Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

PIPEFITTERS ASSOCIATION LOCAL 537 NEW TRAINING AND OFFICE FACILITY

Submitted to:
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Submitted by:
Pipefitters Association Local 537
40 Enterprise Street
Boston, MA 02125

Prepared by:
Epsilon Associates, Inc.
3 Mill & Main Place, Suite 250
Maynard, MA 01754

In Association with:
SGA
MDM Transportation Consultants, Inc.
Bohler Engineering
AHA Consulting Engineers
Lemon Brooke
The Green Engineer

May 31, 2017

Epsilon ASSOCIATES INC.

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Chapter 1

General Information

1.0 GENERAL INFORMATION

1.1 Introduction

Pipefitters' Association Local Union 537 (the "Proponent", "Local 537" or "Union") proposes to redevelop the approximately 73,240 square foot (sf) parcel at 40 Enterprise Street in Dorchester (the "Project site"). The Project site currently includes two buildings and an 86-space parking lot. The Proponent proposes to demolish the existing buildings and replace them with an approximately 70,000 sf training and office facility for their own use, and approximately 117 parking spaces (the "Project"). The Project has been designed to create a vibrant new space for Union members and trainees through the introduction of new training, educational, assembly and office space.

This Expanded Project Notification Form (PNF) is being submitted to the Boston Redevelopment Authority doing business as Boston Planning and Development Agency (herein, the "BPDA") to initiate review of the Project under Article 80B, Large Project Review, of the Boston Zoning Code.

1.2 Project Identification and Team

Name /Location:	New Training and Office Facility 40 Enterprise Street, Boston, MA 02125
Proponent:	Pipefitters Association Local Union 537 40 Enterprise Street Dorchester, MA 02125 (617) 825-3777 Brian P. Kelly
Architect:	SGA 200 High Street, 2nd Floor Boston MA 02110 (857) 300-2610 Al Spagnolo John Sullivan Matthew Formicola
Landscape Architect:	Lemon Brooke 31 Oxbow Road Concord, MA 01742 (978) 222-3700 Christian Lemon

Article 80 and Historic Resources Consultant:	Epsilon Associates, Inc. 3 Mill and Main Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Geoff Starsiak Fiona Vardy
Transportation and Parking Consultant:	MDM Transportation Consultants, Inc. 28 Lord Road, #280 Marlborough, MA 01752 (508) 303-0370 Dan Dumais Robert Michaud
Civil Engineer:	Bohler Engineering 75 Federal Street, Suite 620 Boston, MA 02110 (617) 849-8040 Steve Martorano
Mechanical, Electrical and Plumbing Engineer:	AHA Consulting Engineers 24 Hartwell Avenue, 3rd Floor Lexington, MA 02421 (781) 372-3000 Dan Campia
Construction Managers:	John J. Moriarty and Associates, Inc. 3 Church Street, Suite 2 Winchester, MA 01890 (781) 729-3900 John J. Moriarty Janey, Inc. 236 Huntington Avenue, Suite 417 Boston, MA 02115 (617) 267-6200 Greg Janey
Sustainability Consultant:	The Green Engineer 54 Junction Square Drive Concord, MA 01742 (978) 369-8978 Sarah Michelman

1.3 Public Benefits

The new Local 537 Pipefitters' building project will generate many public benefits for the surrounding neighborhood and the City of Boston as a whole.

Jobs

The Project will create approximately 50 construction jobs.

Smart Growth/Transit-Oriented Development

The Project is consistent with smart-growth and transit-oriented development principles. The Project site is well served by existing public transportation, including Massachusetts Bay Transportation Authority (MBTA) bus lines that provide easy access to the Project site.

Improved Street and Pedestrian Environment

The Project will significantly improve the streetscape by adding landscaped areas, new lighting, and street trees. The Proponent will be replacing all the sidewalks around the site with new wider sidewalks. The new concrete sidewalks will also boast landscaped buffers to the new parking lots. Overall, the Project will include approximately 10,700 sf of open space.

Community Partnerships

The Proponent will continue to train and educate the next generation of Boston's pipefitting workforce at its current site, continuing their 60-year relationship with the neighborhood. A key partnership is with Building Pathways, which helps to prepare qualified applicants for a rewarding apprenticeship with Local 537. The new building will solidify the Union's home for the next 100 years and the Union's commitment to the Dorchester neighborhood.

Community Meeting Space

The new auditorium in the building, will be available as a community gathering space for meetings and/or neighborhood presentations.

Urban Design Benefits

The Project will provide an exciting and thoughtful contemporary design that will improve the overall feel of the neighborhood, and welcome the neighborhood. The new building will highlight the Union, and the landscaped cross-site pathway from Enterprise Street to Clapp Street will welcome neighbors through the site. In addition, the Project will reduce the use of on-street parking with 117 new on-site parking spaces for the Union members and apprentices.

1.4 Legal Information

1.4.1 Legal Judgements Adverse to the Proposed Project

There are no legal judgements or actions pending concerning the proposed Project.

1.4.2 History of Tax Arrears on the Property

All taxes due for the property have been paid by the Proponent.

1.4.3 Site Control/Public Easements

The Project site is owned by the Proponent. There is an existing BWSC sewer easement that runs through the southern portion of the site.

1.5 Public Participation

A Letter of Intent was filed with the BPDA on March 3, 2017, beginning the Project's formal public review process. Thus far, the Project team has met with McCormick Civic Association and the Boston Collegiate Charter. The Project team will continue to meet with the community as the Project moves forward.

Chapter 2

Project Description

2.0 PROJECT DESCRIPTION

2.1 Project Description

2.1.1 Project Site and Area Context

The Project site, 40 Enterprise Street in Dorchester, is approximately 73,240 sf and currently includes two buildings, one of which is the existing training and office facility for the Proponent (where it has been located for the past 55 years).

On the opposite side of Enterprise Street, which borders the Project site to the northeast, is the new South Bay Town Center, a new, mixed-use development currently under construction. When completed, South Bay Town Center will introduce residential, retail, hotel, and office uses into the neighborhood. See Figures 2-1 to 2-3 for an aerial locus map and photographs of the surrounding area in the vicinity of the Project site. South of the Project site, across Boston Street, is a cohesive community of double and triple-decker homes, which reflects the character and history of Dorchester. Office and industrial buildings and additional surface parking are located along Clapp Street and Massachusetts Avenue, west of the Project site. See Figure 2-4 for photographs of the existing site conditions.

MBTA Commuter Rail service is available within walking distance to the north at Newmarket Station, and Red Line subway service is located to the east at Andrew Station. The site is also easily accessible from the Southeast Expressway (Interstate 93) and Massachusetts Avenue.

2.1.2 Proposed Project

The proposed four-level building will provide approximately 70,000 sf of training, educational, assembly, and office space for the Proponent. This state-of-the-art facility will replace the Union's current building on the site, and its design will reflect the Proponent's commitment to technology, education, and job creation within the neighborhood and throughout the City of Boston.

The building will be approximately 65 feet tall and positioned on the north end of the Project site in an "L" shaped configuration. The façade facing Enterprise Street will have a high level of transparency at the ground level to celebrate the building's state-of-the-art training center, and to promote an active use at the street edge. See Figures 2-5 and 2-6 at the end of this chapter for the existing and proposed site conditions.

To the south, the building's entrance will be positioned to align with the terminus of the West Howell Street Extension, which runs perpendicular to Enterprise Street. This prominent corner of the building will be designed to offer a dynamic visual marker and to establish a strong identity for the building.

This highly transparent expression at the entrance will allow the Local 537 brand to be seen coming from within the building to celebrate the Union's mission. The façade facing the south will also be designed to highlight the Local 537 brand using graphic elements to demonstrate the building uses and the Union's rich history.

At the ground level, public realm improvements, including new paving, street trees and planting zones will be provided along Enterprise Street to offer a walkable edge in accordance with the Boston Complete Streets guidelines. The sidewalk and landscape design at this edge will be consistent and responsive to the public realm improvements being implemented across the street at the South Bay Town Center development. A pedestrian through-block connector, running northeast-to-southwest through the site aligned with the adjacent West Howell Street Extension, will also be provided. See Figure 2-7 for the pedestrian site circulation. Landscape, hardscape, lighting, public art and other design elements will be designed to celebrate the area and provide a strong pedestrian connection to the adjacent neighborhood. Table 2-1 below includes the Project program. Figures 2-8 to 2-19 at the end of this chapter show building elevations, massing, sections and floor plans.

Table 2-1 Project Program

Project Element	Approximate Dimension
Business Area	22,200 sf
Factory and Storage	12,500 sf
Office Area	8,700 sf
Assembly/Circulation/Other	26,600 sf
Total Square feet	**70,000 sf**
Parking	117 spaces
Zoning Height	65 feet
Parcel Area	73,240 square feet (1.68 acres)
FAR	0.92

To the south of the through-block connector, the main area of surface parking will accommodate 96 spaces and will be accessible from both Enterprise Street and Clapp Street. An additional 21 parking spaces designated for Union instructors will be provided to the west of the site. Access to this parking area and to the adjacent service yard is provided from Clapp Street. Public realm improvements will be provided at Clapp Street and will be in accordance with the Boston Complete Streets guidelines.

2.2 City of Boston Zoning

The Project site is located at 40 Enterprise Street within a Community Commercial subdistrict of the Dorchester Neighborhood District, which is governed by Article 65 of the Boston Zoning Code (the "Code"). The site is not located within any overlay zoning districts.

It is anticipated that the Project will require zoning relief from the Boston Zoning Board of Appeal from the Code's dimensional requirements, including building height. The Project may also require relief from the Code's use provisions for its proposed occupancy as a union training center and office facility with various supporting accessory uses.

2.3 Anticipated Permits and Approvals

Table 2-2 presents a preliminary list of permits and approvals that are expected to be required for the Project. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.

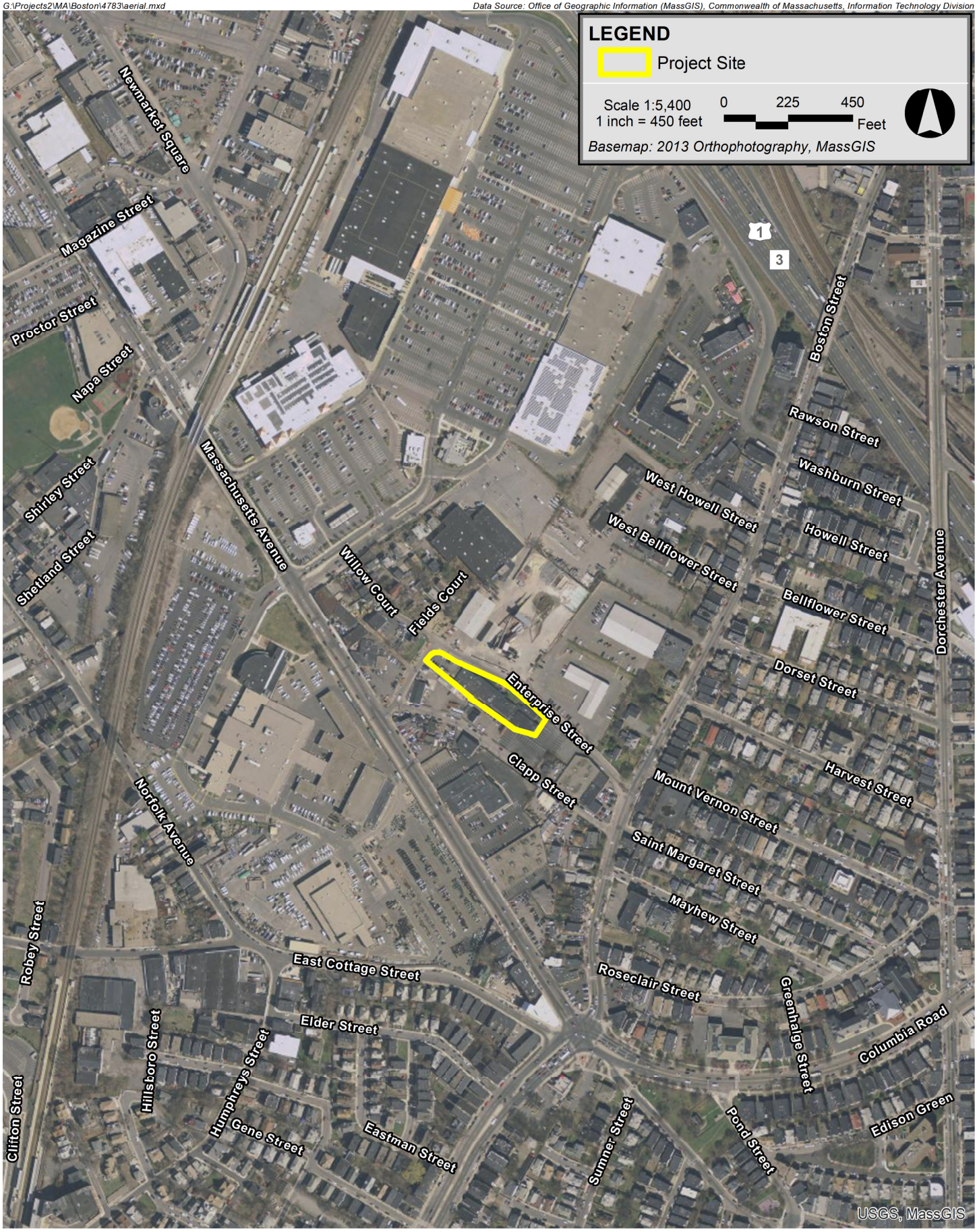
Table 2-2 Anticipated Permits and Approvals

Agency Name	Permit / Approval
Federal	
U.S. Environmental Protection Agency	Notice of Intent for EPA Construction Activities General Discharge Permit with associated SWPPP
Local	
Boston Civic Design Commission	Review and approval pursuant to Article 28 of the Boston Zoning Code
Boston Fire Department	Fuel Storage Permit; Approval of Fire Safety Equipment
Boston Inspectional Service Department	Building Permit; Certificate of Occupancy
Boston Planning and Development Agency	Large Project Review Certification of Compliance
Boston Public Improvement Commission/ Department of Public Works	Specific Repair Approvals; Sidewalk Occupancy Permit
Boston Public Safety Commission, Committee on Licenses	License for Storage of Inflammables
Boston Public Works Department	Curb Cut Permits; Street Opening Permits; Street/Sidewalk Occupancy Permits
Boston Zoning Board of Appeal	Use and dimensional variances

2.4 Schedule

Construction of the Project is estimated to commence during the 3rd quarter of 2017, with completion by the 3rd quarter of 2018.

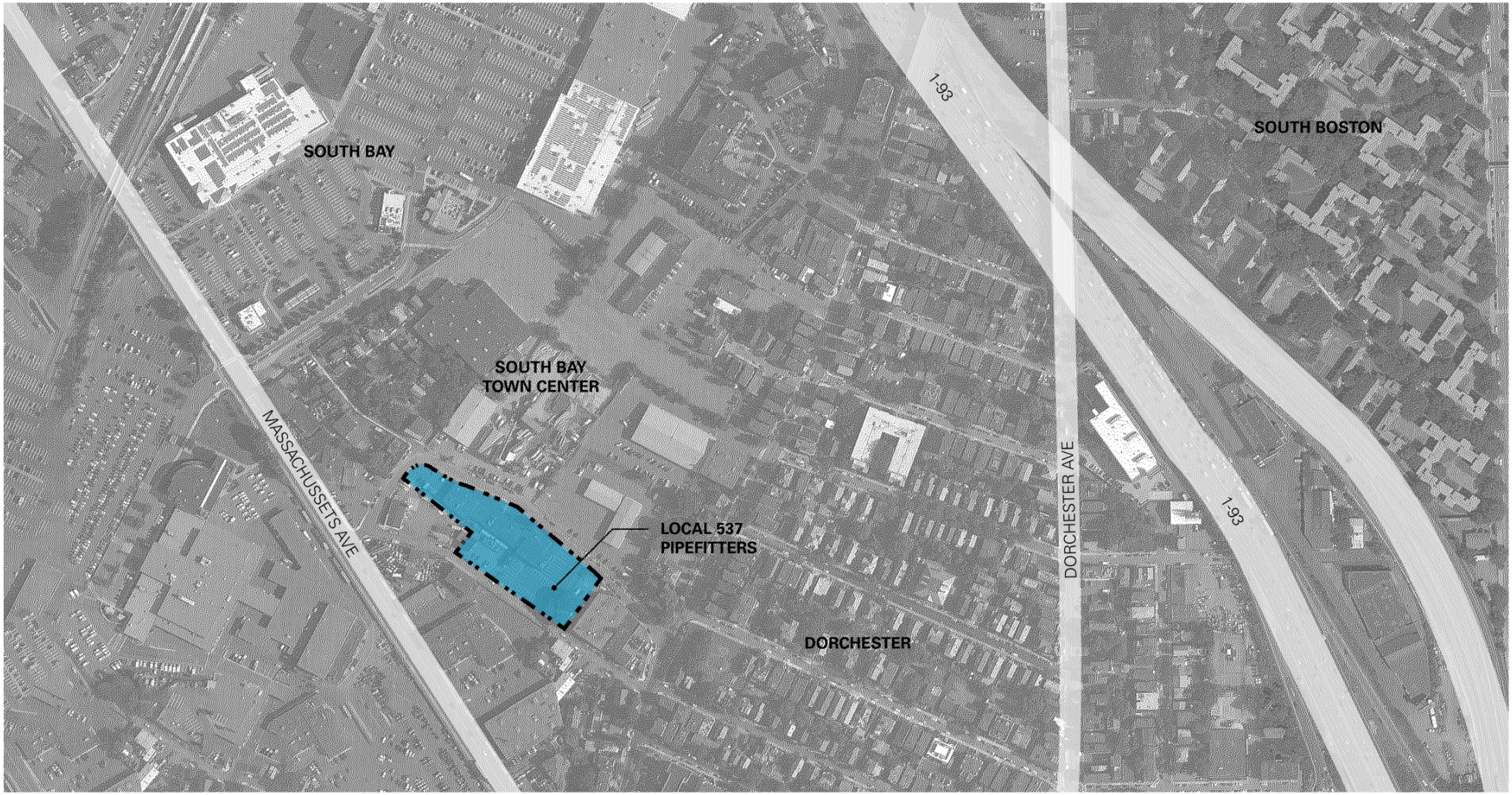
Data Source: Office of Geographic Information (MassGIS), Commonwealth of Massachusetts, Information Technology Division



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Epsilon Associates Inc.

Figure 2-1
Aerial Locus Map



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-2
Area Context Map

EXISTING ENTRY ON ENTERPRISE STREET

SOUTH BAY TOWN CENTER - NEW DEVELOPMENT ACROSS FROM LOCAL 537 PIPEFITTERS SITE - IMAGE BY STANTEC

EXISTING INDUSTRIAL BUILDINGS ON ENTERPRISE STREET - ACROSS FORM SITE

EXISTING ON SITE PARKING FOR LOCAL 537 PIPEFITTERS

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-3
Area Photographs

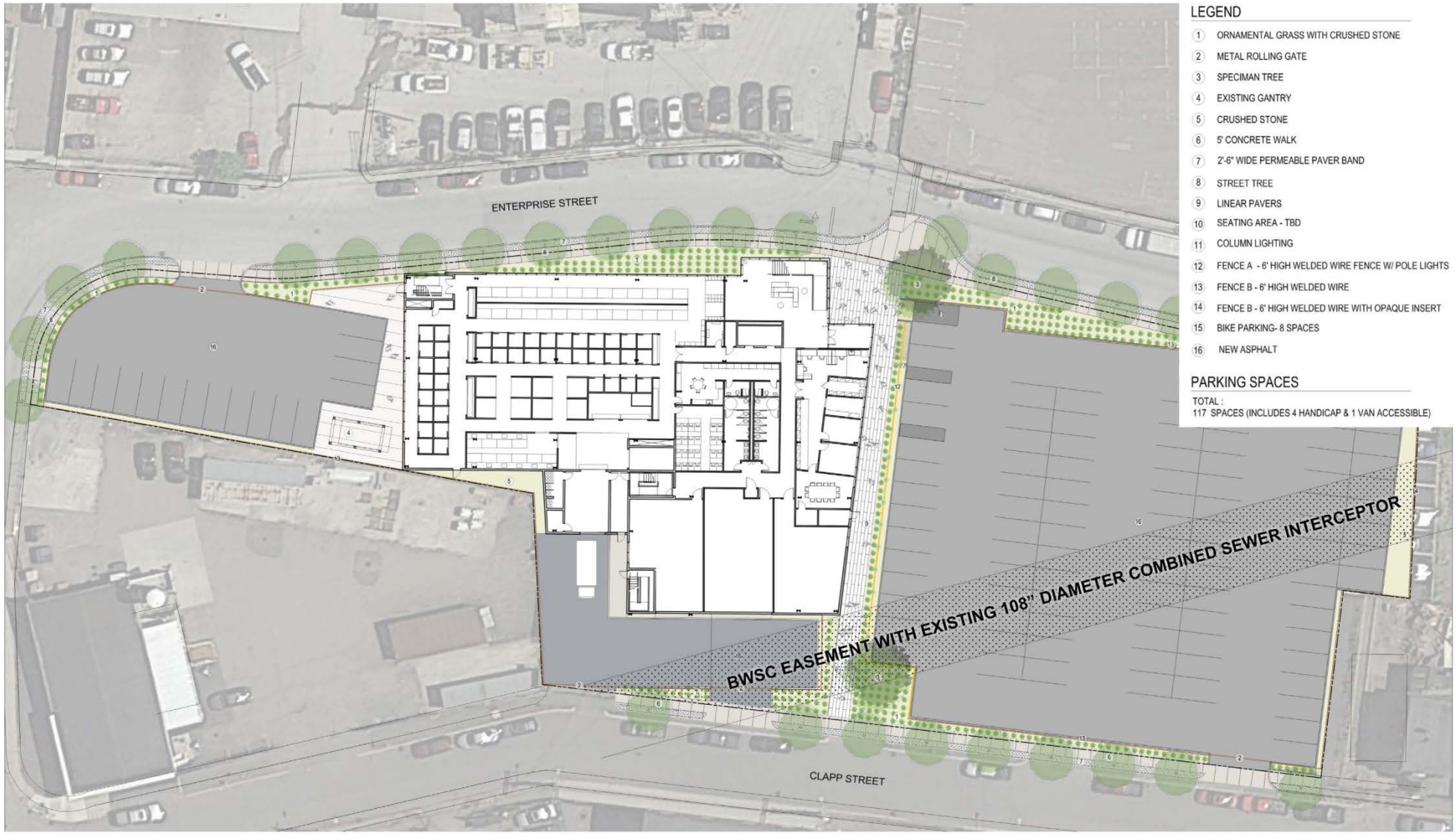
Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-4

Existing Site Conditions Photographs

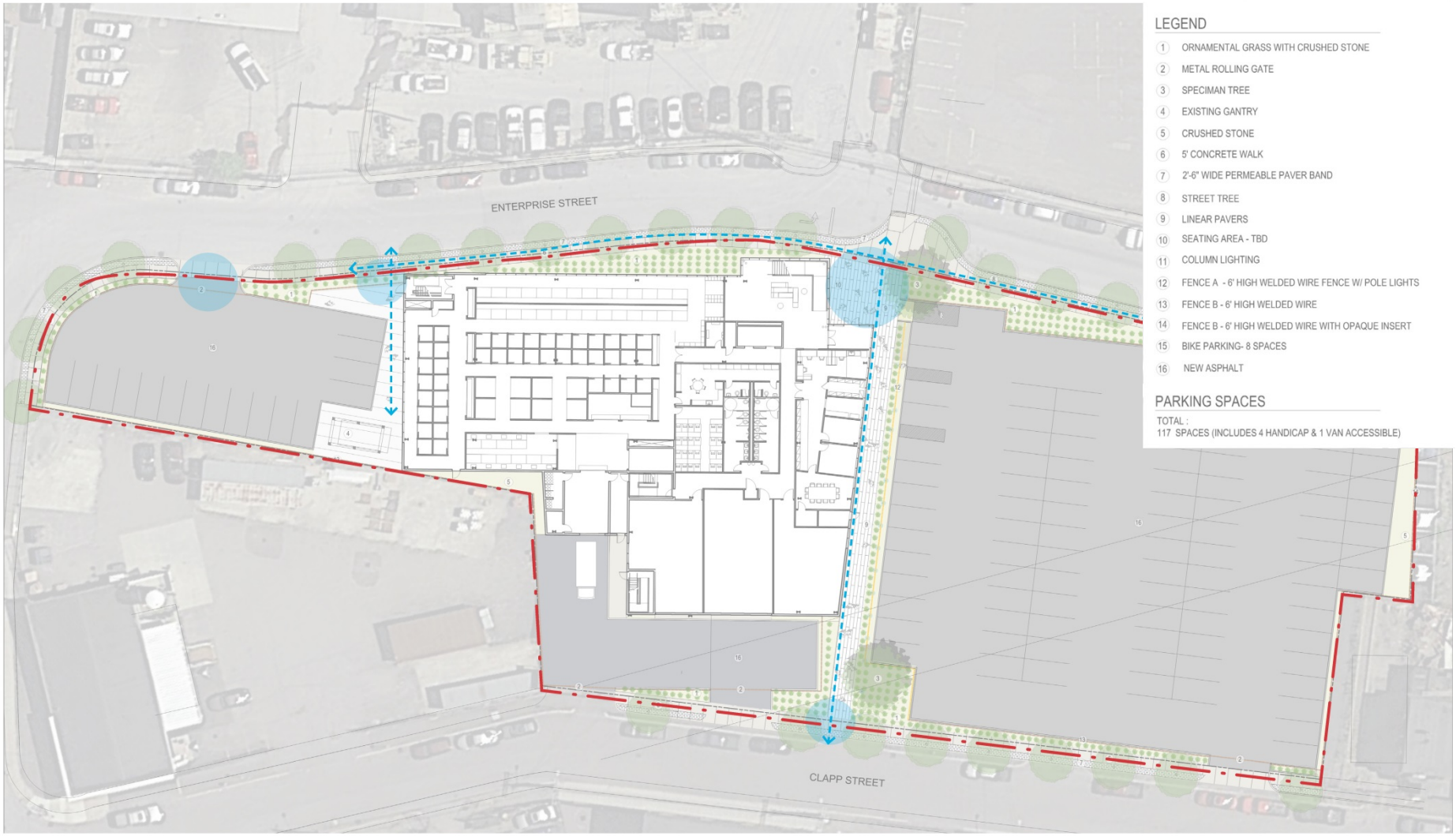
Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-5
Existing Site Conditions



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-6
Proposed Site Conditions



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-7
Site Circulation

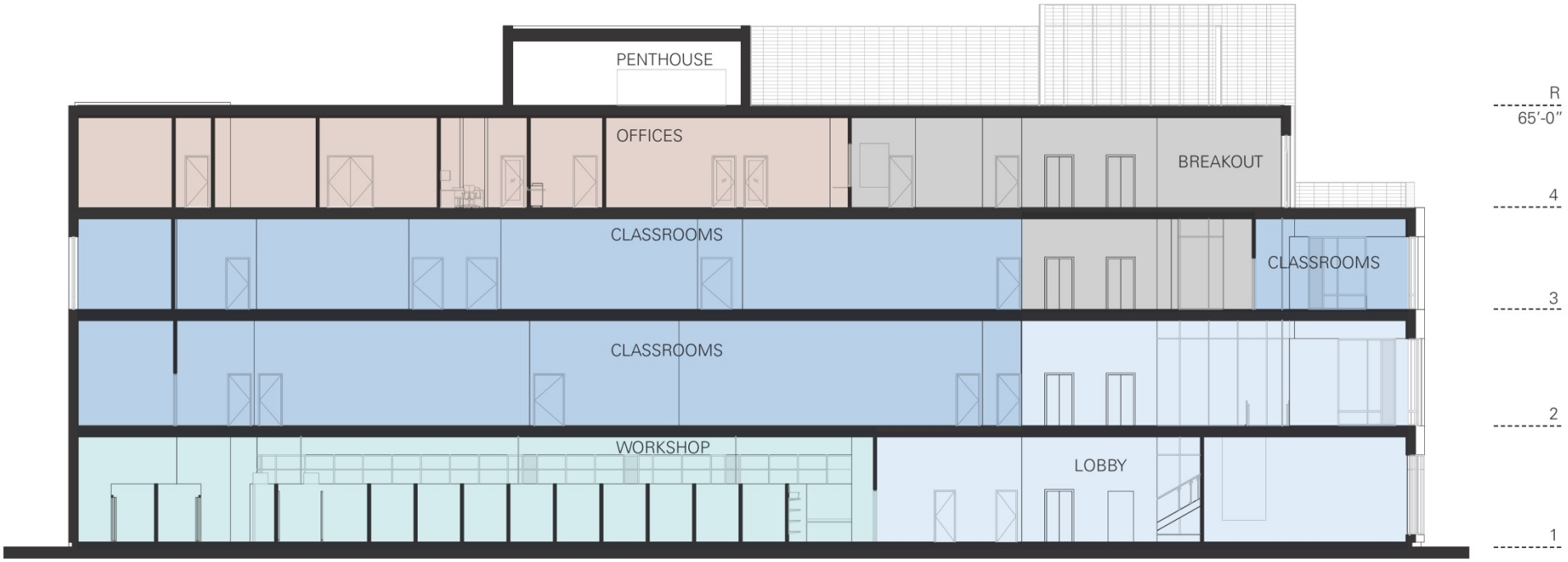
KEY

- LOBBY / BREAKOUT
- AUDITORIUM
- CLASSROOMS
- OFFICES
- WORKSHOP
- RESTROOMS
- FITNESS

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-8

Building Section – North to South



KEY

- LOBBY / BREAKOUT
- AUDITORIUM
- CLASSROOMS
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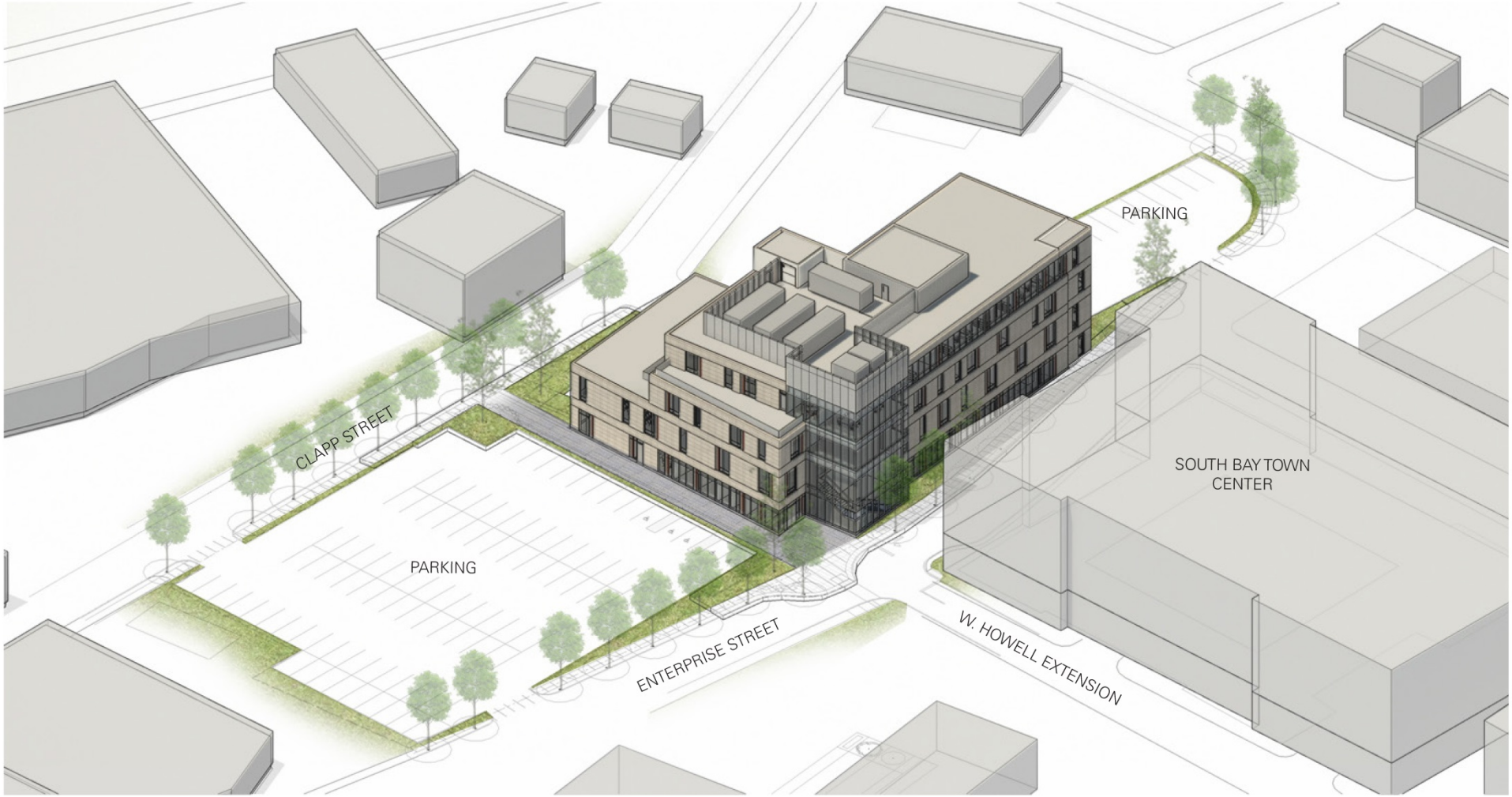
- WORKSHOP
- RESTROOMS
- FITNESS

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-9

Building Section – East to West



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-10
Building Massing View from Enterprise Street

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-11
Building Massing View from Clapp Street

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-12
Elevation Facing North

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-13
Elevation Facing South

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

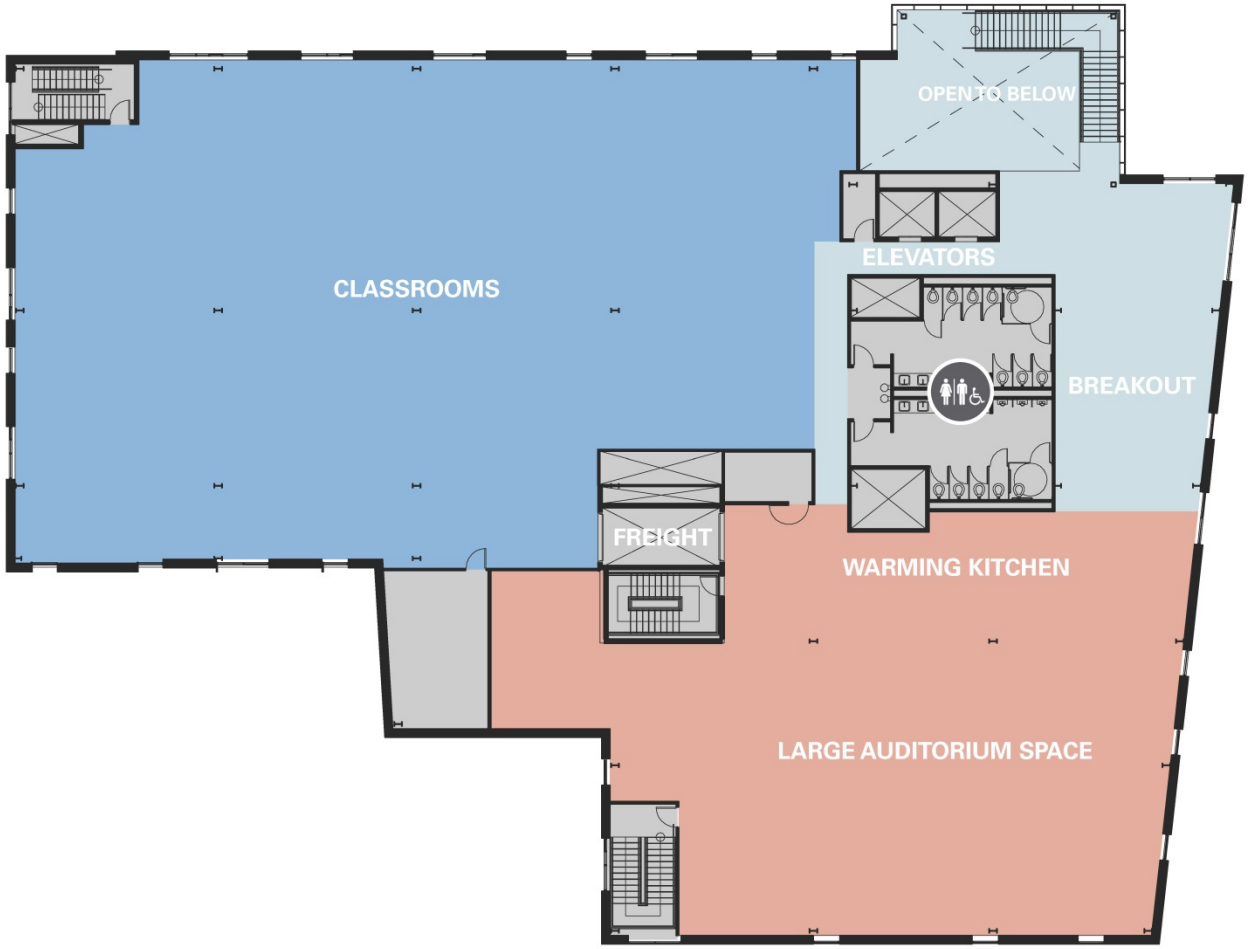
Figure 2-14
Elevation Facing East

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-15
Elevation Facing West

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-16
Level 1



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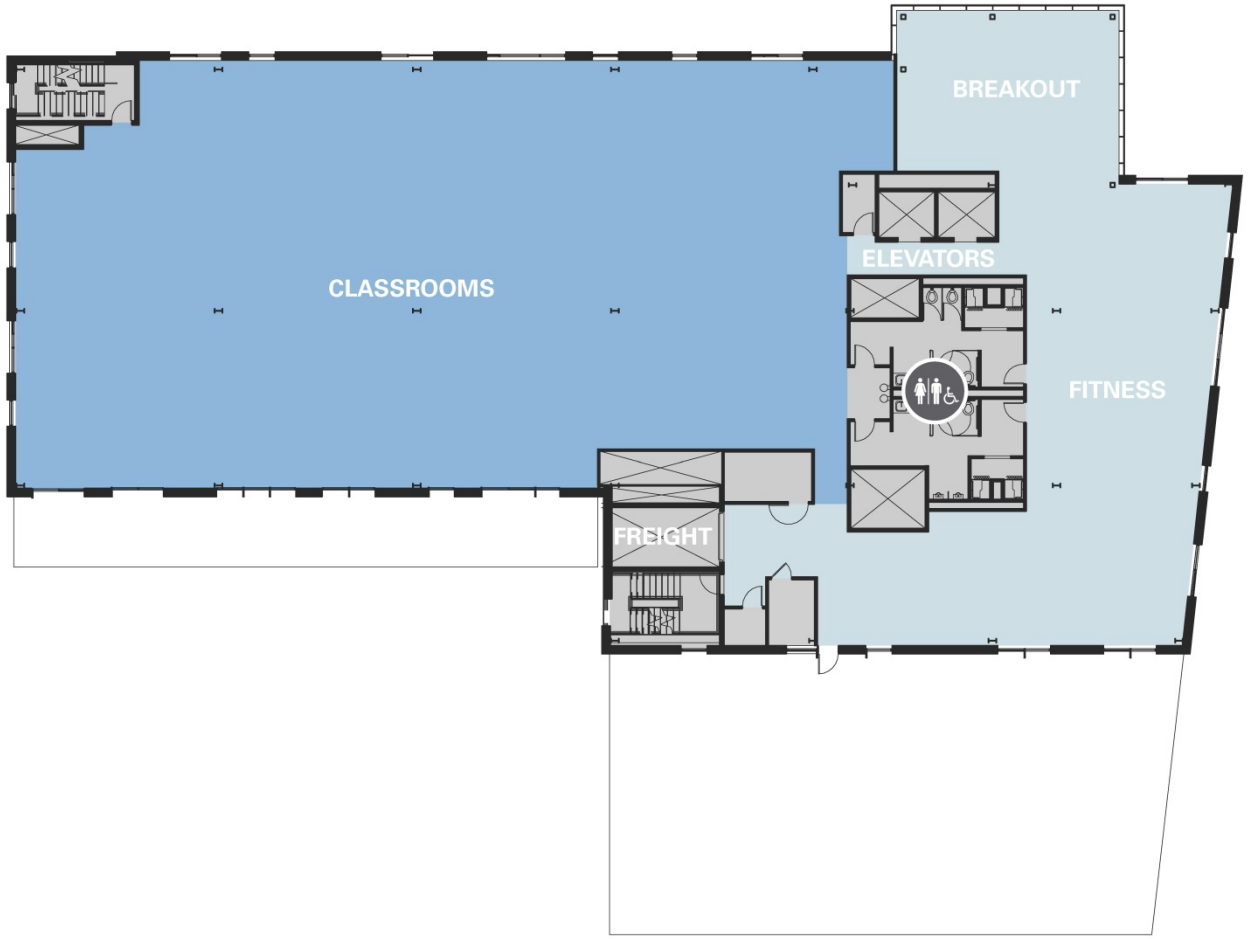
Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-17
Level 2



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Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-18
Level 3

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Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 2-19
Level 4

Chapter 3

Transportation

3.0 TRANSPORTATION

3.1 Introduction

MDM Transportation Consultants, Inc. (MDM) has prepared an evaluation of transportation impacts for the proposed Project. The Project site and its relation to the regional transportation system and Boston neighborhoods is shown in Figure 3-1, Site Location. This transportation study has been prepared following the Boston Transportation Department (BTD) Transportation Access Plan Guidelines as well as traffic study guidelines jointly issued by the Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs and the Massachusetts Department of Transportation (EEA/MassDOT) in support of the BPDA Article 80 review process. The evaluation documents existing transportation conditions, future conditions with and without the Project, and describes access and transportation improvements that will serve to accommodate Project-related traffic, loading and pedestrian activity, including elements of a Transportation Demand Management (TDM) program.

3.1.1 Project Description

The Project site comprises approximately 1.68 acres bound by Enterprise Street to the north and west, Clapp Street and Capital Elevator to the south and to the east, and Enterprise Street and Airgas, Inc. to the west. The existing Project site includes an approximately 36,145 sf building occupied by the Proponent. The property currently has approximately 86 surface parking spaces that support site uses. The site uses include office, meeting, and classroom space. The facility currently has about six full-time employees and 38 part-time instructors with operating hours for the full-time staff of 6:30 a.m. to 3:00 p.m., and nighttime instructors on-site between 3:00 p.m. and 8:00 p.m. The Union currently provides classes for approximately 460 apprentice pipefitters in its five-year apprenticeship program. The students include approximately 130 daytime students with hours of attendance between 6:30 a.m. and 3:00 p.m. Monday through Friday from September to June, and approximately 330 evening students with attendance between 5:00 p.m. and 8:00 p.m. Monday through Thursday from September to April. The daytime students are split into seven classes with a typical daytime attendance of approximately 19 students. The evening students are split between five levels (years one through five), with typical nightly attendance of approximately 216 students and 13 staff. The on-site meeting space is used to accommodate a monthly union meeting which takes place on the first Thursday of the month at 7:30 p.m. The meeting space can accommodate approximately 400 people, with typical meeting attendance of approximately 150 members. The meeting space is not rented to the public; however, the space is used once a month by Boston Colligate High School. Site access/egress is currently provided via three driveways, two on Enterprise Street and one on Clapp Street.

The proposed development program consists of the demolition of the existing structures on the site and the construction of an approximately 70,000 sf training and office facility with approximately 117 off-street parking spaces to be occupied by Local 537. The parking will replace the existing approximately 86-space surface spaces for a net increase of 31 spaces to support the Project. The facility will continue to be used for office space, classroom space, and meeting space. The Project will allow for the expansion of the meeting space to accommodate up to 500 people, and for the Union to re-locate its benefits office (approximately 15 employees) from Allston with core operating hours typical of an office (9:00 a.m. to 5:00 p.m.). Site access/egress will continue to be provided via the three existing driveways serving the site. The preliminary site plan is shown in Figure 3-2.

3.1.2 Study Methodology

This transportation evaluation has been conducted in accordance with BTD Transportation Access Plan guidelines, and consists of several steps. The first step documents existing conditions in the transportation study area, including an inventory of roadway geometry, observed traffic volumes, public transportation, parking, public transportation, pedestrian facilities, and safety characteristics. Next, future year (five-year horizon) traffic conditions are forecast that account for other planned area developments, normal area growth, and development-related traffic, pedestrian and public transportation demand increases. The third step quantifies operating characteristics of the study intersections under existing and future No-Build, and Build conditions to determine the need for traffic mitigation measures. The final step identifies mitigation actions to address traffic, pedestrian, bicycle, transit, safety, and construction period needs.

3.1.3 Study Area

This study evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the site, and that are likely to sustain a measurable level of traffic impact from the Project. The study area includes seven unsignalized intersections as shown on Figure 3-1, Site Location:

1) Massachusetts Avenue/Enterprise Street;

2) Enterprise Street/Clapp Street;

3) Boston Street/Clapp Street;

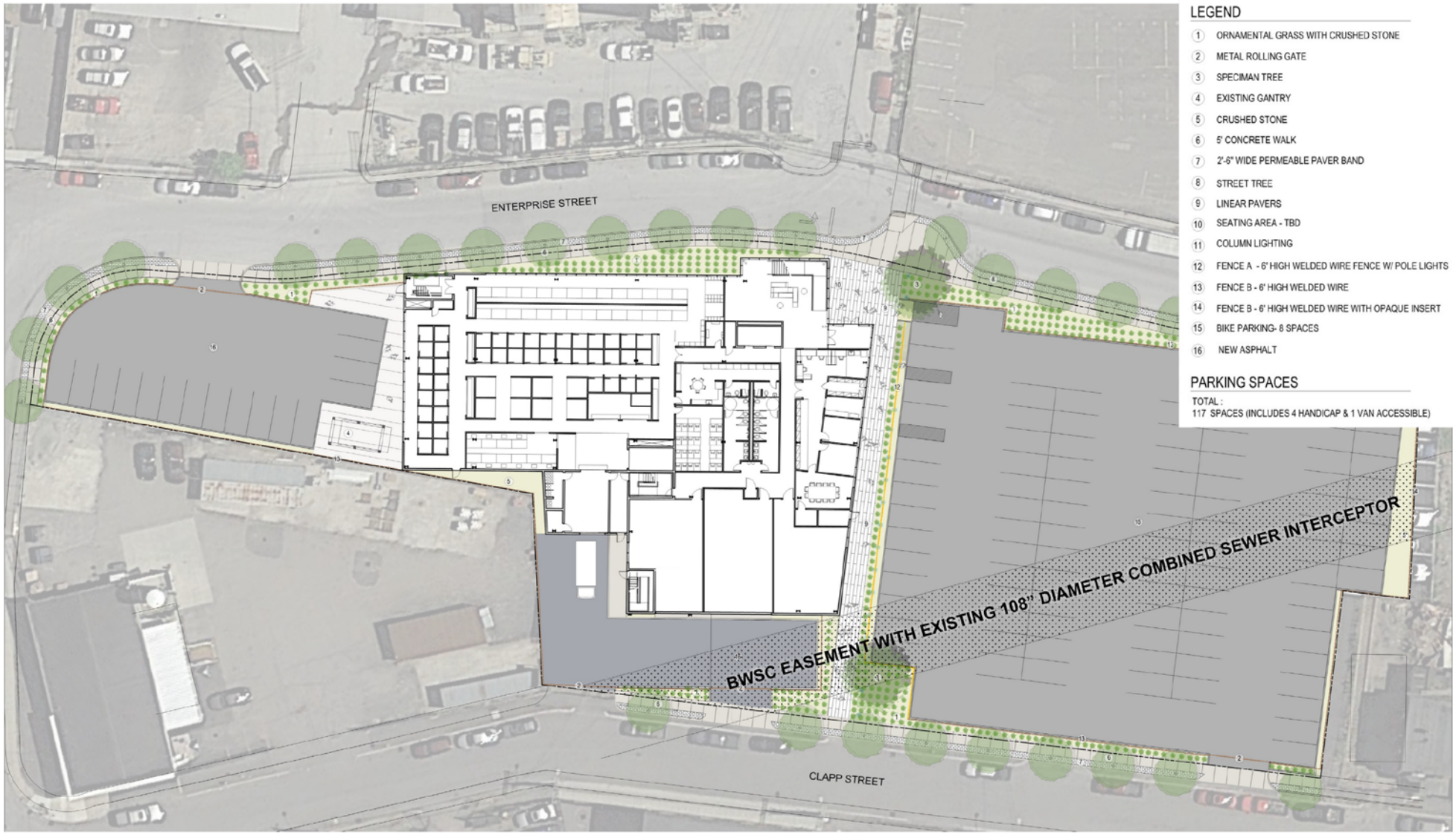
4) Boston Street/Enterprise Street;

5) Enterprise Street/Site Driveway (Northern);

6) Enterprise Street/Site Driveway (Southern); and

7) Clapp Street/Site Driveway.

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 3-2
Site Plan

3.2 Existing Conditions

In order to provide a basis for quantifying the transportation impacts of the development, the existing roadway system and the existing traffic operations of study area roadways were reviewed. This section describes the existing transportation characteristics within the study area, including existing traffic volumes, pedestrian and bicycle facilities and volumes, parking, and public transportation systems serving the area.

3.2.1 Roadway Network

The study area roadways are described briefly in this section. A general description of the physical roadway features is provided in the following sections. The study area includes roadways under local and state (MassDOT) jurisdiction.

Enterprise Street

Enterprise Street is an east-west roadway under local jurisdiction that connects Massachusetts Avenue and Boston Street. Enterprise Street is classified by MassDOT as a Local roadway that provides one travel-lane in each direction. Parking is allowed along the northern side of the roadway. Land uses along Enterprise Street are generally commercial, including Airgas, Local 537 Pipefitters Union (site), Verizon, and the former Aggregate Industries (South Bay Center Expansion); as well as some residential uses, including a residential development under construction. There are sidewalks along both sides of the roadway.

Clapp Street

Clapp Street is an east-west roadway under local jurisdiction that connects Enterprise Street and Boston Street. Clapp Street is classified by MassDOT as a Local roadway that provides one travel-lane in each direction. Parking is allowed along the northern side of the roadway. Land uses along Clapp Street include Airgas, Local 537 Pipefitters Union (the site) Benny Arnold Car Trading, UA Local 12 Plumbers and Gasfitters Union, Gilbert & Becker Company, and a residential development (under construction). There are sidewalks along both sides of the roadway.

Massachusetts Avenue

Massachusetts Avenue is a northwest-southeast roadway under local jurisdiction. It is classified by MassDOT as an Urban Principal Arterial roadway. It provides a connection between the Boston neighborhoods to the north and Columbia Road in Dorchester to the south. Massachusetts Avenue varies between one and three travel-lanes in each direction within the study area, with additional travel-lanes provided at its major intersections. There are sidewalks are along both sides of the roadway. The posted (regulatory) speed limit on Massachusetts Avenue in the study area is 30 mph. Land use along Massachusetts Avenue is a mix of residential, retail/commercial, office, restaurant, and industrial uses.

Boston Street

Boston Street is a north-south roadway under local jurisdiction that connects Andrew Square and Massachusetts Avenue. Boston Street is classified by MassDOT as an Urban Minor Arterial roadway, and provides one travel-lane in each direction separated by a double yellow centerline with additional turn-lanes provided at its major intersections. Land uses along Boston Street in the study area is primarily residential. Access/egress to several industrial and commercial uses occur in the vicinity of Andrew Square, Enterprise Street and Massachusetts Avenue. There are sidewalks along both sides of the roadway.

3.2.2 Intersection Descriptions

There are seven intersections included in the study area. All intersections are unsignalized.

Enterprise Street/Massachusetts Avenue

Enterprise Street meets Massachusetts Avenue to form a "T"-type unsignalized intersection. The Enterprise Street westbound approach to the intersection consists of a single general-purpose travel-lane under STOP control. The northbound approach to the intersection consists of a through/right-turn-lane and a through-lane. The southbound approach to the intersection consists of a through/left-turn-lane and a through-lane.

Enterprise Street/Clapp Street

Clapp Street meets Enterprise Street to form a "T"-type unsignalized intersection. The Clapp Street northbound approach to the intersection consists of a single general-purpose travel-lane under STOP sign control. The Enterprise Street eastbound and westbound approaches to the intersection consist of single general-purpose travel-lanes.

Boston Street/Clapp Street

Clapp Street meets Boston Street to form a "T"-type unsignalized intersection. The Clapp Street eastbound approach to the intersection consists of a single general-purpose travel-lane under STOP sign control. The Boston Street northbound and southbound approaches to the intersection consist of single general-purpose travel-lanes.

Boston Street/Enterprise Street

Enterprise Street meets Boston Street to form a "T"-type unsignalized intersection. The Enterprise Street eastbound approach to the intersection consists of a single general-purpose travel-lane under STOP sign control. The Boston Street northbound and southbound approaches to the intersection consist of single general-purpose travel-lanes.

Enterprise Street/Site Driveway (northern)

The Site Driveway (western) meets Enterprise Street to form a "T"-type unsignalized intersection. The Site Driveway northbound approach to the intersection consists of a single general-purpose travel-lane under STOP sign control. The Enterprise Street eastbound and westbound approaches to the intersection consist of single general-purpose travel-lanes.

Enterprise Street/Site Driveway (southern)

The Site Driveway (eastern) meets Enterprise Street to form a 4-legged unsignalized intersection. The Site Driveway northbound approach and Commercial Driveway southbound approach to the intersection consists of single general-purpose travel-lanes under STOP sign control. The Enterprise Street eastbound and westbound approaches to the intersection consist of single general-purpose travel-lanes.

Clapp Street/Site Driveway

The Site Driveway meets Clapp Street to form a "T"-type unsignalized intersection. The Site Driveway southbound approach to the intersection consists of a single general-purpose travel-lane under STOP sign control. The Clapp Street eastbound and westbound approaches to the intersection consist of single general-purpose travel-lanes.

3.2.3 Pedestrian Facilities

An inventory of the existing sidewalk system and pedestrian crossings in the study area connecting the site to the nearby public transportation centers has been conducted and is documented in Figure 3-3. The review indicated the following existing characteristics along the primary pedestrian paths as summarized below:

- *Enterprise Street.* The sidewalk system along the southern side of Enterprise Street between Massachusetts Avenue and Boston Street is a primary walking route to Newmarket Station which is located approximately one-third mile northwest of the site, and Andrew Station located approximately three-quarter mile northeast of the site. This section of sidewalk varies between four and five feet, with a minimum effective width of approximately three feet due to a utility pole and fence adjacent to the Airgas Facility. All the handicapped ramps on this side of Enterprise Street appear to be ADA compliant.

- *Clapp Street*. The sidewalk system along the northern side of Clapp Street between Enterprise Street and Boston Street is a primary walking route to Newmarket Station, which is located approximately one-third mile northwest of the site, and Andrew Station located approximately three-quarter mile northeast of the site. This section of sidewalk varies between four and five feet, with a minimum effective width of

approximately four feet due to a hydrant, sign poles, and fences along the adjacent property lines. All the handicapped ramps on this side of Clapp Street appear to be ADA compliant.

- *Boston Street*. The sidewalk system along the western side of Boston Street between Enterprise Street and Andrew Square is the primary walking route to Andrew Station, which is located approximately three-quarter mile northeast of the site. This section of sidewalk varies between six and 12 feet, with a minimum effective width of approximately four feet. The sidewalk is generally in good condition with minimal cracking or deterioration. The sidewalk system along the eastern side of Boston Street varies between five and 12 feet, and is generally in good condition with minimal cracking or deterioration. Signalized marked pedestrian crossings are provided at the Frontage Road and at Andrew Square. The handicapped ramps along the desire line all appear to be ADA compliant within the study area.

- *Massachusetts Avenue*. The sidewalk system along the eastern side of Massachusetts Avenue between Enterprise Street and Newmarket Square is the primary walking route to Newmarket Station, which is located approximately one-third mile northwest of the site. This section of sidewalk varies between eight and 12 feet, with a minimum effective width of approximately 6.5 feet. The sidewalk is generally in good condition with minimal cracking or deterioration. The sidewalk system along the western side of Massachusetts Avenue varies between eight and 12 feet, and is generally in good shape with minimal cracking or deterioration. A signalized marked pedestrian crossing is provided at Allstate Road. The handicapped ramps all appear to be ADA compliant within the study area, including to the Newmarket Station platforms.

3.2.4 Bicycle Sharing Services

Bicycle sharing services provide access to short-term bicycle transportation. Hubway is Boston's bicycle sharing system. It allows members to rent bicycles for a period of time and return them to any Hubway location. The system is designed for quick trips with the first 30 minutes free for members, and an incurred user fee thereafter. Membership passes are available for purchase in daily (24-hour), 72-hour, monthly and yearly increments. There are currently 15 bicycle docking stations located at Newmarket Square, 15 bike docking stations located at Andrew Square, and 19 bike docking stations at Edward Everett Square (East Cottage Street).

A map of the existing Hubway locations in the immediate study area is provided in Appendix B. Review of available online utilization reports for Hubway (www.thehubway.com) indicates that the Newmarket Hubway has regular availability with approximate 60 percent utilization rate.

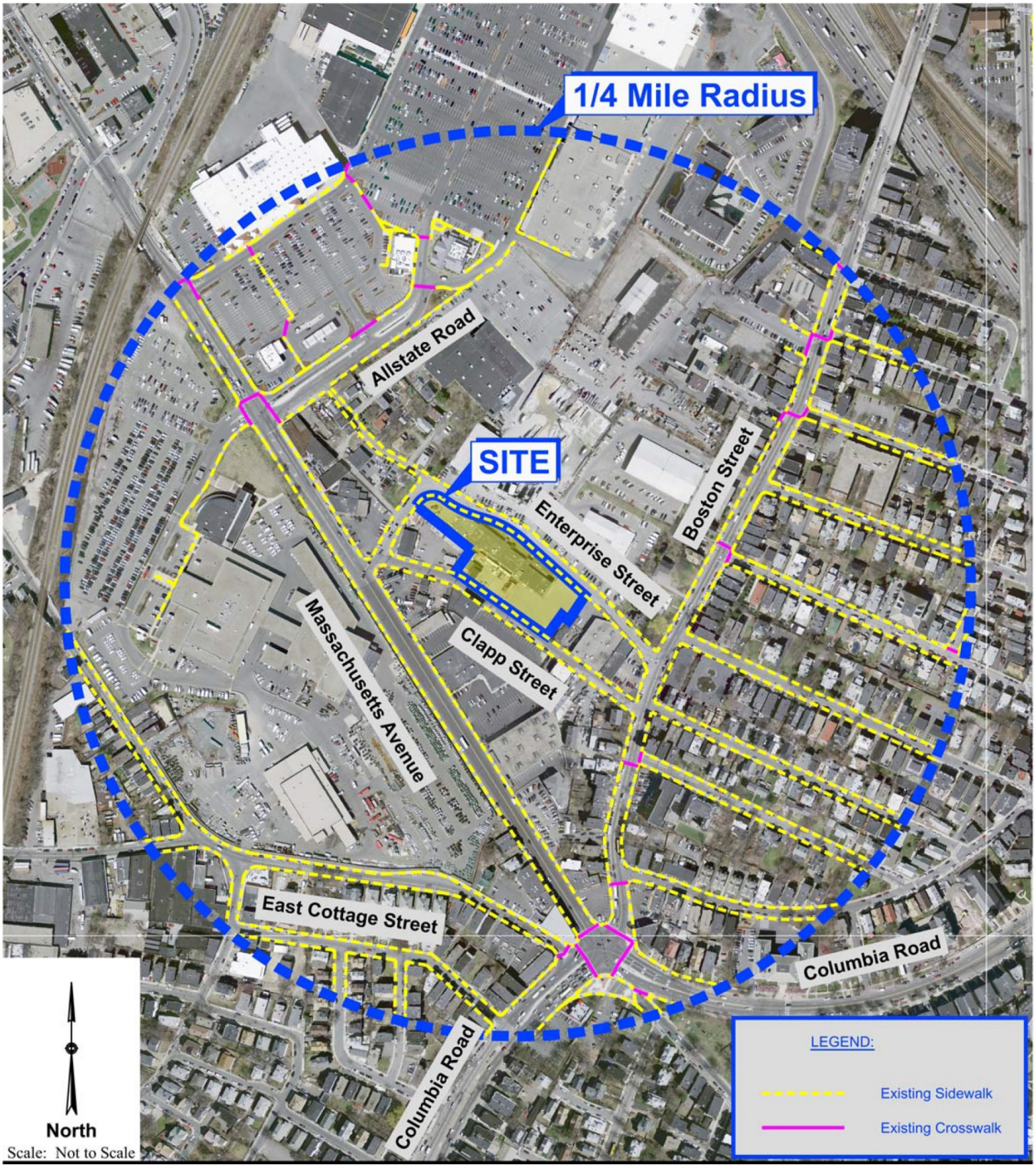


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Figure 3-3
Existing Pedestrian Facilities

3.2.5 Baseline Traffic Volumes

Traffic-volume data used in this study were obtained in March 2017 and are augmented with supplemental count data collected in November 2015. Automatic traffic recorder counts (ATRs) were conducted along Massachusetts Avenue; manual turning movement counts (TMCs) were conducted at the existing study intersections. Traffic data were collected during the weekday morning (6:00 a.m. to 9:00 a.m.) and weekday afternoon/evening (3:00 p.m. to 7:00 p.m.) peak periods. These hours represent the combination of busiest activity periods of the site and adjacent roadway network. Vehicle classification counts include car, truck, pedestrian and bicycle trips; detailed traffic counts are provided in Appendix B.

Comparison of the traffic count data maintained by MassDOT for nearby permanent count stations indicates the counts months are generally consistent with average traffic conditions; therefore, no seasonal correction is required to represent average traffic conditions. Permanent count station data is provided in Appendix B. The Baseline weekday morning and weekday evening peak hour traffic volume networks for study intersections are depicted in Figure 3-4 and Figure 3-5.

Historical daily traffic volumes along Massachusetts Avenue in the vicinity of the Project site were collected in November 2014 and are summarized in Table 3-1 and included in Appendix B.

Table 3-1 Baseline Traffic Volume Summary – Massachusetts Avenue North of South Bay Center

Time Period	Daily Volume (vpd)[1]	Percent Daily Traffic[2]	Peak Hour Volume (vph)[3]	Peak Flow Direction[4]	Peak Hour Directional Volume (vph)
Weekday Morning Peak Hour	19,630	6%	1,105	68% NB	754
Weekday Evening Peak Hour	19,630	7%	1,332	55% SB	732

[1] Two-way daily traffic expressed in vehicles per day without seasonal adjustment.
[2] The percent of daily traffic that occurs during the peak hour.
[3] Two-way peak-hour volume expressed in vehicles per hour.
[4] NB = Northbound, SB = Southbound

The daily traffic volume on Massachusetts Avenue in the Project area was approximately 19,630 vehicles per day (vpd) during a typical weekday. Peak hour traffic flow on Massachusetts Avenue ranges from approximately 1,105 to 1,332 vehicles per hour (vph) adjacent to the Project site, which represents six to seven percent of daily traffic flow. The traffic flow on Massachusetts Avenue is generally significantly higher in the northbound

direction during the weekday morning peak hour, and higher in the southbound direction during the weekday evening peak hour. The travel pattern is consistent with commuter traffic relative to the major interstate in the area (I-93).

3.2.6 Pedestrian and Bicycle Volumes

Given the highly urban nature of the Study area and the Project site's proximity to public transportation, the pedestrian and bicycle traffic activity was also observed. The resulting weekday morning and weekday evening peak hour pedestrian and bicycle traffic volumes at the study intersections are provided in Figure 3-6 and Figure 3-7.

Daily and peak hour bicycle volumes along Massachusetts Avenue in the Project site vicinity were also collected in November 2014 and are summarized in Table 3-2 as well as included in Appendix B.

Table 3-2 Baseline Bicycle Volume Summary – Massachusetts Avenue North of South Bay Center

Time Period	Daily Volume (bpd)[1]	Percent Daily Traffic[2]	Peak Hour Volume (bph)[3]	Peak Flow Direction[4]	Peak Hour Directional Volume (bph)
Weekday Morning Peak Hour	180	8%	15	80% NB	12
Weekday Evening Peak Hour	180	9%	17	53% NB	9

[1] Two-way daily traffic expressed in bicycles per day without seasonal adjustment.
[2] The percent of daily traffic that occurs during the peak hour.
[3] Two-way peak-hour volume expressed in bicycles per hour.
[4] NB = Northbound, SB = Southbound

As summarized in Table 3-2, the daily bicycle traffic volume on Massachusetts Avenue adjacent to the Project site was approximately 180 bicycles per day (bpd) within the travel-lanes during a typical weekday. Peak hour bicycle traffic flow on Massachusetts Avenue ranges from approximately 15 to 17 bicycles per hour (bph) adjacent to the Project site, which represents eight to nine percent of daily bicycle traffic flow. The bicycle traffic flow on Massachusetts Avenue is generally higher in the northbound direction during all study periods.

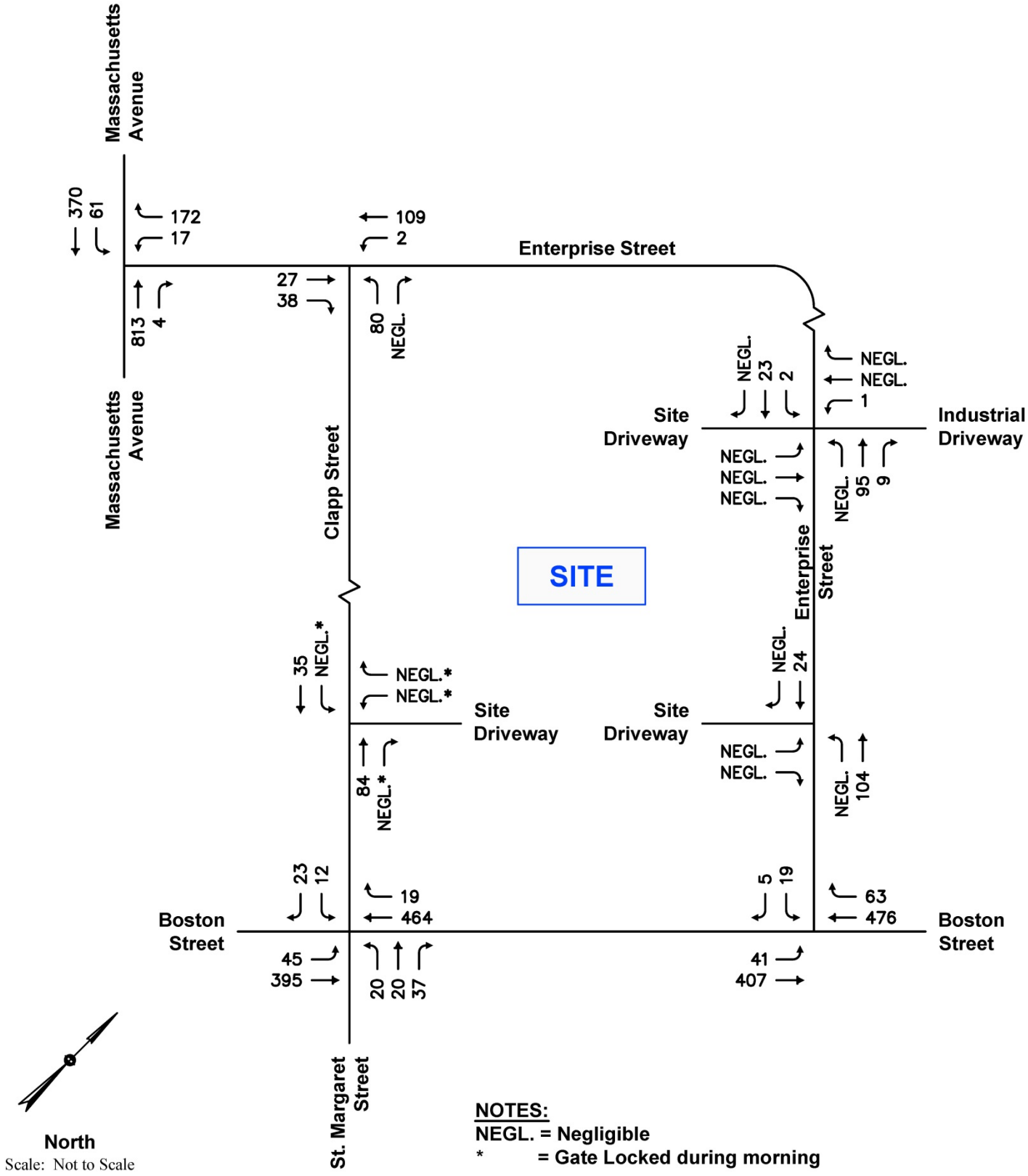

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Figure 3-4

2017 Baseline Conditions – Weekday Morning Peak Hour Volumes

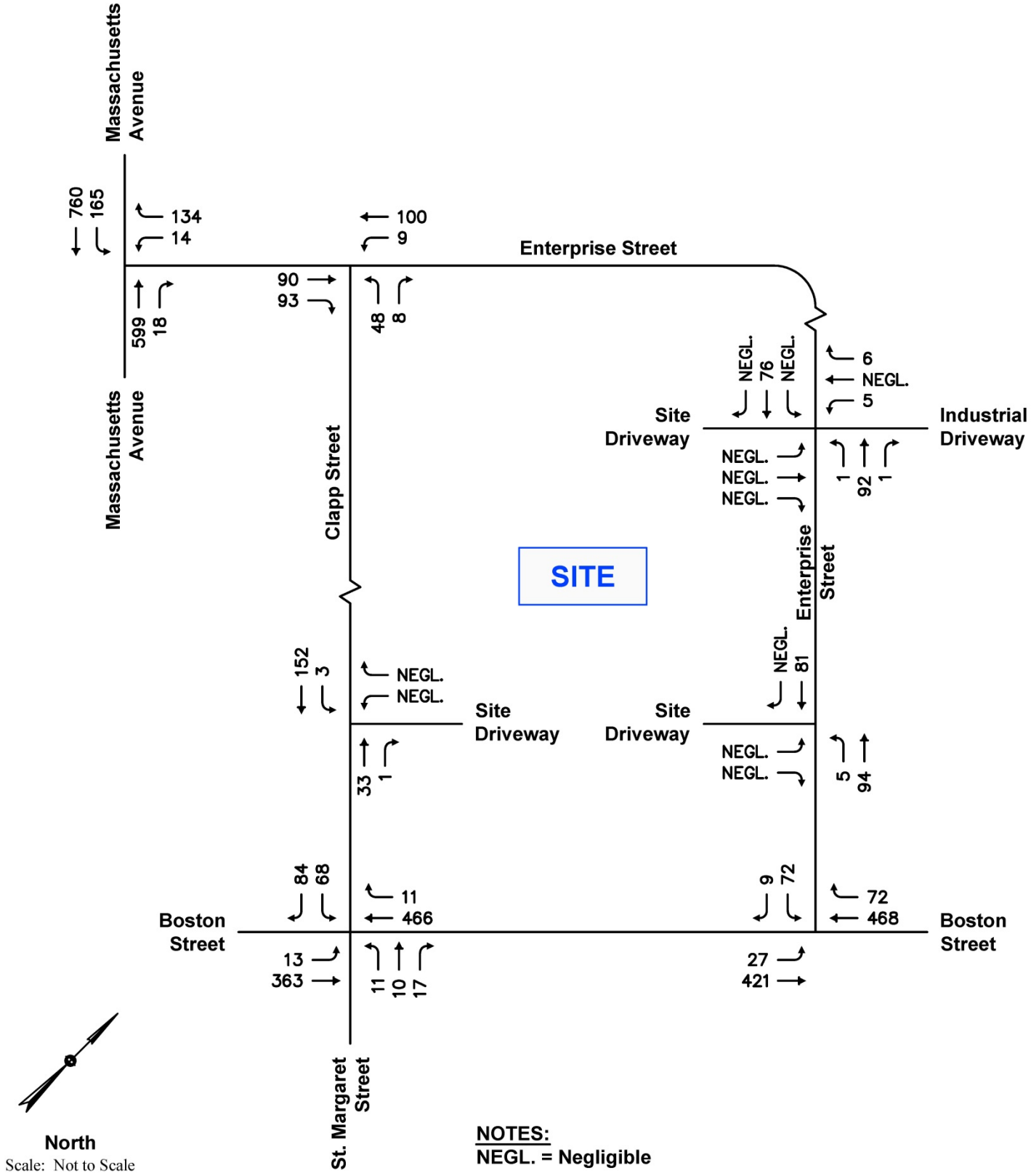

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Figure 3-5

2017 Baseline Conditions – Weekday Evening Peak Hour Volumes

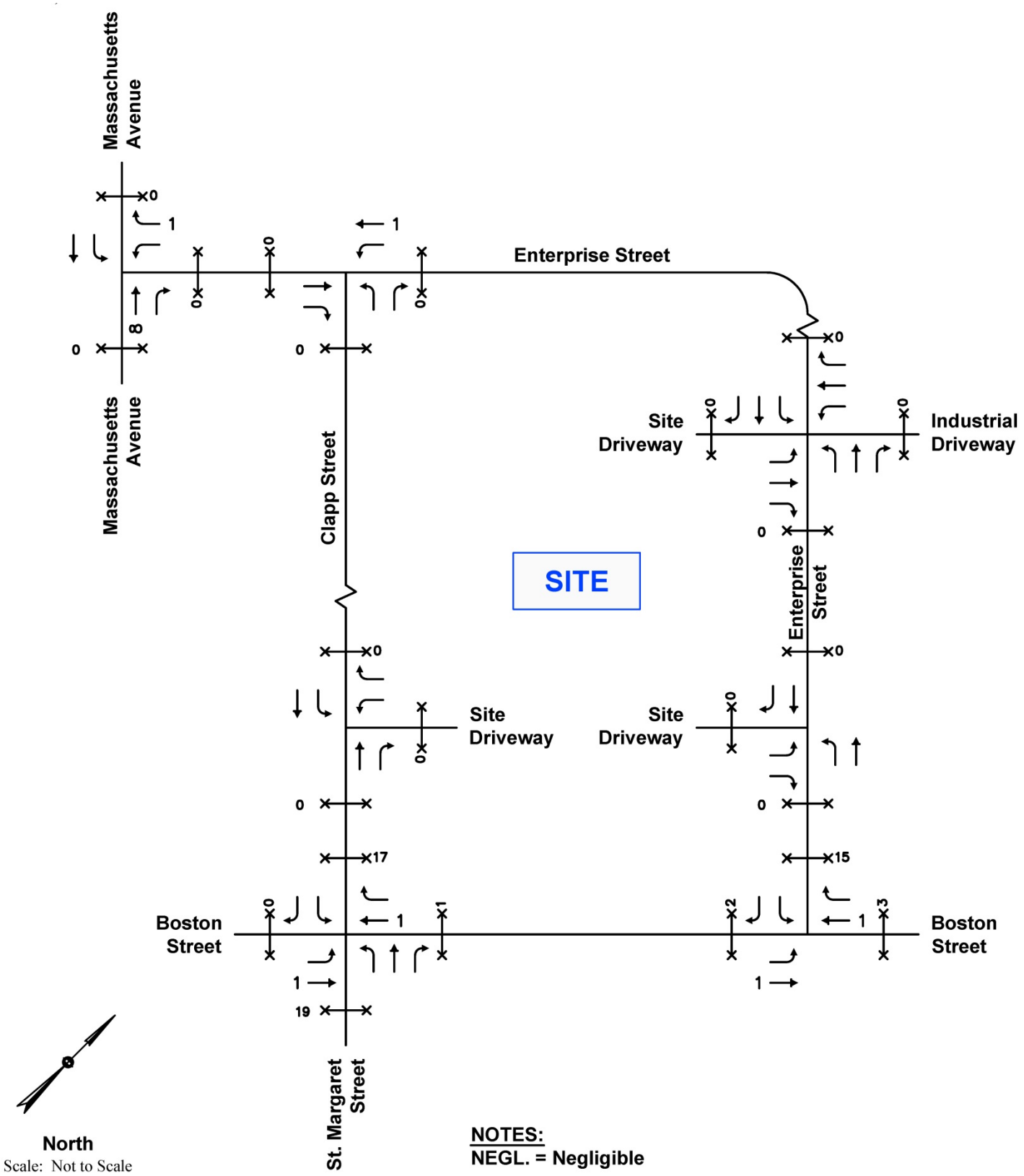

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Figure 3-6

Baseline Weekday Morning Peak Hour Pedestrian and Bicycle Volumes

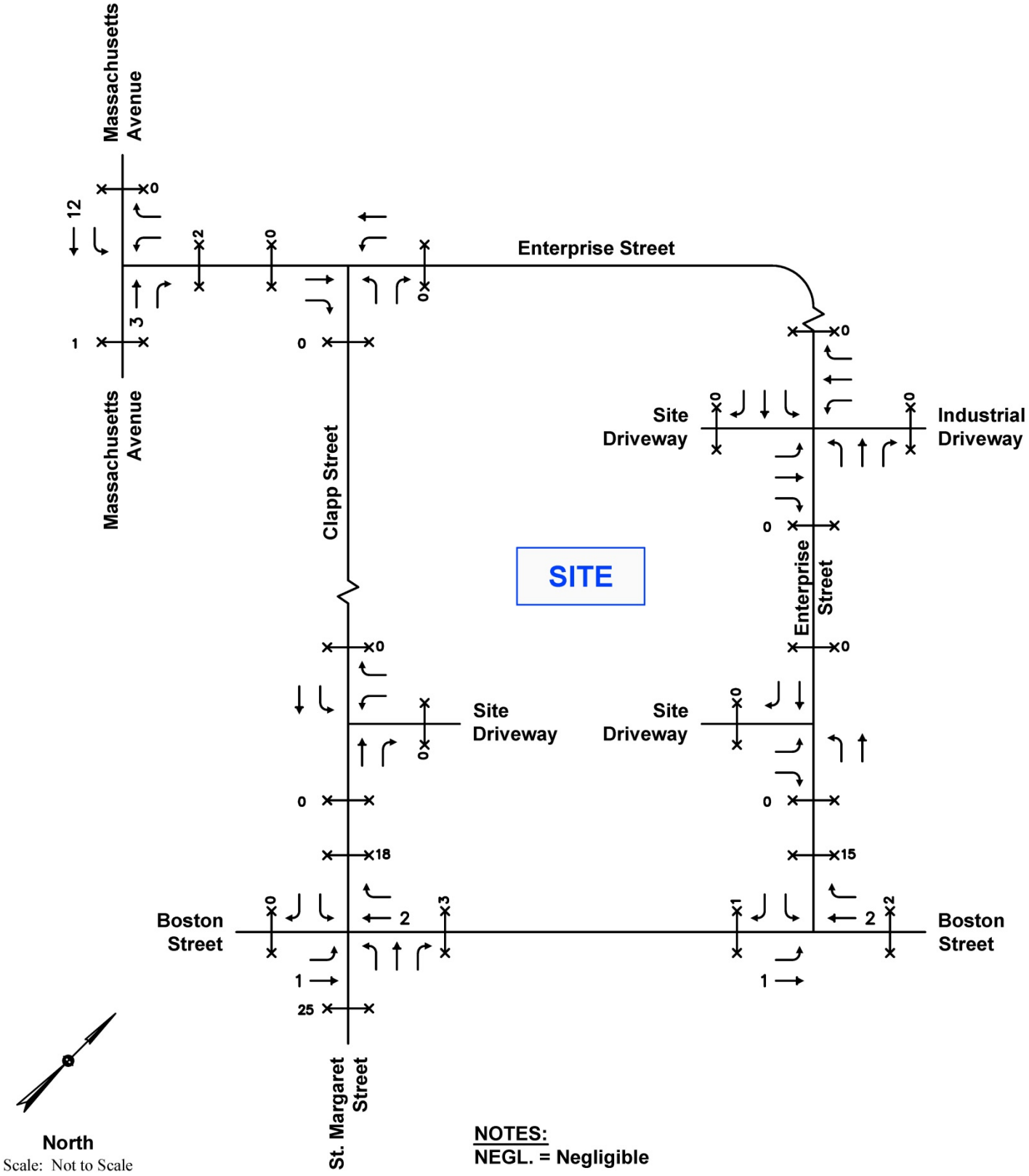

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Figure 3-7

Baseline Weekday Evening Peak Hour Pedestrian and Bicycle Volumes

3.2.7 Public Transportation

The MBTA operates the Fairmount commuter rail service approximately one-third mile from the Project site at the Newmarket Station with access from Massachusetts Avenue, and the Red Line subway service at Andrew Station located approximately three-quarter mile from the site. Andrew Station also provides connections to various regional transit connections, as well as a shuttle connection to the nearby South Bay Center. Figure 3-8 presents the existing public transportation facilities in the area, with specific route and schedule information for all available services provided in Appendix B.

Specific public transportation services currently operated in the immediate area of the Project site are as follows:

- MBTA Commuter Rail: The Fairmount Commuter Rail runs from Readville Station to South Station, with a stop in the immediate area at Newmarket Station with access/egress from Massachusetts Avenue. Service generally runs Monday to Friday 7:00 a.m. to 11:00 p.m., and on weekends from 7:30 a.m. to 12:00 a.m. Headways are approximately 40 minutes on weekdays and one hour on weekends.

- MBTA Subway Service: The Red Line subway runs from Braintree Station and Ashmont Station (which connects to the Mattapan Trolley) to Alewife Station, with a stop in the immediate area at Andrew Station with access/egress from Southampton Street and Dorchester Avenue. Service generally runs Monday through Saturday from 5:30 a.m. to 2:30 a.m., and Sunday's 6:00 a.m. to 1:00 a.m. Headways are approximately 15 minutes. Andrew Station also provides connections to various bus routes, including Routes 5, 10, 16, 17, 18, 171, and CT3, as well as a shuttle connection to the South Bay Center.

- Route 8: Bus Route 8 runs from Harbor Point/UMass Boston to Kenmore Station. The route passes near the Project site along Massachusetts Avenue, with a stop located near the intersection of Massachusetts Avenue and Enterprise Street. Service generally runs Monday to Friday from 5:15 a.m. to 1:00 a.m., and Saturdays and Sundays from 6:30 a.m. to 1:00 a.m.

- Route 10: Bus Route 10 runs from City Point to Copley Station. The route passes through the South Bay Shopping Center parking lot and past Newmarket Station. Service generally runs Monday to Friday from 5:00 a.m. to 1:30 a.m., and Saturdays and Sundays from 6:00 a.m. to 1:15 a.m.

- Route 16: Bus Route 16 runs from Forest Hills Station to Andrews Station or UMass Boston. The route passes near the Project site along Massachusetts Avenue, with a stop located near the intersection of Massachusetts Avenue and Enterprise Street. Service generally runs Monday to Saturday from 5:00 a.m. to 1:30 a.m., and Sundays from 7:00 a.m. to 1:30 a.m.

- **South Bay Center Shuttle**: The nearby South Bay Shopping Center operates and pays for a public shuttle connection between South Bay Center and Andrew Station. The shuttle service is free for patrons, and provides an approximately 1.7 mile route with stops within the South Bay Center at Target, Home Depot, Stop & Shop, Marshalls, and Best Buy. The service is provided Monday through Saturday from 10:30 a.m. to 11:30 p.m., and Sunday between 11:30 a.m. to 10:00 p.m. with a headway of approximately 18 minutes.

3.3 Future Conditions

Evaluation of the proposed development impacts requires the establishment of a future baseline analysis condition. This section estimates future roadway and traffic conditions with and without the proposed development. BTD guidelines require a five-year planning horizon.

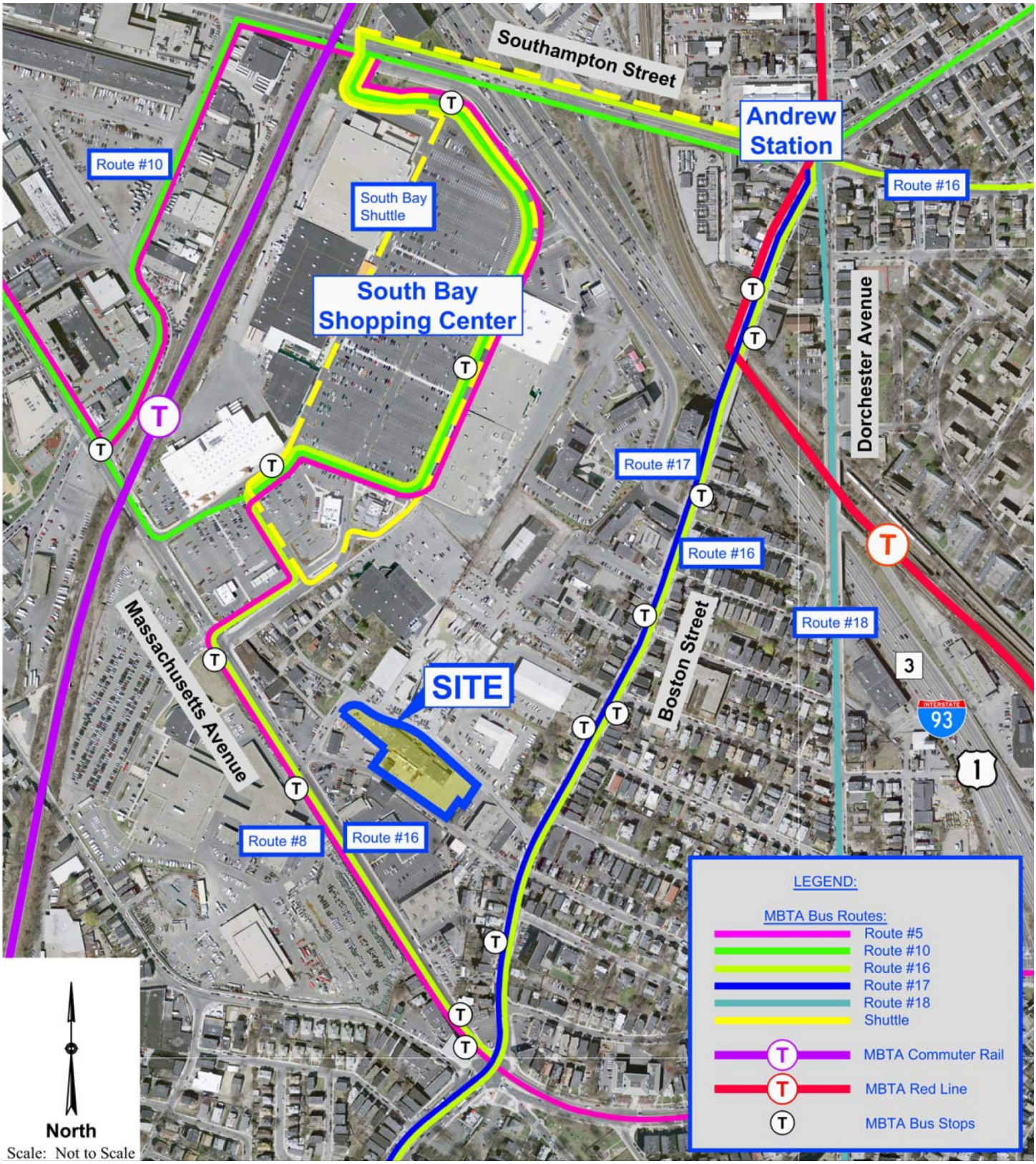
To determine the impact of site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to a future year condition. Traffic volumes on the roadway network at that time, in the absence of the development (that is, the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, traffic related to specific development by others that is currently under review at the local and/or state level, and planned area improvements. Consideration of these factors resulted in the development of No-Build traffic volumes. Anticipated site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop future Build conditions.

The following sections provide an overview of planned area improvements, as well as future No-Build and projected Build transportation conditions in the study area.

3.3.1 Planned Area Improvements

The following planned area improvements are assumed in the No-Build Conditions:

Massachusetts Avenue at Enterprise Street. To enhance access/egress to the area as part of the South Bay Center Expansion for pedestrians and bicycles, Enterprise Street between the Massachusetts Avenue and the South Bay Center will be re-designed to enhance sidewalks for compliance with current City standards and ADA compliance. Specifically, the design will incorporate a two-lane departure to Massachusetts Avenue, pavement markings, signage, and other surface treatments to enhance access/egress for the various travel modes, including but not limited to vehicles, pedestrians, and bicycles. A conceptual plan outlining the improvements is shown graphically in Figure 3-9.



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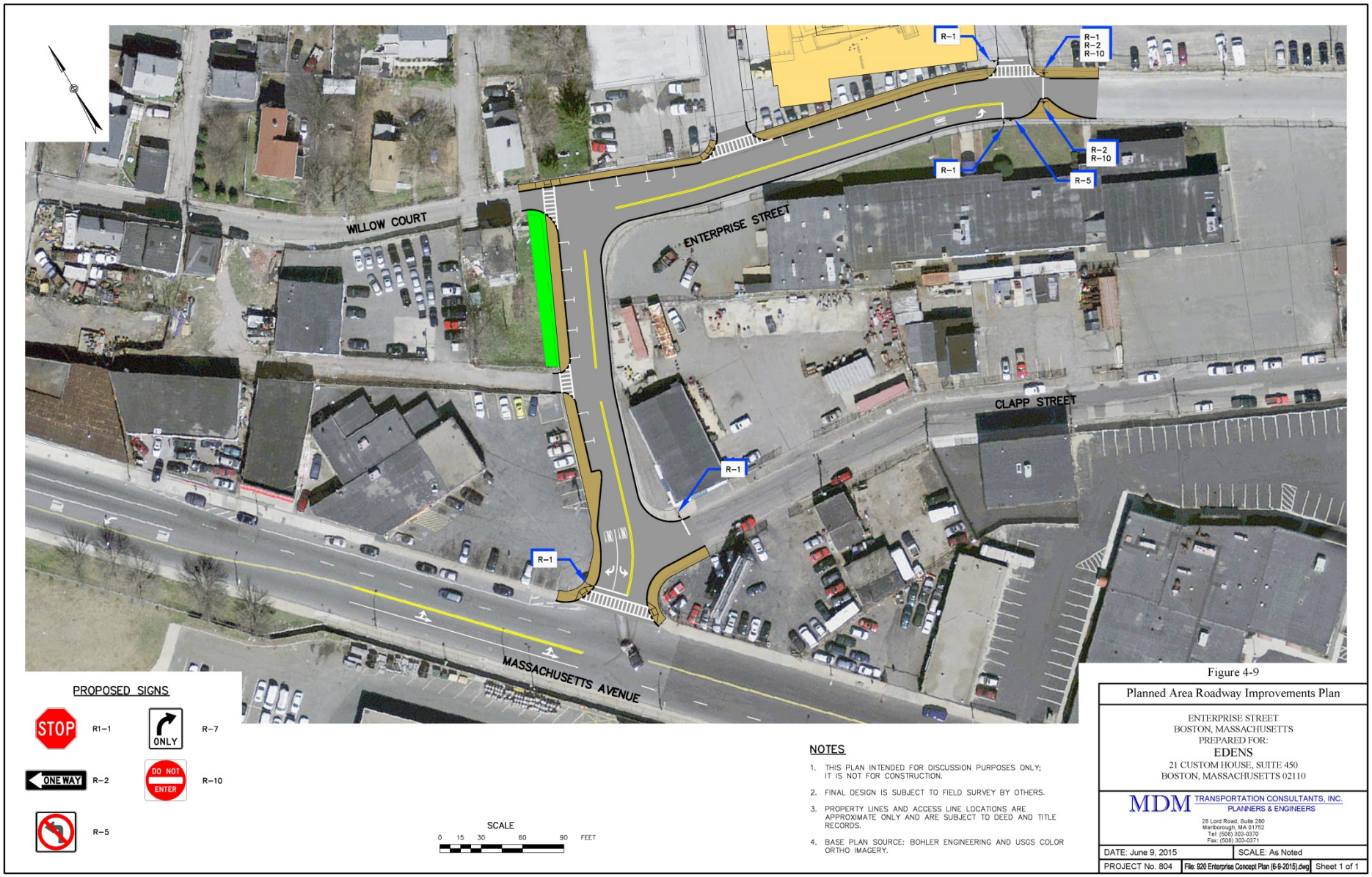

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Enterprise Street at Jan Karski Way (Proposed). A design element will also be incorporated at the intersection of Enterprise Street and Jan Karski Way (Proposed) to restrict southbound vehicular movements along Enterprise Street. This design element is shown graphically in Figure 3-9.

3.3.2 Background Traffic Growth

Background traffic includes demand generated by other planned developments in the area, as well as demand increases caused by external factors. External factors are general increases in traffic not attributable to a specific development and are determined using historical data.

Background Growth

Nearby permanent count station data published by MassDOT indicates a flat/declining (-0.1 percent per year) growth rate. For purposes of this evaluation, a 0.5 percent growth rate was used (2.5 percent increase over a five-year horizon). This growth rate is higher than historic rates, and, as such, is also expected to account for any small fluctuation in hourly traffic that may occur from time to time in the study area, and traffic associated with other potential small developments or vacancies in the area. MassDOT permanent count station data and background growth calculations are provided in Appendix B.

Site Specific Projects

Development of future No-Build traffic volumes also considers traffic generated through the study area from other specific area developments. Review of projects undergoing review by the BPDA indicates that there are currently five proposed site-specific development projects near the Project site that may increase traffic in the immediate study area.

- 21 Clapp Street: This property is currently being redeveloped to include 18 apartment units located at 21 Clapp Street.

- 85-93 Willow Court: This property is currently being redeveloped to include 14 apartment units located along Willow Court. On-site parking will be provided for approximately 26 parking spaces.

- South Bay Center Expansion. This development is a proposed to include a 12-screen cinema, 130-room hotel, 475 residential apartment units, and approximately 113,000 sf of ground-level retail uses. Parking will include approximately 1,095 spaces (910 spaces in parking structures and 185 in surface lots/street parking). Primary access will be provided via existing driveways serving South Bay Center along Massachusetts Avenue via Allstate Road, Southampton Street, and the Frontage Road. Additional access connections will include

Enterprise Street via Massachusetts Avenue and Boston Street, and West Howell Street via Boston Street which are expected to serve as secondary, lower-volume routes that will help disperse traffic on local neighborhood streets

- **Holiday Inn Express Expansion**: This project includes an approximately 37,325 sf expansion of the existing Holiday Inn Express Hotel to include 60 additional guest rooms with access/egress along Frontage Road (69 Boston Street), and an internal connection to the South Bay Center.

- **1258-1272 Massachusetts Avenue**: This project consists of the demolition of the existing structure on the site, and the construction of two 6-story mixed-use buildings with 40 residential units, 1,500 sf of commercial space, and 37 off-street parking spaces with direct access/egress to Massachusetts Avenue.

Trips for these future developments have been provided as site specific trips with individual trip tracing provided in Appendix B.

3.3.3 No-Build Traffic Volumes

To account for future traffic growth in the study area, future No-Build traffic volumes are developed by increasing the baseline volumes by approximately 2.5 percent (0.5 percent compounded annually over five years) and addition site-specific trips from the five area projects. The resulting 2022 No-Build traffic volumes are displayed in Figure 3-10 and Figure 3-11.

3.3.4 Site-Generated Traffic

Future Build condition traffic volumes were developed by estimating the number of peak-hour trips expected to be generated by the proposed development, and distributing this additional traffic onto the local roadway network. These future development-related trips were added to future No-Build traffic volumes to evaluate future traffic operations with the proposed development in place. The methodology utilized to estimate the future trip-generation characteristics of the proposed development are summarized below. In accordance with BTD and EEA/MassDOT guidelines, the traffic generated by the proposed development was estimated using trip rates published in ITE's Trip Generation for the Land Use Code (LUC) based on trip rates for General Office (LUC 710) for the relocation of the Union's Benefits Office.

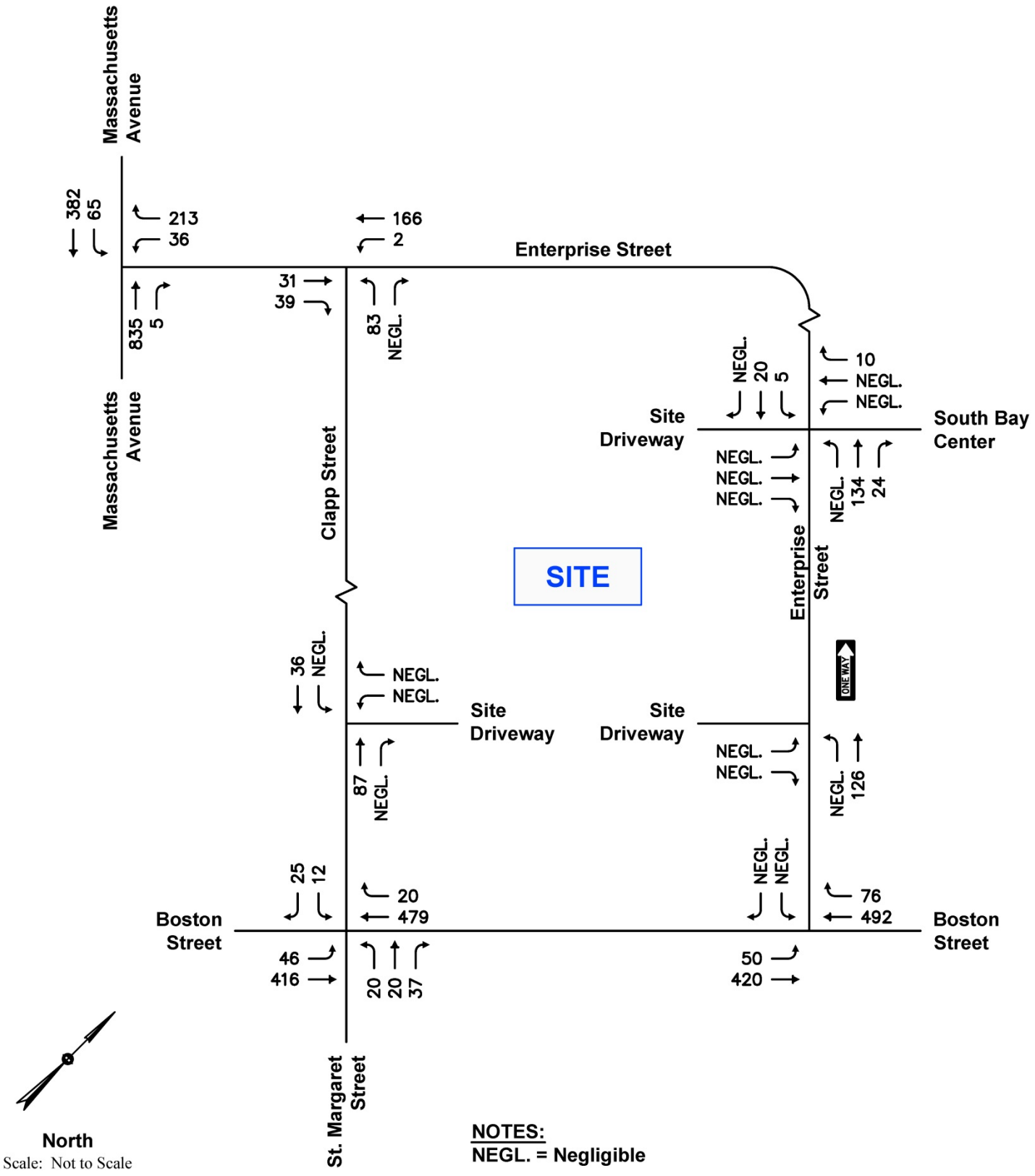

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Figure 3-10

2022 No-Build Conditions – Weekday Morning Peak Hour Volumes

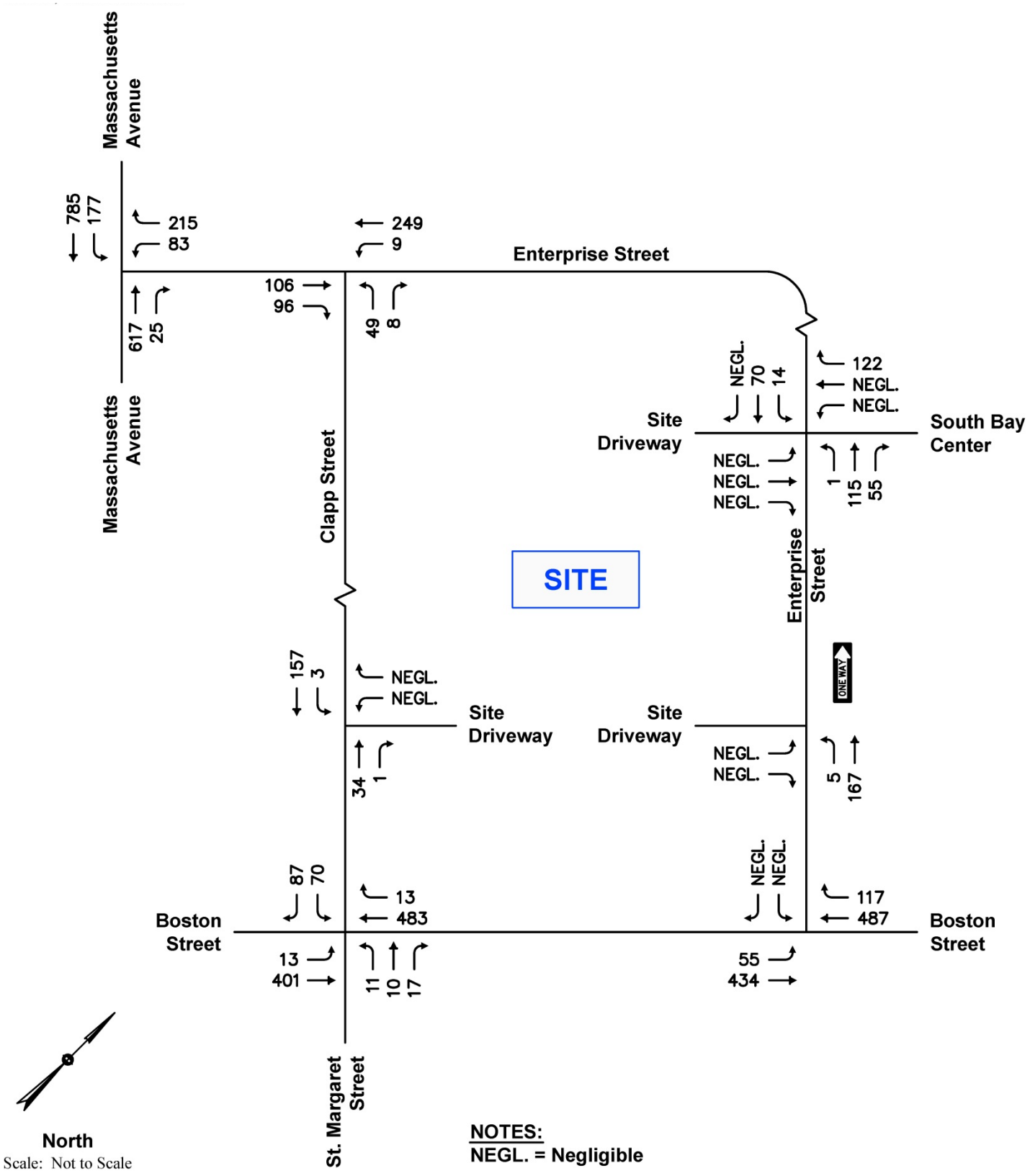

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Figure 3-11

2022 No-Build Conditions – Weekday Evening Peak Hour Volumes

Mode Share

BTD publishes mode split rates for Dorchester (Area 8) including estimates of vehicular, transit, and walking/bicycling mode split rates. As outlined above under Public Transportation Facilities, the Project site is located within a highly public transportation oriented area of the City, with excellent access to an extensive sidewalk system. However, based on limited existing transit use and residencies of the existing employees, the Proponent estimates a limited number (five to ten percent) of employees will utilize public transportation or walk/bicycle to/from the site on a regular basis. Therefore, mode share is not expected to significantly impact the proposed Project. As a conservative measure, all new trips are assumed to be vehicle trips with vehicle occupancy of 1.0.

Trip-generation estimates for the proposed development are based on ITE methodology for LUC 710 applied to 15 employees, and are summarized in Table 3-3.

Table 3-3 Trip Generation Summary (Autos)

Period/Direction	PROJECTED SITE TRIPS General Office Use[1]
Weekday Morning Peak Hour	
Entering	6
Exiting	1
Total	7
Weekday Evening Peak Hour	
Entering	1
Exiting	6
Total	7
Weekday Daily	50

Source: ITE *Trip Generation*, Ninth Edition; 2009.

[1] Based on ITE LUC 710 (General Office) trip rates applied to 15 employees.

As summarized in Table 3-3, the proposed relocation of the Union's Benefits Office is estimated to generate approximately seven new vehicle trips during the weekday morning peak hour (six entering and one exiting), and seven new vehicle trips during the weekday evening peak hour (one entering and six exiting). On a daily basis, the development is estimated to generate approximately 50 new vehicle trips on a weekday.

3.3.5 Trip Distribution and Assignment

The directional distribution of development-generated trips on the roadway network is a function of a number of variables including area population centers and the efficiency of these roadways leading to the site. Existing travel patterns at the site driveways serve as the

primary basis for determining the trip distribution pattern for the Project. The trip distribution pattern is shown in Figure 3-12 and Figure 3-13. Trip distribution calculations are provided in Appendix B.

Development-related trips for the projected increases at the Project site were assigned to the roadway network using the ITE trip-generation estimates shown in Table 3-3 and the distribution patterns as presented in the Figure 3-12 and Figure 3-13. New development-related trips at each intersection for the weekday morning and weekday evening are quantified in Figure 3-14 and Figure 3-15.

3.3.6 Build Traffic Volumes

Future Build condition traffic volumes were arrived at by adding Project-specific traffic volumes to the 2022 No-Build conditions. The 2022 Build condition traffic-volume networks for the weekday morning and weekday evening peak hours are displayed in Figure 3-16 and Figure 3-17.

3.3.7 Traffic Volume Increases

The traffic volume increases between future No-Build and Build conditions for the study area intersections as summarized in Table 3-4 and Table 3-5 for the weekday morning peak hour and weekday evening peak hour.

Table 3-4 Traffic Volume Increases[1] – Weekday Morning Peak Hour

Intersection	2022 No-Build	2022 Build	Δ	%
1-Massachusetts Avenue at Enterprise Street				
	1536	1538	+2	+0.1%
2-Enterprise Street at Clapp Street				
	321	323	+2	+0.6%
3-Boston Street at Clapp Street				
	1075	1078	+3	+0.3%
4-Boston Street at Enterprise Street				
	1038	1043	+5	+0.5%
5-Enterprise Street at Site Driveway (Northern)				
	193	195	+2	+1.0%
6-Enterprise Street at Site Driveway (Southern)				
	126	132	+6	+4.8%
7-Clapp Street at Site Driveway				
	123	123	+0	+0.0%

[1] Vehicles per hour (vph).

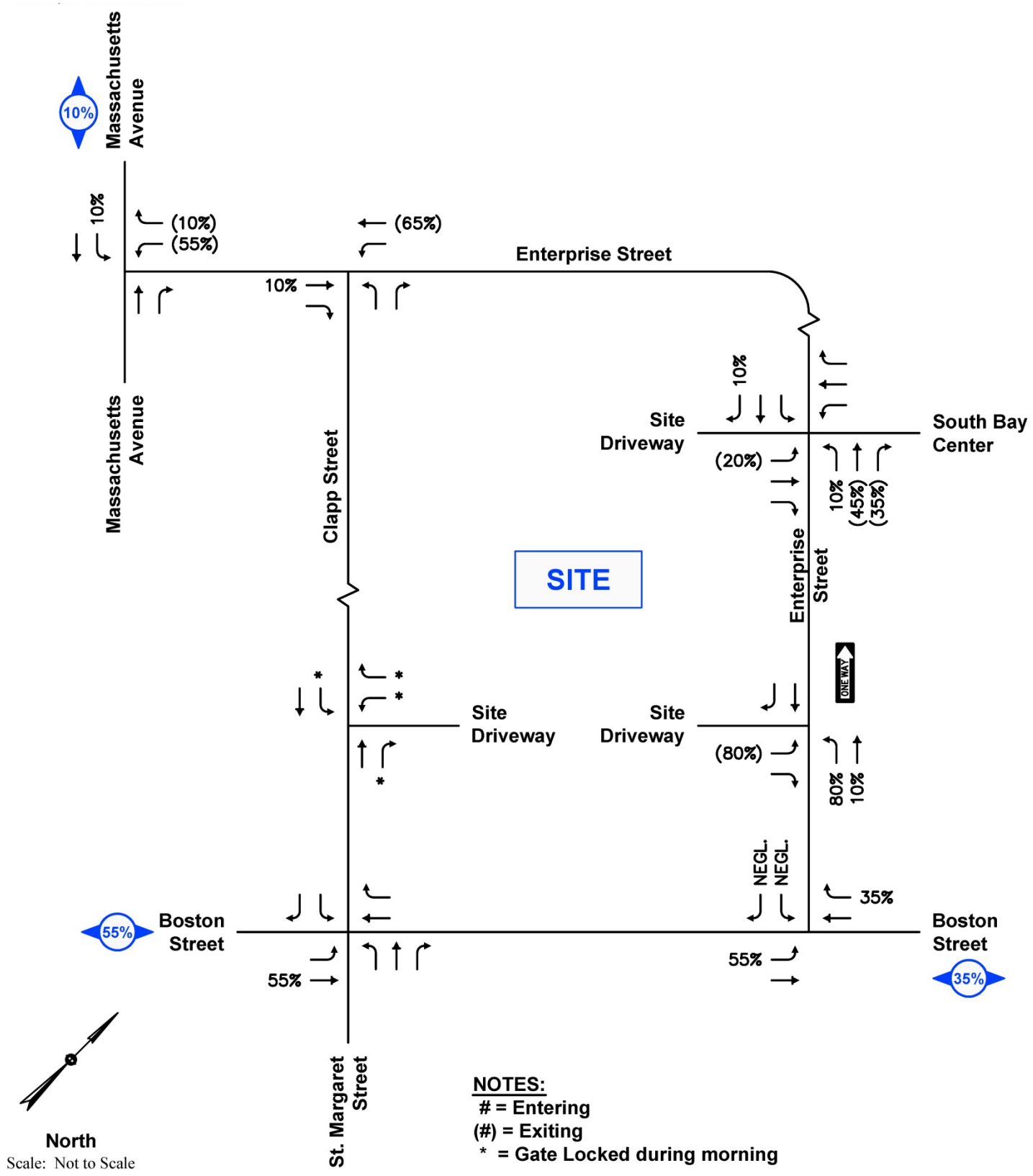

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Figure 3-12
Trip Distribution – Weekday Morning Peak Hour

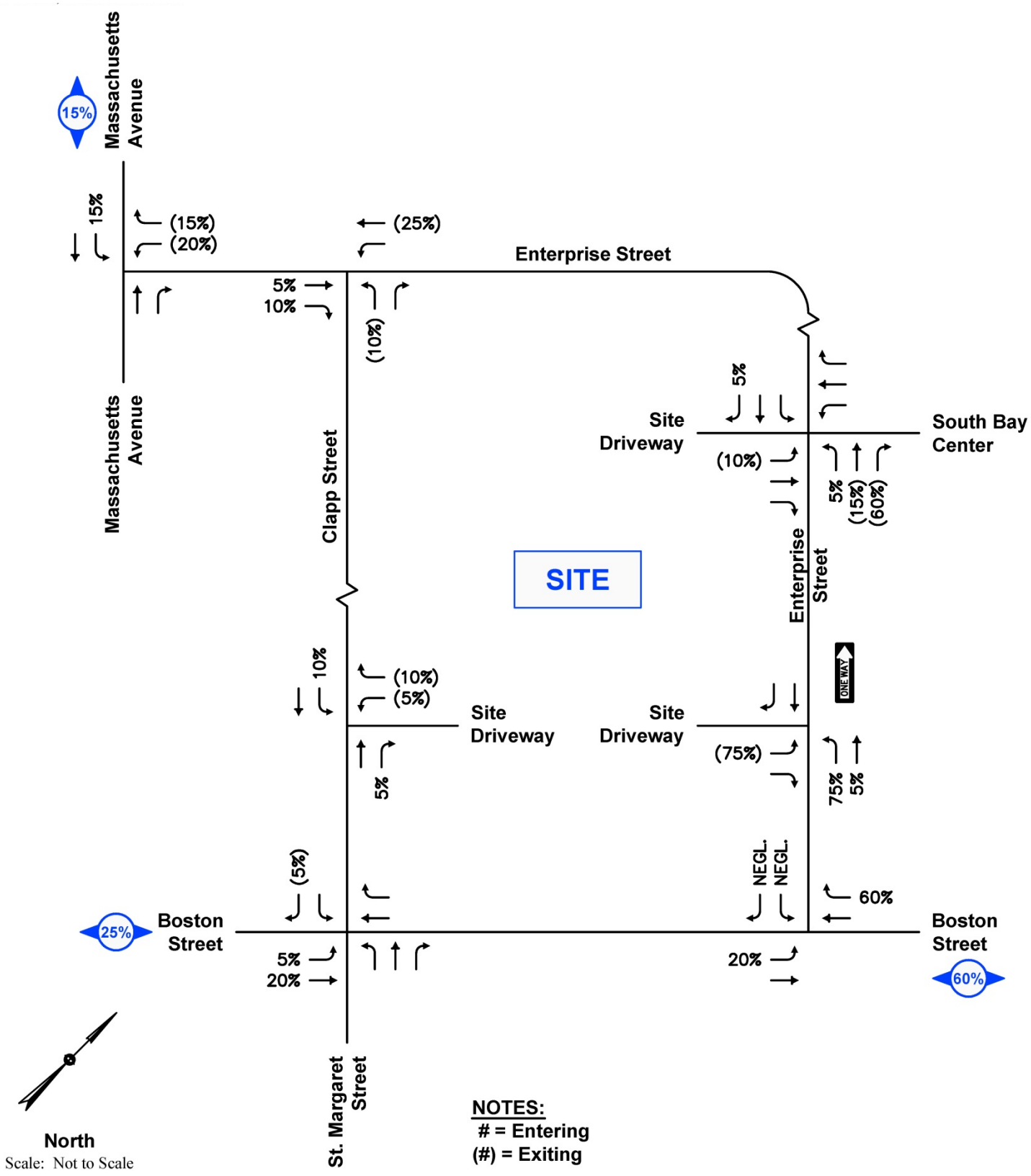

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Figure 3-13
Trip Distribution – Weekday Evening Peak Hour

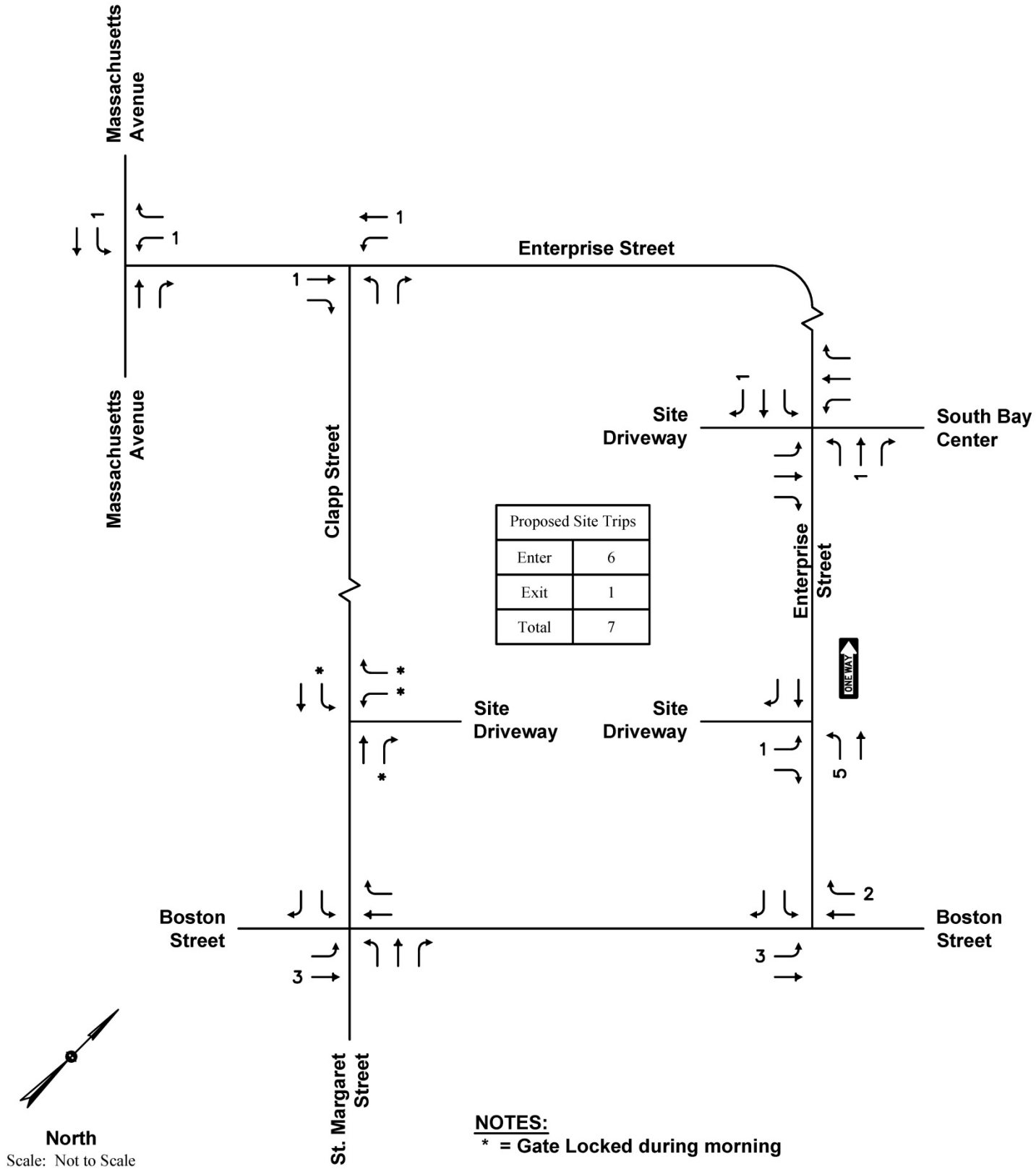

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Figure 3-14
Site Generated Trips – Weekday Morning

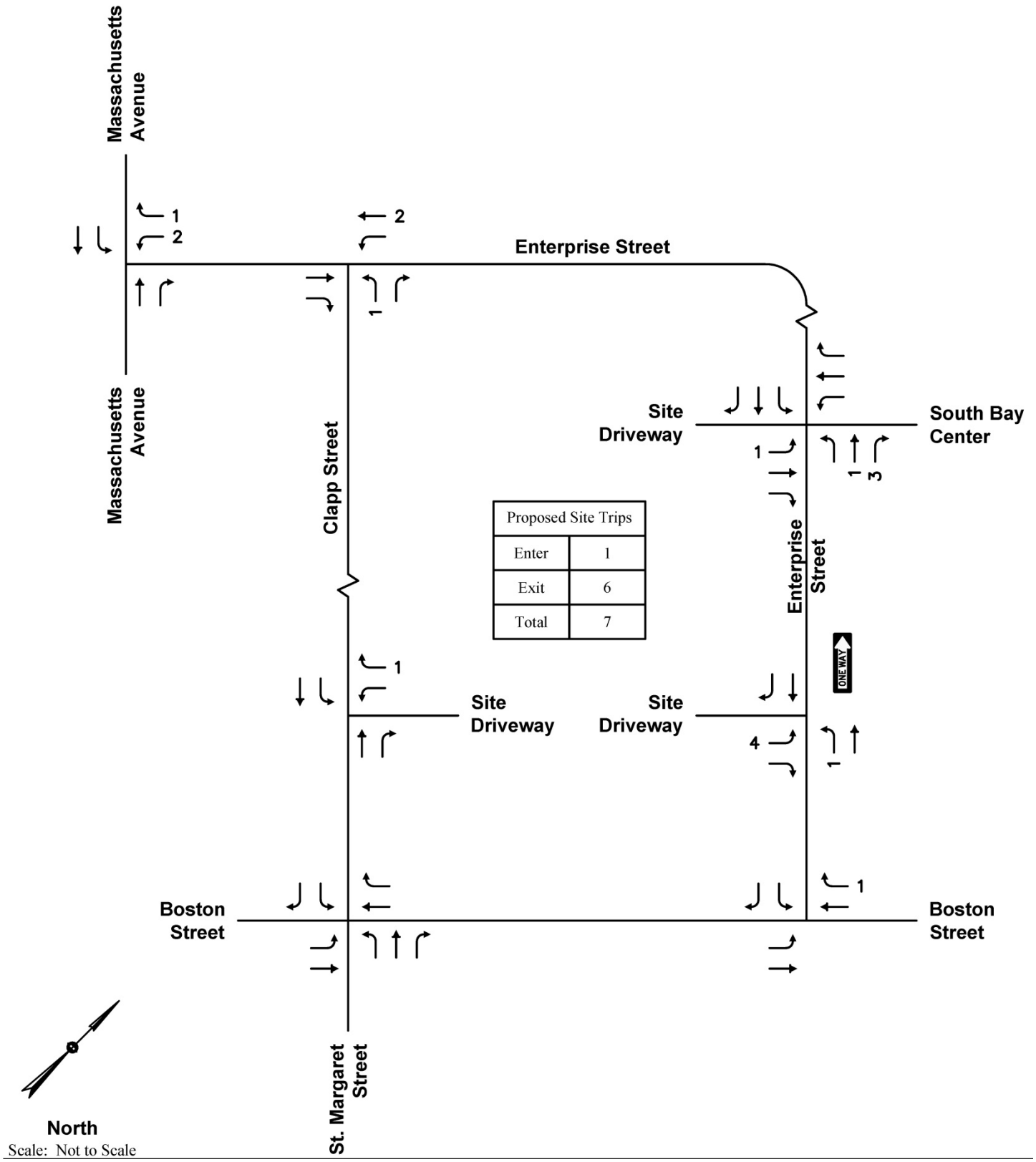

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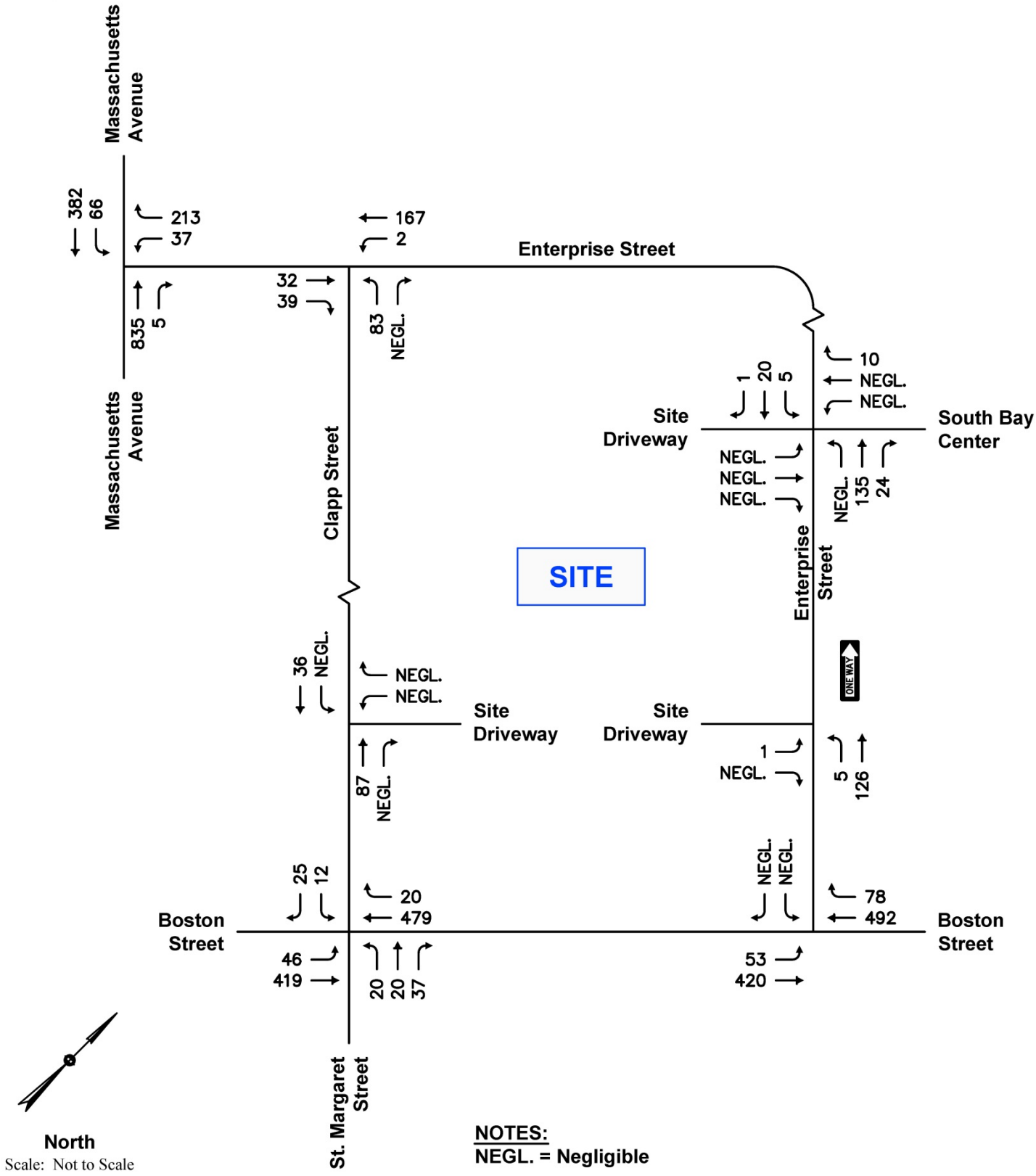
Figure 3-15
Site Generated Trips – Weekday Evening



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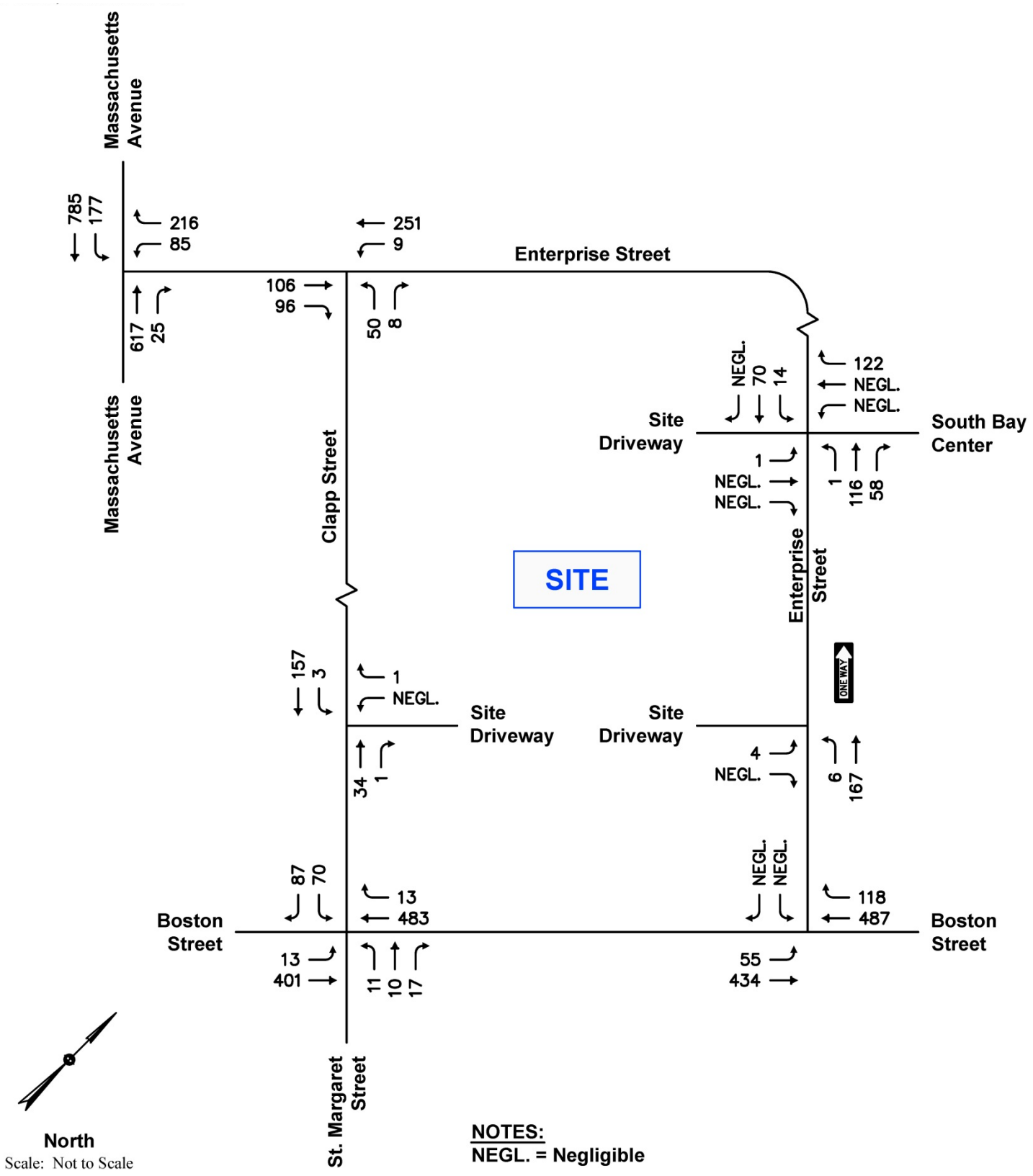

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Figure 3-17

2022 Build Conditions – Weekday Evening Peak Hour Volumes

Table 3-5 Traffic Volume Increases[1] – Weekday Evening Peak Hour

Intersection	2022 No-Build	2022 Build	Δ	%
1-Massachusetts Avenue at Enterprise Street				
	1902	1905	+3	+0.2%
2-Enterprise Street at Clapp Street				
	517	520	+3	+0.6%
3-Boston Street at Clapp Street				
	1105	1105	+0	+0.0%
4-Boston Street at Enterprise Street				
	1093	1094	+1	+0.1%
5-Enterprise Street at Site Driveway (Northern)				
	377	382	+5	+1.3%
6-Enterprise Street at Site Driveway (Southern)				
	172	177	+5	+2.9%
7-Clapp Street at Site Driveway				
	195	196	+1	+0.5%

[1]Vehicles per hour (vph).

As summarized in Table 3-4 and Table 3-5, the additional trips generated by the proposed relocation of the Union's Benefits Office is estimated to result in a nominal increase in traffic of 0.6 percent or less at the study intersections away from the site driveways during the peak hours. This results in one vehicle every twelve minutes or less, which is well within the day-to-day fluctuation of area roadways and will be imperceptible to the average motorist.

3.4 Operations Analysis

Intersection capacity analyses for the primary study intersections are presented in this section for the Baseline, No-Build, and Build traffic-volume conditions. In addition, a pedestrian level of service analysis was conducted to determine existing operating conditions for critical pedestrian crosswalks and walkways in the immediate study area, as well as potential Project-related impacts to these facilities. Capacity analyses, conducted in accordance with BTD guidelines, provide an index of how well the facilities serve the demands placed upon them. The operational results provide the basis for recommended improvements in the subsequent section.

3.4.1 Traffic Capacity Analysis Procedures

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the 2010 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements. The LOS is a letter designation that provides a qualitative measure of

operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements). The specific control delays and associated LOS designations are presented in Appendix B.

3.4.2 Intersection Capacity Analysis Results

Capacity analysis results for the weekday morning and weekday evening peak hour for the study intersections are described below, with detailed analysis results presented in Appendix B.

The capacity analysis results for the intersections in the study area are summarized in Table 3-6 and Table 3-7 for the weekday morning and weekday evening peak hours, respectively. Detailed analysis results are presented in Appendix B.

Table 3-6 Intersection Capacity Analysis Results – Weekday Morning Peak Hour

Intersection	Approach	Baseline v/c[1]	Baseline Delay[2]	Baseline LOS[3]	2022 No-Build v/c	2022 No-Build Delay	2022 No-Build LOS	2022 Build v/c	2022 Build Delay	2022 Build LOS
1 – Massachusetts Avenue at Enterprise Street	Westbound[4]	0.39	15	B	0.37	16	C	0.37	16	C
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.10	< 5	A	0.11	< 5	A	0.11	< 5	A
2 – Enterprise Street at Clapp Street	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Westbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.11	10	A	0.13	11	B	0.13	11	B
3 – Boston St at Clapp Street/ St. Margaret Street	Eastbound	0.05	< 5	A	0.05	< 5	A	0.05	< 5	A
	Westbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.27	21	C	0.29	23	C	0.29	23	C
	Southbound	0.12	18	C	0.13	19	C	0.13	19	C
4 – Boston Street at Enterprise Street	Eastbound	0.05	< 5	A	n/a	n/a	n/a	n/a	n/a	n/a
	Westbound	0.00	< 5	A	n/a	n/a	n/a	n/a	n/a	n/a
	Southbound	0.00	< 5	A	n/a	n/a	n/a	n/a	n/a	n/a
5 – Enterprise Street at Site Driveway (Northern)/ Lucy Street	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Westbound	0.00	< 5	A	0.01	9	A	0.01	9	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
6 – Enterprise Street at Site Driveway (Southern)	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
7 – Clapp Street at Site Driveway	Westbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A

[1]Volume-to-capacity ratio

[2]Average control delay per vehicle (in seconds)

[3]Level of service

[4]Westbound approach to Massachusetts Avenue calibrated based on observed conditions

Table 3-7 Intersection Capacity Analysis Results – Weekday Evening Peak Hour

Intersection	Approach	Baseline v/c[1]	Baseline Delay[2]	Baseline LOS[3]	2022 No-Build v/c	2022 No-Build Delay	2022 No-Build LOS	2022 Build v/c	2022 Build Delay	2022 Build LOS
1 – Massachusetts Avenue at Enterprise Street	Westbound[4]	0.28	14	B	0.65	29	D	0.66	29	D
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.19	< 5	A	0.21	< 5	A	0.21	< 5	A
2 – Enterprise Street at Clapp Street	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Westbound	0.01	< 5	A	0.01	< 5	A	0.01	< 5	A
	Northbound	0.08	10	A	0.10	12	B	0.10	12	B
3 – Boston St at Clapp Street/ St. Margaret Street	Eastbound	0.01	< 5	A	0.01	< 5	A	0.01	< 5	A
	Westbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.13	18	C	0.15	20	C	0.15	20	C
	Southbound	0.49	26	C	0.55	30	D	0.55	30	D
4 – Boston Street at Enterprise Street	Eastbound	0.03	< 5	A	n/a	n/a	n/a	n/a	n/a	n/a
	Westbound	0.00	< 5	A	n/a	n/a	n/a	n/a	n/a	n/a
	Southbound	0.37	28	D	n/a	n/a	n/a	n/a	n/a	n/a
5 – Enterprise Street at Site Driveway (Northern)/ Lucy Street	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	12	B
	Westbound	0.00	< 5	A	0.15	10	A	0.15	10	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.01	< 5	A	0.01	< 5	A
6 – Enterprise Street at Site Driveway (Southern)	Eastbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
7 – Clapp Street at Site Driveway	Westbound	0.00	< 5	A	0.00	< 5	A	0.00	9	A
	Northbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A

[1]Volume-to-capacity ratio

[2]Average control delay per vehicle (in seconds)

[3]Level of service

[4]Westbound approach to Massachusetts Avenue calibrated based on observed conditions

Summary of Traffic Operations Analysis

Under Build conditions, the study intersections will generally continue to operate at the same overall LOS as under No-Build conditions. Key findings of capacity analysis presented in Table 3-6 and Table 3-7 are as follows:

1. *Massachusetts Avenue at Enterprise Street:* Traffic operations at this unsignalized intersection are LOS D during weekday peak hours under all analysis periods with no material change in intersection delays due to Project-related traffic.

2. *Enterprise Street at Clapp Street*: Traffic operations at this unsignalized intersection are well below capacity at LOS B or better during the morning and evening peak hours on weekdays. There are no material change in intersection delays due to Project-related traffic (no change in delays overall).

3. *Boston Street at Clapp Street:* Traffic operations at this unsignalized intersection are LOS C or better during the morning peak hour, and LOS D or better during the evening peak hour on weekdays. There are no material change in intersection delays due to Project-related traffic (no change in delays overall).

4. *Enterprise Street at Boston Street:* Under future conditions, the Enterprise Street approach to this unsignalized intersection will be converted to a One Way away from the intersection. Therefore, there are no material change in intersection delays due to Project-related traffic (no change in delays overall).

5. *Enterprise Street at Site Driveway (Northern*): Traffic operations at this unsignalized intersection are well below capacity at LOS B or better during the morning and evening peak hours on weekdays. There are no material change in intersection delays due to Project-related traffic (no change in delays overall).

6. *Enterprise Street at Site Driveway (Southern)*: Traffic operations at this unsignalized intersection are well below capacity at LOS A or better during the morning and evening peak hours on weekdays. There are no material change in intersection delays due to Project-related traffic (no change in delays overall).

7. *Clapp Street at Site Driveway*: Traffic operations at this unsignalized intersection are well below capacity at LOS A or better during the morning and evening peak hours on weekdays. There are no material change in intersection delays due to Project-related traffic (no change in delays overall).

3.5 Parking

This section identifies the parking supply and demand relationships for a study within one-quarter mile of the site. This section also contains a Project-related parking demand analysis. The evaluation was conducted in accordance with BTD's Transportation Access Plan Guidelines.

3.5.1 Existing Parking Supply

The existing parking supply within one-quarter mile of the site includes approximately 3,793 parking spaces. The study area is shown in Figure 3-18, which was color coded based on parking type, with detailed data sheets included in Appendix B and included the following parking space breakdown:

- Local 537 Pipefitters Union Parking Lots – 86 spaces. The existing on-site parking lots consist of 50 marked parking spaces and 18 tandem parking spaces. A detail parking inventory broken down by parking zones for the existing facility is provided in Appendix B.

- South Bay Center Parking Lots – 2,409 spaces. The private shopping center lots consists of 2,409 marked parking spaces. A detail parking inventory broken down by parking zones for South Bay Center is provided in Appendix B.

- UA Local 12 Plumbers & Gasfitters Union Lots – 150 spaces. The private Local 12 Plumbers and Gasfitters Union lots located at 1240 Massachusetts Avenue consist of 150 marked parking spaces.

- Public On-Street Parking - 1,124 spaces. The public on-street parking supply within one-quarter mile of the site includes 239 time limit restricted spaces (one to two hour parking limit), 639 resident only parking spaces (resident permit required), and 246 unregulated spaces, as summarized in Table 3-8.

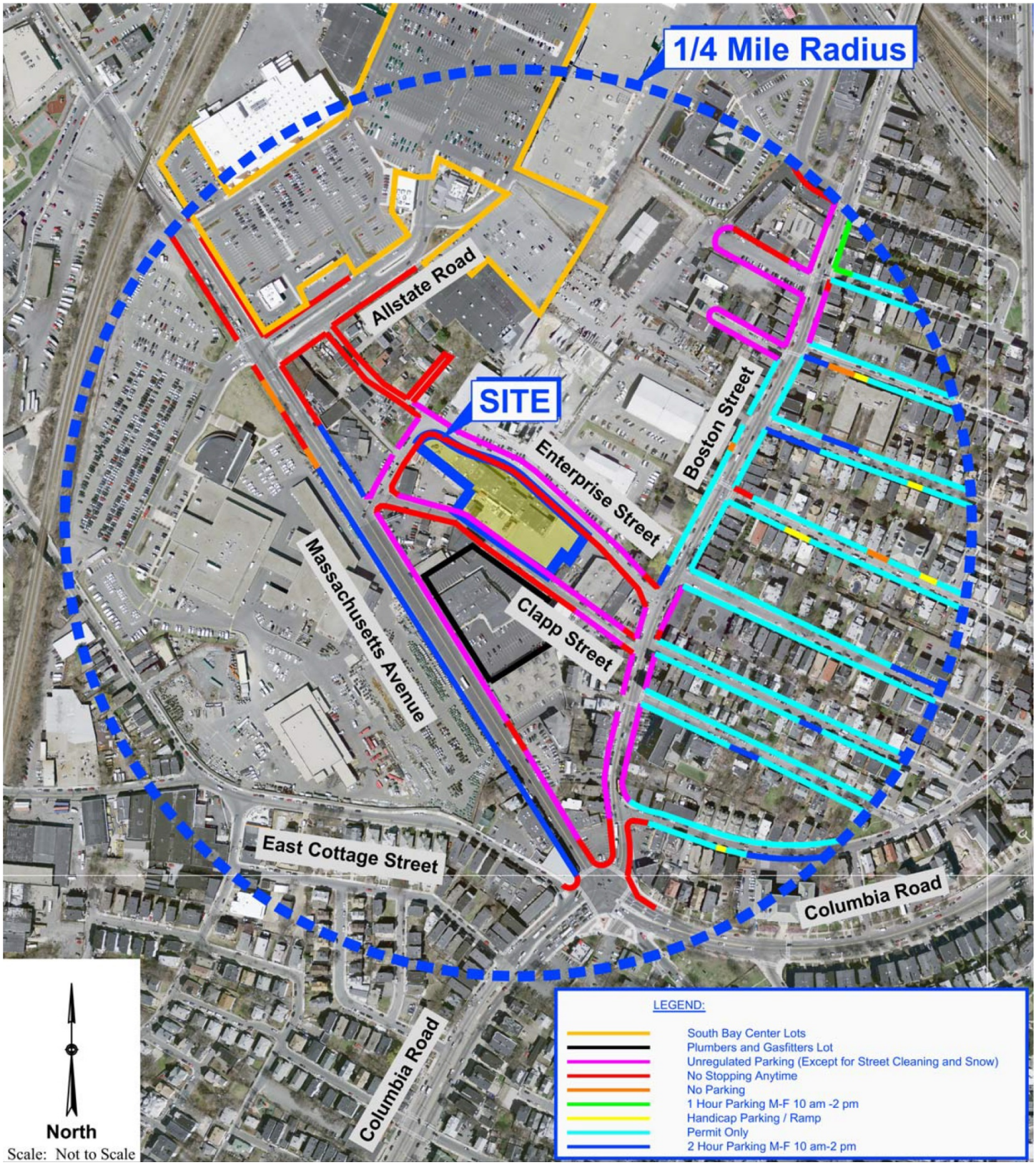
Table 3-8 On-Street Parking Supply – 1/4± Mile Radius

Location	Parking Supply[1] 1 Hour Parking	2 Hour Parking	Resident Permit Only Parking	Unrestricted Parking[2]
Boston Street	-	5	<66>	[55]
Enterprise Street	-	-	-	[50]
Clapp Street	-	-	-	[42]
Massachusetts Ave	-	53	-	[27]
Washburn Street	-	12 (1)	<44>	-
Howell Street	2	6	<42 (1)>	-
Bellflower Street	-	4	<46 (5)>	-
Dorset Street	-	15	<57 (2)>	-
Harvest Street	-	4	<70 (2)>	-
Mt. Vernon Street	-	18	<81>	-
St. Margaret Street	-	12(1)	<75>	-
Mayhew Street	-	4	<71>	-
Roseclair Street	-	24	<74 (3)>	-
W. Howell Street	-	-	-	[20]
W. Bellflower Street	-	-	-	[22]
Willow Court	-	-	-	-
Newmarket Square	-	76 (2)	-	[30]
Total	**2**	**233 (4)**	**<626 (13)>**	**[246]**

[1] (#) = Handicapped Parking Space

[2] [#] = Unrestricted Parking Space

[3] <#> = Resident Permit Parking Space



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 3-18
Parking Inventory

3.5.2 Observed Peak Parking Demand

A parking accumulation survey was conducted to identify parking trends within South Bay Center on Thursday, November 13, 2014 between 9:00 a.m. and 8:00 p.m. An on-street parking accumulation survey was also conducted to identify parking trends within approximately a one-quarter mile radius of the Project site on Thursday, November 19, 2015 and Monday, December, 21, 2015, during normal operating conditions. Supplemental parking observations were also conducted along Massachusetts Avenue, Boston Street, Enterprise Street, and Clapp Street; as well as the on-site parking lots for the Local 537 Pipefitters Union Facility and adjacent Local 12 Plumbers and Gasfitters Union lots on Thursday, March 2, 2017 and Wednesday, March 8, 2017. The supplemental parking observations were conducted to coincide with peak parking demands for the site during a monthly retiree meeting (12:00 p.m.) and union meeting (8:00 p.m.).

The inventories included parking observations of the weekday midday parking demand (12:00 p.m.) and weekday evening parking demand (8:00 p.m.) which is summarized in Table 3-9 and Table 3-10.

Table 3-9 On-Street Parking Demand – Weekday Midday (12:00 p.m.) – 1/4± Mile Radius

	Observed Parking Demand		
Roadway	Occupied Spaces	Total	Percent Occupied
Boston Street	3[37]<31>	71	56%
Enterprise Street	[21]	21	42%
Clapp Street	[24]	24	57%
Massachusetts Avenue	20 [12]	32	40%
Washburn Street	9<22>	31	54%
Howell Street	7<20>	27	53%
Bellflower Street	<25>	25	45%
Dorset Street	10<18>	28	38%
Harvest Street	<24>	24	32%
Mt. Vernon Street	3<29>	32	32%
St. Margaret Street	3<27>	30	34%
Mayhew Street	3<32>	35	47%
Roseclair Street	14<50>	64	63%
W. Howell Street	[20]	20	100%
W. Bellflower Street	[7]	7	32%
Willow Court	-	-	-
Newmarket Square	79 [20]	99	92%
Total	**151 [141]<278>**	**570**	**51%**

[1] (#) = Handicapped Parking Space
[2] [#] = Unrestricted Parking Space
[3] <#> = Resident Permit Parking Space

Table 3-10 On-Street Parking Demand – Weekday Evening (8:00 p.m.) – 1/4± Mile Radius

Roadway	Parking Demand		
	Occupied Spaces	Total	Percent Occupied
Boston Street	2[31]<46>	79	63%
Enterprise Street	[41]	41	82%
Clapp Street	[25]	25	60%
Massachusetts Ave	21 [18]	39	49%
Washburn Street	12(1)<33>	46	81%
Howell Street	6(2)<26>	34	67%
Bellflower Street	4(1)<31>	36	65%
Dorset Street	10<38>	48	65%
Harvest Street	4(2)<40>	46	61%
Mt. Vernon Street	13<62>	75	76%
St. Margaret Street	10(1)<55>	66	75%
Mayhew Street	5<27>	32	43%
Roseclair Street	18<64>	82	81%
W. Howell Street	[34]	34	170%
W. Bellflower Street	[12]	12	55%
Willow Court	-	-	-
Newmarket Square	1	1	1%
Total	**106(7) [161]<422>**	**696**	**62%**

[1] (#) = Handicapped Parking Space
[2] [#] = Unrestricted Parking Space
[3] <#> = Resident Permit Parking Space

Key findings of the area parking surveys are as follows:

- *Local 537 Pipefitters Union Parking.* The Local 537 Pipefitters Union was observed during four distinct operating periods: (1) normal daytime operation (office employees, daytime students, and daytime teachers); (2) monthly retiree meeting (retiree meeting members, office staff, daytime students, and daytime teachers); (3) normal evening operation (evening staff and evening students); and (4) monthly union meeting (monthly union meeting members). A detailed parking inventory is provided in Appendix B with observations as follow:

  - *Normal Daytime Use – Office and Daytime Classes*. The peak parking demand under normal operation, including office employees, daytime teachers, and daytime students, was approximately 29 on-site spaces with minimal on-street parking demand due to the facility.

- *Monthly Retiree Meeting*. The Union's retirees have a meeting once a month on the Wednesday following the Union's monthly meeting. The meeting was observed to last between 10:30 a.m. and 12:30 p.m. The midday peak parking demand during the monthly meeting was approximately 47 on-site spaces, with minimal on-street parking demand due to the facility.

- *Normal Evening Classes*. The Union's evening classes occur Monday through Thursday between 5:00 p.m. and 8:00 p.m. The evening classes were observed to result in an evening peak parking demand of approximately 140 total spaces. with 79 on-site spaces and 61 on-street spaces along Enterprise Street and Clapp Street. Field observations indicate that the facilities parking demand did not spread to any additional streets in the neighborhood. Field observations at 8:00 p.m. with no activity due to the Pipefitters Union's evening classes indicated an on-street parking demand of approximately 18 vehicles along Enterprise Street and Clapp Street.

- *Monthly Union Meeting*. The Union's monthly meeting occurs on the first Thursday of the month and begins at 7:30 p.m. The monthly meeting was observed to result in a late evening peak parking demand of approximately 117 total spaces. with 69 on-site spaces and 48 on-street spaces along Enterprise Street and Clapp Street. Field observations indicate that the facilities parking demand did not spread to any additional streets in the neighborhood.

- *South Bay Center Parking*. The South Bay Center is currently fully tenanted and was observed to have a peak demand of 1,102 spaces during a weekday. The resulting parking utilization is approximately 65 percent (1.14 spaces per 1,000 sf on a weekday) resulting in a reserve parking supply of at least approximately 1,307 spaces. The vast majority of reserve spaces are located centrally within the parking field furthest from store entrances. A detailed parking inventory is provided in Appendix B.

- *UA Local 12 Plumbers & Gasfitters Union Lots*. The UA Local 12 Plumbers & Gasfitters Union is currently fully tenanted and was observed to have a peak demand of 44 spaces and 20 spaces during a weekday midday and a weekday evening, respectively. The resulting parking utilization is approximately 69 percent, resulting in a reserve parking supply of at least approximately 106 spaces. A detailed parking inventory is provided in Appendix B.

- *Public On-Street Parking – Weekday Midday (12:00 p.m.) Parking Demand.* The parking demand during the weekday midday period was observed to be 570 spaces. The resulting parking utilization is approximately 51 percent, resulting in a reserve supply of at least 554 vacant spaces (including 82 time restricted spaces), 348 resident spaces, and 105 unregulated spaces.

- *Public On-Street Parking – Weekday Evening (8:00 p.m.) Parking Demand*. The parking demand during the weekday evening period was observed to be 696 spaces. The resulting parking utilization is approximately 62 percent, resulting in a reserve supply of at least 428 spaces (including 129 time restricted spaces), 204 resident spaces, and 85 unregulated spaces.

In summary, the total supply of public parking located within an approximately one-quarter mile radius of the site accommodates existing parking needs of the abutting neighborhood.

3.5.3 Proposed Parking Supply

The site has been designed to satisfy its own parking needs with little or no need for any additional off-site parking for normal daytime operations or typical monthly Union meetings. The site will be redeveloped to expand the existing 86-space surface lot supply to include a total supply of approximately 117 spaces including 4 handicap spaces and 1 van accessible parking space.

3.5.4 Projected Parking Demand

Given that the programming will remain consistent with current operations, the projected peak parking demand is not expected to materially increase with the construction of the Project. The observed peak parking demand of the site occurred at 5:00 p.m. when 79 vehicles were observed on-site, while 61 vehicles were parked on Enterprise Street and Clapp Street. The peak parking demand is not expected to change beyond current day-to-day fluctuations. The site will have the ability to accommodate its own parking demand without additional on-street parking activity during daytime hours and typical monthly meetings. The Project will also result in a reduction in on-street parking activity during evening class periods.

3.6 Recommendations

Improvements that support projected traffic increases associated with the proposed development have been identified to minimize or offset Project-related impacts and address access needs for the site. The Proponent will continue to work with the City of Boston (BTD) to create a Project that efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. The Proponent is responsible for the preparation of the Transportation Access Plan Agreement (TAPA), a formal legal agreement between the Proponent and the BTD. The TAPA formalizes the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTD. Since the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed measures listed below, and any additional transportation improvements to be undertaken as part of this Project, will be defined and documented in the TAPA.

Recommended improvements include (a) access and circulation-related improvements, (b) pedestrian improvements, (c) and implementation of transportation demand management (TDM) measures. The Proponent will also produce a Construction Management Plan (CMP) for review and approval by BTD. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project.

3.6.1 Access and Circulation Improvements

The Proponent-sponsored access and circulation improvements include the following:

- *Signs and Pavement Markings*. "STOP" signs (R1-1) and "STOP" line pavement markings will be located on the driveway approaches to Enterprise Street and Clapp Street. The "STOP" signs and "STOP" lines will be set four feet back from the back of sidewalks. The signs and pavement markings will be compliant with the Manual on Uniform Traffic Control Devices (MUTCD).

- *Sight Lines*. Existing and/or new plantings (e.g., shrubs, bushes) and structures (e.g., walls, fences, etc.) will be maintained at a height of two feet or less above the adjacent roadway grade within the sight line triangles with respect to Enterprise Street and Clapp Street to provide unobstructed sight lines for vehicles entering and exiting the site driveways.

3.6.2 Pedestrian Improvements

Sidewalks and ADA compliant crosswalks will connect the site's main entranceways with the on-site parking areas and the adjacent sidewalk systems along Enterprise Street and Clapp Street. The existing sidewalks provide connections to the adjacent neighborhood, commercial properties, and to the nearby MBTA stations. ADA compliant ramps will be provided where required.

3.6.3 Transportation Demand Management

The Proponent is committed to reducing auto dependency by employees, union members and students through the implementation of a TDM program. These elements are also consistent with the Massachusetts Department of Environmental Protection (MassDEP) directive to use all reasonable and feasible mitigation actions to reduce auto emissions. A preliminary list of potential TDM program elements may include the following:

- *On-Site Transportation Coordinator*. The Proponent will designate an on-site transportation coordinator for all site users. The transportation coordinator will be responsible for disseminating relevant TDM information to employees, union members and students, including posting TDM information at appropriate locations within the buildings and on relevant webpages.

- *MassRIDES*. MassRIDES is MassDOT's statewide travel options program providing free assistance to commuters, employers, students, and other traveler markets. MassRIDES programs may encourage workers, union members, and students to use alternative forms of transportation such as carpooling, vanpooling, and to utilize a large database for rideshare matching. The Proponent will promote commuter assistance programs available through MassRIDES with information also be posted in the proposed building.

- *Public Transportation Information & Promotion*. Posting of service and schedule information.

- *Bicycle Facilities & Promotion*. In accordance with BTD guidelines, bicycle racks will be provided on-site in close proximity to the building entrances. The location and number of racks will be identified more specifically during the site plan review and approval process.

- *Pedestrian Infrastructure/Walking Incentives*. The proposed site layout will include additional sidewalks and/or designated pathways to proposed buildings that connect to the existing sidewalk system along Enterprise Street and Clapp Street. The Proponent will install sidewalks with connections to adjacent roadways to encourage walking on-site and to and from the Project site from the residential and commercial properties in the area, as well as the nearby MBTA stations.

- *Preferential Parking for Carpools and Vanpools*. Preferential parking locations will be provided for those who use carpools and vanpools.

- *No Idling Signage*. Installation of "No Idling" signs at the site's commercial vehicle parking area to reduce the amount of vehicle emissions emitted.

3.6.4 Construction Management Plan

Details of the overall construction schedule, working hours, number of construction workers, worker transportation, and parking, number of construction vehicles, and routes will be addressed in detail in a CMP to be filed with BTD in accordance with the City's transportation maintenance plan requirements. The CMP will also address the need for pedestrian detours, lane closures, and/or parking restrictions, if necessary, to accommodate a safe and secure work zone.

To minimize transportation impacts during the construction period, the following measures will be considered for the CMP:

- Construction workers will be encouraged to use public transportation and/or carpool;

- A subsidy for MBTA passes will be considered for full-time employees; and

- Secure spaces will be provided on-site for workers' supplies and tools so they do not need to be brought to the Project site each day.

The CMP will be executed with BTD prior to commencement of construction and will document all committed measures.

Chapter 4

Environmental Review Component

4.0 ENVIRONMENTAL REVIEW COMPONENT

4.1 Wind

Major buildings, especially those that protrude above their surroundings, often cause increased local wind speeds at the pedestrian level. Typically, wind speeds increase with elevation above the ground surface, and taller buildings intercept these faster winds and deflect them down to the pedestrian level. The funneling of wind through gaps between buildings and the acceleration of wind around corners of buildings may also cause increases in wind speed. Conversely, if a building is surrounded by others of equivalent height, it may be protected from the prevailing upper-level winds, resulting in no significant changes to the local pedestrian-level wind environment.

The building will not significantly protrude above existing and proposed buildings around the site. In addition, the building is located with large open areas around it, including landscaping and trees. Considering these site conditions, it is not anticipated that the Project will impact pedestrian levels winds in the surrounding area.

4.2 Shadow

As typically required by the BPDA, a shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21). In addition, shadow studies were conducted for the 6:00 p.m. time period during the summer solstice and autumnal equinox.

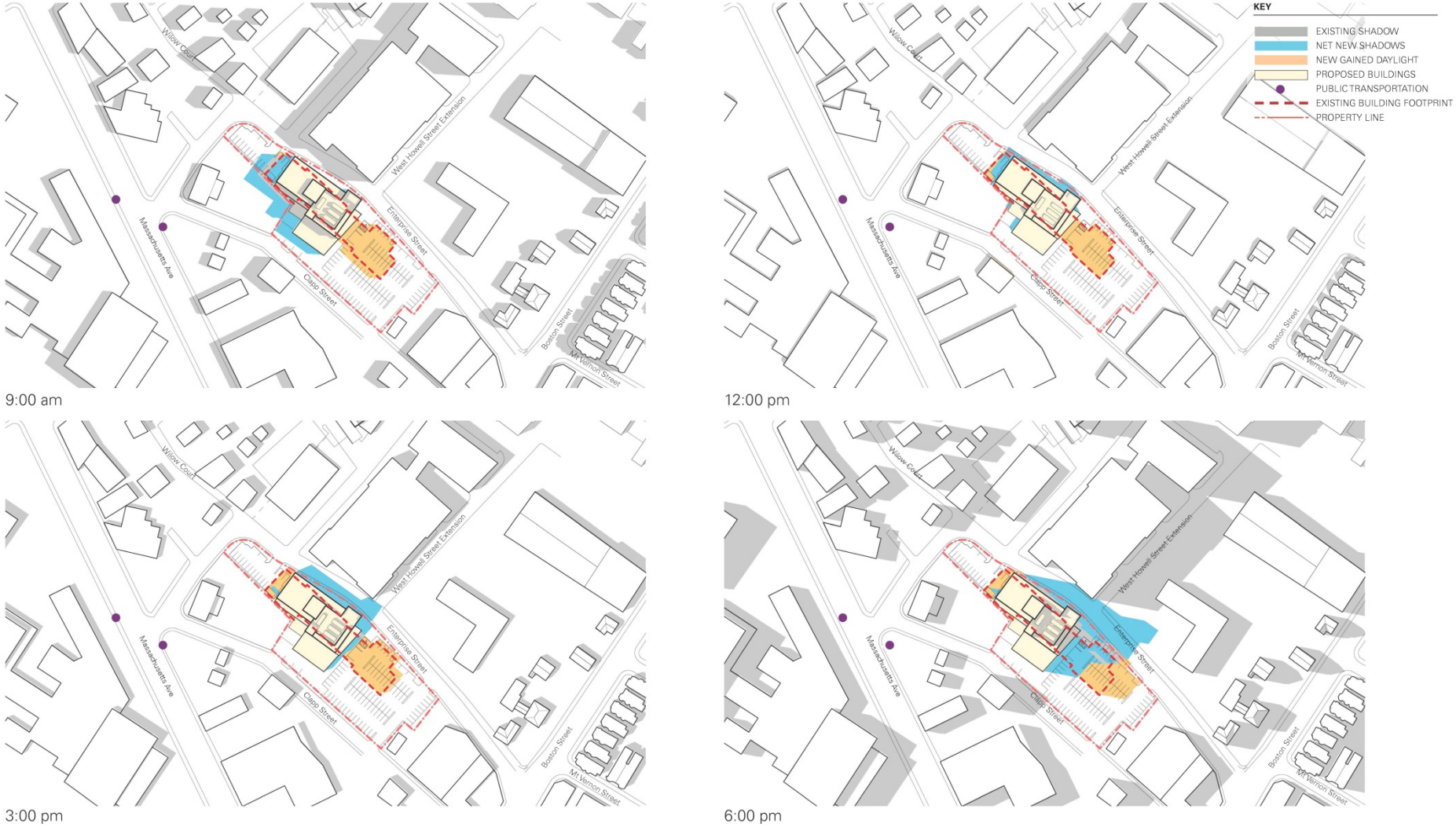
The shadow analysis presents the existing shadow and new shadow that would be created by the Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 4-1 to 4-4.

The results of the analysis show that new shadow from the Project will generally be limited to nearby streets and sidewalks, as well as the Project site. No new shadow is cast onto existing open spaces during the 14 time periods studied. No new shadow is cast onto nearby bus stops during the time periods studied.

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 4-1

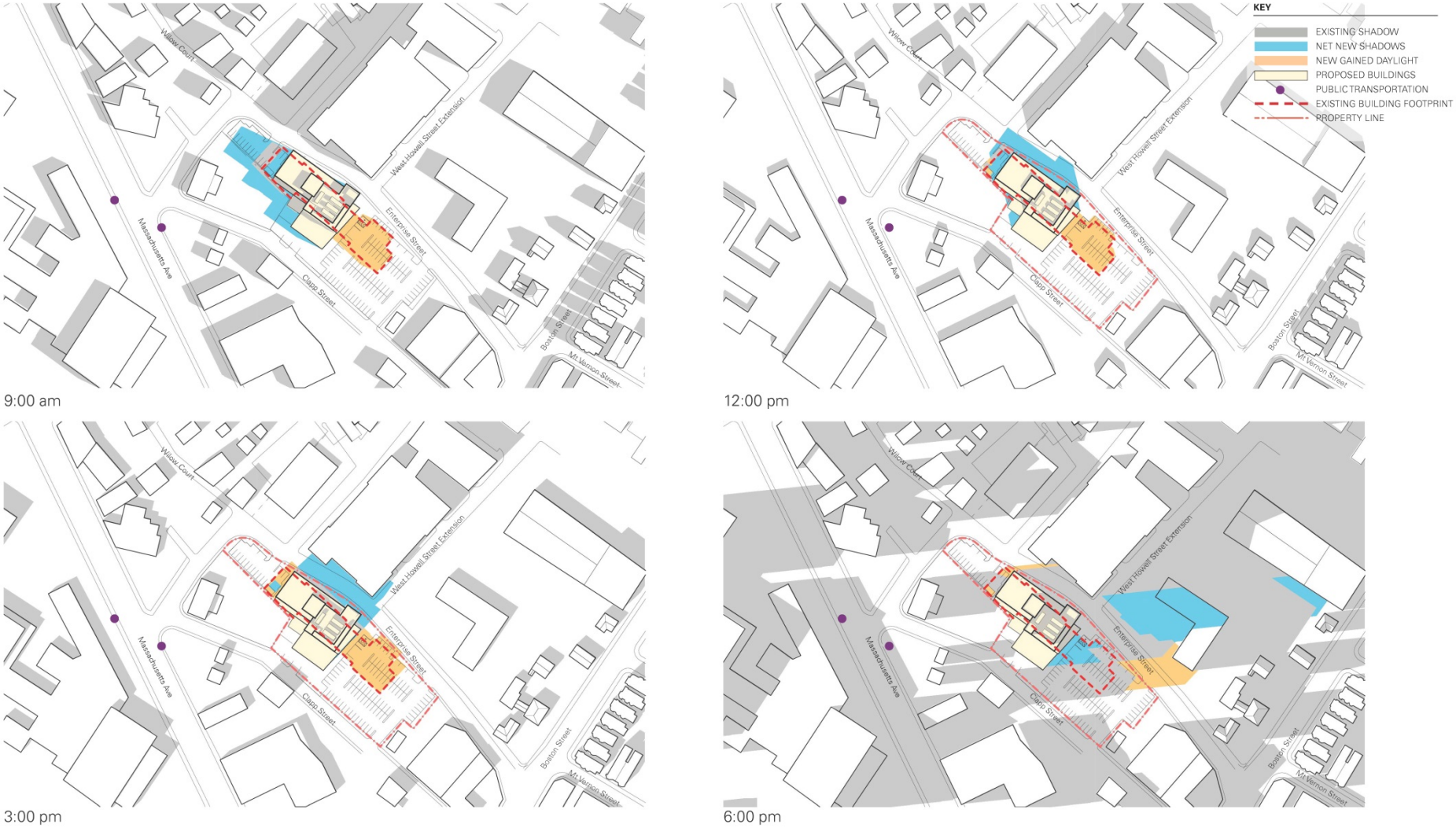
Shadow Study, March 21 9:00 a.m., 12:00 p.m. and 3:00 p.m.



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 4-2

Shadow Study, June 21 9:00 a.m., 12:00 p.m., 3:00 p.m. and 6:00 p.m.



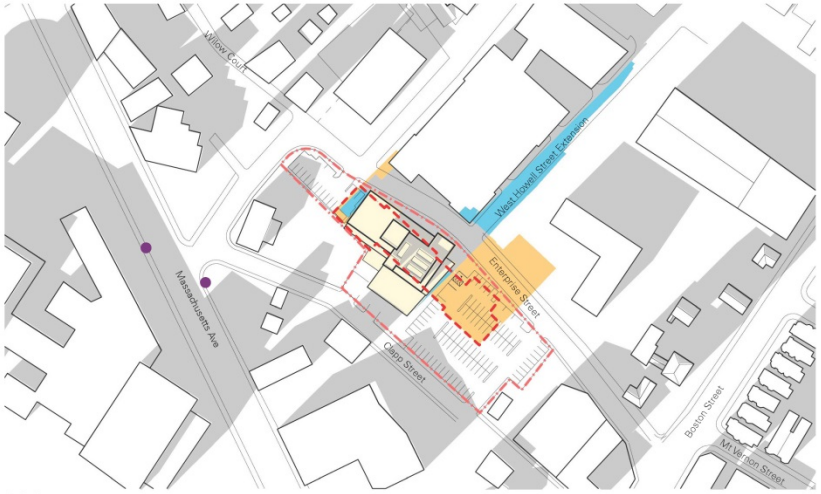
Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 4-3

Shadow Study, September 21 9:00 a.m., 12:00 p.m., 3:00 p.m. and 6:00 p.m.

9:00 am

12:00 pm



3:00 pm

N

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 4-4

Shadow Study, December 21 9:00 a.m., 12:00 p.m. and 3:00 p.m.

4.2.1 Vernal Equinox (March 21)

At 9:00 a.m. during the vernal equinox, new shadow from the Project will be cast to the northwest. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 12:00 p.m., new shadow from the Project will be cast to the north across Enterprise Street and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the north across Enterprise Street and its sidewalks, and a sliver of West Howell Street's western sidewalk. No new shadow will be cast onto nearby bus stops or existing open spaces.

4.2.2 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, new shadow from the Project will be cast to the west. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 12:00 p.m., new shadow from the Project will be minimal. New shadow will be cast to the north. No new shadow will be cast onto nearby stops or existing open spaces.

At 3:00 p.m. and 6:00 p.m., new shadow will be cast to the across portions of Enterprise Street and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

4.2.3 Autumnal Equinox (September 21)

At 9:00 a.m. during the vernal equinox, new shadow from the Project will be cast to the northwest. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 12:00 p.m., new shadow from the Project will be cast to the north across Enterprise Street and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the north across Enterprise Street and its sidewalks and a minor portion of West Howell Street Extension and its western sidewalk. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 6:00 p.m., new shadow will be cast onto nearby parking lots. No new shadow will be cast onto nearby bus stops or existing open spaces.

4.2.4 Winter Solstice (December 21)

At 9:00 a.m. during the winter solstice, new shadow from the Project will be cast to the northwest across Enterprise Street and its sidewalks, and Willow Court and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 12:00 p.m., new shadow will be cast to the north across Enterprise Street and its sidewalks, and across the new roadway being constructed as part of South Bay Town Center and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

At 3:00 p.m., new shadow will be cast to the northeast across West Howell Street Extension and its sidewalks. No new shadow will be cast onto nearby bus stops or existing open spaces.

4.2.5 Conclusions

The shadow analysis examines the impact of new shadow from the Project on the surrounding area during 14 time periods. Of the 14 time periods studied, no new shadow will be cast onto nearby bus stops or existing open public spaces in the vicinity of the Project.

4.3 Daylight

4.3.1 Introduction

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and sidewalks in the immediate vicinity of a project site. The daylight analysis for the Project considers the existing and proposed conditions, as well as typical daylight obstruction values of the surrounding area, including the adjacent South Bay Town Center project which is currently under construction.

Because the Project site is currently occupied by a one-story building and a surface parking lot, the proposed Project will increase daylight obstruction; however, the resulting conditions will be similar to the surrounding area, including the South Bay Town Center view project.

4.3.2 Methodology

The daylight analysis was performed using the Boston Redevelopment Authority Daylight Analysis (BRADA) computer program[1]. This program measures the percentage of "sky dome" that is obstructed by a project, and is a useful tool in evaluating the net change in obstruction from existing to build conditions at a specific site.

Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent city streets or pedestrian ways centered on the proposed building. The façade

[1] Method developed by Harvey Bryan and Susan Stuebing, computer program developed by Ronald Fergle, Massachusetts Institute of Technology, Cambridge, MA, September 1984.

of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map generated by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of 0 to 100 percent based on the width of the view, the distance between the viewpoint and the building, and the massing and setbacks incorporated into the design of the building; the lower the number, the lower the percentage of obstruction of daylight from any given viewpoint.

The analysis compares three conditions: Existing Conditions; Proposed Conditions; and the context of the area. Two area context viewpoints were considered to provide a basis of comparison to existing conditions in the surrounding area. The viewpoints of the Project site and area context viewpoints were taken in the following locations and are shown on Figure 4-5.

- **Viewpoint 1:** View from Enterprise Street facing southwest toward the Project site.
- **Viewpoint 2:** View from Clapp Street facing northeast toward the Project site.
- **Area Context Viewpoint AC1:** View from Massachusetts Avenue facing northeast toward 1250 Massachusetts Avenue.
- **Area Context Viewpoint AC2:** View from Clapp Street facing southwest toward 50 Clapp Street.

4.3.3 Results

The results for each viewpoint are described in Table 4.3-1. Figures 4-6 and 4-7 illustrate the BRADA results for each analysis.

Table 4.3-1 Daylight Analysis Results

Viewpoint Locations		Existing Conditions	Proposed Conditions
Viewpoint 1	View from Enterprise Street facing southwest toward the Project site	15.8%	48.8%
Viewpoint 2	View from Clapp Street facing northeast toward the Project site	12.4%	8.2%
Area Context Points			
AC1	View from Massachusetts Avenue facing northeast toward 1250 Massachusetts Avenue	19.2%	N/A
AC2	View from Clapp Street facing southwest toward 50 Clapp Street	49.2%	N/A

Enterprise Street – Viewpoint 1

Enterprise Streets runs along the northern edge of the Project site. Viewpoint 1 was taken from the center of Enterprise Street facing southwest toward the Project site. Since the site is currently occupied by a low-rise building and a surface parking lot, the development of the Project would result in an increased daylight obstruction value of 48.8 percent. While this is an increase over existing conditions, the daylight obstruction value is less than other areas in the vicinity, including the Area Context viewpoints and the proposed South Bay Town Center project adjacent to the Project site.

Clapp Street – Viewpoint 2

Clapp Street runs along the southern edge of the Project site. Viewpoint 2 was taken from the center of Clapp Street facing northeast toward the Project site, which currently includes low-rise buildings and a surface parking lot. In the proposed condition, the setbacks of the taller portions of the building and the distance of the Project from the edge of the property line will result in a daylight obstruction value of 8.2 percent.

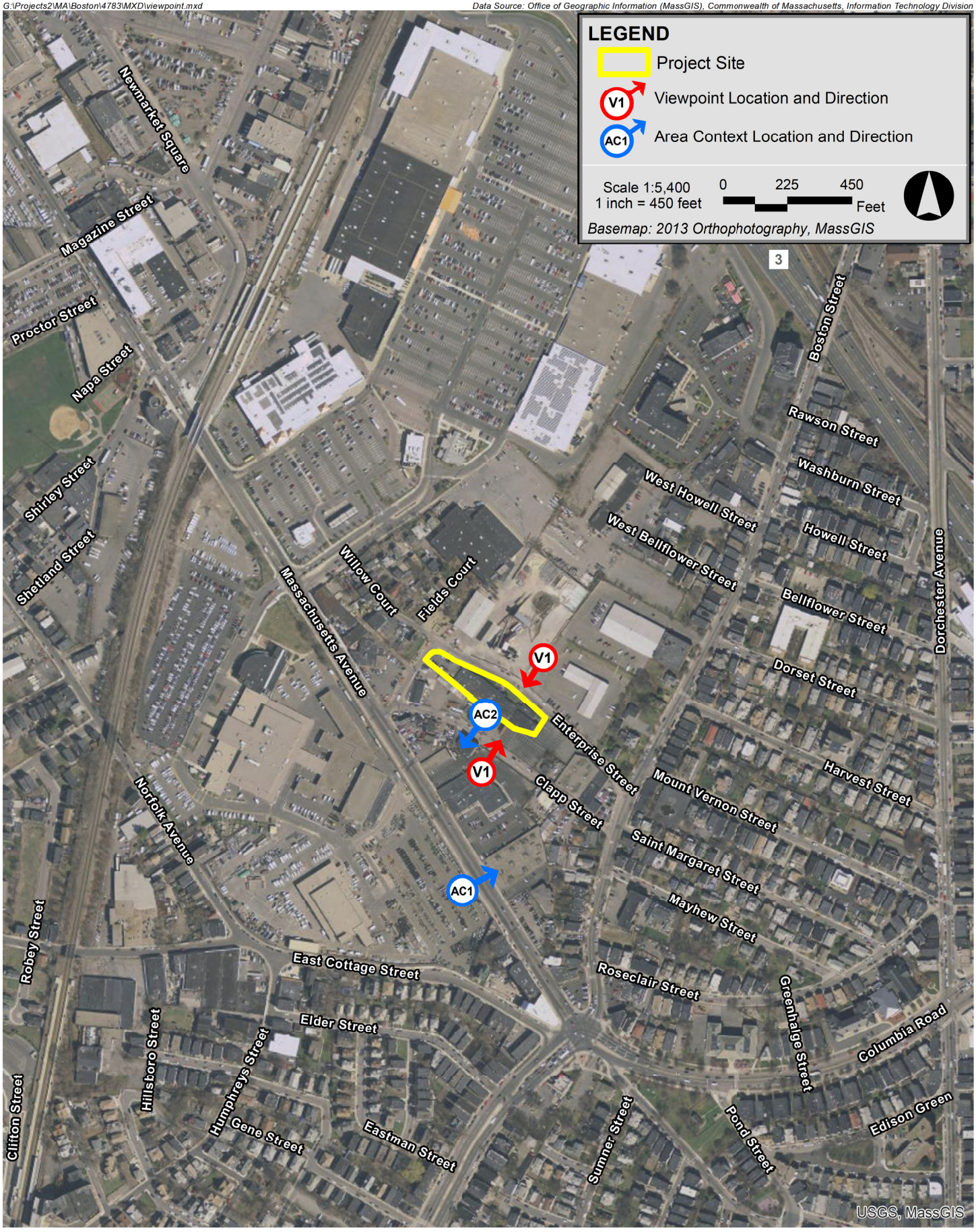
Area Context Views

The surrounding area around the Project site includes buildings varying in height and density, and proposed projects in the immediate vicinity of the Project site will increase the density of the surrounding area. To provide a larger context for comparison of daylight conditions, obstruction values were calculated for the two Area Context Viewpoints described above and shown in Figure 4-5. The daylight obstruction values were 19.2 percent for AC1 and 49.2 percent for AC2.

The South Bay Town Center development, located adjacent to the Project site on Enterprise Street, includes the construction of five buildings which will include approximately 113,000 sf of retail and dining space, a 12-screen cinema, approximately 475 apartment units, a hotel with approximately 130 rooms, and associated structured parking. Due to the scale and siting of the buildings of the South Bay Town Center development, the daylight obstruction values will range from 5.5 percent to 79.6 percent.

4.3.4 Conclusion

The daylight analysis conducted for the Project describes existing and proposed daylight obstruction conditions at the Project site and in the surrounding area. The results of the BRADA analysis indicate that while the development of the Project will result in increased daylight obstruction over existing conditions, the resulting conditions will be similar to or lower than the daylight obstruction values within the surrounding area, within the proposed South Bay Town Center development.

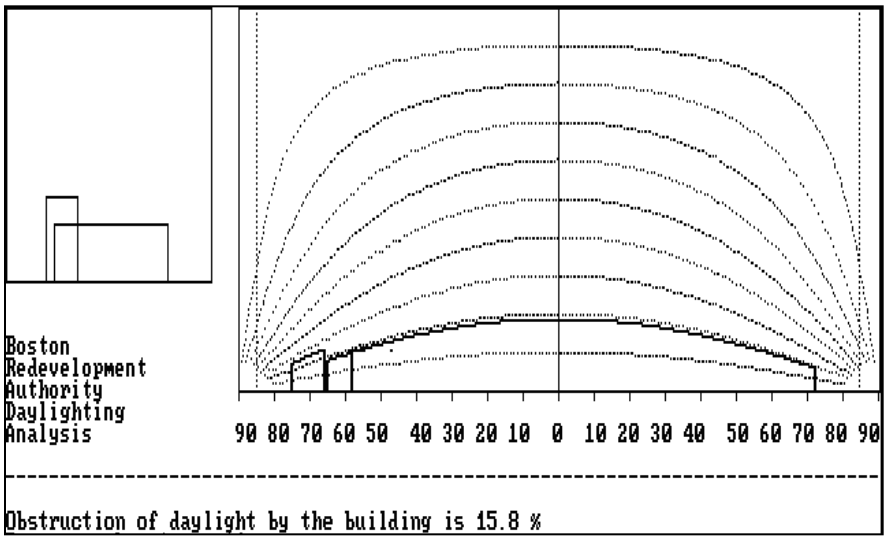


Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

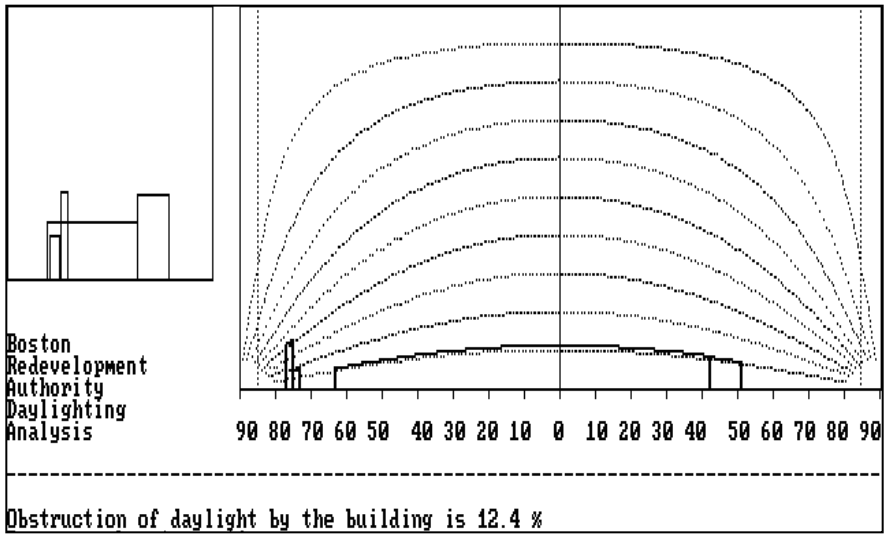
Epsilon Associates Inc.

Figure 4-5

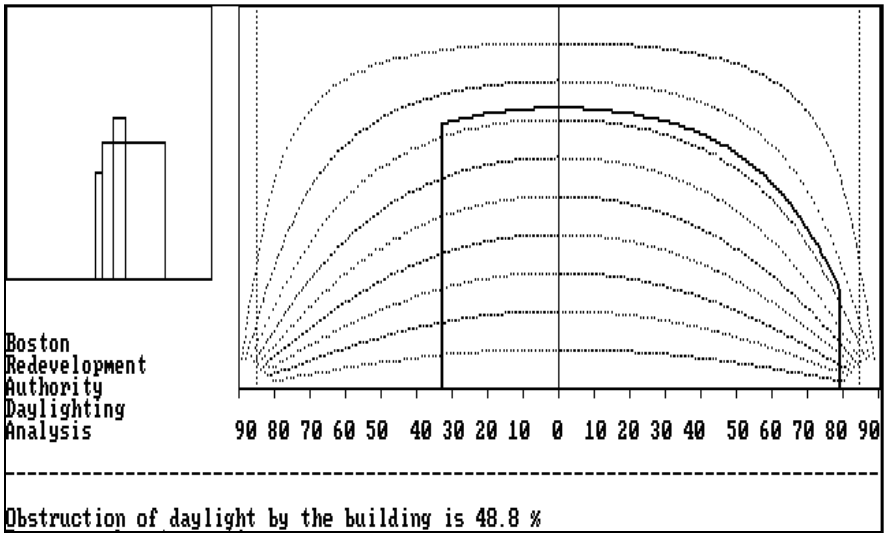
Viewpoint and Area Context Locations



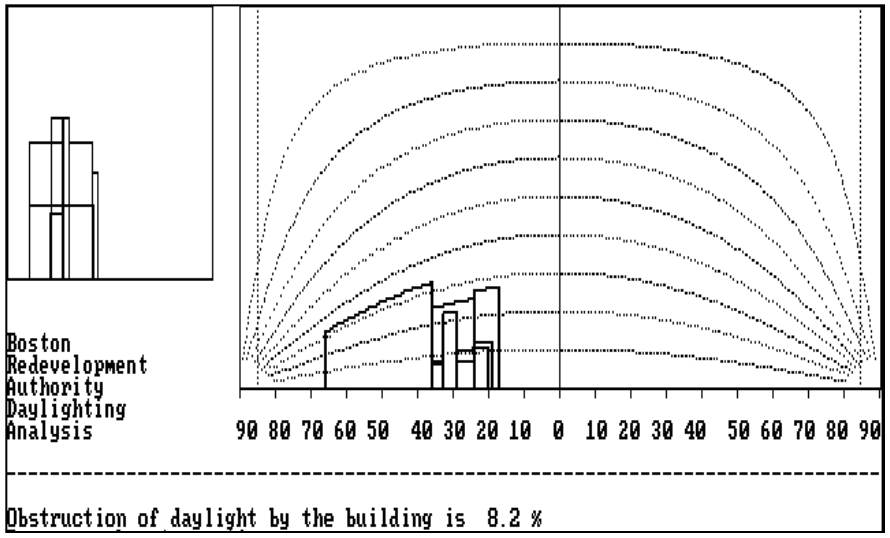
Viewpoint 1 (Existing): View from Enterprise Street facing southwest toward the Project site



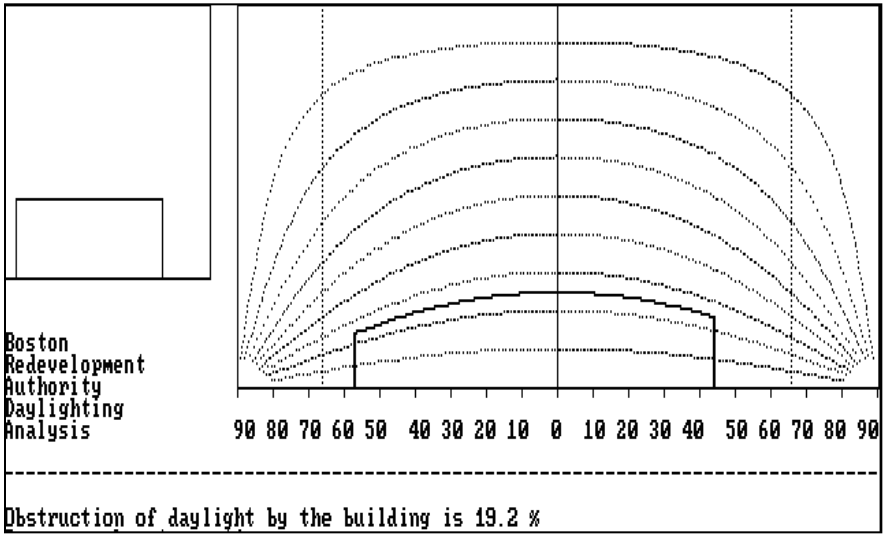
Viewpoint 2 (Existing): View from Clapp Street facing northeast toward the Project site



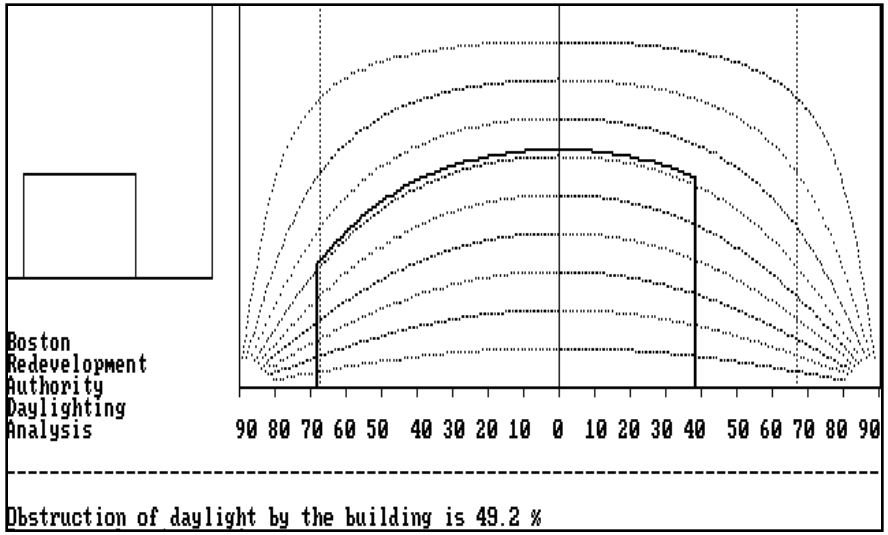
Viewpoint 1 (Proposed): View from Enterprise Street facing southwest toward the Project site



Viewpoint 2 (Proposed): View from Clapp Street facing northeast toward the Project site



AC1: View from Massachusetts Avenue facing northeast toward 1250 Massachusetts Avenue



AC2: View from Clapp Street facing southwest toward 50 Clapp Street

4.4 Solar Glare

The Project will not include the use of reflective glass or other reflective materials on the building facades that would result in adverse impacts from reflected solar glare from the Project.

4.5 Air Quality

The proposed Project is not expected to have any significant adverse air quality impacts. The Project will generate only a nominal increase in daily traffic, expected to be less than approximately 50 trips per day. Therefore, mobile source emissions attributable to the Project will be very minor. Stationary source emissions will be typical of those for a building of the type and size proposed. The Proponent is committed to constructing a LEED Certifiable green building that will include a number of energy saving features, which will in turn help to limit emissions. The Proponent expects that installed emission sources such as boilers and emergency generators will be permitted, if required, by the Massachusetts Department of Environmental Protection's (MassDEP) Environmental Results Program, and will comply with all applicable state and federal regulations. For these reasons, the Project is not anticipated to adversely affect air quality.

4.6 Stormwater / Water Quality

Chapter 8 includes information about stormwater and water quality.

4.7 Flood Hazard Zones / Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) for the site – Community Panel Number 25025C0079J – effective March 16, 2016 indicates the FEMA Flood Zone Designations for this site area. The FIRMs show that the Project is outside of the 500-year flood zone.

The site is developed and does not contain wetlands.

4.8 Geotechnical Impacts

The Project will be built in full compliance with local, state, and federal environmental regulations. This section addresses the below-grade construction activities anticipated for the Project. It discusses anticipated existing soil and groundwater conditions, anticipated foundation construction methods, and excavation work anticipated for the Project based on subsurface information obtained from other sites in the vicinity of the Project.

4.8.1 Subsurface Soil Conditions

Based on subsurface explorations completed at adjacent properties, it is anticipated that the existing ground surface is underlain by a five to 15-foot thickness of miscellaneous granular

fill. The fill is anticipated to be underlain by a natural outwash deposit consisting of compact to dense sand and gravel. The outwash deposit is anticipated to extend to depths of at least 60 feet below the existing ground surface, and is anticipated to be underlain by successive deposits of glacial till and bedrock.

A subsurface exploration program will be performed at the Project site as part of the design phase of the Project.

4.8.2 Groundwater Conditions

The stabilized groundwater level in observation wells located at adjacent properties was observed to range from approximately Elevation +7.2 to Elevation +7.9 Boston City Base (BCB). It is anticipated that future groundwater levels across the site may vary from those reported herein due to factors such as normal seasonal changes, periods of heavy precipitation, and alterations of existing drainage patterns.

As part of the proposed subsurface exploration program, groundwater levels will be monitored within the completed explorations, and a groundwater observation well will be installed at the Project site.

The Project site is located outside the Groundwater Conservation Overlay District (GCOD) as outlined in Article 32 of the City of Boston Zoning Code.

Some local dewatering may be required during the construction process to manage and remove surface water (precipitation) runoff into the open/uncovered below grade building footprint. To the extent possible, the Project will attempt to recharge/infiltrate that water into the ground outside the building footprint. Construction dewatering will be performed in accordance with applicable Massachusetts Water Resources Authority (MWRA), EPA, BWSC and MassDEP regulations and policies.

4.8.3 Foundation Design and Construction

Foundation support for the Project will likely be provided by spread footing foundations bearing on either the natural outwash deposit or on existing fill material that has been subjected to ground improvement techniques. The lowest level slab will likely consist of a slab-on-grade.

4.9 Solid and Hazardous Waste

Asphalt pavement, brick, and concrete (ABC) rubble generated from demolition of site walkways and structures will be handled in accordance with applicable MassDEP solid waste policies. The Proposed Project's disposal contract will include specific provisions for the segregation, reprocessing, reuse, and/or recycling of building materials and demolition debris. Those materials that cannot be reused on-site will be transported in covered trucks to an approved solid waste facility per applicable MassDEP solid waste policies.

Abatement and disposal of hazardous materials (or hazardous waste), if encountered, will be performed under the provisions of MGL c21/2C, OSHA, and the Massachusetts Contingency Plan (MCP) by specialty contractors experienced and licensed in handling materials of this nature.

4.9.1 Site History and Compliance with Massachusetts Contingency Plan

An environmental due diligence investigation is currently in the process of being performed at the Project site, the results of which will be documented in a Phase I Environmental Site Assessment (ESA) report. Initial research indicates that the site is currently in compliance with the MCP. In the event that the due diligence investigation identifies geoenvironmental concerns relevant to the proposed construction, additional investigation will be performed.

It is currently anticipated that construction of the proposed building and site improvements will require excavation and off-site reuse, recycling, or disposal of fill and/or underlying natural soils. Off-site reuse of excess excavated soil will be conducted in accordance with the current policies of the MassDEP. It is anticipated that the fill will be considered regulated for off-site reuse. Chemical testing of soil samples will be performed as needed to characterize the soils for off-site reuse. The transported soils will be managed in accordance with the MCP (310 CMR 40.0000) and other applicable MassDEP regulatory requirements. Off-site reuse of site soils will be tracked via Material Shipping Records, Bills of Lading and/or other methods, as required to monitor their proper and legal disposal.

The Proponent will retain a Licensed Site Professional (LSP) to manage the environmental aspects of the Project, including proper management and/or disposal of contaminated soil encountered during construction. The LSP will also prepare required MCP regulatory compliance submittals.

4.9.2 Operational Solid Waste and Recycling

The Project will continue to generate solid waste as it current does related to its use of the new building, which will be generally the same as the use of the existing building on the site. Recyclable materials will be collected and stored in a central location, and regularly collected by a waste management company. Local 537 has a dumpster for everyday trash and a monthly pick up for paper shredding.

4.10 Noise

The City of Boston has both a noise ordinance and noise regulations. Chapter 16 §26 of the Boston Municipal Code sets the general standard for noise that is unreasonable or excessive: louder than 50 decibels between the hours of 11:00 p.m. and 7:00 a.m., or louder than 70 decibels at all other hours. The Boston Air Pollution Control Commission (APCC) has adopted regulations based on the City's ordinance - "Regulations for the Control of Noise in the City of Boston", which distinguish among residential, business, and

industrial districts in the city. In particular, APCC Regulation 2 is applicable to the sounds from the proposed Project.

Table 4.10-1 below presents the "Zoning District Noise Standards" contained in Regulation 2.5 of the APCC "Regulations for the Control of Noise in the City of Boston," adopted December 17, 1976. These maximum allowable sound pressure levels apply at the property line of the receiving property. Zoning District Noise Standards are presented below in Table 4.10-1.

Table 4.10-1 City of Boston Zoning District Noise Standards, Maximum Allowable Sound Pressure Levels

Octave-band Center Frequency (Hz)	Residential Zoning District		Residential-Industrial Zoning District		Business Zoning District Anytime (dB)	Industrial Zoning District Anytime (dB)
	Daytime (dB)	All Other Times (dB)	Daytime (dB)	All Other Times (dB)		
32	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	61	73	65	73	77
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1000	50	40	56	45	56	61
2000	45	33	51	39	51	57
4000	40	28	47	34	47	53
8000	38	26	44	32	44	50
A-Weighted (dBA)	**60**	**50**	**65**	**55**	**65**	**70**

Notes:
- Noise standards are extracted from Regulation 2.5, City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", adopted December 17, 1976.
- All standards apply at the property line of the receiving property.
- dB and dBA based on a reference sound pressure of 20 micropascals.
- 'Daytime' refers to the period between 7:00 a.m. and 6:00 p.m. daily, excluding Sunday.

Additionally, the MassDEP has the authority to regulate noise under 310 CMR 7.10, which is part of the Commonwealth's air pollution control regulations. According to MassDEP, "unnecessary" noise is considered an air contaminant and thus prohibited by 310 CMR 7.10. The MassDEP administers this regulation through Noise Policy DAQC 90-001 which limits a source to a 10-dBA increase above the L_{90} ambient sound level measured at the Project property line and at the nearest residences. The MassDEP policy further prohibits

"pure tone" conditions where the sound pressure level in one octave-band is 3 dB or more than the sound levels in each of two adjacent bands.

While the details of the mechanical equipment associated with the Project have not yet been precisely determined, steady operational noise from stationary sources will primarily involve heating, cooling, and ventilation equipment for the office, auditorium and shop areas, including: cooling towers, fans, gas-fired condensing boilers, energy recovery unit, chillers, variable air handling units and an emergency generator.

At this time, the mechanical equipment and noise controls are conceptual in nature and, during the final design phase of the Project, will be specified to meet the applicable City of Boston and MassDEP noise limits. Reasonable efforts will be made, if necessary, to minimize noise impacts from the Project using routinely employed methods of noise control, including:

- Selection of "low-noise" equipment models;
- Fitting of inlet and discharge vents with duct silencers;
- Installation of screening barriers to provide shielding where appropriate;
- Use of sound-attenuating enclosures, acoustical blankets, or both on continuously operating equipment with outdoor exposure; and
- Siting of noisy equipment at locations that protect sensitive receptors by shielding or with increased distance.

In summary, the Project, with appropriate noise control, is not expected to result in any adverse noise impacts at nearby sensitive receptors. Short-term, intermittent increases in noise levels will occur during Project construction. However, every reasonable effort will be made to minimize the noise impacts and ensure the Project complies with the requirements of the City of Boston noise ordinance.

4.11 Construction

4.11.1 Introduction

A Construction Management Plan (CMP) in compliance with the City's Construction Management Program will be submitted to BTD once final plans are developed and the construction schedule is fixed. The construction contractor will be required to comply with the details and conditions of the approved CMP.

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies which ensure public safety and protect nearby residences and businesses will be employed. Techniques such as

barricades, walkways and signage will be used. The CMP will include routing plans for trucking and deliveries, plans for the protection of existing utilities, and control of noise and dust.

During the construction phase of the Project, the Proponent will provide the name, telephone number and address of a contact person to communicate with on issues related to the construction.

The Proponent intends to follow the guidelines of the City of Boston and the MassDEP which direct the evaluation and mitigation of construction impacts.

4.11.2 Construction Methodology/Public Safety

Construction methodologies that ensure public safety will be employed. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

As the design of the Project progresses, the Proponent will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. If required by BTD and the Boston Police Department, police details will be provided to facilitate traffic flow. These measures will be incorporated into the CMP which will be submitted to BTD for approval prior to the commencement of construction work.

4.11.3 Construction Schedule

Construction of the Project is estimated to last approximately 12 months, with initial site work expected to being in the 3rd quarter of 2017.

Typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Friday, with most shifts ordinarily ending at 3:30 p.m. No substantial sound-generating activity will occur before 7:00 a.m. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. It is noted that some activities such as finishing activities could run beyond 6:00 p.m.

4.11.4 Construction Staging/Access

Access to the site and construction staging areas will be provided in the CMP.

Although specific construction and staging details have not been finalized, the Proponent and its construction management consultant will work to ensure that staging areas will be

located to minimize impacts to pedestrian and vehicular flow. Secure fencing and barricades will be used to isolate construction areas from pedestrian traffic adjacent to the site. Construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

4.11.5 Construction Mitigation

The Proponent will follow City and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts.

A CMP will be submitted to BTD for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. The CMP will also define truck routes which will help in minimizing the impact of trucks on City and neighborhood streets.

"Don't Dump – Drains to Boston Harbor" plaques will be installed at storm drains that are replaced or installed as part of the Project.

4.11.6 Construction Employment and Worker Transportation

To reduce vehicle trips to and from the construction site, minimal construction worker parking will be available at the site and all workers will be encouraged to use public transportation and ridesharing options. The general contractor will work to ensure that construction workers are informed of the public transportation options serving the area. Space on-site will be made available for workers' supplies and tools so they do not have to be brought to the site each day.

4.11.7 Construction Truck Routes and Deliveries

Truck traffic will vary throughout the construction period, depending on the activity. The construction team will manage deliveries to the site during morning and afternoon peak hours in a manner that minimizes disruption to traffic flow on adjacent streets. Construction truck routes to and from the site for contractor personnel, supplies, materials, and removal of excavations required for the development will be coordinated with BTD. Traffic logistics and routing will be planned to minimize community impacts. Truck access during construction will be determined by the BTD as part of the CMP. These routes will be mandated as a part of all subcontractors' contracts for the development. The construction team will provide subcontractors and vendors with Construction Vehicle & Delivery Truck Route Brochures in advance of construction activity.

4.11.8 Construction Air Quality

Short-term air quality impact from fugitive dust may be expected during the removal of soil materials and during the early phases of the Project site preparation activities. The

construction contract for the project will require the contractor to reduce potential emissions and minimize air quality impacts. Mitigation measures are expected to include the use of wetting agents where needed on a scheduled basis, covered trucks, minimizing exposed construction debris stored on-site, monitoring construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized, locating aggregate storage piles away from areas having the greatest pedestrian activity where and when possible, and periodic cleaning of streets and sidewalks to reduce dust accumulations.

4.11.9 Construction Noise

The Proponent is committed to mitigating noise impacts from the construction of the Project. Increased community sound levels, however, are an inherent consequence of construction activities. Construction work will comply with the requirements of the City of Boston Noise Ordinance. Every reasonable effort will be made to minimize the noise impacts of construction activities.

Mitigation measures are expected to include:

- Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Replacing specific construction operations and techniques by less noisy ones where feasible;
- Selecting the quietest of alternative items of equipment where feasible;
- Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;
- Turning off idling equipment; and
- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

4.11.10 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of construction waste. The disposal contract will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials when possible. For those materials that cannot be recycled, solid

waste will be transported in covered trucks to an approved solid waste facility, per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. Construction will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility. Waste management will be addressed during demolition, construction and once occupied. The Construction Manager will provide a construction waste management plan to divert a minimum of 75 percent of the construction and demolition debris, and track at least four different waste streams.

4.11.11 Protection of Utilities

Existing public and private infrastructure located within the public right-of-way will be protected during construction. The installation of proposed utilities within the public way will be in accordance with the MWRA, BWSC, Boston Public Works, Dig Safe, and the governing utility company requirements. All necessary permits will be obtained before the commencement of the specific utility installation. Specific methods for constructing proposed utilities where they are near to, or connect with, existing water, sewer, and drain facilities will be reviewed by BWSC as part of its Site Plan Review process.

4.12 Rodent Control

A rodent extermination certificate will be filed with the building permit application for the Project. Rodent inspection monitoring and treatment will be carried out before, during and at the completion of all construction work for each phase of the Project, in compliance with the City's requirements.

4.13 Wildlife Habitat

The Project site is in an established urban neighborhood. There are no wildlife habitats in or adjacent to the Project site.

Chapter 5

Sustainable Design and Climate Change Resilience

5.0 SUSTAINABLE DESIGN AND CLIMATE CHANGE RESILIENCE

Article 37 of the Code requires projects subject to Article 80B of the Code be designed to meet the compliance level of LEED certifiable using the appropriate LEED rating system as guidance. The proposed Project will meet or exceed this requirement using the LEED for New Construction v4 rating system.

The checklist indicating the targeted LEED credits and the narrative below summarize the sustainable design compliance approach for the proposed Project.

5.1 Sustainability/Green Building Design Approach

Integrative Process (IP)

The Project team will meet regularly to ensure that the team members from the various disciplines involved are all known to each other and collectively communicating. A sustainable design focused workshop has already been held at which the team established shared sustainable design and energy efficiency goals for the Project. As the Project progresses, there will be regular design meetings to ensure the entire team is engaged throughout the design and construction process.

The Project team will meet with Eversource and National Grid to discuss the incentive programs and potential Energy Conservation Measures for the Project.

Location and Transportation (LT)

The Project is on a previously developed site in the Dorchester neighborhood of the City of Boston. It is located in close proximity to several public services, including the Newmarket commuter rail station, and has access to multiple bus routes, a shuttle to the nearby Andrews Square transportation hub, as well as vehicular access to major highway routes.

The Union members, staff, and students, will have access to at-grade parking with parking spaces allocated for Low Emitting Fuel Efficient vehicles and Electric vehicle charging stations. The amount of parking will not exceed the amount permitted by zoning. Short–term and long-term bike storage will be provided as per City of Boston requirements, as well as showers and changing facilities. The nearby streets have a low speed limit of 25 MPH for pedestrian and cyclist safety. The immediate neighborhood provides a variety of services with pedestrian and cyclist access including restaurants, grocery stores, banks, and a church.

Sustainable Sites (SS)

The Project site is a previously developed urban site. A site assessment will be completed in order to determine if there are any contaminated soils that would require regulated removal. If deemed necessary, a compliant remediation plan will be drafted, submitted and

implemented to ensure that the contaminated soils requiring removal are categorized and disposed of properly.

To the extent possible, pedestrian-oriented hardscape and open spaces will be provided to increase site walkability. Additionally, a rainwater management plan will be developed to address the rate, run-off and quality of the site rainwater. The Project is planning to meet Boston Water and Sewer Commission requirements by significantly reducing the rainwater runoff by directing it into a below grade re-charge/collection system sized to treat one-inch of rain over all impervious areas of the site. Rainwater directed to the municipal system will be treated to remove suspended solids prior to being released into the City system.

Water Efficiency (WE)

The Project will reduce potable water use for both sewage conveyance and irrigation needs. The Project team will specify low flow/high efficiency plumbing fixtures including 1.28 gallon per flush (gpf) water closet, 0.125 gpf urinals, 0.5 gpm lavatory faucet (metered), 1.5 gpm kitchen faucet, and 1.5 gpm showers.

The Proponent anticipates, and will target, reducing the annual potable water use for sewage conveyance by approximately 35 percent.

The landscape design will use a mixture of drought tolerant trees, shrubs, and groundcover that grow well in an urban environment. The irrigation system will be designed to use 50 percent less potable water when compared to a mid-summer baseline.

The Project team is considering installing permanent water meters on multiple water sub-systems in order to support water savings by tracking water consumption.

Energy and Atmosphere (EA)

The Project will be designed with high efficiency building systems and a high performance building envelope. A photovoltaic array will be considered for further investigation.

The proposed HVAC system design for the building includes a VAV system with chiller and condensing boilers. Energy recovery ventilation has been proposed in the auditorium. Additionally, the Project team is investigating additional energy recovery measures such as a heat reclaim system that uses the waste heat from the welding hoods. The proposed lighting will target a lighting power density below code maximums through the use of daylight dimming, carefully considered controls systems and LED fixtures.

Refrigerants with low global warming and ozone depleting potential will be specified for use in the building systems equipment.

The preliminary energy use assessment will be conducted using whole building energy modeling. The proposed design must meet both the State Stretch Energy Code and LEED v4

criteria. The Stretch Code compliance model is compared to an ASHRAE 90.1-2013 baseline, and the LEED model is compared to the ASHRAE 90.1-2010 baseline.

The team will provide energy modeling results for the Project that indicates an average annual energy use savings, and an annual energy cost savings with the Green Building Report to be filed around the time of the Building Permit application.

The Proponent has engaged a Commissioning Agent (CxA) to perform both fundamental and enhanced commissioning services, including providing reviews of design documents. The CxA will continue on through construction and ultimately confirm the building systems are installed and function as intended and desired. The Proponent is considering pursing building envelope commissioning to ensure the building systems are designed to, and meet, the Proponent's goals and expectations.

Materials and Resources (MR)

The Project will specify materials and products that are environmentally responsible and are transparent regarding the harvest and extraction of raw materials and the manufacturing processes. The design team will endeavor to specify materials and products with environmental and health product declarations to help support a reduced impact of the development on the environment.

Waste management will be addressed during demolition, construction and once occupied. The Construction Manager will provide a construction waste management plan to divert a minimum of 75 percent of the construction and demolition debris, and track at least four different waste streams.

Once occupied, collected recyclables will be accommodated on the ground floor of the building in an area near the loading dock. Building maintenance staff will bring their recyclables to the recycling collection area where a contracted waste management company will pick up the collected recyclables on a regular basis.

Indoor Environmental Air Quality (IEQ)

The Project will have a healthy interior environment generated through the use of low-VOC containing interior construction and finish materials, and maintained through an efficient ventilation system in compliance with ASHRAE 62.1-2010. In compliance with local regulations, the building will be non-smoking and further prohibited within 25 feet of the building. A designated smoking area will be located on the site.

Additionally, during construction, the Construction Manager will develop and implement a compliant Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the Project.

The building envelope design includes large areas of vision glazing with ample access to daylight and views for the anticipated regularly occupied spaces.

The buildings thermal comfort systems and controls will be designed to meet the requirements of ASHRAE 55-2010 for all applicable mechanically ventilated regularly occupied spaces.

Innovation in Design (ID)

The Project will explore innovative approaches to design and maintenance, including considerations for a sustainable cooling tower water treatment technology and integrating green building education into teaching curriculum.

Regional Priority Credits (RPC)

Applicable Regional priority credits for the Project site that will continue to be evaluated include:

- EA c5 Renewable Energy Production (2pt threshold);
- EAc2 Optimize Energy Performance (8pt threshold);
- LTc3 High Priority Site;
- SSc4 Rainwater Management; and
- WEc2 Indoor Waste Use Reduction (4pt threshold).

5.2 Climate Change Resilience

5.2.1 Introduction

Climate change conditions considered by the Project team include higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, more severe freezing rain and heavy rainfall events, and increased wind gusts.

The expected life of the Project is anticipated to be approximately 50 years. Therefore, the Proponent has planned for climate-related conditions projected 50 years into the future. A copy of the completed Checklist is included in Appendix C. Given the preliminary level of design, the responses are also preliminary and may be updated as the Project design progresses.

5.2.2 Extreme Heat Events

According to "Climate Ready Boston," the City of Boston can expect that the number of days with temperatures greater than 90°F will increase from the current 11 days annually experienced between 1971 and 2000, to between 25 and 90 days annually by 2070, depending on the extent of greenhouse gas emissions over the next several decades.[1] Extreme heat can have serious negative impacts on human health and infrastructure, both of which will affect quality of life. The Project design will incorporate a number of measures to minimize the impact of high temperature events, including:

- Installing operable windows where possible;
- Planting shade trees around the site;
- Installing a high performance building envelope; and
- Specifying high reflective paving materials, high albedo roof tops to minimize the heat island effect.

Energy modeling for the Project has not yet been completed; however, the Proponent will strive to reduce the Project's overall energy demand and greenhouse gas emissions that contribute to global warming. The Proponent will encourage alternative modes of transportation through the Project's TDM program, as described in Section 3.6.3.

5.2.3 Rain Events

As a result of climate change, the Northeast is expected to experience more frequent and intense storms. To mitigate this, the Proponent will take measures to minimize stormwater runoff and protect the Project's mechanical equipment. The Project will be designed to reduce the existing peak rates and volumes of stormwater runoff from the site, and promote runoff recharge to the greatest extent practicable. Section 8.4 includes a discussion of stormwater management, including measures to reduce runoff from the site.

5.2.4 Drought Conditions

Although more intense rain storms are predicted, extended periods of drought are also predicted due to climate change. Under the high emissions scenario, the occurrence of droughts lasting one to three months could go up by as much as 75 percent over existing conditions by the end of the century. To minimize the Project's susceptibility to drought conditions, the landscape design is anticipated to incorporate native and adaptive plant materials. Aeration fixtures and appliances will be chosen for water conservation qualities, conserving potable water supplies.

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[1] Climate Ready Boston, December 7, 2016.

5.3 Renewable Energy

The Proponent will evaluate the potential for a roof-mounted solar photovoltaic (PV) system, and the availability of grants and renewables funding. Most of the roof area will be devoted to mechanical equipment. With a total of approximately 5,391 sf of available roof area, approximately 60 percent of the space would be set aside for space around the panels, between panels, etc. This leaves approximately 3,235 sf available for rooftop solar. Assuming 12 watts per square foot, this allows for an approximately 39 kW array. In the location proposed, an installation of this solar array equals an annual generation of approximately 52 MW hours. The Proponent will continue to evaluate the feasibility of installing a solar PV array, including financial incentives and considerations of the electrical network and impacts to aviation, as the design develops.

LEED v4 for BD+C: New Construction and Major Renovation

Project Checklist

Project Name: Local 537 Pipefitters
Date: March 27, 2017

Y	?	N			
1			Credit	Integrative Process	1

8	6	2	Location and Transportation		16
		x	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1	1		Credit	High Priority Site	2
2	3		Credit	Surrounding Density and Diverse Uses	5
2	2	1	Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
		1	Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

3	3	4	Sustainable Sites		10
Y			Prereq	Construction Activity Pollution Prevention	Required
	1		Credit	Site Assessment	1
	1	1	Credit	Site Development - Protect or Restore Habitat	2
		1	Credit	Open Space	1
3			Credit	Rainwater Management	3
		2	Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1

6	3	2	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
1	1		Credit	Outdoor Water Use Reduction	2
3	1	2	Credit	Indoor Water Use Reduction	6
1	1		Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

12	19	2	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
6			Credit	Enhanced Commissioning	6
6	12		Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
		2	Credit	Demand Response	2
	3		Credit	Renewable Energy Production	3
	1		Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2

6	3	4	Materials and Resources		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
3		2	Credit	Building Life-Cycle Impact Reduction	5
1	1		Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
	1	1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
	1	1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

8	7	1	Indoor Environmental Quality		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
1	2		Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1		1	Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
1	1		Credit	Interior Lighting	2
	3		Credit	Daylight	3
1			Credit	Quality Views	1
	1		Credit	Acoustic Performance	1

6	0	0	Innovation		6
5			Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

1	3	0	Regional Priority		4
	1		Credit	Regional Priority: Renewable Energy Production (2 points)	1
	1		Credit	Regional Priority: Optimize Energy Performance (8 points)	1
	1		Credit	Regional Priority: High Priority Site (2 points)	1
1			Credit	Regional Priority: Rainwater Management (2 points) OR Indoor Water Use Reduction (4 points	1

51	44	15	TOTALS	Possible Points:	110

Certified: 40 to 49 points, **Silver:** 50 to 59 points, **Gold:** 60 to 79 points, **Platinum:** 80 to 110

Chapter 6

Urban Design

6.0 URBAN DESIGN

6.1 Project Context

The Project site is a semi-industrial site which currently consists of two buildings, one of which is an existing training and office facility for the Union. To the northeast of the site is Enterprise Street, and directly adjacent to the western edge of the site is the new South Bay Town Center development currently under construction. To the south of the site is a community of double and triple-decker homes. To the west of the site, office and industrial buildings and additional surface parking are positioned along Clapp Street and Massachusetts Avenue.

6.2 Evolution of Design

The Project team considered several design options for the building and site layout to address program components, urban design drivers, parking requirements and Project cost parameters. The following factors were critical to the Project's evolution.

Building Program

The proposed program played a critical role in defining the site layout, as well as the building's configuration, massing and form. The most critical space required by the Union to support their educational mission is the training center. The space has unique spatial, access and engineering requirements to support the broad spectrum of training programs. Since the ability to receive and store materials is paramount to the function of the training center, it will be located adjacent to the service yard on the ground level. The training center spans to the edge of Enterprise Street, and the building façade will be transparent and inviting in order to engage pedestrians and activate the ground floor with the surrounding neighborhood. Transparency at this active edge, in concert with graphic elements, will celebrate the building's mission and emphasize the Union's message. A large auditorium, classrooms and collaborative spaces are arranged to support the Union's educational mission. Access to these spaces will be provided through the entry lobby, which will be oriented at the building's corner across from the terminus of the West Howell Street Extension. This multi-level lobby will be a focal point of the Project, and is an opportunity to provide a visual extension of the surrounding neighborhood, and to the adjacent South Bay Town Center development.

Urban Design Considerations

The site's edges vary greatly; therefore, the proposed building's layout was designed to carefully respond to the site constraints associated with differing conditions. The lobby will be located along Enterprise Street at the terminus of the West Howell Street Extension, which will provide a strong visual marker along this pedestrian route.

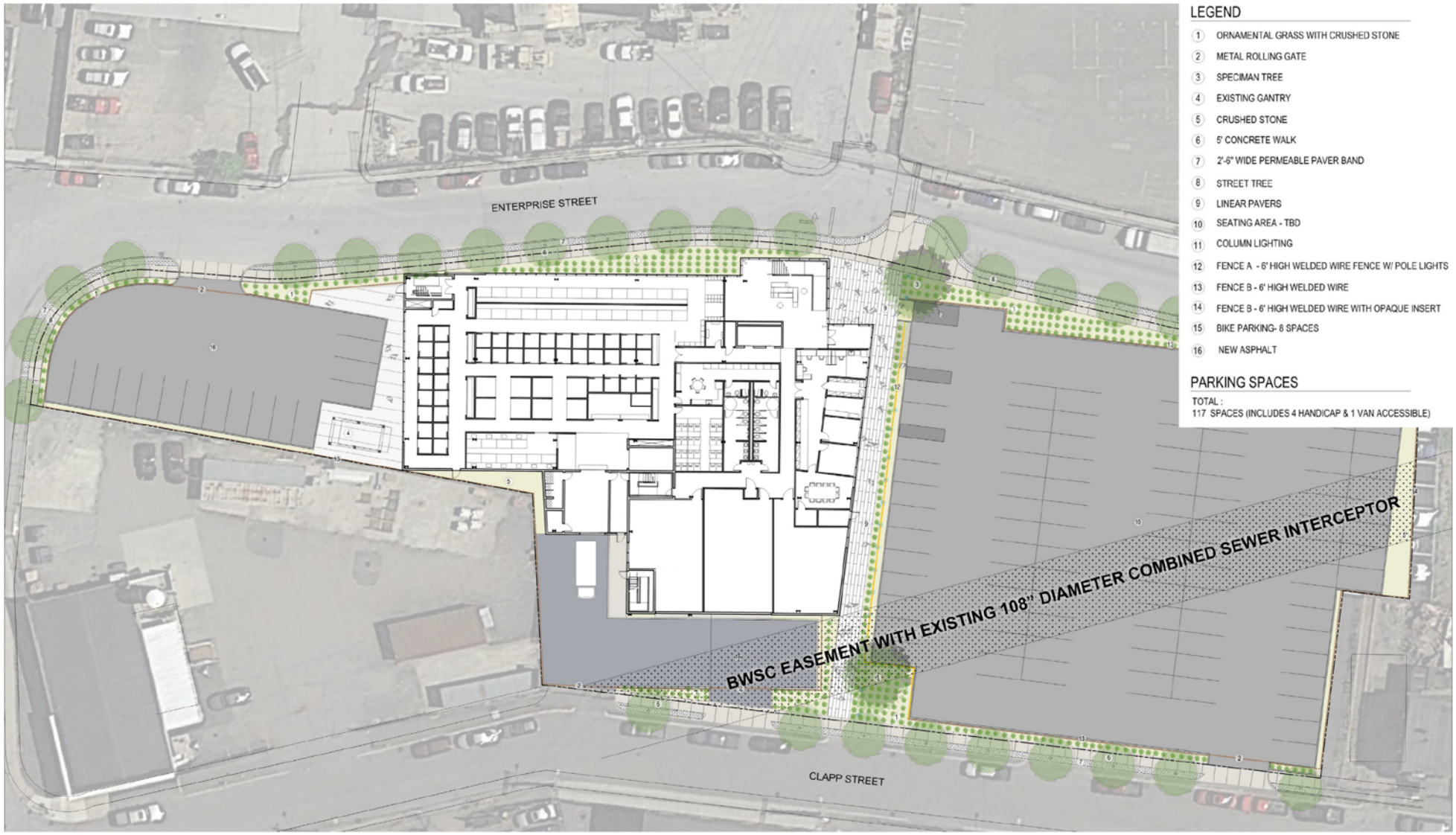
Along Enterprise Street, the building's façade and massing will respond to the scale of the adjacent South Bay Town Center development. The public realm improvements at the ground level will respond to the adjacent development, resulting in a cohesive and comfortable pedestrian environment along Enterprise Street. See Figure 6-1 for the proposed landscape plan.

Extending the pedestrian experience from the South Bay Town Center through the site towards Massachusetts Avenue is key to the proposed site layout. A pedestrian through-block connector will be provided at the terminus of the West Howell Street Extension to encourage the continuation of this pedestrian movement. Landscape, hardscape, lighting, public art and other design elements will be employed to support the pedestrian's experience at this area of the site.

To the west, improvements at Clapp Street will conform to the Boston Complete Streets guidelines. This edge of the site will support vehicular and loading access, and will be organized to facilitate these activities while also providing a pedestrian friendly environment.

Massing and Material Expression

The Project offers an opportunity to celebrate the building's unique program and educational mission through its design. The building's uses are reflected through its façade articulation as areas of transparency and opacity are organized to respond to the building's daylighting requirements, while providing a cohesive façade expression. Glass will be employed at the ground level to offer visual access into the facility's state-of-the-art training center and other active ground level spaces. A vertical glass element at the building's entry will serve to express the building's multi-level lobby and associated collaborative spaces. In addition to glass, other sustainable cladding systems, including masonry and composite metal panel, will be employed to create areas of opacity at the façade. See Figure 6-2 for a perspective from Enterprise Street, and Figure 6-3 for the proposed material palette. The balance between transparent and opaque materials allows the design to speak to the future in a manner which is timeless and enduring. An exterior sun-shading devices are being considered to reduce the building's solar gain. These elements can greatly improve the building's performance to help address the Project's sustainable design goals, while also adding a layer of design interest at the south façade. The classrooms and office areas on the upper levels will step back along Enterprise Street and to the south of the site which will allow opportunities for outdoor terraces. This reflects a distinctive massing that responds to the height of the adjacent South Bay Town Center development and other surrounding structures.

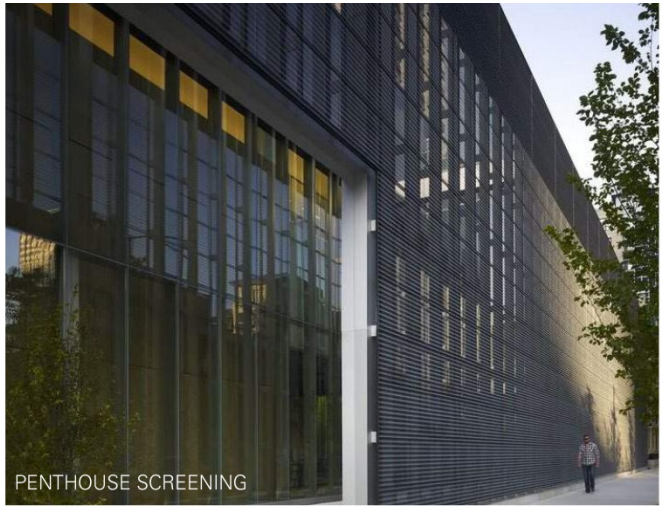


Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 6-1
Proposed Landscape Plan

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 6-2
Perspective from Enterprise Street



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Figure 6-3
Proposed Material Palette

Chapter 7

Historic and Archaeological Resources

7.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

7.1 Introduction

This section describes the historic and archaeological resources within and in the vicinity of the Project site.

7.2 Historic Resources in the Project Vicinity

7.2.1 Historic Resources on the Project Site

The Project site, located in Dorchester, is bound by Enterprise Street to the north and east, Clapp Street to the south, and an existing commercial property to the west. The area immediately surrounding the Project site is largely commercial and industrial in use, with residences to the east across Boston Street. The Project site is an approximately 73,240 sf parcel of land including buildings, asphalt paved parking area, storage containers and sheds. The Project site contains two freestanding buildings: 40 Enterprise Street constructed in approximately 1964, and 61 Clapp Street constructed in approximately 1880. Both buildings have had significant modifications over time, including additions, and neither are listed in the State or National Registers of Historic Places.

7.2.2 Historic Resources in the Vicinity of the Project Site

There is only one historic resource listed in the State and National Registers of Historic Places within the vicinity of the Project. The Clapp Houses, at 195-199 Boston Street approximately a tenth of a mile to the east, are listed on the National Register of Historic Places as shown in Figure 7-1.

7.3 Archaeological Resources Within the Project Site

The Project site is located within a densely developed urban setting. The majority of the Project site is either occupied by buildings or paved parking. According to a review of Massachusetts Historical Commission's MACRIS MAPS 2.0 on March 10, 2017, no known archaeological sites are within the Project site. Given the disturbance that has already occurred through the construction of the buildings and site changes, as well as the lack of documented sites, no impacts to archaeological resources are anticipated as a result of the proposed Project.

7.4 Impacts to Historic Resources

7.4.1 Shadow Impacts to Historic Resources

A shadow impact analysis was conducted to demonstrate the anticipated impacts from the Project. The analysis consisted of standard shadow studies done for March 21, June 21,

September 21, and December 21 at 9:00 a.m., 12:00 p.m., and 3:00 p.m., as well as 6:00 p.m. for June 21 and September 21.

There will be no new shadow impacts to the historic resources as a result of the Project. As illustrated in the shadow study diagrams (Figures 4-1 to 4-4), during isolated time periods the Project will cast minimal net new shadow on areas of Enterprise Street, Clapp Street, Willow Court, and West Howell Street Extension.

The results of the shadow analysis conducted are included in Section 4.2 and shown in Figures 4-1 to 4-4.

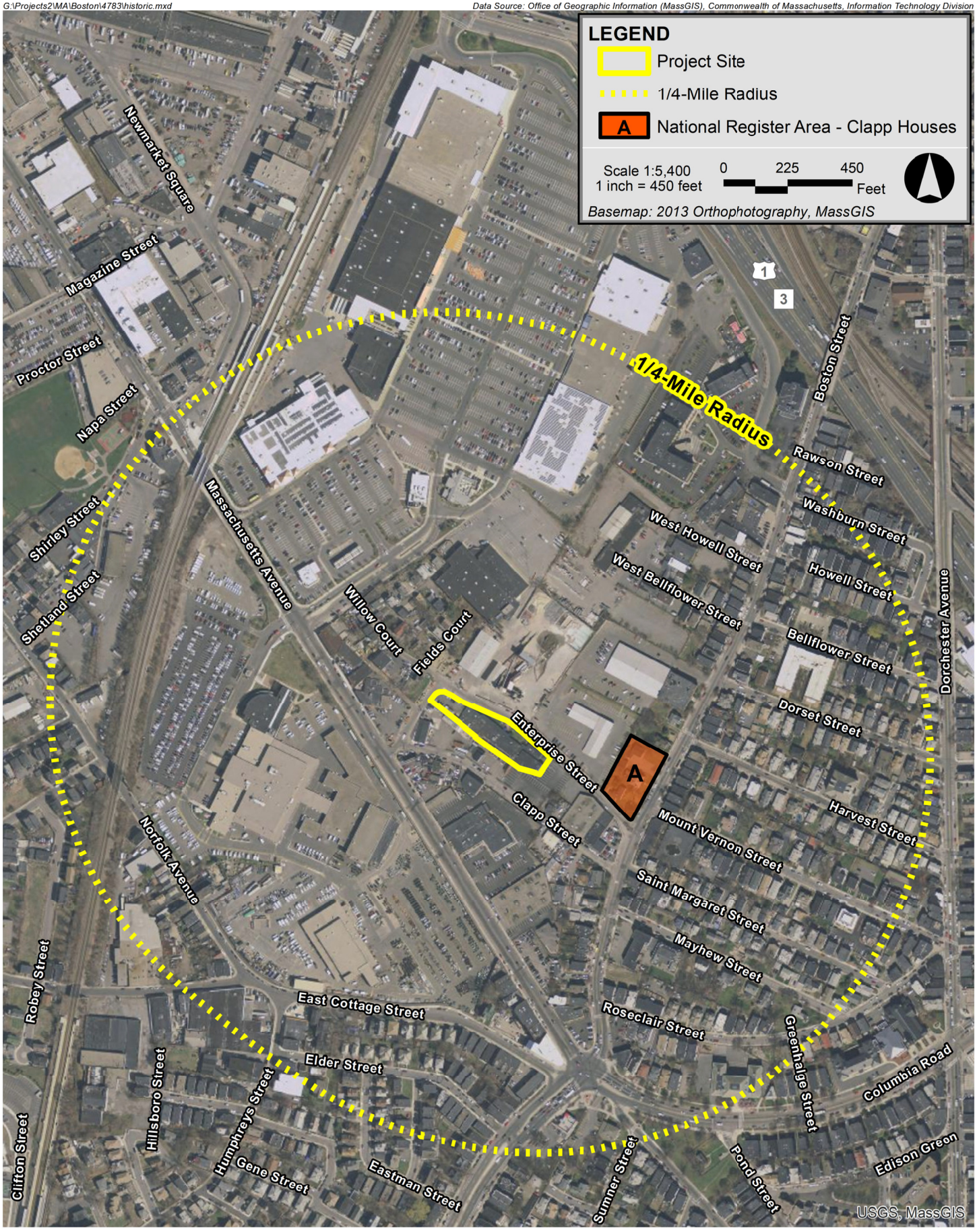
7.5 Status of Project Reviews with Historical Agencies

7.5.1 Boston Landmarks Commission Article 85 Review

The two existing buildings onsite (40 Enterprise Street and 61 Clapp Street) are over 50 years old; therefore, the proposed demolition of these buildings is subject to review by the Boston Landmarks Commission (BLC) under Article 85 of the Code. The Article 85 application for 61 Clapp Street has been submitted and one will be submitted for 40 Enterprise Street at the appropriate time.

7.5.2 Massachusetts Historical Commission

At this time, no state or federal funding, licensing, permits and/or approvals requiring review by the Massachusetts Historical Commission (MHC) are anticipated. However, if a state or federal action is identified as required for the Project, a MHC Project Notification Form will be filed for the Project in compliance with State Register Review (950 CMR 71.00) and/or Section 106 of the National Historic Preservation Act (36 CFR 800).



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Epsilon Associates Inc.

Figure 7-1
Historic Resources Map

Chapter 8

Infrastructure

8.0 INFRASTRUCTURE

8.1 Overview of Utility Services

The Project site consists of approximately 1.68 acres of land within the City of Boston located in the Dorchester neighborhood. The Project is bound by Enterprise Street to the northeast and Clapp Street to the southwest. As shown on Figures 8-1, 8-3 and 8-5, there are existing utilities in the adjacent Enterprise and Clapp Streets, including sanitary sewer, storm drainage, water, gas, electric, and telecommunications lines.

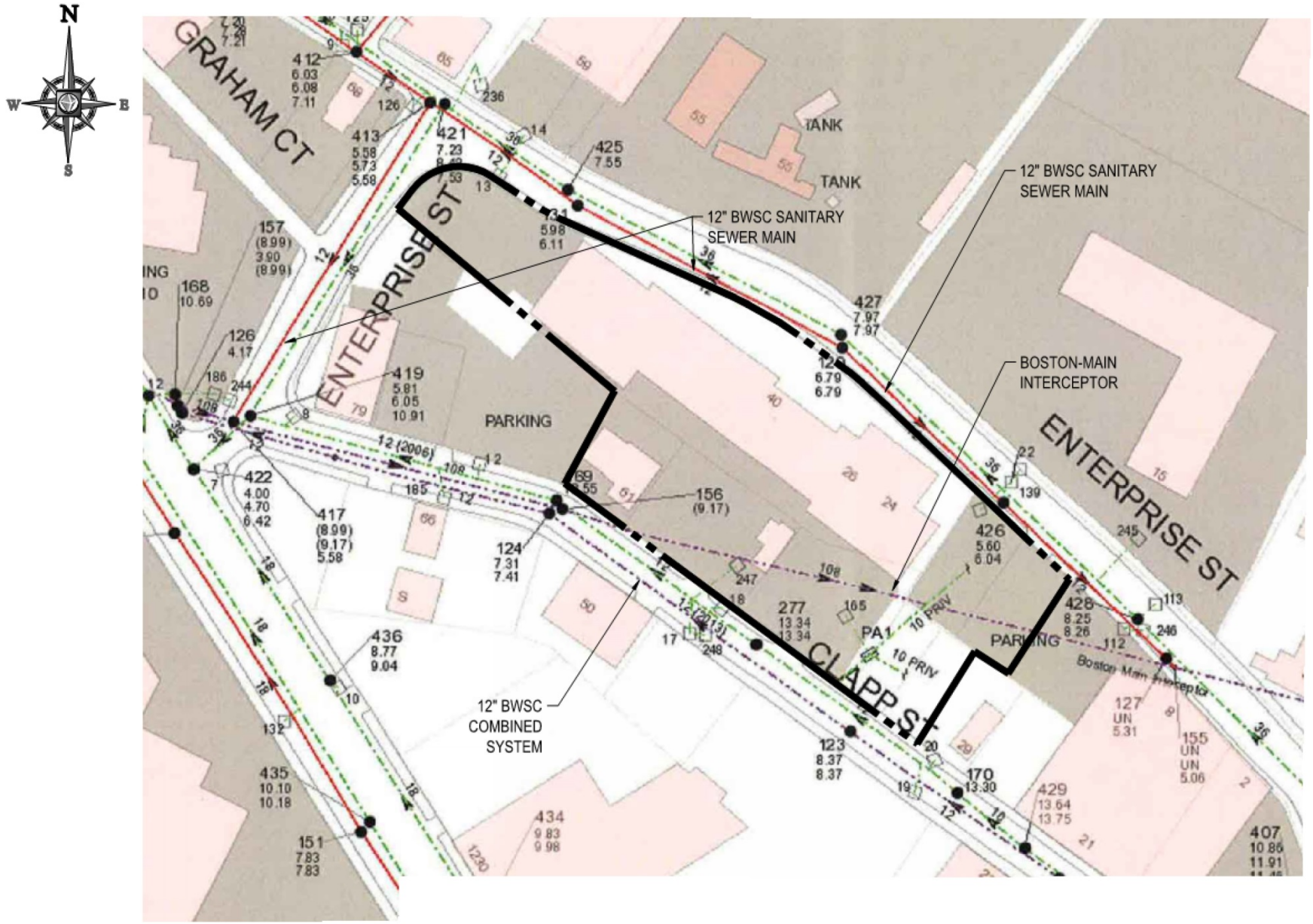
To enhance the area's infrastructure, the Boston Water and Sewer Commission (BWSC) recently completed its "Drainage, Water, and Sewerage Works Improvements" initiative under their 2012 Capital Improvements Program Contract, which includes the installation of separated storm and sanitary sewer mains in Enterprise Street along the Project frontage, and various other utility improvements in the immediate vicinity of the site.

Approval of Site Plans and a General Service Application is required from BWSC for construction and activation of sewer, water, and storm drainage service connections. The sewer and water connections, as well as the Project's stormwater management systems, will be designed in conformance with BWSC's design standards, Requirements for Site Plans, Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains, and Regulations Governing the Use of the Water Distribution Facilities of the Boston Water and Sewer Commission. The gas, electric and telecommunication utilities will be coordinated with the individual providers.

8.2 Sanitary Sewer System

8.2.1 Existing Sewer System

BWSC owns, operates, and maintains the sanitary sewer mains in the vicinity of the Project site. Per available record information from BWSC, there is a 12-inch separated sewer main in Enterprise Street, adjacent to the Project site. Sewer discharges west of BWSC manhole (MH) #129 beneath Enterprise Street flow to the northwest along the frontage of the site, and the sewer flows then connect at junction BWSC MH#413 and travel southwest down Enterprise Street where they connect with the Boston-Main Interceptor at the intersection of Clapp Street, Enterprise Street, and Massachusetts Avenue. Sewer discharges east of BWSC MH#129 flow to the southeast along the frontage of the site directly to the Boston-Main Interceptor in Enterprise Street. The Boston-Main Interceptor flows northeast through Clapp Street and the southeast corner of the Project site. There is also a 12-inch BWSC combined sewer main beneath Clapp Street that flows northwest. The existing sanitary sewer system is shown on Figure 8-1. The sanitary sewers ultimately flow to the Massachusetts Water Resources Authority's (MWRA's) Deer Island Wastewater Treatment Plant, where it is treated and discharged to Massachusetts Bay.



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

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Figure 8-1

Existing Sanitary Sewer System

Table 8-1 Existing Sewer Flow Capacity (Enterprise Street – 12-inch Main)

MH (BWSC)	Distance (ft)	Invert El. (up)	Invert El. (down)	Slope (%)	Diameter (in.)	Manning's Number	Flow Capacity (cfs)	Flow Capacity (MGD)
129 to 426	120	6.79	6.04	0.63	12	0.013	2.83	1.83
426 to 127	122	5.60	5.31	0.24	12	0.013	1.74	1.13
129 to 131	226	6.79	6.11	0.3	12	0.013	1.95	1.26
131 to 413	140	5.98	5.58	0.29	12	0.013	1.92	1.24

8.2.2 Project Generated Sanitary Sewer Flow

MassDEP establishes sewer generation rates for various types of establishments in a section of the State Environmental Code Title V (Title V), 310 CMR 15.203. Based on an estimate of the Project's building program, Table 8-2 gives the estimated proposed sanitary sewer flows expected to be generated by the Project. Based on these Title V sewer generation rates, the Project is expected to produce approximately 8,166 gallons per day (gpd) of sewer flow.

Table 8-2 Sewer Generation

Unit Type	Program	Sewer Generation Rate	Sewer Flow (gpd)
Classroom w/ Locker Room*	440 persons	10 gpd/person	4,400 gpd
Office	30,900 sf	75 gpd/1,000 sf	2,317 gpd
Auditorium, Theater	483 seats	3 gpd/seat	1,449 gpd
		Total Sewer Generation (gpd)	**8,116 gpd**
		Total Sewer Generation (MGD)	**0.008 MGD**

*To estimate, assumed comparable to secondary/middle school without cafeteria, gymnasium, or showers.

Based on preliminary calculations and discussions with BWSC, there are no expected sewer capacity problems in the vicinity of the Project site. The Project's engineer will coordinate final, proposed sewer flows and available capacity with BWSC during the Site Plan Review process.

8.2.3 Proposed Sanitary Sewer Connection

Given the size of the Project, it is initially estimated that one 8-inch sewer service connection to the newly installed 12-inch BWSC separated sanitary sewer main in Enterprise Street will be constructed to service the proposed development.

The sewer connection will be constructed so as to minimize effects on adjacent streets, sidewalks, and other areas within the public right-of-way, and will be kept separate from storm drain connections in accordance with BWSC requirements with special attention to the interceptor. All work in, around, and over the interceptor will be closely planned and coordinated with BWSC.

8.2.4 Sewer System Mitigation

The Project will be LEED certifiable in accordance with the Article 37 of the Code. As such, various measures for water conservation and wastewater reduction, such as low-flow toilets and urinals, restricted flow faucets, and sensor operated sinks, toilets, and urinals may be incorporated in order to meet the LEED requirements. Specific water conservation and wastewater reduction measures to be included in the Project will be more fully defined as the building design develops. Since the proposed sewer generation does not exceed 15,000 gpd, the Project is not anticipated to be subject to BWSC inflow and infiltration (I/I) requirements.

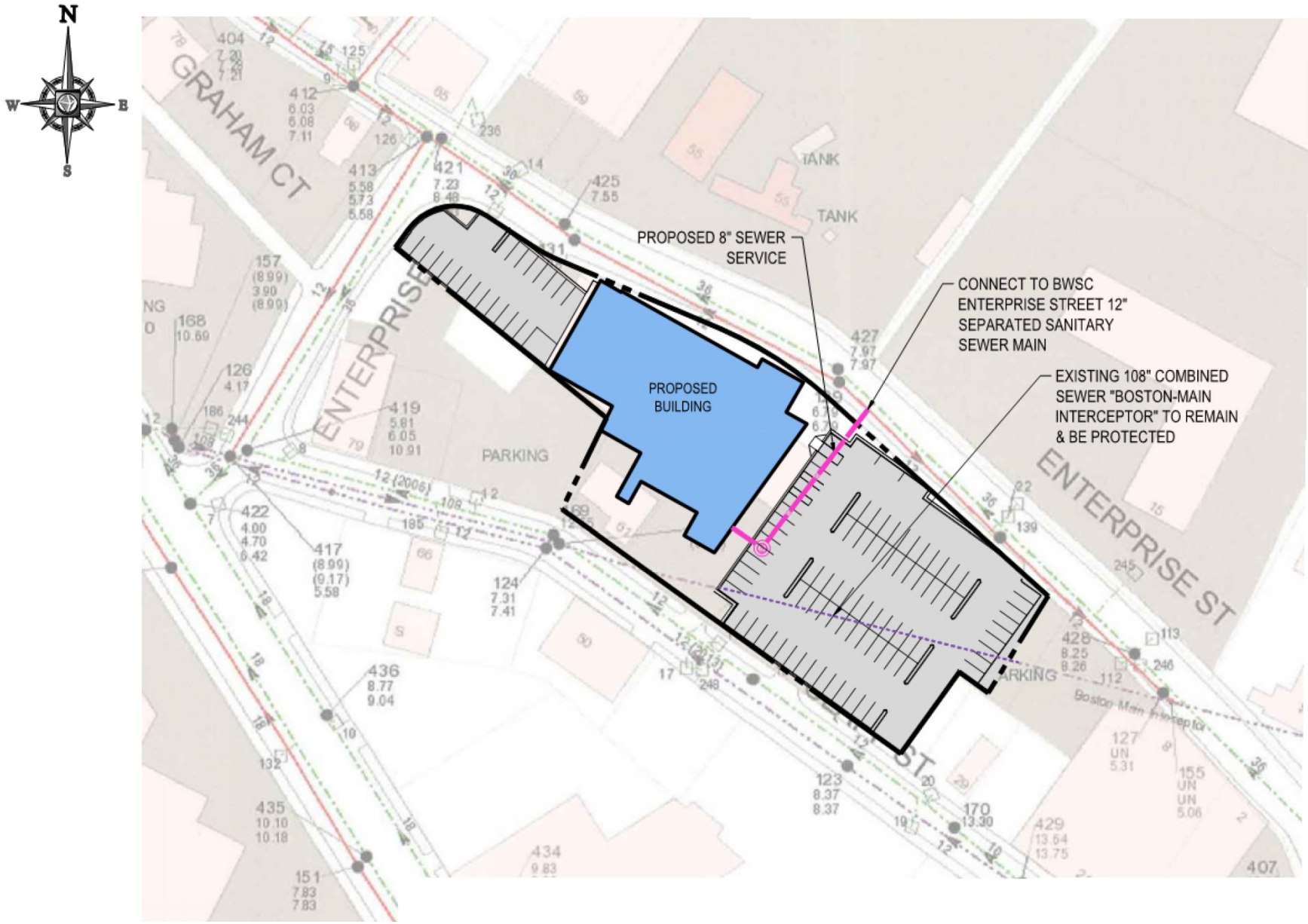
8.2.5 BWSC Boston – Main Interceptor

Based on record information provided by BWSC, the 108-inch BWSC Boston-Main Interceptor (combined sewer) crosses the southeast corner of the site within a 20-foot wide sewer easement. The BWSC records show approximately 15 to 20 feet of cover over the interceptor. It is assumed that the Project will be designed to maintain and protect the interceptor in its current location. The Proponent will continue to work with BWSC to finalize the building and site design to minimize impacts to the Boston-Main Interceptor, and ensure it is protected throughout the Project construction.

8.3 Water System

8.3.1 Existing Water Service

Similar to the sanitary sewer system, there are private water mains onsite and BWSC water mains in the streets adjacent to the Project site. BWSC owns, operates, and maintains the water distribution systems in the streets in the vicinity of the Project site. According to available record plans from BWSC, there is an existing 8-inch ductile iron cement lined (DICL) BWSC Southern Low water main located beneath Enterprise Street that was built in 1999. There is also an existing 8-inch ductile iron cement lined (DICL) BWSC Southern Low water main located beneath Clapp Street that was built in 2006.



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

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Figure 8-2

Proposed Sanitary Sewer System

It is anticipated that the 8-inch high pressure main is to be extended from West Howell Street along Jan Karski Way to the Enterprise Street intersection. There are four existing fire hydrants adjacent to the Project site. One hydrant is located on the north side of Enterprise Street and is connected to the 8-inch water main in Enterprise Street, and three hydrants are located within the north side of Clapp Street and are connected to the 8-inch water main in Clapp Street. Water service for the existing buildings within the Project limits are connected to the water mains in Enterprise Street. The existing water distribution in the vicinity of the Project site is shown on Figure 8-3.

8.3.2 Projected Water Consumption

The projected water demand for the Project is based on the estimated sanitary sewer flow (see Table 8-2), with a factor of 1.1 applied to account for consumption and other losses. Based on this formula, the Project's estimated peak water demand for domestic use is 8,983 gallons per day. Domestic water will be supplied by the BWSC water system.

Based on initial discussions with BWSC, there are no expected water capacity problems in the vicinity of the Project site. BWSC will confirm this by conducting flow testing prior to completion of the Project design. The Project's engineer will coordinate water demand and availability with BWSC during the Site Plan Review process to ensure that the Project needs are met, while maintaining adequate water flows to the surrounding neighborhood.

8.3.3 Proposed Water Service

The Project will be served by a single 8-inch water main connection from the new 8-inch high pressure main being installed in Jan Karski Way. The water main will be metered in accordance with BWSC requirements, including the installation of meter transmission units (MTU's) to comply with BWSC's automatic meter reading system. Appropriate gate valves and backflow prevention devices will be installed to prevent backflow of non-potable water or other contaminants into the public water supply. Fire hydrants will be provided as necessary to provide adequate coverage at the site and complement existing hydrants. Final locations will be coordinated with the Boston Fire Department Fire Prevention Division.

The water system, as described, is based on early schematic designs and will be refined as the Project design advances. During the BWSC Site Plan Review process, final sizing of domestic and fire protection service connections will be identified, along with water meter sizing, backflow prevention devices, and locations of fire protection connections.

8.3.4 Water Supply Conservation and Mitigation

As previously stated, the Project will be LEED certifiable in accordance with Article 37 of the Code. Water conservation measures such as low-flow toilets and urinals, restricted flow faucets, and sensor operated sinks, toilets, and urinals may be incorporated in order to meet the LEED water conservation requirements. Specific water conservation measures to be included in the Project will be more fully described as the building design progresses.

8.4 Storm Drainage System

8.4.1 Existing Storm Drainage System

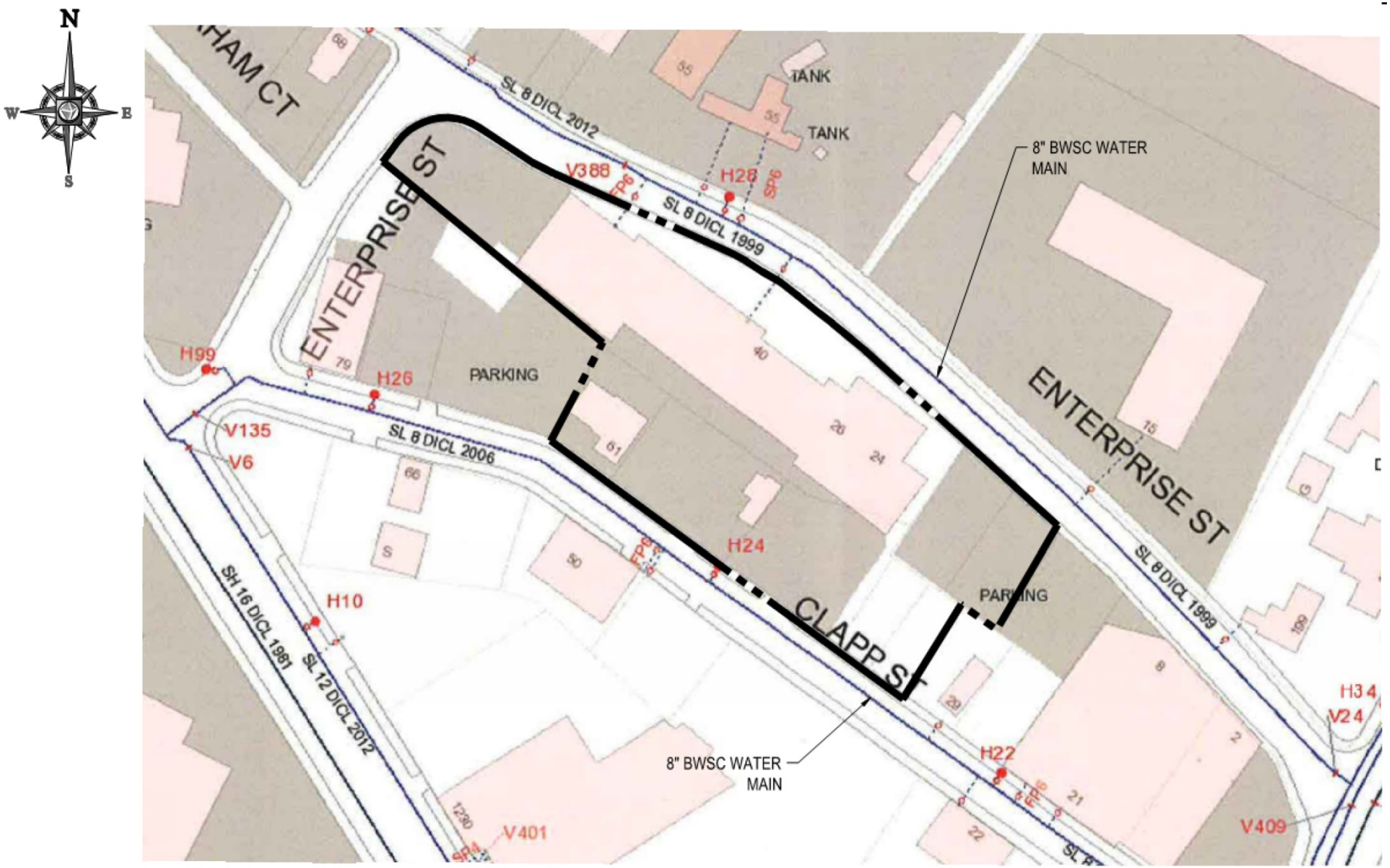
BWSC owns, operates, and maintains the storm sewer mains in the vicinity of the Project site. Available records show a newly installed, separated 36-inch BWSC storm drain located in Enterprise Street flowing northwest. A 12-inch main flowing northwest in Clapp Street connects to the 36-inch main via BWSC MH# 419 at the Enterprise Street and Clapp Street intersection. There is also a 12-inch combined system located in Clapp Street that flows northwest, and the Boston-Main Interceptor which flows northeast through Clapp Street and cuts through the Project site.

The existing Project site is mostly impervious, covered by buildings and associated parking with a portion of landscaping along the Enterprise Street frontage. No records of the roof drain connections were available at BWSC, and will need to be confirmed during the Site Plan Review process. Stormwater runoff from the existing buildings and associated parking lots appear to flow to the storm drain systems in Clapp Street and Enterprise Street. Ultimately, the storm drainage system discharges to Massachusetts Bay. The existing drainage system in the vicinity of the Project site is depicted on Figure 8-5.

8.4.2 Proposed Storm Drainage System

BWSC typically requires a new project to provide an infiltration system that includes a volume equal to one-inch of rainfall over the project area. Stormwater runoff on the Project site will be collected and treated as necessary and will be routed to infiltration systems to the maximum extent practicable to reduce the impact on the surrounding drainage system. Appropriate stormwater best management practices (BMPs) will be utilized to improve the quality of stormwater runoff discharged from the Project site, promote infiltration to groundwater, and to reduce the peak flows to be at or below existing levels. Overflow from the underground infiltration areas due to larger, less frequent storm events will be routed to the BWSC drain system. Specific BMPs proposed for the Project will be described in further detail in the Site Plan application to BWSC. The drainage system will be designed to maintain general pre-development drainage patterns at the Project site.

It is anticipated that the site will incorporate two drain pipe connections. One overflow connection will be made to BWSC CB #425 in Enterprise Street which directs stormwater to BWSC MH #421 via a 36-inch drain pipe. A second connection will be made to the 12-inch separated storm drain line in Clapp Street. The proposed drainage system is depicted on Figure 8-6.



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

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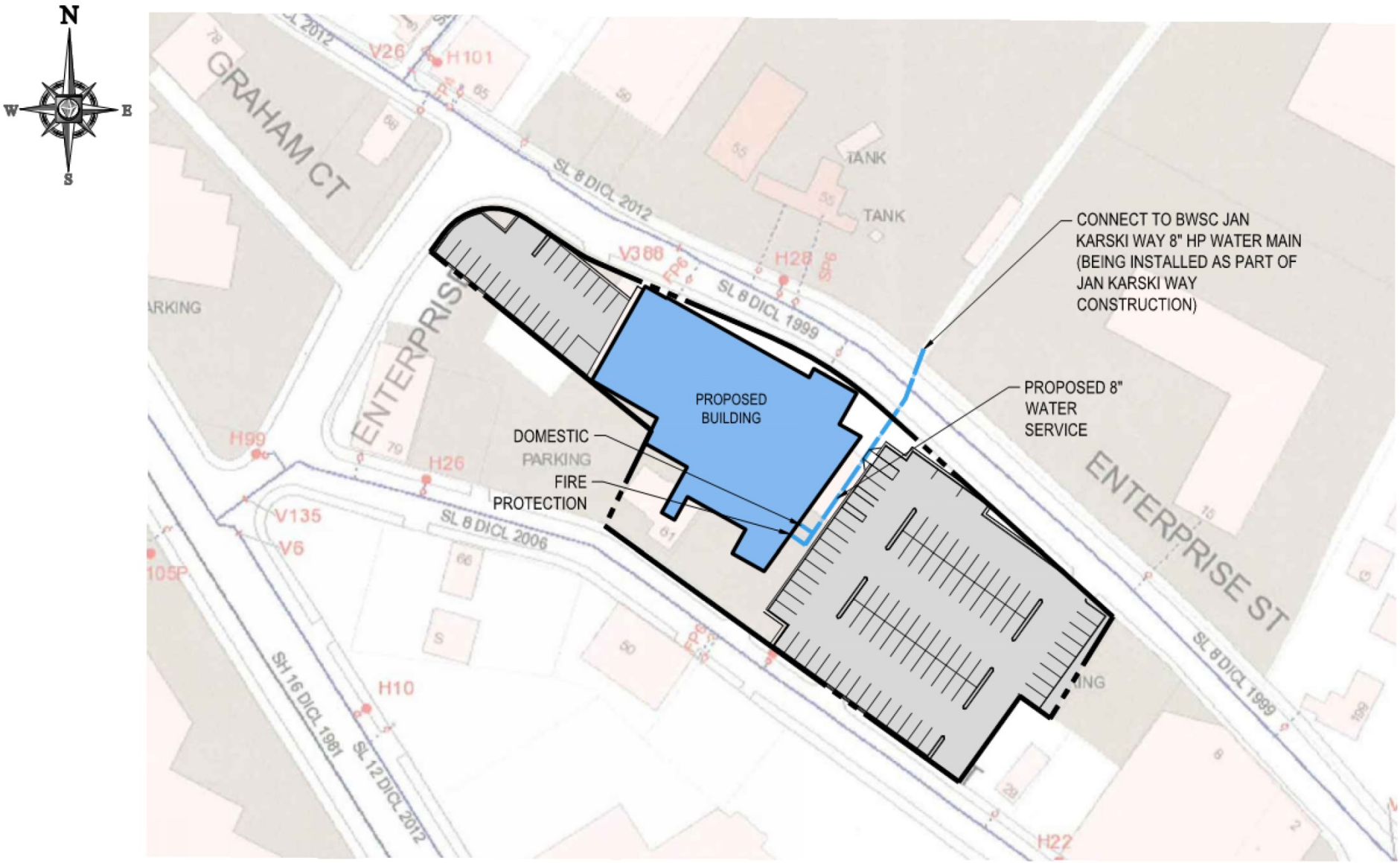
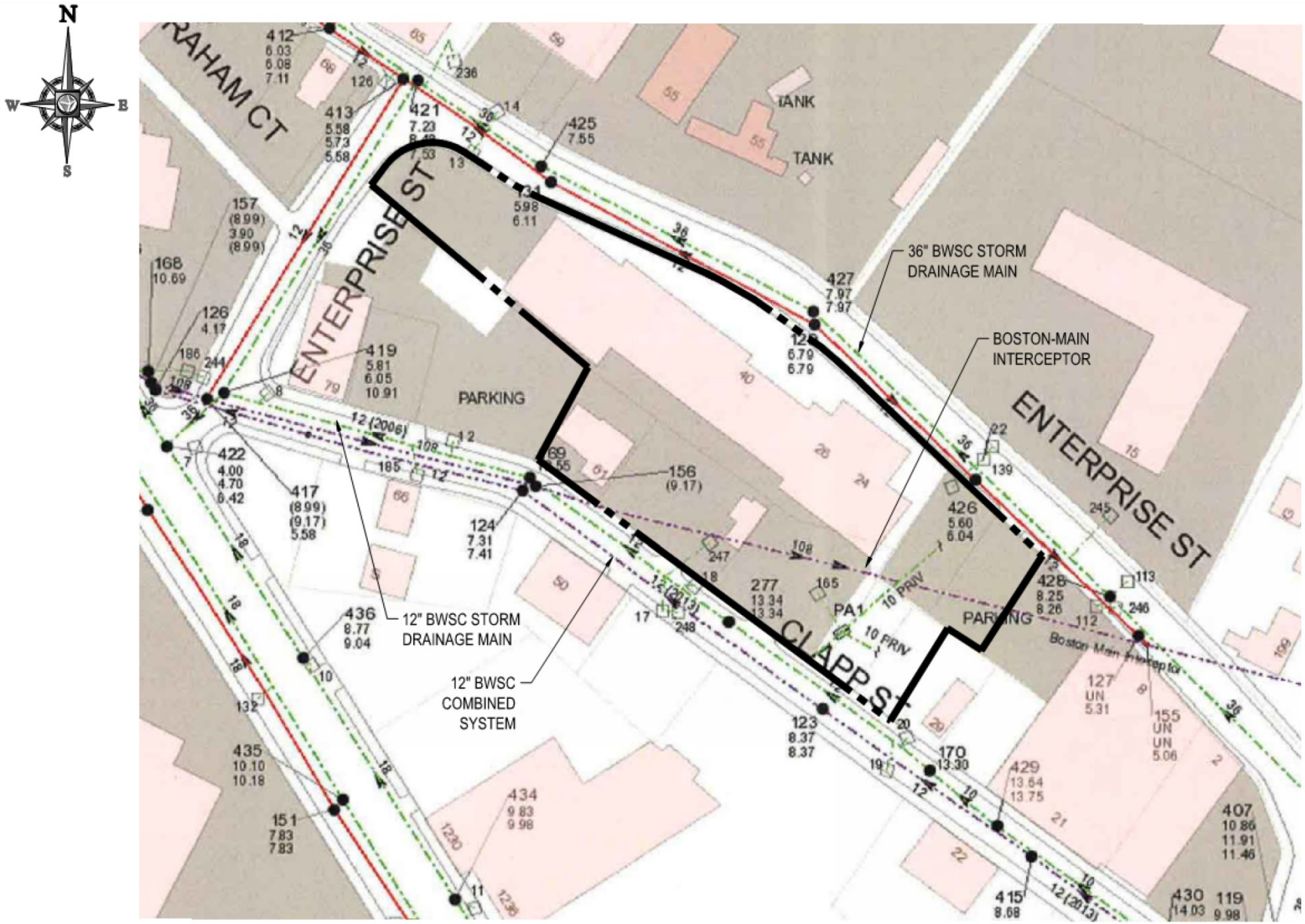
Figure 8-3
Existing Water System



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

BOHLER ENGINEERING

Figure 8-4
Proposed Water System

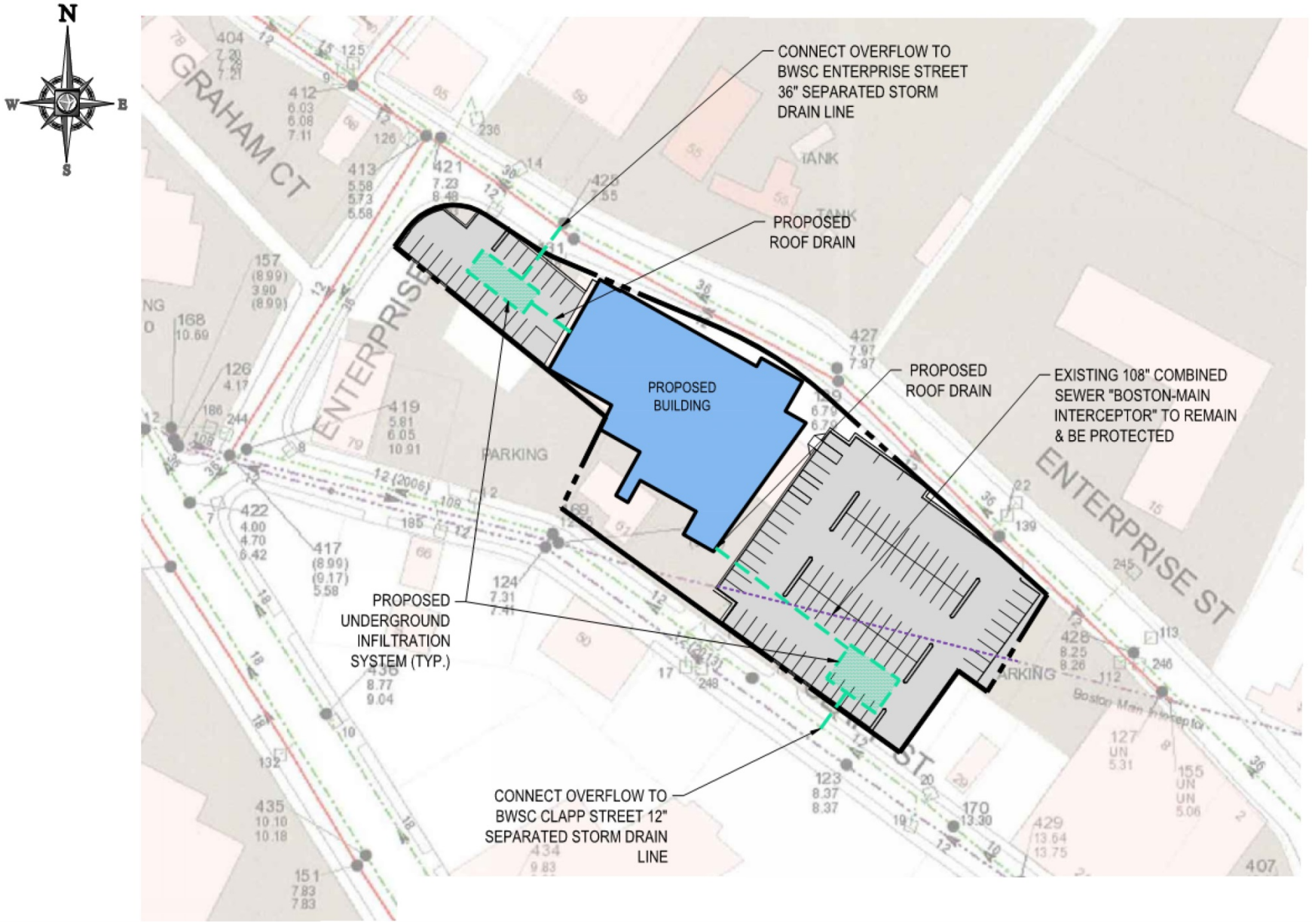


Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

BOHLER ENGINEERING

Figure 8-5

Existing Drainage System



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

BOHLER ENGINEERING

Figure 8-6

Proposed Drainage System

8.4.3 Groundwater Conservation Overlay District

The Project site is not located within the City's defined Groundwater Conservation Overlay District; therefore, the proposed stormwater management system will be designed to comply with BWSC design requirements.

8.4.4 State Stormwater Standards

Specific details of the proposed stormwater management for the Project and its compliance with MassDEP's Stormwater Management Standards (the Standards) are as follows:

Standard 1 - New Stormwater Conveyances

The Project will comply with this Standard. Per Massachusetts Stormwater Management Standard #1, no new outfalls may discharge untreated stormwater directly to, or cause erosion in, wetlands or waters of the Commonwealth. No new outfalls are proposed.

Standard 2 – Stormwater Runoff Rates

The Project will comply with this Standard. Post development peak discharge rates from the Project site will be at or below existing peak discharge rates for each of the analyzed storm events.

Standard 3 – Groundwater Recharge

The Project will comply with this Standard to the maximum extent practicable. The site does not fall within the City's defined Groundwater Conservation Overlay District; therefore, the proposed stormwater management system will be designed to comply with BWSC design requirements.

Standard 4 – Water Quality

The Project will comply with this Standard to the maximum extent practicable. The proposed development is covered by building roof, parking and pedestrian areas. As necessary, runoff will be appropriately treated, most likely by underground water quality structures, prior to discharge to the BWSC storm drainage system.

Standard 5 – Land Uses with Higher Potential Pollutant Loads (LUHPPL)

It is not anticipated that the Project will be subject to Standard 5.

Standard 6 – Stormwater Discharges to a Critical Area

The Project is not subject to Standard 6. There are no discharges to any Critical Areas as defined by MassDEP's Massachusetts Stormwater Handbook.

Standard 7 – Redevelopment Project

As the site design develops, it will be determined whether the Project qualifies as a redevelopment project and the stormwater management system may be modified accordingly.

Standard 8 – Sedimentation and Erosion Control Plan

The Project will comply with this Standard. Site appropriate sedimentation and erosion controls will be included in the final design documents and implemented during construction.

Standard 9 – Long Term Operation and Maintenance Plan

The Project will comply with this Standard. A long-term operation and maintenance plan will be prepared as part of the final design documents.

Standard 10 –Illicit Discharges to the Stormwater Management System are Prohibited

The Project will comply with this Standard. There are no known illicit discharges to the proposed Stormwater Management System, and none are proposed.

8.5 Electrical Service

The City of Boston receives electricity from Eversource. There is overhead electric three-phase service in Enterprise Street, and it appears there are existing manholes in the street and on site. The Proponent will work with Eversource to confirm the system has adequate capacity to support the proposed building demands as the design advances.

8.6 Telecommunications Systems

Telecommunication systems are located in the vicinity of the Project site. Verizon New England, Comcast, and RCN provide telephone and cable television services in the Project area. The Proponent will work with each provider to determine the appropriate services and connection locations to support the proposed development.

8.7 Gas Systems

National Grid owns and maintains the gas distribution system in the vicinity of the Project site. There is an existing 6-inch plastic, low pressure main in Enterprise Street that was built in 2000. Additionally, there is a 30-inch gas main located in Clapp Street. The Proponent will work with National Grid to confirm the system has adequate capacity as the design advances.

8.8 Utility Protection During Construction

The construction contractor will notify utility companies and call "Dig Safe" prior to excavation. During construction, infrastructure will be protected using sheeting and shoring, temporary relocations and construction staging as required. The construction contractor will be required to coordinate all protection measures, temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies. The construction contractor will also be required to provide adequate notification to the utility owner prior to any work commencing on their utility. In the event a utility cannot be maintained in service during switch over to a temporary or permanent system, the construction contractor will be required to coordinate the shutdown with the utility owners and Project site abutters to minimize impacts and inconveniences.

Chapter 9

Coordination with Other Governmental Agencies

9.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

9.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Massachusetts Architectural Access Board and will be designed to comply with the standards of the Americans with Disabilities Act. Appendix D includes the Accessibility Checklist as required by the City of Boston.

9.2 Massachusetts Environmental Policy Act (MEPA)

The Project does not exceed any review thresholds that would necessitate MEPA review; therefore the Proponent does not expect that the Project will require MEPA review by the Executive Office of Energy and Environmental Affairs.

9.3 Massachusetts Historical Commission

The Proponent does not expect that the Project will require review by MHC. As proposed, the Project does not require a state or federal action, license or permit, which would trigger MHC review.

9.4 Boston Civic Design Commission

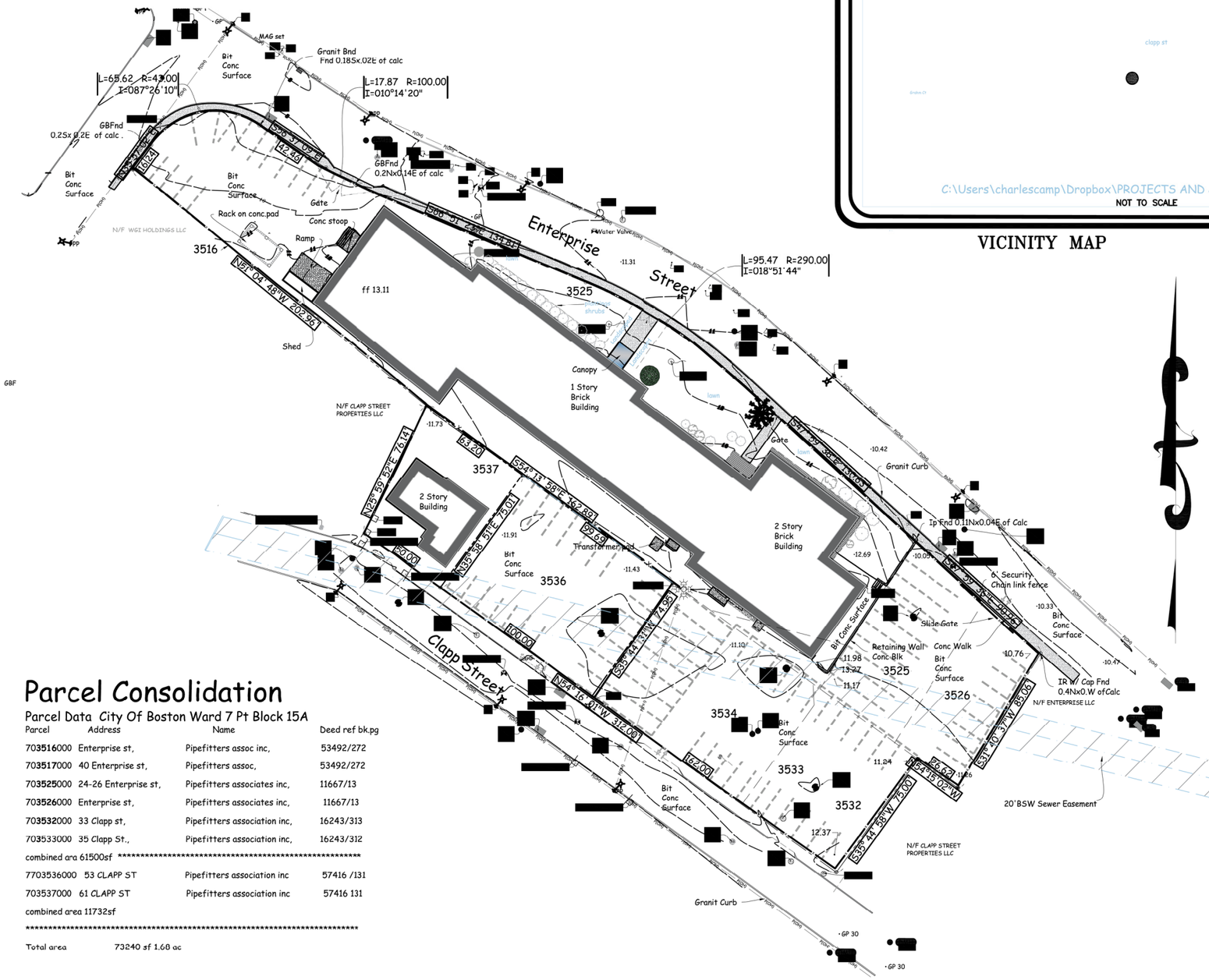
The Project will comply with the provisions of Article 28 of the Boston Zoning Code. This PNF will be submitted to the Boston Civic Design Commission by the BPDA as part of the Article 80 review process.

9.5 Boston Landmarks Commission

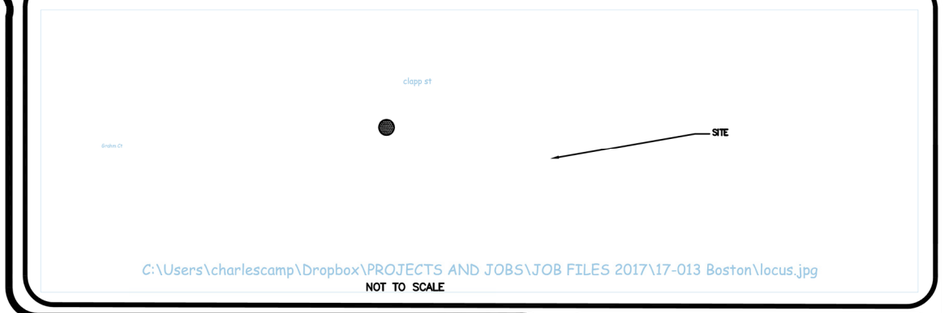
The two existing buildings onsite (40 Enterprise Street and 61 Clapp Street) are over 50 years old; therefore, the proposed demolition of these buildings is subject to review by the BLC under Article 85 of the Code. The Article 85 application for the two existing buildings onsite has been submitted, and the demolition has been approved by the BLC.

Appendix A

Site Survey



VICINITY MAP



Parcel Consolidation

Parcel Data City Of Boston Ward 7 Pt Block 15A

Parcel	Address	Name	Deed ref bk.pg
703516000	Enterprise st,	Pipefitters assoc inc,	53492/272
703517000	40 Enterprise st,	Pipefitters assoc,	53492/272
703525000	24-26 Enterprise st,	Pipefitters associates inc,	11667/13
703526000	Enterprise st,	Pipefitters associates inc,	11667/13
703532000	33 Clapp st,	Pipefitters association inc,	16243/313
703533000	35 Clapp St.,	Pipefitters association inc,	16243/312
combined ara 61500sf **********			
7703536000	53 CLAPP ST	Pipefitters association inc	57416 /131
703537000	61 CLAPP ST	Pipefitters association inc	57416 131
combined area 11732sf			
**********			
Total area	73240 sf 1.68 ac		

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)

1 inch = 30 ft.

DRAWN BY: CTC
CHECKED BY: CTC.

NO.	DATE	REVISION
1.	3/17/2017	boundary bds
2.		
3.		
4.		
5.		

GENERAL NOTES

VERTICAL DATUM NAVD 88
BASIS OF BEARING
MASS GRD 2001 NAD 83
1 CONTOUR INTERVAL FIELD LOCATED
ALL MEASURMENTS ARE REPORTED AT GROUND

REFERENCES

Plan References
1. 2015-.2
2. 32857A
3. 11667-13
4. 5720-565
5. 4380-13
6. 4418-158
7. 2659-596
8. 1011-99
9. 5781-371

LEGEND

126°32'22"(A5)	LOT DIMENSION "A5 SURVEYED" IN THE FIELD
126°49'(P)	LOT DIMENSION "A5 PROVIDED" BY DEED
O.11.W	OVER HEAD WIRES
D	DRAIN MANHOLE DMH
S	SEWER MANHOLE SMH
E	ELECTRIC MANHOLE E
T	TELEPHONE MANHOLE TEL
	LIGHT POLE PP
	HANDICAPPED PARKING
WV	WATER VALVE WV
	CATCH BASIN
GV	GAS VALVE GV
GB	GRANIT BOUND GB
	EDGE OF PAVEMENT
	TREE PLANTING
OHW	OVERHEAD WIRES
GP	gas paint mark
GPT	gas paint mark tee
11.2 smh	elevation measured at rim
11.2 CP	Elevation measured at gutter or grate

ZONING

ZONING DIST: XX

MINIMUM REQ.	
LOT AREA:	XXXXX
LOT FRONTAGE	XX
FRONT YARD	XX
SIDE YARD	XX
REAR YARD	XX
MAX. BLDG. HGT.	XX

SEE ZONING REG'S. FOR ADD. INFO.

I hereby certify that the property lines shown here on are the lines dividing existing ownership and the line of the streets and ways shown are thise of public or private streets or ways already established and no new lines for the divisin of exsting ownership are shown
This plan has been prepared in conformance with the rules and regulations of the regestry of deeds of the Commonwealth of Massachusetts
Charles T Camp PLS LIC #38377 3/15/2017

BY: REGISTERED PROFESSIONAL LAND SURVEYOR DATE:

THIS PLAN TO BE INDEXED BY THE FOLLOWING:

STREET NAME
STREET NAME
STREET NAME

Existing Conditions PLan

Prepared for: Pipefitters Association
40 Enterprise Street
20-25Clapp Street
Bostoni Ma

DATE: XXXX 00, 2013

SCALE: 1"=XX'

COMMONWEALTH OF MASSACHUSETTS CHARLES T. CAMP No.38377 REGISTERED LAND SURVEYOR

CANAVAN & Associates, Inc.
Land Surveying
CONSTRUCTION - LAND - COMMERCIAL - RESIDENTIAL
450 George Washington Highway
Smithfield, R.I. 02917
P=(401)232-1990 F=(401)232-1994

SHEET 1 OF 1

Appendix B

Transportation

Appendix

- Traffic Volume Data
- Seasonal/Yearly Growth
- Bicycle Sharing Information
- Public Transportation Information
- Site Specific Developments
- Trip Generation
- Trip Distribution Calculations
- Delay Study
- Capacity Analysis
- Parking Analysis

□ Traffic Volume Data

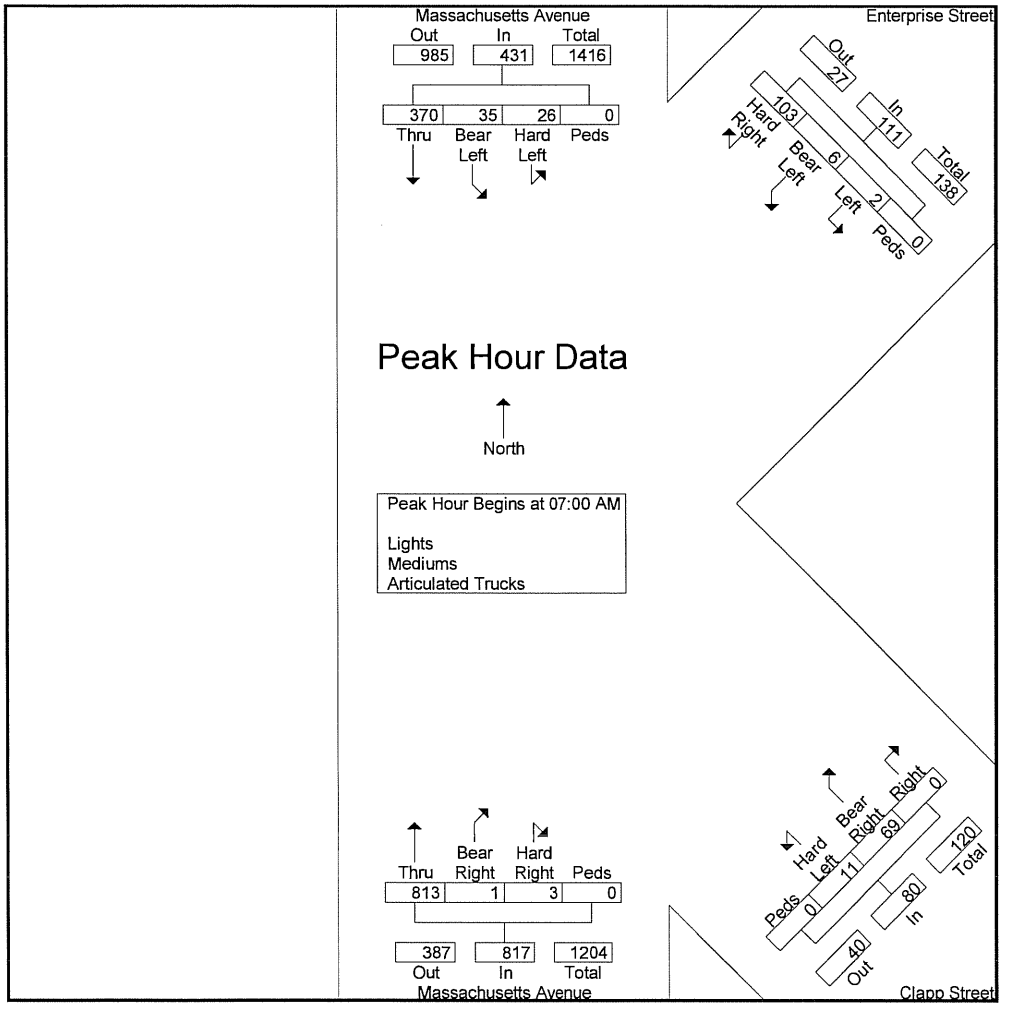
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Massachusetts Avenue
NE: Enterprise Street
SE: Clapp Street
Boston, MA

File Name : 920 Mass Ave at Enterprise AM
Site Code : 920
Start Date : 3/10/2017
Page No : 2

	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	86	3	3	0	92	19	0	0	0	19	0	16	1	0	17	**1**	0	202	0	203	331
07:15 AM	100	10	4	0	114	27	1	0	0	28	0	10	3	0	13	0	0	184	0	184	339
07:30 AM	82	6	9	0	97	**33**	**3**	**1**	0	**37**	0	**25**	2	0	**27**	1	**1**	197	0	199	360
07:45 AM	**102**	**16**	**10**	0	**128**	24	2	1	0	27	0	18	**5**	0	23	1	0	**230**	0	**231**	**409**
Total Volume	370	35	26	0	431	103	6	2	0	111	0	69	11	0	80	3	1	813	0	817	1439
% App. Total	85.8	8.1	6	0		92.8	5.4	1.8	0		0	86.2	13.8	0		0.4	0.1	99.5	0		
PHF	.907	.547	.650	.000	.842	.780	.500	.500	.000	.750	.000	.690	.550	.000	.741	.750	.250	.884	.000	.884	.880



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Massachusetts Avenue
NE: Enterprise Street
SE: Clapp Street
Boston, MA

File Name : 920 Mass Ave at Enterprise AM
Site Code : 920
Start Date : 3/10/2017
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
06:00 AM	38	3	5	0	46	19	1	0	0	20	0	4	0	0	4	1	1	132	0	134	204
06:15 AM	43	1	0	0	44	18	0	1	0	19	0	7	0	0	7	1	0	171	0	172	242
06:30 AM	43	1	4	0	48	22	2	1	0	25	0	17	3	0	20	1	1	218	0	220	313
06:45 AM	51	5	4	0	60	15	2	2	0	19	0	13	0	0	13	1	1	228	0	230	322
Total	175	10	13	0	198	74	5	4	0	83	0	41	3	0	44	4	3	749	0	756	1081
07:00 AM	86	3	3	0	92	19	0	0	0	19	0	16	1	0	17	1	0	202	0	203	331
07:15 AM	100	10	4	0	114	27	1	0	0	28	0	10	3	0	13	0	0	184	0	184	339
07:30 AM	82	6	9	0	97	33	3	1	0	37	0	25	2	0	27	1	1	197	0	199	360
07:45 AM	102	16	10	0	128	24	2	1	0	27	0	18	5	0	23	1	0	230	0	231	409
Total	370	35	26	0	431	103	6	2	0	111	0	69	11	0	80	3	1	813	0	817	1439
08:00 AM	84	4	4	0	92	32	4	0	0	36	0	12	0	0	12	0	0	186	0	186	326
08:15 AM	85	3	6	0	94	28	0	0	0	28	2	12	0	0	14	1	1	161	0	163	299
08:30 AM	97	3	5	0	105	22	4	0	0	26	1	12	3	0	16	1	4	200	0	205	352
08:45 AM	73	5	3	0	81	14	0	1	0	15	1	10	2	0	13	0	3	168	0	171	280
Total	339	15	18	0	372	96	8	1	0	105	4	46	5	0	55	2	8	715	0	725	1257
09:00 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Grand Total	887	60	57	0	1004	273	19	7	0	299	4	156	19	0	179	9	12	2277	0	2298	3780
Apprch %	88.3	6	5.7	0		91.3	6.4	2.3	0		2.2	87.2	10.6	0		0.4	0.5	99.1	0		
Total %	23.5	1.6	1.5	0	26.6	7.2	0.5	0.2	0	7.9	0.1	4.1	0.5	0	4.7	0.2	0.3	60.2	0	60.8	
Lights	800	57	50	0	907	254	15	6	0	275	4	152	15	0	171	9	12	2171	0	2192	3545
% Lights	90.2	95	87.7	0	90.3	93	78.9	85.7	0	92	100	97.4	78.9	0	95.5	100	100	95.3	0	95.4	93.8
Mediums	84	3	7	0	94	19	4	1	0	24	0	4	4	0	8	0	0	100	0	100	226
% Mediums	9.5	5	12.3	0	9.4	7	21.1	14.3	0	8	0	2.6	21.1	0	4.5	0	0	4.4	0	4.4	6
Articulated Trucks																					
% Articulated Trucks	0.3	0	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0.3	0.2

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
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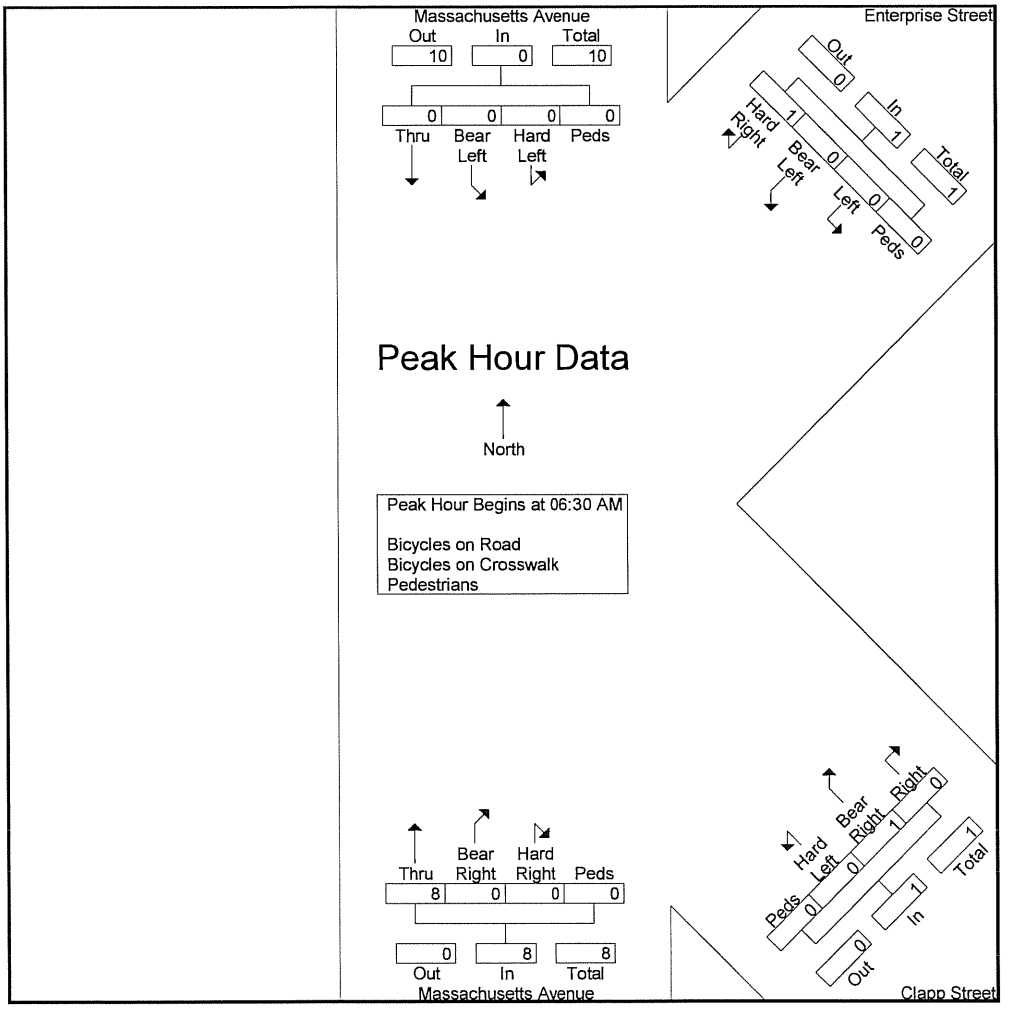
Peak Hour Analysis From 06:00 AM to 09:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:30 AM																					
06:30 AM	0	0	0	0	0	**1**	0	0	0	**1**	0	0	0	0	0	0	0	1	0	1	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	3	0	3	**4**
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	0	**4**	4
Total Volume	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	8	0	8	10
% App. Total	0	0	0	0		100	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.250	.000	.000	.250	.000	.000	.500	.000	.500	.625



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Marlborough, MA

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NE: Enterprise Street
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Boston, MA

File Name : 920 Mass Ave at Enterprise AM
Site Code : 920
Start Date : 3/10/2017
Page No : 1

Groups Printed- Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
06:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	2
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	4
Total	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	4	0	4	7
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	3	2	5	6
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	0	0	1	1	1	0	0	2	0	1	0	1	2	0	0	11	2	13	18
Apprch %	100	0	0	0		50	50	0	0		0	50	0	50		0	0	84.6	15.4		
Total %	5.6	0	0	0	5.6	5.6	5.6	0	0	11.1	0	5.6	0	5.6	11.1	0	0	61.1	11.1	72.2	
Bicycles on Road	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	0	0	11	0	11	15
% Bicycles on Road	100	0	0	0	100	100	100	0	0	100	0	100	0	0	50	0	0	100	0	84.6	83.3
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	3
% Pedestrians	0	0	0	0	0	0	0	0	0	0	0	0	0	100	50	0	0	0	100	15.4	16.7

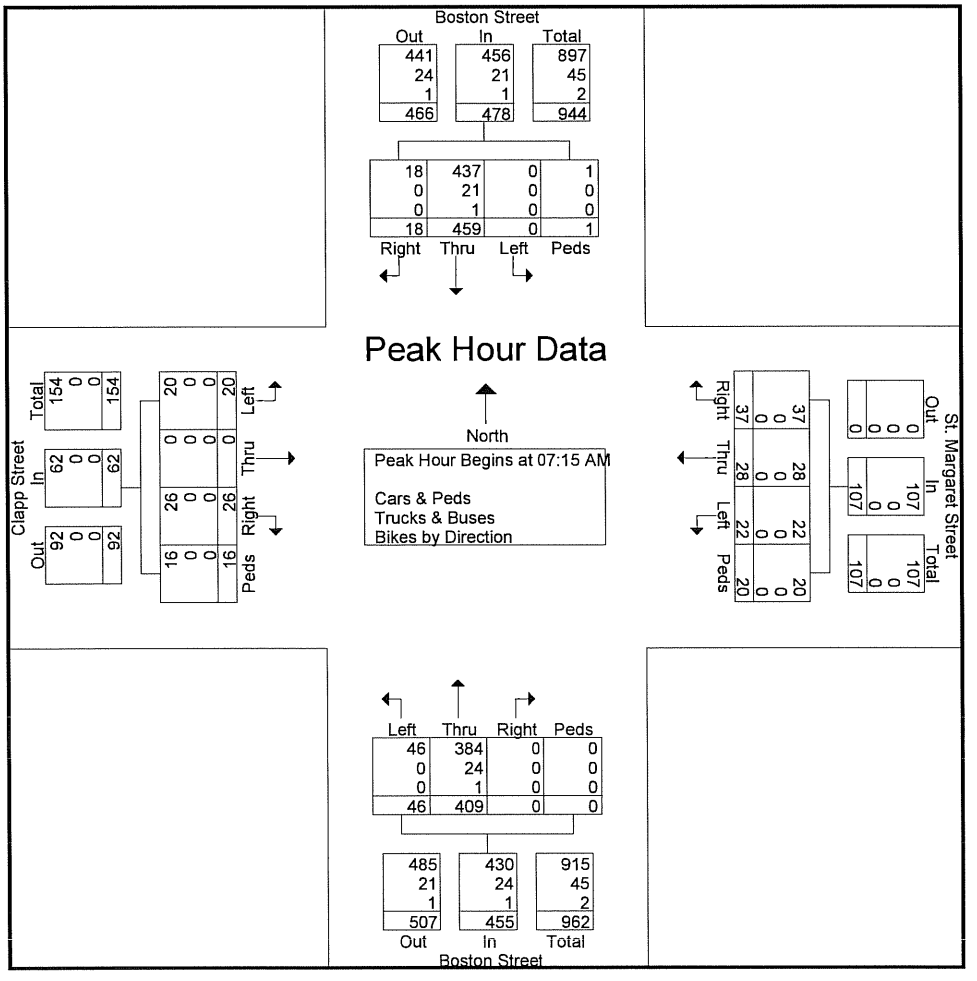
Transportation Data Corporation

Mario Perone, mperone1@verizon.net
tel (781) 587-0086 cell (781) 439-4999

N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864A
Site Code : 920
Start Date : 3/8/2017
Page No : 1

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**7**	**128**	0	0	**135**	9	4	2	3	18	0	**120**	13	0	**133**	5	0	0	4	9	**295**
07:30 AM	5	123	0	**1**	129	7	7	**7**	3	24	0	91	7	0	98	7	0	1	**8**	16	267
07:45 AM	4	109	0	0	113	**13**	7	7	**11**	**38**	0	98	**15**	0	113	**9**	0	7	2	18	282
08:00 AM	2	99	0	0	101	8	**10**	6	3	27	0	100	11	0	111	5	0	**12**	2	**19**	258
Total Volume	18	459	0	1	478	37	28	22	20	107	0	409	46	0	455	26	0	20	16	62	1102
% App. Total	3.8	96	0	0.2		34.6	26.2	20.6	18.7		0	89.9	10.1	0		41.9	0	32.3	25.8		
PHF	.643	.896	.000	.250	.885	.712	.700	.786	.455	.704	.000	.852	.767	.000	.855	.722	.000	.417	.500	.816	.934
Cars & Peds	18	437	0	1	456	37	28	22	20	107	0	384	46	0	430	26	0	20	16	62	1055
% Cars & Peds	100	95.2	0	100	95.4	100	100	100	100	100	0	93.9	100	0	94.5	100	0	100	100	100	95.7
Trucks & Buses	0	21	0	0	21	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	45
% Trucks & Buses	0	4.6	0	0	4.4	0	0	0	0	0	0	5.9	0	0	5.3	0	0	0	0	0	4.1
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Bikes by Direction	0	0.2	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.2



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N/S: Boston Street
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City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864A
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:00 AM	5	45	0	0	2	1	1	1	0	92	4	0	2	0	1	4	158
06:15 AM	5	56	0	0	4	1	0	4	0	100	4	1	2	0	2	2	181
06:30 AM	6	82	0	0	1	0	5	1	0	127	7	0	3	0	4	4	240
06:45 AM	3	96	0	0	4	2	1	3	0	98	10	0	4	0	8	4	233
Total	19	279	0	0	11	4	7	9	0	417	25	1	11	0	15	14	812
07:00 AM	3	105	0	0	8	2	4	2	0	87	10	0	2	0	4	3	230
07:15 AM	7	128	0	0	9	4	2	3	0	120	13	0	5	0	0	4	295
07:30 AM	5	123	0	1	7	7	7	3	0	91	7	0	7	0	1	8	267
07:45 AM	4	109	0	0	13	7	7	11	0	98	15	0	9	0	7	2	282
Total	19	465	0	1	37	20	20	19	0	396	45	0	23	0	12	17	1074
08:00 AM	2	99	0	0	8	10	6	3	0	100	11	0	5	0	12	2	258
08:15 AM	2	103	0	1	7	5	2	9	0	104	7	0	1	0	4	5	250
08:30 AM	3	90	0	0	2	4	1	6	0	89	7	1	3	0	6	4	216
08:45 AM	2	84	0	1	3	2	1	4	0	77	6	0	1	0	4	3	188
Total	9	376	0	2	20	21	10	22	0	370	31	1	10	0	26	14	912
Grand Total	47	1120	0	3	68	45	37	50	0	1183	101	2	44	0	53	45	2798
Apprch %	4	95.7	0	0.3	34	22.5	18.5	25	0	92	7.9	0.2	31	0	37.3	31.7	
Total %	1.7	40	0	0.1	2.4	1.6	1.3	1.8	0	42.3	3.6	0.1	1.6	0	1.9	1.6	
Cars & Peds	46	1049	0	3	67	45	37	50	0	1122	101	2	44	0	50	45	2661
% Cars & Peds	97.9	93.7	0	100	98.5	100	100	100	0	94.8	100	100	100	0	94.3	100	95.1
Trucks & Buses	1	70	0	0	1	0	0	0	0	58	0	0	0	0	3	0	133
% Trucks & Buses	2.1	6.2	0	0	1.5	0	0	0	0	4.9	0	0	0	0	5.7	0	4.8
Bikes by Direction	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
% Bikes by Direction	0	0.1	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0.1

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**7**	**128**	0	0	**135**	9	4	2	3	18	0	**120**	13	0	**133**	5	0	0	4	9	**295**
07:30 AM	5	123	0	**1**	129	7	7	**7**	3	24	0	91	7	0	98	7	0	1	**8**	16	267
07:45 AM	4	109	0	0	113	**13**	7	7	**11**	**38**	0	98	**15**	0	113	**9**	0	7	2	18	282
08:00 AM	2	99	0	0	101	8	**10**	6	3	27	0	100	11	0	111	5	0	**12**	2	**19**	258
Total Volume	18	459	0	1	478	37	28	22	20	107	0	409	46	0	455	26	0	20	16	62	1102
% App. Total	3.8	96	0	0.2		34.6	26.2	20.6	18.7		0	89.9	10.1	0		41.9	0	32.3	25.8		
PHF	.643	.896	.000	.250	.885	.712	.700	.786	.455	.704	.000	.852	.767	.000	.855	.722	.000	.417	.500	.816	.934
Cars & Peds	18	437	0	1	456	37	28	22	20	107	0	384	46	0	430	26	0	20	16	62	1055
% Cars & Peds	100	95.2	0	100	95.4	100	100	100	100	100	0	93.9	100	0	94.5	100	0	100	100	100	95.7
Trucks & Buses	0	21	0	0	21	0	0	0	0	0	0	24	0	0	24	0	0	0	0	0	45
% Trucks & Buses	0	4.6	0	0	4.4	0	0	0	0	0	0	5.9	0	0	5.3	0	0	0	0	0	4.1
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
% Bikes by Direction	0	0.2	0	0	0.2	0	0	0	0	0	0	0.2	0	0	0.2	0	0	0	0	0	0.2

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Client: MDM/D. Lindquist

File Name : 04864A
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:00 AM	5	38	0	0	2	1	1	1	0	90	4	0	2	0	1	4	149
06:15 AM	4	51	0	0	4	1	0	4	0	95	4	1	2	0	2	2	170
06:30 AM	6	71	0	0	1	0	5	1	0	123	7	0	3	0	4	4	225
06:45 AM	3	90	0	0	3	2	1	3	0	94	10	0	4	0	7	4	221
Total	18	250	0	0	10	4	7	9	0	402	25	1	11	0	14	14	765
07:00 AM	3	101	0	0	8	2	4	2	0	83	10	0	2	0	3	3	221
07:15 AM	7	120	0	0	9	4	2	3	0	115	13	0	5	0	0	4	282
07:30 AM	5	115	0	1	7	7	7	3	0	86	7	0	7	0	1	8	254
07:45 AM	4	107	0	0	13	7	7	11	0	88	15	0	9	0	7	2	270
Total	19	443	0	1	37	20	20	19	0	372	45	0	23	0	11	17	1027
08:00 AM	2	95	0	0	8	10	6	3	0	95	11	0	5	0	12	2	249
08:15 AM	2	100	0	1	7	5	2	9	0	95	7	0	1	0	4	5	238
08:30 AM	3	82	0	0	2	4	1	6	0	86	7	1	3	0	5	4	204
08:45 AM	2	79	0	1	3	2	1	4	0	72	6	0	1	0	4	3	178
Total	9	356	0	2	20	21	10	22	0	348	31	1	10	0	25	14	869
Grand Total	46	1049	0	3	67	45	37	50	0	1122	101	2	44	0	50	45	2661
Apprch %	4.2	95.5	0	0.3	33.7	22.6	18.6	25.1	0	91.6	8.2	0.2	31.7	0	36	32.4	
Total %	1.7	39.4	0	0.1	2.5	1.7	1.4	1.9	0	42.2	3.8	0.1	1.7	0	1.9	1.7	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	**7**	**120**	0	0	**127**	9	4	2	3	18	0	**115**	13	0	**128**	5	0	0	4	9	**282**
07:30 AM	5	115	0	**1**	121	7	7	**7**	3	24	0	86	7	0	93	7	0	1	**8**	16	254
07:45 AM	4	107	0	0	111	**13**	7	7	**11**	**38**	0	88	**15**	0	103	**9**	0	7	2	18	270
08:00 AM	2	95	0	0	97	8	**10**	6	3	27	0	95	11	0	106	5	0	**12**	2	**19**	249
Total Volume	18	437	0	1	456	37	28	22	20	107	0	384	46	0	430	26	0	20	16	62	1055
% App. Total	3.9	95.8	0	0.2		34.6	26.2	20.6	18.7		0	89.3	10.7	0		41.9	0	32.3	25.8		
PHF	.643	.910	.000	.250	.898	.712	.700	.786	.455	.704	.000	.835	.767	.000	.840	.722	.000	.417	.500	.816	.935

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Client: MDM/D. Lindquist

File Name : 04864A
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Trucks & Buses

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:00 AM	0	7	0	0	0	0	0	0	0	2	0	0	0	0	0	0	9
06:15 AM	1	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	11
06:30 AM	0	11	0	0	0	0	0	0	0	4	0	0	0	0	0	0	15
06:45 AM	0	6	0	0	1	0	0	0	0	4	0	0	0	0	1	0	12
Total	1	29	0	0	1	0	0	0	0	15	0	0	0	0	1	0	47
07:00 AM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	1	0	8
07:15 AM	0	8	0	0	0	0	0	0	0	5	0	0	0	0	0	0	13
07:30 AM	0	8	0	0	0	0	0	0	0	5	0	0	0	0	0	0	13
07:45 AM	0	1	0	0	0	0	0	0	0	10	0	0	0	0	0	0	11
Total	0	21	0	0	0	0	0	0	0	23	0	0	0	0	1	0	45
08:00 AM	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	8
08:15 AM	0	3	0	0	0	0	0	0	0	9	0	0	0	0	0	0	12
08:30 AM	0	8	0	0	0	0	0	0	0	2	0	0	0	0	1	0	11
08:45 AM	0	5	0	0	0	0	0	0	0	5	0	0	0	0	0	0	10
Total	0	20	0	0	0	0	0	0	0	20	0	0	0	0	1	0	41
Grand Total	1	70	0	0	1	0	0	0	0	58	0	0	0	0	3	0	133
Apprch %	1.4	98.6	0	0	100	0	0	0	0	100	0	0	0	0	100	0	
Total %	0.8	52.6	0	0	0.8	0	0	0	0	43.6	0	0	0	0	2.3	0	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:30 AM																					
06:30 AM	0	**11**	0	0	**11**	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	**15**
06:45 AM	0	6	0	0	6	**1**	0	0	0	**1**	0	4	0	0	4	0	0	**1**	0	**1**	12
07:00 AM	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	0	0	1	0	1	8
07:15 AM	0	8	0	0	8	0	0	0	0	0	0	**5**	0	0	**5**	0	0	0	0	0	13
Total Volume	0	29	0	0	29	1	0	0	0	1	0	16	0	0	16	0	0	2	0	2	48
% App. Total	0	100	0	0		100	0	0	0		0	100	0	0		0	0	100	0		
PHF	.000	.659	.000	.000	.659	.250	.000	.000	.000	.250	.000	.800	.000	.000	.800	.000	.000	.500	.000	.500	.800

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Client: MDM/D. Lindquist

File Name : 04864A
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Bikes by Direction

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
Grand Total	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	4
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	25	0	0	0	0	0	0	0	75	0	0	0	0	0	0	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.750

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File Name : 04864B
Site Code : 920
Start Date : 3/8/2017
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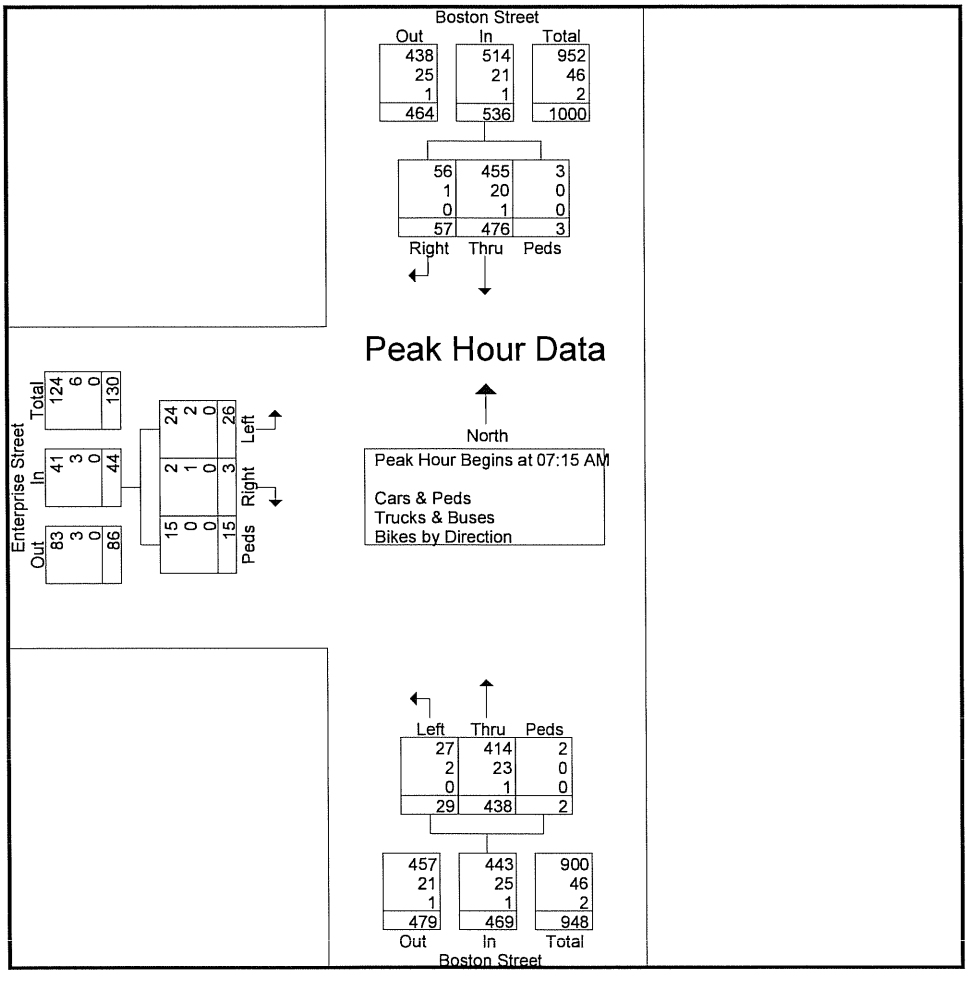
	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	14	**134**	0	**148**	**115**	**13**	0	**128**	**1**	7	4	12	**288**
07:30 AM	15	127	0	142	96	6	**2**	104	1	4	**6**	11	257
07:45 AM	**18**	112	**3**	133	112	6	0	118	0	5	2	7	258
08:00 AM	10	103	0	113	115	4	0	119	1	**10**	3	**14**	246
Total Volume	57	476	3	536	438	29	2	469	3	26	15	44	1049
% App. Total	10.6	88.8	0.6		93.4	6.2	0.4		6.8	59.1	34.1		
PHF	.792	.888	.250	.905	.952	.558	.250	.916	.750	.650	.625	.786	.911
Cars & Peds	56	455	3	514	414	27	2	443	2	24	15	41	998
% Cars & Peds	98.2	95.6	100	95.9	94.5	93.1	100	94.5	66.7	92.3	100	93.2	95.1
Trucks & Buses	1	20	0	21	23	2	0	25	1	2	0	3	49
% Trucks & Buses	1.8	4.2	0	3.9	5.3	6.9	0	5.3	33.3	7.7	0	6.8	4.7
Bikes by Direction	0	1	0	1	1	0	0	1	0	0	0	0	2
% Bikes by Direction	0	0.2	0	0.2	0.2	0	0	0.2	0	0	0	0	0.2



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W: Enterprise Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864B
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
06:00 AM	11	48	0	93	3	0	1	2	2	160
06:15 AM	19	59	0	103	3	0	4	2	2	192
06:30 AM	19	83	0	126	5	0	4	4	4	245
06:45 AM	14	96	0	106	5	0	5	5	3	234
Total	63	286	0	428	16	0	14	13	11	831
07:00 AM	16	104	0	85	16	0	3	3	3	230
07:15 AM	14	134	0	115	13	0	1	7	4	288
07:30 AM	15	127	0	96	6	2	1	4	6	257
07:45 AM	18	112	3	112	6	0	0	5	2	258
Total	63	477	3	408	41	2	5	19	15	1033
08:00 AM	10	103	0	115	4	0	1	10	3	246
08:15 AM	13	104	1	103	8	0	3	5	4	241
08:30 AM	16	93	0	94	3	0	1	7	4	218
08:45 AM	13	83	0	80	5	0	1	5	2	189
Total	52	383	1	392	20	0	6	27	13	894
Grand Total	178	1146	4	1228	77	2	25	59	39	2758
Apprch %	13.4	86.3	0.3	94	5.9	0.2	20.3	48	31.7	
Total %	6.5	41.6	0.1	44.5	2.8	0.1	0.9	2.1	1.4	
Cars & Peds	170	1080	4	1169	71	2	21	56	39	2612
% Cars & Peds	95.5	94.2	100	95.2	92.2	100	84	94.9	100	94.7
Trucks & Buses	8	65	0	56	6	0	4	3	0	142
% Trucks & Buses	4.5	5.7	0	4.6	7.8	0	16	5.1	0	5.1
Bikes by Direction	0	1	0	3	0	0	0	0	0	4
% Bikes by Direction	0	0.1	0	0.2	0	0	0	0	0	0.1

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	14	**134**	0	**148**	**115**	**13**	0	**128**	**1**	7	4	12	**288**
07:30 AM	15	127	0	142	96	6	**2**	104	1	4	**6**	11	257
07:45 AM	**18**	112	**3**	133	112	6	0	118	0	5	2	7	258
08:00 AM	10	103	0	113	115	4	0	119	1	**10**	3	**14**	246
Total Volume	57	476	3	536	438	29	2	469	3	26	15	44	1049
% App. Total	10.6	88.8	0.6		93.4	6.2	0.4		6.8	59.1	34.1		
PHF	.792	.888	.250	.905	.952	.558	.250	.916	.750	.650	.625	.786	.911
Cars & Peds	56	455	3	514	414	27	2	443	2	24	15	41	998
% Cars & Peds	98.2	95.6	100	95.9	94.5	93.1	100	94.5	66.7	92.3	100	93.2	95.1
Trucks & Buses	1	20	0	21	23	2	0	25	1	2	0	3	49
% Trucks & Buses	1.8	4.2	0	3.9	5.3	6.9	0	5.3	33.3	7.7	0	6.8	4.7
Bikes by Direction	0	1	0	1	1	0	0	1	0	0	0	0	2
% Bikes by Direction	0	0.2	0	0.2	0.2	0	0	0.2	0	0	0	0	0.2

Transportation Data Corporation
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N/S: Boston Street
W: Enterprise Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864B
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
06:00 AM	11	42	0	91	3	0	1	2	2	152
06:15 AM	19	53	0	98	3	0	4	2	2	181
06:30 AM	18	73	0	122	4	0	3	4	4	228
06:45 AM	13	90	0	101	5	0	5	5	3	222
Total	61	258	0	412	15	0	13	13	11	783
07:00 AM	14	101	0	80	16	0	2	3	3	219
07:15 AM	14	127	0	111	12	0	0	6	4	274
07:30 AM	14	119	0	91	6	2	1	4	6	243
07:45 AM	18	110	3	102	5	0	0	5	2	245
Total	60	457	3	384	39	2	3	18	15	981
08:00 AM	10	99	0	110	4	0	1	9	3	236
08:15 AM	12	101	1	97	6	0	2	5	4	228
08:30 AM	15	86	0	90	3	0	1	6	4	205
08:45 AM	12	79	0	76	4	0	1	5	2	179
Total	49	365	1	373	17	0	5	25	13	848
Grand Total	170	1080	4	1169	71	2	21	56	39	2612
Apprch %	13.6	86.1	0.3	94.1	5.7	0.2	18.1	48.3	33.6	
Total %	6.5	41.3	0.2	44.8	2.7	0.1	0.8	2.1	1.5	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	14	**127**	0	**141**	**111**	**12**	0	**123**	0	6	4	10	**274**
07:30 AM	14	119	0	133	91	6	**2**	99	**1**	4	**6**	11	243
07:45 AM	**18**	110	**3**	131	102	5	0	107	0	5	2	7	245
08:00 AM	10	99	0	109	110	4	0	114	1	**9**	3	**13**	236
Total Volume	56	455	3	514	414	27	2	443	2	24	15	41	998
% App. Total	10.9	88.5	0.6		93.5	6.1	0.5		4.9	58.5	36.6		
PHF	.778	.896	.250	.911	.932	.563	.250	.900	.500	.667	.625	.788	.911

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N/S: Boston Street
W: Enterprise Street
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Client: MDM/D. Lindquist

File Name : 04864B
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Trucks & Buses

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
06:00 AM	0	6	0	2	0	0	0	0	0	8
06:15 AM	0	6	0	5	0	0	0	0	0	11
06:30 AM	1	10	0	4	1	0	1	0	0	17
06:45 AM	1	6	0	5	0	0	0	0	0	12
Total	2	28	0	16	1	0	1	0	0	48
07:00 AM	2	3	0	4	0	0	1	0	0	10
07:15 AM	0	7	0	4	1	0	1	1	0	14
07:30 AM	1	8	0	5	0	0	0	0	0	14
07:45 AM	0	1	0	10	1	0	0	0	0	12
Total	3	19	0	23	2	0	2	1	0	50
08:00 AM	0	4	0	4	0	0	0	1	0	9
08:15 AM	1	3	0	6	2	0	1	0	0	13
08:30 AM	1	7	0	3	0	0	0	1	0	12
08:45 AM	1	4	0	4	1	0	0	0	0	10
Total	3	18	0	17	3	0	1	2	0	44
Grand Total	8	65	0	56	6	0	4	3	0	142
Apprch %	11	89	0	90.3	9.7	0	57.1	42.9	0	
Total %	5.6	45.8	0	39.4	4.2	0	2.8	2.1	0	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 06:30 AM													
06:30 AM	1	**10**	0	**11**	4	**1**	0	**5**	**1**	0	0	1	**17**
06:45 AM	1	6	0	7	**5**	0	0	5	0	0	0	0	12
07:00 AM	**2**	3	0	5	4	0	0	4	1	0	0	1	10
07:15 AM	0	7	0	7	4	1	0	5	1	**1**	0	**2**	14
Total Volume	4	26	0	30	17	2	0	19	3	1	0	4	53
% App. Total	13.3	86.7	0		89.5	10.5	0		75	25	0		
PHF	.500	.650	.000	.682	.850	.500	.000	.950	.750	.250	.000	.500	.779

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File Name : 04864B
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Bikes by Direction

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
06:00 AM	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	1	0	0	0	0	0	0	0	1
Total	0	1	0	1	0	0	0	0	0	2
08:00 AM	0	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	1	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	0	0	0	2
Grand Total	0	1	0	3	0	0	0	0	0	4
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	25	0	75	0	0	0	0	0	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	**1**
08:00 AM	0	0	0	0	**1**	0	0	**1**	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	1
Total Volume	0	1	0	1	2	0	0	2	0	0	0	0	3
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.250	.000	.250	.500	.000	.000	.500	.000	.000	.000	.000	.750

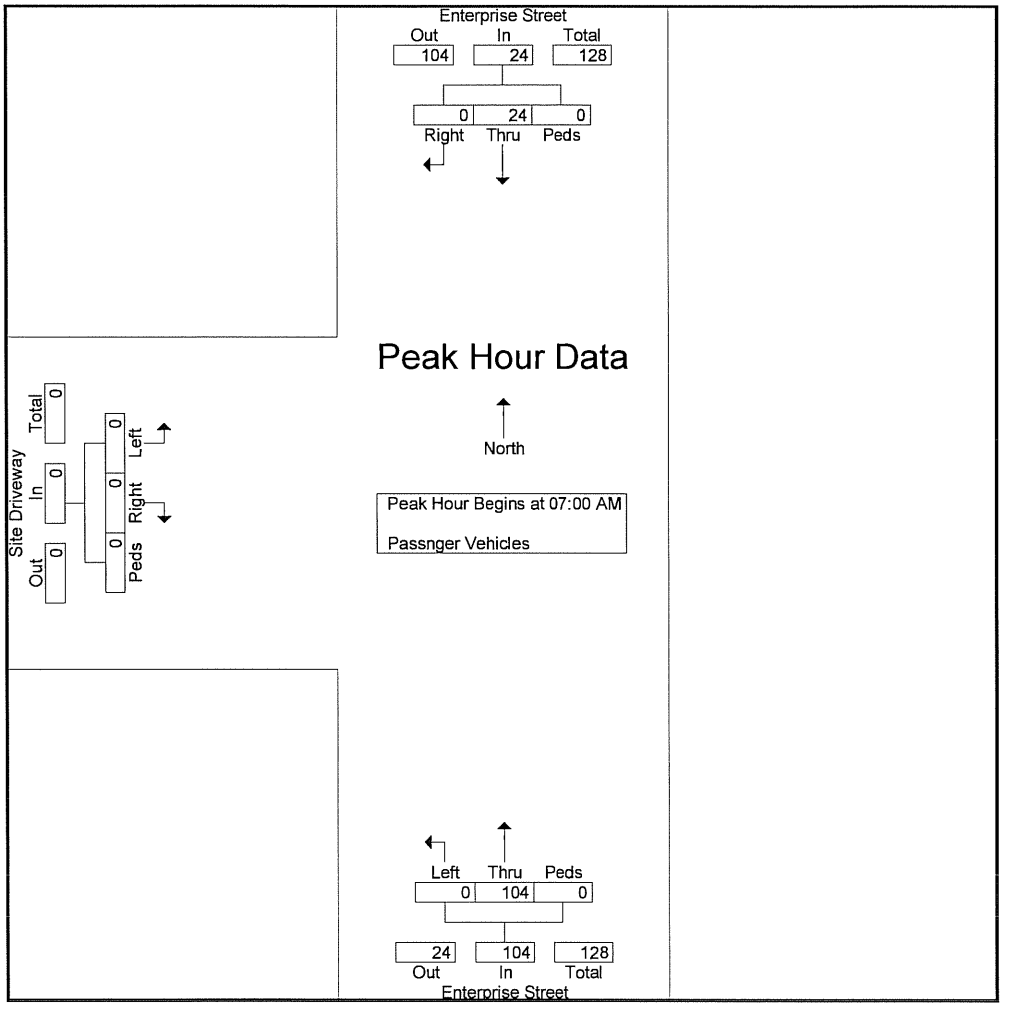
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Northern Enterprise Driveway AM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	0	6	0	6	**32**	0	0	**32**	0	0	0	0	**38**
07:15 AM	0	**8**	0	**8**	27	0	0	27	0	0	0	0	35
07:30 AM	0	5	0	5	21	0	0	21	0	0	0	0	26
07:45 AM	0	5	0	5	24	0	0	24	0	0	0	0	29
Total Volume	0	24	0	24	104	0	0	104	0	0	0	0	128
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.750	.000	.750	.813	.000	.000	.813	.000	.000	.000	.000	.842



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Northern Enterprise Driveway AM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Passnger Vehicles

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
06:00 AM	0	3	0	3	14	0	0	14	0	0	0	0	17
06:15 AM	0	11	0	11	10	0	0	10	0	0	0	0	21
06:30 AM	0	9	0	9	18	0	0	18	0	0	0	0	27
06:45 AM	0	11	0	11	17	0	0	17	0	0	0	0	28
Total	0	34	0	34	59	0	0	59	0	0	0	0	93
07:00 AM	0	6	0	6	32	0	0	32	0	0	0	0	38
07:15 AM	0	8	0	8	27	0	0	27	0	0	0	0	35
07:30 AM	0	5	0	5	21	0	0	21	0	0	0	0	26
07:45 AM	0	5	0	5	24	0	0	24	0	0	0	0	29
Total	0	24	0	24	104	0	0	104	0	0	0	0	128
08:00 AM	0	11	0	11	14	0	0	14	0	0	0	0	25
08:15 AM	0	8	0	8	13	0	0	13	0	0	0	0	21
08:30 AM	0	8	0	8	19	0	0	19	0	0	0	0	27
08:45 AM	0	6	0	6	18	0	0	18	0	0	0	0	24
Total	0	33	0	33	64	0	0	64	0	0	0	0	97
Grand Total	0	91	0	91	227	0	0	227	0	0	0	0	318
Apprch %	0	100	0		100	0	0		0	0	0		
Total %	0	28.6	0	28.6	71.4	0	0	71.4	0	0	0	0	

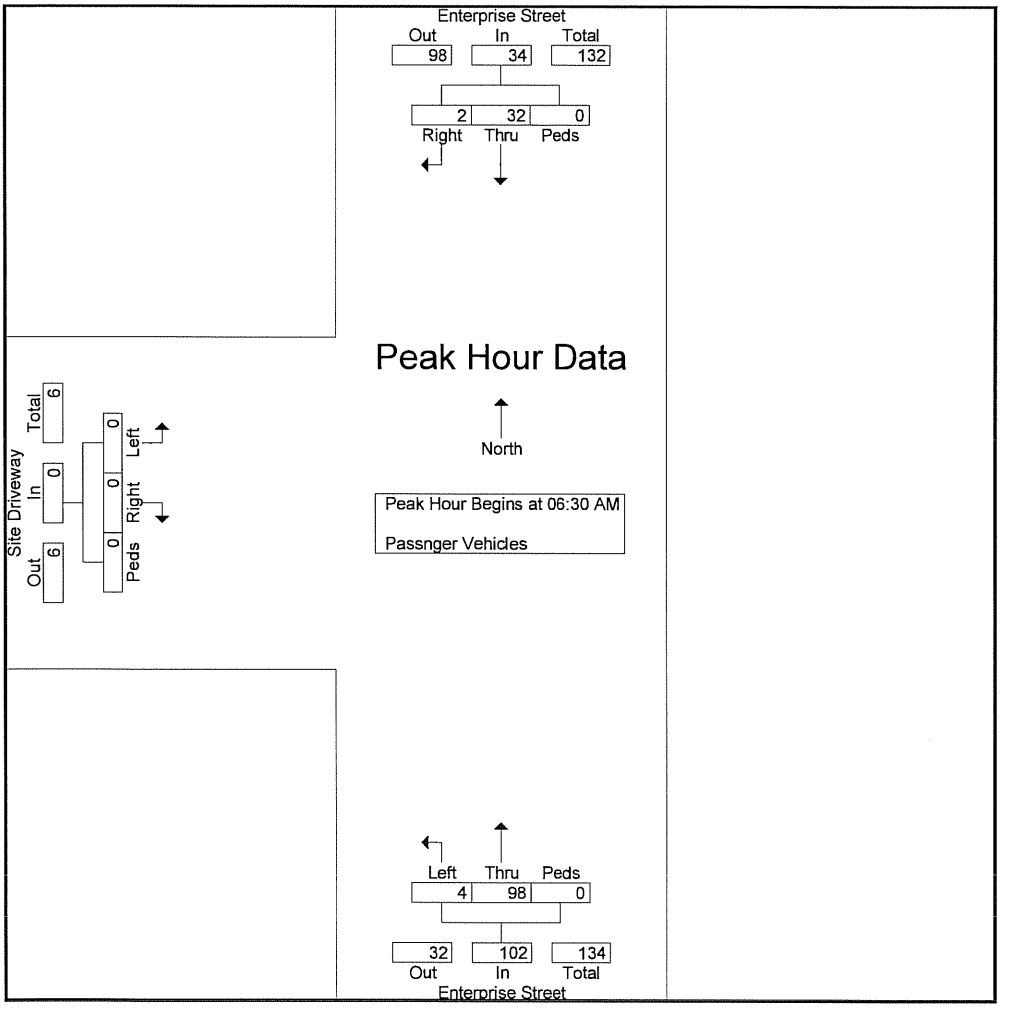
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Enterprise Driveway AM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 06:30 AM													
06:30 AM	**1**	8	0	9	21	**3**	0	24	0	0	0	0	33
06:45 AM	1	**10**	0	**11**	18	1	0	19	0	0	0	0	30
07:00 AM	0	6	0	6	**32**	0	0	**32**	0	0	0	0	**38**
07:15 AM	0	8	0	8	27	0	0	27	0	0	0	0	35
Total Volume	2	32	0	34	98	4	0	102	0	0	0	0	136
% App. Total	5.9	94.1	0		96.1	3.9	0		0	0	0		
PHF	.500	.800	.000	.773	.766	.333	.000	.797	.000	.000	.000	.000	.895



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Enterprise Driveway AM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Passnger Vehicles

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
06:00 AM	0	3	0	3	14	0	0	14	0	0	0	0	17
06:15 AM	5	6	0	11	16	6	0	22	0	0	0	0	33
06:30 AM	1	8	0	9	21	3	0	24	0	0	0	0	33
06:45 AM	1	10	0	11	18	1	0	19	0	0	0	0	30
Total	7	27	0	34	69	10	0	79	0	0	0	0	113
07:00 AM	0	6	0	6	32	0	0	32	0	0	0	0	38
07:15 AM	0	8	0	8	27	0	0	27	0	0	0	0	35
07:30 AM	0	5	0	5	21	0	0	21	0	0	0	0	26
07:45 AM	0	5	0	5	24	0	0	24	0	0	0	0	29
Total	0	24	0	24	104	0	0	104	0	0	0	0	128
08:00 AM	0	11	0	11	14	0	0	14	0	0	0	0	25
08:15 AM	0	8	0	8	13	0	0	13	0	0	0	0	21
08:30 AM	0	8	0	8	19	0	0	19	0	0	0	0	27
08:45 AM	0	6	0	6	18	0	0	18	0	0	0	0	24
Total	0	33	0	33	64	0	0	64	0	0	0	0	97
Grand Total	7	84	0	91	237	10	0	247	0	0	0	0	338
Apprch %	7.7	92.3	0		96	4	0		0	0	0		
Total %	2.1	24.9	0	26.9	70.1	3	0	73.1	0	0	0	0	

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Massachusetts Avenue
NE: Enterprise Street
SE: Clapp Street
Boston, MA

File Name : 920 Mass Ave at Enterprise PM
Site Code : 920
Start Date : 3/9/2017
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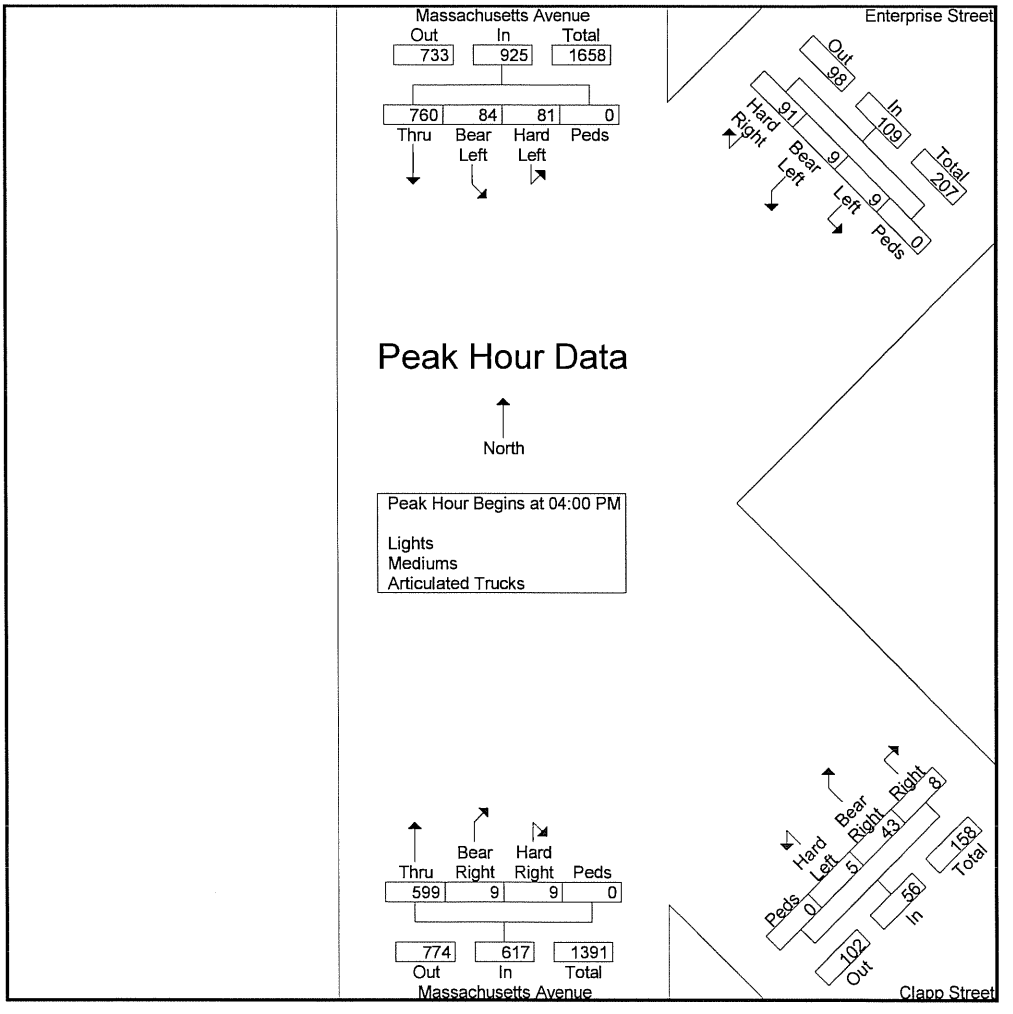
	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 06:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	**199**	**34**	**23**	0	**256**	**23**	1	1	0	25	1	10	0	0	11	2	2	138	0	142	434
04:15 PM	182	19	22	0	223	23	1	**3**	0	27	0	9	**2**	0	11	**3**	**4**	137	0	144	405
04:30 PM	183	14	17	0	214	22	**4**	3	0	**29**	2	10	1	0	13	3	1	**183**	0	**187**	**443**
04:45 PM	196	17	19	0	232	23	3	2	0	28	**5**	**14**	2	0	**21**	1	2	141	0	144	425
Total Volume	760	84	81	0	925	91	9	9	0	109	8	43	5	0	56	9	9	599	0	617	1707
% App. Total	82.2	9.1	8.8	0		83.5	8.3	8.3	0		14.3	76.8	8.9	0		1.5	1.5	97.1	0		
PHF	.955	.618	.880	.000	.903	.989	.563	.750	.000	.940	.400	.768	.625	.000	.667	.750	.563	.818	.000	.825	.963



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28 Lord Road, Suite 280
Marlborough, MA

N/S: Massachusetts Avenue
NE: Enterprise Street
SE: Clapp Street
Boston, MA

File Name : 920 Mass Ave at Enterprise PM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Lights - Mediums - Articulated Trucks

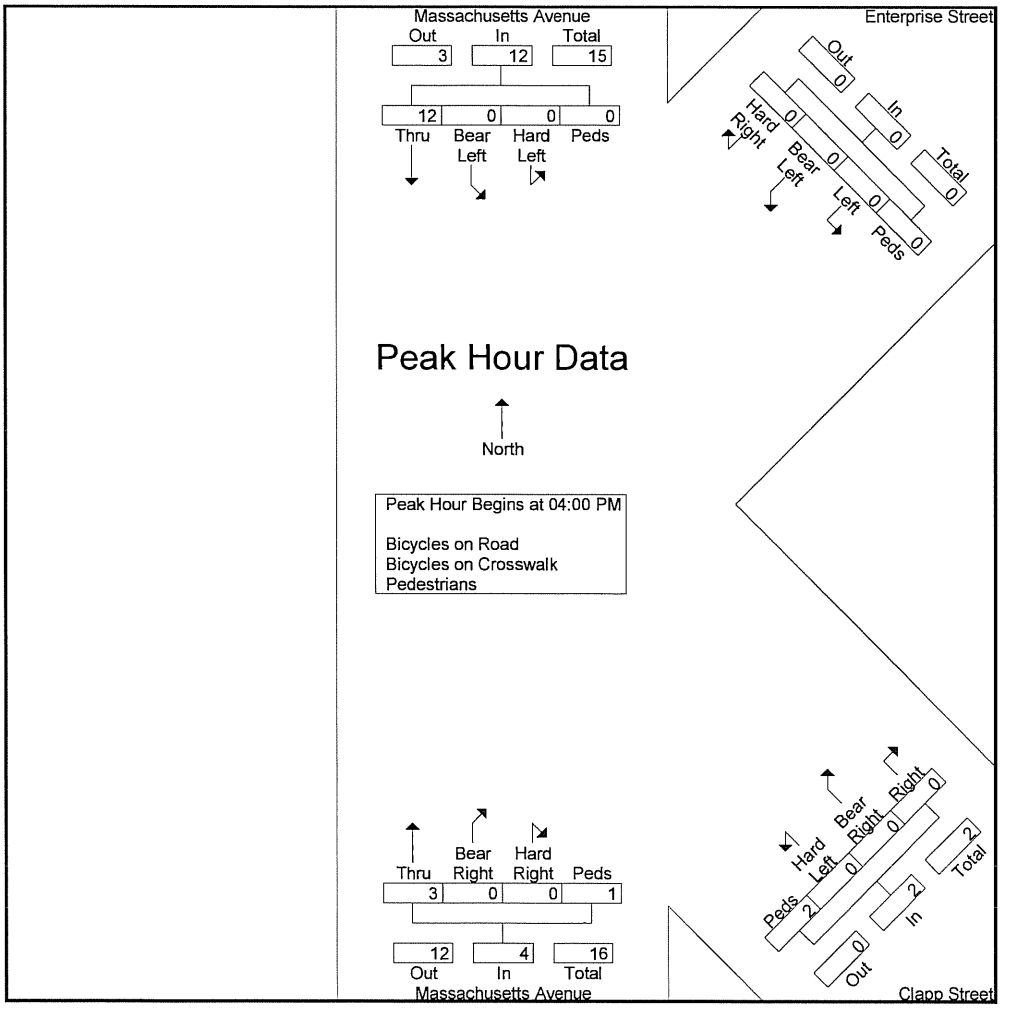
	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
03:00 PM	154	20	23	0	197	35	4	4	0	43	1	17	0	0	18	1	5	137	0	143	401
03:15 PM	153	21	11	0	185	32	0	9	0	41	0	7	1	0	8	5	4	154	0	163	397
03:30 PM	160	27	18	0	205	22	4	8	0	34	6	11	1	0	18	1	5	153	0	159	416
03:45 PM	172	34	19	0	225	16	0	5	0	21	4	6	0	0	10	1	3	137	0	141	397
Total	639	102	71	0	812	105	8	26	0	139	11	41	2	0	54	8	17	581	0	606	1611
04:00 PM	199	34	23	0	256	23	1	1	0	25	1	10	0	0	11	2	2	138	0	142	434
04:15 PM	182	19	22	0	223	23	1	3	0	27	0	9	2	0	11	3	4	137	0	144	405
04:30 PM	183	14	17	0	214	22	4	3	0	29	2	10	1	0	13	3	1	183	0	187	443
04:45 PM	196	17	19	0	232	23	3	2	0	28	5	14	2	0	21	1	2	141	0	144	425
Total	760	84	81	0	925	91	9	9	0	109	8	43	5	0	56	9	9	599	0	617	1707
05:00 PM	191	19	10	0	220	22	7	3	0	32	0	13	0	0	13	2	2	135	0	139	404
05:15 PM	171	27	12	0	210	15	1	2	0	18	0	5	0	0	5	0	1	141	0	142	375
05:30 PM	190	16	13	0	219	16	1	0	0	17	0	7	0	0	7	2	1	132	0	135	378
05:45 PM	167	26	8	0	201	11	0	1	0	12	0	6	0	0	6	0	1	131	0	132	351
Total	719	88	43	0	850	64	9	6	0	79	0	31	0	0	31	4	5	539	0	548	1508
06:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	3
Grand Total	2119	274	195	0	2588	260	26	41	0	327	19	115	7	0	141	21	31	1721	0	1773	4829
Apprch %	81.9	10.6	7.5	0		79.5	8	12.5	0		13.5	81.6	5	0		1.2	1.7	97.1	0		
Total %	43.9	5.7	4	0	53.6	5.4	0.5	0.8	0	6.8	0.4	2.4	0.1	0	2.9	0.4	0.6	35.6	0	36.7	
Lights	2042	267	182	0	2491	253	26	40	0	319	19	112	7	0	138	20	31	1660	0	1711	4659
% Lights	96.4	97.4	93.3	0	96.3	97.3	100	97.6	0	97.6	100	97.4	100	0	97.9	95.2	100	96.5	0	96.5	96.5
Mediums	73	7	12	0	92	7	0	1	0	8	0	2	0	0	2	1	0	59	0	60	162
% Mediums	3.4	2.6	6.2	0	3.6	2.7	0	2.4	0	2.4	0	1.7	0	0	1.4	4.8	0	3.4	0	3.4	3.4
Articulated Trucks																					
% Articulated Trucks	0.2	0	0.5	0	0.2	0	0	0	0	0	0	0.9	0	0	0.7	0	0	0.1	0	0.1	0.2

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : 920 Mass Ave at Enterprise PM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	**1**	**1**	0	0	**2**	0	**2**	5
04:15 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	**1**	2	5
04:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	**5**	0	0	0	**5**	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	**6**
Total Volume	12	0	0	0	12	0	0	0	0	0	0	0	0	2	2	0	0	3	1	4	18
% App. Total	100	0	0	0		0	0	0	0		0	0	0	100		0	0	75	25		
PHF	.600	.000	.000	.000	.600	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500	.000	.000	.375	.250	.500	.750



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Massachusetts Avenue
NE: Enterprise Street
SE: Clapp Street
Boston, MA

File Name : 920 Mass Ave at Enterprise PM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Bicycles on Road - Bicycles on Crosswalk - Pedestrians

	Massachusetts Avenue From North					Enterprise Street From Northeast					Clapp Street From Southeast					Massachusetts Avenue From South					
Start Time	Thru	Bear Left	Hard Left	Peds	App. Total	Hard Right	Bear Left	Left	Peds	App. Total	Right	Bear Right	Hard Left	Peds	App. Total	Hard Right	Bear Right	Thru	Peds	App. Total	Int. Total
03:00 PM	1	0	0	0	1	0	0	0	6	6	0	0	0	0	0	0	0	0	0	0	7
03:15 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
03:30 PM	0	0	0	2	2	0	0	0	2	2	0	0	0	0	0	0	0	1	0	1	5
03:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	2	0	0	2	4	0	0	0	11	11	0	0	0	0	0	0	0	2	0	2	17
04:00 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	1	1	0	0	2	0	2	5
04:15 PM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	5
04:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	5	0	0	0	5	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	6
Total	12	0	0	0	12	0	0	0	0	0	0	0	0	2	2	0	0	3	1	4	18
05:00 PM	2	0	0	0	2	0	0	0	3	3	0	0	0	2	2	0	0	0	0	0	7
05:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	3
05:30 PM	0	0	0	0	0	0	0	0	1	1	1	0	0	4	5	0	0	1	0	1	7
05:45 PM	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total	9	0	0	0	9	0	0	0	4	4	1	0	0	7	8	0	0	1	1	2	23
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	23	0	0	2	25	0	0	0	15	15	1	0	0	9	10	0	0	6	2	8	58
Apprch %	92	0	0	8		0	0	0	100		10	0	0	90		0	0	75	25		
Total %	39.7	0	0	3.4	43.1	0	0	0	25.9	25.9	1.7	0	0	15.5	17.2	0	0	10.3	3.4	13.8	
Bicycles on Road	23	0	0	0	23	0	0	0	0	0	1	0	0	0	1	0	0	6	0	6	30
% Bicycles on Road	100	0	0	0	92	0	0	0	0	0	100	0	0	0	10	0	0	100	0	75	51.7
Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bicycles on Crosswalk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pedestrians	0	0	0	2	2	0	0	0	15	15	0	0	0	9	9	0	0	0	2	2	28
% Pedestrians	0	0	0	100	8	0	0	0	100	100	0	0	0	100	90	0	0	0	100	25	48.3

Transportation Data Corporation

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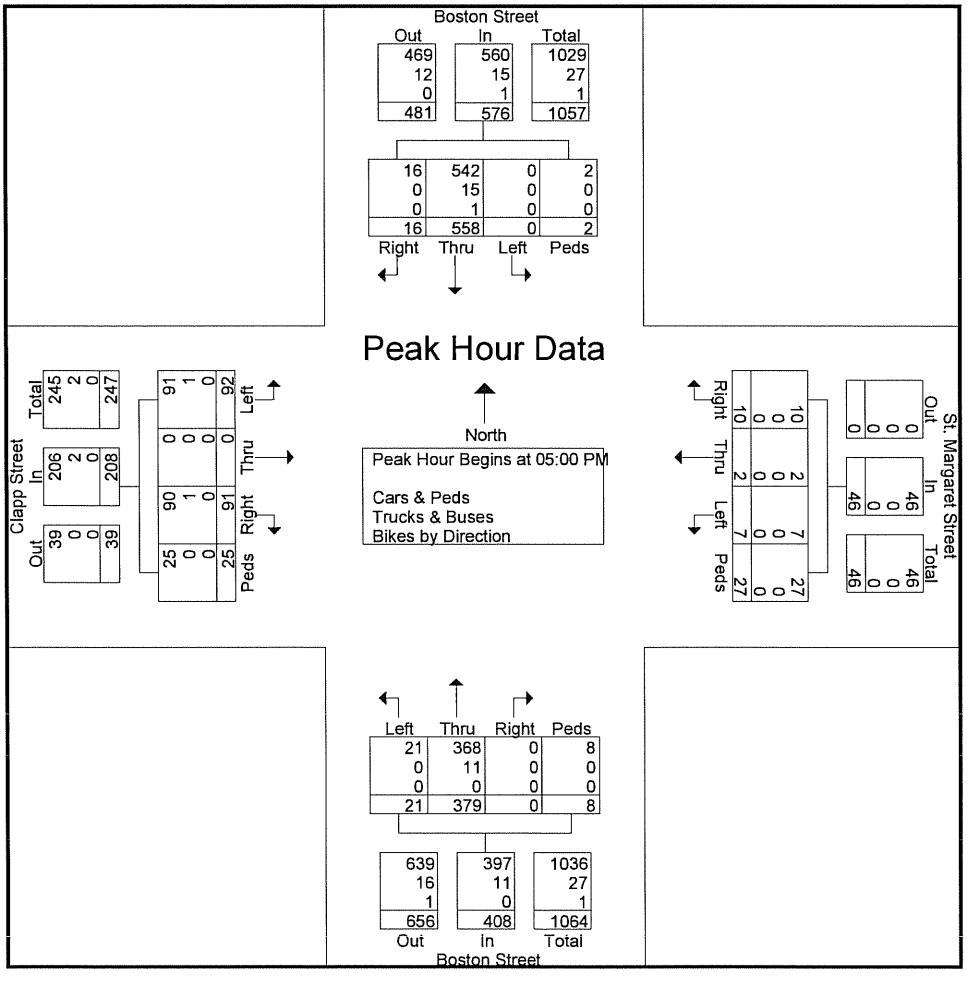
N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864AA
Site Code : 920
Start Date : 3/8/2017
Page No : 1

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	132	0	0	135	1	**1**	**4**	3	9	0	93	4	1	98	**29**	0	14	8	51	293
05:15 PM	**9**	123	0	0	132	2	0	1	**9**	12	0	96	2	1	99	21	0	24	**9**	**54**	297
05:30 PM	1	149	0	**1**	151	3	1	**1**	9	**14**	0	**103**	**8**	**6**	**117**	17	0	**32**	4	53	**335**
05:45 PM	3	**154**	0	1	**158**	**4**	0	1	6	11	0	87	7	0	94	24	0	22	4	50	313
Total Volume	16	558	0	2	576	10	2	7	27	46	0	379	21	8	408	91	0	92	25	208	1238
% App. Total	2.8	96.9	0	0.3		21.7	4.3	15.2	58.7		0	92.9	5.1	2		43.8	0	44.2	12		
PHF	.444	.906	.000	.500	.911	.625	.500	.438	.750	.821	.000	.920	.656	.333	.872	.784	.000	.719	.694	.963	.924
Cars & Peds	16	542	0	2	560	10	2	7	27	46	0	368	21	8	397	90	0	91	25	206	1209
% Cars & Peds	100	97.1	0	100	97.2	100	100	100	100	100	0	97.1	100	100	97.3	98.9	0	98.9	100	99.0	97.7
Trucks & Buses	0	15	0	0	15	0	0	0	0	0	0	11	0	0	11	1	0	1	0	2	28
% Trucks & Buses	0	2.7	0	0	2.6	0	0	0	0	0	0	2.9	0	0	2.7	1.1	0	1.1	0	1.0	2.3
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bikes by Direction	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



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N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864AA
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:00 PM	8	100	0	1	7	1	5	13	0	88	6	6	13	0	11	10	269
03:15 PM	5	111	0	1	6	0	0	2	0	96	6	0	16	0	12	5	260
03:30 PM	8	110	0	0	2	1	1	6	0	79	8	0	16	0	8	5	244
03:45 PM	1	125	0	0	1	0	0	12	0	98	2	0	16	0	22	2	279
Total	22	446	0	2	16	2	6	33	0	361	22	6	61	0	53	22	1052
04:00 PM	2	103	0	0	7	3	2	10	0	93	4	0	26	0	18	4	272
04:15 PM	5	115	0	0	3	5	4	6	0	82	3	0	15	0	21	1	260
04:30 PM	2	121	0	3	5	2	5	7	0	86	1	0	25	0	14	7	278
04:45 PM	2	129	0	0	2	0	0	2	0	103	5	0	18	0	15	6	282
Total	11	468	0	3	17	10	11	25	0	364	13	0	84	0	68	18	1092
05:00 PM	3	132	0	0	1	1	4	3	0	93	4	1	29	0	14	8	293
05:15 PM	9	123	0	0	2	0	1	9	0	96	2	1	21	0	24	9	297
05:30 PM	1	149	0	1	3	1	1	9	0	103	8	6	17	0	32	4	335
05:45 PM	3	154	0	1	4	0	1	6	0	87	7	0	24	0	22	4	313
Total	16	558	0	2	10	2	7	27	0	379	21	8	91	0	92	25	1238
Grand Total	49	1472	0	7	43	14	24	85	0	1104	56	14	236	0	213	65	3382
Apprch %	3.2	96.3	0	0.5	25.9	8.4	14.5	51.2	0	94	4.8	1.2	45.9	0	41.4	12.6	
Total %	1.4	43.5	0	0.2	1.3	0.4	0.7	2.5	0	32.6	1.7	0.4	7	0	6.3	1.9	
Cars & Peds	49	1425	0	7	43	14	24	85	0	1059	56	14	235	0	212	65	3288
% Cars & Peds	100	96.8	0	100	100	100	100	100	0	95.9	100	100	99.6	0	99.5	100	97.2
Trucks & Buses	0	41	0	0	0	0	0	0	0	43	0	0	1	0	1	0	86
% Trucks & Buses	0	2.8	0	0	0	0	0	0	0	3.9	0	0	0.4	0	0.5	0	2.5
Bikes by Direction	0	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	8
% Bikes by Direction	0	0.4	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0.2

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	132	0	0	135	1	**1**	**4**	3	9	0	93	4	1	98	**29**	0	14	8	51	293
05:15 PM	**9**	123	0	0	132	2	0	1	**9**	12	0	96	2	1	99	21	0	24	**9**	**54**	297
05:30 PM	1	149	0	**1**	151	3	1	1	9	**14**	0	**103**	**8**	**6**	**117**	17	0	**32**	4	53	**335**
05:45 PM	3	**154**	0	1	**158**	**4**	0	1	6	11	0	87	7	0	94	24	0	22	4	50	313
Total Volume	16	558	0	2	576	10	2	7	27	46	0	379	21	8	408	91	0	92	25	208	1238
% App. Total	2.8	96.9	0	0.3		21.7	4.3	15.2	58.7		0	92.9	5.1	2		43.8	0	44.2	12		
PHF	.444	.906	.000	.500	.911	.625	.500	.438	.750	.821	.000	.920	.656	.333	.872	.784	.000	.719	.694	.963	.924
Cars & Peds	16	542	0	2	560	10	2	7	27	46	0	368	21	8	397	90	0	91	25	206	1209
% Cars & Peds	100	97.1	0	100	97.2	100	100	100	100	100	0	97.1	100	100	97.3	98.9	0	98.9	100	99.0	97.7
Trucks & Buses	0	15	0	0	15	0	0	0	0	0	0	11	0	0	11	1	0	1	0	2	28
% Trucks & Buses	0	2.7	0	0	2.6	0	0	0	0	0	0	2.9	0	0	2.7	1.1	0	1.1	0	1.0	2.3
Bikes by Direction	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Bikes by Direction	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1

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N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864AA
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:00 PM	8	98	0	1	7	1	5	13	0	84	6	6	13	0	11	10	263
03:15 PM	5	108	0	1	6	0	0	2	0	90	6	0	16	0	12	5	251
03:30 PM	8	104	0	0	2	1	1	6	0	72	8	0	16	0	8	5	231
03:45 PM	1	121	0	0	1	0	0	12	0	95	2	0	16	0	22	2	272
Total	22	431	0	2	16	2	6	33	0	341	22	6	61	0	53	22	1017
04:00 PM	2	100	0	0	7	3	2	10	0	86	4	0	26	0	18	4	262
04:15 PM	5	111	0	0	3	5	4	6	0	82	3	0	15	0	21	1	256
04:30 PM	2	116	0	3	5	2	5	7	0	81	1	0	25	0	14	7	268
04:45 PM	2	125	0	0	2	0	0	2	0	101	5	0	18	0	15	6	276
Total	11	452	0	3	17	10	11	25	0	350	13	0	84	0	68	18	1062
05:00 PM	3	128	0	0	1	1	4	3	0	90	4	1	28	0	14	8	285
05:15 PM	9	119	0	0	2	0	1	9	0	95	2	1	21	0	24	9	292
05:30 PM	1	143	0	1	3	1	1	9	0	99	8	6	17	0	31	4	324
05:45 PM	3	152	0	1	4	0	1	6	0	84	7	0	24	0	22	4	308
Total	16	542	0	2	10	2	7	27	0	368	21	8	90	0	91	25	1209
Grand Total	49	1425	0	7	43	14	24	85	0	1059	56	14	235	0	212	65	3288
Apprch %	3.3	96.2	0	0.5	25.9	8.4	14.5	51.2	0	93.8	5	1.2	45.9	0	41.4	12.7	
Total %	1.5	43.3	0	0.2	1.3	0.4	0.7	2.6	0	32.2	1.7	0.4	7.1	0	6.4	2	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	128	0	0	131	1	**1**	**4**	3	9	0	90	4	1	95	**28**	0	14	8	50	285
05:15 PM	**9**	119	0	0	128	2	0	1	**9**	12	0	95	2	1	98	21	0	24	**9**	**54**	292
05:30 PM	1	143	0	**1**	145	3	1	1	9	**14**	0	**99**	**8**	**6**	**113**	17	0	**31**	4	52	**324**
05:45 PM	3	**152**	0	1	**156**	**4**	0	**1**	6	11	0	84	7	0	91	24	0	22	4	50	308
Total Volume	16	542	0	2	560	10	2	7	27	46	0	368	21	8	397	90	0	91	25	206	1209
% App. Total	2.9	96.8	0	0.4		21.7	4.3	15.2	58.7		0	92.7	5.3	2		43.7	0	44.2	12.1		
PHF	.444	.891	.000	.500	.897	.625	.500	.438	.750	.821	.000	.929	.656	.333	.878	.804	.000	.734	.694	.954	.933

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N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864AA
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Trucks & Buses

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:00 PM	0	2	0	0	0	0	0	0	0	4	0	0	0	0	0	0	6
03:15 PM	0	3	0	0	0	0	0	0	0	6	0	0	0	0	0	0	9
03:30 PM	0	4	0	0	0	0	0	0	0	6	0	0	0	0	0	0	10
03:45 PM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
Total	0	12	0	0	0	0	0	0	0	19	0	0	0	0	0	0	31
04:00 PM	0	3	0	0	0	0	0	0	0	7	0	0	0	0	0	0	10
04:15 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:30 PM	0	4	0	0	0	0	0	0	0	5	0	0	0	0	0	0	9
04:45 PM	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
Total	0	14	0	0	0	0	0	0	0	13	0	0	0	0	0	0	27
05:00 PM	0	4	0	0	0	0	0	0	0	3	0	0	1	0	0	0	8
05:15 PM	0	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	5
05:30 PM	0	5	0	0	0	0	0	0	0	4	0	0	0	0	1	0	10
05:45 PM	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
Total	0	15	0	0	0	0	0	0	0	11	0	0	1	0	1	0	28
Grand Total	0	41	0	0	0	0	0	0	0	43	0	0	1	0	1	0	86
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	50	0	50	0	
Total %	0	47.7	0	0	0	0	0	0	0	50	0	0	1.2	0	1.2	0	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	3	0	0	3	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	9
03:30 PM	0	**4**	0	0	**4**	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	**10**
03:45 PM	0	3	0	0	3	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	6
04:00 PM	0	3	0	0	3	0	0	0	0	0	0	**7**	0	0	**7**	0	0	0	0	0	10
Total Volume	0	13	0	0	13	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	35
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.813	.000	.000	.813	.000	.000	.000	.000	.000	.000	.786	.000	.000	.786	.000	.000	.000	.000	.000	.875

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N/S: Boston Street
E/W: St. Margaret Street/Clapp Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864AA
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Bikes by Direction

	Boston Street From North				St. Margaret Street From East				Boston Street From South				Clapp Street From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
03:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	4
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
Total	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	8
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	75	0	0	0	0	0	0	0	25	0	0	0	0	0	0	

	Boston Street From North					St. Margaret Street From East					Boston Street From South					Clapp Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	**2**	0	0	**2**	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	**3**
03:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	4
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.375	.000	.000	.375	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.333

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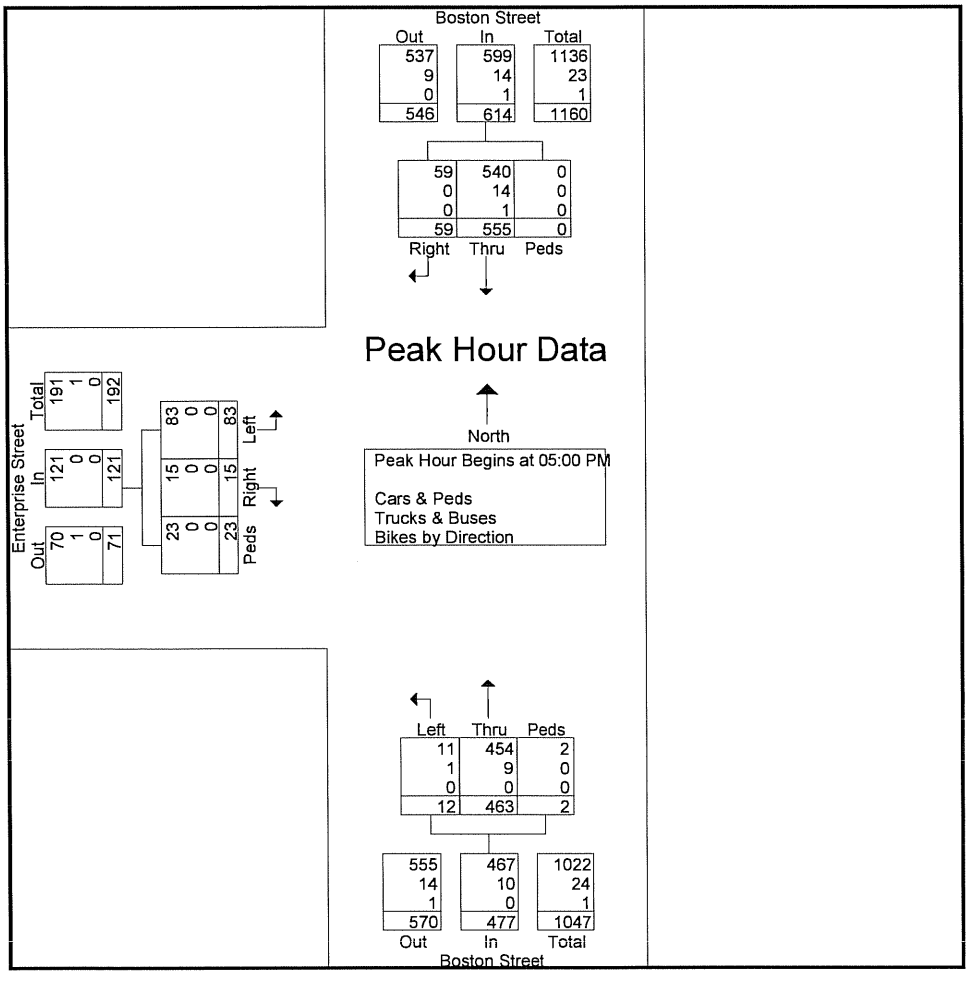
N/S: Boston Street
W: Enterprise Street
City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864BB
Site Code : 920
Start Date : 3/8/2017
Page No : 1

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	11	131	0	142	102	**7**	0	109	**6**	20	6	32	283
05:15 PM	14	128	0	142	117	3	0	120	1	20	**7**	28	290
05:30 PM	**17**	145	0	162	**135**	1	**2**	**138**	3	**29**	6	**38**	**338**
05:45 PM	17	**151**	0	**168**	109	1	0	110	5	14	4	23	301
Total Volume	59	555	0	614	463	12	2	477	15	83	23	121	1212
% App. Total	9.6	90.4	0		97.1	2.5	0.4		12.4	68.6	19		
PHF	.868	.919	.000	.914	.857	.429	.250	.864	.625	.716	.821	.796	.896
Cars & Peds	59	540	0	599	454	11	2	467	15	83	23	121	1187
% Cars & Peds	100	97.3	0	97.6	98.1	91.7	100	97.9	100	100	100	100	97.9
Trucks & Buses	0	14	0	14	9	1	0	10	0	0	0	0	24
% Trucks & Buses	0	2.5	0	2.3	1.9	8.3	0	2.1	0	0	0	0	2.0
Bikes by Direction	0	1	0	1	0	0	0	0	0	0	0	0	1
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.1



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File Name : 04864BB
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds - Trucks & Buses - Bikes by Direction

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
03:00 PM	20	101	4	104	5	0	5	13	8	260
03:15 PM	23	114	1	103	8	1	2	19	6	277
03:30 PM	18	113	0	86	6	2	7	23	5	260
03:45 PM	21	121	2	118	2	0	2	23	4	293
Total	82	449	7	411	21	3	16	78	23	1090
04:00 PM	27	105	1	108	9	0	1	22	3	276
04:15 PM	15	117	0	102	4	0	1	22	2	263
04:30 PM	11	119	0	101	5	0	5	17	4	262
04:45 PM	19	129	1	111	9	1	2	11	6	289
Total	72	470	2	422	27	1	9	72	15	1090
05:00 PM	11	131	0	102	7	0	6	20	6	283
05:15 PM	14	128	0	117	3	0	1	20	7	290
05:30 PM	17	145	0	135	1	2	3	29	6	338
05:45 PM	17	151	0	109	1	0	5	14	4	301
Total	59	555	0	463	12	2	15	83	23	1212
Grand Total	213	1474	9	1296	60	6	40	233	61	3392
Apprch %	12.6	86.9	0.5	95.2	4.4	0.4	12	69.8	18.3	
Total %	6.3	43.5	0.3	38.2	1.8	0.2	1.2	6.9	1.8	
Cars & Peds	210	1431	9	1258	54	6	37	231	61	3297
% Cars & Peds	98.6	97.1	100	97.1	90	100	92.5	99.1	100	97.2
Trucks & Buses	3	37	0	36	6	0	3	2	0	87
% Trucks & Buses	1.4	2.5	0	2.8	10	0	7.5	0.9	0	2.6
Bikes by Direction	0	6	0	2	0	0	0	0	0	8
% Bikes by Direction	0	0.4	0	0.2	0	0	0	0	0	0.2

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	11	131	0	142	102	**7**	0	109	**6**	20	6	32	283
05:15 PM	14	128	0	142	117	3	0	120	1	20	**7**	28	290
05:30 PM	**17**	145	0	162	**135**	**1**	**2**	**138**	3	**29**	6	**38**	**338**
05:45 PM	17	**151**	0	**168**	109	1	0	110	5	14	4	23	301
Total Volume	59	555	0	614	463	12	2	477	15	83	23	121	1212
% App. Total	9.6	90.4	0		97.1	2.5	0.4		12.4	68.6	19		
PHF	.868	.919	.000	.914	.857	.429	.250	.864	.625	.716	.821	.796	.896
Cars & Peds	59	540	0	599	454	11	2	467	15	83	23	121	1187
% Cars & Peds	100	97.3	0	97.6	98.1	91.7	100	97.9	100	100	100	100	97.9
Trucks & Buses	0	14	0	14	9	1	0	10	0	0	0	0	24
% Trucks & Buses	0	2.5	0	2.3	1.9	8.3	0	2.1	0	0	0	0	2.0
Bikes by Direction	0	1	0	1	0	0	0	0	0	0	0	0	1
% Bikes by Direction	0	0.2	0	0.2	0	0	0	0	0	0	0	0	0.1

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N/S: Boston Street
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File Name : 04864BB
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Cars & Peds

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
03:00 PM	20	100	4	100	5	0	4	13	8	254
03:15 PM	23	111	1	98	8	1	2	19	6	269
03:30 PM	17	108	0	80	4	2	6	22	5	244
03:45 PM	20	117	2	115	2	0	2	23	4	285
Total	80	436	7	393	19	3	14	77	23	1052
04:00 PM	27	102	1	103	7	0	1	22	3	266
04:15 PM	15	113	0	102	4	0	1	21	2	258
04:30 PM	10	115	0	97	4	0	4	17	4	251
04:45 PM	19	125	1	109	9	1	2	11	6	283
Total	71	455	2	411	24	1	8	71	15	1058
05:00 PM	11	127	0	100	6	0	6	20	6	276
05:15 PM	14	124	0	116	3	0	1	20	7	285
05:30 PM	17	140	0	131	1	2	3	29	6	329
05:45 PM	17	149	0	107	1	0	5	14	4	297
Total	59	540	0	454	11	2	15	83	23	1187
Grand Total	210	1431	9	1258	54	6	37	231	61	3297
Apprch %	12.7	86.7	0.5	95.4	4.1	0.5	11.2	70.2	18.5	
Total %	6.4	43.4	0.3	38.2	1.6	0.2	1.1	7	1.9	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	11	127	0	138	100	**6**	0	106	**6**	20	6	32	276
05:15 PM	14	124	0	138	116	3	0	119	**1**	20	**7**	28	285
05:30 PM	**17**	140	0	157	**131**	**1**	**2**	**134**	3	**29**	6	**38**	**329**
05:45 PM	17	**149**	0	**166**	107	1	0	108	5	14	4	23	297
Total Volume	59	540	0	599	454	11	2	467	15	83	23	121	1187
% App. Total	9.8	90.2	0		97.2	2.4	0.4		12.4	68.6	19		
PHF	.868	.906	.000	.902	.866	.458	.250	.871	.625	.716	.821	.796	.902

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File Name : 04864BB
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Page No : 1

Groups Printed- Trucks & Buses

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
03:00 PM	0	1	0	4	0	0	1	0	0	6
03:15 PM	0	3	0	5	0	0	0	0	0	8
03:30 PM	1	3	0	5	2	0	1	1	0	13
03:45 PM	1	3	0	3	0	0	0	0	0	7
Total	2	10	0	17	2	0	2	1	0	34
04:00 PM	0	3	0	5	2	0	0	0	0	10
04:15 PM	0	4	0	0	0	0	0	1	0	5
04:30 PM	1	3	0	4	1	0	1	0	0	10
04:45 PM	0	3	0	1	0	0	0	0	0	4
Total	1	13	0	10	3	0	1	1	0	29
05:00 PM	0	4	0	2	1	0	0	0	0	7
05:15 PM	0	4	0	1	0	0	0	0	0	5
05:30 PM	0	4	0	4	0	0	0	0	0	8
05:45 PM	0	2	0	2	0	0	0	0	0	4
Total	0	14	0	9	1	0	0	0	0	24
Grand Total	3	37	0	36	6	0	3	2	0	87
Apprch %	7.5	92.5	0	85.7	14.3	0	60	40	0	
Total %	3.4	42.5	0	41.4	6.9	0	3.4	2.3	0	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:15 PM													
03:15 PM	0	**3**	0	3	**5**	0	0	5	0	0	0	0	8
03:30 PM	**1**	3	0	**4**	5	**2**	0	**7**	**1**	**1**	0	**2**	**13**
03:45 PM	1	3	0	4	3	0	0	3	0	0	0	0	7
04:00 PM	0	3	0	3	5	2	0	7	0	0	0	0	10
Total Volume	2	12	0	14	18	4	0	22	1	1	0	2	38
% App. Total	14.3	85.7	0		81.8	18.2	0		50	50	0		
PHF	.500	1.00	.000	.875	.900	.500	.000	.786	.250	.250	.000	.250	.731

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City, State: Boston, MA
Client: MDM/D. Lindquist

File Name : 04864BB
Site Code : 920
Start Date : 3/8/2017
Page No : 1

Groups Printed- Bikes by Direction

	Boston Street From North			Boston Street From South			Enterprise Street From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	2	0	1	0	0	0	0	0	3
03:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	3	0	1	0	0	0	0	0	4
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	1	0	0	0	0	0	0	0	1
04:45 PM	0	1	0	1	0	0	0	0	0	2
Total	0	2	0	1	0	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	1
Grand Total	0	6	0	2	0	0	0	0	0	8
Apprch %	0	100	0	100	0	0	0	0	0	
Total %	0	75	0	25	0	0	0	0	0	

	Boston Street From North				Boston Street From South				Enterprise Street From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	**2**	0	**2**	**1**	0	0	**1**	0	0	0	0	**3**
03:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total Volume	0	3	0	3	1	0	0	1	0	0	0	0	4
% App. Total	0	100	0		100	0	0		0	0	0		
PHF	.000	.375	.000	.375	.250	.000	.000	.250	.000	.000	.000	.000	.333

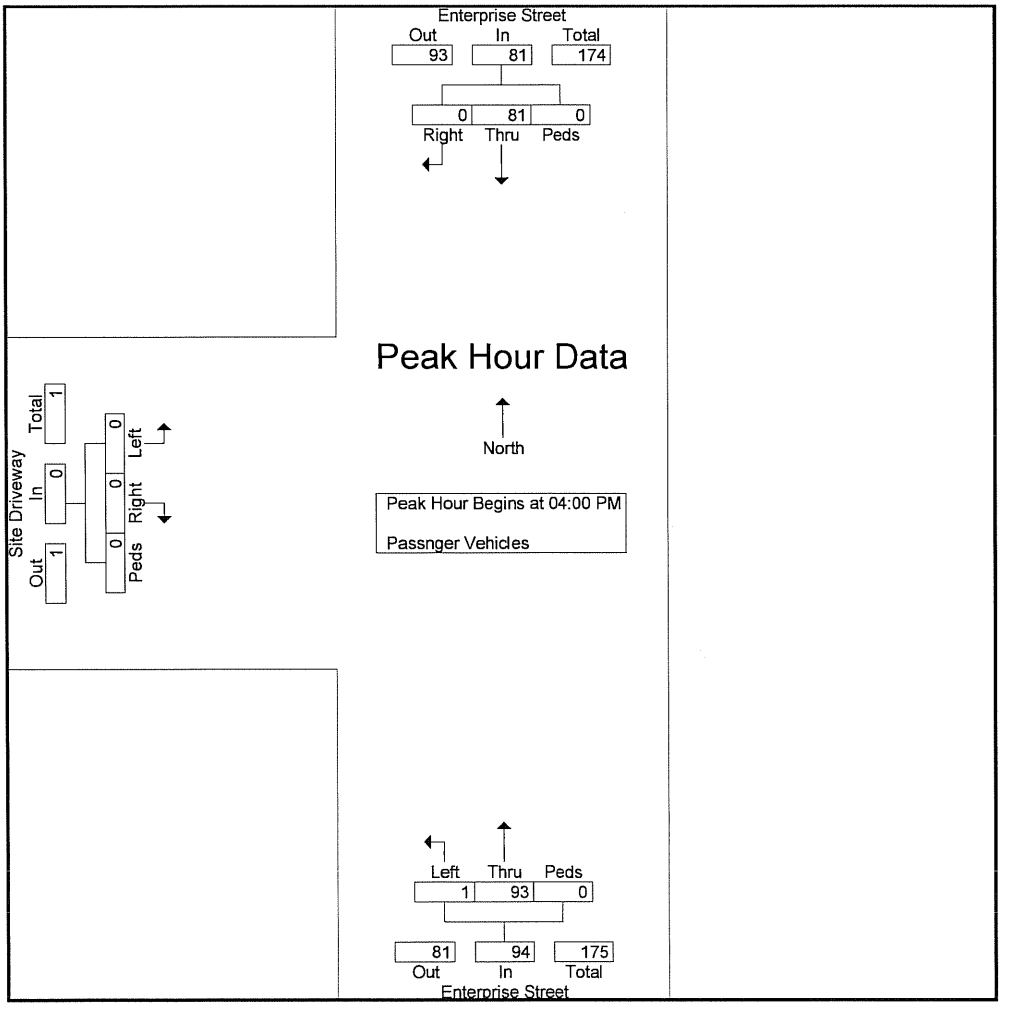
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Northern Enterprise Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	**23**	0	**23**	**33**	**1**	0	**34**	0	0	0	0	**57**
04:15 PM	0	23	0	23	19	0	0	19	0	0	0	0	42
04:30 PM	0	22	0	22	15	0	0	15	0	0	0	0	37
04:45 PM	0	13	0	13	26	0	0	26	0	0	0	0	39
Total Volume	0	81	0	81	93	1	0	94	0	0	0	0	175
% App. Total	0	100	0		98.9	1.1	0		0	0	0		
PHF	.000	.880	.000	.880	.705	.250	.000	.691	.000	.000	.000	.000	.768



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Northern Enterprise Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Passnger Vehicles

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
03:00 PM	0	18	0	18	17	0	0	17	0	0	0	0	35
03:15 PM	0	21	0	21	28	0	0	28	0	0	0	0	49
03:30 PM	0	30	0	30	21	0	0	21	0	0	0	0	51
03:45 PM	0	26	0	26	23	0	0	23	0	0	0	0	49
Total	0	95	0	95	89	0	0	89	0	0	0	0	184
04:00 PM	0	23	0	23	33	1	0	34	0	0	0	0	57
04:15 PM	0	23	0	23	19	0	0	19	0	0	0	0	42
04:30 PM	0	22	0	22	15	0	0	15	0	0	0	0	37
04:45 PM	0	13	0	13	26	0	0	26	0	0	0	0	39
Total	0	81	0	81	93	1	0	94	0	0	0	0	175
05:00 PM	0	26	0	26	17	0	0	17	0	0	0	0	43
05:15 PM	0	21	0	21	17	0	0	17	0	0	0	0	38
05:30 PM	0	32	0	32	18	0	0	18	0	0	0	0	50
05:45 PM	0	29	0	29	18	0	0	18	0	0	0	0	47
Total	0	108	0	108	70	0	0	70	0	0	0	0	178
Grand Total	0	284	0	284	252	1	0	253	0	0	0	0	537
Apprch %	0	100	0		99.6	0.4	0		0	0	0		
Total %	0	52.9	0	52.9	46.9	0.2	0	47.1	0	0	0	0	

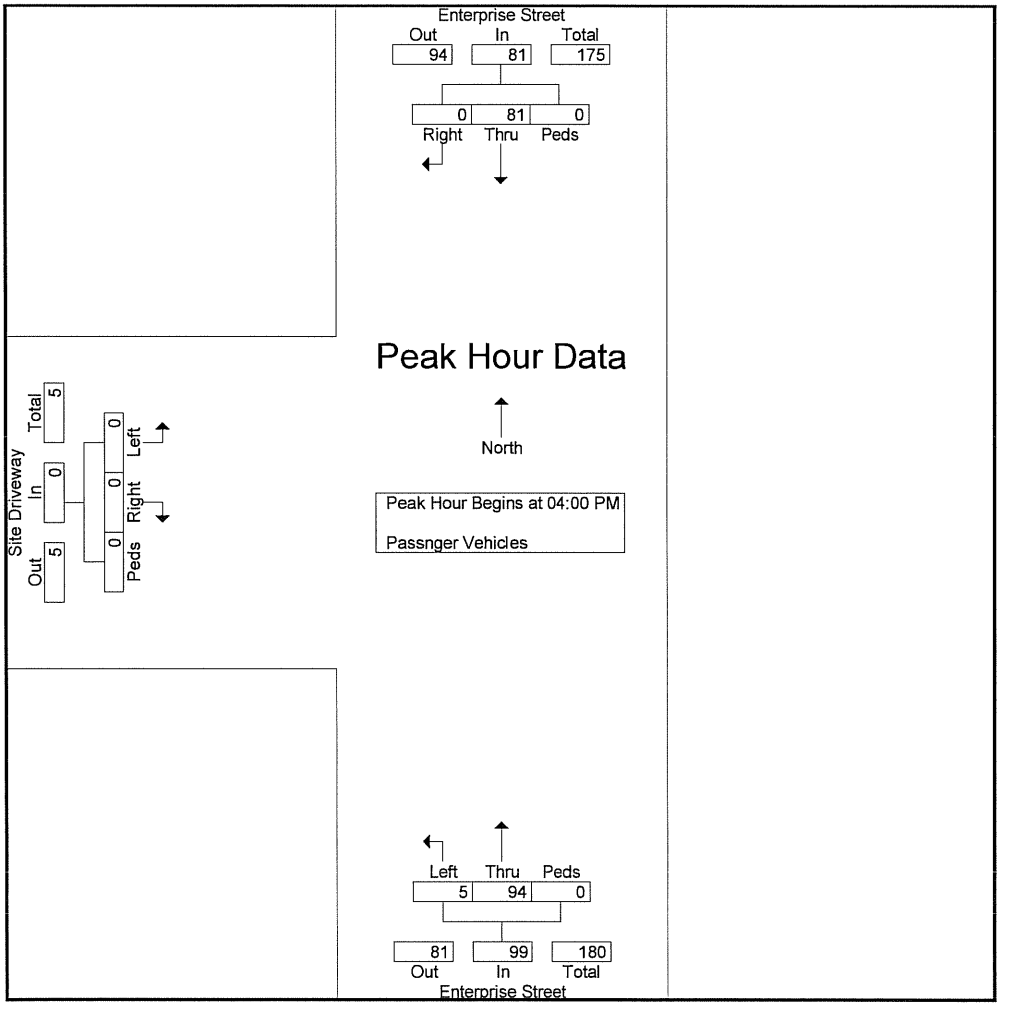
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Enterprise Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	**23**	0	**23**	**34**	**2**	0	**36**	0	0	0	0	**59**
04:15 PM	0	23	0	23	19	0	0	19	0	0	0	0	42
04:30 PM	0	22	0	22	15	1	0	16	0	0	0	0	38
04:45 PM	0	13	0	13	26	2	0	28	0	0	0	0	41
Total Volume	0	81	0	81	94	5	0	99	0	0	0	0	180
% App. Total	0	100	0		94.9	5.1	0		0	0	0		
PHF	.000	.880	.000	.880	.691	.625	.000	.688	.000	.000	.000	.000	.763



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Enterprise Street
W:Southern Site Driveway
Boston, MA

File Name : 920 Enterprise Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Passnger Vehicles

	Enterprise Street From North				Enterprise Street From South				Site Driveway From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
03:00 PM	0	18	0	18	17	8	0	25	0	0	0	0	43
03:15 PM	0	21	0	21	28	3	0	31	0	0	0	0	52
03:30 PM	0	30	0	30	21	3	0	24	0	0	0	0	54
03:45 PM	1	25	0	26	23	3	0	26	0	0	0	0	52
Total	1	94	0	95	89	17	0	106	0	0	0	0	201
04:00 PM	0	23	0	23	34	2	0	36	0	0	0	0	59
04:15 PM	0	23	0	23	19	0	0	19	0	0	0	0	42
04:30 PM	0	22	0	22	15	1	0	16	0	0	0	0	38
04:45 PM	0	13	0	13	26	2	0	28	0	0	0	0	41
Total	0	81	0	81	94	5	0	99	0	0	0	0	180
05:00 PM	0	26	0	26	17	1	0	18	0	0	0	0	44
05:15 PM	0	21	0	21	17	0	0	17	0	0	0	0	38
05:30 PM	0	32	0	32	18	0	0	18	0	0	0	0	50
05:45 PM	0	29	0	29	18	0	0	18	0	0	0	0	47
Total	0	108	0	108	70	1	0	71	0	0	0	0	179
Grand Total	1	283	0	284	253	23	0	276	0	0	0	0	560
Apprch %	0.4	99.6	0		91.7	8.3	0		0	0	0		
Total %	0.2	50.5	0	50.7	45.2	4.1	0	49.3	0	0	0	0	

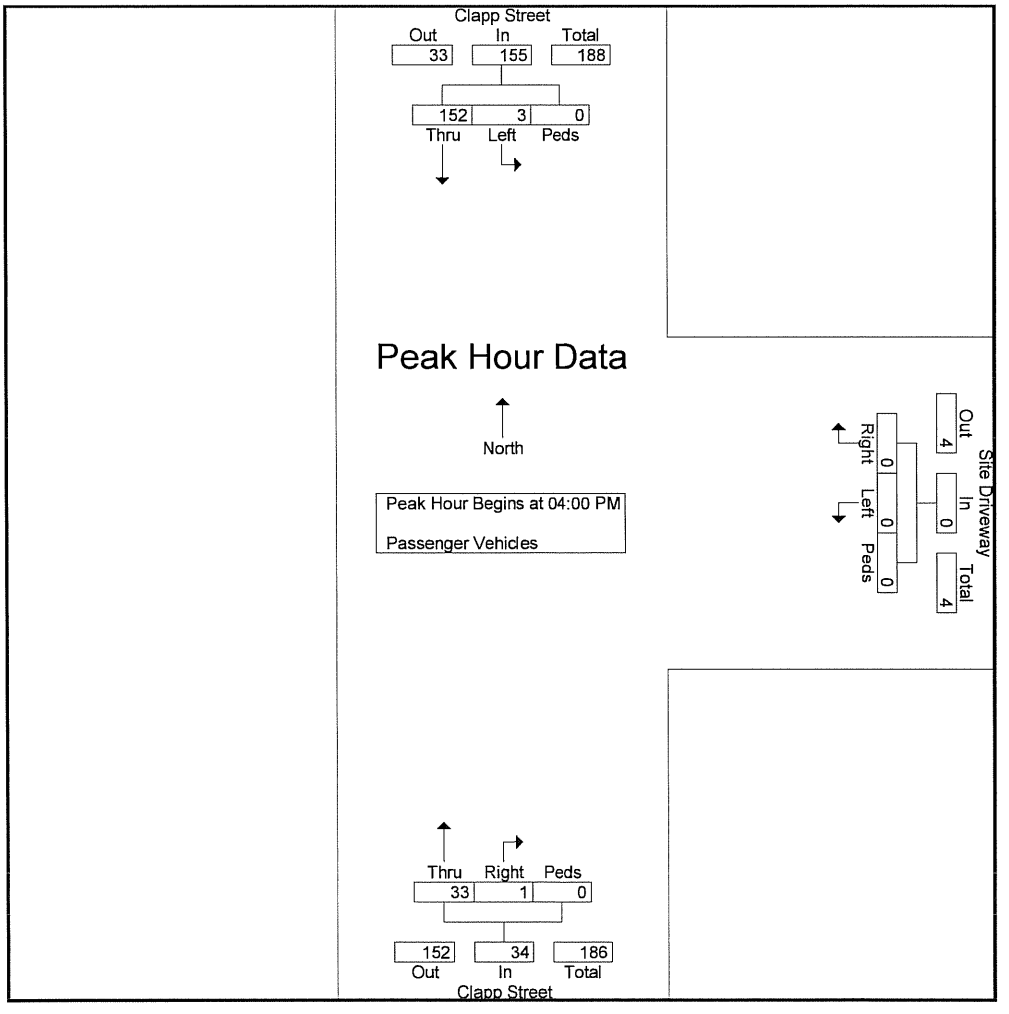
MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Clapp Street
E: Site Driveway
Boston, MA

File Name : 920 Clapp Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 2

	Clapp Street From North				Site Driveway From East				Clapp Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 04:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	**44**	0	0	**44**	0	0	0	0	0	9	0	9	**53**
04:15 PM	36	0	0	36	0	0	0	0	0	**13**	0	**13**	49
04:30 PM	39	0	0	39	0	0	0	0	0	5	0	5	44
04:45 PM	33	**3**	0	36	0	0	0	0	**1**	6	0	7	43
Total Volume	152	3	0	155	0	0	0	0	1	33	0	34	189
% App. Total	98.1	1.9	0		0	0	0		2.9	97.1	0		
PHF	.864	.250	.000	.881	.000	.000	.000	.000	.250	.635	.000	.654	.892



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Clapp Street
E: Site Driveway
Boston, MA

File Name : 920 Clapp Driveway PM
Site Code : 920
Start Date : 3/9/2017
Page No : 1

Groups Printed- Passenger Vehicles

	Clapp Street From North				Site Driveway From East				Clapp Street From South				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
03:00 PM	24	3	0	27	0	0	0	0	0	15	0	15	42
03:15 PM	28	2	0	30	0	0	0	0	0	11	0	11	41
03:30 PM	24	1	0	25	0	0	0	0	0	17	0	17	42
03:45 PM	38	1	0	39	0	0	0	0	0	3	0	3	42
Total	114	7	0	121	0	0	0	0	0	46	0	46	167
04:00 PM	44	0	0	44	0	0	0	0	0	9	0	9	53
04:15 PM	36	0	0	36	0	0	0	0	0	13	0	13	49
04:30 PM	39	0	0	39	0	0	0	0	0	5	0	5	44
04:45 PM	33	3	0	36	0	0	0	0	1	6	0	7	43
Total	152	3	0	155	0	0	0	0	1	33	0	34	189
05:00 PM	43	0	0	43	0	0	0	0	0	5	0	5	48
05:15 PM	45	0	0	45	0	0	0	0	0	11	0	11	56
05:30 PM	49	0	0	49	0	0	0	0	0	10	0	10	59
05:45 PM	46	0	0	46	0	0	0	0	0	10	0	10	56
Total	183	0	0	183	0	0	0	0	0	36	0	36	219
Grand Total	449	10	0	459	0	0	0	0	1	115	0	116	575
Apprch %	97.8	2.2	0		0	0	0		0.9	99.1	0		
Total %	78.1	1.7	0	79.8	0	0	0	0	0.2	20	0	20.2	

□ Seasonal/Yearly Growth

Location ID	H8494
Loc On Alias	I-93, 190 feet N. of Southampton St

Year	Annual Growth	AADT
2015	0.3%	159,947
2014	-0.3%	160,392
2013	0.7%	159,962
2012	-0.9%	161,055
2011	-1.7%	159,619
2010	1.6%	156,927
2009		159,480
Average	-0.1%	159,626

Year 2015 Data

Direction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
NB	87629	75063	97399	100588	99573	102690	100805	102196	103171	101850	99194	98121	97357
SB	62422	55054	68976	65625	62632	64850	59672	59450	62901	65375	59324	64210	62541
Total	**150051**	**130117**	**166375**	**166213**	**162205**	**167540**	**160477**	**161646**	**166072**	**167225**	**158518**	**162331**	**159898**
Seasonal	**1.07**	**1.23**	**0.96**	**0.96**	**0.99**	**0.95**	**1.00**	**0.99**	**0.96**	**0.96**	**1.01**	**0.99**	

Year 2014 Data

Direction	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
NB	86704	89852	95995	98988	102125	101544	97744	101059	100394	99162	96275	94877	97060
SB	61739	61667	65394	64003	65474	62431	56937	60347	58463	60863	63462	65626	62201
Total	**148443**	**151519**	**161389**	**162991**	**167599**	**163975**	**154681**	**161406**	**158857**	**160025**	**159737**	**160503**	**159260**
Seasonal	**1.07**	**1.05**	**0.99**	**0.98**	**0.95**	**0.97**	**1.03**	**0.99**	**1.00**	**1.00**	**1.00**	**0.99**	

Average Seasonal Adjustement

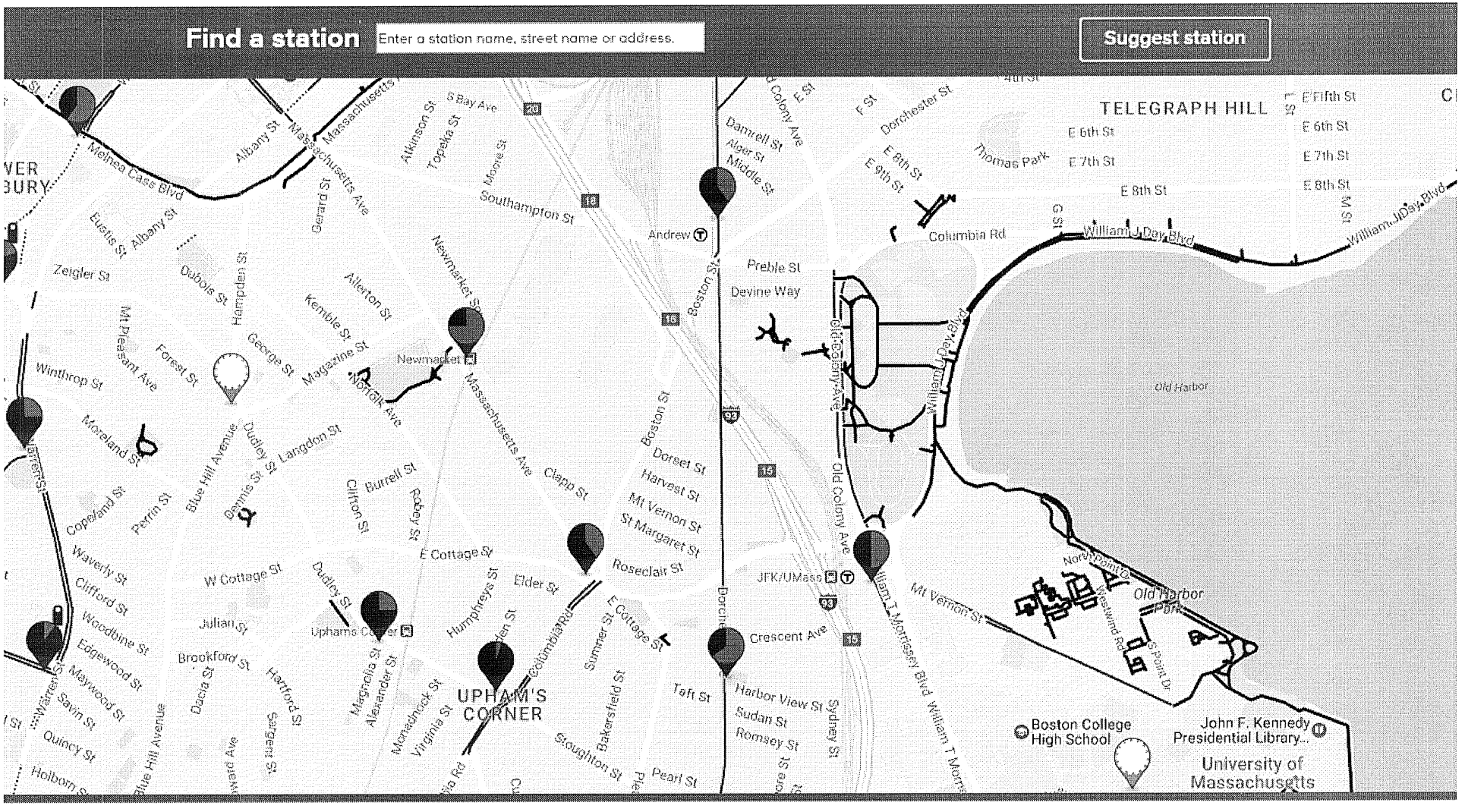
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.07	**1.14**	**0.97**	**0.97**	**0.97**	**0.96**	**1.01**	**0.99**	**0.98**	**0.98**	**1.00**	**0.99**

□ Bicycle Sharing Information

Hubway

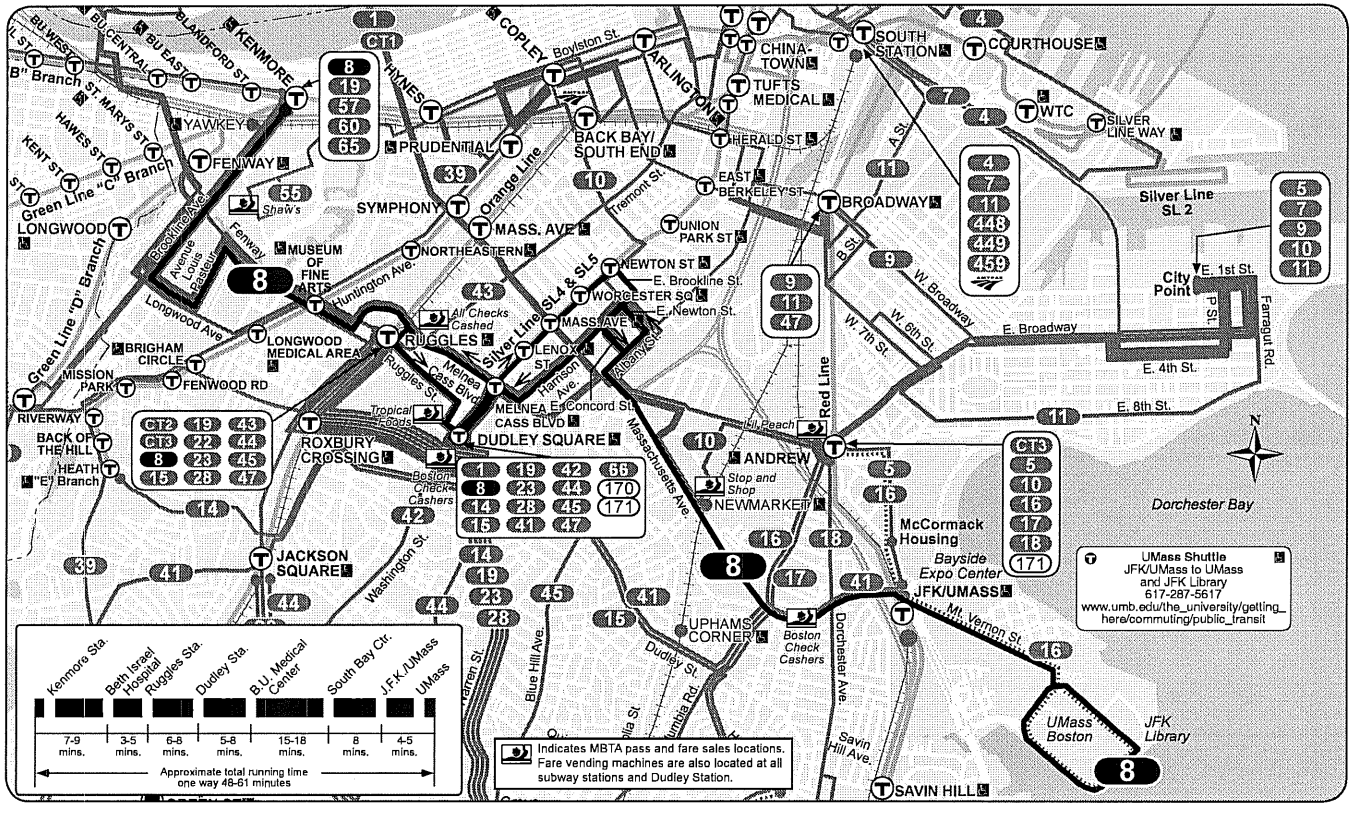
How It Works | Pricing | System Map | Explore Metro-Boston | Help

Login | Join



□ Public Transportation Information

Route 8 Harbor Point/UMass - Kenmore Station



schedule change

8

Winter December 31, 2016 - March 24, 2017

Harbor Point/UMass-Kenmore Station

Serving
- South Bay Center
- Ruggles Station
- BU Medical Campus
- Dudley Station
- Wentworth Institute
- Longwood Medical Area
- Fenway Park
- Red Line
- Orange Line
- Green Line
- Silver Line
- Fairmount Commuter Rail

Massachusetts Bay Transportation Authority

massDOT

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

8 Weekday

Inbound						Outbound					
Leave UMass	Arrive South Bay Ctr.	Arrive BU Med Campus	Arrive Dudley Station	Arrive Ruggles Station	Arrive Kenmore Station	Leave Kenmore Station	Arrive Ruggles Station	Arrive Dudley Station	Arrive BU Med Campus	Arrive South Bay Ctr.	Arrive UMass
5:15A	.....	5:29A	5:34A	5:38A	5:52A	5:35A	5:43A	5:49A	5:55A	.....	6:15A
5:35	.....	5:49	5:54	5:58	6:12	5:55	6:04	6:10	6:17	.....	6:37
5:55	.....	6:09	6:14	6:18	6:33	6:15	6:25	6:31	6:38	.....	7:04
6:11	.....	6:25	6:30	6:35	6:53	6:31	6:41	6:48	6:59	.....	7:26
6:23	.....	6:40	6:47	6:52	7:10	6:40	6:53	7:00	7:11	.....	7:38
6:37	.....	6:55	7:03	7:10	7:29	6:58	7:12	7:19	7:30	.....	7:57
.....	.....	.....	.....	s 7:11	7:25	s 7:06	7:21	.....	.....	.....	.....
6:49	.....	7:10	7:20	7:27	7:46	7:17	7:31	7:38	7:49	.....	8:16
7:03	.....	7:27	7:37	7:44	8:03	7:35	7:49	7:56	8:07	.....	8:34
7:19	.....	7:43	7:53	8:00	8:18	7:54	8:08	8:15	8:26	.....	8:53
7:35	.....	7:59	8:09	8:16	8:34	8:12	8:26	8:33	8:44	.....	9:10
7:50	.....	8:15	8:25	8:32	8:50	8:26	8:39	8:46	8:59	9:11	9:29
8:05	.....	8:30	8:40	8:47	9:05	8:40	8:53	9:00	9:13	9:25	9:45
8:20	.....	8:45	8:55	9:02	9:20	9:05	9:18	9:25	9:38	9:50	10:10
8:43	8:57A	9:11	9:21	9:28	9:47	9:35	9:49	9:56	10:09	10:21	10:41
9:05	9:19	9:33	9:42	9:49	10:08	10:00	10:16	10:25	10:38	10:50	11:10
9:30	9:45	9:59	10:08	10:15	10:34	10:40	10:56	11:05	11:18	11:30	11:50
10:19	10:34	10:48	10:57	11:04	11:23	11:35	11:51	**12:00N**	**12:14P**	**12:26P**	**12:48P**
11:19	11:34	11:48	11:57	**12:04P**	**12:23P**						
						12:31P	**12:47P**	**12:57P**	**1:11P**	**1:23P**	**1:45P**
12:11	**12:26**	**12:40**	**12:49**	**12:56**	**1:18**	**1:25**	**1:41**	**1:51**	**2:05**	**2:17**	**2:40**
1:03	**1:19**	**1:33**	**1:44**	**1:52**	**2:14**	**2:02**	**2:18**	**2:28**	**2:42**	**2:55**	**3:22**
1:53	**2:09**	**2:23**	**2:34**	**2:42**	**3:04**	s **2:30**	**2:48**	**2:57**	.....	.....	.....
2:26	**2:42**	**2:56**	**3:07**	**3:15**	**3:37**	**2:30**	**2:48**	**2:59**	**3:13**	**3:27**	**3:54**
3:02	**3:18**	**3:32**	**3:43**	**3:51**	**4:13**	**2:55**	**3:14**	**3:25**	**3:39**	**3:53**	**4:20**
3:32	**3:48**	**4:02**	**4:15**	**4:23**	**4:45**	**3:21**	**3:41**	**3:52**	**4:06**	**4:20**	**4:47**
4:02	**4:18**	**4:32**	**4:45**	**4:53**	**5:14**	**3:48**	**4:08**	**4:19**	**4:33**	**4:47**	**5:13**
4:32	**4:48**	**5:02**	**5:13**	**5:21**	**5:42**	**4:20**	**4:40**	**4:51**	**5:04**	**5:17**	**5:44**
5:07	**5:23**	**5:35**	**5:46**	**5:54**	**6:13**	**4:50**	**5:09**	**5:18**	**5:30**	**5:43**	**6:10**
5:42	**5:58**	**6:08**	**6:17**	**6:23**	**6:42**	**5:19**	**5:36**	**5:45**	**5:57**	**6:10**	**6:37**
6:17	**6:31**	**6:41**	**6:50**	**6:56**	**7:15**	**5:48**	**6:05**	**6:14**	**6:26**	**6:36**	**6:59**
6:40	**6:54**	**7:04**	**7:13**	**7:19**	**7:36**	**6:24**	**6:40**	**6:49**	**6:59**	**7:08**	**7:31**
7:10	**7:24**	**7:33**	**7:40**	**7:45**	**7:59**	**6:54**	**7:10**	**7:19**	**7:29**	**7:37**	**7:55**
7:38	**7:49**	**7:57**	**8:04**	**8:09**	**8:23**	**7:20**	**7:34**	**7:41**	**7:50**	**7:58**	**8:16**
8:15	**8:26**	**8:34**	**8:41**	**8:46**	**9:00**	**7:50**	**8:02**	**8:09**	**8:18**	**8:26**	**8:44**
8:50	**9:01**	**9:09**	**9:16**	**9:21**	**9:35**	**8:31**	**8:43**	**8:50**	**8:59**	**9:07**	**9:25**
9:25	**9:36**	**9:44**	**9:51**	**9:56**	**10:10**	**9:05**	**9:17**	**9:24**	**9:33**	**9:40**	**9:56**
10:00	**10:11**	**10:19**	**10:26**	**10:31**	**10:44**	**9:40**	**9:49**	**9:55**	**10:03**	**10:10**	**10:26**
10:35	**10:46**	**10:53**	**10:59**	**11:03**	**11:16**	**10:15**	**10:24**	**10:30**	**10:38**	**10:45**	**11:01**
11:08	.....	**11:20**	**11:25**	**11:29**	**11:39**	**10:55**	**11:04**	**11:10**	**11:16**	.....	**11:32**
11:42	.....	**11:54**	**11:59**	12:03A	12:13A	**11:45**	**11:53**	**11:59**	12:05A	.....	12:21A
12:25A	.....	12:37A	12:42A	12:46	12:56	12:20A	12:28A	12:34A	12:40	.....	12:56

s - Does NOT run during school vacation

8 Saturday

Inbound						Outbound					
Leave UMass	Arrive South Bay Ctr.	Arrive BU Med Campus	Arrive Dudley Station	Arrive Ruggles Stationn	Arrive Kenmore Station	Leave Kenmore Station	Arrive Ruggles Station	Arrive Dudley Station	Arrive BU Med Campus	Arrive South Bay Ctr.	Arrive UMass
6:30A	.....	6:45A	6:49A	6:53A	7:05A	7:17A	7:26A	7:32A	7:38A	.....	7:54A
7:14	.....	7:29	7:35	7:40	7:53	8:01	8:10	8:16	8:22	.....	8:40
8:01	.....	8:21	8:27	8:32	8:45	8:54	9:04	9:11	9:17	.....	9:36
8:49	.....	9:09	9:15	9:20	9:33	9:43	9:53	10:00	10:09	10:18A	10:35
9:24	9:42A	9:52	9:59	10:05	10:17	10:23	10:34	10:41	10:50	10:58	11:17
10:04	10:22	10:32	10:39	10:45	10:57	11:02	11:12	11:19	11:28	11:38	11:57
10:42	11:00	11:12	11:21	11:27	11:39	11:47	11:59	**12:07P**	**12:14P**	**12:24P**	**12:43P**
11:24	11:40	11:52	**12:01P**	**12:05P**	**12:17P**						
						12:27P	**12:39P**	**12:47P**	**12:54P**	**1:04P**	**1:23P**
12:05P	**12:22P**	**12:31P**	**12:40P**	**12:44P**	**12:56P**	**1:07**	**1:19**	**1:27**	**1:34**	**1:44**	**2:03**
12:51	**1:08**	**1:17**	**1:26**	**1:30**	**1:42**	**1:51**	**2:03**	**2:11**	**2:18**	**2:28**	**2:48**
1:31	**1:48**	**1:57**	**2:06**	**2:10**	**2:22**	**2:31**	**2:44**	**2:52**	**2:59**	**3:08**	**3:28**
2:11	**2:28**	**2:37**	**2:46**	**2:50**	**3:02**	**3:11**	**3:24**	**3:32**	**3:39**	**3:48**	**4:08**
2:58	**3:15**	**3:24**	**3:33**	**3:37**	**3:49**	**3:57**	**4:10**	**4:18**	**4:25**	**4:33**	**4:53**
3:38	**3:55**	**4:04**	**4:13**	**4:17**	**4:29**	**4:39**	**4:50**	**4:57**	**5:05**	**5:13**	**5:33**
4:18	**4:35**	**4:44**	**4:53**	**4:57**	**5:09**	**5:18**	**5:29**	**5:36**	**5:44**	**5:52**	**6:12**
5:02	**5:19**	**5:28**	**5:37**	**5:41**	**5:53**	**6:03**	**6:13**	**6:20**	**6:27**	**6:34**	**6:53**
5:42	**5:59**	**6:08**	**6:17**	**6:21**	**6:34**	**6:43**	**6:53**	**7:00**	**7:07**	**7:14**	**7:32**
6:18	**6:33**	**6:40**	**6:47**	**6:52**	**7:05**	**7:13**	**7:23**	**7:30**	**7:36**	**7:44**	**8:00**
7:12	**7:27**	**7:34**	**7:41**	**7:46**	**7:58**	**8:06**	**8:16**	**8:22**	**8:28**	**8:36**	**8:52**
8:08	**8:23**	**8:30**	**8:36**	**8:40**	**8:50**	**9:00**	**9:10**	**9:16**	**9:23**	**9:29**	**9:43**
9:01	**9:14**	**9:20**	**9:26**	**9:30**	**9:40**	**9:50**	**10:00**	**10:06**	**10:13**	**10:19**	**10:32**
10:00	**10:13**	**10:19**	**10:25**	**10:29**	**10:39**	**10:49**	**10:58**	**11:04**	**11:10**	**11:16**	**11:28**
10:45	**10:58**	**11:05**	**11:11**	**11:15**	**11:22**	**11:45**	**11:53**	**11:58**	12:03A	.....	12:16A
11:45	.....	**11:58**	12:03A	12:08A	12:16A	12:30A	12:38A	12:43A	12:48	.....	1:01

NOTE: For additional service through Longwood Medical Area, please refer to the Route 19 or 47 schedule cards.

All buses are accessible to persons with disabilities

Route 8
Harbor Point/UMass-Kenmore Station

8 Sunday

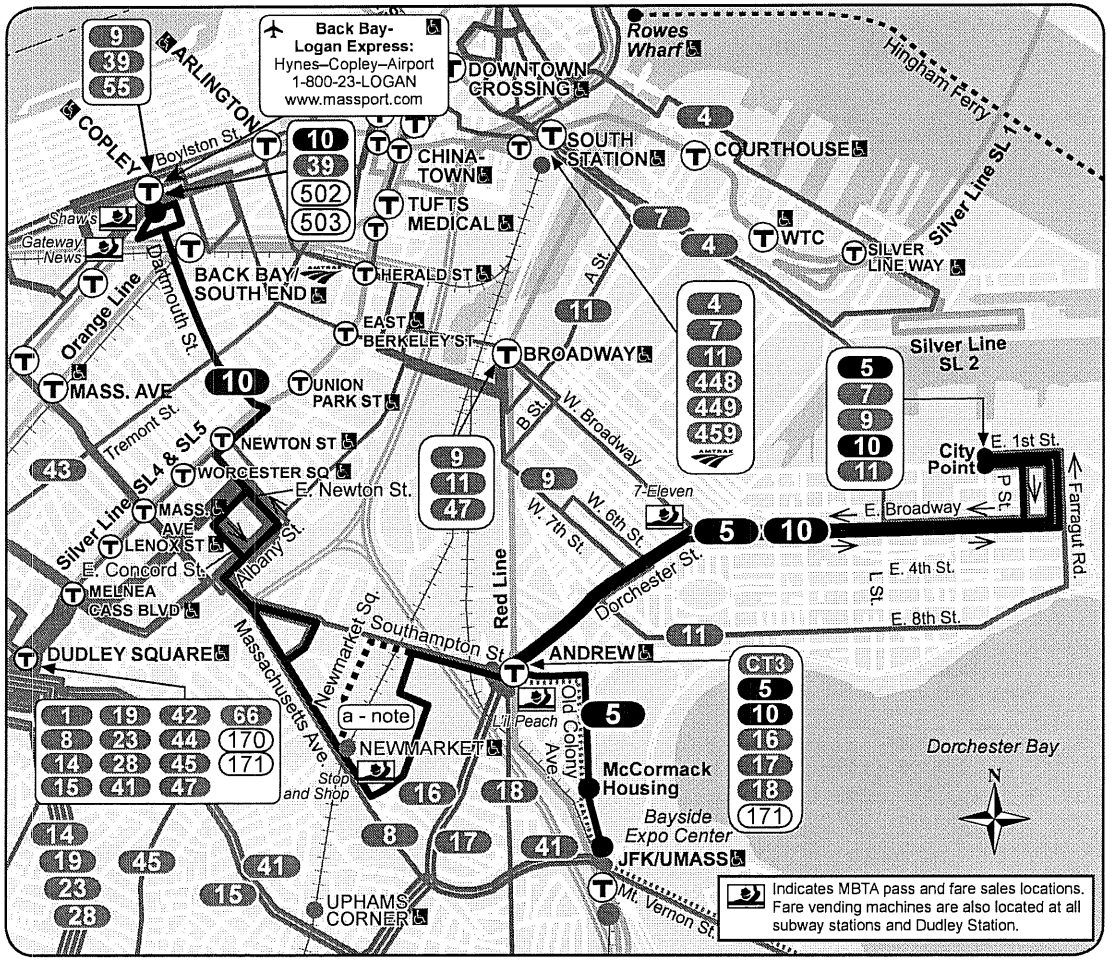
Inbound						Outbound					
Leave UMass	Arrive South Bay Ctr.	Arrive BU Med Campus	Arrive Dudley Station	Arrive Ruggles Station	Arrive Kenmore Station	Leave Kenmore Station	Arrive Ruggles Station	Arrive Dudley Station	Arrive BU Med Campus	Arrive South Bay Ctr.	Arrive UMass
6:30A	.....	6:44A	6:49A	6:53A	7:04A	7:13A	7:21A	7:27A	7:34A	.....	7:49A
7:15	.....	7:29	7:34	7:38	7:49	8:00	8:08	8:14	8:21	.....	8:36
8:00	.....	8:15	8:21	8:25	8:36	8:45	8:53	8:59	9:06	.....	9:21
8:45	.....	9:00	9:06	9:10	9:21	9:30	9:39	9:45	9:53	.....	10:08
9:30	.....	9:45	9:51	9:55	10:06	10:15	10:24	10:30	10:38	.....	10:53
10:15	.....	10:31	10:37	10:41	10:55	11:00	11:09	11:15	11:23	.....	11:39
11:00	.....	11:19	11:25	11:29	11:43	11:50	11:59	**12:06P**	**12:14P**	.....	**12:33P**
11:45	.....	**12:04P**	**12:10P**	**12:14P**	**12:28P**						
						12:35P	**12:45P**	**12:51P**	**12:59P**	**1:07P**	**1:26P**
12:25P	**12:40P**	**12:48P**	**12:54P**	**12:59P**	**1:12P**	**1:20**	**1:30**	**1:36**	**1:44**	**1:52**	**2:10**
1:05	**1:21**	**1:30**	**1:37**	**1:42**	**1:55**	**2:05**	**2:16**	**2:23**	**2:31**	**2:40**	**2:59**
1:50	**2:06**	**2:15**	**2:22**	**2:27**	**2:40**	**2:50**	**3:01**	**3:08**	**3:16**	**3:24**	**3:45**
2:35	**2:51**	**3:00**	**3:07**	**3:13**	**3:26**	**3:35**	**3:46**	**3:53**	**4:01**	**4:09**	**4:30**
3:20	**3:36**	**3:45**	**3:52**	**3:58**	**4:10**	**4:20**	**4:31**	**4:38**	**4:46**	**4:54**	**5:13**
4:05	**4:19**	**4:28**	**4:35**	**4:40**	**4:52**	**5:05**	**5:16**	**5:23**	**5:31**	**5:37**	**5:57**
4:50	**5:04**	**5:13**	**5:20**	**5:25**	**5:37**	**5:50**	**6:00**	**6:06**	**6:13**	**6:20**	**6:35**
5:35	**5:49**	**5:58**	**6:05**	**6:10**	**6:22**	**6:35**	**6:45**	**6:51**	**6:58**	**7:05**	**7:20**
6:20	**6:34**	**6:43**	**6:50**	**6:55**	**7:07**	**7:15**	**7:25**	**7:31**	**7:37**	.....	**7:53**
7:05	.....	**7:27**	**7:33**	**7:37**	**7:48**	**8:00**	**8:09**	**8:15**	**8:21**	.....	**8:37**
8:00	.....	**8:14**	**8:20**	**8:24**	**8:35**	**8:45**	**8:54**	**9:00**	**9:06**	.....	**9:22**
8:45	.....	**8:59**	**9:05**	**9:09**	**9:20**	**9:30**	**9:39**	**9:45**	**9:51**	.....	**10:07**
9:30	.....	**9:44**	**9:50**	**9:54**	**10:05**	**10:15**	**10:24**	**10:30**	**10:36**	.....	**10:49**
10:15	.....	**10:29**	**10:35**	**10:39**	**10:50**	**11:00**	**11:08**	**11:14**	**11:20**	.....	**11:33**
11:00	.....	**11:14**	**11:18**	**11:23**	**11:31**	**11:45**	**11:53**	**11:59**	12:05A	.....	12:18A
11:45	.....	**11:59**	12:03A	12:08A	12:16A	12:28A	12:36A	12:42A	12:48	.....	1:01

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.70	$1.70	$2.25	$2.25
CharlieTicket	$2.00	$2.00	$2.75	$4.75
Cash-on-Board	$2.00	$4.00	$2.75	$4.75
Student*	$0.85	$0.85	$1.10	$1.10
Senior/TAP**	$0.85	$0.85	$1.10	$1.10

VALID PASSES: LinkPass ($84.50/mo.); Local Bus ($55/mo.); *Student LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
* Requires Student CharlieCard, available to students through participating middle schools and high schools.
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Winter 2017 Holidays
January 2: see Sunday **January 16 & February 20: see Saturday**

Route 5 City Point - McCormack Housing
Route 10 City Point - Copley Square



5•10

Winter December 31, 2016 - March 24, 2017

5 City Point-McCormack Housing

10 City Point-Copley Square

Serving
- Andrew Station
- South Bay Center
- BU Medical Campus
- Back Bay Station
- JFK/UMass Station
- Red Line
- Orange Line
- Green Line
- Silver Line

Massachusetts Bay Transportation Authority

massDOT

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

10 Weekday

Inbound					Outbound				
Leave City Point	Arrive Andrew Station	Arrive BU Med Campus	Arrive Back Bay Station	Arrive St. James Dartmouth	Leave St. James Dartmouth	Arrive Back Bay Station	Arrive BU Med Campus	Arrive Andrew Station	Arrive City Point
a 4:55A	5:04A	5:12A	5:16A	5:18A	a 5:30A	5:32A	5:35A	5:44A	5:51A
a 5:30	5:41	5:50	5:55	5:58	a 6:05	6:07	6:11	6:21	6:32
a 5:45	5:56	6:06	6:12	6:15	6:25	6:27	6:33	6:46	6:59
6:05	6:17	6:28	6:35	6:37	a 6:50	6:53	7:00	7:12	7:25
a 6:15	6:27	6:38	6:44	6:47	a 7:05	7:08	7:15	7:27	7:40
ads 6:25	6:38	.....	.....	.....	.....	.....	.....	s 7:40	7:52
a 6:45	6:57	7:12	7:20	7:22	a 7:25	7:28	7:35	7:47	8:00
a 7:05	7:20	7:36	7:44	7:46	a 7:40	7:43	7:50	8:02	8:15
a 7:25	7:40	7:56	8:04	8:06	as 7:50	7:53	8:00	8:11	.....
a 7:45	8:00	8:16	8:24	8:26	a 8:00	8:03	8:10	8:22	8:36
a 8:05	8:20	8:36	8:44	8:46	8:20	8:23	8:32	8:47	9:02
a 8:25	8:40	8:56	9:04	9:06	8:40	8:43	8:52	9:06	9:18
8:45	8:58	9:18	9:25	9:28	8:50	8:53	9:02	9:16	9:28
9:20	9:33	9:53	10:00	10:03	9:00	9:02	9:10	9:23	.....
9:55	10:08	10:28	10:35	10:38	9:15	9:17	9:25	9:39	9:51
10:30	10:43	11:03	11:10	11:13	9:40	9:42	9:50	10:06	10:19
11:05	11:18	11:38	11:45	11:48	10:15	10:17	10:25	10:44	10:57
11:40	11:53	**12:13P**	**12:20P**	**12:23P**	10:50	10:52	11:00	11:19	11:32
					11:25	11:27	11:35	11:54	**12:07P**
12:15P	**12:28P**	**12:48P**	**12:55P**	**12:58P**					
12:50	**1:03**	**1:23**	**1:30**	**1:33**	**12:00N**	**12:02P**	**12:10P**	**12:29P**	**12:42P**
1:25	**1:38**	**1:58**	**2:07**	**2:10**	**12:35**	**12:37**	**12:45**	**1:04**	**1:17**
2:00	**2:15**	**2:37**	**2:46**	**2:49**	**1:10**	**1:12**	**1:20**	**1:39**	**1:52**
2:25	**2:40**	**3:01**	**3:10**	**3:14**	.....	.....	.....	**ts 1:53**	**2:11**
2:50	**3:06**	**3:21**	**3:30**	**3:32**	.....	.....	.....	**ts 1:53**	**2:11**
3:15	**3:31**	**3:48**	**3:58**	**4:00**	**1:45**	**1:47**	**1:55**	**2:14**	**2:27**
3:39	**3:53**	**4:10**	**4:20**	**4:22**	**2:20**	**2:22**	**2:30**	**2:52**	**3:05**
4:03	**4:17**	**4:34**	**4:44**	**4:46**	**2:55**	**2:57**	**3:06**	**3:28**	**3:41**
4:27	**4:41**	**4:58**	**5:08**	**5:10**	**3:25**	**3:27**	**3:36**	**3:58**	**4:11**
4:51	**5:05**	**5:22**	**5:32**	**5:34**	**3:49**	**3:51**	**4:00**	**4:22**	**4:35**
5:15	**5:29**	**5:46**	**5:56**	**5:58**	**4:13**	**4:15**	**4:24**	**4:46**	**4:59**
5:39	**5:53**	**6:10**	**6:18**	**6:21**	**4:37**	**4:39**	**4:48**	**5:07**	**5:21**
6:03	**6:16**	**6:32**	**6:38**	**6:40**	**5:01**	**5:04**	**5:12**	**5:29**	**5:43**
6:27	**6:40**	**6:54**	**7:01**	**7:02**	**5:25**	**5:28**	**5:36**	**5:53**	**6:07**
7:00	**7:12**	**7:25**	**7:34**	**7:35**	**5:49**	**5:52**	**6:00**	**6:17**	**6:32**
7:35	**7:47**	**8:00**	**8:09**	**8:10**	**6:13**	**6:16**	**6:24**	**6:40**	**6:53**
8:00	**8:12**	**8:25**	**8:32**	**8:33**	**6:37**	**6:39**	**6:45**	**7:00**	**7:13**
8:25	**8:36**	**8:48**	**8:54**	**8:55**	**7:01**	**7:03**	**7:09**	**7:24**	**7:37**
9:00	**9:10**	**9:21**	**9:26**	**9:28**	**7:25**	**7:27**	**7:33**	**7:48**	**8:00**
9:25	**9:35**	**9:46**	**9:51**	**9:53**	**7:50**	**7:52**	**7:58**	**8:10**	**8:21**
9:55	**10:05**	**10:16**	**10:21**	**10:23**	**8:20**	**8:22**	**8:27**	**8:39**	**8:50**
a 10:30	**10:40**	**10:51**	**10:56**	**10:58**	**8:45**	**8:47**	**8:52**	**9:04**	**9:15**
a 11:34	**11:43**	**11:52**	**11:58**	12:00M	**9:15**	**9:17**	**9:22**	**9:34**	**9:45**
a 12:32A	12:41A	12:50A	12:56A	12:58A	**9:55**	**9:57**	**10:02**	**10:14**	**10:25**
					10:35	**10:37**	**10:42**	**10:51**	**11:02**
					a 11:05	**11:06**	**11:12**	**11:21**	**11:30**
					a 12:05A	12:06A	12:12A	12:21A	12:30A
					aw 1:05	1:08	1:14	1:20	1:31

a - Omits South Bay Center
d - To Dudley Station
s - Does NOT run during school vacation
t - Leaves from Townsend & Warren Sts. at 1:40pm
w - Waits for last train to arrive, then leaves from Copley Square.

10 Saturday

Inbound			Outbound		
Leave City Point	Arrive Andrew Station	Arrive St. James Dartmouth	Leave St. James Dartmouth	Arrive Andrew Station	Arrive City Point
6:15A	6:24A	6:44A	7:00A	7:19A	7:29A
7:15	7:24	7:44	8:00	8:19	8:29
8:15	8:26	8:49	9:00	9:21	9:32
9:00	9:13	9:38	9:55	10:17	10:31
9:40	9:53	10:18	10:32	10:54	11:08
10:15	10:28	10:53	11:06	11:31	11:46
10:50	11:03	11:28	11:36	**12:01P**	**12:16P**
11:25	11:39	**12:07P**			
			12:06P	**12:31P**	**12:46P**
12:00N	**12:14P**	**12:42P**	**12:31**	**12:56**	**1:11**
12:30P	**12:44**	**1:12**	**12:56**	**1:21**	**1:38**
12:56	**1:10**	**1:37**	**1:21**	**1:46**	**1:59**
1:21	**1:35**	**2:01**	**1:46**	**2:11**	**2:24**
1:46	**1:59**	**2:25**	**2:09**	**2:34**	**2:47**
2:09	**2:22**	**2:48**	**2:32**	**2:57**	**3:10**
2:32	**2:45**	**3:11**	**2:55**	**3:20**	**3:34**
2:55	**3:08**	**3:34**	**3:17**	**3:40**	**3:53**
3:17	**3:30**	**3:56**	**3:39**	**4:02**	**4:15**
3:39	**3:52**	**4:18**	**4:01**	**4:24**	**4:37**
4:01	**4:14**	**4:40**	**4:23**	**4:46**	**4:59**
4:23	**4:36**	**5:02**	**4:45**	**5:08**	**5:21**
4:45	**4:58**	**5:24**	**5:07**	**5:30**	**5:42**
5:07	**5:20**	**5:43**	**5:29**	**5:49**	**6:01**
5:30	**5:42**	**6:03**	**5:51**	**6:11**	**6:23**
5:53	**6:05**	**6:26**	**6:13**	**6:33**	**6:45**
6:15	**6:27**	**6:48**	**6:35**	**6:55**	**7:07**
6:37	**6:49**	**7:10**	**6:57**	**7:17**	**7:29**
7:07	**7:19**	**7:40**	**7:19**	**7:39**	**7:51**
7:37	**7:48**	**8:08**	**7:49**	**8:09**	**8:21**
8:07	**8:18**	**8:38**	**8:19**	**8:38**	**8:48**
8:37	**8:48**	**9:08**	**8:49**	**9:07**	**9:17**
9:07	**9:18**	**9:34**	**9:19**	**9:37**	**9:47**
9:37	**9:47**	**10:03**	**9:49**	**10:07**	**10:17**
a 10:20	**10:30**	**10:45**	**a 10:50**	**11:04**	**11:15**
a 11:20	**11:30**	**11:45**	**a 11:50**	12:04A	12:15A
a 12:20A	12:30A	12:45A	aw 12:50A	1:05	1:14

5 Weekday & Saturday

No Service on Sunday

Inbound			Outbound		
Leave City Point	Arrive Andrew Station	Arrive McCormack Housing	Leave McCormack Housing	Arrive Andrew Station	Arrive City Point
c 9:05A	9:16A	9:18A	9:30A	9:36A	9:49A
10:05	10:16	10:19	10:30	10:38	10:52
11:05	11:19	11:22	11:30	11:38	11:54
12:05P	**12:19P**	**12:23P**	**12:30P**	**12:38P**	**12:53P**
1:05	**1:19**	**1:23**	**1:30**	**1:38**	**1:53**
2:05	**2:19**	**2:23**	**2:30**	**2:39**	**2:53**
3:05	**3:18**	**3:23**			

c - Runs on weekdays only

Note: All outbound trips serve JFK/UMass Station

10 Sunday

Inbound			Outbound		
Leave City Point	Arrive Andrew Station	Arrive St. James Dartmouth	Leave St. James Dartmouth	Arrive Andrew Station	Arrive City Point
a 6:00A	6:09A	6:23A	a 6:28A	6:42A	6:50A
a 6:55	7:04	7:18	a 7:23	7:37	7:45
a 7:50	7:59	8:13	a 8:18	8:32	8:42
a 8:48	8:59	9:15	a 9:18	9:34	9:44
a 9:48	9:59	10:17	a 10:20	10:36	10:46
a 10:48	11:01	11:19	a 11:22	11:39	11:52
a 11:48	**12:01P**	**12:21P**			
			12:28P	**12:50P**	**1:02P**
12:30P	**12:40P**	**1:05P**	**1:10**	**1:32**	**1:44**
1:10	**1:20**	**1:46**	**1:50**	**2:12**	**2:24**
1:45	**1:57**	**2:22**	**2:30**	**2:54**	**3:06**
2:25	**2:37**	**3:02**	**3:10**	**3:34**	**3:46**
3:05	**3:17**	**3:42**	**3:50**	**4:13**	**4:25**
3:50	**4:02**	**4:26**	**4:30**	**4:53**	**5:05**
4:30	**4:42**	**5:06**	**5:10**	**5:33**	**5:45**
5:10	**5:22**	**5:45**	**5:50**	**6:11**	**6:23**
5:50	**6:01**	**6:24**	**6:30**	**6:51**	**7:03**
6:30	**6:41**	**7:02**	**7:10**	**7:28**	**7:38**
7:10	**7:21**	**7:40**	**7:50**	**8:08**	**8:18**
7:50	**8:01**	**8:20**	**a 8:45**	**8:59**	**9:08**
8:30	**8:41**	**9:00**	**a 9:45**	**9:59**	**10:08**
a 9:15	**9:25**	**9:39**	**a 10:45**	**10:59**	**11:08**
a 10:15	**10:25**	**10:38**	**a 11:45**	**11:59**	12:08A
a 11:15	**11:25**	**11:38**	aw 12:45A	1:02A	1:11
a 12:15A	12:25A	12:38A			

Route 5
City Point-
McCormack Housing

Route 10
City Point-
Copley Square

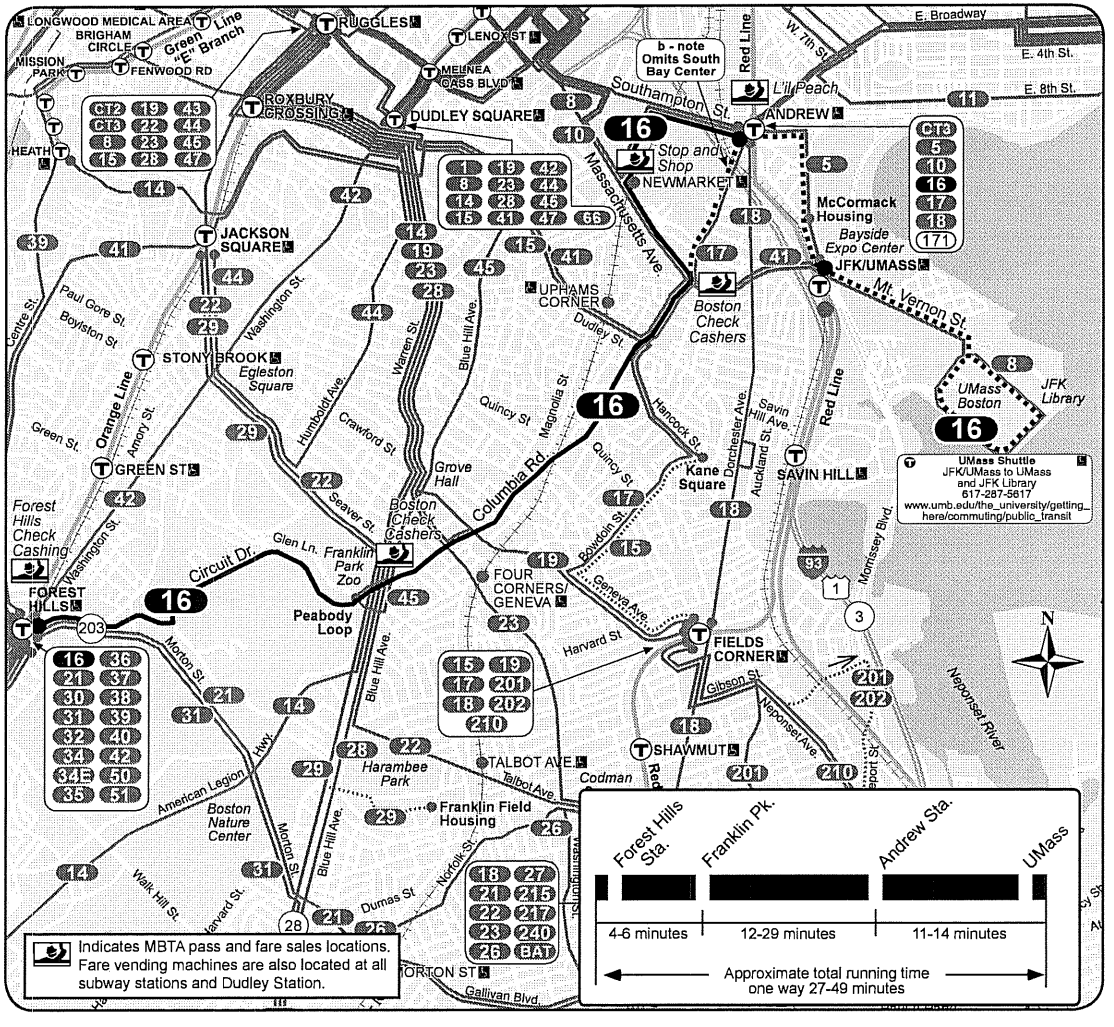
All buses are accessible to persons with disabilities

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.70	$1.70	$2.25	$2.25
CharlieTicket	$2.00	$2.00	$2.75	$4.75
Cash-on-Board	$2.00	$4.00	$2.75	$4.75
Student*	$0.85	$0.85	$1.10	$1.10
Senior/TAP**	$0.85	$0.85	$1.10	$1.10

VALID PASSES: LinkPass ($84.50/mo.); Local Bus ($55/mo.); *Student LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
* Requires Student CharlieCard, available to students through participating middle schools and high schools.
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Winter 2017 Holidays
January 2: see Sunday **January 16 & February 20: see Saturday**

Route 16 Forest Hills Station - Andrew Station or UMass



16

Winter December 31, 2016 - March 24, 2017

Forest Hills Station- Andrew Station or UMass

Serving

- JFK/UMass Station
- Bayside Exposition Center
- Uphams Corner Station
- South Bay Center
- Franklin Park Zoo
- West Roxbury Courthouse
- Red Line
- Orange Line

Massachusetts Bay Transportation Authority

massDOT

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

16 Weekday

Inbound				Outbound			
Leave Forest Hills Lower Busway	Arrive Uphams Corner	Arrive Andrew Station	Arrive UMass	Leave UMass	Lv/Arrive Andrew Station	Arrive Uphams Corner	Arrive Forest Hills
b 5:00A	5:13A	5:21A	.....	.....	b 5:06A	5:09A	5:22A
b 5:20	5:33	5:41	.....	.....	b 5:20	5:23	5:36
b 5:40	5:53	6:01	.....	.....	b 5:40	5:43	5:56
b 6:00	6:13	6:21	.....	.....	b 5:50	5:53	6:08
b 6:15	6:28	6:39	.....	.....	b 6:00	6:04	6:21
6:30	6:46	6:59	7:08A	.....	b 6:10	6:15	6:33
b 6:45	7:02	7:15	7:23	.....	b 6:20	6:24	6:41
b 7:02	7:19	7:32	7:40	.....	b 6:27	6:32	6:50
bfs 7:18	7:29	7:40	.....	.....	b 6:35	6:39	6:56
b 7:19	7:39	7:53	8:01	.....	b 6:42	6:47	7:07
b 7:36	7:56	8:10	8:18	.....	b 6:50	6:54	7:12
b 7:53	8:13	8:27	8:36	b 6:45A	6:57	7:05	7:25
b 8:10	8:30	8:43	8:52	b 7:00	7:12	7:20	7:39
L 8:15	.....	.....	.....	.....	b 7:17	7:24	7:41
b 8:27	8:46	8:59	9:07	b 7:17	7:29	7:39	7:59
b 8:44	9:03	9:13	9:21	b 7:34	7:49	7:59	8:19
b 9:00	9:17	9:27	9:35	b 7:51	8:06	8:16	8:36
b 9:15	9:32	9:42	9:50	b 8:08	8:23	8:33	8:49
9:35	9:52	10:03	.....	b 8:25	8:39	8:48	9:04
10:05	10:22	10:33	.....	b 8:42	8:56	9:05	9:21
10:35	10:52	11:03	.....	b 8:59	9:13	9:22	9:38
11:05	11:22	11:33	.....	b 9:15	9:29	9:38	9:54
11:35	11:52	**12:03P**	.....	b 9:30	9:44	9:53	10:07
				10:00	10:12	10:28	10:46
12:05P	**12:22P**	**12:33P**	.....	.....	10:45	10:58	11:14
12:35	**12:52**	**1:03**	.....	.....	11:15	11:30	11:46
1:05	**1:24**	**1:35**	.....	.....	11:45	**12:00N**	**12:16P**
1:35	**1:54**	**2:05**	.....				
s 2:05	**2:23**	**2:34**	**2:44P**	.....	**12:15P**	**12:30P**	**12:46P**
2:20	**2:38**	**2:50**	.....	.....	**12:45**	**1:00**	**1:16**
s 2:35	**2:55**	**3:08**	**3:25**	.....	**b 1:13**	**1:19**	**1:41**
3:00	**3:19**	**3:32**	**3:49**	.....	**1:20**	**1:35**	**1:51**
3:30	**3:49**	**4:02**	**4:14**	.....	**1:50**	**2:06**	**2:25**
3:50	**4:10**	**4:23**	**4:35**	.....	**s 2:05**	**2:21**	**2:40**
4:10	**4:31**	**4:44**	**4:56**	.....	**2:20**	**2:36**	**2:55**
4:30	**4:51**	**5:06**	**5:17**	.....	**s 2:35**	**2:51**	**3:12**
4:55	**5:15**	**5:30**	**5:41**	.....	**2:50**	**3:07**	**3:32**
5:20	**5:40**	**5:55**	**6:06**	.....	**s 3:00**	**3:18**	**3:43**
5:45	**6:05**	**6:20**	**6:31**	.....	**3:10**	**3:28**	**3:53**
6:00	**6:19**	**6:30**	.....	.....	**3:30**	**3:48**	**4:08**
6:20	**6:37**	**6:48**	.....	.....	**b 3:42**	**3:49**	**4:15**
6:40	**6:57**	**7:06**	.....	.....	**b 3:56**	**4:03**	**4:30**
b 6:50	**7:04**	**7:10**	.....	**3:54P**	**4:07**	**4:27**	**4:45**
7:10	**7:25**	**7:34**	.....	.....	**b 4:15**	**4:22**	**4:49**
7:35	**7:50**	**7:59**	.....	**4:14**	**4:27**	**4:47**	**5:10**
8:00	**8:14**	**8:23**	.....	**4:34**	**4:47**	**5:07**	**5:35**
8:20	**8:34**	**8:43**	.....	**4:54**	**5:07**	**5:25**	**5:53**
8:40	**8:54**	**9:03**	.....	**5:14**	**5:26**	**5:44**	**6:10**
b 8:50	**9:02**	**9:08**	.....	**5:34**	**5:46**	**6:04**	**6:25**
9:05	**9:18**	**9:27**	.....	**5:54**	**6:06**	**6:23**	**6:44**
b 9:15	**9:27**	**9:33**	.....	**6:14**	**6:26**	**6:43**	**7:04**
9:30	**9:43**	**9:52**	.....	.....	**6:33**	**6:47**	**7:04**
10:00	**10:13**	**10:22**	.....	.....	**6:56**	**7:10**	**7:27**
b 10:25	**10:37**	**10:46**	.....	.....	**7:19**	**7:32**	**7:46**
b 11:15	**11:27**	**11:36**	.....	.....	**7:42**	**7:54**	**8:08**
b 12:05A	12:14A	12:21A	.....	.....	**8:05**	**8:17**	**8:31**
b 12:55	1:04	1:11	.....	.....	**8:30**	**8:42**	**8:56**
bw 1:30	1:39	1:46	.....	.....	**9:00**	**9:12**	**9:26**
				.....	**9:30**	**9:42**	**9:56**
				.....	**10:00**	**10:09**	**10:24**
				.....	**b 10:50**	**11:00**	**11:11**
				.....	**b 11:40**	**11:43**	**11:54**
				.....	b 12:30A	12:33A	12:44A
				.....	bw 1:15	1:18	1:29

16 Saturday

Inbound			Outbound		
Leave Forest Hills Lower Busway	Arrive Uphams Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Uphams Corner	Arrive Forest Hills
b 5:05A	5:16A	5:22A	b 4:47A	4:50A	5:01A
b 5:50	6:01	6:07	b 5:30	5:33	5:44
b 6:35	6:46	6:52	b 6:15	6:18	6:29
b 7:20	7:34	7:40	b 7:00	7:04	7:17
L 8:00	.....	.....	b 7:45	7:49	8:02
b 8:05	8:19	8:27	b 8:25	8:29	8:42
b 8:45	8:59	9:07	b 9:00	9:04	9:17
b 9:15	9:29	9:40	b 9:30	9:40	9:56
9:45	10:00	10:11	10:00	10:12	10:28
10:15	10:30	10:41	10:30	10:42	10:58
10:45	11:00	11:11	11:00	11:12	11:28
11:15	11:30	11:41	11:30	11:45	**12:02P**
11:45	**12:00N**	**12:13P**			
			12:00N	**12:15P**	**12:32P**
12:15P	**12:32P**	**12:45P**	**12:30P**	**12:46**	**1:03**
12:45	**1:02**	**1:15**	**1:00**	**1:16**	**1:33**
1:15	**1:32**	**1:45**	**1:30**	**1:46**	**2:03**
1:45	**2:02**	**2:14**	**2:00**	**2:16**	**2:33**
2:15	**2:31**	**2:43**	**2:30**	**2:46**	**3:03**
2:45	**3:01**	**3:13**	**3:00**	**3:16**	**3:33**
3:15	**3:31**	**3:44**	**3:30**	**3:48**	**4:09**
3:45	**4:02**	**4:15**	**4:00**	**4:18**	**4:39**
4:15	**4:31**	**4:44**	**4:30**	**4:46**	**5:04**
4:45	**5:00**	**5:13**	**5:00**	**5:16**	**5:34**
5:15	**5:30**	**5:42**	**5:30**	**5:46**	**6:04**
5:45	**5:59**	**6:11**	**6:00**	**6:16**	**6:34**
6:15	**6:29**	**6:40**	**6:30**	**6:46**	**7:03**
6:45	**7:01**	**7:12**	**7:05**	**7:17**	**7:33**
7:15	**7:29**	**7:40**	**7:45**	**7:57**	**8:13**
7:45	**7:59**	**8:10**	**8:20**	**8:32**	**8:48**
8:20	**8:34**	**8:45**	**8:55**	**9:07**	**9:23**
9:30	**9:44**	**9:55**	**10:05**	**10:17**	**10:33**
10:40	**10:54**	**11:05**	**b 11:15**	**11:24**	**11:37**
b 11:40	**11:52**	**11:58**	b 12:05A	12:09A	12:20A
b 12:30A	12:42A	12:48A	bw 1:00	1:04	1:15
bw 1:20	1:32	1:38			

b - Omits South Bay Center.
f - From Franklin Park.
L - Route 195 leaves from Lemuel Shattuck Hospital daily and travels to Tremont & Park Sts.
s - Does NOT run during school vacation.
w - Waits for last train to arrive at station.

Route 16
Forest Hills-Andrew Station or UMass

16 Sunday

Inbound			Outbound		
Leave Forest Hills Lower Busway	Arrive Uphams Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Uphams Corner	Arrive Forest Hills
b 7:05A	7:17A	7:24A	b 6:40A	6:45A	6:58A
b 7:55	8:07	8:14	b 7:30	7:35	7:48
L 8:00	.....	.....	b 8:20	8:25	8:39
b 8:45	8:59	9:09	9:10	9:19	9:35
9:40	9:53	10:03	10:10	10:19	10:36
10:15	10:28	10:38	10:50	11:01	11:18
10:50	11:04	11:15	11:25	11:37	11:54
11:30	11:44	11:56			
			12:00N	**12:12P**	**12:29P**
12:05P	**12:19P**	**12:31P**	**12:35P**	**12:48**	**1:07**
12:40	**12:54**	**1:06**	**1:10**	**1:23**	**1:42**
1:15	**1:29**	**1:42**	**1:45**	**1:58**	**2:16**
1:50	**2:04**	**2:17**	**2:20**	**2:34**	**2:52**
2:25	**2:39**	**2:52**	**2:55**	**3:09**	**3:27**
3:00	**3:14**	**3:27**	**3:30**	**3:44**	**4:02**
3:35	**3:49**	**4:02**	**4:05**	**4:20**	**4:37**
4:10	**4:24**	**4:37**	**4:45**	**5:00**	**5:19**
4:45	**4:59**	**5:12**	**5:20**	**5:34**	**5:53**
5:25	**5:39**	**5:51**	**6:00**	**6:14**	**6:28**
6:05	**6:19**	**6:31**	**6:40**	**6:54**	**7:08**
6:45	**7:01**	**7:12**	**b 7:20**	**7:27**	**7:43**
7:25	**7:39**	**7:50**	**b 8:00**	**8:07**	**8:23**
b 8:25	**8:37**	**8:44**	**b 8:50**	**8:54**	**9:07**
b 9:15	**9:27**	**9:34**	**b 9:40**	**9:44**	**9:57**
b 10:05	**10:17**	**10:24**	**b 10:30**	**10:34**	**10:47**
b 10:55	**11:06**	**11:13**	**b 11:20**	**11:24**	**11:36**
b 11:45	**11:56**	12:03A	b 12:10A	12:14A	12:26A
b 12:30A	12:41A	12:48	bw 12:50	12:54	1:06
bw 1:10	1:21	1:28			

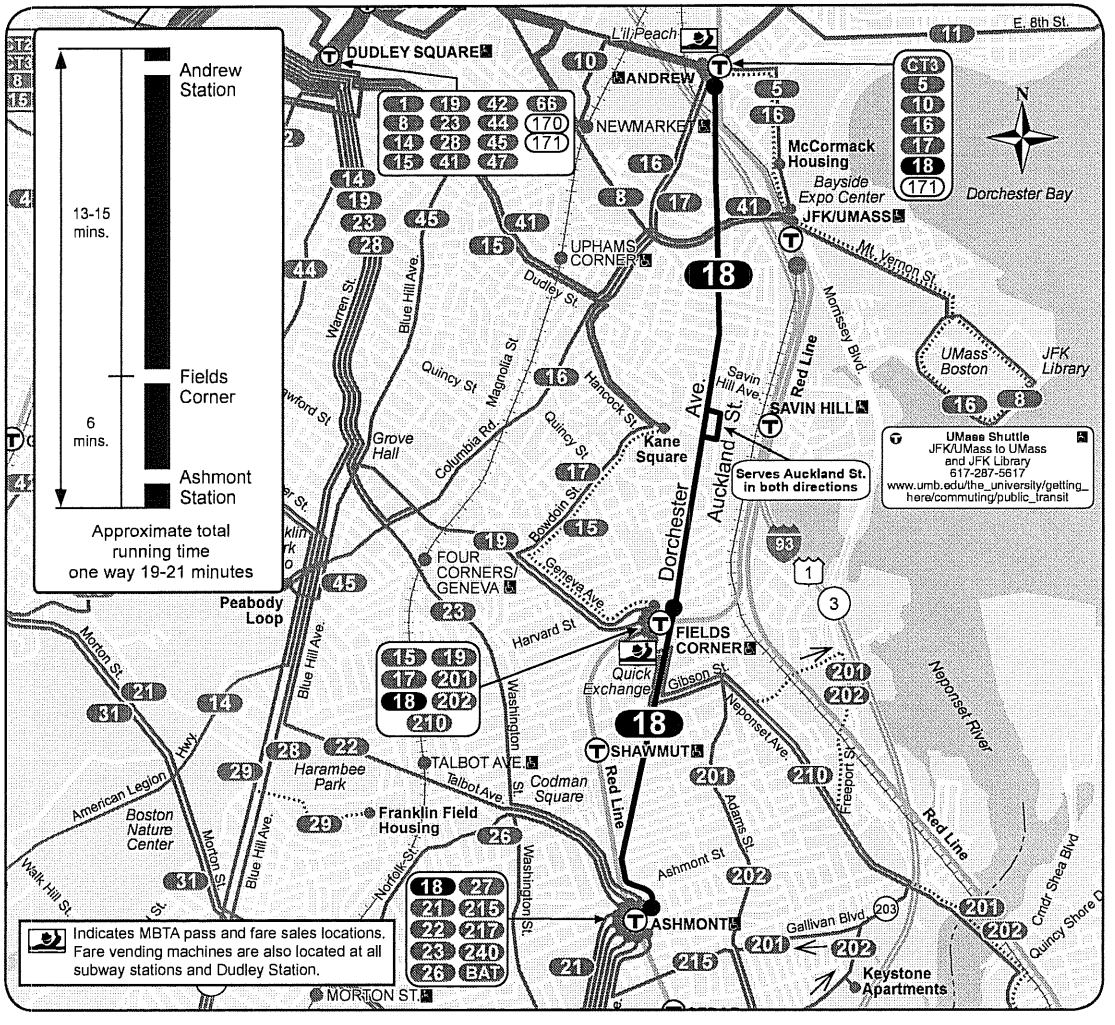
All buses are accessible to persons with disabilities

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.70	$1.70	$2.25	$2.25
CharlieTicket	$2.00	$2.00	$2.75	$4.75
Cash-on-Board	$2.00	$4.00	$2.75	$4.75
Student*	$0.85	$0.85	$1.10	$1.10
Senior/TAP**	$0.85	$0.85	$1.10	$1.10

VALID PASSES: LinkPass ($84.50/mo.); Local Bus ($55/mo.); *Student LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
* Requires Student CharlieCard, available to students through participating middle schools and high schools.
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Winter 2017 Holidays
January 2: see Sunday January 16 & February 20: see Saturday

Route 18 Ashmont Station - Andrew Station



18

Winter December 31, 2016 - March 24, 2017

Ashmont Station- Andrew Station

Serving

- Fields Corner Station
- Dorchester Avenue
- Red Line
- Mattapan High Speed Line

Massachusetts Bay Transportation Authority

massDOT

Information 617-222-3200 • 1-800-392-6100

(TTY) 617-222-5146 • www.mbta.com

18 Weekday

Inbound			Outbound		
Leave Ashmont Station	Arrive Fields Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Fields Corner	Arrive Ashmont Station
a 4:43A	4:46A	.....	6:05A	6:13A	6:20A
6:30	6:37	6:55A	6:35	6:46	6:51
7:00	7:05	7:26	7:05	7:18	7:24
7:30	7:35	8:03	7:35	7:48	7:54
8:00	8:05	8:32	8:05	8:18	8:24
8:30	8:36	8:57	8:35	8:47	8:53
9:00	9:06	9:27	9:05	9:19	9:26
9:30	9:36	9:56	10:05	10:19	10:26
10:30	10:35	10:54	11:05	11:19	11:26
11:30	11:35	11:54			
12:30P	**12:35P**	**12:54P**	**12:05P**	**12:19P**	**12:26P**
1:30	**1:35**	**1:54**	**1:05**	**1:19**	**1:26**
2:30	**2:36**	**2:59**	**2:05**	**2:20**	**2:28**
3:30	**3:36**	**3:59**	**3:05**	**3:22**	**3:32**
4:05	**4:11**	**4:31**	**4:05**	**4:25**	**4:33**
4:40	**4:45**	**5:05**	**4:40**	**5:00**	**5:08**
5:20	**5:25**	**5:45**	**5:15**	**5:35**	**5:43**
6:25	**6:30**	**6:50**	**5:55**	**6:13**	**6:20**

a - Through service to downtown Boston (operates as Route 15).

18 Saturday

Inbound			Outbound		
Leave Ashmont Station	Arrive Fields Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Fields Corner	Arrive Ashmont Station
a 4:34A	4:36A	.....	9:00A	9:12A	9:16A
9:30	9:35	9:53A	10:00	10:16	10:22
10:30	10:35	10:55	11:00	11:17	11:23
11:30	11:35	11:55			
12:30P	**12:35P**	**12:57P**	**12:00N**	**12:17P**	**12:25P**
1:30	**1:35**	**1:56**	**1:00P**	**1:17**	**1:25**
2:30	**2:35**	**2:54**	**2:00**	**2:14**	**2:22**
3:30	**3:35**	**3:54**	**3:00**	**3:14**	**3:22**
4:30	**4:35**	**4:53**	**4:00**	**4:14**	**4:22**
5:30	**5:35**	**5:53**	**5:00**	**5:13**	**5:20**
6:25	**6:30**	**6:46**	**6:00**	**6:13**	**6:20**

All buses are accessible to persons with disabilities

Route 18
Ashmont Station-Andrew Station

No service on Sunday

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.70	$1.70	$2.25	$2.25
CharlieTicket	$2.00	$2.00	$2.75	$4.75
Cash-on-Board	$2.00	$4.00	$2.75	$4.75
Student*	$0.85	$0.85	$1.10	$1.10
Senior/TAP**	$0.85	$0.85	$1.10	$1.10

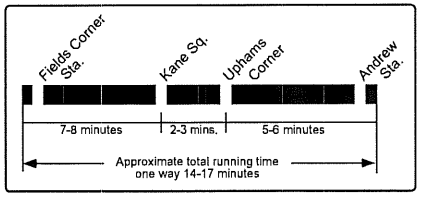
VALID PASSES: LinkPass ($84.50/mo.); Local Bus ($55/mo.); *Student LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

* Requires Student CharlieCard, available to students through participating middle schools and high schools.

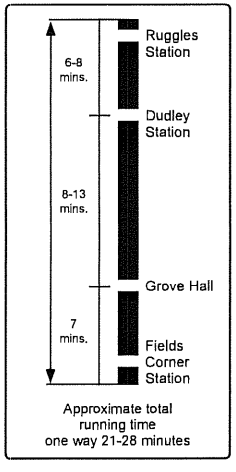
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Winter 2017 Holidays
January 2: see Sunday January 16 & February 20: see Saturday

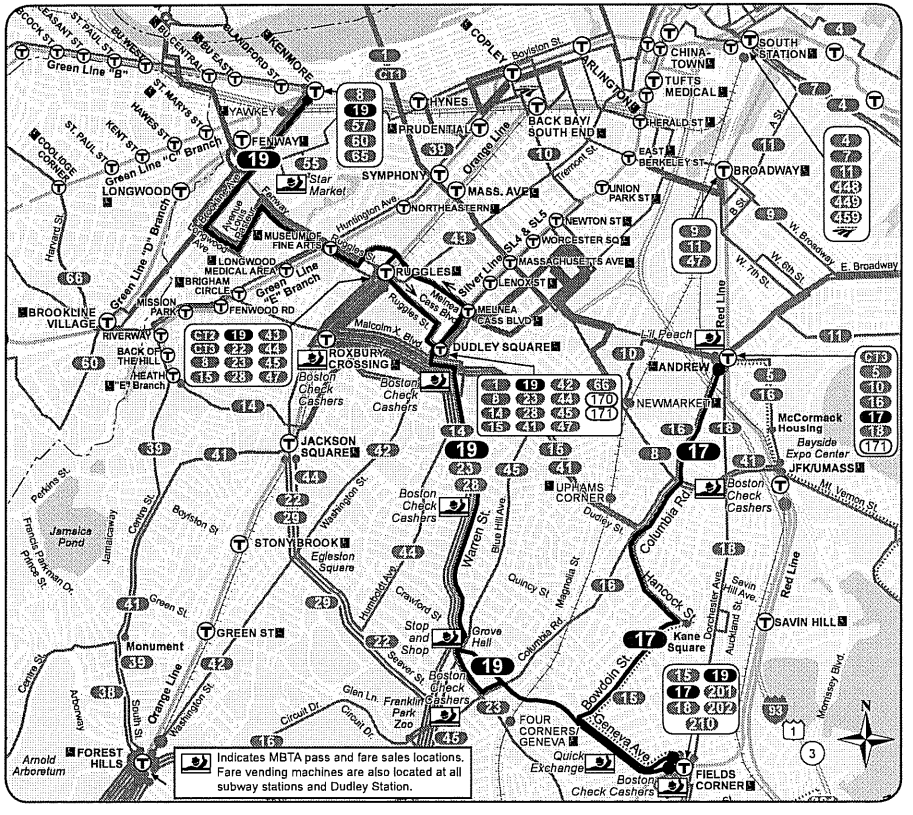
Route 17



Route 19



Route 17 Fields Corner Station - Andrew Station
Route 19 Fields Corner Station - Kenmore Station or Ruggles Station



schedule change

17•19

Winter December 31, 2016 - March 24, 2017

17 Fields Corner-Andrew Station

19 Fields Corner-Kenmore Station or Ruggles Station

Serving

- Roxbury District Courthouse
- Roxbury Library
- Uphams Corner
- Police District 2
- Red Line
- Orange Line
- Green Line
- Fairmount Commuter Rail

Massachusetts Bay Transportation Authority

massDOT

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

19 Weekday

Inbound				Outbound			
Leave Fields Corner	Arrive Grove Hall	Arrive Ruggles Station	Arrive Kenmore Station	Leave Kenmore Station	Lv/Arrive Ruggles Station	Arrive Grove Hall	Arrive Fields Corner
6:08A	6:15A	6:30A	6:47A	.....	6:10A	6:21A	6:31A
6:22	6:29	6:46	7:04	.....	6:30	6:44	6:54
6:36	6:45	7:03	7:23	6:44A	6:58	7:15	7:28
bls 6:43	6:58	.....	.....	6:51	7:05	7:22	7:35
bls 6:43	6:58	.....	.....	7:09	7:23	7:40	7:53
6:50	6:59	7:20	7:40	7:27	7:44	8:03	8:14
s 6:55	7:04	7:24	.....	7:45	8:03	8:19	8:30
7:06	7:17	7:38	7:58	8:03	8:18	8:34	8:45
7:22	7:33	7:54	8:14	8:19	8:34	8:50	9:01
7:38	7:49	8:10	8:30	8:35	8:50	9:06	9:17
7:54	8:05	8:26	8:43	8:51	9:05	9:22	9:33
8:10	8:21	8:41	8:57	9:08	9:22	9:39	9:50
8:26	8:36	8:55	9:11	.....	10:15	10:31	10:42
8:42	8:52	9:09	.....	.....	11:15	11:31	11:42
8:56	9:06	9:23	.....				
9:15	9:25	9:42	.....	.....	12:15P	12:31P	12:44P
9:45	9:54	10:10	.....	.....	1:15	1:34	1:47
10:45	10:54	11:10	.....	.....	.....	ts 1:43	1:54
11:45	11:54	12:10P	.....	.....	.....	ts 1:43	1:54
				.....	s 1:40	1:59	2:13
12:45P	12:54P	1:11P	.....	.....	.....	ms 2:20	2:37
1:45	1:55	2:14	.....	.....	2:15	2:36	2:50
s 2:15	2:24	2:43	.....	.....	als 2:32	2:50	2:59
2:24	2:33	2:53	3:15P	.....	s 2:45	3:06	3:20
2:58	3:07	3:27	3:49	2:18P	2:41	3:07	3:23
3:32	3:47	4:07	4:28	2:41	3:04	3:30	3:48
4:02	4:15	4:35	4:56	3:08	3:31	3:58	4:16
4:32	4:45	5:05	5:26	3:32	3:56	4:23	4:41
5:02	5:14	5:33	5:54	4:03	4:27	4:54	5:12
5:37	5:49	6:08	6:25	4:35	4:59	5:26	5:40
6:10	6:19	6:36	6:53	5:03	5:27	5:52	6:05
6:50	6:59	7:12	.....	5:33	5:56	6:17	6:29
				6:05	6:22	6:42	6:54
				6:40	6:57	7:15	7:25
				.....	7:20	7:35	7:45

a - To Adams Street at Gallivan Blvd.
b - From Adams Street at Gallivan Blvd. departs at 6:35AM
l - To or from Avenue Louis Pasteur
m - Leaves from Malcolm X. Blvd.
s - Does NOT run during school vacation
t - Leaves from Townsend & Warren Streets at 1:40 pm and continues to Adams & Gallivan Blvd.

NOTE: For weekday, evening and all day Saturday and Sunday Service between Ruggles Station, Dudley Station, Geneva Avenue and Fields Corner Station refer to Route 15.

Route 19 Fields Corner Station- Kenmore Station or Ruggles Station

17 Weekday

Inbound			Outbound		
Leave Fields Corner	Arrive Uphams Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Uphams Corner	Arrive Fields Corner
5:12A	5:21A	5:28A	4:55A	4:58A	5:05A
5:30	5:39	5:46	5:13	5:16	5:23
5:48	5:57	6:04	5:31	5:34	5:41
6:06	6:15	6:22	5:49	5:52	5:59
6:24	6:35	6:45	6:07	6:10	6:17
6:38	6:50	7:00	6:25	6:28	6:37
6:52	7:04	7:14	6:39	6:44	6:55
7:06	7:18	7:28	6:53	6:58	7:09
7:20	7:33	7:45	7:07	7:12	7:23
7:34	7:46	7:58	7:21	7:26	7:37
7:48	8:00	8:12	7:35	7:40	7:51
8:02	8:14	8:26	7:50	7:55	8:06
8:21	8:32	8:41	8:09	8:14	8:25
8:40	8:52	9:01	8:28	8:33	8:44
9:00	9:12	9:21	8:47	8:52	9:03
9:25	9:37	9:46	9:06	9:11	9:22
9:50	10:02	10:11	9:25	9:30	9:41
10:15	10:27	10:36	9:50	9:55	10:06
10:40	10:52	11:01	10:15	10:20	10:31
11:05	11:17	11:26	10:40	10:45	10:56
11:30	11:42	11:51	11:05	11:10	11:21
11:55	12:07P	12:16P	11:30	11:36	11:49
			11:55	12:01P	12:14P
			12:20P	12:26P	12:39
12:20P	12:32P	12:42P	12:45	12:51	1:04P
12:45	12:57	1:07	1:10	1:16	1:29
1:10	1:22	1:32	1:35	1:41	1:54
1:35	1:47	1:57	1:50	1:56	2:09
1:55	2:07	2:17	s 2:00	2:06	2:19
2:12	2:24	2:34	2:07	2:13	2:26
2:29	2:41	2:51	2:24	2:31	2:47
2:42	2:54	3:05	2:41	2:51	3:07
2:58	3:13	3:24	2:58	3:08	3:24
3:15	3:30	3:41	3:15	3:25	3:41
3:32	3:47	3:58	3:32	3:42	3:58
3:49	4:04	4:15	3:49	3:59	4:15
4:06	4:21	4:32	4:06	4:16	4:32
4:23	4:38	4:49	4:23	4:33	4:49
4:41	4:56	5:07	4:40	4:50	5:06
4:59	5:14	5:25	4:57	5:07	5:23
5:17	5:31	5:39	5:14	5:24	5:39
5:35	5:48	5:56	5:31	5:38	5:53
6:00	6:13	6:21	5:49	5:56	6:11
6:50	7:03	7:11	6:07	6:14	6:29
7:40	7:49	7:57	6:25	6:32	6:47
8:25	8:32	8:39	7:15	7:21	7:34
9:15	9:22	9:29	8:05	8:09	8:21
10:00	10:07	10:14	8:50	8:54	9:06
			9:35	9:39	9:51

17 Saturday

Inbound			Outbound		
Leave Fields Corner	Arrive Uphams Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Uphams Corner	Arrive Fields Corner
5:04A	5:08A	5:15A	5:24A	5:27A	5:33A
5:40	5:46	5:53	6:00	6:03	6:09
6:15	6:21	6:28	6:30	6:33	6:39
6:45	6:51	6:58	7:00	7:03	7:11
7:20	7:26	7:32	7:25	7:28	7:36
7:50	7:57	8:04	7:50	7:53	8:01
8:10	8:17	8:24	8:10	8:13	8:21
8:30	8:37	8:44	8:30	8:33	8:41
8:50	8:57	9:06	8:50	8:53	9:01
9:10	9:20	9:28	9:10	9:13	9:21
9:35	9:45	9:53	9:35	9:39	9:49
10:00	10:10	10:18	10:00	10:04	10:14
10:25	10:35	10:43	10:25	10:29	10:39
10:50	11:00	11:08	10:50	10:54	11:04
11:15	11:25	11:33	11:15	11:20	11:30
11:40	11:50	11:58	11:40	11:45	11:55
12:05P	12:15P	12:23P	12:05P	12:10P	12:20P
12:30	12:40	12:48	12:30	12:35	12:45
12:55	1:05	1:15	12:55	1:00	1:10
1:20	1:30	1:40	1:20	1:25	1:35
1:45	1:55	2:03	1:45	1:51	2:01
2:10	2:19	2:27	2:10	2:16	2:26
2:35	2:44	2:52	2:35	2:41	2:51
3:00	3:09	3:17	3:00	3:06	3:16
3:25	3:34	3:41	3:25	3:31	3:41
3:50	3:59	4:06	3:50	3:56	4:06
4:15	4:24	4:31	4:15	4:21	4:31
4:40	4:49	4:56	4:40	4:45	4:56
5:05	5:14	5:21	5:05	5:10	5:21
5:30	5:39	5:47	5:30	5:35	5:46
5:55	6:04	6:12	5:55	6:00	6:11
6:20	6:29	6:36	6:20	6:25	6:34
6:45	6:52	6:59	6:45	6:49	6:58
7:10	7:17	7:24	7:10	7:14	7:23
7:30	7:37	7:44	7:30	7:34	7:43
7:50	7:57	8:04	8:10	8:14	8:23
8:30	8:37	8:44	8:50	8:54	9:01
9:10	9:17	9:24	9:30	9:34	9:41
9:50	9:57	10:04			

Route 17 Fields Corner Station- Andrew Station

17 Sunday

Inbound			Outbound		
Leave Fields Corner	Arrive Uphams Corner	Arrive Andrew Station	Leave Andrew Station	Arrive Uphams Corner	Arrive Fields Corner
9:10A	9:17A	9:24A	8:50A	8:54A	9:01A
9:50	9:57	10:04	9:30	9:34	9:41
10:30	10:38	10:44	10:10	10:14	10:22
11:10	11:18	11:24	10:50	10:54	11:03
11:50	11:58	12:05P	11:30	11:34	11:43
12:30P	12:38P	12:45P	12:10P	12:14P	12:23P
1:10	1:18	1:26	12:50	12:54	1:03
1:50	1:58	2:06	1:30	1:34	1:43
2:30	2:39	2:46	2:10	2:14	2:23
3:10	3:18	3:25	2:50	2:54	3:04
3:50	3:58	4:05	3:30	3:34	3:43
4:30	4:37	4:44	4:10	4:14	4:23
5:10	5:17	5:24	4:50	4:54	5:03
5:50	5:57	6:04	5:30	5:34	5:43
6:30	6:38	6:45	6:10	6:14	6:23
7:10	7:18	7:25	6:50	6:54	7:03

NOTE: For early morning and late evening service between Fields Corner Station and Uphams Corner refer to Route 15.

No Route 19 service on weekends

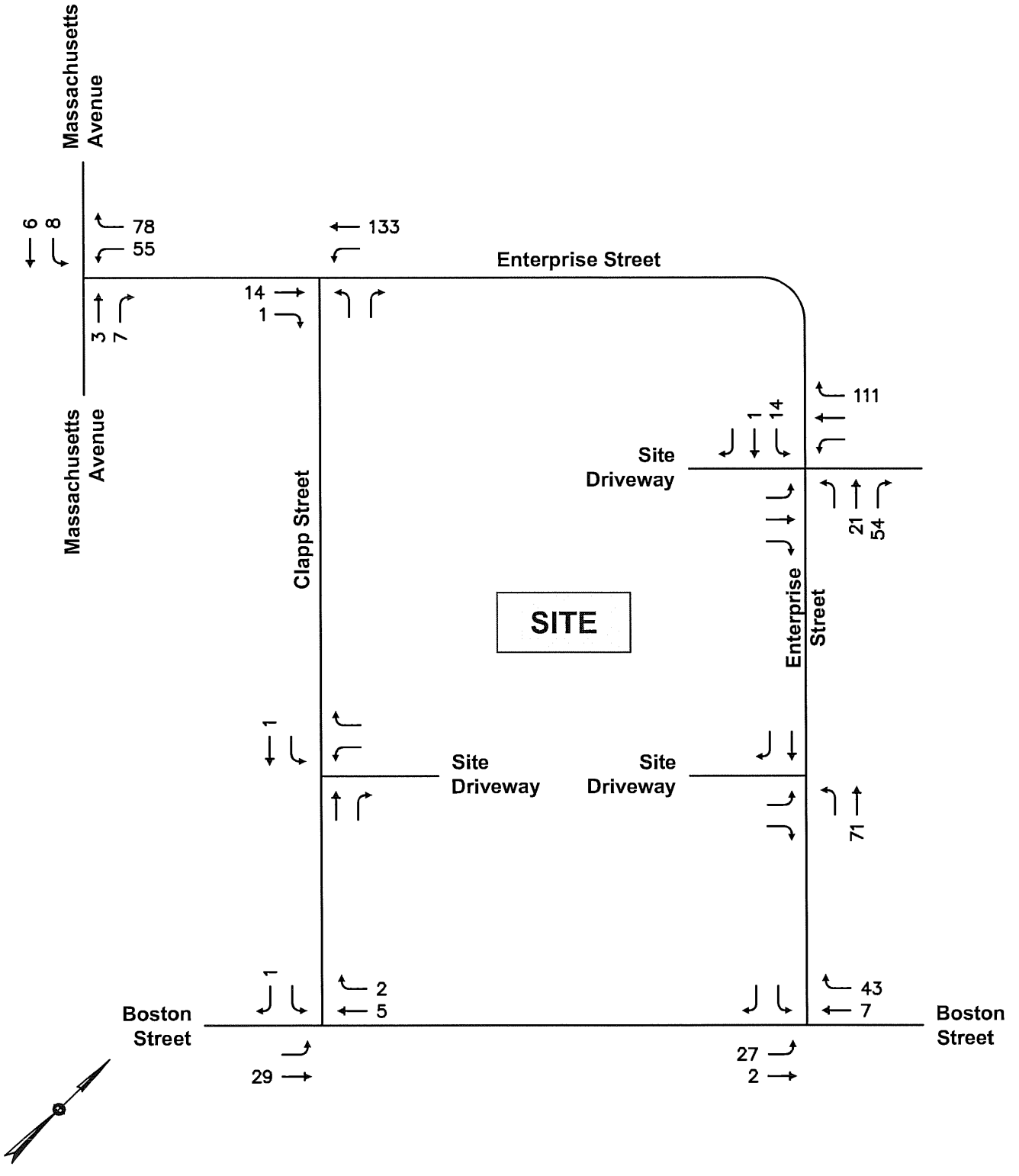
All buses are accessible to persons with disabilities

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	$1.70	$1.70	$2.25	$2.25
CharlieTicket	$2.00	$2.00	$2.75	$4.75
Cash-on-Board	$2.00	$4.00	$2.75	$4.75
Student*	$0.85	$0.85	$1.10	$1.10
Senior/TAP**	$0.85	$0.85	$1.10	$1.10

VALID PASSES: LinkPass ($84.50/mo.); Local Bus ($55/mo.); *Student LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
* Requires Student CharlieCard, available to students through participating middle schools and high schools.
** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Winter 2017 Holidays
January 2: see Sunday **January 16 & February 20: see Saturday**

□ Site Specific Developments



Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Total Background Trips
Weekday Evening Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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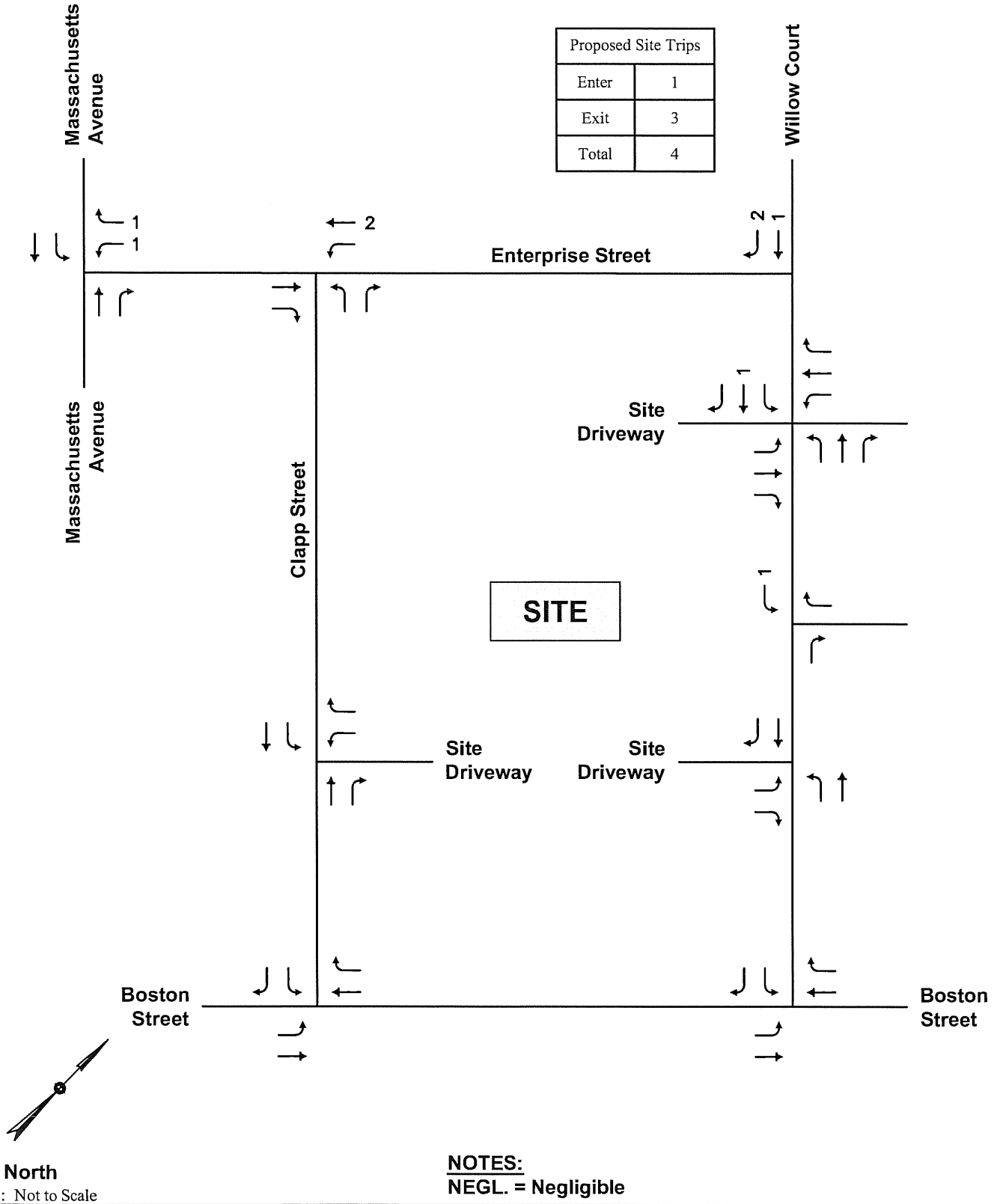

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

85-93 Willow Court
Weekday Morning Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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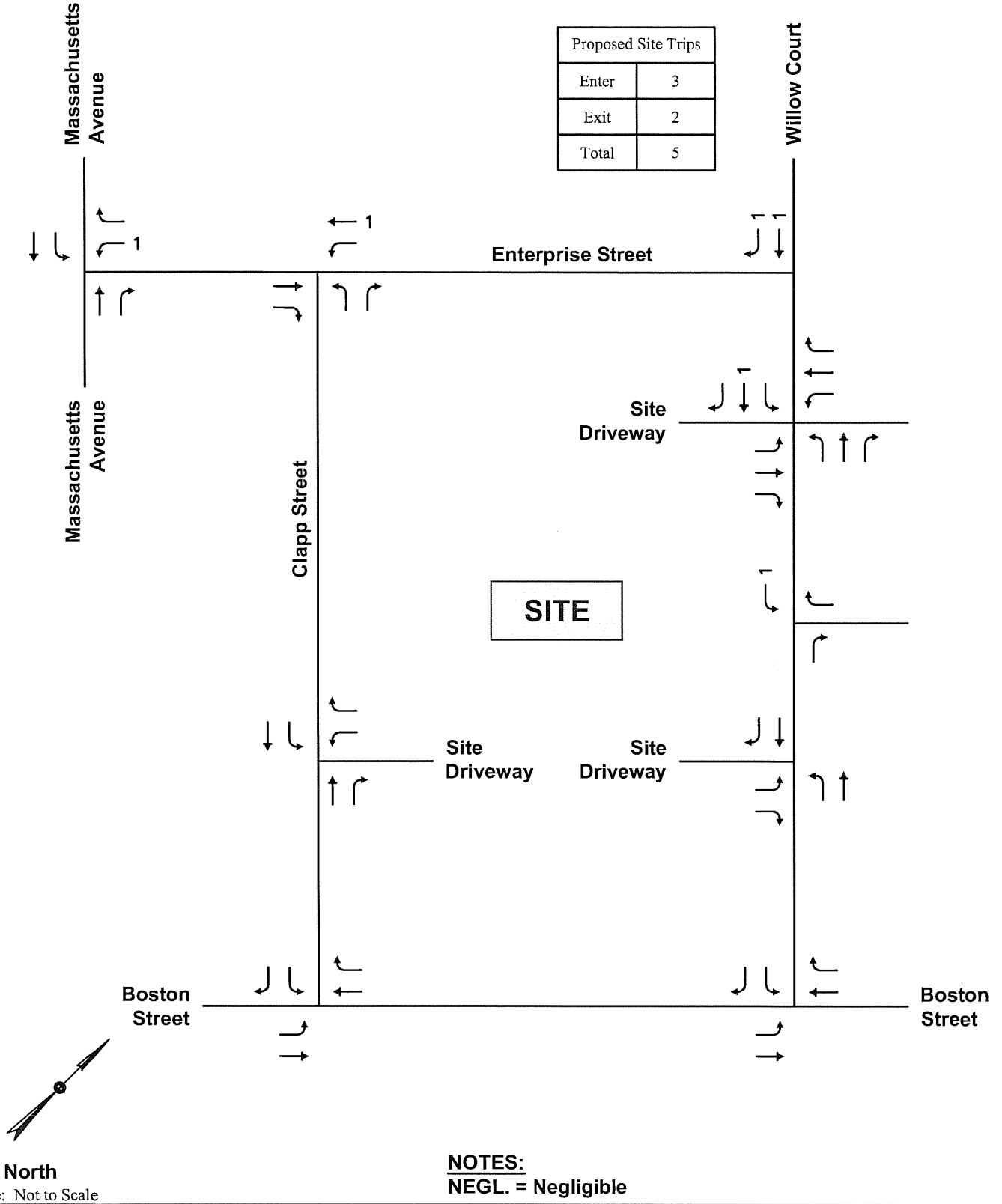

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85-93 Willow Court
Weekday Evening Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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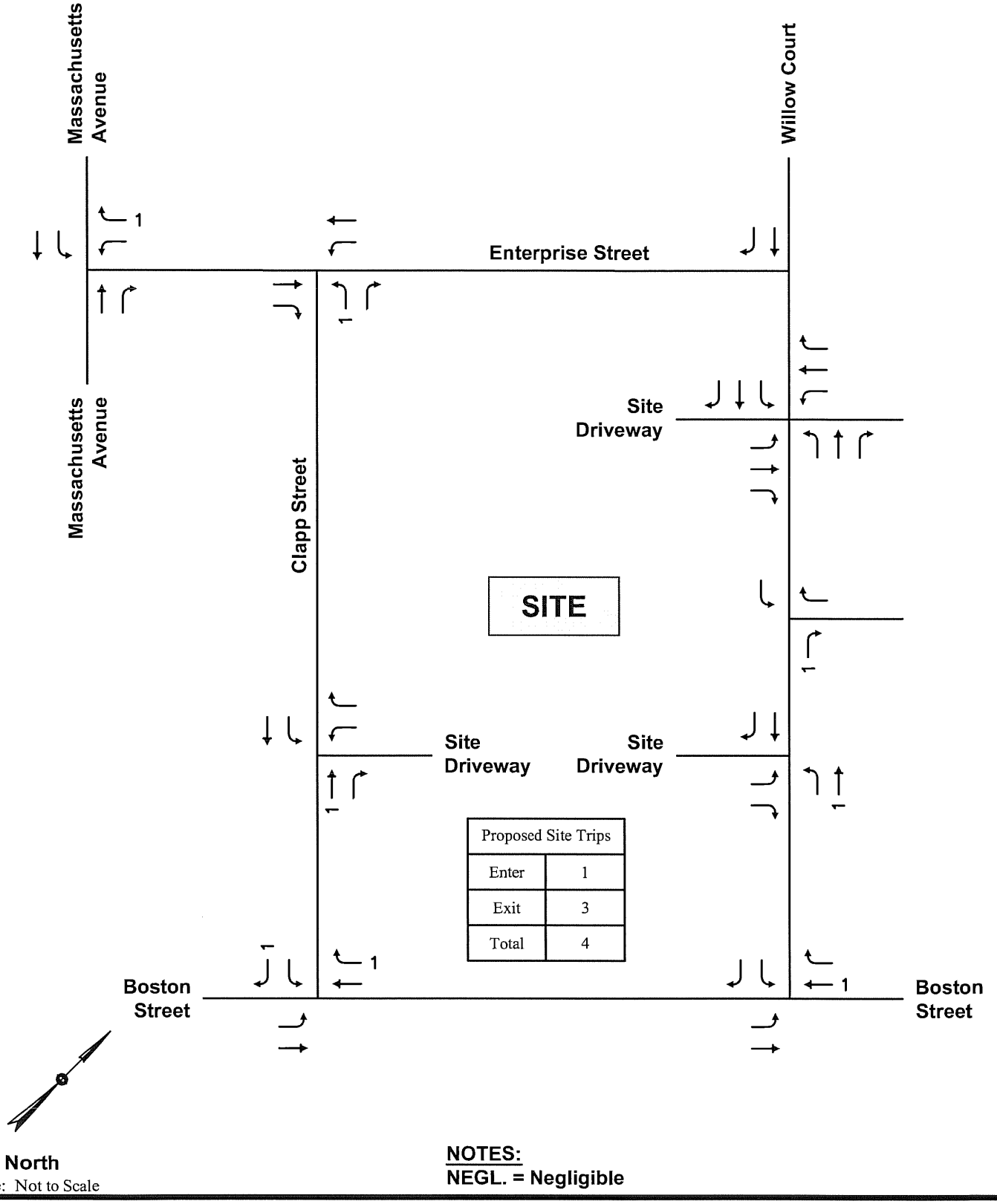

Attachment

21 Clapp Street
Weekday Morning Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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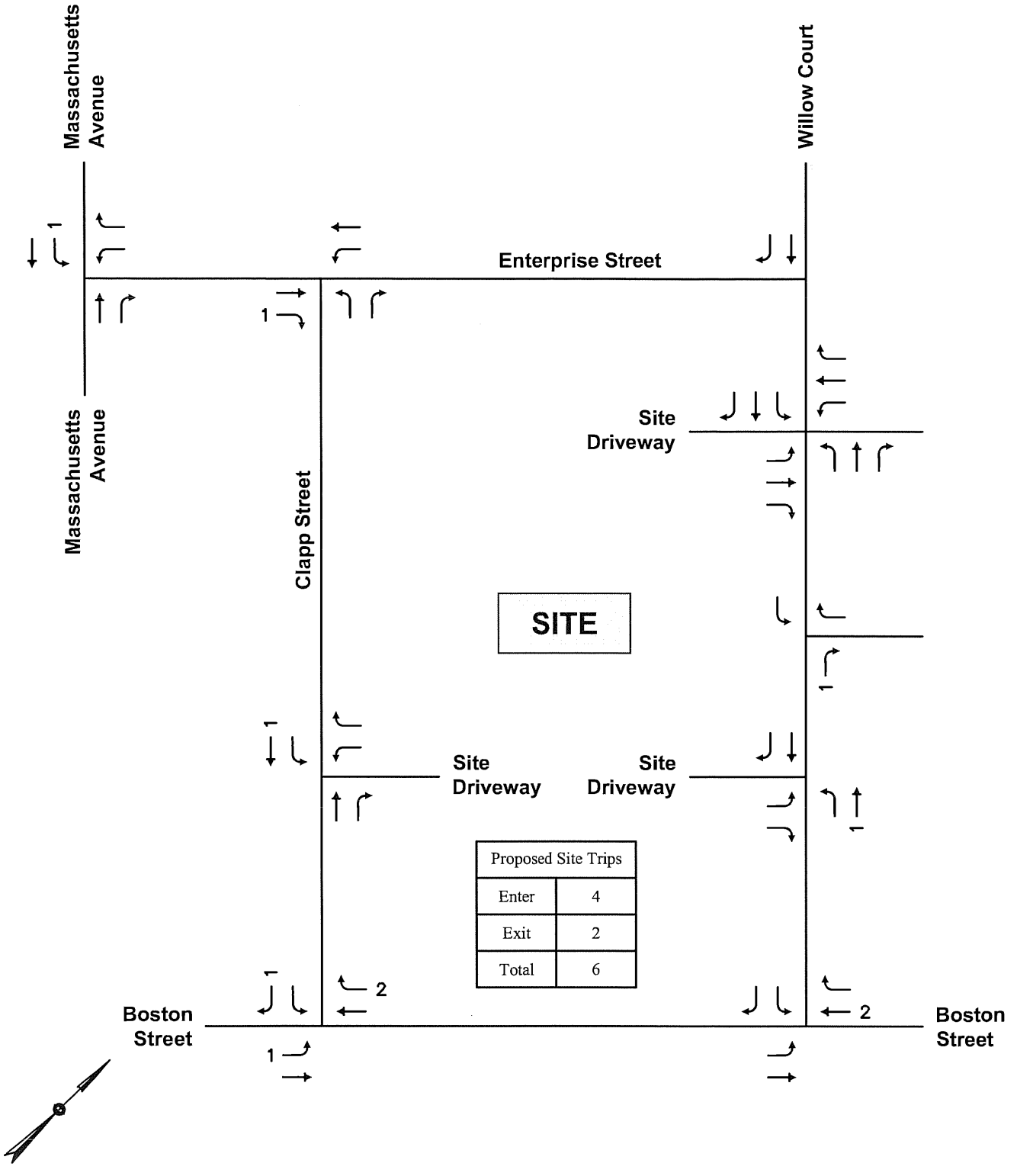

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
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21 Clapp Street
Weekday Evening Peak Hour Volumes

Date: March 2017
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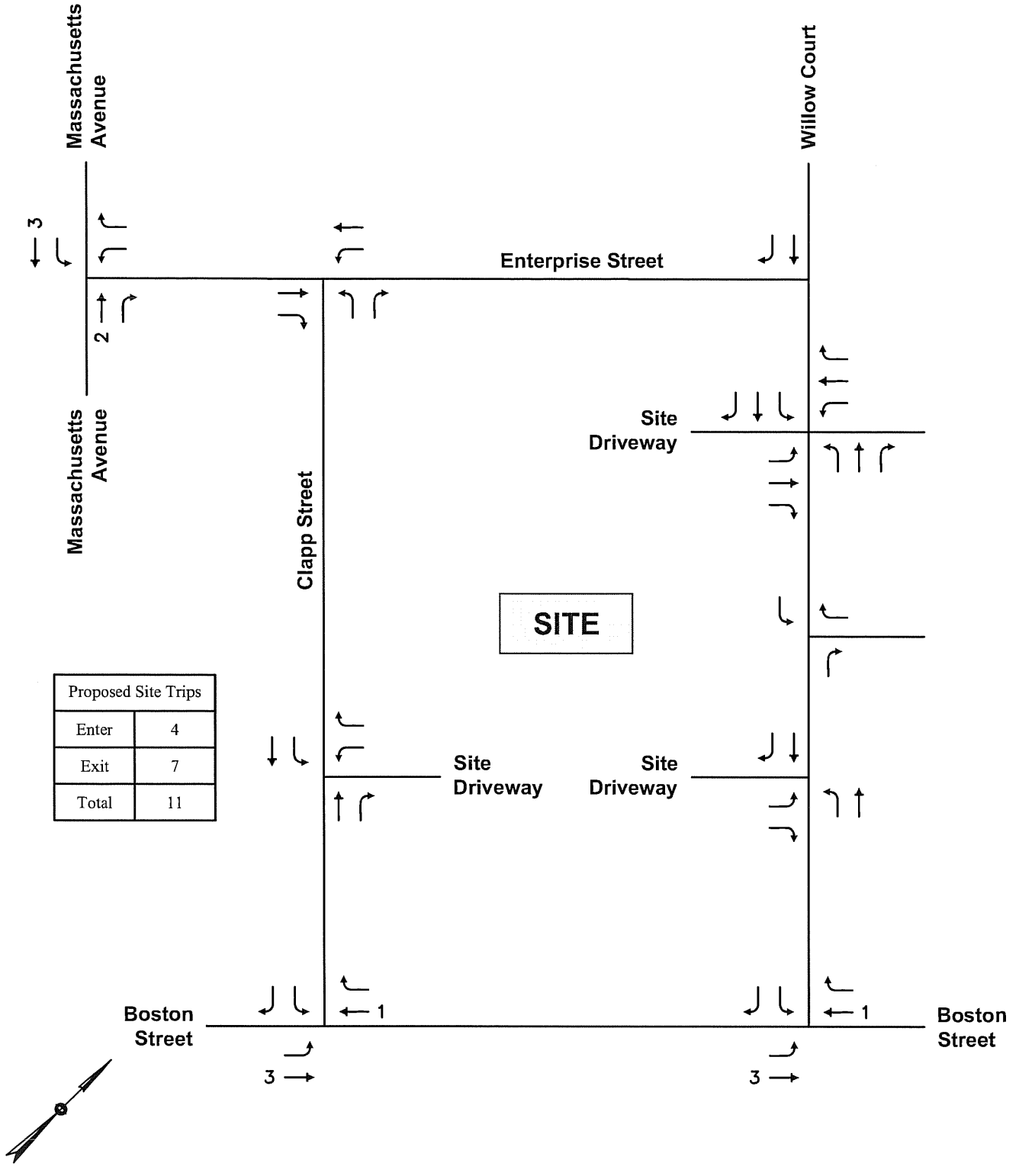

Proposed Site Trips	
Enter	4
Exit	7
Total	11

NOTES:
NEGL. = Negligible

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
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1258-1272 Massachusetts Avenue
Weekday Morning Peak Hour Volumes

Date: March 2017
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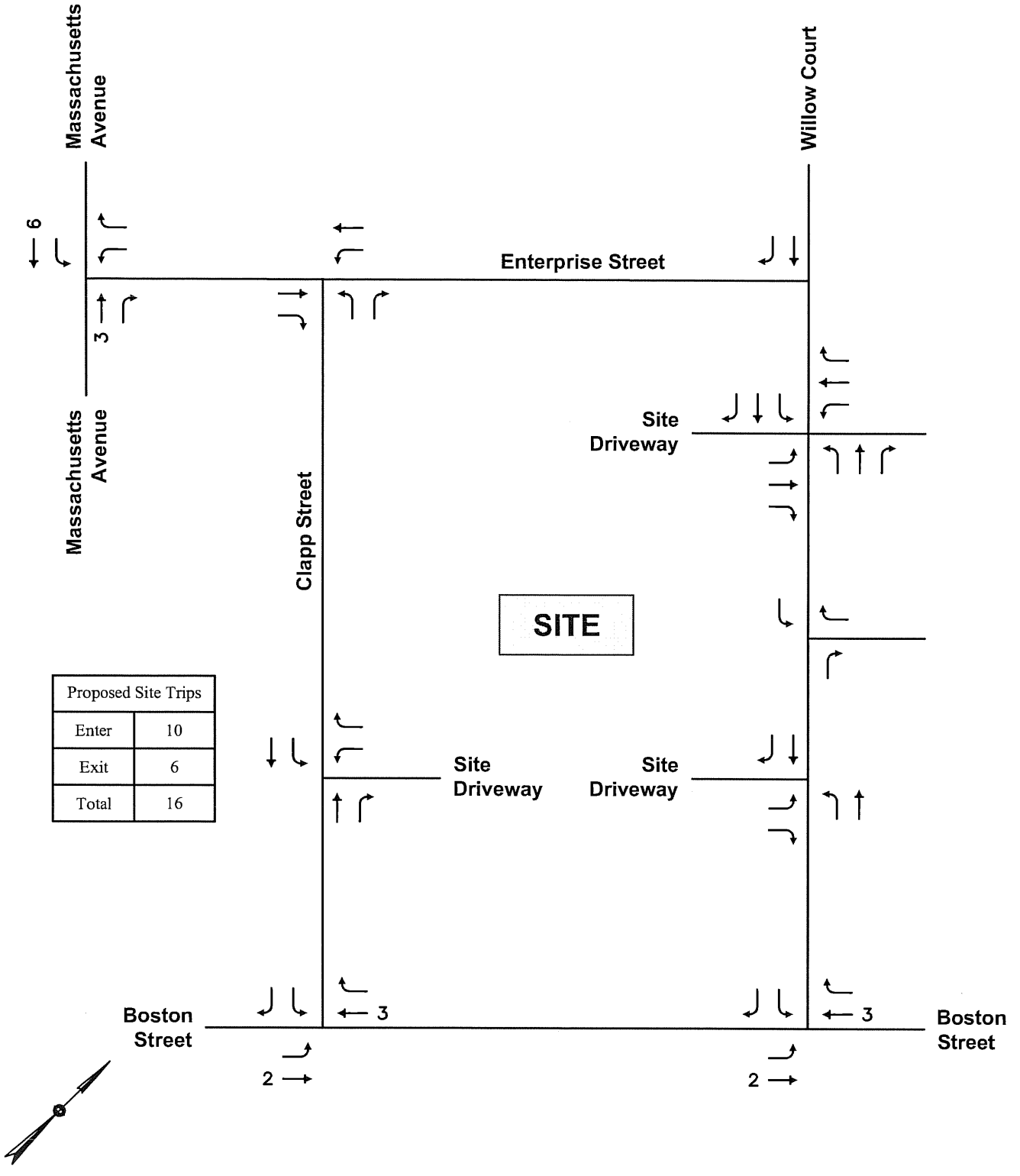

Proposed Site Trips	
Enter	10
Exit	6
Total	16

NOTES:
NEGL. = Negligible

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1258-1272 Massachusetts Avenue
Weekday Evening Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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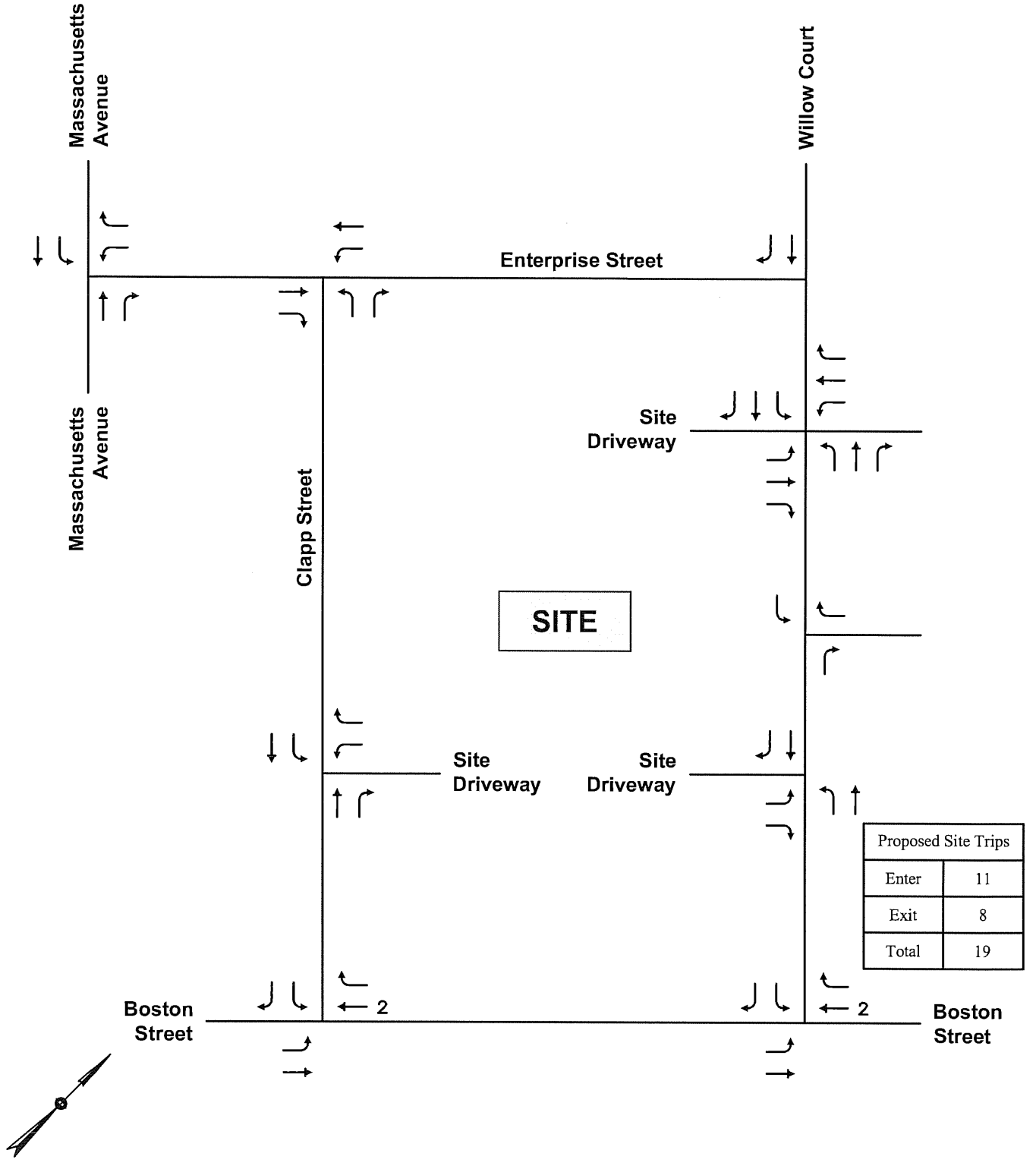

MDM TRANSPORTATION CONSULTANTS, INC.
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Attachment

Holiday Inn Expansion
Weekday Morning Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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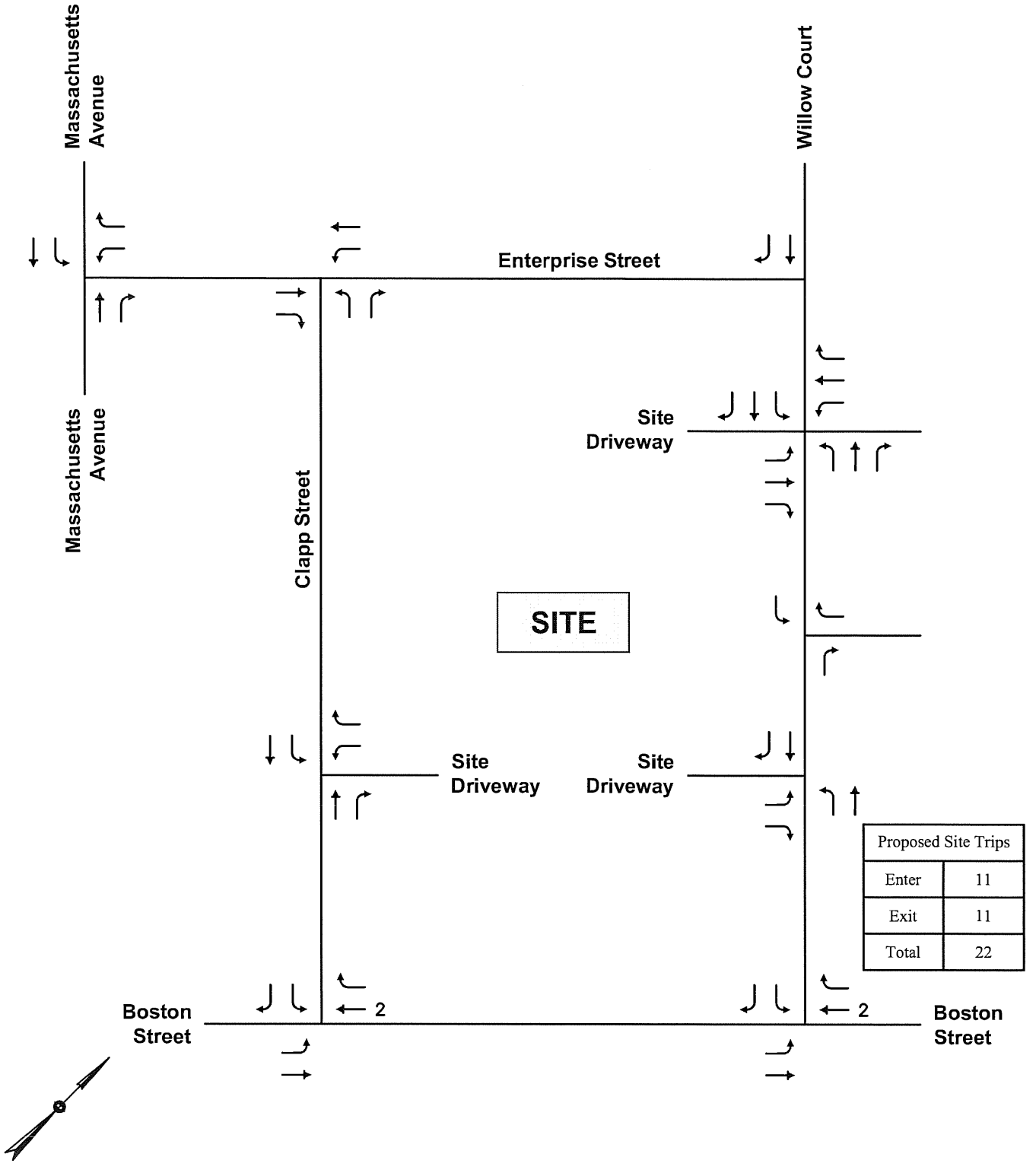

Proposed Site Trips	
Enter	11
Exit	11
Total	22

NOTES:
NEGL. = Negligible

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
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Holiday Inn Expansion
Weekday Evening Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF.dwg
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□ Trip Generation

Institute of Transportation Engineers (ITE) 9th Edition
Land Use Code (LUC) 710 - General Office Building

Average Vehicle Trips Ends vs: Employees
Independent Variable (X): 15

AVERAGE WEEKDAY DAILY

T = 3.32 * (X)
T = 3.32 * 15
T = 49.80
T = 50 vehicle trips
with 50% (**25** vpd) entering and 50% (**25** vpd) exiting.

WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 0.48 * (X)
T = 0.48 * 15
T = 7.20
T = 7 vehicle trips
with 88% (**6** vph) entering and 12% (**1** vph) exiting.

WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

T = 0.46 * (X)
T = 0.46 * 15
T = 6.90
T = 7 vehicle trips
with 17% (**1** vph) entering and 83% (**6** vph) exiting.

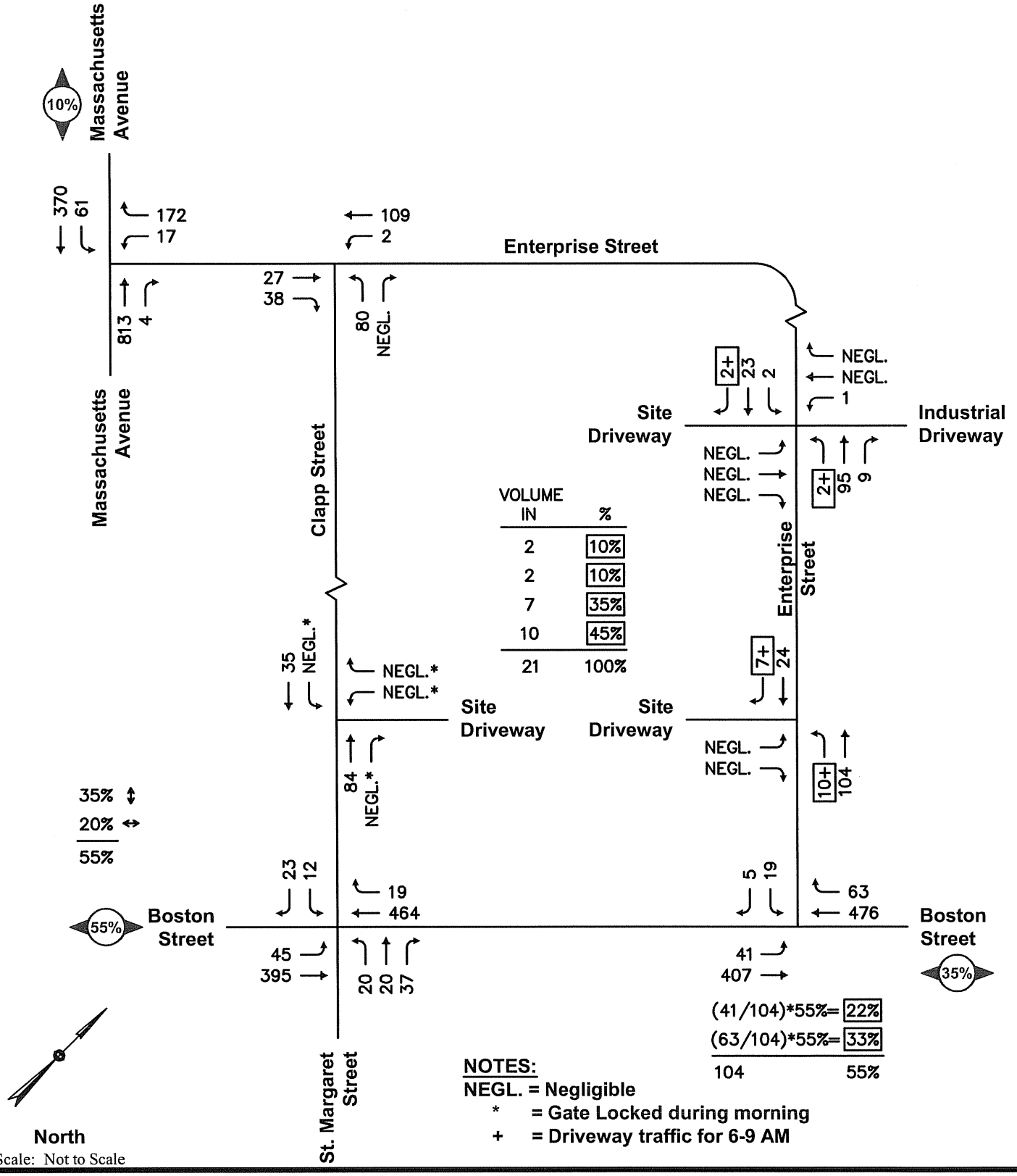
SATURDAY DAILY

T = 0.54 * (x)
T = 0.54 * 15
T = 8.10
T = 8 vehicle trips
with 50% (**4** vpd) entering and 50% (**4** vpd) exiting.

SATURDAY MIDDAY PEAK HOUR OF GENERATOR

T = 0.09 * (X)
T = 0.09 * 15
T = 1.35
T = 1 vehicle trips
with 54% (**1** vph) entering and 46% (**0** vph) exiting.

□ Trip Distribution Calculations



Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
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Trip Distribution Calculation
Weekday Morning Peak Hour Volumes

Date: March 2017
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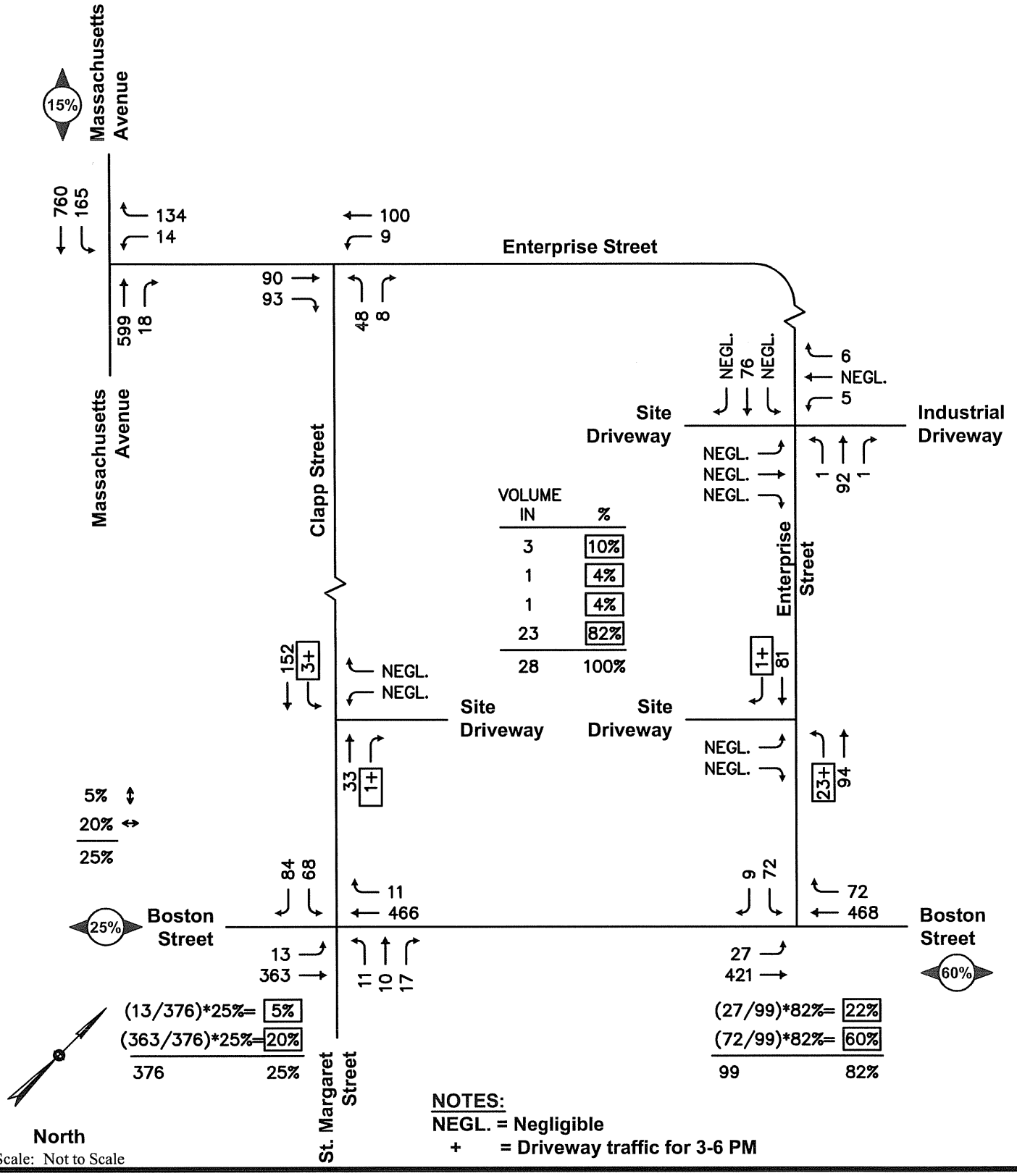

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Trip Distribution Calculation
Weekday Evening Peak Hour Volumes

Date: March 2017
Dwg No. 920 PNF-Final.dwg
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□ Delay Study

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : 920 Enterprise Delay Study PM
Site Code : 920
Start Date : 3/7/2017
Page No : 1

Summary Information:

04:00:00 PM - 05:00:00 PM	Enterprise Street Approach
Total Vehicle Count:	170
Delayed Vehicle Count:	170
Through Vehicle Count:	0
Average Stopped Time:	13.98
Maximum Stopped Time:	59
Min. Secs. for Delay:	0
Average Queue:	0.67
Queue Density:	1.80
Maximum Queue:	6
Delay in Vehicle Hour:	0.67
Total Delay:	2376

□ Capacity Analysis

Intersection	
Int Delay, s/veh	2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	17	172	813	4	61	370
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	21	5	5	0	9	10
Mvmt Flow	19	195	924	5	69	420

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1275	464	0	0	928	0
Stage 1	926	-	-	-	-	-
Stage 2	349	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.28	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.71	3.35	-	-	2.29	-
Pot Cap-1 Maneuver	249	660	-	-	691	-
Stage 1	366	-	-	-	-	-
Stage 2	678	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	217	660	-	-	691	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	366	-	-	-	-	-
Stage 2	590	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	558	691	-
HCM Lane V/C Ratio	-	-	0.385	0.1	-
HCM Control Delay (s)	-	-	15.4	10.8	0.5
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.8	0.3	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	27	38	2	109	80	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	10	4	14	2	5	0
Mvmt Flow	31	43	2	124	91	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	74	0	180	52
Stage 1	-	-	-	-	52	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	-	-	4.24	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.326	-	3.545	3.3
Pot Cap-1 Maneuver	-	-	1453	-	803	1021
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	890	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1453	-	802	1021
Mov Cap-2 Maneuver	-	-	-	-	802	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	889	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	802	-	-	1453	-
HCM Lane V/C Ratio	0.113	-	-	0.002	-
HCM Control Delay (s)	10.1	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	45	395	0	0	464	19	20	20	37	12	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	48	425	0	0	499	20	22	22	40	13	0	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	519	0	0	425	0	0	1044	1041	425	1061	1031	509
Stage 1	-	-	-	-	-	-	522	522	-	509	509	-
Stage 2	-	-	-	-	-	-	522	519	-	552	522	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1057	-	-	1145	-	-	209	232	634	203	235	568
Stage 1	-	-	-	-	-	-	542	534	-	550	541	-
Stage 2	-	-	-	-	-	-	542	536	-	522	534	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1057	-	-	1145	-	-	191	218	634	168	221	568
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	218	-	168	221	-
Stage 1	-	-	-	-	-	-	510	502	-	518	541	-
Stage 2	-	-	-	-	-	-	518	536	-	441	502	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	21.4	18.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	302	1057	-	-	1145	-	-	313
HCM Lane V/C Ratio	0.274	0.046	-	-	-	-	-	0.12
HCM Control Delay (s)	21.4	8.6	0	-	0	-	-	18.1
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	1.1	0.1	-	-	0	-	-	0.4

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	41	407	476	63	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	7	5	4	2	8	33
Mvmt Flow	45	447	523	69	0	0

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	592	0	-	0	1095	558
Stage 1	-	-	-	-	558	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	4.17	-	-	-	6.48	6.53
Critical Hdwy Stg 1	-	-	-	-	5.48	-
Critical Hdwy Stg 2	-	-	-	-	5.48	-
Follow-up Hdwy	2.263	-	-	-	3.572	3.597
Pot Cap-1 Maneuver	960	-	-	-	230	475
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	960	-	-	-	216	475
Mov Cap-2 Maneuver	-	-	-	-	216	-
Stage 1	-	-	-	-	561	-
Stage 2	-	-	-	-	538	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	960	-	-	-	-
HCM Lane V/C Ratio	0.047	-	-	-	-
HCM Control Delay (s)	8.9	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.1	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	0	0	104	0	0	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	92	84	92	92	92	84	84	92	92	84	84
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	0	0	0	0	0	0	0	124	0	0	29	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	153	153	29	153	153	124	29	0	0	124	0	0
Stage 1	29	29	-	124	124	-	-	-	-	-	-	-
Stage 2	124	124	-	29	29	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	819	739	1052	814	739	927	1597	-	-	1463	-	-
Stage 1	993	871	-	880	793	-	-	-	-	-	-	-
Stage 2	885	793	-	988	871	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	819	739	1052	814	739	927	1597	-	-	1463	-	-
Mov Cap-2 Maneuver	819	739	-	814	739	-	-	-	-	-	-	-
Stage 1	993	871	-	880	793	-	-	-	-	-	-	-
Stage 2	885	793	-	988	871	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1597	-	-	-	-	1463	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	104	24	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	0	0	124	29	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	153	29	29	0	-	0
Stage 1	29	-	-	-	-	-
Stage 2	124	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	843	1052	1597	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	843	1052	1597	-	-	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1597	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	84	0	0	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	118	0	0	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	167	118	0	0	118	0
Stage 1	118	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	828	939	-	-	1483	-
Stage 1	912	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	939	-	-	1483	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	912	-	-	-	-	-
Stage 2	979	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1483	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	14	134	599	18	165	760
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	3	4	2	5	4
Mvmt Flow	15	140	624	19	172	792

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1373	321	0	0	643	0
Stage 1	633	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	-	-	2.25	-
Pot Cap-1 Maneuver	229	772	-	-	918	-
Stage 1	524	-	-	-	-	-
Stage 2	466	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	153	772	-	-	918	-
Mov Cap-2 Maneuver	153	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	310	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	2.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	558	918	-
HCM Lane V/C Ratio	-	-	0.276	0.187	-
HCM Control Delay (s)	-	-	13.9	9.8	1.1
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.1	0.7	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	90	93	9	100	48	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	3	2	2	2	0
Mvmt Flow	94	97	9	104	50	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	191	0	265	142
Stage 1	-	-	-	-	142	-
Stage 2	-	-	-	-	123	-
Critical Hdwy	-	-	4.12	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.3
Pot Cap-1 Maneuver	-	-	1383	-	724	911
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	902	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1383	-	719	911
Mov Cap-2 Maneuver	-	-	-	-	719	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	896	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	741	-	-	1383	-
HCM Lane V/C Ratio	0.079	-	-	0.007	-
HCM Control Delay (s)	10.3	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection

Int Delay, s/veh 4.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	363	0	0	466	11	11	10	17	68	0	84
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	1	0	1
Mvmt Flow	14	395	0	0	507	12	12	11	18	74	0	91

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	518	0	0	395	0	0	981	941	395	951	936	513
Stage 1	-	-	-	-	-	-	423	423	-	513	513	-
Stage 2	-	-	-	-	-	-	558	518	-	438	423	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.11	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.509	4	3.309
Pot Cap-1 Maneuver	1058	-	-	1175	-	-	231	265	659	241	267	563
Stage 1	-	-	-	-	-	-	613	591	-	546	539	-
Stage 2	-	-	-	-	-	-	518	536	-	599	591	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1058	-	-	1175	-	-	191	260	659	224	262	563
Mov Cap-2 Maneuver	-	-	-	-	-	-	191	260	-	224	262	-
Stage 1	-	-	-	-	-	-	603	581	-	537	539	-
Stage 2	-	-	-	-	-	-	434	536	-	562	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	18.3	25.6
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	312	1058	-	-	1175	-	-	336
HCM Lane V/C Ratio	0.132	0.013	-	-	-	-	-	0.492
HCM Control Delay (s)	18.3	8.4	0	-	0	-	-	25.6
HCM Lane LOS	C	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	2.6

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	27	421	468	72	72	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	8	2	3	0	0	33
Mvmt Flow	30	468	520	80	80	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	600	0	-	0	1088	560
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	528	-
Critical Hdwy	4.18	-	-	-	6.4	6.53
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.272	-	-	-	3.5	3.597
Pot Cap-1 Maneuver	948	-	-	-	241	473
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	596	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	948	-	-	-	231	473
Mov Cap-2 Maneuver	-	-	-	-	231	-
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	570	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	28
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	948	-	-	-	245
HCM Lane V/C Ratio	0.032	-	-	-	0.367
HCM Control Delay (s)	8.9	0	-	-	28
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	1.6

Intersection

Int Delay, s/veh 0.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	0	1	93	0	0	81	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	92	77	92	92	92	77	77	92	92	77	77
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	0	0	0	0	0	0	1	121	0	0	105	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	228	228	105	228	228	121	105	0	0	121	0	0
Stage 1	105	105	-	123	123	-	-	-	-	-	-	-
Stage 2	123	123	-	105	105	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	731	671	955	727	671	930	1499	-	-	1467	-	-
Stage 1	906	808	-	881	794	-	-	-	-	-	-	-
Stage 2	886	794	-	901	808	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	730	670	955	726	670	930	1499	-	-	1467	-	-
Mov Cap-2 Maneuver	730	670	-	726	670	-	-	-	-	-	-	-
Stage 1	905	808	-	880	793	-	-	-	-	-	-	-
Stage 2	885	793	-	901	808	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	0.1	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1499	-	-	-	-	1467	-	-
HCM Lane V/C Ratio	0.001	-	-	-	-	-	-	-
HCM Control Delay (s)	7.4	0	-	0	0	0	-	-
HCM Lane LOS	A	A	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	5	94	81	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	0	7	124	107	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	244	107	107	0	-	0
Stage 1	107	-	-	-	-	-
Stage 2	137	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	749	953	1497	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	895	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	745	953	1497	-	-	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	922	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1497	-	-	-	-
HCM Lane V/C Ratio	0.004	-	-	-	-
HCM Control Delay (s)	7.4	0	0	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	33	1	3	152
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	0	37	1	3	171

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	216	38	0	0	38	0
Stage 1	38	-	-	-	-	-
Stage 2	178	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	777	1040	-	-	1585	-
Stage 1	990	-	-	-	-	-
Stage 2	858	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	775	1040	-	-	1585	-
Mov Cap-2 Maneuver	775	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	856	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1585	-
HCM Lane V/C Ratio	-	-	-	0.002	-
HCM Control Delay (s)	-	-	0	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	36	213	835	5	65	382
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	21	5	5	0	9	10
Mvmt Flow	41	242	949	6	74	434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1317	477	0	0	955	0
Stage 1	952	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.28	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.71	3.35	-	-	2.29	-
Pot Cap-1 Maneuver	237	651	-	-	674	-
Stage 1	356	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	203	651	-	-	674	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.7	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	203	651	674	-
HCM Lane V/C Ratio	-	-	0.202	0.372	0.11	-
HCM Control Delay (s)	-	-	27.2	13.8	11	0.6
HCM Lane LOS	-	-	D	B	B	A
HCM 95th %tile Q(veh)	-	-	0.7	1.7	0.4	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	31	39	2	166	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	10	4	14	2	5	0
Mvmt Flow	35	44	2	189	94	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	80	0	250	57
Stage 1	-	-	-	-	57	-
Stage 2	-	-	-	-	193	-
Critical Hdwy	-	-	4.24	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.326	-	3.545	3.3
Pot Cap-1 Maneuver	-	-	1445	-	732	1015
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	833	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1445	-	731	1015
Mov Cap-2 Maneuver	-	-	-	-	731	-
Stage 1	-	-	-	-	958	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	731	-	-	1445	-
HCM Lane V/C Ratio	0.129	-	-	0.002	-
HCM Control Delay (s)	10.7	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	46	416	0	0	479	20	20	20	37	12	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	49	447	0	0	515	22	22	22	40	13	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	537	0	0	447	0	0	1085	1083	447	1103	1072	526
Stage 1	-	-	-	-	-	-	546	546	-	526	526	-
Stage 2	-	-	-	-	-	-	539	537	-	577	546	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1041	-	-	1124	-	-	196	219	616	190	222	556
Stage 1	-	-	-	-	-	-	526	521	-	539	532	-
Stage 2	-	-	-	-	-	-	530	526	-	506	521	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	1124	-	-	178	205	616	156	208	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	205	-	156	208	-
Stage 1	-	-	-	-	-	-	493	488	-	505	532	-
Stage 2	-	-	-	-	-	-	504	526	-	424	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	22.7	18.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	1041	-	-	1124	-	-	304
HCM Lane V/C Ratio	0.291	0.048	-	-	-	-	-	0.131
HCM Control Delay (s)	22.7	8.6	0	-	0	-	-	18.6
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	0.4

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	10	0	134	24	5	20	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	92	84	92	92	92	84	84	92	92	84	84
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	0	0	0	0	0	11	0	160	26	5	24	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	213	221	24	208	208	173	24	0	0	186	0	0
Stage 1	35	35	-	173	173	-	-	-	-	-	-	-
Stage 2	178	186	-	35	35	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	748	678	1058	749	689	871	1604	-	-	1388	-	-
Stage 1	986	866	-	829	756	-	-	-	-	-	-	-
Stage 2	828	746	-	981	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	736	675	1058	747	686	871	1604	-	-	1388	-	-
Mov Cap-2 Maneuver	736	675	-	747	686	-	-	-	-	-	-	-
Stage 1	986	863	-	829	756	-	-	-	-	-	-	-
Stage 2	818	746	-	977	863	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.2	0	1.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1604	-	-	-	871	1388	-	-
HCM Lane V/C Ratio	-	-	-	-	0.012	0.004	-	-
HCM Control Delay (s)	0	-	-	0	9.2	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	0	126	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	0	0	150	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	150	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	150	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	847	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	883	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	847	-	-	-	-	-
Mov Cap-2 Maneuver	847	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	883	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	87	0	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	123	0	0	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	123	0	0	123	0
Stage 1	123	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	821	933	-	-	1477	-
Stage 1	907	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	821	933	-	-	1477	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1477	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	83	215	617	25	177	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	3	4	2	5	4
Mvmt Flow	86	224	643	26	184	818

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1434	334	0	0	669	0
Stage 1	656	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	-	-	2.25	-
Pot Cap-1 Maneuver	213	761	-	-	897	-
Stage 1	511	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	133	761	-	-	897	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	279	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.5	0	2.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	133	761	897	-
HCM Lane V/C Ratio	-	-	0.65	0.294	0.206	-
HCM Control Delay (s)	-	-	72.1	11.7	10	1.3
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	3.5	1.2	0.8	-

Intersection

Int Delay, s/veh 1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	106	96	9	249	49	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	3	2	2	2	0
Mvmt Flow	110	100	9	259	51	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	210	0	438	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	-	-	4.12	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.3
Pot Cap-1 Maneuver	-	-	1361	-	576	890
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	769	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	571	890
Mov Cap-2 Maneuver	-	-	-	-	571	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	763	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	601	-	-	1361	-
HCM Lane V/C Ratio	0.099	-	-	0.007	-
HCM Control Delay (s)	11.6	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	401	0	0	483	13	11	10	17	70	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	1	0	1
Mvmt Flow	14	436	0	0	525	14	12	11	18	76	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	539	0	0	436	0	0	1043	1003	436	1011	996	532
Stage 1	-	-	-	-	-	-	464	464	-	532	532	-
Stage 2	-	-	-	-	-	-	579	539	-	479	464	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.11	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.509	4	3.309
Pot Cap-1 Maneuver	1040	-	-	1134	-	-	209	244	625	219	246	549
Stage 1	-	-	-	-	-	-	582	567	-	533	529	-
Stage 2	-	-	-	-	-	-	504	525	-	570	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1040	-	-	1134	-	-	171	240	625	202	242	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	240	-	202	242	-
Stage 1	-	-	-	-	-	-	572	557	-	523	529	-
Stage 2	-	-	-	-	-	-	417	525	-	533	557	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	19.8	29.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	1040	-	-	1134	-	-	311
HCM Lane V/C Ratio	0.145	0.014	-	-	-	-	-	0.549
HCM Control Delay (s)	19.8	8.5	0	-	0	-	-	29.8
HCM Lane LOS	C	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	3.1

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	122	1	115	55	14	70	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	92	77	92	92	92	77	77	92	92	77	77
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	0	0	0	0	0	133	1	149	60	15	91	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	369	333	91	303	303	179	91	0	0	209	0	0
Stage 1	121	121	-	182	182	-	-	-	-	-	-	-
Stage 2	248	212	-	121	121	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	591	587	972	649	610	864	1517	-	-	1362	-	-
Stage 1	888	796	-	820	749	-	-	-	-	-	-	-
Stage 2	760	727	-	883	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	495	579	972	643	602	864	1517	-	-	1362	-	-
Mov Cap-2 Maneuver	495	579	-	643	602	-	-	-	-	-	-	-
Stage 1	887	786	-	819	748	-	-	-	-	-	-	-
Stage 2	643	726	-	872	786	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.9	0	1.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	-	864	1362	-	-
HCM Lane V/C Ratio	0.001	-	-	-	0.153	0.011	-	-
HCM Control Delay (s)	7.4	0	-	0	9.9	7.7	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.5	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	0	0	5	167	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	0	7	220	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	233	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	233	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	760	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	760	-	-	-	-	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	810	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0		0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	-	-
HCM Lane LOS	-	-	A	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	34	1	3	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	0	38	1	3	176

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	222	39	0	0	39	0
Stage 1	39	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	771	1038	-	-	1584	-
Stage 1	989	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	769	1038	-	-	1584	-
Mov Cap-2 Maneuver	769	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	851	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1584	-
HCM Lane V/C Ratio	-	-	-	0.002	-
HCM Control Delay (s)	-	-	0	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	37	213	835	5	66	382
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	21	5	5	0	9	10
Mvmt Flow	42	242	949	6	75	434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1319	477	0	0	955	0
Stage 1	952	-	-	-	-	-
Stage 2	367	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.28	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.71	3.35	-	-	2.29	-
Pot Cap-1 Maneuver	237	651	-	-	674	-
Stage 1	356	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	202	651	-	-	674	-
Mov Cap-2 Maneuver	202	-	-	-	-	-
Stage 1	356	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	2.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	202	651	674	-
HCM Lane V/C Ratio	-	-	0.208	0.372	0.111	-
HCM Control Delay (s)	-	-	27.4	13.8	11	0.6
HCM Lane LOS	-	-	D	B	B	A
HCM 95th %tile Q(veh)	-	-	0.8	1.7	0.4	-

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	32	39	2	167	83	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	10	4	14	2	5	0
Mvmt Flow	36	44	2	190	94	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	81	0	253	59
Stage 1	-	-	-	-	59	-
Stage 2	-	-	-	-	194	-
Critical Hdwy	-	-	4.24	-	6.45	6.2
Critical Hdwy Stg 1	-	-	-	-	5.45	-
Critical Hdwy Stg 2	-	-	-	-	5.45	-
Follow-up Hdwy	-	-	2.326	-	3.545	3.3
Pot Cap-1 Maneuver	-	-	1444	-	729	1012
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	832	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1444	-	728	1012
Mov Cap-2 Maneuver	-	-	-	-	728	-
Stage 1	-	-	-	-	956	-
Stage 2	-	-	-	-	830	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	728	-	-	1444	-
HCM Lane V/C Ratio	0.13	-	-	0.002	-
HCM Control Delay (s)	10.7	-	-	7.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	46	416	0	0	479	20	20	20	37	12	0	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	5	0	0	0	0	0	0	0
Mvmt Flow	49	447	0	0	515	22	22	22	40	13	0	27

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	537	0	0	447	0	0	1085	1083	447	1103	1072	526
Stage 1	-	-	-	-	-	-	546	546	-	526	526	-
Stage 2	-	-	-	-	-	-	539	537	-	577	546	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1041	-	-	1124	-	-	196	219	616	190	222	556
Stage 1	-	-	-	-	-	-	526	521	-	539	532	-
Stage 2	-	-	-	-	-	-	530	526	-	506	521	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1041	-	-	1124	-	-	178	205	616	156	208	556
Mov Cap-2 Maneuver	-	-	-	-	-	-	178	205	-	156	208	-
Stage 1	-	-	-	-	-	-	493	488	-	505	532	-
Stage 2	-	-	-	-	-	-	504	526	-	424	488	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0	22.7	18.6
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	1041	-	-	1124	-	-	304
HCM Lane V/C Ratio	0.291	0.048	-	-	-	-	-	0.131
HCM Control Delay (s)	22.7	8.6	0	-	0	-	-	18.6
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	1.2	0.1	-	-	0	-	-	0.4

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	0	0	0	10	0	135	24	5	20	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	92	84	92	92	92	84	84	92	92	84	84
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	0	0	0	0	0	11	0	161	26	5	24	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	214	222	24	209	210	174	25	0	0	187	0	0
Stage 1	35	35	-	174	174	-	-	-	-	-	-	-
Stage 2	179	187	-	35	36	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	747	677	1058	748	687	869	1603	-	-	1387	-	-
Stage 1	986	866	-	828	755	-	-	-	-	-	-	-
Stage 2	827	745	-	981	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	735	674	1058	746	684	869	1603	-	-	1387	-	-
Mov Cap-2 Maneuver	735	674	-	746	684	-	-	-	-	-	-	-
Stage 1	986	863	-	828	755	-	-	-	-	-	-	-
Stage 2	817	745	-	977	862	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	9.2	0	1.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1603	-	-	-	869	1387	-	-
HCM Lane V/C Ratio	-	-	-	-	0.013	0.004	-	-
HCM Control Delay (s)	0	-	-	0	9.2	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	1	0	5	126	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	1	0	6	150	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	162	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	162	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	834	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	872	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	834	-	-	-	-	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	872	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s			0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	0	87	0	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	0	123	0	0	51

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	174	123	0	0	123	0
Stage 1	123	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	821	933	-	-	1477	-
Stage 1	907	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	821	933	-	-	1477	-
Mov Cap-2 Maneuver	821	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1477	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	85	216	617	25	177	785
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	3	4	2	5	4
Mvmt Flow	89	225	643	26	184	818

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1434	334	0	0	669	0
Stage 1	656	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Critical Hdwy	5.5	5.4	-	-	4.2	-
Critical Hdwy Stg 1	5.5	-	-	-	-	-
Critical Hdwy Stg 2	5.5	-	-	-	-	-
Follow-up Hdwy	3.5	3.33	-	-	2.25	-
Pot Cap-1 Maneuver	213	761	-	-	897	-
Stage 1	511	-	-	-	-	-
Stage 2	447	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	133	761	-	-	897	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	511	-	-	-	-	-
Stage 2	279	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	29.3	0	2.9
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	133	761	897	-
HCM Lane V/C Ratio	-	-	0.666	0.296	0.206	-
HCM Control Delay (s)	-	-	74.2	11.7	10	1.3
HCM Lane LOS	-	-	F	B	B	A
HCM 95th %tile Q(veh)	-	-	3.6	1.2	0.8	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	106	96	9	251	50	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	6	3	2	2	2	0
Mvmt Flow	110	100	9	261	52	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	210	0	440	160
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	280	-
Critical Hdwy	-	-	4.12	-	6.42	6.2
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.3
Pot Cap-1 Maneuver	-	-	1361	-	574	890
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1361	-	569	890
Mov Cap-2 Maneuver	-	-	-	-	569	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	761	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	599	-	-	1361	-
HCM Lane V/C Ratio	0.101	-	-	0.007	-
HCM Control Delay (s)	11.7	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	401	0	0	483	13	11	10	17	70	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	3	0	0	3	0	0	0	0	1	0	1
Mvmt Flow	14	436	0	0	525	14	12	11	18	76	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	539	0	0	436	0	0	1043	1003	436	1011	996	532
Stage 1	-	-	-	-	-	-	464	464	-	532	532	-
Stage 2	-	-	-	-	-	-	579	539	-	479	464	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.11	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.11	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.509	4	3.309
Pot Cap-1 Maneuver	1040	-	-	1134	-	-	209	244	625	219	246	549
Stage 1	-	-	-	-	-	-	582	567	-	533	529	-
Stage 2	-	-	-	-	-	-	504	525	-	570	567	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1040	-	-	1134	-	-	171	240	625	202	242	549
Mov Cap-2 Maneuver	-	-	-	-	-	-	171	240	-	202	242	-
Stage 1	-	-	-	-	-	-	572	557	-	523	529	-
Stage 2	-	-	-	-	-	-	417	525	-	533	557	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	19.8	29.8
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	1040	-	-	1134	-	-	311
HCM Lane V/C Ratio	0.145	0.014	-	-	-	-	-	0.549
HCM Control Delay (s)	19.8	8.5	0	-	0	-	-	29.8
HCM Lane LOS	C	A	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.5	0	-	-	0	-	-	3.1

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	0	0	0	122	1	116	58	14	70	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	92	77	92	92	92	77	77	92	92	77	77
Heavy Vehicles, %	0	2	0	2	2	2	0	1	2	2	0	0
Mvmt Flow	1	0	0	0	0	133	1	151	63	15	91	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	372	337	91	306	306	182	91	0	0	214	0	0
Stage 1	121	121	-	185	185	-	-	-	-	-	-	-
Stage 2	251	216	-	121	121	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	589	584	972	646	608	861	1517	-	-	1356	-	-
Stage 1	888	796	-	817	747	-	-	-	-	-	-	-
Stage 2	758	724	-	883	796	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	493	576	972	640	600	861	1517	-	-	1356	-	-
Mov Cap-2 Maneuver	493	576	-	640	600	-	-	-	-	-	-	-
Stage 1	887	786	-	816	746	-	-	-	-	-	-	-
Stage 2	641	723	-	872	786	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	9.9	0	1.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1517	-	-	493	861	1356	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.154	0.011	-	-
HCM Control Delay (s)	7.4	0	-	12.3	9.9	7.7	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	4	0	6	167	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	76	76	76	76	76	76
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	5	0	8	220	0	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	236	0	0	0	-	0
Stage 1	0	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	757	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	808	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	757	-	-	-	-	-
Mov Cap-2 Maneuver	757	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	808	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s			0
HCM LOS	-		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	0	1	34	1	3	157
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	1
Mvmt Flow	0	1	38	1	3	176

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	222	39	0	0	39	0
Stage 1	39	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	771	1038	-	-	1584	-
Stage 1	989	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	769	1038	-	-	1584	-
Mov Cap-2 Maneuver	769	-	-	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	851	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	0.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	1038	1584	-
HCM Lane V/C Ratio	-	-	0.001	0.002	-
HCM Control Delay (s)	-	-	8.5	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

□ Parking Analysis

March 2017 Pipefitters Parking Observations

	Available		11:00	12:00	1:00	5:00	6:00	7:00	8:00
Pipefitters Corner Lot	15		8	8	7	14	12	10	11
Pipefitter Enterprise Lot	29		8	10	4	17	5	22	22
Pipefitter Clapp Lot	42		26	29	18	48	6	32	36
Enterprise Street			20	21	20	42	35	39	41
Clapp Street			23	24	18	37	29	22	25
Plumbers West Lot			19	15	19	19	19	3	4
Plumbers Clapp Lot			16	11	17	29	29	5	6
Plumbers East Lot			17	18	20	14	17	12	10
Mass Ave North Bos-Clapp			8	12	12	16	20	20	18
Mass Ave North Clapp-Allstate			13	13	15	14	15	5	5
Mass Ave South			9	7	6	4	9	12	16
Boston East Mass - Enterprise			15	15	15	13	13	15	11
Boston East Enterprise - W Howell			24	23	22	20	23	24	29
Boston West Mass - Enterprise			13	20	17	11	16	18	18
Boston West Enterprise - W Howell			14	13	19	17	19	19	21
W Howell			47	49	48	43	46	48	49
Total			**280**	**288**	**277**	**358**	**313**	**306**	**322**

TDC

Transportation Data Corporation
P.O. Box 486 Norwood, MA 02062
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On-Street Parking Inventory & Usage by Zone
Dorchester, MA
Monday, December 21, 2015
6:00-8:00 PM
Client: MDM Transportation Consultants/Daniel Dumais #804

804 - Boston (Edens)	2 - Hour Parking Study		1 - Hour Parking Study		Handicapped		Unregulated		Resident Permit	
Street	Availability	Usage	Availability	Usage		Usage	Availability	Usage	Availability	Usage
Dorchester Avenue	176	76	0		1		0		0	
Boston Street	11	8	12	5	1		96	58	66	38
Rawson Street	0		0		0		0		24	19
Washburn Street	12	12	0		1	1	0		44	33
Howell Street	6	6	2	Aqua Blue 10	1	2	0		42	26
Bellflower Street	4	4	0		5	1	0		46	31
Dorset Street	15	10	0		2		0		57	38
Harvest Street	4	4	0		2	2	0		70	40
Mt. Vernon Street	18	13	0		0		0		81	62
St. Margaret Street	12	10	0		1	1	0		75	55
Mayhew Street	4	5	0		0		0		71	27
Roseclair Street	24	18	0		3		0		74	64
W. Howell Street	0		0		0		49	34	0	
W. Bellflower Street	0		0		0		22	12	0	
Enterprise Street	0		0		0		50	13	0	
Clapp Street	0		0		0		42	5	0	
Willow Court	0		0		0		0		0	
Massachusetts Avenue	53	16	0		4		71	10	0	
Newmarket Square	76	1	0		2		30		0	
Allstate		0								
Total	415	183	14	5	23	7	360	132	650	433

Weekday Midday 12-2 PM

920 - Dorchester (Pipefitters)		2 - Hour Parking Study				
Street		**Availability**		**Usage**		**Open**
Dorchester Avenue		176		89		87
Boston Street		11		8		3
Rawson Street		0		0		0
Washburn Street		12		9		3
Howell Street		6		2		4
Bellflower Street		4		0		4
Dorset Street		15		10		5
Harvest Street		4		0		4
Mt. Vernon Street		18		3		15
St. Margaret Street		12		3		9
Mayhew Street		4		3		1
Roseclair Street		24		14		10
W. Howell Street		0		0		0
W. Bellflower Street		0		0		0
Enterprise Street		0		0		0
Clapp Street		0		0		0
Willow Court		0		0		0
Massachusetts Avenue		53		17		36
Newmarket Square		76		76		0
Total		415		234		181
			*** # of Open Spaces**			**165**

* Number of open spaces includes a conservative assumption of a fire hydrant per an average 240 ft.

Weekday Midday 12-2 PM

920 - Dorchester (Pipefitters)		1 - Hour Parking Study				
Street		**Availability**		**Usage**		**Open**
Dorchester Avenue		0		0		0
Boston Street		12		2		10
Rawson Street		0		0		0
Washburn Street		0		0		0
Howell Street		2		2		0
Bellflower Street		0		0		0
Dorset Street		0		0		0
Harvest Street		0		0		0
Mt. Vernon Street		0		0		0
St. Margaret Street		0		0		0
Mayhew Street		0		0		0
Roseclair Street		0		0		0
W. Howell Street		0		0		0
W. Bellflower Street		0		0		0
Enterprise Street		0		0		0
Clapp Street		0		0		0
Willow Court		0		0		0
Massachusetts Avenue		0		0		0
Newmarket Square		0		0		0
Total		14		4		10
			*** # of Open Spaces**			**9**

* Number of open spaces includes a conservative assumption of a fire hydrant per an average 240 ft.

Weekday Midday 12-2 PM

920 - Dorchester (Pipefitters)		Handicap Parking Study				
Street		**Availability**		**Usage**		**Open**
Dorchester Avenue		1		N/A		N/A
Boston Street		1		N/A		N/A
Rawson Street		0		N/A		N/A
Washburn Street		1		N/A		N/A
Howell Street		1		N/A		N/A
Bellflower Street		5		N/A		N/A
Dorset Street		2		N/A		N/A
Harvest Street		2		N/A		N/A
Mt. Vernon Street		0		N/A		N/A
St. Margaret Street		1		N/A		N/A
Mayhew Street		0		N/A		N/A
Roseclair Street		3		N/A		N/A
W. Howell Street		0		N/A		N/A
W. Bellflower Street		0		N/A		N/A
Enterprise Street		0		N/A		N/A
Clapp Street		0		N/A		N/A
Willow Court		0		N/A		N/A
Massachusetts Avenue		4		N/A		N/A
Newmarket Square		2		N/A		N/A
Total		**23**				

Weekday Midday 12-2 PM

920 - Dorchester (Pipefitters)		Unregulated Parking Study				
Street		**Availability**		**Usage**		**Open**
Dorchester Avenue		0		0		0
Boston Street		96		73		23
Rawson Street		0		0		0
Washburn Street		0		0		0
Howell Street		0		0		0
Bellflower Street		0		0		0
Dorset Street		0		0		0
Harvest Street		0		0		0
Mt. Vernon Street		0		0		0
St. Margaret Street		0		0		0
Mayhew Street		0		0		0
Roseclair Street		0		0		0
W. Howell Street		49		20		29
W. Bellflower Street		22		7		15
Enterprise Street		50		37		13
Clapp Street		42		12		30
Willow Court		0		0		0
Massachusetts Avenue		71		48		23
Newmarket Square		30		20		10
Total		360		217		143
			*** # of Open Spaces**			**130**

* Number of open spaces includes a conservative assumption of a fire hydrant per an average 240 ft.

Weekday Midday 12-2 PM

920 - Dorchester (Pipefitters)		Permit Only Parking Study				
Street		**Availability**		**Usage**		**Open**
Dorchester Avenue		0		0		0
Boston Street		66		9		57
Rawson Street		24		9		15
Washburn Street		44		22		22
Howell Street		42		20		22
Bellflower Street		46		25		21
Dorset Street		57		18		39
Harvest Street		70		24		46
Mt. Vernon Street		81		29		52
St. Margaret Street		75		27		48
Mayhew Street		71		32		39
Roseclair Street		74		50		24
W. Howell Street		0		0		0
W. Bellflower Street		0		0		0
Enterprise Street		0		0		0
Clapp Street		0		0		0
Willow Court		0		0		0
Massachusetts Avenue		0		0		0
Newmarket Square		0		0		0
Total		650		265		385
			*** # of Open Spaces**			**350**

* Number of open spaces includes a conservative assumption of a fire hydrant per an average 240 ft.

Appendix C

Climate Change Checklist

Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at http://www.cityofboston.gov/climate

In advance we thank you for your time and assistance in advancing best practices in Boston.

Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment (www.climatechoices.org/ne/)
2. USGCRP 2009 (http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/)
3. Army Corps of Engineers guidance on sea level rise (http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr*, Kara S. Doran and Peter A. Howd, 2012 (http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf)
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 (http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf)

Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

Please Note: When initiating a new project, please visit the BRA web site for the most current Climate Change Preparedness & Resiliency Checklist.

A.1 - Project Information

Project Name:	**Local 537 Pipefitters New Training and Office Facility**
Project Address Primary:	**40 Enterprise Street, Boston MA**
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	**UA Local 537 Pipefitters Union**

A.2 - Team Description

Owner / Developer:	**UA Local 537 Pipefitters Union**
Architect:	**SGA**
Engineer (building systems):	**McNamara Salvia**
Sustainability / LEED:	**The Green Engineer**
Permitting:	**Epsilon Associates, Inc.**
Construction Management:	**Moriarty and Janey – a joint venture**
Climate Change Expert:	**Epsilon Associates, Inc.**

A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

☑ PNF / Expanded PNF Submission	☐ Draft / Final Project Impact Report Submission	☐ BRA Board Approved	☐ Notice of Project Change
☐ Planned Development Area	☐ BRA Final Design Approved	☐ Under Construction	☐ Construction just completed:

A.4 - Building Classification and Description

List the principal Building Uses:	*Educational, business, factory*
List the First Floor Uses:	*Training school administration, training facility, display lobby, parking and mechanical rooms*

What is the principal Construction Type – select most appropriate type?

☐ Wood Frame	☐ Masonry	☑ Steel Frame	☐ Concrete

Describe the building?

Site Area:	*73,240 SF*	Building Area:	*70,000 SF*
Building Height:	*65 Ft.*	Number of Stories:	*4 Flrs.*
First Floor Elevation (reference Boston City	*13.11 ft BCB Elev.*	Are there below grade spaces/levels, if yes how many:	*None*

Base):		

A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:	☐ New Construction	☐ Core & Shell	☐ Healthcare	☐ Schools
	☐ Retail	☐ Homes Midrise	☐ Homes	☐ Other
Select LEED Outcome:	☐ Certified	☑ Silver	☐ Gold	☐ Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:	*Yes*	Certified:	*Yes*

A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:	*1168 (kW)[1]*	Heating:	*2.1 (MMBtu/hr)[1]*
What is the planned building Energy Use Intensity:	*16 (W/SF)* *66 (kbtu/SF/year)*	Cooling:	*260 (Tons/hr)[1]*

1 Final loads to be determined as the design progresses.

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:	*(kW)*	Heating:	*N/A (MMBtu/hr)*
		Cooling:	*N/A (Tons/hr)*

What is nature and source of your back-up / emergency generators? **None**

Electrical Generation:	*(kW)*		Fuel Source:	*Diesel*
System Type and Number of Units:	☐ Combustion Engine	☐ Gas Turbine	☐ Combine Heat and Power	*(Units)*

B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:	☐ 10 Years	☐ 25 Years	☑ 50 Years	☐ 75 Years

What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:	☐ 10 Years	☑ 25 Years	☐ 50 Years	☐ 75 Years

What time span of future Climate Conditions was considered?

Select most appropriate:	☐ 10 Years	☐ 25 Years	☑ 50 Years	☐ 75 Years

Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

9/91 Deg.

What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

90 Deg.	*25-90 Days*	

What Drought characteristics will be used for project planning – Duration and Frequency?

30-90 Days	*0.2 Events / yr.*

What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

45 Inches / yr.	*4 Inches*	*0.5 Events / yr.*

What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

105 Peak Wind	*Hours*	*Events / yr.*

B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code:	***10%***
How is performance determined:	**Energy Model**

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:	☑ High performance building envelop	☐ High performance lighting & controls	☑ Building day lighting	☐ EnergyStar equip. / appliances
	☑ High performance HVAC equipment	☐ Energy recovery ventilation	☐ No active cooling	☐ No active heating
Describe any added measures:	Occupancy sensors, dimming controls			

What are the insulation (R) values for building envelop elements? **TBD**

Roof:	*R =*	Walls / Curtain Wall Assembly:	*R =*
Foundation:	*R =*	Basement / Slab:	*R = 10*
Windows:	*R = / U =*	Doors:	*R = / U =*

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

☐ On-site clean energy / CHP system(s)	☐ Building-wide power dimming	☐ Thermal energy storage systems	☐ Ground source heat pump
☐ On-site Solar PV	☐ On-site Solar Thermal	☐ Wind power	☐ None

Describe any added measures: Building perimeter power dimming

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:

☐ Connected to local distributed electrical	☐ Building will be Smart Grid ready	☐ Connected to distributed steam, hot, chilled water	☐ Distributed thermal energy ready

Will the building remain operable without utility power for an extended period?

No		If yes, for how long:	*Days*

If Yes, is building "Islandable?

If Yes, describe strategies:

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:

☐ Solar oriented – longer south walls	☐ Prevailing winds oriented	☐ External shading devices	☐ Tuned glazing,
☐ Building cool zones	☐ Operable windows	☐ Natural ventilation	☐ Building shading
☐ Potable water for drinking / food preparation	☐ Potable water for sinks / sanitary systems	☑ Waste water storage capacity	☑ High Performance Building Envelop

Describe any added measures:

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:

☐ High reflective paving materials	☑ Shade trees & shrubs	☑ High reflective roof materials	☐ Vegetated roofs

Describe other strategies:

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:

☐ On-site retention systems & ponds	☑ Infiltration galleries & areas	☐ Vegetated water capture systems	☐ Vegetated roofs

Describe other strategies:

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:	☐ Hardened building structure & elements	☐ Buried utilities & hardened infrastructure	☐ Hazard removal & protective landscapes	☐ Soft & permeable surfaces (water infiltration)
Describe other strategies:				

C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

C.1 - Location Description and Classification:

Do you believe the building to susceptible to flooding now or during the full expected life of the building?

No

Describe site conditions?

Site Elevation – Low/High Points:	*13.11 +/- BCB*
Building Proximity to Water:	*~4,095 Ft.*

Is the site or building located in any of the following?

Coastal Zone:	*No*	Velocity Zone:	*No*
Flood Zone:	*No*	Area Prone to Flooding:	*No*

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA Prelim. FIRMs:	*No*	Future floodplain delineation updates:	*No*

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

~2,100 Ft.

If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:	*Ft.*	Frequency of storms:	*per year*

C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:		First Floor Elevation:	

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

		If Yes, to what elevation	*Boston City Base Elev. (Ft.)*
If Yes, describe:			

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

☐ Systems located above 1st Floor.	☐ Water tight utility conduits	☐ Waste water back flow prevention	☐ Storm water back flow prevention

Were the differing effects of fresh water and salt water flooding considered:

Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

	If yes, to what height above 100 Year Floodplain:	*Boston City Base Elev. (Ft.)*

Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

Yes/No	
If Yes, describe:	

Will the building remain occupiable without utility power during an extended period of inundation:

Yes/No	If Yes, for how long:	*days*

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:		☐ Hardened / Resilient Ground Floor Construction	☐ Temporary shutters and or barricades	☐ Resilient site design, materials and construction

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:		☐ Surrounding site elevation can be raised	☐ Building ground floor can be raised	☐ Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:		☐ Solar PV	☐ Solar Thermal	☐ Clean Energy / CHP System(s)
		☐ Potable water storage	☐ Wastewater storage	☐ Back up energy systems & fuel
Describe any specific or additional strategies:				

Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: John.Dalzell.BRA@cityofboston.gov

Appendix D

Accessibility Checklist

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   www.boston.gov/disability
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/pic
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

Article 80 | ACCESSIBILTY CHECKLIST

1. Project Information:

If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	**Pipefitters New Training and Office Facility**
Primary Project Address:	**40 Enterprise Street, Boston MA**
Total Number of Phases/Buildings:	**One new building**
Primary Contact (Name / Title / Company / Email / Phone):	**Brian P. Kelly** - Business Manager/Financial Secretary-Treasurer 617-825-3777 / bkelly@pipefitters537.com
Owner / Developer:	**UA Pipefitters Local 537**
Architect:	**Spagnolo Gisness & Associates, Inc.**
Civil Engineer:	**Bohler Engineering**
Landscape Architect:	**Lemon | Brooke**
Permitting:	**Epsilon Associates, Inc.**
Construction Management:	**Moriarty / Janey – A joint venture**

At what stage is the project at time of this questionnaire? Select below:

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	Yes, the Project will require relief for the roof height of the building and a rear setback.

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

What are the dimensions of the project?

Site Area:	*73,240 SF*	Building Area:	*70,000 sf*
Building Height:	*65 ft*	Number of Stories:	*4 Flrs.*
First Floor Elevation:	13.11 FT	Is there below grade space:	*Yes*

What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	**Steel Frame**	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	Institutional	**Educational**
	Business	Mercantile	**Factory**	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	*Training school administration, training facility, display lobby, parking and mechanical rooms*			

3. Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The new Local 537 Training and Office Facility will be located in neighborhood surrounded by many type of buildings. To the northeast a new housing develop is being constructed with multiple units. To the north there are several multiple family houses both new and old. To the west is Massachusetts Ave. and many commercial buildings. To the south are many multifamily houses. The site is low lying area approximately ¾ of a mile from Dorchester Bay.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	Our site has proximity to the MBTA Bus Route 8, Bus Route 10, Bus Route 16, Bus Route 17, Bus Route 18, Bus Route 41 Andrew Station on the Redline and Newmarket Station on the Fairmount Line.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Hospitals – Boston Children's Hospital, Brigham and Women's Hospital, New Baptist Hospital, Children's Hospital and CRP Boston Hospitals,
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	William E. Russell School, Pope John Paul II Catholic Academy, Roger Clap Innovation School, Boston Carpenters Apprenticeship, Saint Teresa of Calcutta Church, South Bay Plaza.

4. Surrounding Site Conditions – Existing:

This section identifies current condition of the sidewalks and pedestrian ramps at the development site.

Is the development site within a historic district? ***If yes,*** identify which district:	The site is not within a historic district.
Are there sidewalks and pedestrian	There are existing sidewalks and curb ramps at the development site. Along

ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	the Enterprise Street frontage, the pedestrian sidewalk ranges from 3.5'-5' wide and is concrete with associated granite curbing. It appears to be in good condition with some cracking. Along the Clapp Street frontage, there is an existing bituminous concrete walkway that ranges from 6'-7' in width and is in fair condition. Both sidewalks will be reconstructed with cement concrete at appropriate slopes as part of the redevelopment. The sidewalks will meet the criteria put forth by the Disabilities Commission.
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	No. New sidewalks and ramps will be constructed.
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	Yes. Industrial Street Type.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	The overall width of the sidewalk will be 7' wide with a 2% max. typ. cross slope. 6" Curb Zone, 1'-6" Greenscape / Furnishing Zone, 5' Pedestrian Zone and 0' Frontage Zone.
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	Curb Zone: granite curb – City of Boston R.O.W. Greenscape / Furnishing Zone: permeable pavers – City of Boston R.O.W. Pedestrian Zone: poured-in place concrete with broom finish. 3'-6" on City of Boston R.O.W, 1'-8" on private property.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what	No

are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	The Proponent does not presently anticipate seeking pedestrian easements within the Project site.
Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	It is unknown at this point if the proposed Project crosses any thresholds requiring PIC approval. As the design advances, if PIC approval becomes required, the Project will file the appropriate petitions and begin the formal PIC review process.
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	117 Total parking spaces
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	5 accessible spaces will be provided 1 of the 5 spaces will be Van Accessible
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	No
Where is the accessible visitor parking located?	Near entry.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	Drop-off has not been identified at this time. It will be accessible when designed.
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to*	

entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	The main entry to the building at the south east will be a flush condition, the entry to the pipefitters' work shop will be a flush condition and the parking garage entry will be a flush condition
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no****,* what is the reason?	Yes
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	The accessible routes way-finding/signage package will be developed to assist pedestrians and vehicular traffic to navigate the site safely. There will also be signage to promote inter-site connection with the new developments to the east of the site.
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	
If a residential development, how many accessible Group 2 units are being proposed?	
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible	

equipment be provided as well? ***If yes,*** provide amount and location of equipment.	
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes***, provide reason.	
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes***, describe:	
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.*	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	This is currently under review.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	All spaces will be accessible.
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	Bathrooms will be ADA compliant.

Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	The plan has not been reviewed by the Disability Advisory Board at this time.
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	No

10. Attachments

Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and

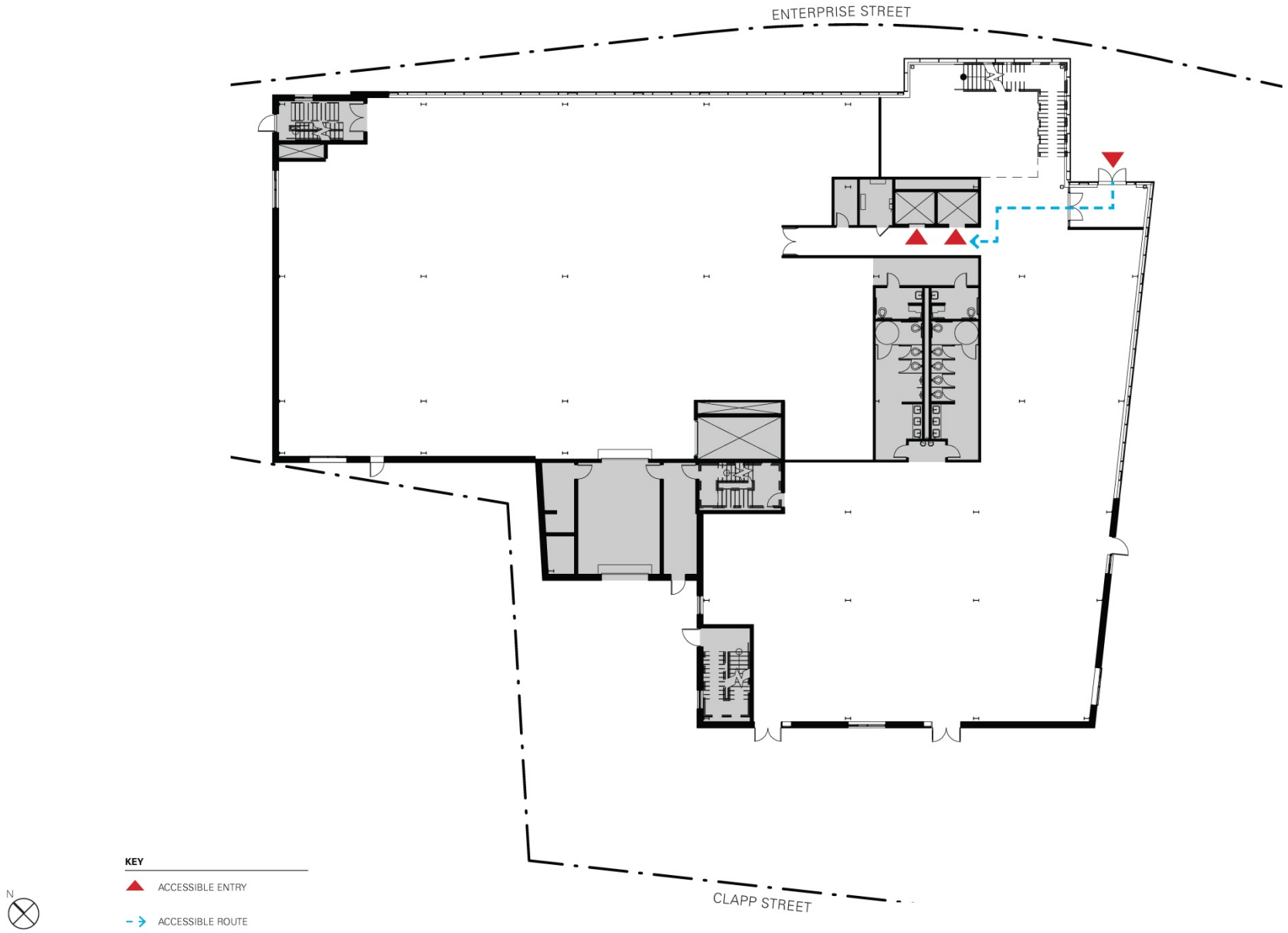
welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability, or our office:

The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02201.

Architectural Access staff can be reached at:

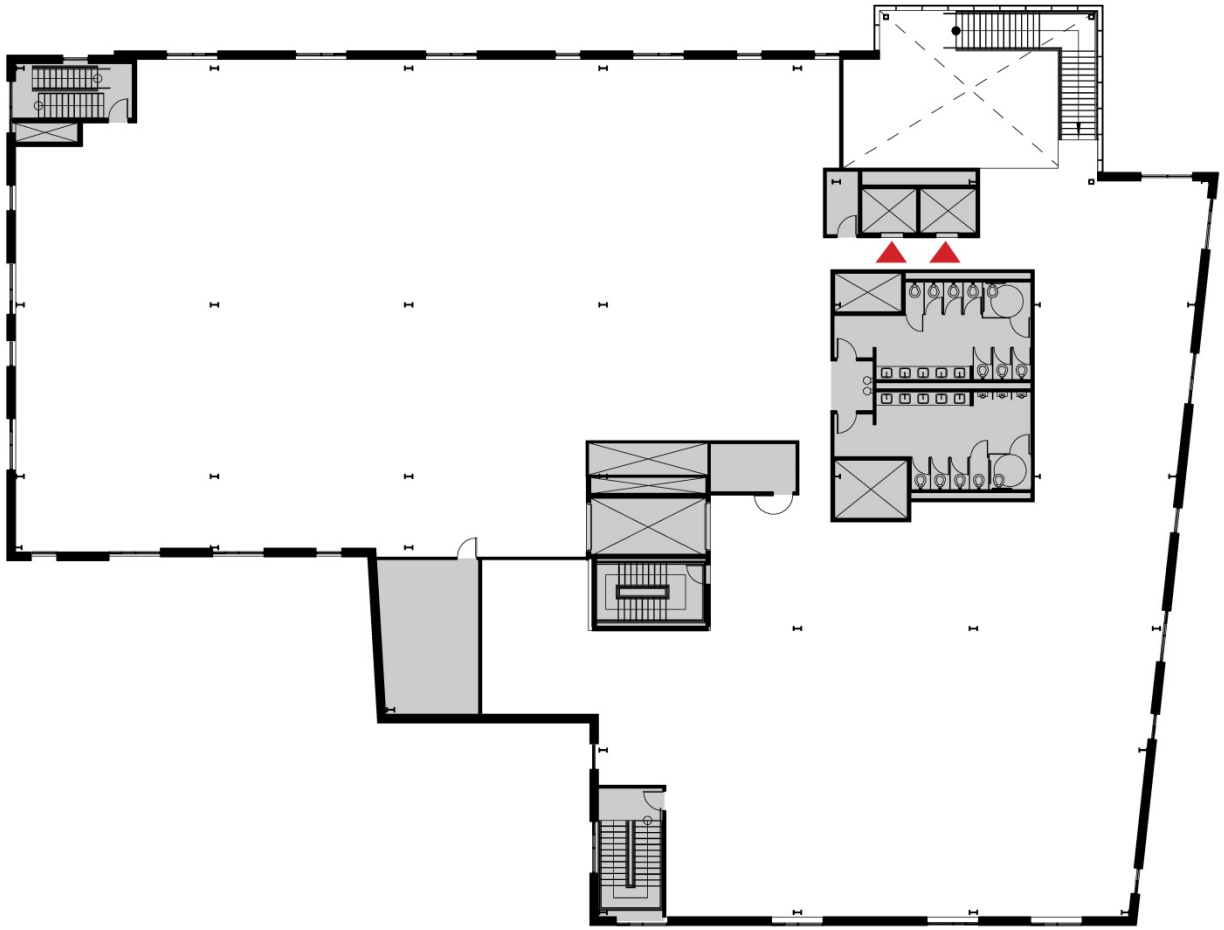
accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682



Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Attachment 1

Accessible Routes – Level 1



KEY

ACCESSIBLE ENTRY

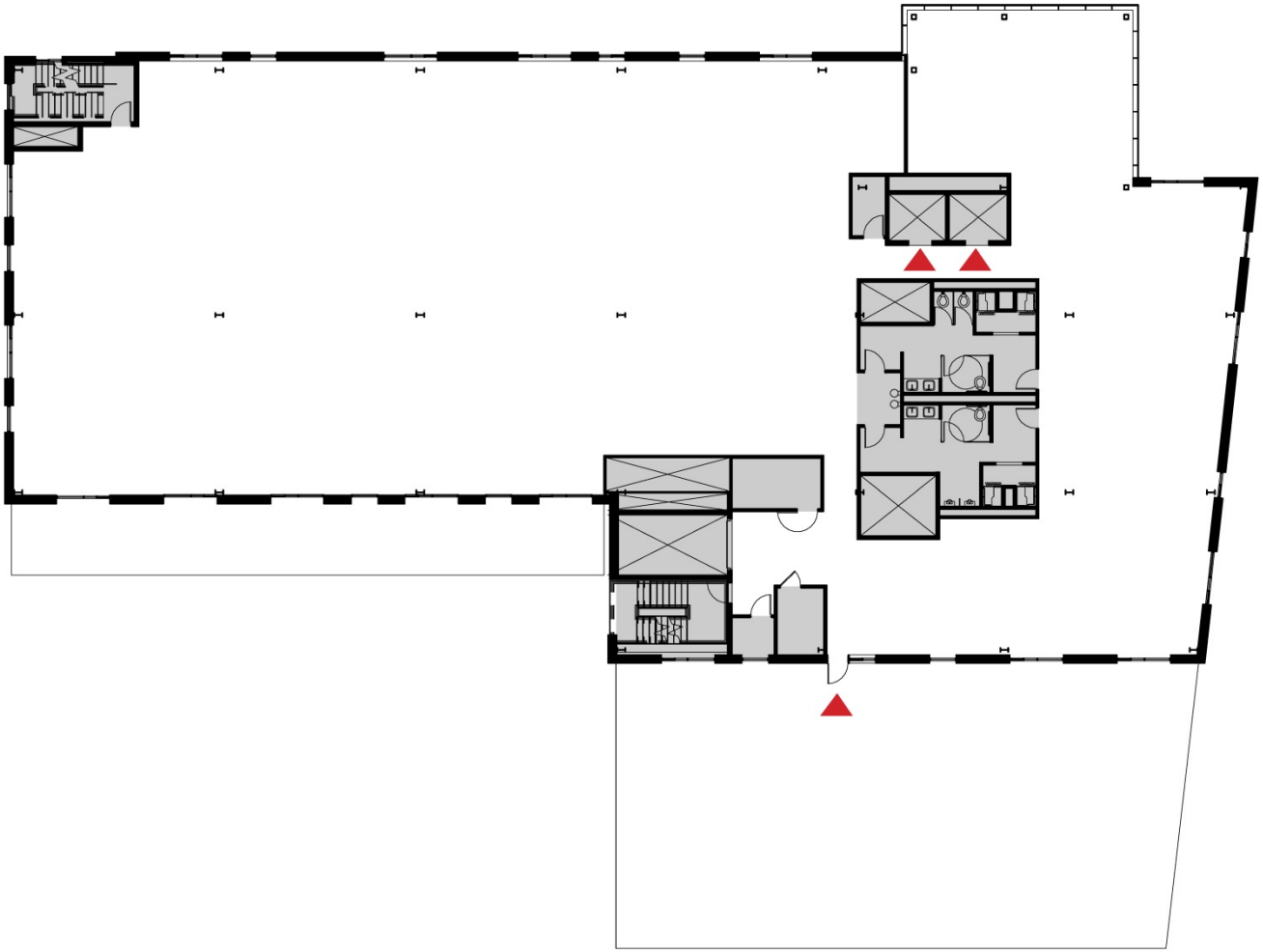
ACCESSIBLE ROUTE

N

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Attachment 2

Accessible Routes – Level 2



KEY

ACCESSIBLE ENTRY

ACCESSIBLE ROUTE

N

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Attachment 3

Accessible Routes – Level 3

KEY

ACCESSIBLE ENTRY

ACCESSIBLE ROUTE

N

Local 537 Pipefitters New Training and Office Facility Boston, Massachusetts

Attachment 4

Accessible Routes – Level 4