield Street.

Medford Street is a north-south, two-lane roadway with a posted speed limit of 30 MPH and is classified as a Minor Arterial under the jurisdiction of the City of Somerville. Sidewalks are provided on the west side of the roadway, and crosswalks are provided at the terminal intersections. Bike lanes separated by flexible post delineators are provided in both directions. A bus stop served by MBTA Routes 80, 87, and 88 is provided at the southeast corner of the intersection with McGrath Highway. Land use along Medford Street is primarily residential and commercial, but the segment within the study area does not provide direct access to businesses except for Target. Medford Street was extended east of SB McGrath Highway; this portion is called the Medford Street Extension.

Site Driveway #1 is a two-way driveway located on the south side of Somerville Avenue, approximately 100 feet west of Somerville Avenue at Mansfield Street.

Site Driveway #2 is a two-way driveway located on the south side of Somerville Avenue, approximately 200 feet east of McGrath Highway at Medford Street.

Site Driveway #3 is a two-way driveway located on the west side of Medford Street, approximately 500 feet south of McGrath Highway at Medford Street.

INTERSECTIONS

Prospect Street/Washington Street at Somerville Avenue is a four-legged signalized intersection. The eastbound and westbound approaches provided by Somerville Avenue both permit all movements via one (1) dedicated left-turn lane and one (1) shared through/right-turn lane. The northbound approach provided by Prospect Street permits all movements via one (1) dedicated left-turn lane and one (1) shared through/right-turn lane. The southbound approach provided by Washington Street permits through and right-turn movements via one (1) dedicated through lane and one (1) dedicated right-turn lane. Crosswalks are provided at all four legs. Bike boxes are provided at the south, west, and east legs.

Somerville Avenue at Merriam Street is a three-legged unsignalized intersection. The eastbound and westbound approaches provided by Somerville Avenue permit through movements via one (1) through lane and are free-flow. The southbound approach provided by Merriam Street permits left-turn and right-turn movements via one (1) shared left-turn/right-turn lane and is STOP-controlled. Crosswalks are provided at the north and east legs.

Somerville Avenue at Rossmore Street is a three-legged unsignalized intersection. The eastbound and westbound approaches provided by Somerville Avenue permit through movements via one (1) through lane and are free-flow. The southbound approach provided by Rossmore Street permits left-turn and right-turn movements via one (1) shared left-turn/right-turn lane and is STOP-controlled. Crosswalks are provided at the north and east legs.

Somerville Avenue at Site Driveway #1 is a three-legged unsignalized intersection. The eastbound approach provided by Somerville Avenue permits through and right-turn movements via one (1) shared through/right-turn lane. The westbound approach provided by Somerville Avenue permits left-turn and through movements via one (1) shared left-turn/through lane. The eastbound and westbound approaches are free-flow. The northbound approach provided by Site Driveway #1 permits left-turn and right-turn movements via one (1) shared left-turn/right-turn lane and is STOP-controlled. Eastbound right-turn and westbound left-turn movements provide entry access to Target. The northbound approach provides exit from the Target parking lot.

Somerville Avenue at Mansfield Street is a three-legged unsignalized intersection. The eastbound and westbound approaches provided by Somerville Avenue each permit through movements via one (1) through lane and are free-flow. Mansfield Street provides one (1) receiving lane for eastbound left-turn and westbound right-turn movements, which runs northbound.

Somerville Avenue at Site Driveway #2 is a three-legged unsignalized intersection. The eastbound approach provided by Somerville Avenue permits through and right-turn movements via one (1) shared through/right-turn lane. The westbound approach provided by Somerville Avenue permits left-turn and through movements via one (1) shared left-turn/through lane. The eastbound and westbound approaches are free-flow. The northbound approach provided by Site Driveway #2 permits left-turn and right-turn movements via one (1) shared left-turn/right-turn lane and is STOP-controlled. Eastbound right and westbound left movements provide entry access to Target. The northbound approach provides exit from the Target parking lot.

Somerville Avenue at Medford Street/SB McGrath Highway is a four-legged signalized intersection. The eastbound approach provided by Somerville Avenue permits through and right-turn movements via one (1) through lane and one (1) dedicated right-turn lane. The northbound approach provided by Medford Street permits left-turn movements via one (1) dedicated left-turn lane. The southbound approach provided by SB McGrath Highway permits all movements via one (1) dedicated left-turn lane, one (1) through lane, and one (1) shared through/right-turn lane. There is no westbound approach, but there is one (1) receiving lane for eastbound through and southbound left-turn movements. Crosswalks are provided at the west, east, and south legs. Bicycle crossings are striped in the intersection, connecting bike facilities on Somerville Avenue and Medford Street. This intersection was reconstructed in 2016 as part of the MassDOT interchange improvement project.

Somerville Avenue/Somerville Avenue Extension at Medford Street Extension is a four-legged signalized intersection. The eastbound approach provided by Somerville Avenue permits through and left-turn movements via one (1) shared left-turn and through lane. The northbound approach provided by the Medford Street Extension permits through and right-turn movements via one (1) through-lane and one (1) shared through/right-turn lane. The east leg of the intersection has three (3) receiving lanes, with the rightmost lane reserved for bus and bike travel. The north leg consists of two (2) receiving lanes for the eastbound left-turn and northbound through movements. Crosswalks are provided at the east, west, and south legs. Bike boxes are provided at the south leg, and bicycle crossings are striped in the intersection connecting bike lanes on northbound Medford Street and bike facilities on eastbound Somerville Avenue. A bus stop is located at the southeast corner of the intersection.

McGrath Highway (Route 28) NB at Medford St Extension is a three-legged signalized intersection. The northwestbound approach provided by McGrath Highway (Route 28) NB permits through and right-turn movements via one (1) through lane and one (1) shared through/right-turn lane. Along the approach, a bus stop is marked with thermoplastic markings on the shoulder. This bus stop is served by MBTA Routes 80, 87, and 88. At the time of this study, this bus stop was temporarily relocated to 259 McGrath Highway, which is approximately 500 feet from its regular location. Crosswalks are located at the south and southwestern legs.

Medford Street at Site Driveway #3 is a three-legged unsignalized intersection. The northbound approach provided by Medford Street permits through and right-turn movements via one (1) shared through/right-turn lane. The southbound approach provided by Medford Street permits left-turn and through movements via one (1) shared left-turn/through lane. The northbound and southbound approaches are free-flow. The eastbound approach provided by Site Driveway #2 permits left-turn and right-turn movements via one (1) shared left-turn/right-turn lane and is STOP-controlled. No striped crosswalks are provided, but the Medford Street sidewalk runs through the west leg. Southbound right-turn and northbound left-turn movements provide entry access to Target. The eastbound approach provides exit from the Target parking lot.

BICYCLE NETWORK

An extensive network of bicycle facilities currently exists around the study area, and a notable volume of bicyclists was observed near the Site. Over the past decade, the City of Somerville has focused on improving bicycle facilities and connectivity throughout the city.

This includes the reconstruction of the McGrath Highway/Somerville Avenue/Medford Street interchange in 2016, which eliminated the McGrath Highway southbound off-ramp to Medford Street, created a new signalized control point to McGrath Highway northbound from Medford Street Extension, and added various bike lanes, sidewalks, conflict markings, and crossings throughout the intersection. Bike lanes were provided along the McGrath Highway NB Frontage Road and the Medford Street Extension, as well as sharrow markings on the McGrath Highway Frontage Road SB.

The portion of Somerville Avenue within the study area was also reconstructed as part of the Somerville Avenue Utility and Streetscapes Improvement Project, which created raised protected bike lanes along both sides of Somerville Avenue from McGrath Highway/Medford Street to Prospect Street/Washington Street. At the intersection of Somerville Avenue and Prospect Street/Washington Street, conflict striping and two-stage left-turn boxes were installed. On Medford Street from Warren Street to Somerville Avenue, painted buffered bike lane markings were installed in 2020 and flex posts were installed in 2021. Additionally, as part of a 2022 MassDOT resurfacing and restriping project, buffered bike lanes were striped along McGrath Highway SB beginning where Somerville Avenue Extension meets the McGrath Highway SB on-ramp.

Two (2) Bluebikes bike-share stations are in the vicinity of the study area. The nearest Bluebikes bike-share stations are located approximately 0.4 miles to the west at Somerville Avenue near the World War I Memorial (18 bikes) and approximately 0.4 miles to the southwest at the Union Square MBTA station (13 bikes). Adjacent to the Site entrance, there are six (6) individual bike racks present in good condition, capable of holding up to 12 bicycles.

Figure 3 shows the existing bicycle facilities within the area, and more detailed descriptions of the bike facilities at each intersection are provided as part of the Level of Traffic Stress analyses in later sections.



Figure 3. Existing Bicycle Network

PEDESTRIAN NETWORK

The pedestrian facilities surrounding the Site are also extensive and have undergone reconstruction in recent years as part of multiple projects. The 2016 MassDOT McGrath Highway/Somerville Avenue/Medford Street interchange project improved sidewalk conditions and added signalized crosswalks across all roadway segments. As part of the Somerville Avenue Utility and Streetscapes Improvement Project, the project created wider sidewalks and curb extensions along both sides of Somerville Avenue from McGrath Highway/Medford Street to Prospect Street/Washington Street.

Along Medford Street, sidewalks are six (6) inches above street level on both sides at the McGrath Highway interchange but rise to over four (4) feet above street level on both sides further south, with walls and fencing provided. Sidewalks on both sides of Merriam Street, Rossmore Street, and Mansfield Street are

generally in good condition, though widths vary between 5.5 and 6.5 feet. Sidewalks are provided along the front of the Site, along Somerville Avenue and Medford Street, and are in good condition.

Figure 4 shows existing pedestrian facilities in the study area, and subsequent sections provide Level of Stress analyses.



Figure 4. Existing Pedestrian Network

PUBLIC TRANSPORTATION

The Massachusetts Bay Transportation Authority (MBTA) provides transit service within the study area via several bus routes and two (2) light-rail lines, as shown in **Figure 5**. A summary of existing public transportation services and amenities is provided in this section.

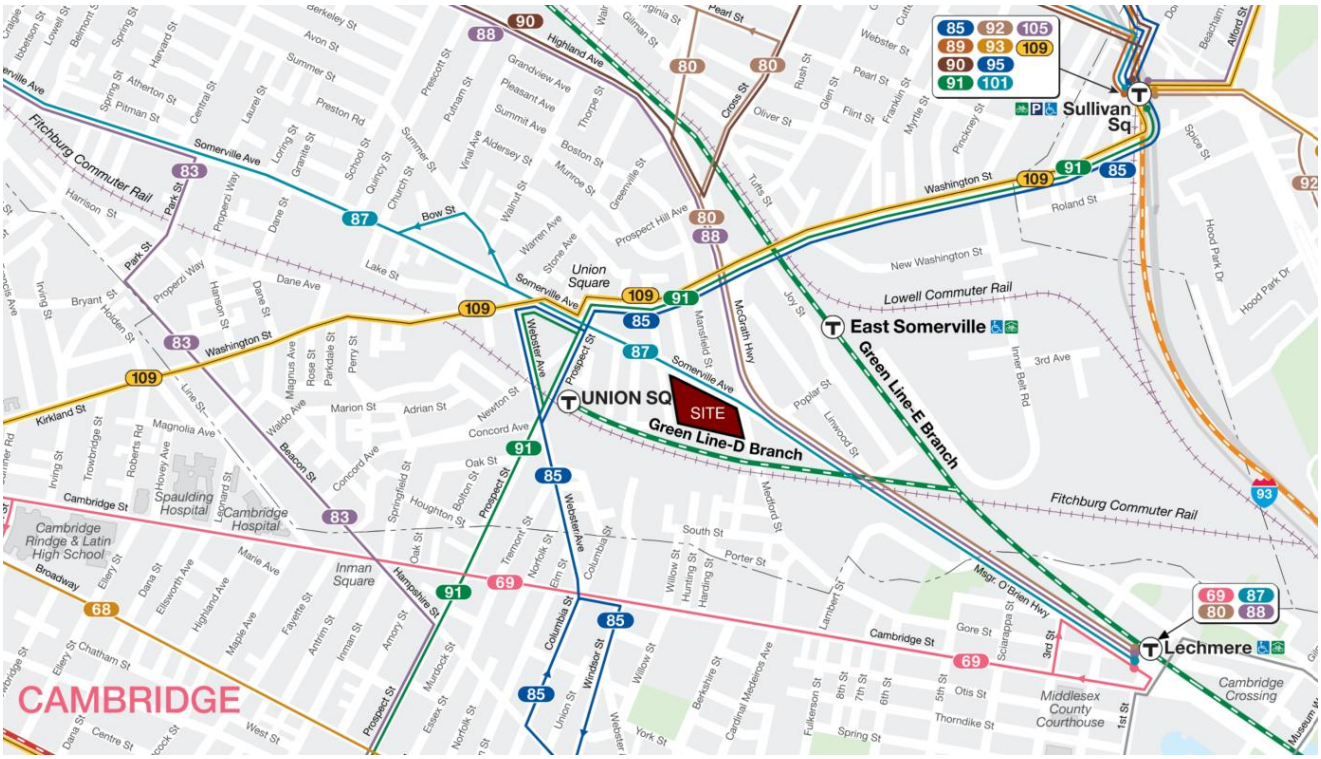


Figure 5. Existing Public Transportation Services

Bus Routes

The study area is served by eight (8) MBTA Bus Routes within a half-mile (0.5 miles) of the Site, including the 69, 80, 85, 87, 88, 90, 91, and 109.

- MBTA Bus Route 69 runs from Harvard Square to Lechmere via Cambridge Street. Near the Site, the inbound route to Lechmere stops at Cambridge Street at Max Avenue. The outbound route to Harvard Square stops at Cambridge Street at Lambert Street.
- MBTA Bus Route 80 runs from Arlington Center to Lechmere through Medford and Somerville. MBTA Bus Route 88 runs from Clarendon Hill to Lechmere through Somerville. Within the study area, both routes run along McGrath Highway and serve McGrath Highway at Medford Street (inbound) and McGrath Highway at Poplar Street (outbound). At the time of this study, McGrath Highway at Poplar Street had been temporarily closed. Buses instead stopped at 259 McGrath Highway, about 500 feet from the original location.
- MBTA Bus Route 87 runs from Arlington Center to Lechmere through Somerville and runs along Somerville Avenue within the study area. The outbound stop is on Somerville Avenue opposite Mansfield Street, and the inbound stop is on Somerville Avenue at Merriam Street.

- MBTA Bus Route 85 runs from Assembly Row to Ruggles Station via Cambridge and Longwood Medical Area. Within the study area, the inbound route stops at Prospect Street at Union Square, connecting to the Green Line D branch. The outbound route stops at Washington Street and Rossmore Street. This route was redesigned and implemented in Spring 2026, consolidating the previous 85 and CT2 routes.
- MBTA Bus Route 90 runs from Davis to Assembly Row via Highland Avenue. Within the study area, the inbound stop is located at McGrath Highway and Alston Street, and the outbound stop is located at Cross Street and Chester Avenue.
- MBTA Bus Route 91 runs from Sullivan Square to Central Square (Cambridge) via Washington Street and Prospect Street. Within the study area, the inbound stop is located at Somerville Avenue at Union Square. The outbound stop is located at Prospect Street and Union Square, providing a connection to the Green Line D branch.
- MBTA Bus Route 109 runs from Linden Square to Harvard Square via Sullivan Square. Within the study area, the route runs along Washington Street and Somerville Avenue. The nearest inbound stop is Washington Street and Boston Street, and the outbound stop is Washington Street and Rossmore Street. Route 109 is a high-frequency route with headways up to 15 minutes during service hours.

The service times for each stop are included in **Table 1.**

Table 1. Bus Service Times

Bus Route	Bus Stop	Weekday Service	Friday Service	Saturday Service	Sunday Service
69	Cambridge St @ Lambert St	5:50 AM – 1:23 AM *15-25 minute headways*	5:50 AM – 1:23 AM *15-25 minute headways*	5:29 AM – 1:24 AM *25-35 minute headways*	6:09 AM – 1:24 AM 25-35 minute headways
69	Cambridge St @ Max Ave	5:35 AM – 1:09 AM *20-25 minute headways*	5:35 AM – 1:09 AM *20-25 minute headways*	5:17 AM – 1:12 AM *25-35 minute headways*	6:28 AM – 1:08 AM *25-35 minute headways*
80	McGrath Hwy @ Poplar St	5:31 AM – 1:13 AM *30-45 minute headways*	5:31 AM – 1:13 AM *30-45 minute headways*	5:33 AM – 1:21 AM *30-45 minute headways*	7:04 AM – 12:04 AM *50-60 minute headways*
80	McGrath Hwy @ Medford St	5:20 AM – 1:00 AM *30-45 minute headways*	5:20 AM – 1:00 AM *30-45 minute headways*	5:23 AM – 1:10 AM *30-45 minute headways*	6:51 AM – 11:45 PM *50-60 minute headways*
85	Prospect St @ Union Sq - Green Line	6:14 AM – 8:03 PM *25-35 minute headways*	6:14 AM – 8:03 PM *25-35 minute headways*	No weekend service	
85	Washington St @ Boston St (north side)	5:33 AM – 7:34 AM *25-30 minute headways*	5:33 AM – 7:34 AM *25-30 minute headways*		
87	Somerville Ave opp Mansfield St	5:19 AM – 1:11 AM *25-30 minute headways*	5:19 AM – 1:11 AM *25-30 minute headways*	5:27 AM – 1:11 AM *30-35 minute headways*	6:15 AM – 12:56 AM *40-45 minute headways*

Bus Route	Bus Stop	Weekday Service	Friday Service	Saturday Service	Sunday Service
87	Somerville Ave @ Merriam St	5:32 AM – 1:23 AM *25-30 minute headways*	5:32 AM – 1:23 AM *25-30 minute headways*	5:46 AM – 1:24 AM *25-35 minute headways*	6:04 AM – 1:18 AM *40-45 minute headways*
88	McGrath Hwy @ Poplar St	5:41 AM – 1:22 AM *25-35 minute headways*	5:41 AM – 1:22 AM *25-35 minute headways*	5:59 AM – 1:22 AM *25-30 minute headways*	6:27 AM – 1:21 AM *35-45 minute headways*
88	McGrath Hwy @ Medford St	5:28 AM – 1:09 AM *20-35 minute headways*	5:28 AM – 1:09 AM *20-35 minute headways*	5:43 AM – 12:59 AM *30-45 minute headways*	6:39 AM – 1:12 AM *40-50 minute headways*
90	Cross St @ Chester Ave	6:17 AM – 11:27 PM *30-45 minutes*	6:17 AM – 11:27 PM *30-45 minutes*	7:12 AM – 10:27 PM *45-80 minute headways*	11:15 AM – 6:15 PM *70-80 minute headways*
90	McGrath Hwy @ Alston St	6:47 AM – 10:53 PM *40-45 minute headways*	6:47 AM – 10:53 PM *40-45 minute headways*	7:38 AM – 10:59 AM *40-70 minute headways*	10:41 AM – 6:46 PM *60-70 minute headways*
91	Prospect St @ Union Sq - Green Line	5:45 AM – 1:25 AM *30-50 minute headways*	5:45 AM – 1:25 AM *30-50 minute headways*	5:43 AM – 1:40 AM *40-50 minute headways*	7:13 AM – 1:09 AM *40-50 minute headways*
91	Washington St @ Boston St	5:24 AM – 12:58 AM *30-45 minute headways*	5:24 AM – 12:58 AM *30-45 minute headways*	5:23 AM – 1:18 AM *25-45 minute headways*	6:47 AM – 12:48 AM *35-45 minute headways*
109	Washington Street @ Rossmore Street	5:08 AM – 1:16 AM *12-15 minute headways*	5:08 AM – 1:16 AM *12-15 minute headways*	5:20 AM – 1:02 AM *12-15 minute headways*	5:21 – 12:58 AM *12-15 minute headways*
109	Washington Street @ Boston Street	4:52 AM – 1:27 AM *10-15 minute headways*	4:52 AM – 1:27 AM *10-15 minute headways*	4:50 AM – 1:11 AM *12-15 minute headways*	4:50 AM – 1:10 AM *12-15 minute headways*

Table 2 includes the distance to each bus stop and an inventory of observed amenities.

Table 2. MBTA Bus Stop Characteristics

Route	Closest Stop	Direction	Distance to/from Site[a] (ft)	Avg. Walking Time to/from Site[b] (min)	Bus Stop Amenities	Bus Stop Deficiencies
80, 88	McGrath Highway at Poplar Street[c]	Inbound (NB)	1,000	3.8		- No shelter or bench - Bus pulls into bike lane
	McGrath Highway at Medford Street	Outbound (SB)	800	3.0		- No shelter or bench - Bus pulls into bike lane
85, 91	Prospect Street at Union Square – Green Line	Inbound (NB)	1,900	7.2	- Bench	- Bus pulls into bike lane

Route	Closest Stop	Direction	Distance to/from Site[a] (ft)	Avg. Walking Time to/from Site[b] (min)	Bus Stop Amenities	Bus Stop Deficiencies
	Washington Street at Boston Street	Outbound (SB)	1,400	5.3	- Bench	- Bus pulls into bike lane
69	Cambridge Street at Lambert Street	Inbound (WB)	2,150	8.1		- No shelter or bench - Bus pulls into bike lane
	Cambridge Street at Max Avenue	Outbound (EB)	2,200	8.3		- No shelter or bench - Bus pulls into bike lane
87	Somerville Avenue at Merriam Street	Inbound (WB)	850	3.2	- Bench	
	Somerville Avenue opposite Mansfield Street	Outbound (EB)	500	1.9	- Bench	
90	Cross Street at Chester Avenue	Inbound (SB)	2,900	11.0		- No shelter or bench
	McGrath Highway at Alston Street	Outbound (NB)	2,050	7.8	- Bench - Shelter	
109	Washington Street at Rossmore Street	Inbound (NB)	1,750	6.6		- No shelter or bench
	Washington Street at Boston Street	Outbound (SB)	1,400	5.3	- Bench	

[a] Measured from the approximate location of the Target entranceway.

[b] Average walking time based on a walking speed of 3 MPH, or 4.4 feet per second.

[c] Bus stop has temporarily been moved down the road to in front of the Mercedes dealership but remains the closest. Evaluation was performed on the temporary bus stop, but it should be noted that the permanent stop at Poplar Street has a shelter.

Table 3 provides average daily boarding, alighting, and load for each stop using Fall 2025 data. Route 69 has the highest average weekday daily boardings and alightings in the outbound.

Table 3. Bus Ridership

Bus Route	Bus Stop	Weekday Daily			AM Peak (7-9 AM)			PM Peak (4-6:30 PM)			Saturday Daily			Sunday Daily		
		Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load
69	Cambridge St @ Lambert St	91	42	10	17	4	16	17	10	13	64	23	9	39	15	7
69	Cambridge St @ Max Ave	39	81	10	9	6	11	4	19	13	21	53	7	10	40	6
80	McGrath Hwy @ Poplar St	16	1	4	2	0	3	5	0	8	10	3	3	7	1	3
80	McGrath Hwy @ Medford St	2	20	4	0	7	7	0	2	3	2	16	3	1	10	3
85	Prospect St @ Union Sq - Green Line	*This bus stop was added to Route 85 in Spring 2026.*														
85	Washington St @ Boston St	*This bus stop was added to Route 85 in Spring 2026.*														
87	Somerville Ave opp Mansfield St	5	43	6	1	9	12	1	9	6	4	31	5	3	20	5
87	Somerville Ave @ Merriam St	40	6	6	4	1	5	9	2	15	36	6	6	19	3	6
88	McGrath Hwy @ Poplar St	29	4	5	3	1	4	9	1	12	20	4	4	16	3	4
88	McGrath Hwy @ Medford St	4	30	4	0	6	8	1	5	4	3	23	4	1	14	3
90	Cross St @ Chester Ave	2	3	7	1	0	16	0	1	9	1	3	7	1	1	8

Bus Route	Bus Stop	Weekday Daily			AM Peak (7-9 AM)			PM Peak (4-6:30 PM)			Saturday Daily			Sunday Daily		
		Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load	Board	Alight	Avg Load
90	McGrath Hwy @ Alston St	5	7	8	1	1	9	1	2	11	4	4	9	3	3	8
91	Prospect St @ Union Sq - Green Line	11	32	8	4	2	10	1	7	11	11	42	7	6	24	6
91	Washington St @ Boston St	9	4	8	2	0	13	1	1	9	8	4	7	7	2	6
109	Washington Street @ Rossmore	81	42	15	9	2	16	17	10	23	64	35	13	51	27	11
109	Washington St @ Boston St	22	22	15	5	3	24	3	5	18	19	20	13	16	15	11

Overall, Route 109 served the most weekday, Saturday, and Sunday riders on average, with 8,125 inbound riders and 8,021 outbound riders on weekdays. **Table 4** shows ridership for each route on weekdays, Saturdays, and Sundays.

Table 4. Daily Bus Route Ridership

Bus Route	Direction	Weekday Daily			Saturday Daily			Sunday Daily		
		Board	Alight	Total	Board	Alight	Total	Board	Alight	Avg Load
69	Inbound	993	1,002	1,995	540	544	1,083	328	335	663
	Outbound	1,001	994	1,995	589	584	1,173	337	332	670
	Total	1,994	1,996	3,990	1,128	1,128	2,256	666	667	1,333
80	Inbound	318	317	635	283	281	564	145	143	287
	Outbound	300	303	603	236	238	474	138	139	277
	Total	619	620	1,238	519	519	1,038	283	281	564
85	Inbound	100	108	208	*Weekday Service Only (Fall 2025)*					
	Outbound	102	100	202						
	Total	202	208	410	0	0	0	0	0	0
87	Inbound	1,230	1,248	2,478	922	935	1,856	452	453	905
	Outbound	1,158	1,153	2,311	940	935	1,875	475	474	948
	Total	2,388	2,401	4,789	1,862	1,870	3,731	926	927	1,853
88	Inbound	923	922	1,845	623	619	1,242	352	354	706
	Outbound	943	954	1,897	590	590	1,180	355	354	709
	Total	1,866	1,876	3,742	1,213	1,209	2,422	707	708	1,415
90	Inbound	290	304	594	203	202	405	124	125	249
	Outbound	298	296	594	183	183	366	99	99	197
	Total	588	600	1,188	385	386	771	223	223	446
91	Inbound	375	374	749	314	313	627	248	248	496
	Outbound	365	370	735	301	303	604	244	244	488
	Total	740	744	1,484	615	616	1,231	492	492	984
109	Inbound	4,052	4,073	8,125	3,207	3,221	6,428	2,570	2,576	5,145
	Outbound	4,023	3,997	8,021	3,174	3,146	6,321	2,577	2,552	5,130
	Total	8,075	8,070	16,146	6,382	6,367	12,749	5,147	5,128	10,275

Light Rail Lines

The Site is near Union Square and East Somerville Green Line stations. Both stations are described below by their amenities and service information (based on schedules published on September 6, 2026). On both Green Line branches, trains run at peak weekday headways of 6 to 8 minutes and off-peak weekday headways of 7 to 12 minutes. Saturday headways range from 8 to 15 minutes, and Sunday headways range from 8 to 20 minutes.

Union Square is located at 50 Prospect Street and provides bike storage, elevator service, a portable boarding lift, and long ramps for accessible boarding. The Green Line D branch begins at Union Square and terminates at Riverside during the times listed in **Table 5**.

Table 5. Departure Times from Union Square

Day	To Riverside
Weekday	5:10 AM – 12:56 AM
Friday	5:10 AM – 1:50 AM
Saturday	5:20 AM – 1:44 AM
Sunday	5:34 AM – 12:42 AM

East Somerville is located at 134 Washington Street and provides bike storage, a portable boarding lift, and long ramps for accessible boarding. The Green Line E branch serves East Somerville, running from Medford/Tufts to Heath Street. Service spans the times listed in **Table 6**.

Table 6. Departure Times from East Somerville

Day	To Medford/Tufts	To Heath Street
Weekday	4:49 AM – 1:36 AM	5:07 AM – 12:22 AM
Friday	4:49 AM – 2:34 AM	5:07 AM – 1:21 AM
Saturday	4:56 AM – 2:30 AM	5:14 AM – 1:29 AM
Sunday	5:04 AM – 1:32 AM	5:22 AM – 12:27 AM

Boarding and alighting information from Fall 2025 for both stations is summarized in **Table 7**. Over the season, both stations served over 7,500 boarding riders and 10,000 alighting riders. Union Square generally served higher ridership than East Somerville, especially on weekends.

Table 7. Boarding and Alighting – Fall 2025

Station	Boardings	Alights
East Somerville	**7,658**	**10,899**
Weekday	7,012	9,677
AM Peak	2,116	2,641
PM Peak	4,896	7,036

Station	Boardings	Alights
Saturday	365	654
Sunday	281	568
Union Square	**14,702**	**11,405**
Weekday	13,086	9,120
AM Peak	8,242	2,119
PM Peak	4,844	7,001
Saturday	1,037	1,379
Sunday	579	906

TRAFFIC DATA COLLECTION

Vehicle Volumes

Automatic traffic recorders (ATRs) were conducted for 72 hours from Thursday, October 1, 2026, to Saturday, October 3, 2026, on Somerville Avenue, just east of Rossmore Street, to collect daily traffic flow data including speed, volume, and vehicle class. The ATR counts provide information on hourly volume variation, volume by vehicle type, and traffic speeds and are included in **Appendix B**. A summary of the traffic volume data is provided in **Table 8**.

Table 8. Summary of Traffic Volume Data

Location	Posted Speed Limit (MPH)	Weekday							Saturday			
		Average Daily Volume	AM Peak Hour[1]			PM Peak Hour[1]			Daily Volume	Peak Hour[1]		
			Time	Veh. Vol.	Dir. Dist.	Time	Veh. Vol.	Dir. Dist.		Time	Veh. Vol.	Dir. Dist.
Somerville Avenue, just east of Rossmore Street	25	6,219	8:00 – 9:00	395	72% EB / 28% WB	4:00 – 6:00	398	63% EB / 37% WB	5,573	11:00 AM – 12:00 PM	388	66% EB / 34% WB

[1]Peak hours do not necessarily coincide with the peak hours of turning movement counts and overall study area peak hours.

The average weekday volume on Somerville Avenue, just east of Rossmore Street, is approximately 6,219 vehicles per day (VPD). Peak hour flows represent approximately 6% of the weekday average 24-hour volume during the AM and PM peak hours, respectively. The AM and PM distributions differ slightly: eastbound traffic accounts for 72% of volume during the AM peak hour and 63% during the PM peak hour. During the Saturday peak hour, volumes were comparable to the AM and PM peak hours; eastbound traffic accounted for 66% of volume, and westbound traffic accounted for 34%.

Existing traffic volumes were based upon turning movement counts (TMCs) collected at the ten (10) study intersections for one 14-hour weekday period from 6:00 AM to 8:00 PM on Thursday, September 24, 2026, and for one four (4) hour Saturday period from 10:00 AM to 2:00 PM on Saturday, October 3, 2026. Time

periods were selected in accordance with the City of Somerville TIS guidelines, and peak hours for the study area as a whole were determined for each peak period as follows:

- AM Peak Period: 7:30 AM to 8:30 AM
- PM Peak Period: 5:15 PM to 6:15 PM
- Saturday Peak Period: 11:30 AM to 12:30 PM

Figure 6, Figure 7, and Figure 8, present the existing turning movement volumes at the study intersections during the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour.

Seasonal Adjustment

Based on the 2025 MassDOT weekday and axle correction factors, the September and October traffic volumes along the study roadway were above average, therefore, a seasonal adjustment factor was not applied to the existing traffic volumes. The 2025 MassDOT weekday seasonal and axle correction factors can be found in **Appendix C**.

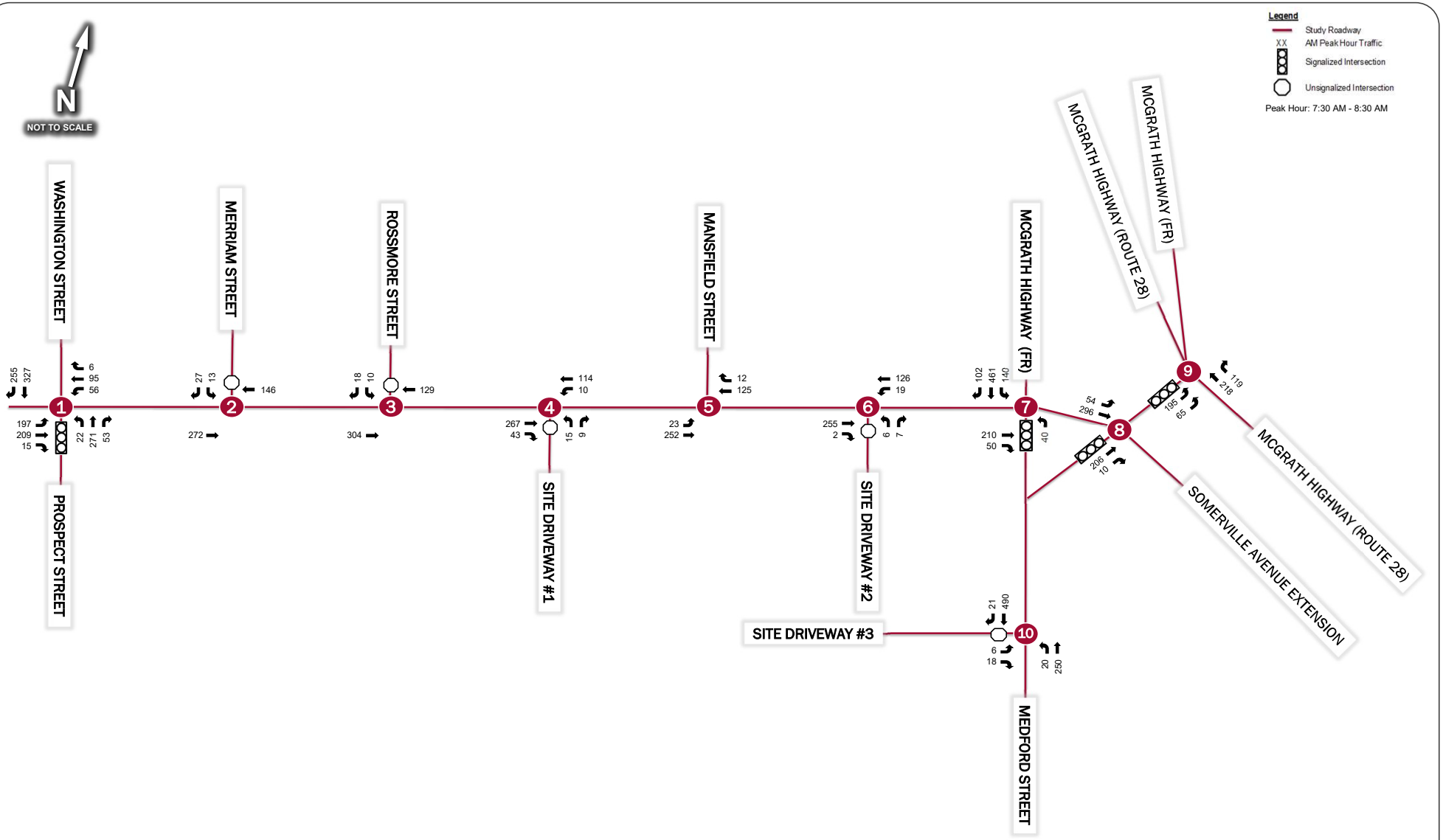


Figure 6

2026 Existing Conditions – Weekday AM Peak Hour Traffic Volumes

180 Somerville Avenue

Somerville, MA

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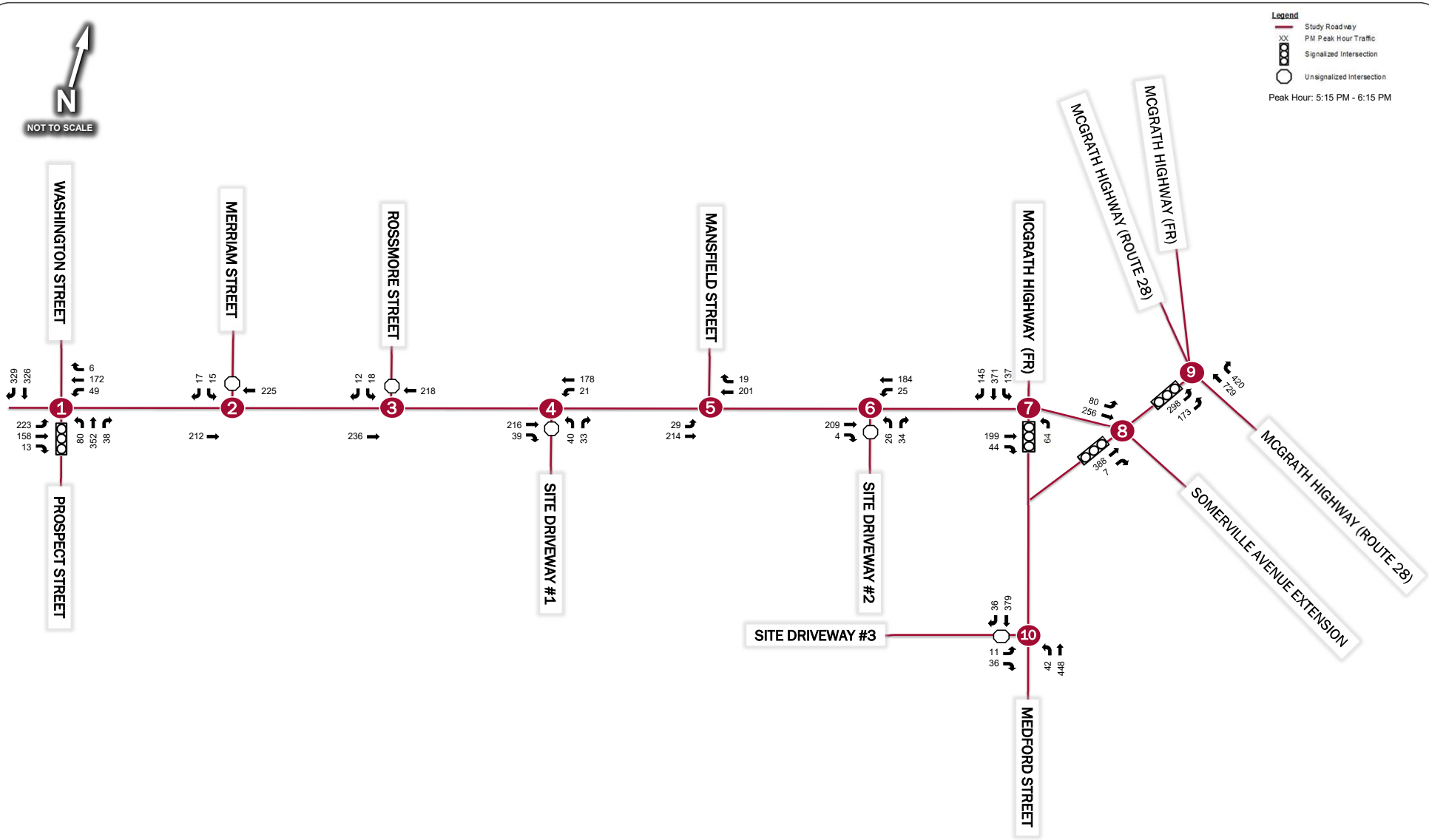


Figure 7

2026 Existing Conditions – Weekday PM Peak Hour Traffic Volume

180 Somerville Avenue

Somerville, MA

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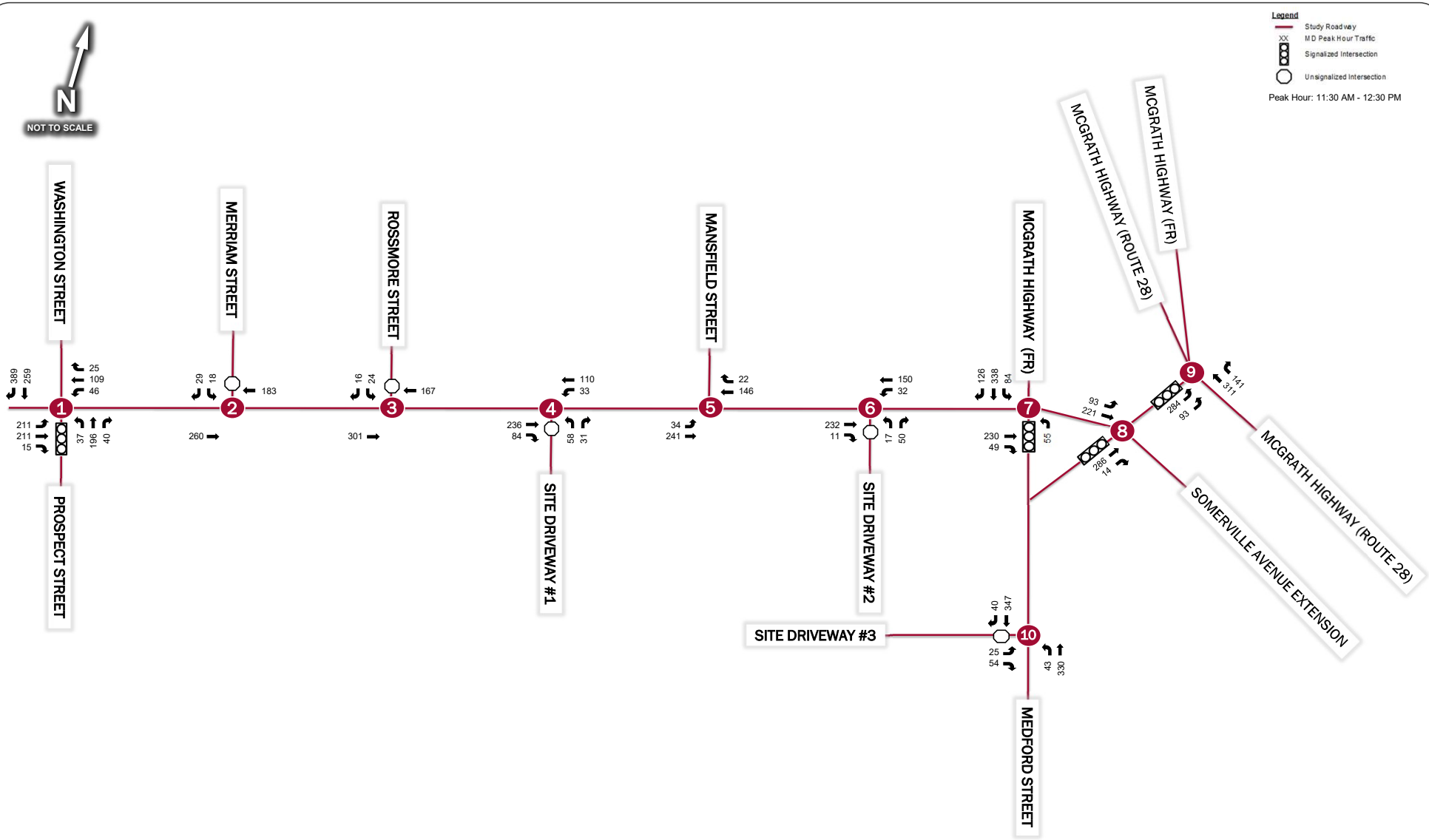


Figure 8

2026 Existing Conditions – Saturday Midday Peak Hour Traffic Volumes

180 Somerville Avenue

Somerville, MA

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Bicycle and Pedestrian Volumes

Bicycle and pedestrian volume data were also collected at the ten (10) study area intersections as part of the TMC data collection. **Figure 9** through **Figure 14** presents the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour bicycle and pedestrian traffic volumes.

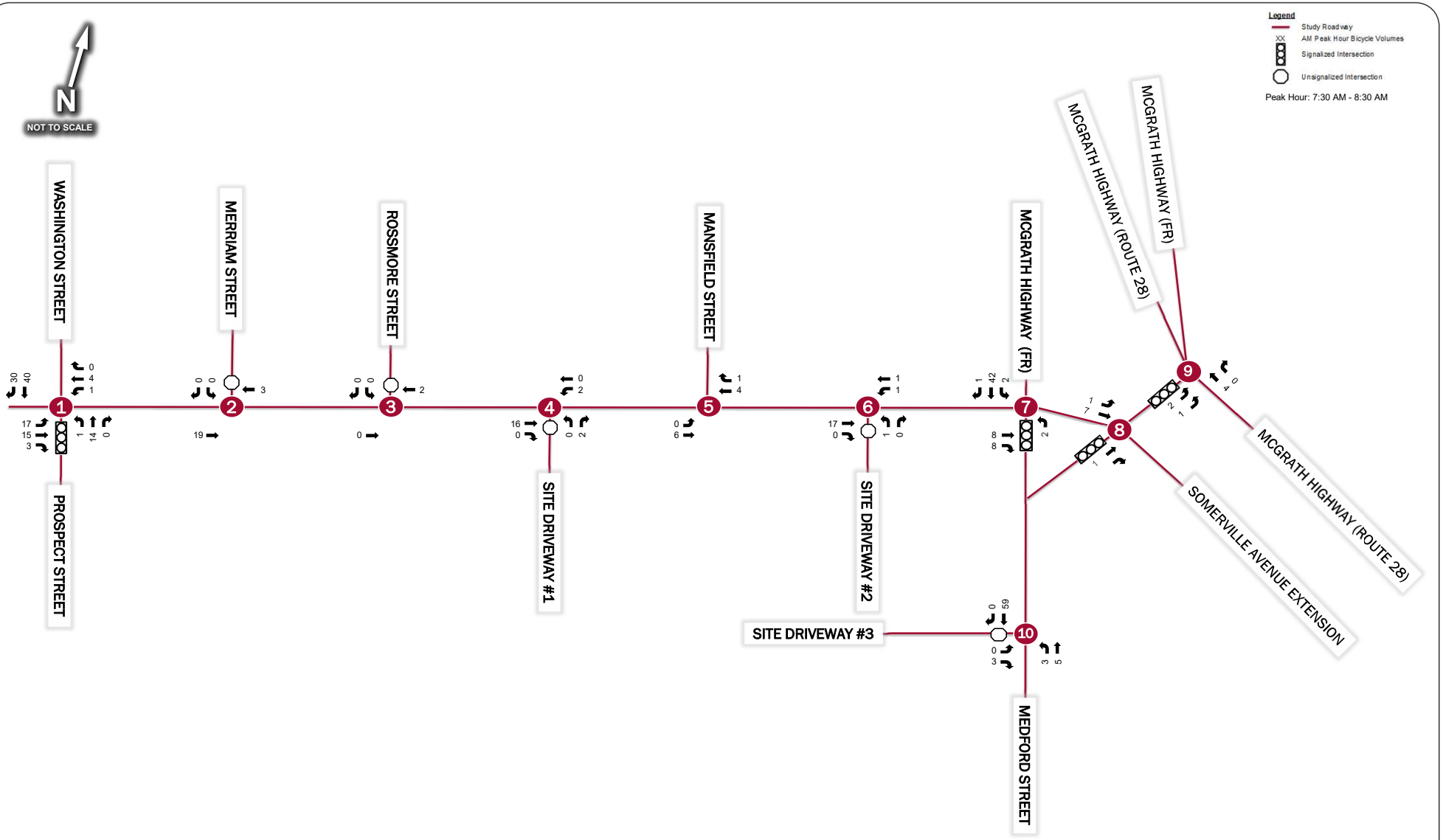


Figure 9

2026 Existing Conditions – Weekday AM Peak Hour Bicycle Volumes

180 Somerville Avenue

Somerville, MA

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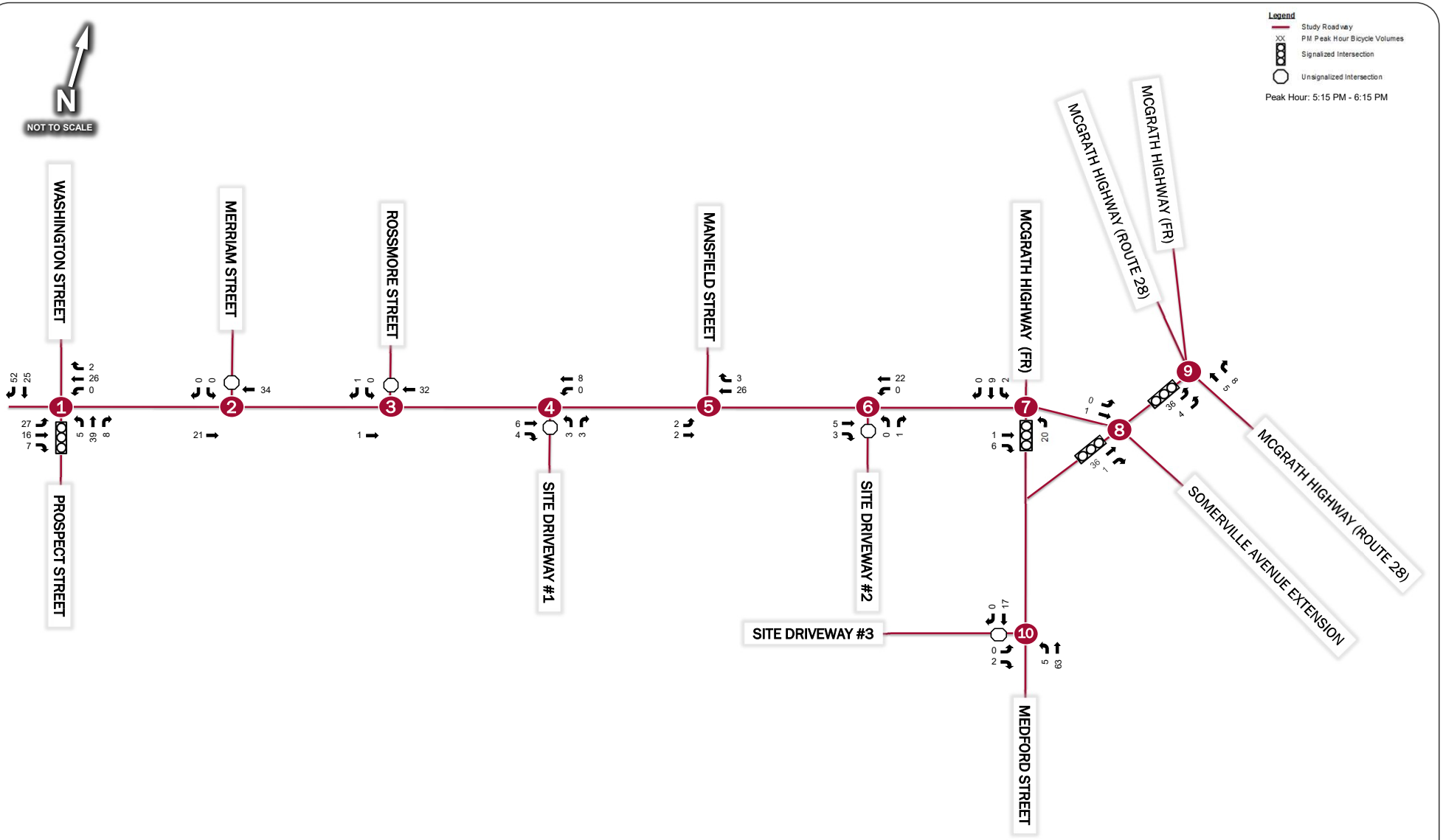


Figure 10

2026 Existing Conditions – Weekday PM Peak Hour Bicycle Volumes

180 Somerville Avenue

Somerville, MA

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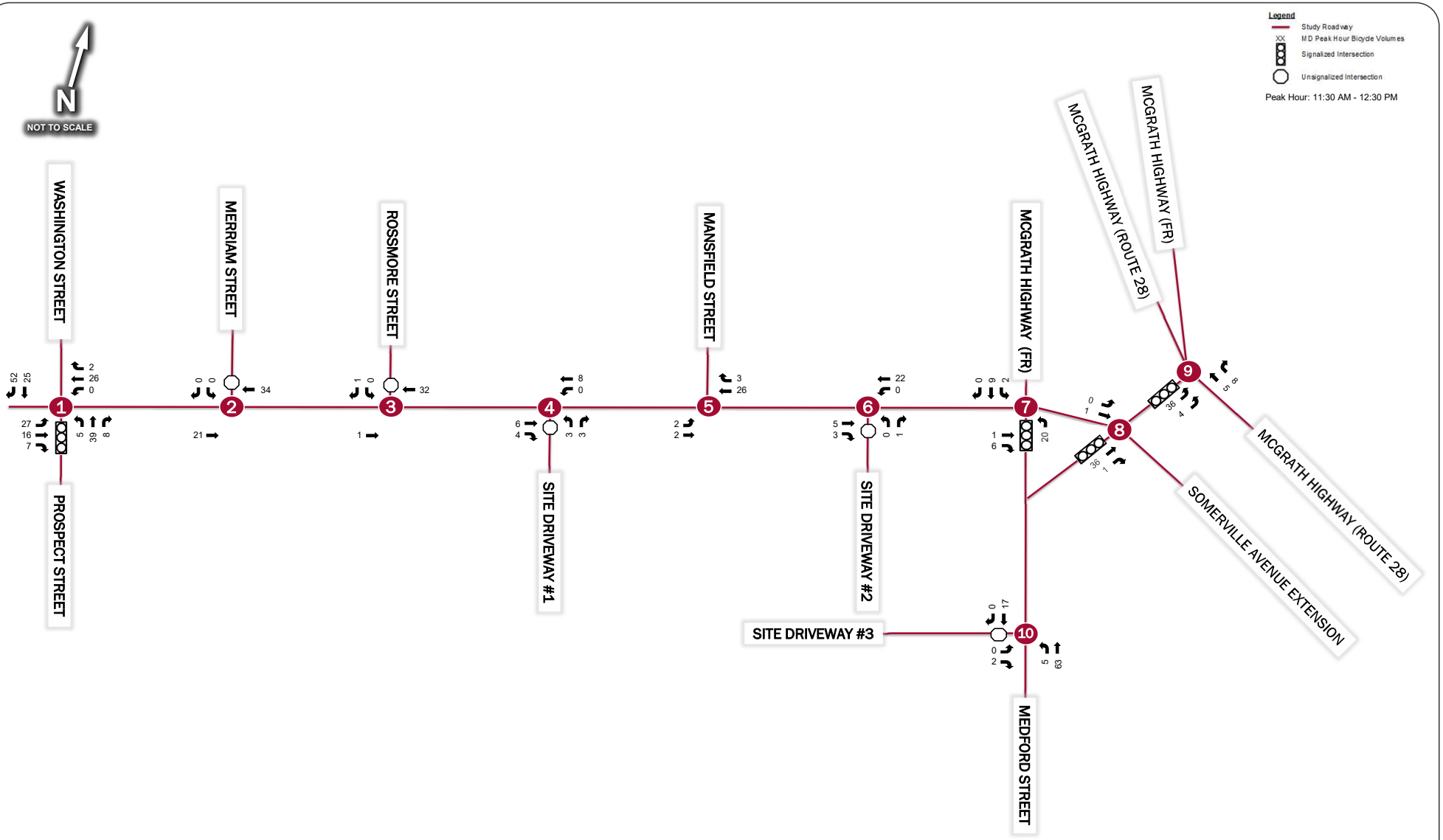


Figure 11

2026 Existing Conditions – Saturday Midday Peak Hour Bicycle Volumes

180 Somerville Avenue

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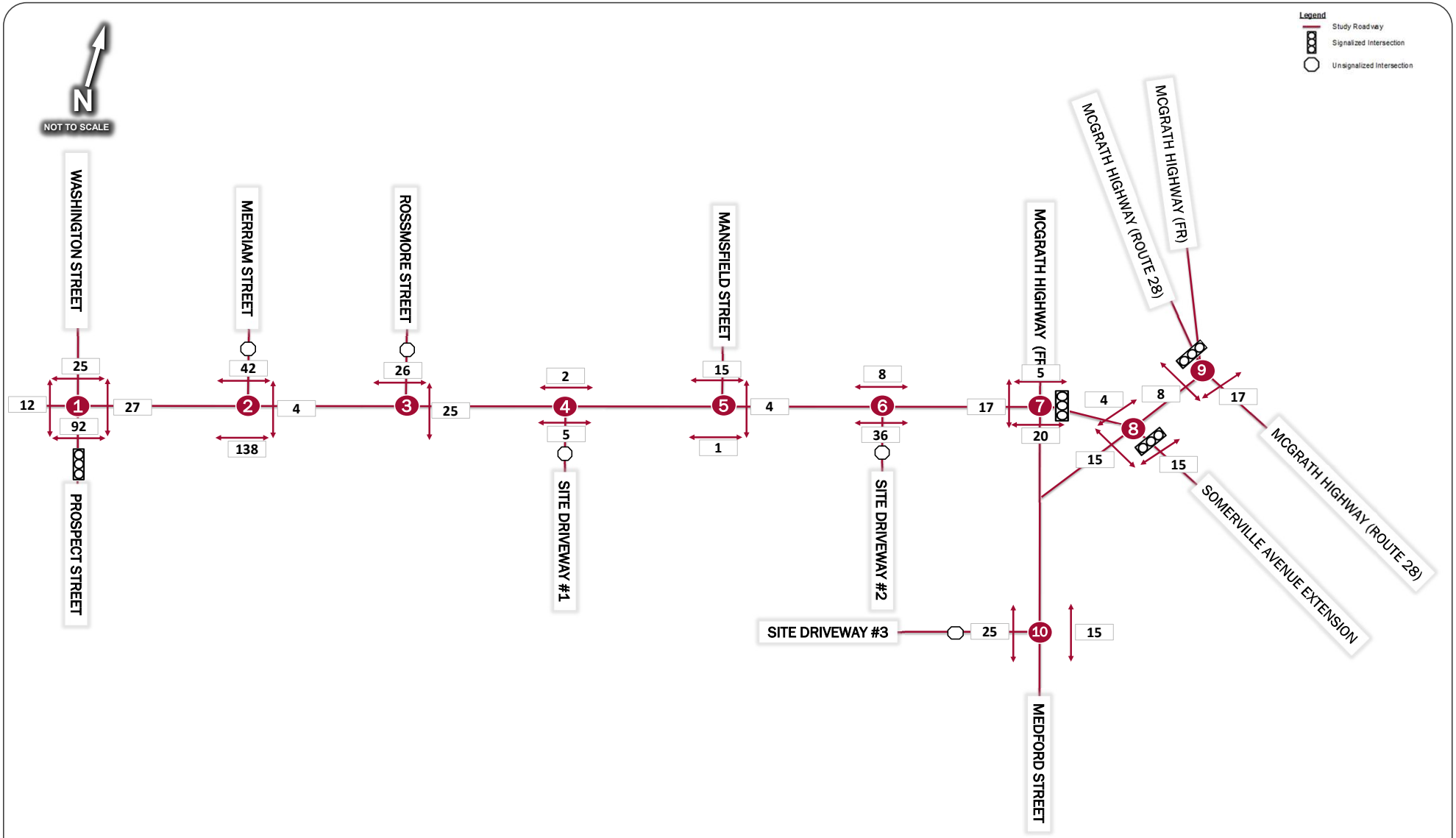


Figure 12

2026 Existing Conditions – Weekday AM Peak Hour Pedestrian Volumes

180 Somerville Avenue

Somerville, MA

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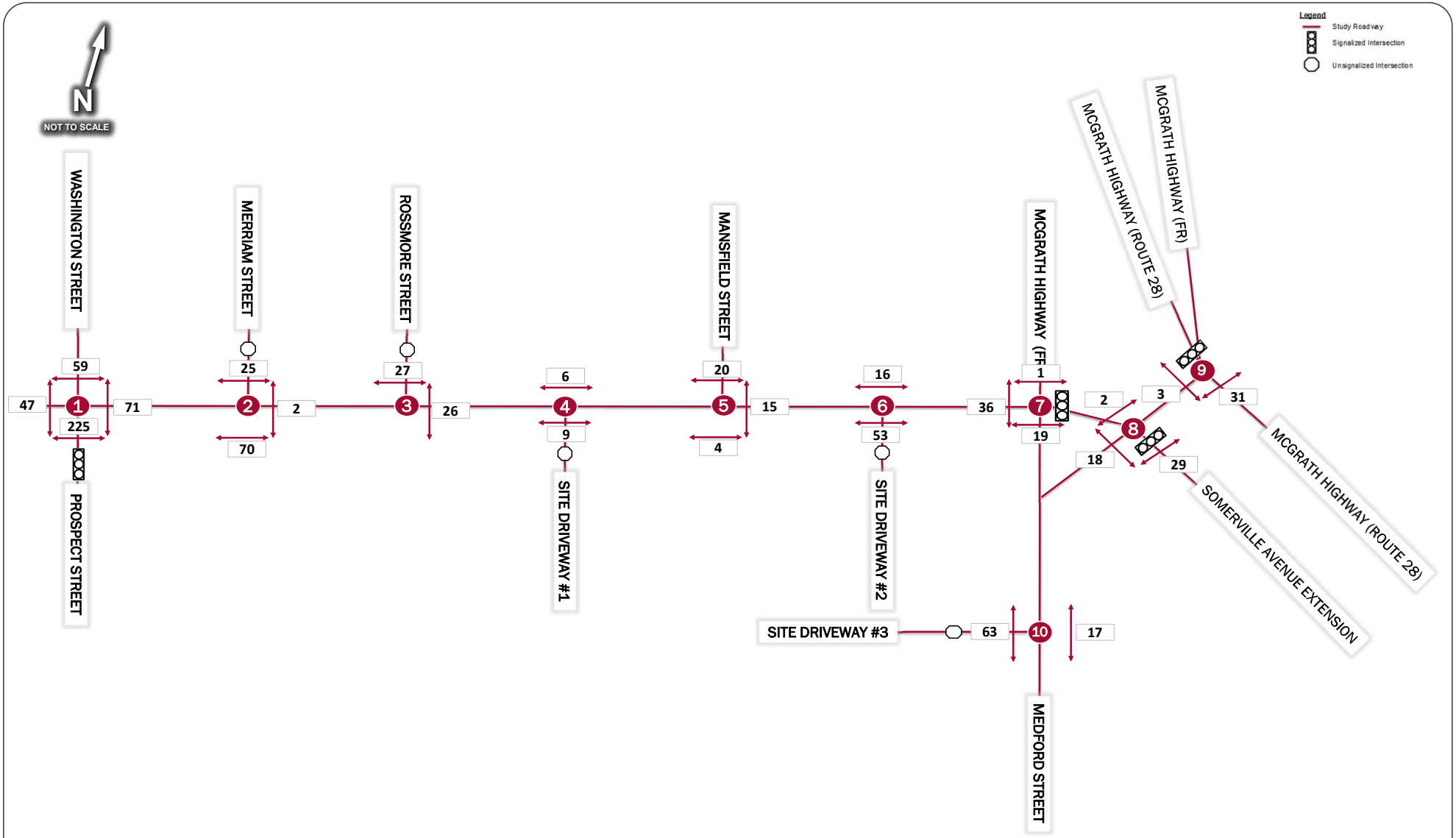


Figure 13

2026 Existing Conditions – Weekday PM Peak Hour Pedestrian Volumes

180 Somerville Avenue

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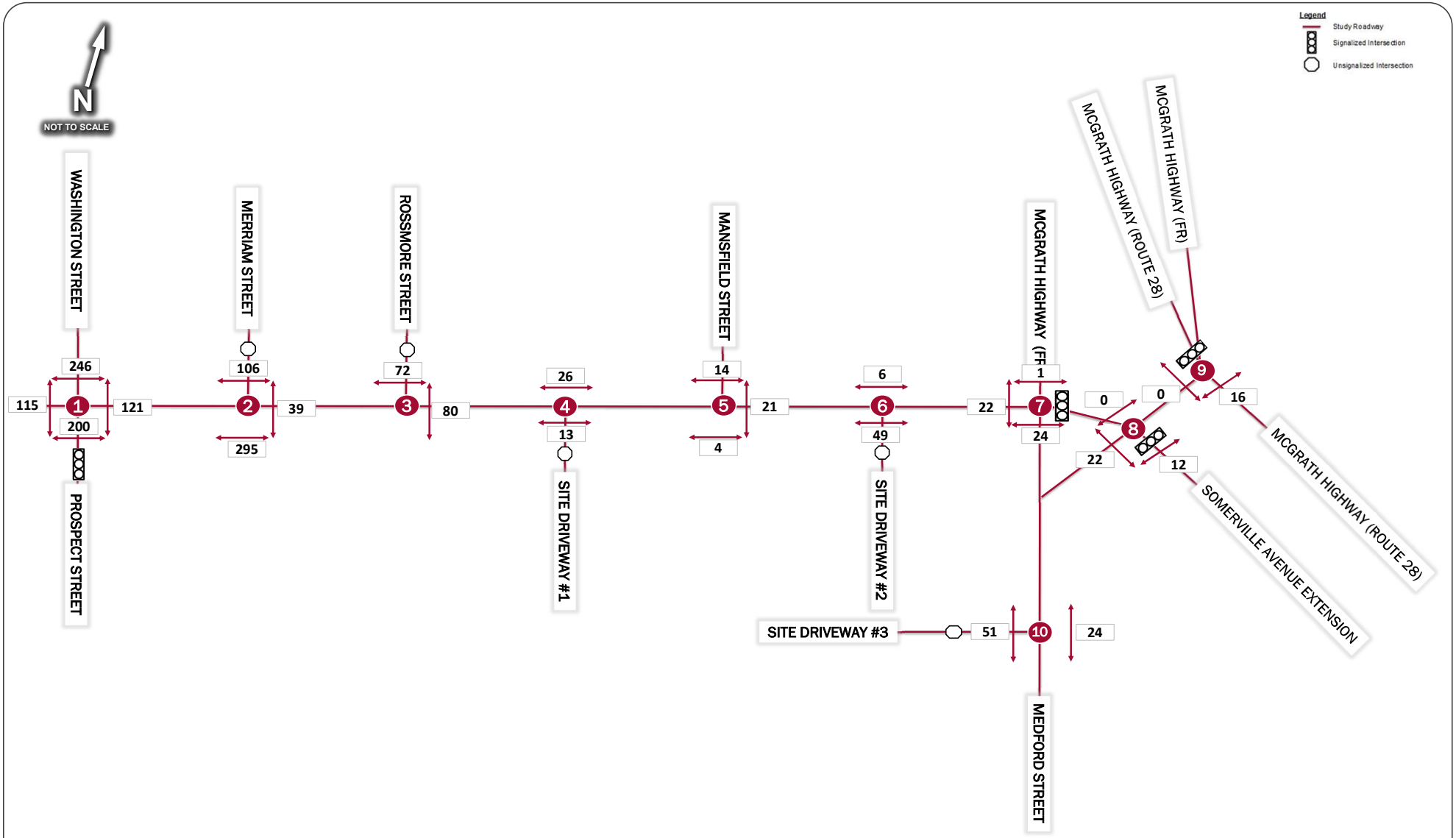


Figure 14

2026 Existing Conditions – Saturday Midday Peak Hour Pedestrian Volumes

180 Somerville Avenue

Somerville, MA

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CRASH HISTORY

Crash data for the study intersections were obtained from the MassDOT Crash Query and Visualization tool for the most recent three-year period with complete data, January 1, 2021, through December 31, 2023. MassDOT does not yet consider crash data from 2024 or later complete; therefore, the analysis was limited to 2021 through 2023. **Table 9** summarizes the crash history for this period. The complete crash data worksheets for the study intersections are provided in **Appendix D**.

The following summarizes the key aspects of the study intersections.

- There were a total of 16 reported crashes across the ten (10) study intersections; 38% of the crashes were angle crashes, and 38% were sideswipe crashes.
- There were no fatal injury crashes or serious injury crashes reported. Of the 16 total crashes, 10 were property-damage-only crashes.
- There were three (3) collisions with cyclists involved, two (2) at Washington Street/Prospect Street at Somerville Avenue and one (1) at Somerville Avenue at Medford Street.
- None of the study intersections' calculated crash rates exceeded either the statewide or MassDOT District 4 average crash rates.

Table 9. Crash Summary (2021-2023)

	Washington Street / Prospect Street at Somerville Avenue	Merriam Street at Somerville Avenue	Rossmore Street at Somerville Avenue	Mansfield Street at Somerville Avenue	Site Driveway #1 at Somerville Avenue	Site Driveway #2 at Somerville Avenue	Site Driveway #3 at Somerville Avenue	Somerville Avenue at Medford Street	Somerville Avenue at Medford Street Ext	McGrath Highway (Route 28) NB at Medford St Ext
Total Number of Crashes	**7**	**3**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**1**
Property Damage	3	3	0	0	0	0	0	2	1	1
Injury	4	0	0	1	0	0	0	1	0	0
Fatality	0	0	0	0	0	0	0	0	0	0
Not Reported	0	0	0	0	0	0	0	0	0	0
Manner of Collision										
Rear End	1	0	0	0	0	**0**	**0**	2	0	0
Angle	3	1	0	1	0	0	0	0	1	0
Sideswipe	3	1	0	0	0	0	0	1	0	1
Head On	0	0	0	0	0	0	0	0	0	0
Single Vehicle	0	1	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	**0**	**0**	0	0	0
Parties Involved										
Truck	0	2	0	0	0	**0**	**0**	0	0	0
Bus	0	0	0	0	0	0	0	0	0	0
Pedestrian	0	0	0	0	0	0	0	0	0	0
Cyclist	2	0	0	0	0	0	0	1	0	0
Time of Day										
6:01 AM – 10:00 AM	3	1	0	0	0	**0**	**0**	0	1	0
10:01 AM – 4:00 PM	1	1	0	1	0	0	0	2	0	0
4:01 PM – 7:00 PM	2	0	0	0	0	0	0	1	0	0
7:01 PM – 6:00 AM	1	1	0	0	0	0	0	0	0	1
Year										
2021	5	0	0	0	0	**0**	**0**	1	0	0
2022	0	0	0	1	0	0	0	1	1	0
2023	2	3	0	0	0	0	0	1	0	1

	Washington Street / Prospect Street at Somerville Avenue	Merriam Street at Somerville Avenue	Rossmore Street at Somerville Avenue	Mansfield Street at Somerville Avenue	Site Driveway #1 at Somerville Avenue	Site Driveway #2 at Somerville Avenue	Site Driveway #3 at Somerville Avenue	Somerville Avenue at Medford Street	Somerville Avenue at Medford Street Ext	McGrath Highway (Route 28) NB at Medford St Ext
Weather Conditions										
Clear	6	2	0	1	0	**0**	**0**	3	1	1
Cloudy	1	1	0	0	0	0	0	0	0	0
Wet	0	0	0	0	0	0	0	0	0	0
Snow	0	0	0	0	0	0	0	0	0	0
Other/Unknown	0	0	0	0	0	0	0	0	0	0
Light Conditions										
Daylight	5	2	0	1	0	**0**	**0**	2	1	0
Dawn/Dusk	1	0	0	0	0	0	0	0	0	0
Dark (Unlit)	0	0	0	0	0	0	0	0	0	0
Dark (Lit)	1	1	0	0	0	0	0	1	0	1
Unknown	0	0	0	0	0	0	0	0	0	0
Road Surface Conditions										
Dry	6	3	0	1	0	**0**	**0**	3	1	1
Wet	0	0	0	0	0	0	0	0	0	0
Snow	0	0	0	0	0	0	0	0	0	0
Ice	0	0	0	0	0	0	0	0	0	0
Other/Unknown	1	0	0	0	0	0	0	0	0	0
Annual Average Crashes	**2.33**	**1.00**	**0.00**	**0.33**	**0.00**	**0.00**	**0.00**	**1.00**	**0.33**	**0.33**
Calculated Intersection Crash Rate	**0.23**	**0.37**	**0.00**	**0.12**	**0.00**	**0.00**	**0.00**	**0.16**	**0.08**	**0.04**
Statewide Average Crash Rate	**0.78**	**0.57**	**0.57**	**0.57**	**0.57**	**0.57**	**0.57**	**0.78**	**0.78**	**0.78**
MassDOT District 4 Average Crash Rate	**0.73**	**0.57**	**0.57**	**0.57**	**0.57**	**0.57**	**0.57**	**0.73**	**0.73**	**0.73**
Intersection Control	**Signalized**	**Unsignalized – one-way STOP controlled**	**Unsignalized – one-way STOP controlled**	**Unsignalized**	**Unsignalized – one-way STOP controlled**	**Unsignalized – one-way STOP controlled**	**Unsignalized – one-way STOP controlled**	**Signalized**	**Signalized**	**Signalized**

Highway Safety Improvement Program

In addition to crash rates, the study area intersections were reviewed in MassDOT's Highway Safety Improvement Program (HSIP) database to identify crash clusters. HSIP crash clusters are ones where the total number of equivalent property damage only[1] (EDPO) crashes are within the top 5 percent (5%) in the region. HSIP-eligible locations are eligible for FHWA and MassDOT funding to address identified safety issues.

After reviewing MassDOT's HSIP database, it was determined that Somerville Avenue at Prospect Street/Washington Street is listed as part of 2012-2021 HSIP-eligible pedestrian and bicycle clusters. The intersection is comprised of the following approaches:

- Somerville Avenue eastbound
- Somerville Avenue westbound
- Prospect Street northbound
- Prospect Street southbound

It should be noted that the 2012-2021 HSIP-eligible pedestrian cluster also includes the McGrath Highway at Washington Street interchange, and the 2012-2021 HSIP-eligible bicycle cluster also includes the Prospect Street at Webster Avenue, Newton Street at Webster Avenue, and Union Square/Washington Street at Bow Street/Webster Avenue.

In 2017, pedestrian phasing at the Somerville Avenue at Prospect Street/Washington Street intersection was changed to become concurrent with adjacent vehicle traffic as part of the Union Square Early Action Plan.[2] In 2021, sidewalks and crosswalks at the Somerville Avenue at Prospect Street/Washington Street intersection were reconstructed as part of the Somerville Avenue Utility and Streetscape Improvements Project.[3] As such, the crash datasets used to determine the 2012-2021 HSIP clusters may not reflect crash experience with these improvements in place and normalized pedestrian, cyclist, and driver behavior after reconstruction and phasing changes.

[1] "Equivalent property damage only (EPOD)" is a method of combining the number of crashes with the severity of crashes based on a weighted scale. Since 2016, fatal and injury crashes are weighted significantly more than property-damage only crashes.
[2] Union Square Early Action Plan, City of Somerville, September 2017
[3] Somerville Ave. Utility and Streetscape Improvements Project, City of Somerville, June 2023

BUILD CONDITIONS

2026 BUILD CONDITIONS

The 2026 Build traffic conditions are defined as the 2026 existing volumes with the Project-generated traffic on the existing roadway network. These conditions are described further below.

Trip Generation

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the proposed expansion and the distribution and assignment of that traffic over the study roadway network. The existing Target store occupies a gross floor area of 92,000 square feet, and the adjacent vacant commercial space occupies a gross floor area of 34,000 square feet. The proposed expansion of the Target into vacant commercial space would bring the Target store to 126,000 square feet.

Trip generation calculations for the proposed expansion were performed using the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 12th Edition. The trip generation for the proposed expansion was determined using ITE Land Use Code (LUC) 813 (Free-Standing Discount Superstore), which describes a full-service grocery department under the same roof that shares entrances and exits with the discount store area, offering a variety of customer services with long hours every day of the week. Project trips were estimated for the weekday AM and PM peak hours and Saturday Midday peak hour.

Pass-by trips are a subset of trips that travel along a roadway and stop at a nearby commercial development. They are motorists (or patrons) already on the roadway and are not new trips being generated. Pass-by capture rates were determined based on average rates provided in the ITE's Trip Generation Handbook, 12th Edition, and the City of Somerville TIS Guidelines, which state they are not to exceed 25%. Pass-by rates are provided for LUC 813 (Free-Standing Discount Superstore), and the rates of 25% during the weekday PM peak hour and 21% during the Saturday midday peak hour were utilized.

The proposed expansion, unadjusted vehicle-trip estimates are expected to generate 1,288 trips during the weekday daily, 64 trips (36 entering and 28 exiting) during the weekday AM peak hour, 110 trips (54 entering and 56 exiting) during the weekday PM peak hour, and 151 trips (76 entering and 75 exiting) during the Saturday midday peak hour, as shown in **Table 10.**

Table 10. Trip Generation for Existing and Proposed – Unadjusted Vehicle Trips

ITE LUC	Land Use	Size	Unit	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out	Total
Existing													
813	Free-Standing Discount Superstore	92	KSF	4,648	97	76	173	195	202	397	258	258	516
Existing Baseline Trips				4,648	97	76	173	195	202	397	258	258	516
Pass-by Trips (25% PM, 21% Sat MD)				1,162	0	0	0	49	50	99	54	54	108
Existing External Trips				**3,486**	**97**	**76**	**173**	**146**	**152**	**298**	**204**	**204**	**408**
Proposed													
813	Free-Standing Discount Superstore	126	KSF	6,366	133	104	237	267	277	544	354	353	707
Proposed Baseline Trips				6,366	133	104	237	267	277	544	354	353	707
Pass-by Trips (25% PM, 21% Sat MD)				1,592	0	0	0	67	69	136	74	74	148
Proposed New External Trips				**4,774**	**133**	**104**	**237**	**200**	**208**	**408**	**280**	**279**	**559**
Net Difference of New External Trips				**+1,288**	**+36**	**+28**	**+64**	**+54**	**+56**	**+110**	**+76**	**+75**	**+151**

Notes: Setting/Location: General Urban/Suburban

Census Tract Data

The Site is located in an area that experiences a high rate of pedestrian and bicycle traffic, in addition to high public transportation usage. It is expected that many non-vehicular trips will be made as a result. Census data from the census tract encompassing the Site was used to determine the modal split for generated trips, as shown in **Table 11.** Journey-to-Work data from 2019 to 2024 shows that approximately 28% of workers in this area of Somerville get to work via car, truck, or van. Approximately 36% commute via public transportation, bicycle, walking, or other means, and the other 36% work from home. These percentages were applied to the net difference in generated trips from the proposed land uses.

The 2019 to 2024 Journey-to-Work data for the corresponding census tract includes an Average Vehicle Occupancy (AVO). Based on the data, the area around the Site in Somerville has an AVO of 1.04.

Table 11. Means of Transportation to Work by Mode Share (Census Tract 3515)

Means of Transportation to Work	Census Tract 3515
Car, Truck, or Van	27.9%
Drove Alone	25.5%
Carpooled	2.4%
Public Transportation	16.9%
Walked	9.1%
Bicycle	6.4%
Taxi or Ride-Hailing Service, Motorcycle, Other Means	3.1%
Worked from Home	36.6%
Workers per car, truck, or van	1.04

Notes: U.S. Census Bureau, 2024 American Community Survey, 5-Year Estimates

Adjusted Trip Generation

Using the U.S. Census Tract data described above, new external vehicle trips from the ITE Trip Generation were adjusted to account for multimodal uses. To account for potential work from home trips, the Worked from Home percentage reported by the U.S. Census Bureau was proportionally assigned to all other modes. Total person trips were calculated by multiplying ITE trips by the U.S. Census Journey-to-Work AVO. Total person-vehicle trips were then determined using mode split data. Total vehicle-trips were calculated by dividing total person-vehicle trips by AVO, and vehicle traffic at this Site was reduced. Adjusted vehicle-trips for the net difference between existing and proposed conditions by mode were estimated and summarized in **Table 12.**

Looking at total vehicle-trips including taxi, motorcycle, and other trips, which are assumed to be single-occupancy vehicle trips, the Site is expected to generate an additional 32 vehicle-trips (18 entering and 14 exiting) during the weekday AM peak hour, 55 vehicle-trips trips (27 entering and 28 exiting) during the weekday PM peak hour, 74 vehicle-trips trips (37 entering and 37 exiting) during the Saturday midday peak hour, and 630 vehicle-trips during a typical weekday.

Table 12. Adjusted Trip Generation Summary by Mode for the Net Difference of Existing and Proposed

Free-Standing Discount Superstore (813)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Base Trips (ITE)	1,288	64	110	151
Total Person-Trips	1,340	67	114	157
Total Person Vehicle-Trips	589	29	50	69
Total Vehicle-Trips	**567**	**28**	**49**	**66**
Total Public Transportation Trips	**357**	**18**	**30**	**42**

Free-Standing Discount Superstore (813)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Total Bicycle Trips	**135**	**7**	**12**	**16**
Total Walking Trips	**192**	**10**	**16**	**23**
Total Taxi or Ride-Hailing Service, Motorcycle, and Other Trips	63	4	6	8
Total Vehicle-Trips including Taxi, Motorcycle, and Other Trips	**630**	**32**	**55**	**74**
Entering Vehicle-Trips	**315**	**18**	**27**	**37**
Exiting Vehicle-Trips	**315**	**14**	**28**	**37**

Note: Worked from Home percentage proportionally assigned to all other modes

The number of truck deliveries is expected to decrease following the proposed expansion and no change is anticipated in truck trip generation. Currently, the site has a limited back-of-house storage area, requiring Target to use an off-site storeroom to accommodate inventory needs. As a result, large deliveries are received at the off-site facility and then transferred to the store in smaller, more frequent shipments as storage space becomes available. This operational constraint results in a higher number of truck trips to the store. The proposed expansion will increase the back-of-house storage area, allowing Target to eliminate the off-site storeroom and receive full truck deliveries directly at the site. Because these deliveries can be accommodated in larger, fully loaded shipments, delivery frequency is expected to decrease, resulting in fewer overall truck trips to the store.

Trip Distribution and Assignment

The anticipated distribution of project traffic was forecast for the trips expected to be generated by the expansion of the existing Target store into the adjacent commercial space. The directional distribution of traffic entering and exiting the Site location was determined using several variables, including existing travel patterns, efficient roadway routing, and surrounding population density. Traffic volume data from Replica's Big Data tool was analyzed to determine general traffic distribution patterns to/from the project site, and the assignment of entering/exiting trips was based on Journey to Work data for the City of Somerville and the assumption that most motorists seek the fastest and most efficient routes to and from the Site. The trip distribution is listed below.

- Coming to and from the north: 35% (McGrath Highway)
- Coming to and from the south: 20% (Medford Street)
- Coming to and from the west: 45% (Somerville Avenue)

Figure 15 presents the trip distribution for the weekday AM and PM peak hours and Saturday midday peak hour. **Figure 16** presents the pass-by distribution for the weekday AM and PM peak hours and Saturday midday peak hour. **Figure 17**, **Figure 18**, and **Figure 19** presents the net-trip assignment for the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

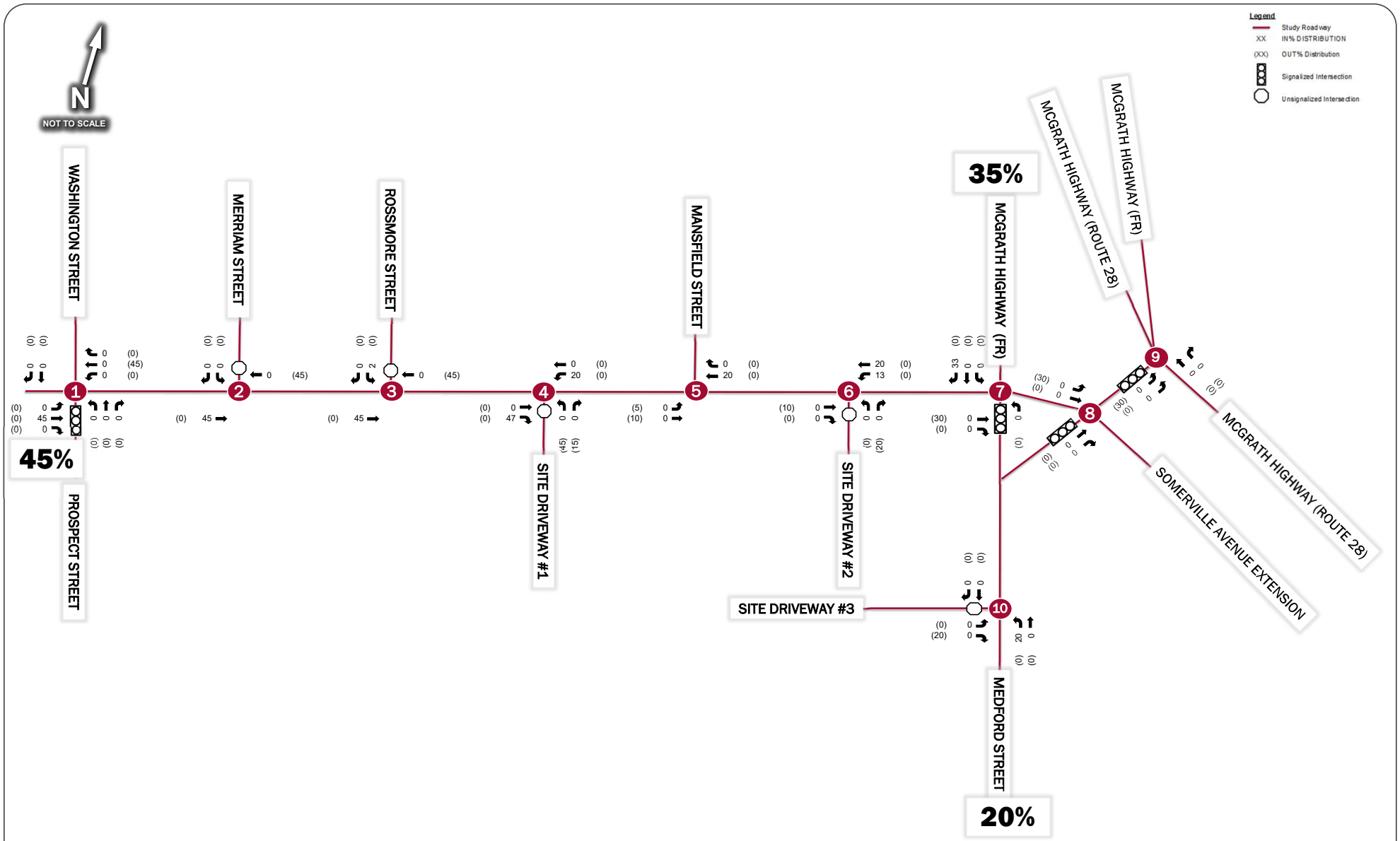


Figure 15

Trip Distribution

180 Somerville Avenue

Somerville, MA

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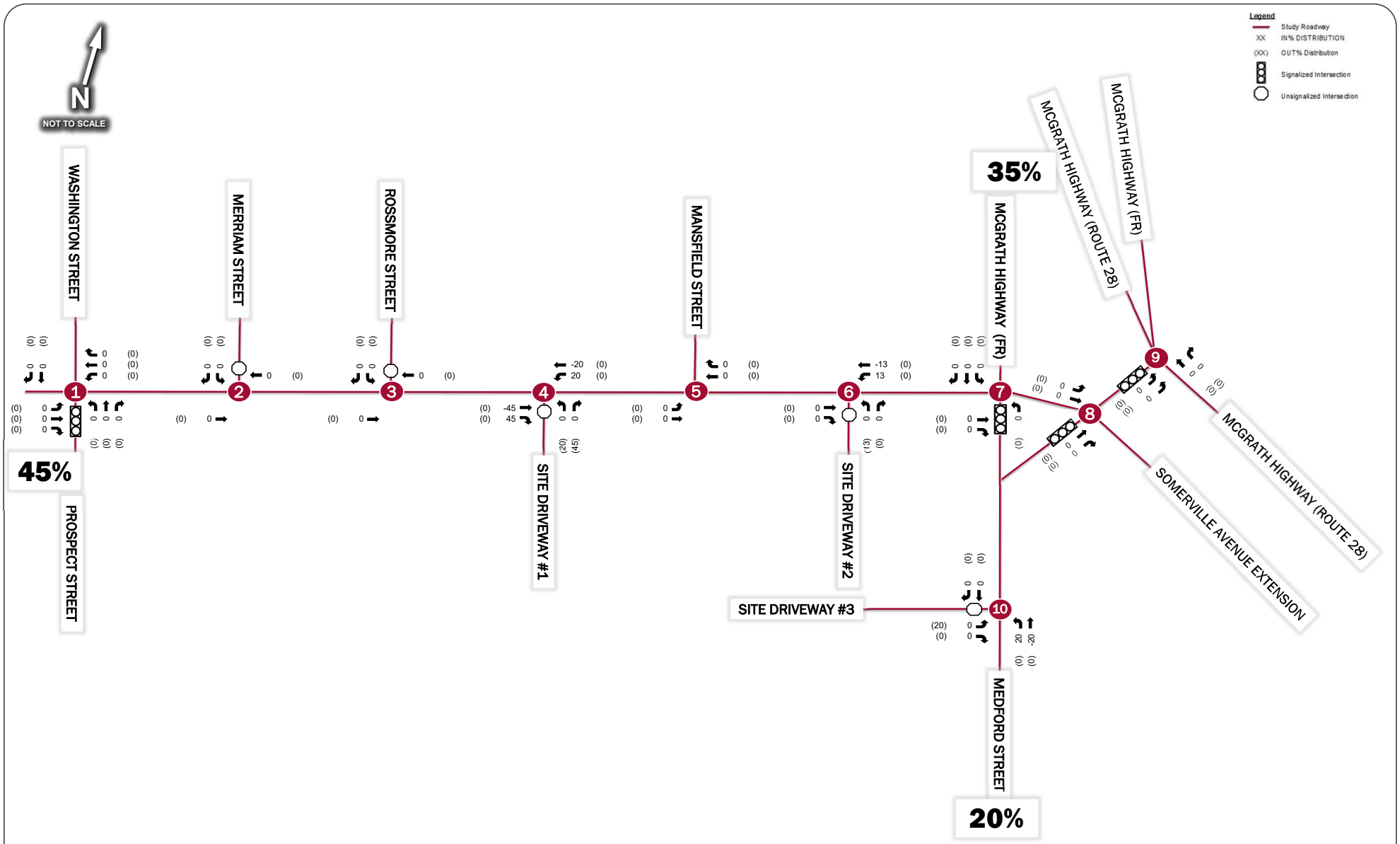


Figure 16

Pass-By Distribution

180 Somerville Avenue

Somerville, MA

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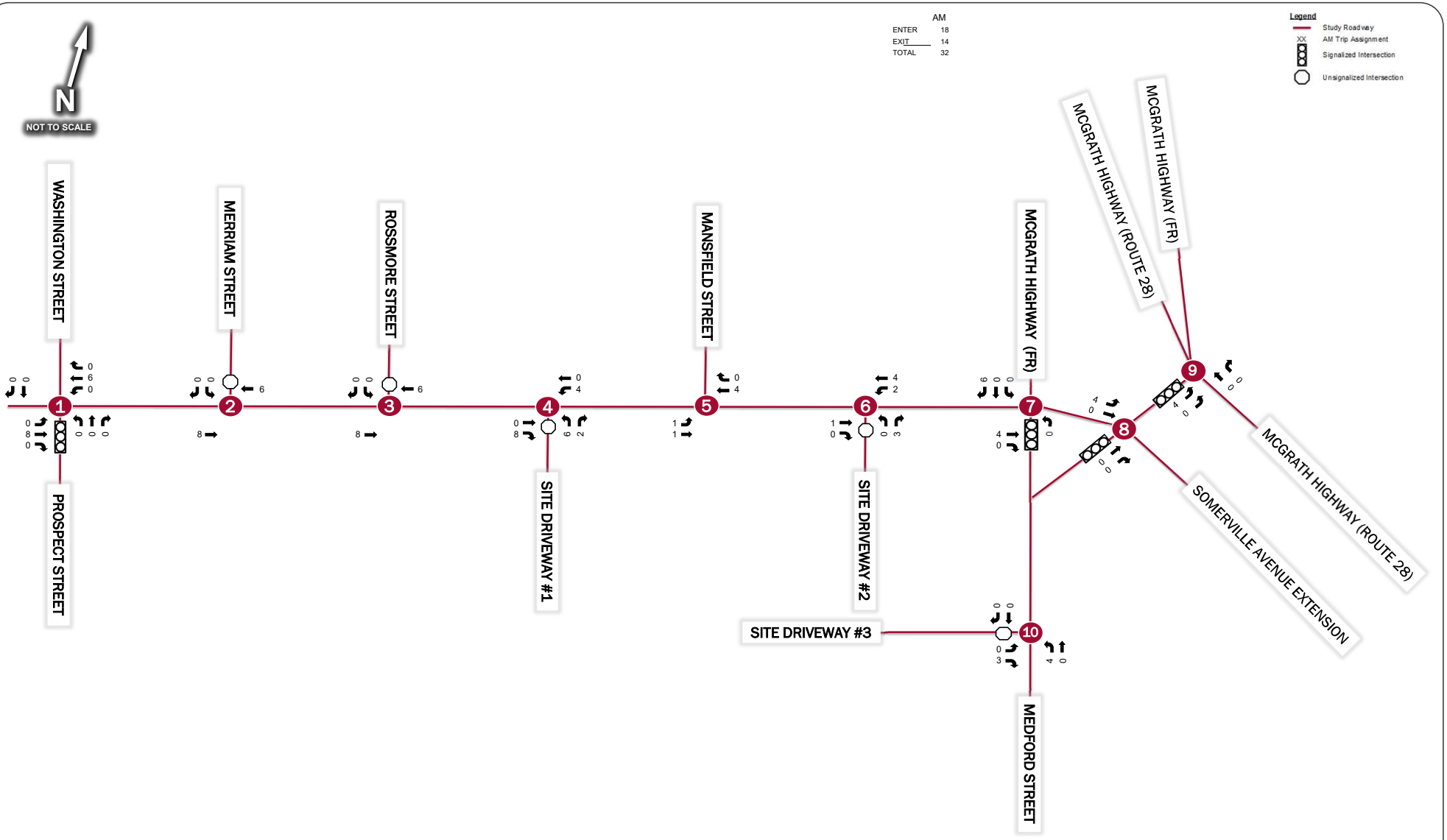


Figure 17
Net Trip Assignment (Build) Weekday AM Peak Hour
180 Somerville Avenue
Somerville, MA

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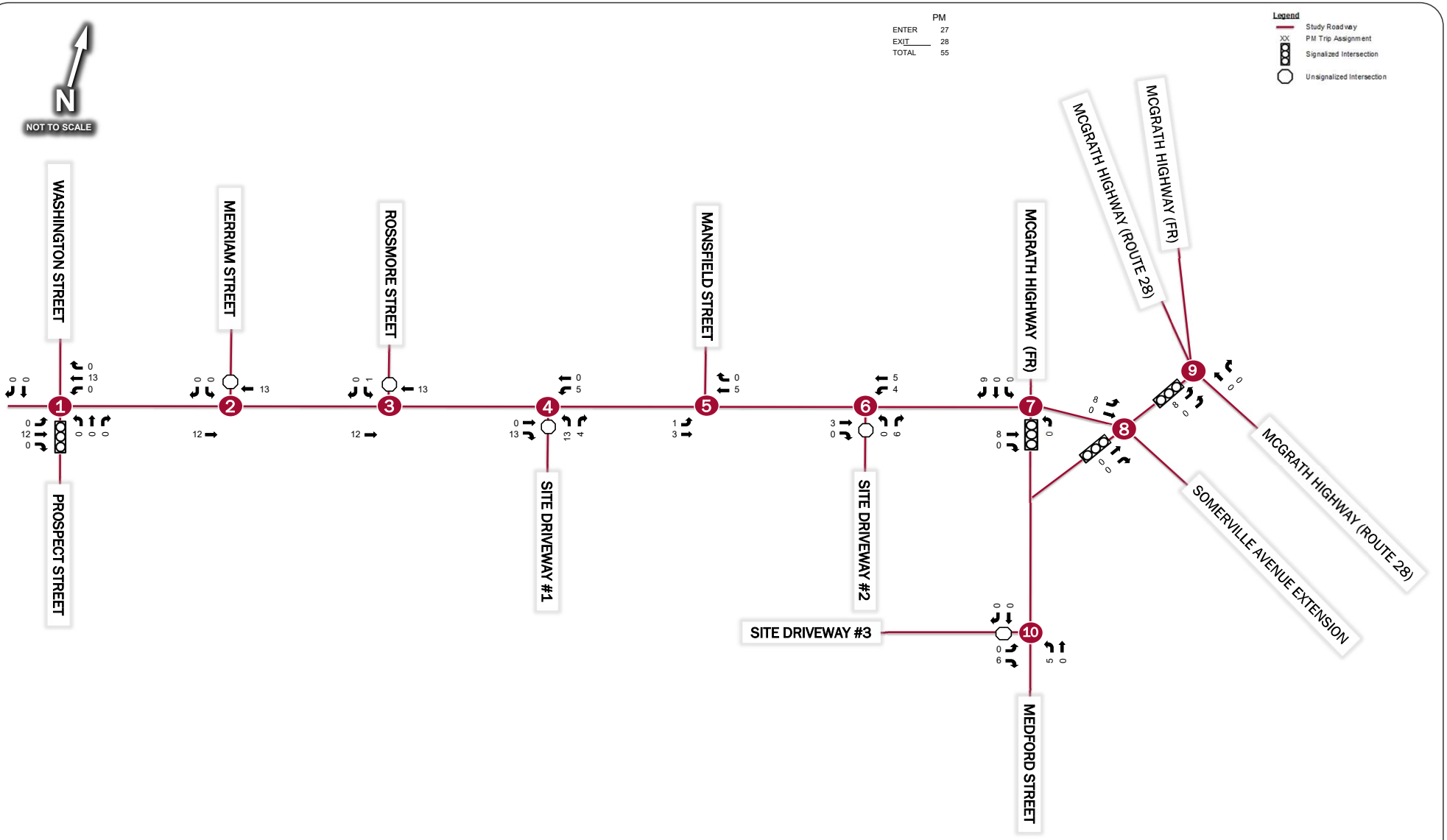


Figure 18
Net Trip Assignment (Build) Weekday PM Peak Hour
180 Somerville Avenue
Somerville, MA

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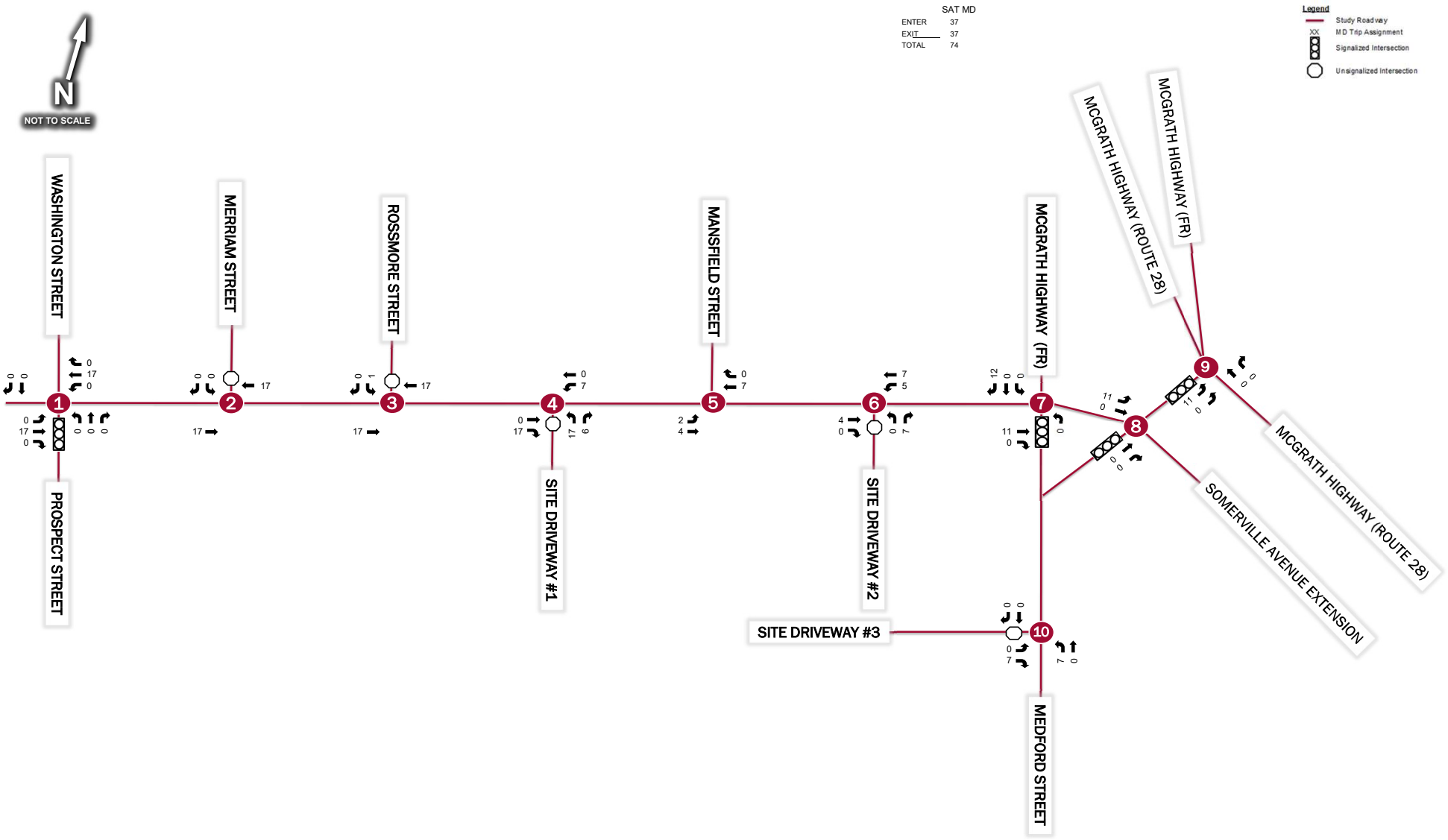


Figure 19
Net Trip Assignment (Build) Saturday Midday Peak Hour
180 Somerville Avenue
Somerville, MA

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2026 Build Year Traffic Volumes

The 2026 Build conditions vehicle traffic volumes were developed by adding the Site-generated traffic volumes as shown in **Table 12** to the 2026 Existing peak hour vehicle traffic volumes, based on the trip distribution patterns. **Figure 20, Figure 21**, and **Figure 22** presents the 2026 Build conditions total turning movement volumes at the study intersections during the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

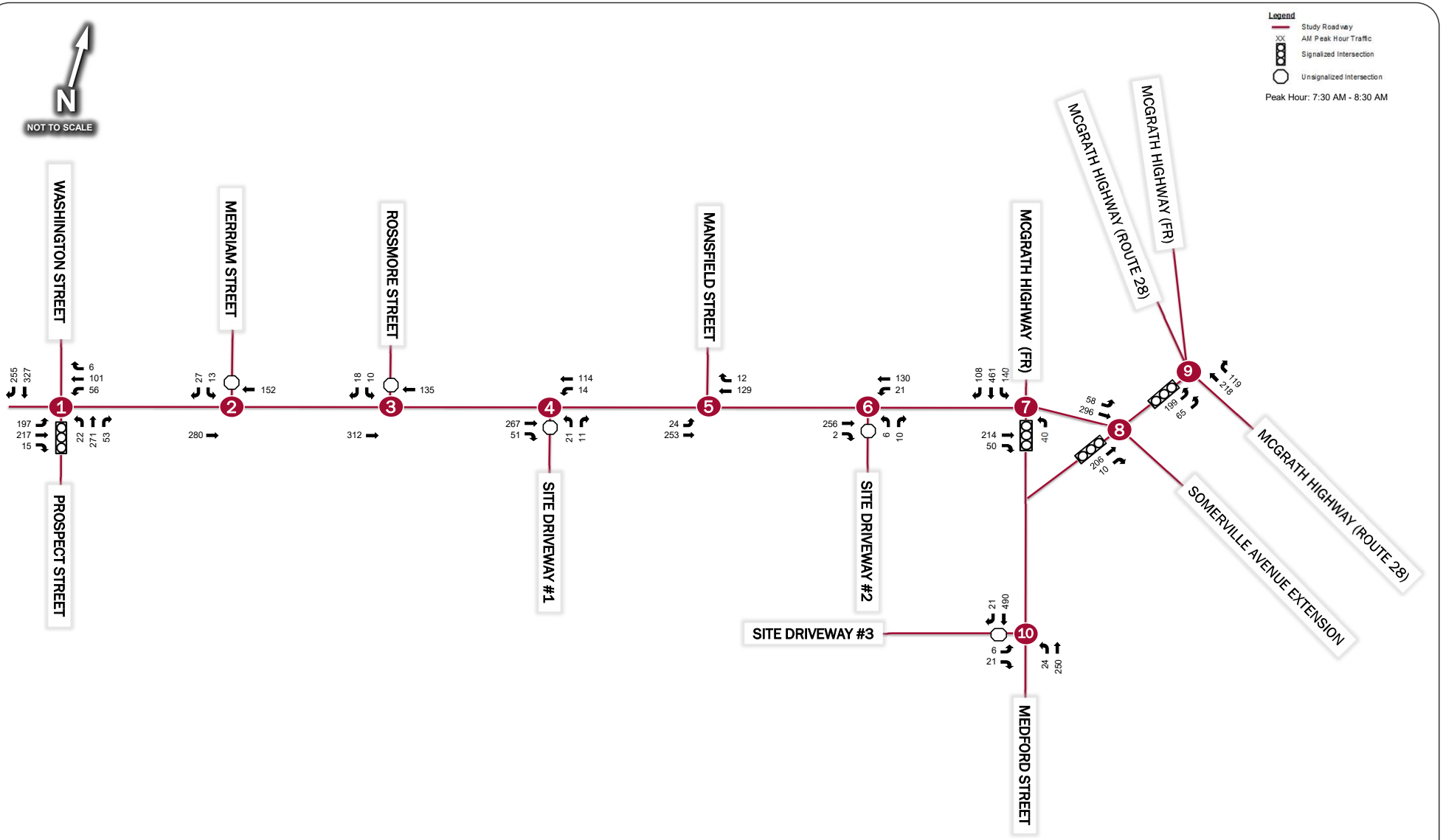


Figure 20
2026 Build Condition Volumes Weekday AM Peak Hour
180 Somerville Avenue
Somerville, MA

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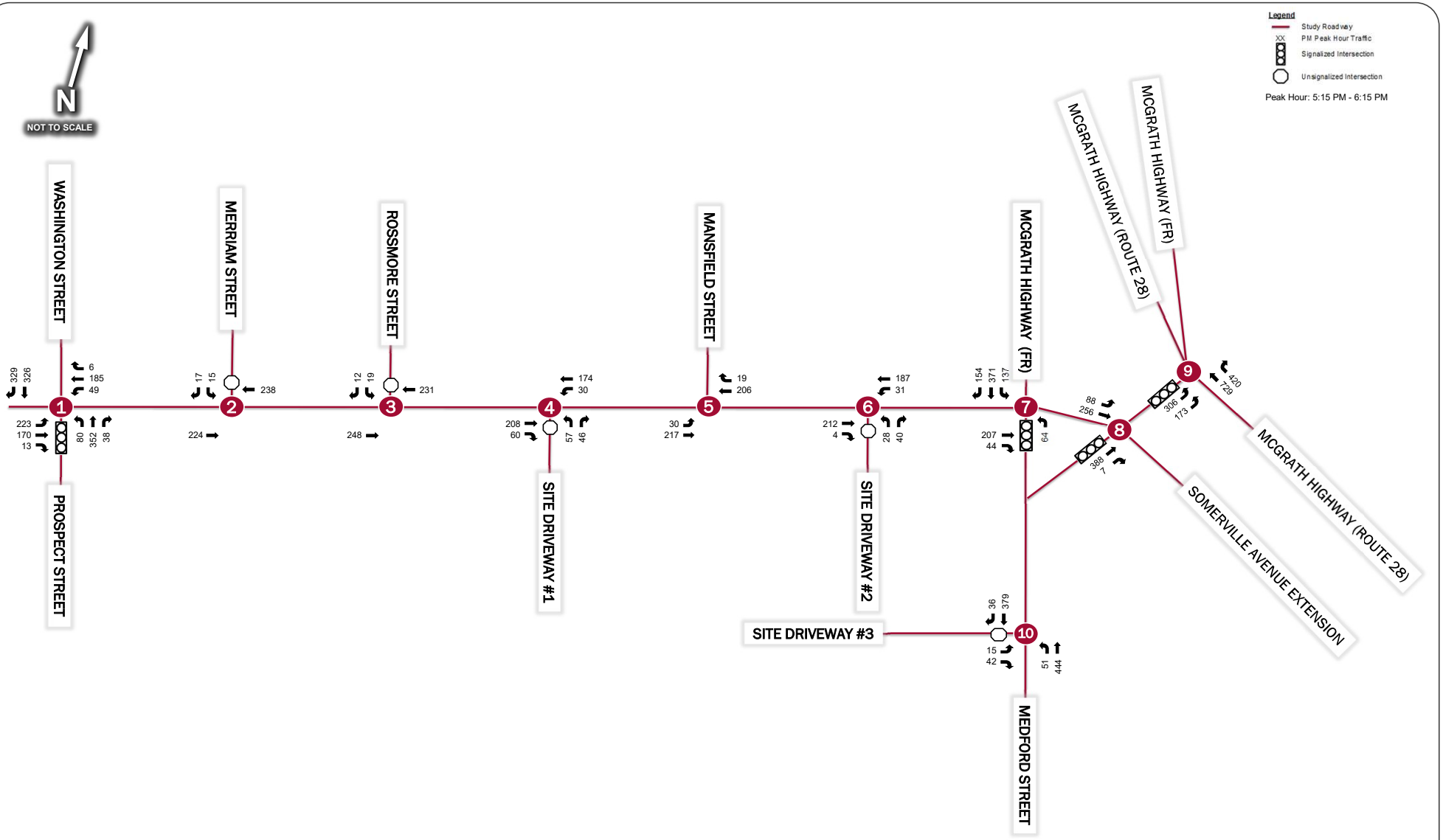


Figure 21
2026 Build Condition Volumes Weekday PM Peak Hour
180 Somerville Avenue
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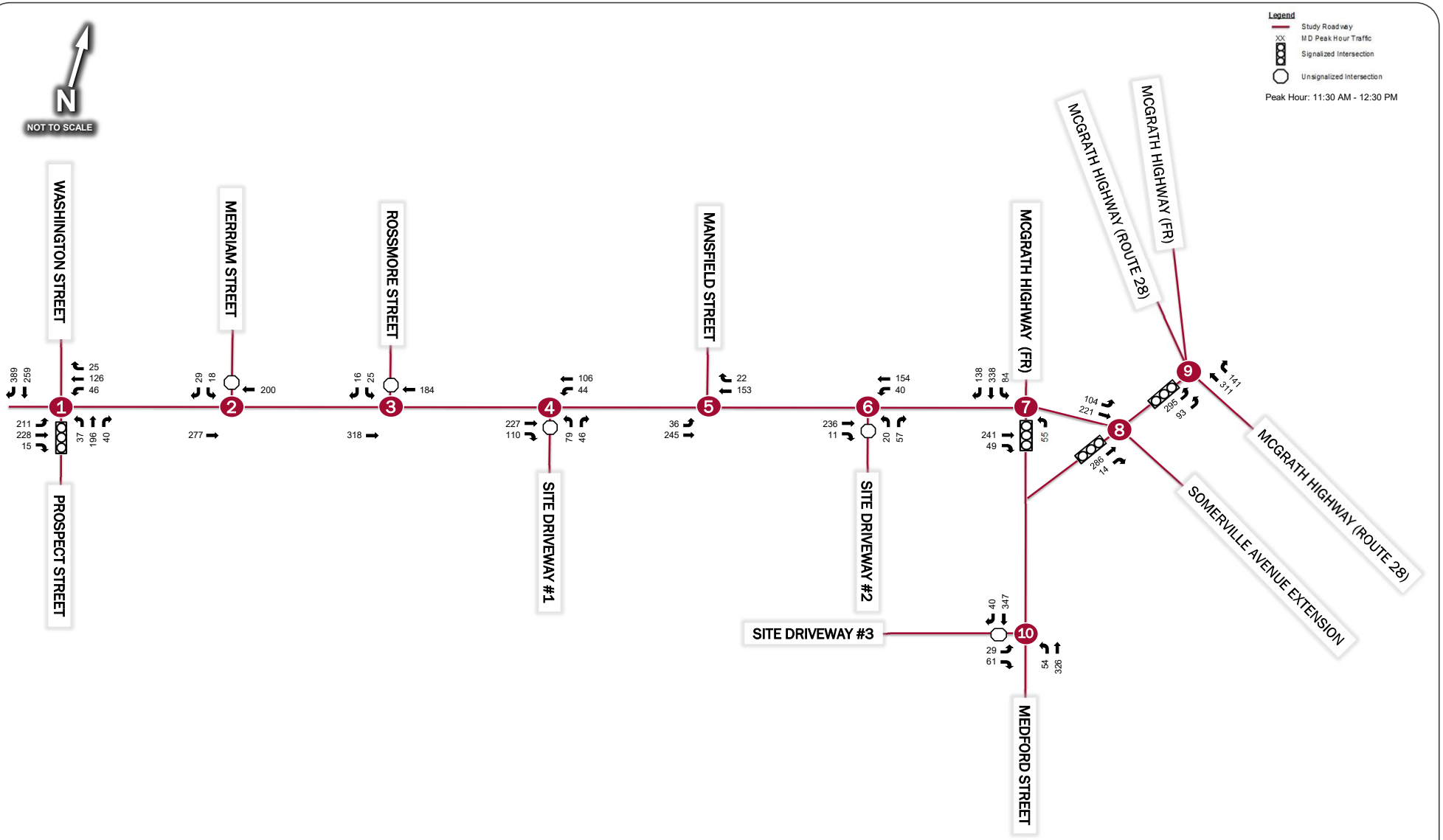


Figure 22

2026 Build Condition Volumes Saturday Midday Peak Hour

180 Somerville Avenue

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DESIGN YEAR NO-BUILD CONDITIONS

2031 DESIGN YEAR NO-BUILD CONDITIONS

The 2031 Design Year No-Build traffic conditions are defined as expected traffic conditions on the roadway network in the year 2031 without expansion of the existing Target store into the adjacent commercial space but will include the analysis of the vacant storefront that could be re-tenanted as retail without triggering any Special Permit process, given the building was established and permitted originally as a retail use. The total traffic volumes considered in the analysis for this project are the sum of the grown traffic volumes, vicinity developments, and the expected project traffic volumes based on trip generation estimates for 34,000 square feet of Strip Retail Plaza (<40k) (LUC 822). These conditions are described further below.

Background Traffic Growth

Based on coordination with the City of Somerville and the Scoping Request Letter, an annual traffic growth rate of 0.25% is used to account for general background traffic growth. The 0.25% was applied to project all existing volumes to a five-year design horizon, to the year 2031.

Vicinity Developments

The City of Somerville Office of Strategic Planning and Community Development (OSPCD) was contacted to determine whether any upcoming or planned development sites should be included in the Design Year No-Build Conditions. Three (3) development projects were provided and are included in **Appendix E**.

Figure 23 depicts the three (3) development projects located near the Project Site.

- **200 McGrath Highway (Gateway Innovation Center):** The proposed redevelopment is a pedestrian and transit-oriented, mixed-use development.[4] The Project will consist of two (2) buildings totaling approximately 980,000 sf of commercial space. This building space will be mainly lab/research and development and arts/creative enterprise use, with supporting ground-floor retail/restaurant space. The published TIS that was submitted as part of the permitting process included a larger development program, 1,194,000 sf of commercial space, versus the 980,000 sf of commercial space; therefore, the site-generated trips analysis was developed by Kimley-Horn along with the Saturday midday analysis.
- **Boynton Yards Master Plan:** The proposed project is a pedestrian-and transit-oriented, mixed-use development that includes 936,500 sf of office, research and development, and lab-enabled uses (office/R&D/lab), 42,500 sf of retail and/or restaurant space, and 330 residential units.[5] The development is being constructed in phases, with Building 1 – 101 South Street (257,200 sf of office/R&I/lab and 12,500 sf of retail space) and Building 2 (356,000 sf of office/R&I/lab and 9,000 sf of retail space) completely constructed and operational. The analysis included traffic generated by Building 3 and Building 4 since those are not yet constructed.
- **Union Square Redevelopment/US2 Master Plan:** The proposed project being developed by US2 is a large mixed-use development in Union Square in Somerville, consisting of a total of 1,159,000 sf of office space, 984 residential units, 143,000 sf of retail space, and a 175-room hotel.[6] The development is being constructed in phases and remains an evolving project. The analysis included

[4] Gateway MPSP Application, VHB, September 2020
[5] Boynton Yards MPSP Final, VHB, July 2020
[6] US2 Union Square CDSP Appendix 4, Union Square Station Associates LLC, November 2017

traffic generated by Phase 1 because it is anticipated to be completed within the next five (5) years and is expected to be constructed no later than ten (10) years after the Green Line Extension's completion in 2022. Phases 2 and 3 are projected to occur beyond the 2031 design year and, therefore, were not included in the 2031 Design Year No-Build traffic conditions.

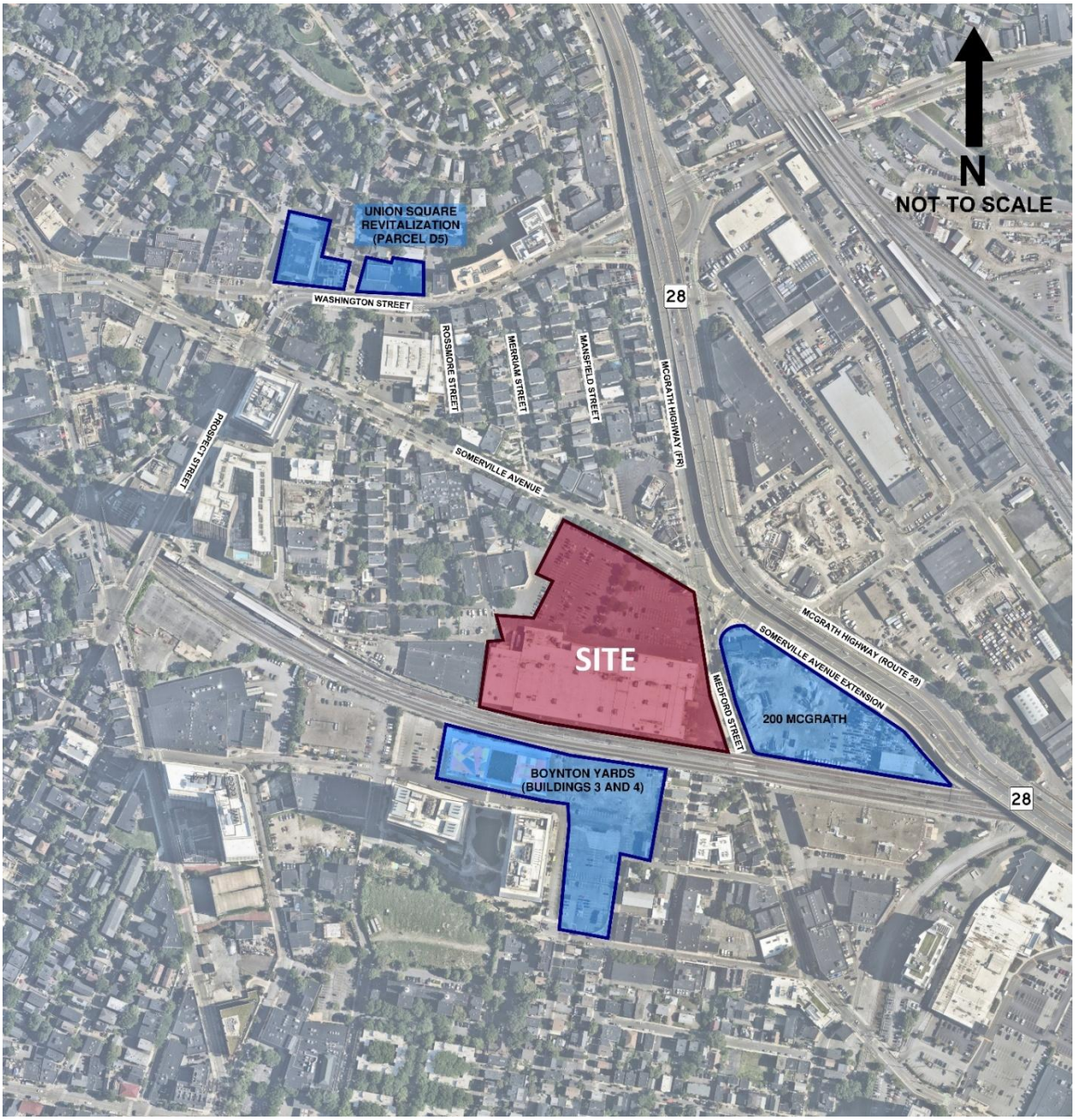


Figure 23. Vicinity Development Locations

Trip Generation

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the vacant storefront that could be re-tenanted as retail and the distribution and assignment of that traffic over the

study roadway network. The existing Target store occupies a gross floor area of 92,000 square feet, and the adjacent vacant commercial space occupies a gross floor area of 34,000 square feet.

Trip generation calculations for the vacant storefront that could be re-tenanted as retail were performed using the ITE *Trip Generation Manual*, 12th Edition. The trip generation for the vacant storefront that could be re-tenanted as retail was determined using ITE LUC 822 (Strip Retail Plaza (<40k)). Project trips were estimated for the weekday AM and PM peak hours and Saturday Midday peak hour.

Pass-by trips are a subset of trips that travel along a roadway and stop at a nearby commercial development. They are motorists (or patrons) already on the roadway and are not new trips being generated. While the *ITE Trip Generation Manual*, 12th Edition, does not provide vehicle pass-by rates for Land Use Code (LUC) 822, Strip Retail Plaza (<40,000 SF), City of Somerville TIS Guidelines state that a pass-by factor of up to 25% may be applied for site traffic associated with retail uses assigned on a major through street. To provide the most parallel comparison between Build and No-Build scenarios, the pass-by rates for LUC 813 (Free-Standing Discount Superstore) used in the Build scenarios were applied to the 2031 No-Build scenario. Accordingly, the rates of 25% during the weekday PM peak hour and 21% during the Saturday midday peak hour were utilized.

The proposed No Build, unadjusted vehicle-trip estimate is expected to generate 1,248 trips during the weekday daily, 134 trips (74 entering and 60 exiting) during the weekday AM peak hour, 132 trips (66 entering and 66 exiting) during the weekday PM peak hour, and 178 trips (91 entering and 87 exiting) during the Saturday midday peak hour, as shown in **Table 13.**

Table 13. Trip Generation for Proposed No-Build – Unadjusted Vehicle Trips

ITE LUC	Land Use	Size	Unit	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out	Total
822	Strip Retail Plaza (<40k)	34	LKSF	1,664	74	60	134	88	88	176	115	110	225
Baseline Trips				1,664	74	60	134	88	88	176	115	110	225
Pass-by Trips (25% PM, 21% SAT MD)				416	0	0	0	22	22	44	24	23	47
New External Trips				**1,248**	**74**	**60**	**134**	**66**	**66**	**132**	**91**	**87**	**178**

Notes: Setting/Location: General Urban/Suburban

Census Tract Data

The Site is located in an area that experiences a high rate of pedestrian and bicycle traffic, in addition to high public transportation usage. It is expected that many non-vehicular trips will be made as a result. Census data from the census tract encompassing the Site was used to determine the modal split for generated trips, as shown in **Table 14.** Journey-to-Work data from 2019 to 2024 show that approximately 28% of workers in this area of Somerville get to work via car, truck, or van. Approximately 36% commute via public transportation, bicycle, walking, or other means, and the other 36% work from home. These percentages were applied to the net difference in generated trips from the proposed land uses.

The 2019 to 2024 Journey-to-Work data for the corresponding census tract includes an AVO. Based on the data, the area around the Site in Somerville has an AVO of 1.04.

Table 14. Means of Transportation to Work by Mode Share (Census Tract 3515)

Means of Transportation to Work	Census Tract 3515
Car, Truck, or Van	27.9%
Drove Alone	25.5%
Carpooled	2.4%
Public Transportation	16.9%
Walked	9.1%
Bicycle	6.4%
Taxi or Ride-Hailing Service, Motorcycle, Other Means	3.1%
Worked from Home	36.6%
Workers per car, truck, or van	1.04

Notes: U.S. Census Bureau, 2024 American Community Survey, 5-Year Estimates

Adjusted Trip Generation

Using the U.S. Census Tract data described above, new external vehicle trips from the ITE Trip Generation were adjusted to account for multimodal uses. To account for potential work from home trips, the Worked from Home percentage reported by the U.S. Census Bureau was proportionally assigned to all other modes. Total person trips were calculated by multiplying ITE trips by the U.S. Census Journey-to-Work AVO. Total person-vehicle trips were then determined using mode split data. Total vehicle-trips were calculated by dividing total person-vehicle trips by AVO, and vehicle traffic at this Site was reduced. Adjusted vehicle-trips for the proposed conditions by mode were estimated and summarized in **Table 15.**

Looking at total vehicle-trips including taxi, motorcycle, and other trips, which are assumed to be single-occupancy vehicle trips, the Site is expected to generate an additional 67 vehicle-trips (37 entering and 30 exiting) during the weekday AM peak hour, 64 vehicle-trips trips (32 entering and 32 exiting) during the weekday PM peak hour, 87 vehicle-trips trips (44 entering and 43 exiting) during the Saturday midday peak hour, and 612 vehicle-trips during a typical weekday.

Table 15. Adjusted Trip Generation Summary by Mode for the No-Build Conditions

Strip Retail Plaza (<40k) (822)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Base Trips (ITE)	1,248	134	132	178
Total Person-Trips	1,298	139	137	185
Total Person Vehicle-Trips	571	61	60	81
Total Vehicle-Trips	**550**	**59**	**58**	**78**
Total Public Transportation Trips	**346**	**37**	**37**	**49**
Total Bicycle Trips	**186**	**14**	**14**	**19**

Strip Retail Plaza (<40k) (822)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Total Walking Trips	**186**	**20**	**20**	**27**
Total Taxi or Ride-Hailing Service, Motorcycle, and Other Trips	62	8	6	9
Total Vehicle-Trips including Taxi, Motorcycle, and Other Trips	**612**	**67**	**64**	**87**
Entering Vehicle-Trips	**306**	**37**	**32**	**44**
Exiting Vehicle-Trips	**306**	**30**	**32**	**43**

Trip Distribution and Assignment

The anticipated distribution of project traffic was forecast for the trips expected to be generated by the expansion of the existing Target store into the adjacent commercial space. The directional distribution of traffic entering and exiting the Site location was determined using several variables, including existing travel patterns, efficient roadway routing, and surrounding population density. Traffic volume data from Replica's Big Data tool was analyzed to determine general traffic distribution patterns to/from the project site, and the assignment of entering/exiting trips was based on Journey to Work data for the City of Somerville and the assumption that most motorists seek the fastest and most efficient routes to and from the Site. The trip distribution is listed below.

- Coming to and from the north: 35% (McGrath Highway)
- Coming to and from the south: 20% (Medford Street)
- Coming to and from the west: 45% (Somerville Avenue)

Figure 15 presents the trip distribution for the weekday AM and PM peak hours and Saturday midday peak hour. **Figure 24**, **Figure 25**, and **Figure 26** presents the net-trip assignment for the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

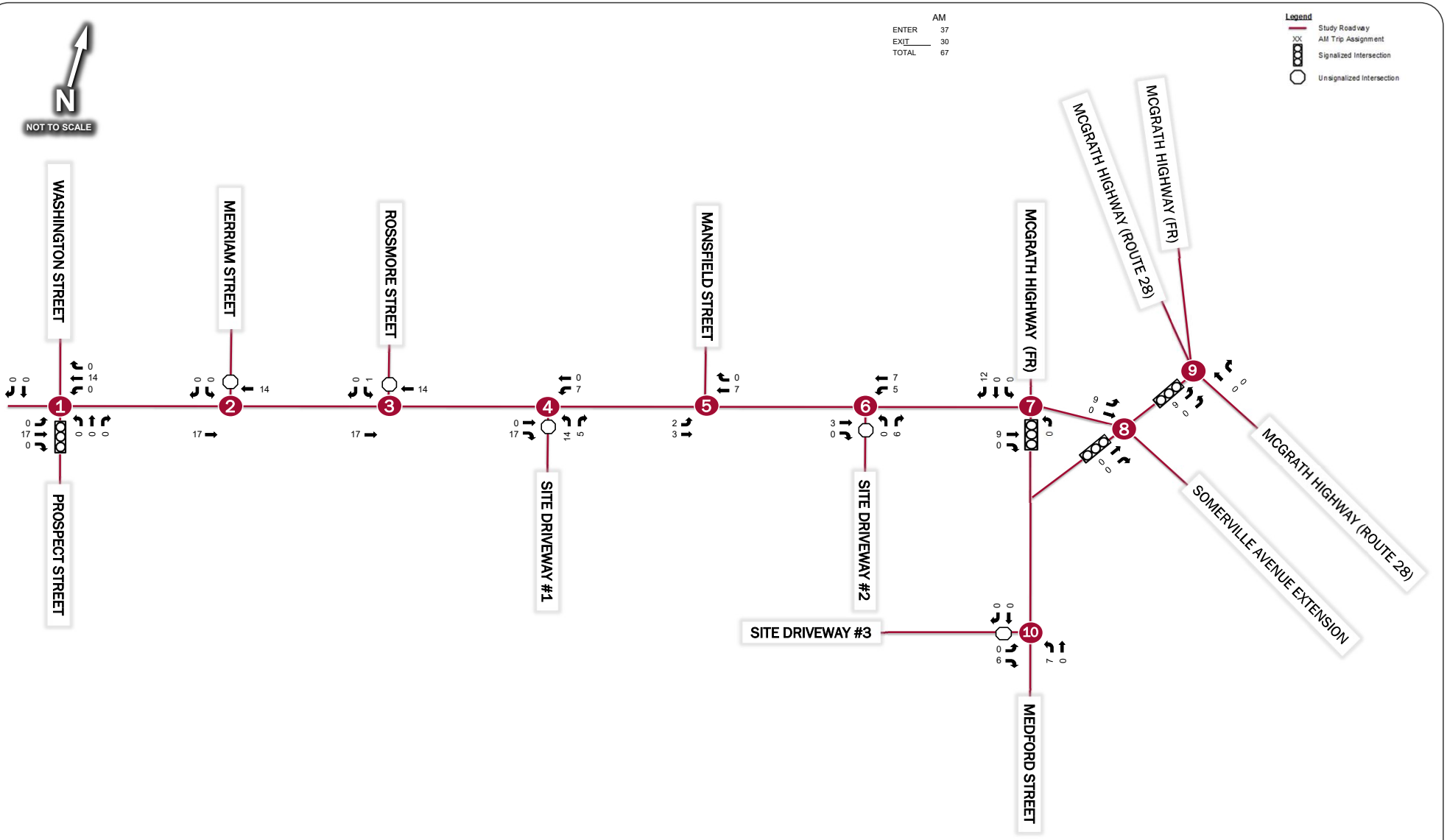


Figure 24
Net Trip Assignment (No-Build) Weekday AM Peak Hour
180 Somerville Avenue
Somerville, MA

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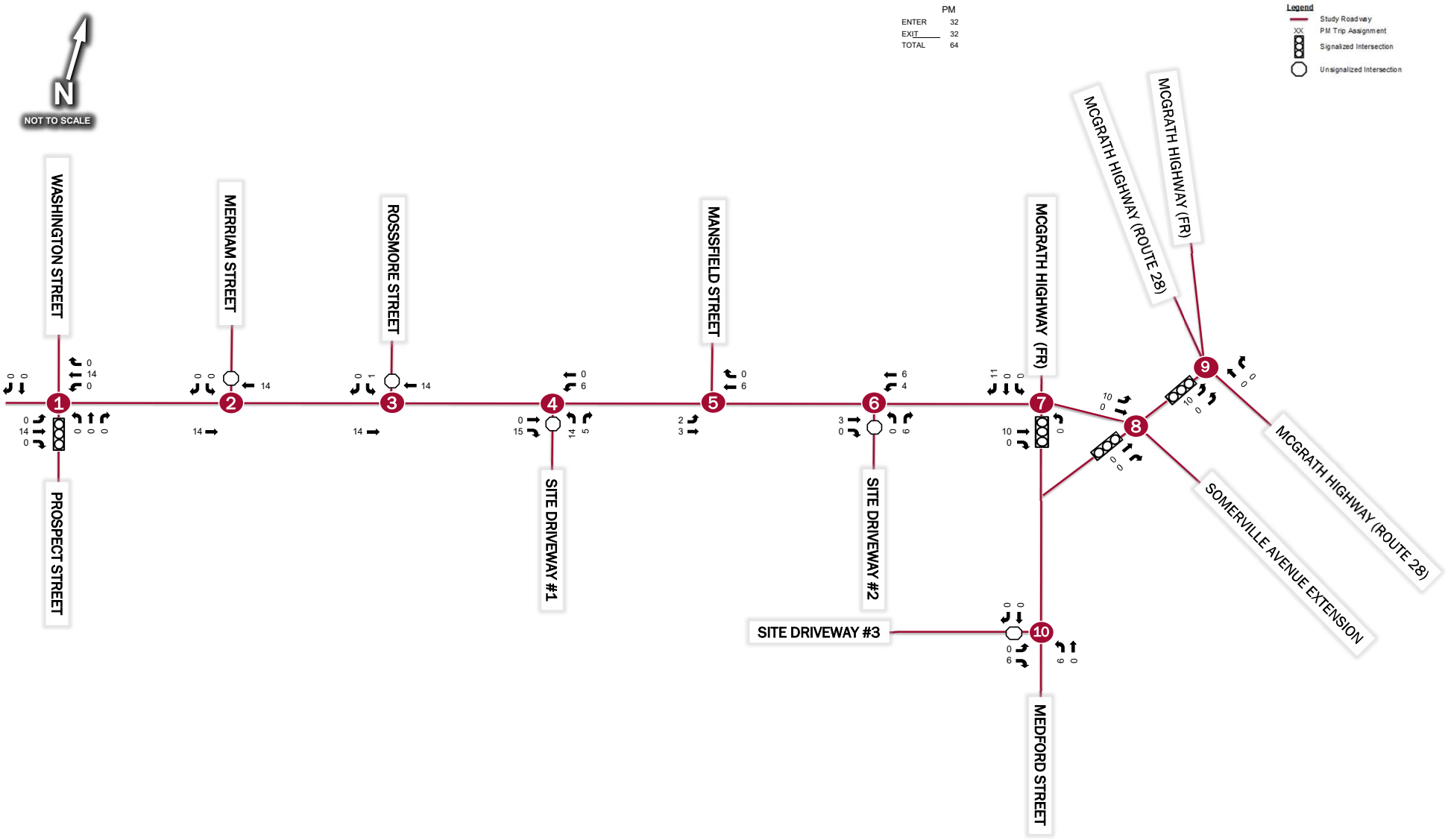
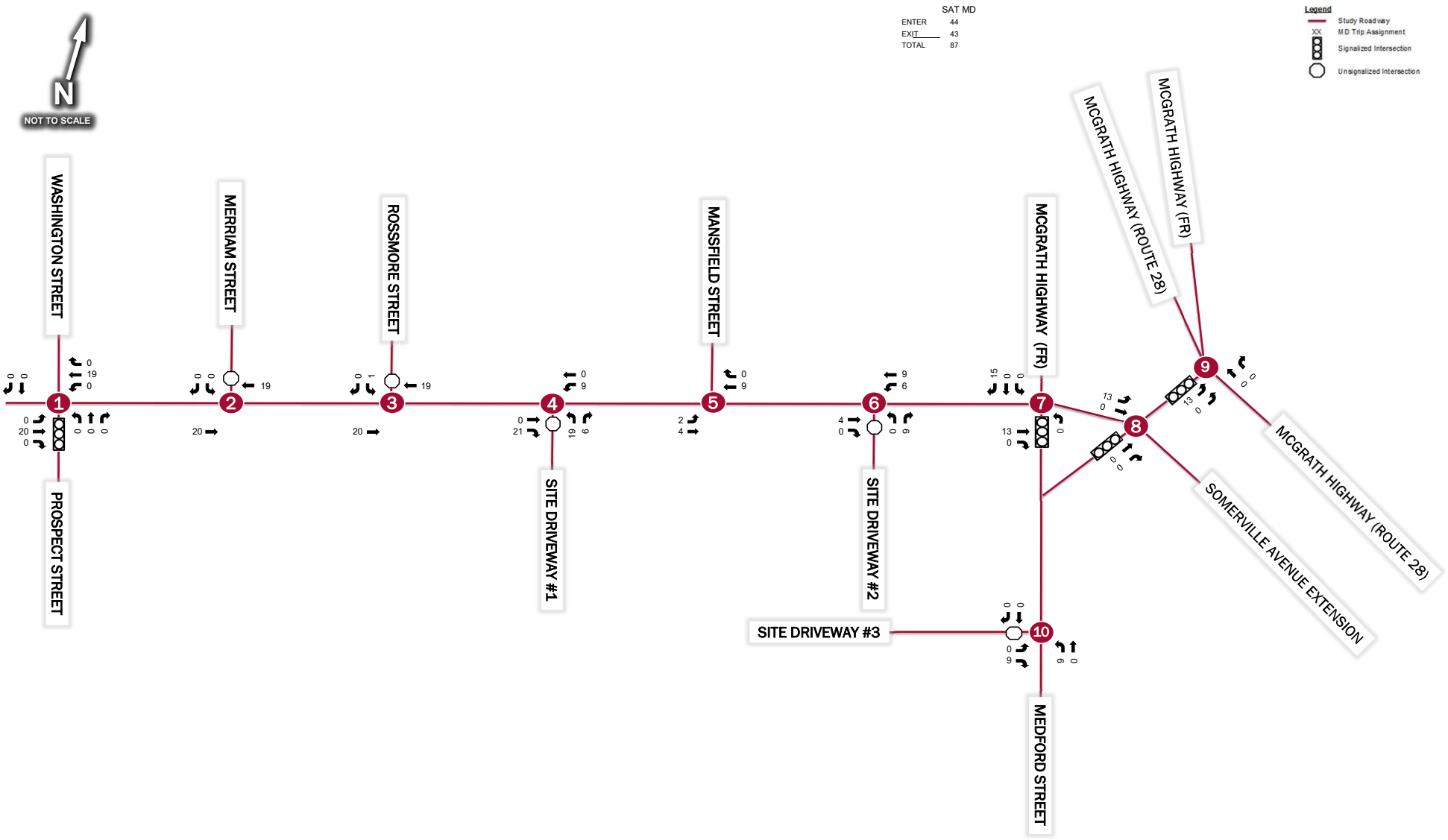


Figure 25
Net Trip Assignment (No-Build) Weekday PM Peak Hour
180 Somerville Avenue
Somerville, MA

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Figure 26

Net Trip Assignment (No-Build) Saturday Midday Peak Hour

180 Somerville Avenue

Somerville, MA

Roadway and Public Transportation Improvements

The following roadway and public transportation improvement projects within the study area were considered.

- **McGrath Boulevard (Project #607981):** The McGrath Boulevard project involves the demolition of the McCarthy Viaduct within the McGrath Highway Corridor and replaces it with a network of at-grade intersections. The project will provide a Complete Streets design for the McGrath corridor by incorporating access for all modes and for users of a diverse range of ages and abilities; improve traffic operations at seven of fifteen intersections compared to the No Build due to refined signal timing and reduced volumes; reduce roadway width and congestion through management of circulation and turning movements; improve multi-modal access to Union Square and Brickbottom via the McGrath corridor, Somerville Avenue, and Poplar Street; provide at-grade intersections that are more intuitive for wayfinding; create enhanced pedestrian access across the corridor; allow the reclamation of the right-of-way for other uses; provide for urban design and community character improvements; and provide an opportunity for compliance with the Americans with Disabilities Act of 1990 and the Massachusetts Architectural Access Board by being rigorously designed to current accessibility and mobility standards and regulations. Based on publicly available information from MassDOT, construction for the McGrath Boulevard project is expected to be in place by 2028. While McGrath Boulevard construction should be starting then, the corridor project will take multiple years to complete given the extent of work proposed. Therefore, the 2031 Design Year No-Build conditions analysis does not include the McGrath Boulevard project.
- **Union Square Transit Improvements[7]:** The MBTA is planning major service upgrades to bus service in Union Square, and the City of Somerville is doing its part to make sure those extra buses are not stuck in traffic. In collaboration with the MBTA, the City will upgrade the traffic signals and install new pavement markings to prioritize bus transit. These changes include the following.
    - Installing a northbound bus lane on Prospect Street from Oak Street to Webster Avenue
    - Upgrading traffic signal equipment and implementing transit signal priority at the intersections of Washington Street and Webster Avenue, Prospect Street and Webster Avenue, and Somerville Avenue and Prospect Street
    - Adding a phase to the traffic signal that gives buses and bikes a head start on Washington Street at Webster Avenue and on Prospect Street at Webster Avenue.
    - Adding a phase to the traffic signal on Washington Street at Webster Avenue that gives dedicated time for people driving to turn left from Union Square onto Webster Avenue.

2031 Design Year No-Build Traffic Volumes

The 2031 Design Year No-Build conditions vehicle traffic volumes are defined as the expected traffic conditions in 2031 without expansion of the existing Target store into the adjacent commercial space but will include analysis of the vacant storefront that could be re-tenanted as retail and was originally permitted as a retail use. The total traffic volumes considered in the analysis for this project are the sum of the grown traffic volumes, vicinity development, and the re-tenanted as retail volumes shown in **Table 15**.

Figure 27, **Figure 28**, and **Figure 29** presents the 2031 Design Year No-Build conditions total turning movement volumes at the study intersections during the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

[7] https://voice.somervillema.gov/usq-transit

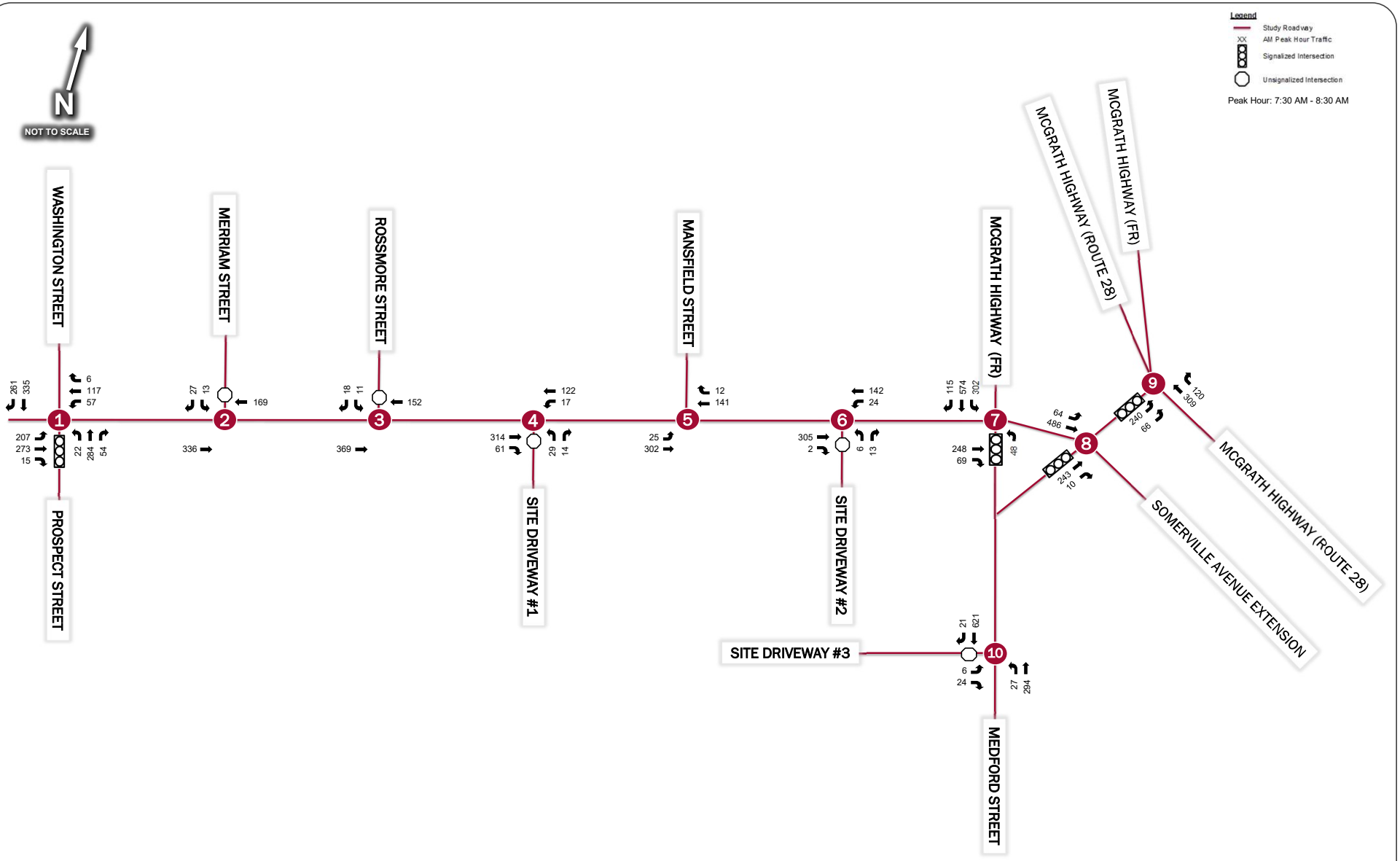


Figure 27
2031 Design Year No-Build Weekday AM Peak Hour
180 Somerville Avenue
Somerville, MA

Kimley»Horn

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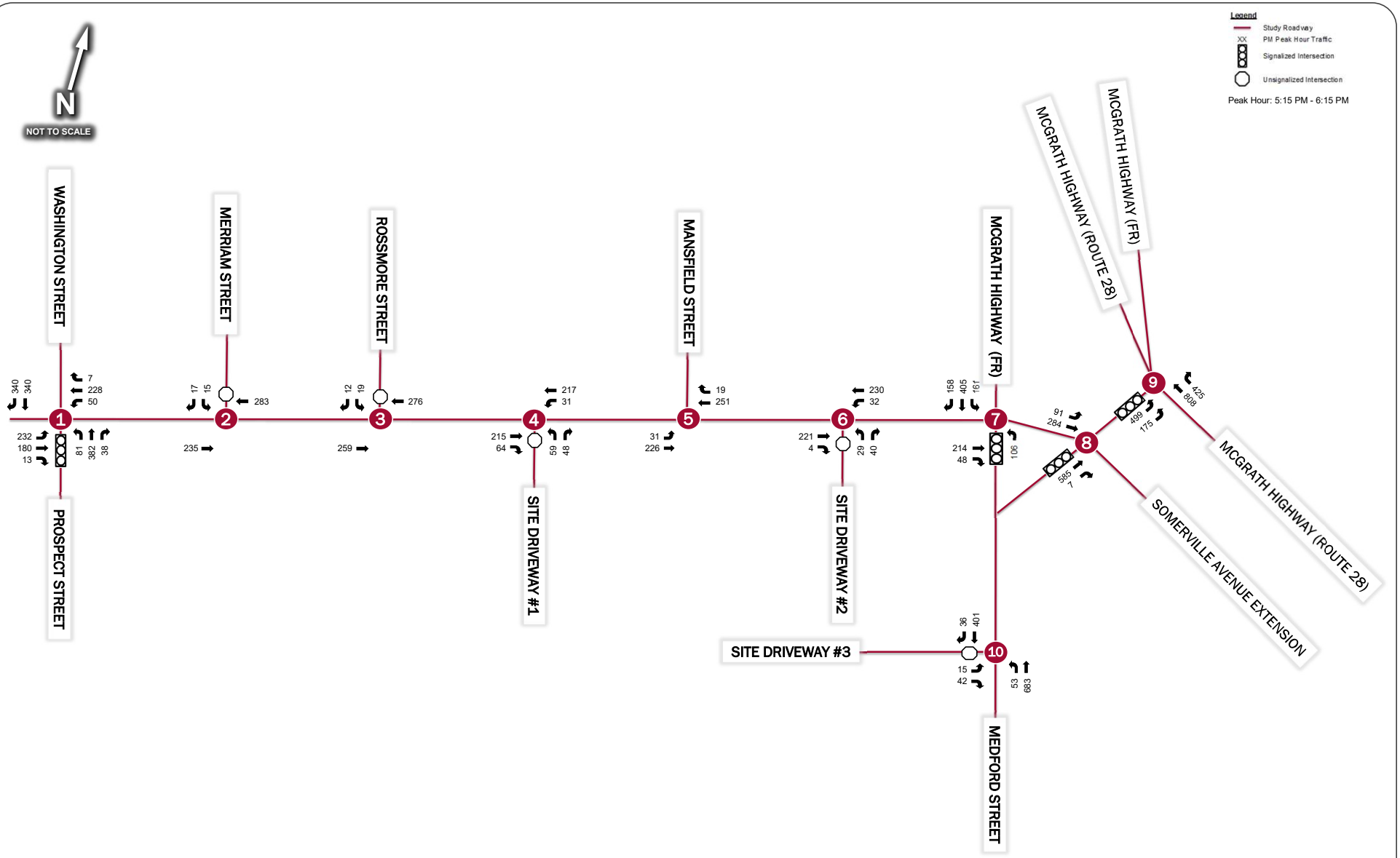


Figure 28
2031 Design Year No-Build Weekday PM Peak Hour
180 Somerville Avenue
Somerville, MA

Kimley»Horn

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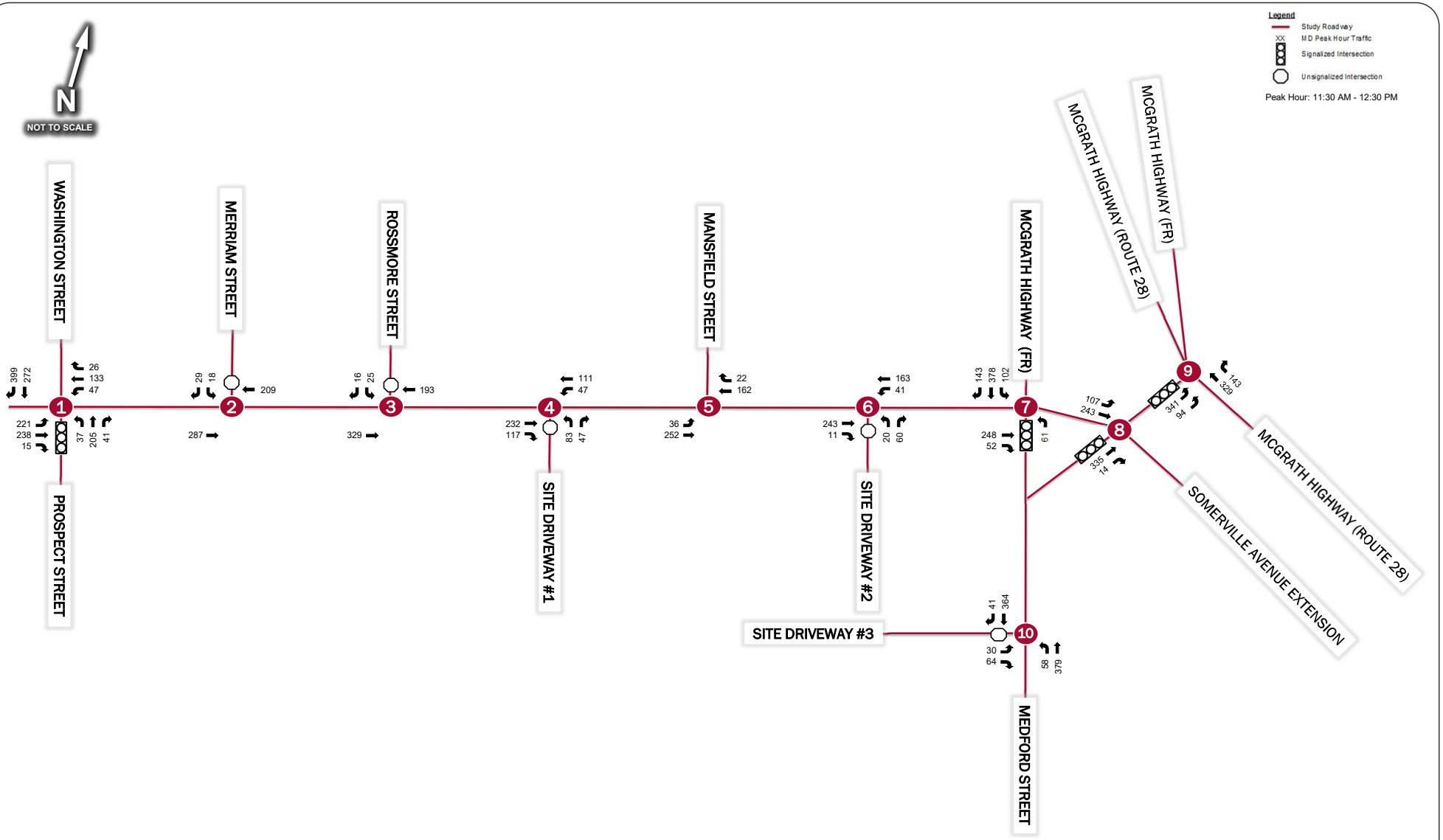


Figure 29
2031 Design Year No-Build Saturday Midday Peak Hour
180 Somerville Avenue
Somerville, MA

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DESIGN YEAR BUILD CONDITIONS

2031 DESIGN YEAR BUILD CONDITIONS

The 2031 Design Year Build traffic conditions are defined as expected traffic conditions on the roadway network in the year 2031 with the proposed expansion of the existing Target store into the adjacent commercial space. The total traffic volumes considered in the analysis for this project are the sum of the grown traffic volumes, vicinity developments, and the Project-generated traffic. These conditions are described further below.

Background Traffic Growth

Based on coordination with the City of Somerville and the Scoping Request Letter, an annual traffic growth rate of 0.25% is used to account for general background traffic growth. The 0.25% was applied to project all existing volumes to a five-year design horizon, to the year 2031.

Vicinity Developments

The City of Somerville OSPCD was contacted to determine whether any upcoming or planned development sites should be included in the Design Year No-Build Conditions. Three (3) development projects were provided and are included in **Appendix E**.

Figure 23 depicts the three (3) development projects located near the Project Site.

- **200 McGrath Highway (Gateway Innovation Center):** The proposed redevelopment is a pedestrian and transit-oriented, mixed-use development.[8] The Project will consist of two (2) buildings totaling approximately 980,000 sf of commercial space. This building space will be mainly lab/research and development and arts/creative enterprise use, with supporting ground-floor retail/restaurant space. The published TIS that was submitted as part of the permitting process included a larger development program, 1,194,000 sf of commercial space, versus the 980,000 sf of commercial space; therefore, the site-generated trips analysis was developed by Kimley-Horn along with the Saturday midday analysis.
- **Boynton Yards Master Plan:** The proposed project is a pedestrian-and transit-oriented, mixed-use development that includes 936,500 sf of office, research and development, and lab-enabled uses (office/R&D/lab), 42,500 sf of retail and/or restaurant space, and 330 residential units.[9] The development is being constructed in phases, with Building 1 – 101 South Street (257,200 sf of office/R&I/lab and 12,500 sf of retail space) and Building 2 (356,000 sf of office/R&I/lab and 9,000 sf of retail space) completely constructed and operational. The analysis included traffic generated by Building 3 and Building 4 since those are not yet constructed.
- **Union Square Redevelopment/US2 Master Plan:** The proposed project being developed by US2 is a large mixed-use development in Union Square in Somerville, consisting of a total of 1,159,000 sf of office space, 984 residential units, 143,000 sf of retail space, and a 175-room hotel.[10] The development is being constructed in phases and remains an evolving project. The analysis included traffic generated by Phase 1 because it is anticipated to be completed within the next five (5) years and is expected to be constructed no later than ten (10) years after the Green Line Extension's

[8] Gateway MPSP Application, VHB, September 2020
[9] Boynton Yards MPSP Final, VHB, July 2020
[10] US2 Union Square CDSP Appendix 4, Union Square Station Associates LLC, November 2017

completion in 2022. Phases 2 and 3 are projected to occur beyond the 2031 design year and, therefore, were not included in the 2031 Design Year Build traffic conditions.

Trip Generation

Project traffic used in this analysis is defined as the vehicle trips expected to be generated by the proposed expansion and the distribution and assignment of that traffic over the study roadway network. The existing Target store occupies a gross floor area of 92,000 square feet, and the adjacent vacant commercial space occupies a gross floor area of 34,000 square feet. The proposed expansion of the Target into vacant commercial space would bring the Target store to 126,000 square feet.

Trip generation calculations for the proposed expansion were performed using the ITE *Trip Generation Manual*, 12th Edition. The trip generation for the proposed expansion was determined using ITE LUC 813 (Free-Standing Discount Superstore), which describes a full-service grocery department under the same roof that shares entrances and exits with the discount store area, offering a variety of customer services with long hours every day of the week. Project trips were estimated for the Weekday AM and PM peak hours and Saturday Midday peak hour.

Pass-by trips are a subset of trips that travel along a roadway and stop at a nearby commercial development. They are motorists (or patrons) already on the roadway and are not new trips being generated. Pass-by capture rates were determined based on average rates provided in the ITE's Trip Generation Handbook, 12th Edition, and the City of Somerville TIS Guidelines, which state they are not to exceed 25%. Pass-by rates are provided for LUC 813 (Free-Standing Discount Superstore), and the rates of 25% during the weekday PM peak hour and 21% during the Saturday midday peak hour were utilized.

The number of truck deliveries is expected to decrease following the proposed expansion and no change is anticipated in truck trip generation. Currently, the site has a limited back-of-house storage area, requiring Target to use an off-site storeroom to accommodate inventory needs. As a result, large deliveries are received at the off-site facility and then transferred to the store in smaller, more frequent shipments as storage space becomes available. This operational constraint results in a higher number of truck trips to the store. The proposed expansion will increase the back-of-house storage area, allowing Target to eliminate the off-site storeroom and receive full truck deliveries directly at the site. Because these deliveries can be accommodated in larger, fully loaded shipments, delivery frequency is expected to decrease, resulting in fewer overall truck trips to the store.

The proposed expansion, unadjusted vehicle-trip estimates is expected to generate 1,288 trips during the weekday daily, 64 trips (36 entering and 28 exiting) during the weekday AM peak hour, 110 trips (54 entering and 56 exiting) during the weekday PM peak hour, and 151 trips (76 entering and 75 exiting) during the Saturday midday peak hour, as shown in **Table 16.**

Table 16. Trip Generation for Existing and Proposed – Unadjusted Vehicle Trips

ITE LUC	Land Use	Size	Unit	Weekday Daily	Weekday AM Peak Hour			Weekday PM Peak Hour			Saturday Midday Peak Hour		
				Total	In	Out	Total	In	Out	Total	In	Out	Total
Existing													
813	Free-Standing Discount Superstore	92	KSF	4,648	97	76	173	195	202	397	258	258	516
Existing Baseline Trips				4,648	97	76	173	195	202	397	258	258	516
Pass-by Trips (25% PM, 21% Sat MD)				1,162	0	0	0	49	50	99	54	54	108
Existing External Trips				**3,486**	**97**	**76**	**173**	**146**	**152**	**298**	**204**	**204**	**408**
Proposed													
813	Free-Standing Discount Superstore	126	KSF	6,366	133	104	237	267	277	544	354	353	707
Proposed Baseline Trips				6,366	133	104	237	267	277	544	354	353	707
Pass-by Trips (25% PM, 21% Sat MD)				1,592	0	0	0	67	69	136	74	74	148
Proposed New External Trips				**4,774**	**133**	**104**	**237**	**200**	**208**	**408**	**280**	**279**	**559**
Net Difference of New External Trips				**+1,288**	**+36**	**+28**	**+64**	**+54**	**+56**	**+110**	**+76**	**+75**	**+151**

Notes: Setting/Location: General Urban/Suburban

Census Tract Data

The Site is located in an area that experiences a high rate of pedestrian and bicycle traffic, in addition to high public transportation usage. It is expected that many non-vehicular trips will be made as a result. Census data from the census tract encompassing the Site was used to determine the modal split for generated trips as shown in **Table 17**. Journey-to-Work data from 2019 to 2024 shows that approximately 28% of workers in this area of Somerville get to work via car, truck, or van. Approximately 36% commute via public transportation, bicycle, walking, or other means, and the other 36% work from home. These percentages were applied to the net difference in generated trips from the proposed land uses.

The 2019 to 2024 Journey-to-Work data for the corresponding census tract includes an AVO. Based on the data, the area around the Site in Somerville has an AVO of 1.04.

Table 17. Means of Transportation to Work by Mode Share (Census Tract 3515)

Means of Transportation to Work	Census Tract 3515
Car, Truck, or Van	27.9%
Drove Alone	25.5%
Carpooled	2.4%
Public Transportation	16.9%

Means of Transportation to Work	Census Tract 3515
Walked	9.1%
Bicycle	6.4%
Taxi or Ride-Hailing Service, Motorcycle, Other Means	3.1%
Worked from Home	36.6%
Workers per car, truck, or van	1.04

Notes: U.S. Census Bureau, 2024 American Community Survey, 5-Year Estimates

Adjusted Trip Generation

Using the U.S. Census Tract data described above, new external vehicle trips from the ITE Trip Generation were adjusted to account for multimodal uses. To account for potential work from home trips, the Worked from Home percentage reported by the U.S. Census Bureau was proportionally assigned to all other modes. Total person trips were calculated by multiplying ITE trips by the U.S. Census Journey-to-Work AVO. Total person-vehicle trips were then determined using mode split data. Total vehicle-trips were calculated by dividing total person-vehicle trips by AVO, and vehicle traffic at this Site was reduced. Adjusted vehicle-trips for the net difference between existing and proposed conditions by mode were estimated and summarized in **Table 18**.

Looking at total vehicle-trips including taxi, motorcycle, and other trips, which are assumed to be single-occupancy vehicle trips, the Site is expected to generate an additional 32 vehicle-trips (18 entering and 14 exiting) during the weekday AM peak hour, 55 vehicle-trips trips (27 entering and 28 exiting) during the weekday PM peak hour, 74 vehicle-trips trips (37 entering and 37 exiting) during the Saturday midday peak hour, and 630 vehicle-trips during a typical weekday.

Table 18. Adjusted Trip Generation Summary by Mode for the Net Difference of Existing and Proposed

Free-Standing Discount Superstore (813)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Base Trips (ITE)	1,288	64	110	151
Total Person-Trips	1,340	67	114	157
Total Person Vehicle-Trips	589	29	50	69
Total Vehicle-Trips	**567**	**28**	**49**	**66**
Total Public Transportation Trips	**357**	**18**	**30**	**42**
Total Bicycle Trips	**135**	**7**	**12**	**16**
Total Walking Trips	**192**	**10**	**16**	**23**
Total Taxi or Ride-Hailing Service, Motorcycle, and Other Trips	63	4	6	8
Total Vehicle-Trips including Taxi, Motorcycle, and Other Trips	**630**	**32**	**55**	**74**

Free-Standing Discount Superstore (813)	Weekday Daily	Weekday AM Peak Hour	Weekday PM Peak Hour	Saturday MD Peak Hour
Entering Vehicle-Trips	**315**	**18**	**27**	**37**
Exiting Vehicle-Trips	**315**	**14**	**28**	**37**

Note: Worked from Home percentage proportionally assigned to all other modes

The number of truck deliveries is expected to decrease following the proposed expansion and no change is anticipated in truck trip generation. Currently, the site has a limited back-of-house storage area, requiring Target to use an off-site storeroom to accommodate inventory needs. As a result, large deliveries are received at the off-site facility and then transferred to the store in smaller, more frequent shipments as storage space becomes available. This operational constraint results in a higher number of truck trips to the store. The proposed expansion will increase the back-of-house storage area, allowing Target to eliminate the off-site storeroom and receive full truck deliveries directly at the site. Because these deliveries can be accommodated in larger, fully loaded shipments, delivery frequency is expected to decrease, resulting in fewer overall truck trips to the store.

Trip Distribution and Assignment

The anticipated distribution of project traffic was forecast for the trips expected to be generated by the expansion of the existing Target store into the adjacent commercial space. The directional distribution of traffic entering and exiting the Site location was determined using several variables, including existing travel patterns, efficient roadway routing, and surrounding population density. Traffic volume data from Replica's Big Data tool was analyzed to determine general traffic distribution patterns to/from the project site, and the assignment of entering/exiting trips was based on Journey to Work data for the City of Somerville and the assumption that most motorists seek the fastest and most efficient routes to and from the Site. The trip distribution is listed below.

- Coming to and from the north: 35% (McGrath Highway)
- Coming to and from the south: 20% (Medford Street)
- Coming to and from the west: 45% (Somerville Avenue)

Figure 15 presents the trip distribution for the weekday AM and PM peak hours and Saturday midday peak hour. **Figure 16** presents the pass-by distribution for the weekday AM and PM peak hours and Saturday midday peak hour. **Figure 17, Figure 18**, and **Figure 19** presents the net-trip assignment for the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

Roadway and Public Transportation Improvements

The following roadway and public transportation improvement projects within the study area were considered.

- **McGrath Boulevard (Project #607981):** The McGrath Boulevard project involves the demolition of the McCarthy Viaduct within the McGrath Highway Corridor and replaces it with a network of at-grade intersections. The project will provide a Complete Streets design for the McGrath corridor by incorporating access for all modes and for users of a diverse range of ages and abilities; improve traffic operations at seven of fifteen intersections compared to the No Build due to refined signal timing and reduced volumes; reduce roadway width and congestion through management of circulation and turning movements; improve multi-modal access to Union Square and Brickbottom

via the McGrath corridor, Somerville Avenue, and Poplar Street; provide at-grade intersections that are more intuitive for wayfinding; create enhanced pedestrian access across the corridor; allow the reclamation of the right-of-way for other uses; provide for urban design and community character improvements; and provide an opportunity for compliance with the Americans with Disabilities Act of 1990 and the Massachusetts Architectural Access Board by being rigorously designed to current accessibility and mobility standards and regulations. Based on publicly available information from MassDOT, construction for the McGrath Boulevard project is expected to be in place by 2028. While McGrath Boulevard construction should be starting then, the corridor project will take multiple years to complete given the extent of work proposed. Therefore, the 2031 Design Year Build conditions analysis does not include the McGrath Boulevard project.

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    - Installing a northbound bus lane on Prospect Street from Oak Street to Webster Avenue
    - Upgrading traffic signal equipment and implementing transit signal priority at the intersections of Washington Street and Webster Avenue, Prospect Street and Webster Avenue, and Somerville Avenue and Prospect Street
    - Adding a phase to the traffic signal that gives buses and bikes a head start on Washington Street at Webster Avenue and on Prospect Street at Webster Avenue.
    - Adding a phase to the traffic signal on Washington Street at Webster Avenue that gives dedicated time for people driving to turn left from Union Square onto Webster Avenue.

2031 Design Year Build Traffic Volumes

The 2031 Design Year Build conditions vehicle traffic volumes are defined as the expected traffic conditions in the year 2031. The total traffic volumes considered in the analysis for this project are the sum of the grown traffic volumes, vicinity development, and the expected project traffic volumes shown in **Table 18**.

Figure 30, Figure 31, and **Figure 32**, presents the 2031 Design Year Build conditions total turning movement volumes at the study intersections during the weekday AM peak hour, weekday PM peak hour, and Saturday midday peak hour, respectively.

[11] https://voice.somervillema.gov/usq-transit

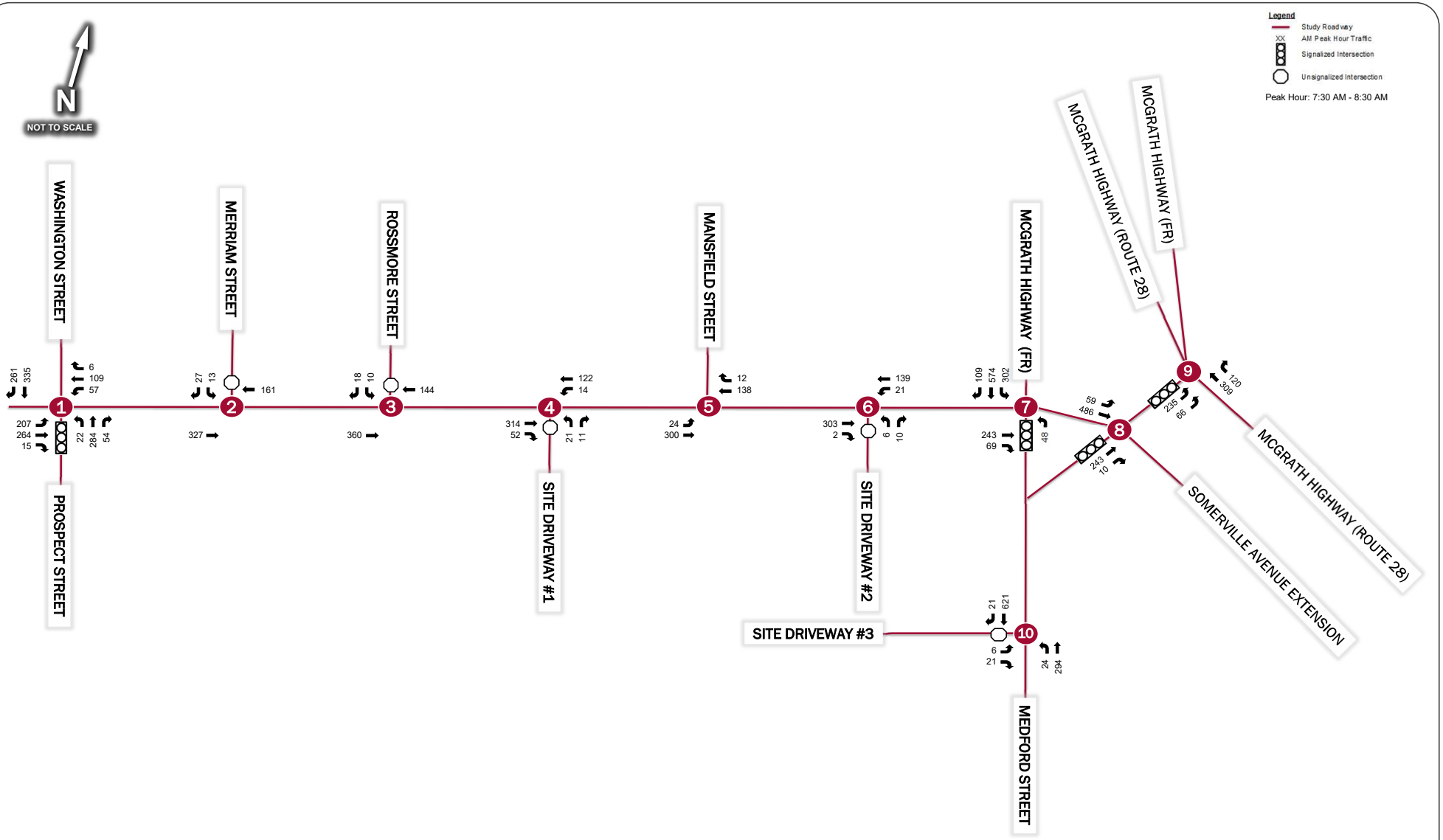


Figure 30

2031 Design Year Build Condition Volumes Weekday AM Peak Hour

180 Somerville Avenue

Somerville, MA

Kimley»Horn

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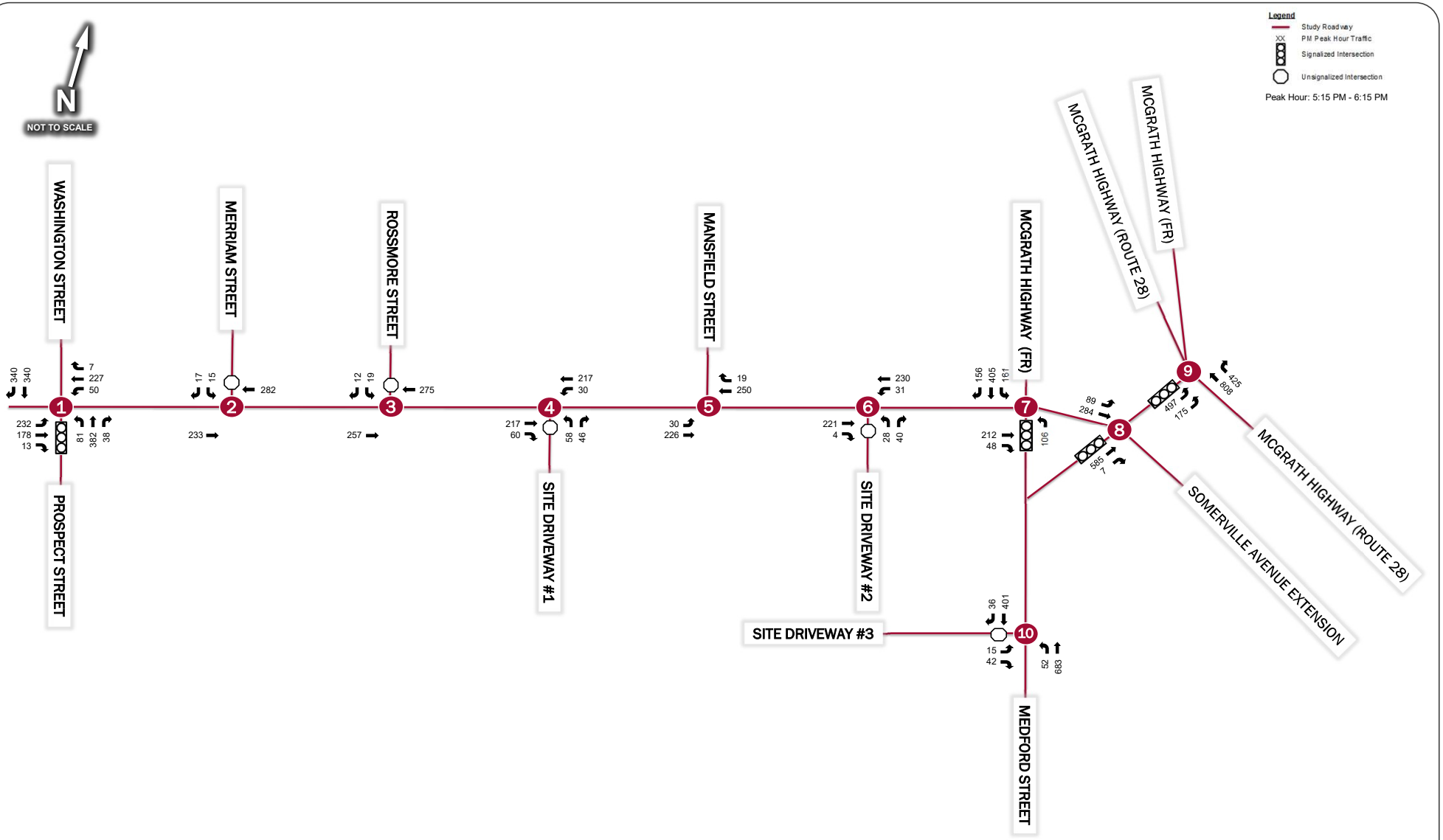


Figure 31

2031 Design Year Build Condition Volumes Weekday PM Peak Hour

180 Somerville Avenue

Somerville, MA

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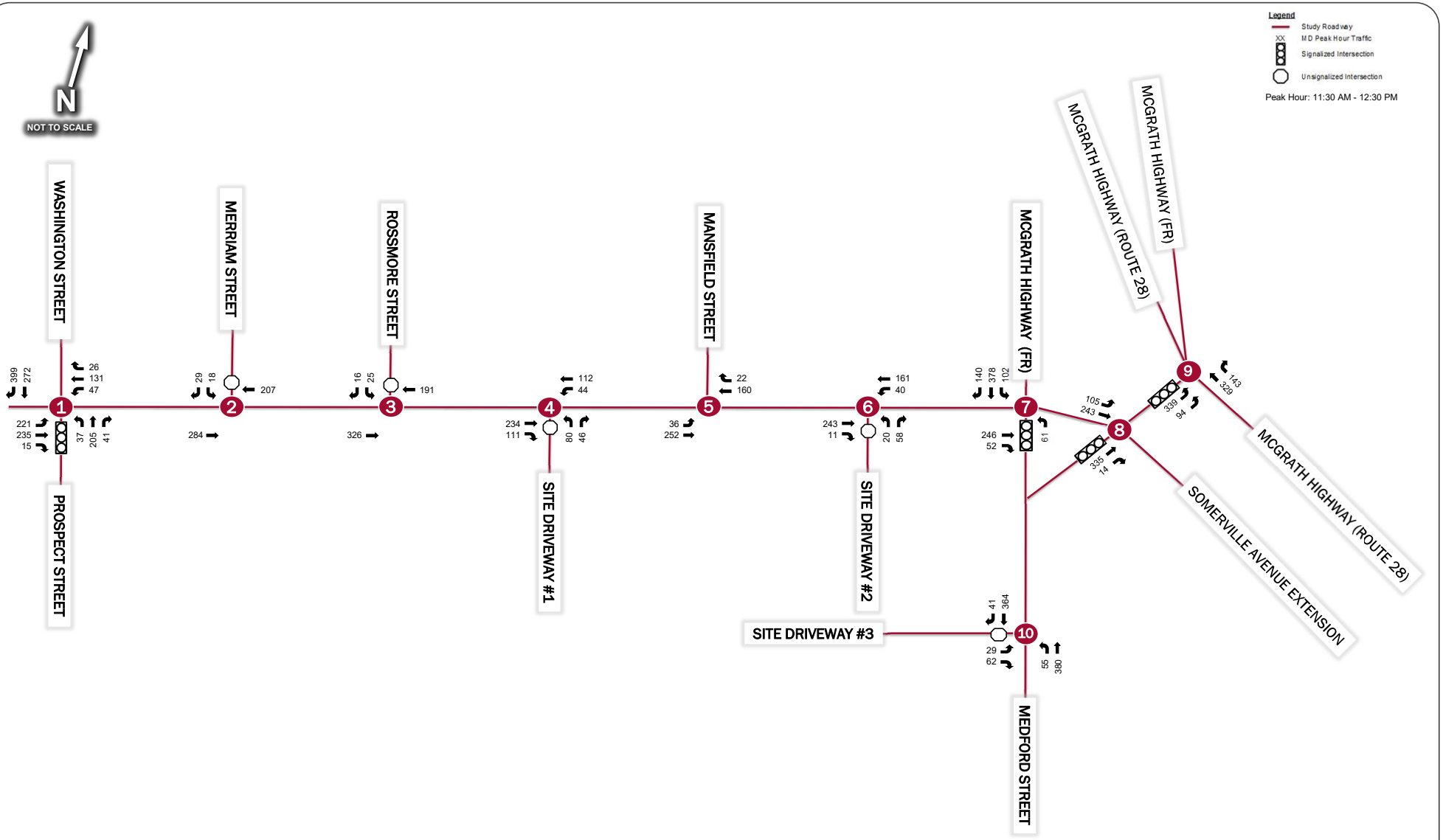


Figure 32

2031 Design Year Build Condition Volumes Saturday Midday Peak Hour

180 Somerville Avenue

Somerville, MA

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VEHICULAR OPERATIONS ANALYSIS

INTERSECTION CAPACITY ANALYSIS

Methodology

Intersection capacity analyses were performed for 2026 Existing, 2026 Existing Build, 2031 Design Year No-Build, and 2031 Design Year Build traffic volumes for the study area intersections. The analyses were performed using the Synchro Software Package (Version 12), which utilizes methodologies contained in the *Highway Capacity Manual 2000,* for signalized and unsignalized intersections. According to the *HCM 2000*, capacity is defined as the maximum number of vehicles that can pass over a particular road segment or through a particular intersection within a fixed time duration. The grading condition is described by Level of Service (LOS) to indicate the operating characteristics of a road segment or intersection. LOS is defined as a qualitative measure that describes operational conditions and motorist perceptions within a traffic stream and relates to the level of delay experienced. The *HCM 2000* defines six levels of service, LOS A through LOS F, with A being the best and F being the worst. Typically, a LOS "D" or better at signalized and unsignalized intersections is preferred, although lower levels are tolerated during peak travel hours.

The ranges of delays for each level of service are shown in **Table 19.**

Table 19. Level of Service Range of Delay

Level of Service (LOS)	Delay per Vehicle (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	10 – 20	10 – 15
C	20 – 35	15 – 25
D	35 – 55	25 – 35
E	55 – 80	35 – 50
F	≥ 80	≥ 50

Intersection Capacity Analysis Summary

Summaries of the intersection capacity analyses for the 2026 Existing, 2026 Build, 2031 Design Year No-Build, and 2031 Design Year Build Conditions are provided for each of the three (3) peak periods analyzed. **Table 20** summarizes the weekday AM peak period, **Table 21** summarizes the weekday PM peak period, and **Table 22** summarizes the Saturday midday peak period. The intersection analysis worksheets are contained in **Appendix F**.

The key findings of the intersection capacity analysis as it pertains to each capacity analysis scenario are summarized below.

2026 Existing Conditions

The study area generally operates at acceptable levels of service under 2026 Existing Conditions. The primary constraint occurs at Somerville Avenue at Washington Street/Prospect Street, where the westbound movement operates at LOS E during the weekday PM peak hour; otherwise, the study intersections generally operate at LOS C or better overall.

- No individual movements experience a V/C ratio above 1.0 under all peak periods.
- All signalized intersections operate at an overall LOS C or better under all peak periods.
- The westbound through movement at Somerville Avenue at Prospect Street/Washington Street operates at LOS E with a delay of 56.0 seconds and a V/C of 0.65 under the weekday PM peak period. This movement operates at LOS D under the AM and Saturday peak periods.
- All three (3) site driveways operate at LOS C or better under all peak periods.
- The eastbound through movement at the McGrath Highway (FR) / Medford Street at Somerville Avenue operates at LOS D under the weekday PM peak period, with a delay of 39.5 seconds and a V/C ratio of 0.69.

2026 Build Conditions

With the project, overall intersection operations remain generally consistent with existing conditions.

- No individual movements experience a V/C ratio above 1.0 under all peak periods.
- All signalized intersections operate at an overall LOS C or better under all peak periods.
- The westbound through movement at Somerville Avenue at Prospect Street/Washington Street continues to operate at LOS E with a delay of 58.6 seconds and a V/C of 0.69 under the PM peak period. Under the Saturday peak period, this movement degrades to LOS E with a delay of 58.1 seconds and a V/C of 0.66 compared to the 2026 Existing conditions.
- All three (3) site driveways operate at LOS C or better under all peak periods.
- The McGrath Highway (FR) / Medford Street at Somerville Avenue degrades from LOS B to LOS C under the AM peak period when compared to the 2026 Existing conditions.
- The net difference in 95th percentile queues between the 2026 Existing and 2026 Build Conditions is less than one (1) vehicle for all movements.

2031 Design Year No-Build Conditions

Under 2031 Design Year No-Build Conditions, delays and queuing at signalized intersections increase slightly.

- No individual movements experience a V/C ratio above 1.0 under all peak periods.
- All signalized intersections operate at an overall LOS D or better under all peak periods.
- The westbound through movement at Somerville Avenue at Prospect Street/Washington Street operates at LOS E with a delay of 72.4 seconds and a V/C of 0.85 under the PM peak period. Under the Saturday midday peak period, this movement also operates at LOS E with a delay of 60.3 seconds and a V/C of 0.70.
- All three (3) site driveways operate at LOS C or better under all peak periods.
- The eastbound through movement at the McGrath Highway (FR) / Medford Street at Somerville Avenue operates at LOS D under the weekday PM peak period, with a delay of 53.9 seconds and a V/C ratio of 0.79.

- The eastbound movement at Site Driveway #3 at Medford Street degrades from LOS B under 2026 Existing and Build Conditions to LOS C, under AM peak hour conditions.

2031 Design Year Build Conditions

Under 2031 Design Year Build Conditions, overall operations are generally comparable to the 2031 Design Year No Build Conditions, though certain movements experience slightly lower 95th percentile queues and delays compared to the No-Build Conditions.

- No individual movements experience a V/C ratio above 1.0 under all peak periods.
- All signalized intersections operate at an overall LOS D or better under all peak periods.
- All three (3) site driveways operate at LOS C or better under all peak periods.
- Under the AM peak hour conditions, in both the 2031 Design Year No-Build and 2031 Design Year Build Conditions, the delay at the NBL movement at the intersection of Medford Street Extension at Route 28 NB does decrease dramatically when compared to the 2026 Existing and 2026 Build Conditions. The signal timings remained the same throughout the scenarios but as shown in the Synchro reports, the actuated cycle length changed. The actuated cycle length increased by approximately 15 seconds from the 2026 Existing and 2026 Build scenarios compared to the 2031 Design Year No-Build and 2031 Design Year Build scenarios.

Table 20. Weekday AM Peak Hour Intersection Capacity Analysis

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
1	Somerville Avenue at Washington Street / Prospect Street (signalized)	EBL	485	D	37.9	0.46	143	224	D	37.9	0.46	143	224	D	38.5	0.48	151	235	D	38.5	0.48	151	235
		EBT/R	485	D	38.2	0.48	156	238	D	38.6	0.50	163	248	D	42.1	0.62	211	311	D	41.5	0.60	203	300
		WBL	84	D	44.0	0.21	42	84	D	44.0	0.21	42	84	D	44.1	0.21	43	86	D	44.1	0.21	43	86
		WBT/R	365	D	46.3	0.34	76	133	D	46.7	0.36	80	139	D	48.0	0.41	93	158	D	47.4	0.39	87	150
		NBL	84	C	24.0	0.10	13	32	C	24.0	0.10	13	32	C	24.0	0.10	13	32	C	24.0	0.10	13	32
		NBT/R	700	C	31.7	0.61	250	330	C	31.7	0.61	250	330	C	32.4	0.64	264	347	C	32.4	0.64	264	347
		SBT	85	C	29.6	0.53	225	328	C	29.6	0.53	225	328	C	29.9	0.55	232	336	C	29.9	0.55	232	336
		SBR	85	B	12.9	0.32	127	193	B	12.9	0.32	127	193	B	13.0	0.32	131	199	B	13.0	0.32	131	199
		Intersection		C	31.1	0.57	-	-	C	31.3	0.58	-	-	C	32.7	0.65	-	-	C	32.4	0.64	-	-
2	Somerville Avenue at Merriam Street (one-way STOP controlled)	SBL/R	340	B	10.1	0.06	-	5	B	10.2	0.06	-	5	B	10.6	0.06	-	5	B	10.5	0.06	-	5
3	Somerville Avenue & Rossmore Street (one-way STOP controlled)	SBL/R	510	B	10.3	0.06	-	4	B	10.3	0.06	-	4	B	10.9	0.06	-	5	B	10.6	0.06	-	5
4	Site Driveway #1 at Somerville Avenue	NBL/R	-	B	11.3	0.05	-	4	B	11.6	0.07	-	6	B	12.5	0.11	-	9	B	12.1	0.08	-	6
5	Somerville Avenue at Mansfield Street (unsignalized)	EBT/R	250	A	0.8	0.02	-	1	A	0.8	0.02	-	1	A	0.8	0.02	-	2	A	0.7	0.02	-	1
		WBL/T	225	A	0.0	0.09	-	0	A	0.0	0.09	-	0	A	0.0	0.10	-	0	A	0.0	0.10	-	0
6	Site Driveway #2 at Somerville Avenue (one-way STOP controlled)	NBL/R	-	B	11.2	0.03	-	3	B	11.1	0.04	-	3	B	11.5	0.05	-	4	B	11.6	0.04	-	3

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
7	**McGrath Highway (FR) / Medford Street at Somerville Avenue (signalized)**	EBT	225	C	25.2	0.60	80	201	C	25.4	0.60	84	206	C	33.9	0.70	125	307	C	33.4	0.69	121	297
		EBR	57	A	8.3	0.07	11	35	A	8.4	0.07	11	36	B	11.7	0.10	21	57	B	11.7	0.10	21	57
		NBL	825	C	23.0	0.15	16	48	C	23.4	0.15	17	48	C	29.5	0.19	27	62	C	29.2	0.19	26	62
		SBL	840	B	16.2	0.10	0	41	B	16.2	0.10	0	41	B	17.3	0.21	0	53	B	17.2	0.21	0	53
		SBT/R	840	B	19.8	0.59	102	198	B	19.8	0.59	104	200	C	21.2	0.60	156	247	C	21.0	0.60	155	245
		Intersection		B	20.0	0.52	-	-	C	20.1	0.52	-	-	C	22.5	0.58	-	-	C	22.2	0.57	-	-
8	**Medford Street / Medford Street Ext at Somerville Avenue / Somerville Avenue Ext (signalized)**	EBL/T	60	A	1.5	0.28	14	18	A	1.6	0.28	14	22	A	3.4	0.42	41	78	A	3.3	0.42	41	75
		NBT/R	60	C	24.0	0.37	48	98	C	24.4	0.37	50	98	C	31.0	0.46	76	130	C	30.8	0.46	76	130
		Intersection		B	10.5	0.37	-	-	B	10.7	0.37	-	-	B	12.5	0.50	-	-	B	12.4	0.50	-	-
9	**Medford Street Ext at Route 28 NB (signalized)**	NBL	70	A	7.6	0.08	0	0	A	7.8	0.08	0	0	A	0.2	0.10	0	0	A	0.1	0.09	0	0
		NWT	125	B	17.7	0.40	66	124	B	17.7	0.40	67	124	B	18.8	0.43	103	155	B	18.7	0.43	103	155
		Intersection		B	13.5	0.26	-	-	B	13.5	0.26	-	-	B	11.4	0.29	-	-	B	11.4	0.29	-	-
10	**Medford Street at Site Driveway #3 (one-way STOP controlled)**	EBL/R	-	B	13.6	0.06	-	5	B	13.6	0.07	-	5	C	16.3	0.10	-	8	C	16.4	0.09	-	7

1: 50th percentile queue lengths not required for unsignalized intersections per TIS guidelines
2: Storage lengths for movements provided to nearest previous intersection; storage length for Site driveways omitted

Table 21. Weekday PM Peak Hour Capacity Analysis

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
1	**Somerville Avenue at Washington Street / Prospect Street (signalized)**	EBL	485	D	35.4	0.45	156	253	D	35.4	0.45	156	253	D	36.3	0.48	164	263	D	36.3	0.48	164	263
		EBT/R	485	C	32.5	0.32	108	182	C	32.9	0.35	116	194	C	33.7	0.37	125	204	C	33.7	0.37	123	202
		WBL	84	D	43.5	0.18	37	75	D	43.5	0.18	37	75	D	43.5	0.18	37	75	D	43.5	0.18	37	75
		WBT/R	365	E	56.0	0.65	148	228	E	58.6	0.69	161	246	E	72.4	0.85	204	343	E	72.0	0.85	203	342
		NBL	84	C	29.9	0.38	50	95	C	29.9	0.38	50	95	C	29.8	0.39	51	97	C	29.8	0.39	51	97
		NBT/R	700	D	39.5	0.75	301	408	D	39.5	0.75	301	408	D	41.9	0.80	329	449	D	41.9	0.8	329	449
		SBT	85	C	31.9	0.54	211	290	C	31.9	0.54	211	290	C	31.9	0.56	220	304	C	31.9	0.56	220	304
		SBR	85	B	14.8	0.40	160	237	B	14.8	0.40	160	237	B	14.9	0.41	167	246	B	14.9	0.41	167	246
		Intersection		C	33.8	0.69	-	-	C	34.3	0.70	-	-	D	37.4	0.77	-	-	D	37.3	0.77	-	-
2	**Somerville Avenue at Merriam Street (one-way STOP controlled)**	SBL/R	340	B	11.0	0.06	-	5	B	11.2	0.06	-	5	B	11.8	0.07	-	6	B	11.8	0.07	-	6
3	**Somerville Avenue & Rossmore Street (one-way STOP controlled)**	SBL/R	510	B	11.8	0.09	-	7	B	12.1	0.10	-	8	B	12.7	0.10	-	9	B	12.7	0.10	-	9
4	**Site Driveway #1 at Somerville Avenue**	NBL/R	-	B	12.6	0.19	-	17	B	13.7	0.27	-	27	B	14.5	0.29	-	31	B	14.4	0.29	-	29

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
5	**Somerville Avenue at Mansfield Street (unsignalized)**	EBT/R	250	A	1.2	0.03	-	2	A	1.2	0.03	-	2	A	1.2	0.03	-	2	A	1.2	0.03	-	2
		WBL/T	225	A	0.0	0.15	-	0	A	0.0	0.15	-	0	A	0.0	0.18	-	0	A	0.0	0.18	-	0
6	**Site Driveway #2 at Somerville Avenue (one-way STOP controlled)**	NBL/R	-	B	11.2	0.11	-	9	B	11.3	0.12	-	10	B	11.8	0.13	-	11	B	11.7	0.13	-	11
7	**McGrath Highway (FR) / Medford Street at Somerville Avenue (signalized)**	EBT	225	D	39.5	0.69	130	264	D	39.9	0.70	137	281	D	53.9	0.79	165	325	D	53.3	0.79	163	323
		EBR	57	B	14.2	0.07	17	46	B	14.2	0.07	17	46	B	16.3	0.08	21	53	B	16.3	0.08	21	53
		NBL	825	C	31.4	0.21	35	85	C	31.8	0.21	35	85	D	35.2	0.31	67	134	D	35.1	0.30	67	134
		SBL	840	B	16.0	0.10	0	31	B	16.2	0.10	0	31	B	17.7	0.12	0	33	B	17.7	0.12	0	33
		SBT/R	840	B	18.7	0.42	127	167	B	19.0	0.43	131	169	C	20.9	0.45	156	194	C	20.9	0.45	156	193
		Intersection		C	23.1	0.46	-	-	C	23.5	0.47	-	-	C	27.8	0.51	-	-	C	27.7	0.51	-	-
8	**Medford Street / Medford Street Ext at Somerville Avenue / Somerville Avenue Ext (signalized)**	EBL/T	60	A	2.3	0.26	22	40	A	2.2	0.27	22	41	A	3.7	0.30	32	57	A	3.6	0.30	32	55
		NBT/R	60	D	35.1	0.61	129	214	D	35.6	0.62	131	214	D	45.7	0.81	232	358	D	45.4	0.81	232	358
		Intersection		B	19.9	0.39	-	-	B	20.0	0.39	-	-	C	29.3	0.47	-	-	C	29.1	0.47	-	-
9	**Medford Street Ext at Route 28 NB (signalized)**	NBL	70	A	0.7	0.27	0	2	A	0.8	0.27	0	2	A	2.6	0.40	0	9	A	2.5	0.40	0	8
		NWT	125	C	28.2	0.85	358	470	C	28.8	0.85	363	470	C	33.3	0.88	438	546	C	33.3	0.88	438	546

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
		Intersection		C	20.2	0.65	-	-	C	20.6	0.65	-	-	C	22.3	0.73	-	-	C	22.4	0.73	-	-
10	**Medford Street at Site Driveway #3 (one-way STOP controlled)**	EBL/R	**-**	C	15.3	0.13	-	11	C	16.5	0.17	-	15	C	21.3	0.23	-	21	C	21.3	0.22	-	21

1: 50th percentile queue lengths not required for unsignalized intersections per TIS guidelines
2: Storage lengths for movements provided to nearest previous intersection; storage length for Site driveways omitted

Table 22. Saturday Midday Peak Hour Capacity Analysis

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
1	**Somerville Avenue at Washington Street / Prospect Street (signalized)**	EBL	485	D	36.3	0.46	152	235	D	36.3	0.46	152	235	D	37.0	0.48	160	247	D	37.0	0.48	160	247
		EBT/R	485	D	36.0	0.45	154	234	D	36.8	0.49	168	252	D	37.5	0.51	176	264	D	37.3	0.50	173	259
		WBL	84	D	43.6	0.19	38	70	D	43.6	0.19	38	70	D	43.7	0.19	39	72	D	43.7	0.19	39	72
		WBT/R	365	D	54.9	0.60	121	178	E	58.1	0.66	139	199	E	60.3	0.70	148	209	E	60.1	0.70	146	207
		NBL	84	C	26.3	0.18	24	50	C	26.3	0.18	24	50	C	26.2	0.19	24	51	C	26.2	0.19	24	51
		NBT/R	700	C	30.0	0.48	169	237	C	30.0	0.48	169	237	C	30.1	0.50	177	247	C	30.1	0.50	177	247

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
		SBT	85	C	29.7	0.46	181	248	C	29.7	0.46	181	248	C	29.8	0.48	192	262	C	29.8	0.48	192	262
		SBR	85	B	19.1	0.55	233	309	B	19.1	0.55	233	309	B	19.4	0.57	241	319	B	19.4	0.57	241	319
		Intersection		C	31.4	0.63	-	-	C	32.1	0.65	-	-	C	32.8	0.67	-	-	C	32.7	0.67	-	-
2	**Somerville Avenue at Merriam Street (one-way STOP controlled)**	SBL/R	340	B	11.1	0.09	-	8	B	11.3	0.10	-	8	B	11.5	0.10	-	8	B	11.5	0.10	-	8
3	**Somerville Avenue & Rossmore Street (one-way STOP controlled)**	SBL/R	510	B	12.5	0.11	-	9	B	12.9	0.11	-	9	B	13.2	0.12	-	10	B	13.1	0.12	-	10
4	**Site Driveway #1 at Somerville Avenue**	NBL/R	-	B	13.0	0.20	-	18	B	14.1	0.28	-	29	B	14.6	0.30	-	31	B	14.4	0.29	-	30
5	**Somerville Avenue at Mansfield Street (unsignalized)**	EBT/R	250	A	1.2	0.03	-	2	A	1.3	0.03	-	2	A	1.2	0.03	-	3	A	1.2	0.03	-	3
		WBL/T	225	A	0.0	0.13	-	0	A	0.0	0.13	-	0	A	0.0	0.14	-	0	A	0.0	0.14	-	0
6	**Site Driveway #2 at Somerville Avenue (one-way STOP controlled)**	NBL/R	-	B	12.0	0.13	-	12	B	12.4	0.16	-	14	B	12.6	0.17	-	15	B	12.5	0.16	-	14
7	**MCGrath Highway (FR) / Medford Street at Somerville Avenue (signalized)**	EBT	225	C	23.2	0.61	90	196	C	23.2	0.61	95	210	C	24.4	0.62	108	225	C	24.4	0.62	107	222
		EBR	57	A	6.2	0.06	10	29	A	6.2	0.06	10	29	A	6.8	0.07	12	33	A	6.8	0.07	12	33
		NBL	825	C	21.6	0.20	25	53	C	22.4	0.20	25	54	C	24.2	0.23	30	61	C	24.0	0.23	30	61

				2026 Existing Conditions					2026 Build Conditions					2031 Design Year No Build Conditions					2031 Design Year Build Conditions				
#	Name	Movement	Storage Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)	LOS	Delay (s/veh)	V/C	50th Queue Length (ft)	95th Queue Length (ft)
		SBL	840	B	18.9	0.06	0	17	B	19.5	0.06	0	17	B	19.5	0.07	0	28	B	19.4	0.07	0	28
		SBT/R	840	C	22.2	0.56	76	146	C	22.9	0.57	81	147	C	23.5	0.59	95	164	C	23.3	0.59	95	164
		Intersection		C	21.2	0.51	-	-	C	21.7	0.52	-	-	C	22.5	0.55	-	-	C	22.3	0.55	-	-
8	**Medford Street / Medford Street Ext at Somerville Avenue / Somerville Avenue Ext (signalized)**	EBL/T	60	A	1.7	0.28	7	28	A	1.7	0.29	7	30	A	1.7	0.31	10	31	A	1.8	0.31	10	31
		NBT/R	60	C	22.7	0.40	60	109	C	23.5	0.41	62	111	C	25.7	0.49	76	134	C	25.4	0.49	76	134
		Intersection		B	11.5	0.39	-	-	B	11.6	0.39	-	-	B	13.1	0.42	-	-	B	13.0	0.42	-	-
		NBL	70	A	0.1	0.11	0	0	A	0.2	0.12	0	0	A	0.1	0.15	0	0	A	0.1	0.14	0	0
9	**Medford Street Ext at Route 28 NB (signalized)**	NWT	125	C	22.9	0.63	94	163	C	23.4	0.63	98	162	C	23.5	0.61	106	168	C	23.3	0.61	106	168
		Intersection		B	12.9	0.35	-	-	B	13.2	0.34	-	-	B	12.7	0.37	-	-	B	12.7	0.37	-	-
10	**Medford Street at Site Driveway #3 (one-way STOP controlled)**	EBL/R	-	C	15.0	0.19	-	17	C	15.7	0.22	-	21	C	17.2	0.25	-	25	C	16.9	0.24	-	24

1: 50th percentile queue lengths not required for unsignalized intersections per TIS guidelines
2: Storage lengths for movements provided to nearest previous intersection; storage length for Site driveways omitted

BICYCLE AND PEDESTRIAN ANALYSIS

BICYCLE ANALYSIS

Along each study area roadway segment and intersection, an analysis of bicycle facilities was completed using the Bicycle Level of Stress (BLTS) methodology outlined in the City of Somerville's TIS Guidelines. Street segments and intersection crossings were given BLTS scores 1 through 4, with BLTS 1 indicating favorable conditions comfortable for riding and BLTS 4 indicating high stress conditions unsuitable for riding.

BLTS along Street Segments

Bicycle facilities along street segments were evaluated by comparing the size of the bike lane (or bike lane plus parking lane and any buffers) to street width (through lanes per direction), prevailing speed, and how often the bike lane is blocked. **Figure 33** shows the results of the BLTS analysis for the 2026 Existing conditions.

In the 2026 Existing Conditions, the highest BLTS occurs along Medford Street heading north, where multiple lanes converge, and buffers are lacking as it approaches the intersection with Somerville Avenue. This was the only segment that scored a BLTS 4, though multiple segments along McGrath Highway scored BLTS 3 due to higher prevailing speeds and lack of buffers compared to Somerville Avenue and other side streets in the study area.

Under the 2031 Build Conditions as shown in **Figure 34**, street segments would retain the same BLTS values as the 2026 Existing Conditions, except for the added bicycle facilities along Somerville Avenue Extension to be constructed as part of the 200 McGrath Highway (Gateway Innovation Center) vicinity development.

BLTS through Unsignalized Street Crossings

Analysis of bicycle facilities at unsignalized street crossings considered factors such as the speed limit of streets being crossed, street width, and the presence of median refuges. For the purpose of analysis, crossings of major driveways were considered street crossings, and the "speed limit" of driveways was determined by the speed at which vehicles are typically able to make turns into driveways.

As shown in **Table 23,** all unsignalized intersections and crossings at site driveways within the study area, except for the crossing at Medford Street and Site Driveway #3, received a BLTS score of 1. This indicates that there are minimal levels of stress for bicyclists throughout most intersections. There will be no changes to unsignalized street crossings under the 2031 Build Conditions.

Table 23. BLTS Through Unsignalized Street Crossings

Intersection	Intersection Leg	Bike Travel Direction	BLTS
Somerville Avenue at Merriam Street	North	Westbound	1
Somerville Avenue at Rossmore Street	North	Westbound	1

Intersection	Intersection Leg	Bike Travel Direction	BLTS
Somerville Avenue at Site Driveway #1	South	Eastbound	1
Somerville Avenue at Mansfield Street	North	Westbound	1
Somerville Avenue at Site Driveway #2	South	Eastbound	1
Medford Street at Site Driveway #3	West	Southbound	3

BLTS through Signalized Intersections

Evaluation of BLTS along intersection approaches is a qualitative analysis that considers the presence of bike boxes, lane geometry, dedicated bicycle signals, and other facilities that improve bicyclists' comfort at signalized intersections. **Table 24** describes the various bicycle accommodations at the signalized study intersections and any potential conflicts that add to the level of bicyclist stress.

Table 24. Signalized Street Crossing BLTS Evaluation

Signalized Intersection	Accommodations	Additional Notes
Somerville Avenue at Prospect Street/ Washington Street	- Green conflict striping provided on westbound, eastbound, and southbound approaches - Eastbound, northbound, and southbound, two-stage left-turn boxes provided (painted green) - Physically separated bike lanes provided along eastbound, westbound, and southbound approaches - Sharrow markings provided along southbound Prospect Street south of Somerville Avenue - Bike lane with white striping provided along northbound approach	
Somerville Avenue at McGrath Highway (FR)/ Medford Street	- Bicycle detection signage and symbols provided for all movements - Green conflict striping provided for all movements - Bike lanes (painted green) provided on eastbound and northbound approaches - Sharrow markings provided on southbound approach and eastbound right-turn movement - Eastbound and southbound two-stage left-turn box provided (painted green) - Bike box provided on eastbound approach	- The eastbound Somerville Avenue bike lane is crossed by right-turn traffic accessing the right-turn lane at the intersection - The eastbound bike lane along Somerville Avenue east of Medford Street is crossed by buses entering and exiting the bus stop
Medford Street at McGrath Highway (Route 28)	- Bicycle detection signage and symbols provided for all movements	

Signalized Intersection	Accommodations	Additional Notes
	- Bike lane (painted green) provided on northbound approach - Bike lane (not painted) provided on westbound approach with white striping	



Figure 33. 2026 Existing Conditions Bicycle Level of Traffic Stress



Figure 34. 2031 Design Year Build Bicycle Level of Traffic Stress

PEDESTRIAN ANALYSIS

An evaluation was completed along each study area street segment and unsignalized street crossing using the Pedestrian Level of Traffic Street (PLTS) methodology provided in the City of Somerville TIS guidelines. Each street segment or intersection is given a PLTS score of 1 through 4. PLTS 1 represents favorable conditions and comfort. PLTS 4 represents increased pedestrian risk due to high-speed facilities, narrow sidewalks, or sidewalks in poor condition. A pedestrian delay analysis was performed for signalized intersections.

PLTS along Sidewalk Segments

The PLTS was determined along sidewalk segments by comparing sidewalk condition and width to the size and materials of the buffer between the sidewalk and moving vehicle traffic. Wider sidewalks and buffers with vertical barriers provide the highest comfort for pedestrians, decreasing PLTS. The study area has no conflicts with bicyclists, as buffered off-road bike lanes, on-road bicycle lane markings, and sharrows along roadway segments separate bicyclists from pedestrian movement. The results of the PLTS along street segments analysis are shown in **Figure 35** denoted the PLTS level.

Across the study area, the highest levels of pedestrian stress occur on the northbound side of McGrath Highway, the south side of Somerville Avenue Extension, and portions of the west sidewalk facility, where effective width decreases. Along Somerville Avenue, buffer width exceeds 10 feet, including pavement and the off-road bike lane, providing adequate comfort for pedestrians traveling along the roadway. Where sidewalk facilities are rated PLTS 2, it reflects the lack of buffer along that segment. Roadway speeds remained at 20-25 MPH on the side streets, Prospect Street, and sidewalks at bus stop locations, contributing to the PLTS 2 score.



Figure 35. 2026 Existing Conditions Pedestrian Level of Traffic Stress

PLTS through Unsignalized Street Crossings

PLTS is determined at unsignalized street crossings by analyzing vehicle speed along the street crossing, average daily traffic (VPD), crossing distance, and presence of a median refuge island. The PLTS analysis does not account for pedestrian crossing enhancements as part of the scoring metrics. Crossings with non-ADA compliant ramps could be ranked no better than PLTS 3, while crossings without ramps were assigned PLTS 4. **Table 25** shows the pedestrian level of traffic stress analysis for the unsignalized street crossings within the study area

Table 25. PLTS Analysis Unsignalized Intersection Results

Intersection	Intersection Leg	Crosswalk Direction	PLTS
Somerville Avenue Midblock Crossing West of Prospect Street	Midblock	North/South	PLTS 2
Somerville Avenue at Milk Alley	South	East/West	PLTS 1
Somerville Avenue at Allen Street	South	East/West	PLTS 1
Somerville Avenue at Linden Street	South	East/West	PLTS 1
	East	North/South	PLTS 2
Somerville Avenue at Merriam Street (Southbound)	North	East/West	PLTS 1

Intersection	Intersection Leg	Crosswalk Direction	PLTS
Somerville Avenue at Merriam Street (Northbound)	West	North/South	PLTS 2
	South	East/West	PLTS 1
Somerville Avenue at Rossmore Street	North	East/West	PLTS 1
	East	North/South	PLTS 2
Somerville Avenue at Mansfield Street	North	East/West	PLTS 1
	East	North/South	PLTS 2
Somerville Avenue at Poplar Street	North	East/West	PLTS 1

PLTS Delay Analysis for Signalized Intersections

A pedestrian delay analysis was performed for each study area signalized intersection. The two (2) signalized intersections in the study area are Prospect Street/Washington Street at Somerville Avenue, and Somerville Avenue at Medford Street/McGrath Highway. For clarity in the analysis, Somerville Avenue at Medford Street/McGrath Highway is divided into three (3) individual intersections. The crosswalk location, length, available crossing time, and type of pedestrian phasing were noted. The provided "WALK" and flashing "DON'T WALK" (FDW) times were compared to the time required by the MUTCD, based on a walking speed of 3.5 feet per second. **Table 26** shows the pedestrian delay analysis for each crosswalk at all signalized study area intersections.

Table 26. Pedestrian Delay Analysis for Signalized Intersections

Intersection	Crosswalk Leg	Push Button to Far Curb Length (ft)	Curb to Curb Length (ft)	Cycle Length (s)		Time Provided (s)		Time Required (s)		Maximum Pedestrian Delay (s)	Type of Pedestrian Phasing
						WALK	FDW	WALK	FDW		
Washington Street/Prospect Street at Somerville Avenue	West	57	53	120	9	19	7	15	107	LPI + concurrent	
	North	58	52	120	9	17	7	15	107	LPI + concurrent	
	East	63	43	120	9	19	7	12	107	LPI + concurrent	
	South	51	40	120	9	12	7	11	107	LPI + concurrent	
Somerville Avenue at Medford Street/McGrath Highway SB	West	96	82	127	7	17	7	23	116	LPI + concurrent	
	North	55	43	127	7	13	7	12	116	LPI + concurrent	
	South	65	60	127	7	13	7	17	116	LPI + concurrent	
Medford Street Extension at Somerville Avenue Extension	West	35	28	127	7	13	7	8	116	Concurrent	concurrent with NB Medford Street Extension Movement
	East	53	43	127	7	13	7	12	116	Concurrent	
	South	52	43	127	7	17	7	12	116	LPI + concurrent	
Medford Street Extension at	East	51	43	127	7	13	7	12	116	Concurrent	concurrent with NWT McGrath

Intersection	Crosswalk Leg	Push Button to Far Curb Length (ft)	Curb to Curb Length (ft)	Cycle Length (s)		Time Provided (s)		Time Required (s)		Maximum Pedestrian Delay (s)	Type of Pedestrian Phasing
						WALK	FDW	WALK	FDW		
McGrath Highway NB											Highway NB movement
	South	46	37	127	7	17	7	11	116	Concurrent	concurrent with Medford Street Extension LT Movement

CONCLUSIONS

The analysis of traffic with respect to expanding the existing Target store located at 180 Somerville Avenue in the City of Somerville into the adjacent commercial space was completed following standard practice, consistent with MassDOT's TIA Guidelines and is consistent with the City of Somerville's TIS Guidelines, along with the Scoping Request Letter submitted to the City of Somerville. The key findings of this transportation impact study are as follows:

- The proposed expansion of Target into the existing 34,000 square feet vacant storefront by removing the interior partition wall would allow additional grocery sales and expand the back-of-house area, bringing the Target store to 126,000 square feet. The proposed expansion is expected to generate 630 daily net new vehicle-trips, 32 net new vehicle-trips (18 entering and 14 exiting) during the weekday AM peak hour, 55 net new vehicle-trips (27 entering and 28 exiting) during the weekday PM peak hour, and 74 net new vehicle-trips (37 entering and 37 exiting) during the Saturday midday peak hour.
- In the Design year No-Build traffic conditions, with the analysis of the vacant storefront that could be re-tenanted as retail, the number of AM peak hour, PM peak hour, and Saturday midday peak hour trips are higher than the expansion of the Target Store.
- There were 16 reported crashes at the ten (10) study intersections, with 38% being angle crashes and 38% being sideswipe crashes. The calculated intersection crash rates for all 10 study intersections were below the statewide and MassDOT District 4 average crash rates for both signalized and unsignalized intersections. The intersection of Somerville Avenue at Washington Street/Prospect Street is listed as a 2012-2021 HSIP-eligible pedestrian and bicycle cluster.
- It is anticipated as part of the proposed expansion program that no change in truck trip generation or routing is anticipated between the 2026 Existing Conditions and 2031 Design Year Build Conditions.
- All signalized study intersections operate at an overall LOS D or better under all peak periods. No individual movements at either signalized or unsignalized intersections operate below LOS E or above a V/C ratio of 1.0.
    - Under 2026 Existing Conditions, the Somerville Avenue at Washington Street/Prospect Street intersection operates at LOS C under all peak periods, with the westbound movement operating at LOS E under the PM peak hour. Under the 2031 Design Year No-Build Conditions and 2031 Design Year Build Conditions, this intersection operates at LOS D under the PM peak period; however, V/C ratios remain below 1.0.
    - The Medford Street Extension at Route 28 NB experiences substantial background queueing during the weekday PM peak hour. The northwest approach has a V/C ratio of 0.88 and a 95th-percentile queue of 546 feet under both 2031 Design Year No-Build and 2031 Design Year Build conditions.
    - Under all peak periods, the 2031 Design Year No-Build Conditions experienced similar or slightly higher delays and 95th percentile queues compared to the 2031 Design Year Build Conditions.
    - Under the AM peak hour conditions, in both the 2031 Design Year No-Build and 2031 Design Year Build Conditions, the delay at the NBL movement at the intersection of Medford Street Extension at Route 28 NB does decrease dramatically when compared to the 2026 Existing and 2026 Build Conditions. This was due to an increase in actuated cycle length between 2026 Conditions and 2031 Design Year Conditions. Delays remained below 10 seconds, and V/C ratios remained at or below 0.10 for all conditions under the AM peak hour.

- The three (3) Site driveways operate at LOS C or better under all conditions for all peak periods.

Overall, the additional new traffic generated by the proposed expansion can be accommodated on the surrounding roadway.

TRANSPORTATION DEMAND MANAGEMENT

The Proponent has agreed to implement the various transportation demand management measures to reduce its impact on the transportation network.

- Posting of MBTA schedules and routing information within the Target store.
- Include transit directions on the hiring materials for employees.
- Provide subsidized MBTA passes for employees.
- New short-term bicycle parking for visitors and long-term bicycle parking for employees.