St. Elizabeth's Medical Center Parking Garage
Brighton, Massachusetts

Expanded Project Notification Form

August 20, 2019

submitted to the **Boston Planning & Development Agency**

submitted by **Steward Health Care**

prepared by **Fort Point Associates, Inc.**

in association with
Walker Consultants
Deborah Myers Landscape Architecture
MDM Transportation
Nitsch Engineering
Rubin and Rudman LLP

Fort Point Associates, Inc.
Urban Planning Environmental Consulting Project Permitting

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ATTACHMENTS

Chapter 1

PROJECT SUMMARY

CHAPTER 1: PROJECT SUMMARY

1.1 PROJECT IDENTIFICATION

Project Name: St. Elizabeth's Medical Center Parking Garage

Project Proponent: Steward St. Elizabeth's Medical Center of Boston

Address/Location: 253 Washington Street, Brighton, MA 02135

Assessor's Parcel: 2101835000

1.2 INTRODUCTION

Steward St. Elizabeth's Medical Center of Boston (SEMC or the "Proponent") was founded in 1868 and is a 267-bed teaching hospital of Tufts University School of Medicine located in Boston's Brighton neighborhood. SEMC offers advanced treatments and a full-range of medical specialties, including family medicine, cardiovascular care, women and infants' health, oncology, neurology care, and orthopedics. SEMC is a member of Steward Health Care Systems, LLC, the largest community-based accountable care organization and community hospital network in New England.

The Proponent is proposing to construct an approximately 215,400 square foot (sf) six floor parking garage (the "Project") at 253 Washington Street in Brighton, Massachusetts (the "Project Site"). The Project will meet the changing SEMC patient, visitor, and staff parking needs and improve open space and access to the Saint Elizabeth's Medical Center Medical Campus (the "SEMC Medical Campus").

This Expanded Project Notification Form (EPNF) is submitted to the Boston Planning & Development Agency (BPDA) in accordance with Article 80B of the Boston Zoning Code (the "Code"). The Project is located within the SEMC Medical Campus within the boundaries of the Steward St. Elizabeth's Medical Center Institutional Master Plan (IMP). A new IMP has been initiated with the submittal of an Institutional Master Plan Notification Form (IMPNF) to the BPDA by the Proponent concurrent with this EPNF under the provisions of Article 80D of the Boston Zoning Code.

1.3 EXISTING CONDITIONS

The Project Site is located in the Brighton neighborhood of the City of Boston (the "City"). The Project Site is approximately 42,450 sf and is bounded by Washington Street on the southeast, the SEMC Medical Campus on the north, and the St. Gabriel's Monastery site on

the southwest, which is currently being redeveloped for residential use. The surrounding neighborhood is characterized by a mixture of institutional, retail, and residential uses.

1.4 PROJECT SUMMARY

The Project will consist of approximately 215,400 sf contained in a 51.5-foot high above average grade plane, six-floor precast concrete parking garage structure that accommodates approximately 610 parking spaces. The Project will be located on Washington Street within the SEMC Medical Campus located at 236 Cambridge Street.

Table 1-1: Project Program

Floor	Number of Spaces
First Floor	59 parking spaces
Second Floor	116 parking spaces
Third Floor	116 parking spaces
Fourth Floor	110 parking spaces
Fifth Floor	116 parking spaces
Sixth Floor	93 parking spaces

1.5 CONSISTENCY WITH INSTITUTIONAL MASTER PLAN

SEMC last completed an IMP in 2007. The IMP was renewed in 2012. In 2016, SEMC initiated a process to renew and amend the IMP and to add Proposed Institutional Projects (PIPs). Since that time, following consultations with the BPDA, SEMC has determined that the subject of this EPNF (the proposed parking garage facility) should be included in the new IMP for the SEMC. The Proponent has submitted an IMPNF with this EPNF. The Project will be included as a PIP in the SEMC 2020-2024 IMP, which will be submitted to the BPDA following the receipt of a Scoping Determination on the IMPNF. The Proponent intends that the Project will be consistent with and in compliance with the 2020-2024 IMP.

1.6 PUBLIC REVIEW PROCESS

This section summarizes how the Project will be reviewed under City and community processes.

1.6.1 ARTICLE 80 REVIEW PROCESS

This document is submitted to the BPDA pursuant to Article 80B of the Boston Zoning Code for Large Project Review. Following the submission of this EPNF to the BPDA, the Proponent will meet with City agencies and hold a combined community and task force meeting. A scoping session and community meeting are expected to occur during the public comment period and prior to the issuance of a Scoping Determination.

1.6.2 BOSTON CIVIC DESIGN COMMISSION

In accordance with Article 28 of the Boston Zoning Code, the Proponent will meet with the Boston Civic Design Commission (BCDC) to review and discuss the Project design. The Proponent will seek a recommendation from the BCDC prior to BPDA Board Approval.

1.6.3 BOSTON PUBLIC IMPROVEMENT COMMISSION

The Project will require review and approval from the Boston Public Improvement Commission (PIC) for proposed public realm improvements, including the repairs and upgrades to the surrounding sidewalks. The Proponent will submit plans to the PIC to receive approval for improvements that the Proponent may propose within the public right-of-way through a public hearing process.

1.6.4 TASK FORCE

The Task Force is comprised of representatives from areas surrounding the SEMC Medical Campus. Members of the Task Force include:

- Daniel J. Daly
- Elizabeth M. Flaherty
- Joanne Powers
- John J. Bligh
- Maura K. Ferguson
- Millie H. McLaughlin
- Neil J. Duffy, Jr.
- Rosie Hanlon
- Victoria Alicia Lopez
- Abigail Furey

The Proponent and the BPDA conducted a prefiling meeting with the Task Force on March 13, 2019 and will schedule Task Force meetings which will be open to the public throughout the Article 80B review process.

1.7 PUBLIC AND COMMUNITY BENEFITS

The Project will generate the following public benefits for the City and the surrounding neighborhood:

- Improve access for patients and visitors;
- Provide needed patient, visitor, and staff parking;
- Reduce demand on parking in the surrounding neighborhood;

- Provide accessible green space for staff, visitors, and the neighborhood;
- Improve open space and landscaping along Washington Street; and
- Create approximately 10 permanent and 150 construction jobs.

1.8 SUMMARY OF REQUIRED PERMITS AND APPROVALS

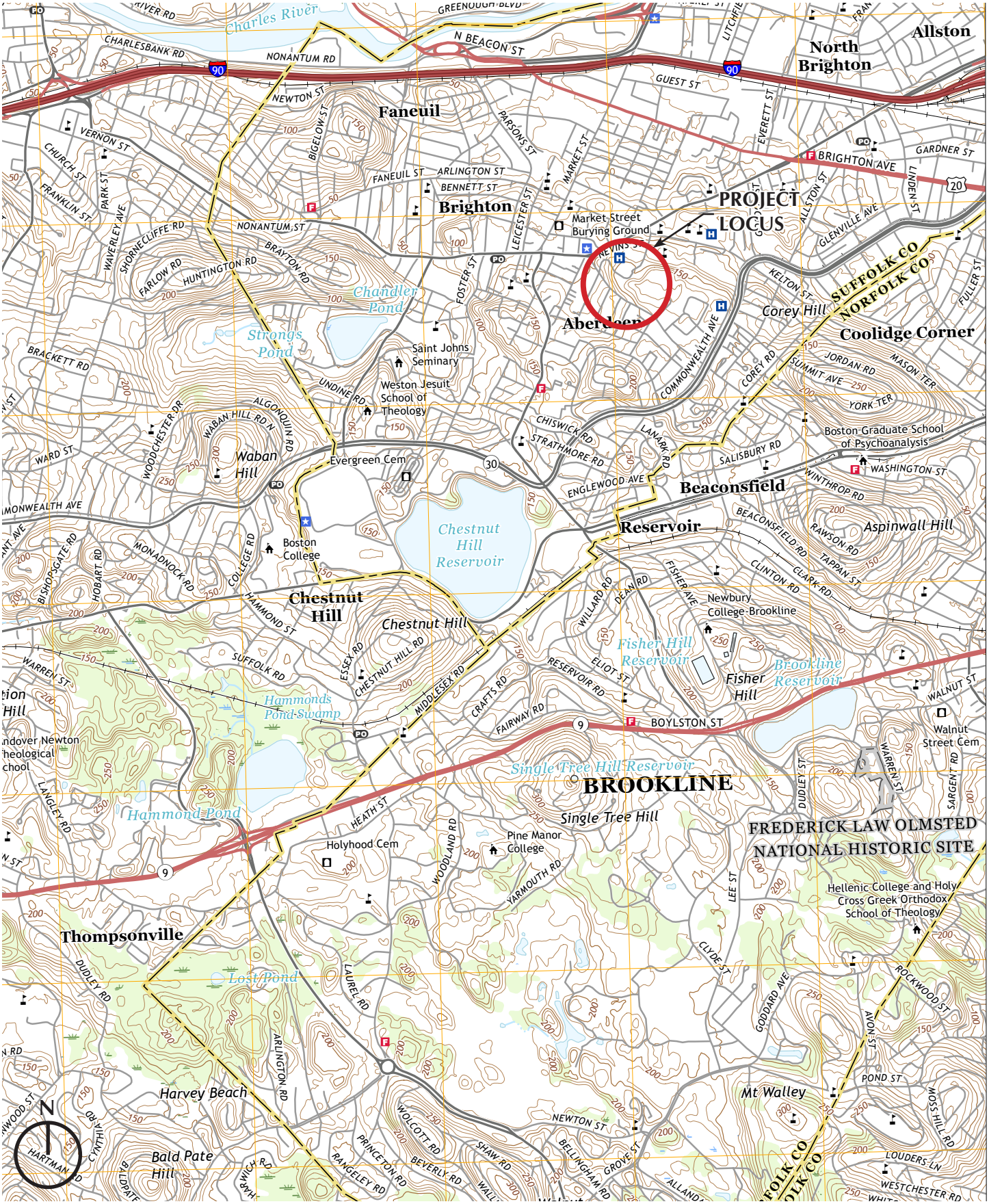
Agency	Approval
Local	
Boston Planning & Development Agency	• Article 80B Large Project Review • Article 80D Institutional Master Plan Amendment • Schematic Design Approval • Design Development Approval • Construction Document Approval • Boston Residents Construction Employment Plan • Certification of Compliance with Article 80B • Certification of Compliance with Article 80D • Development Impact Project Agreement
Boston Civic Design Commission	• Recommendation to the BPDA Board
Boston Zoning Commission	• Institutional Master Plan
Boston Transportation Department	• Transportation Access Plan Agreement • Construction Management Plan • Curb Cut Permit
Boston Water and Sewer Commission	• Site Plan Approval
Public Improvement Commission	• Specific Repair Plan Approval
Inspectional Services Department	• Building Permit • Certificate of Occupancy • Flammable Storage and Garage Permit
Boston Zoning Board of Appeals	• Building Code Variance (if needed)
State	
Department of Environmental Protection	• DEP Notice of Construction
Federal	
Environmental Protection Agency	• NPDES Construction General Permit

1.9 PROJECT TEAM

The contact information for the Project team can be found below:

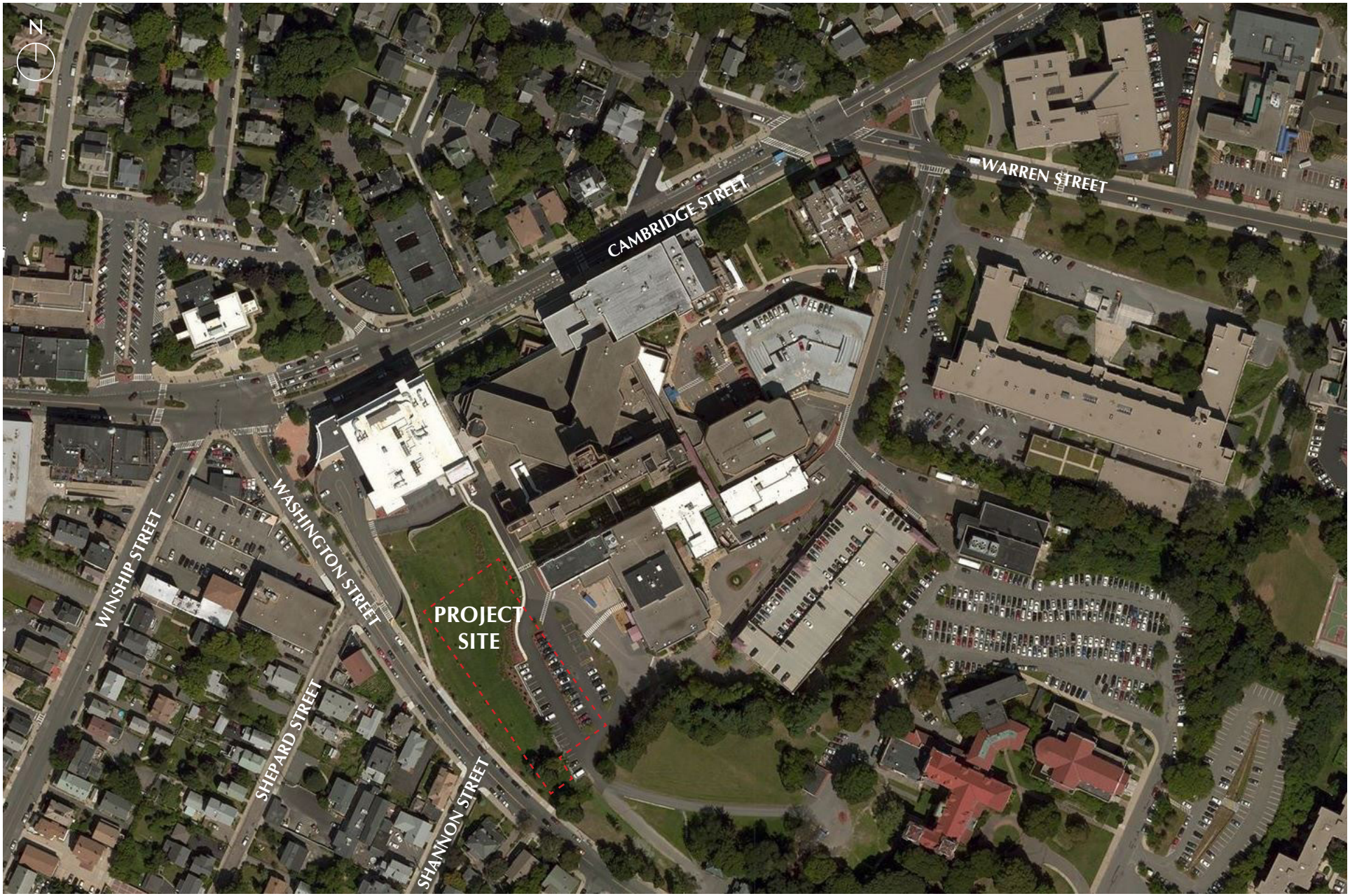
Proponent	Steward St. Elizabeth's Medical Center of Boston 280 Washington St Brighton, MA 02135 Contact: Harrison R. Bane President Steward Saint Elizabeth's Medical Center harrison.bane@steward.org
Planning & Permitting	Fort Point Associates, Inc. 31 State Street, 3rd Floor Boston, MA 02109 Contact: Cara Pattullo (617) 357-7044 x207 cpattullo@fpa-inc.com
Legal Counsel	Rubin and Rudman LLP 53 State Street Boston, MA 02109 Contact: James H. Greene (617) 330-7000 jgreene@rubinrudman.com
Civil Engineer	Nitsch Engineering 2 Center Plaza, Suite 430 Boston, MA 02108 Contact: John Schmid (857) 206-8740 jschmid@nitscheng.com
Landscape Architect	Deborah Myers Landscape Architecture 36 Bromfield Street Boston, MA 02108 Contact: Deborah Myers (617) 922-6741 deb@dm-la.com

Architect, MEP, and Structural Engineer	Walker Consultants 20 Park Plaza, #1202 Boston, MA 02116 Contact: Brandon Schrenker (857) 362-0326 bschrenker@walkerconsultants.com
Transportation Planning	MDM Transportation 28 Lord Rd Marlborough, MA 01752 Contact: Robert Michaud, PE (508) 303-0370 rmichaud@mdmtrans.com
Geotechnical Engineer	Stantec 311 Summer Street Boston, MA 02210 Contact: Trey Dykstra (617) 234-3100 Trey.dykstra@stantec.com



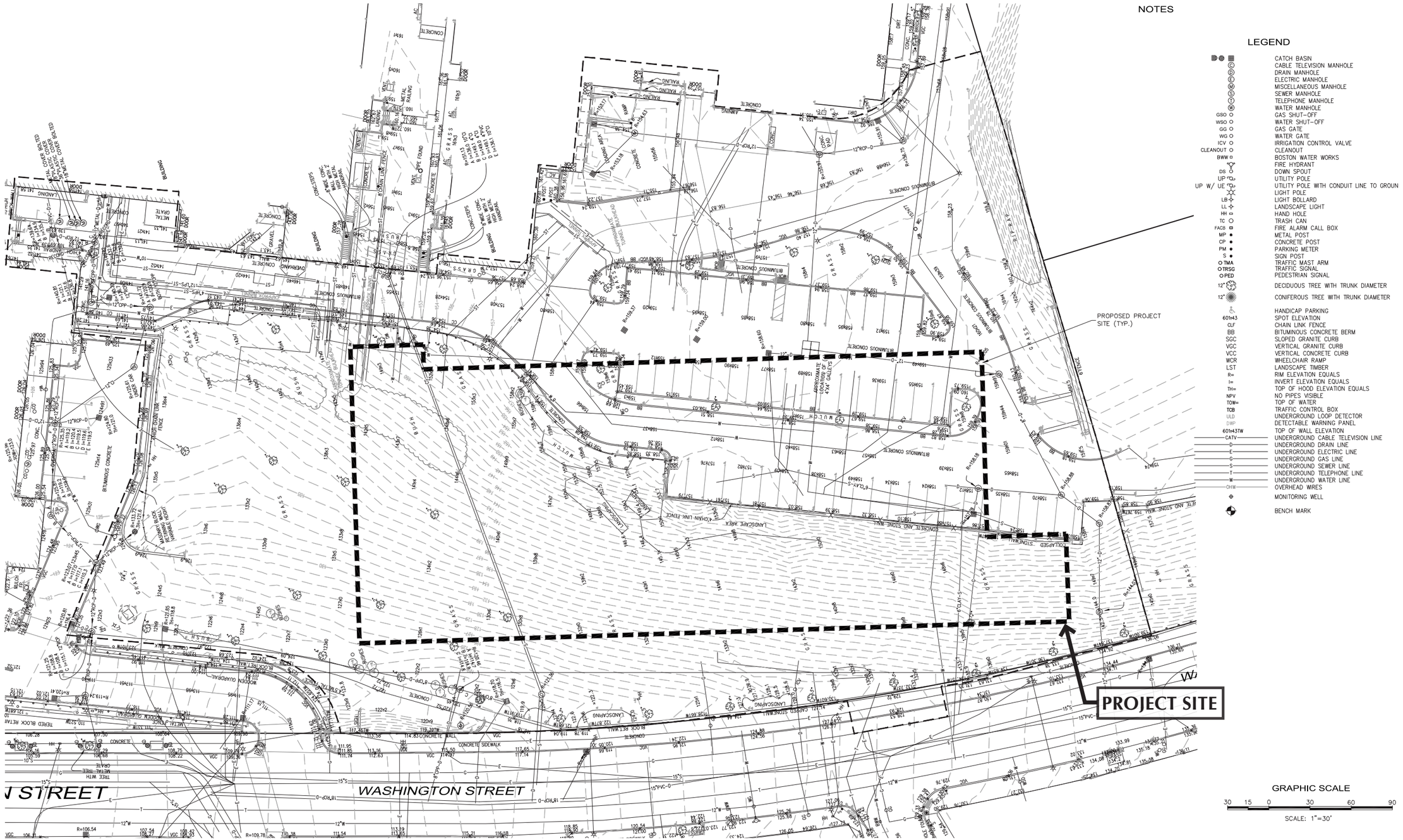
Brighton, Massachusetts

Figure 1-1
Locus Map
Source: USGS, 2018; Fort Point Associates, Inc., 2019



Brighton, Massachusetts

Figure 1-2
Aerial View of Project Site
Source: Google Earth; Fort Point Associates, Inc., 2019



Brighton, Massachusetts

Figure 1-3
Existing Conditions Plan
Source: Nitsch Engineering, Inc., 2019

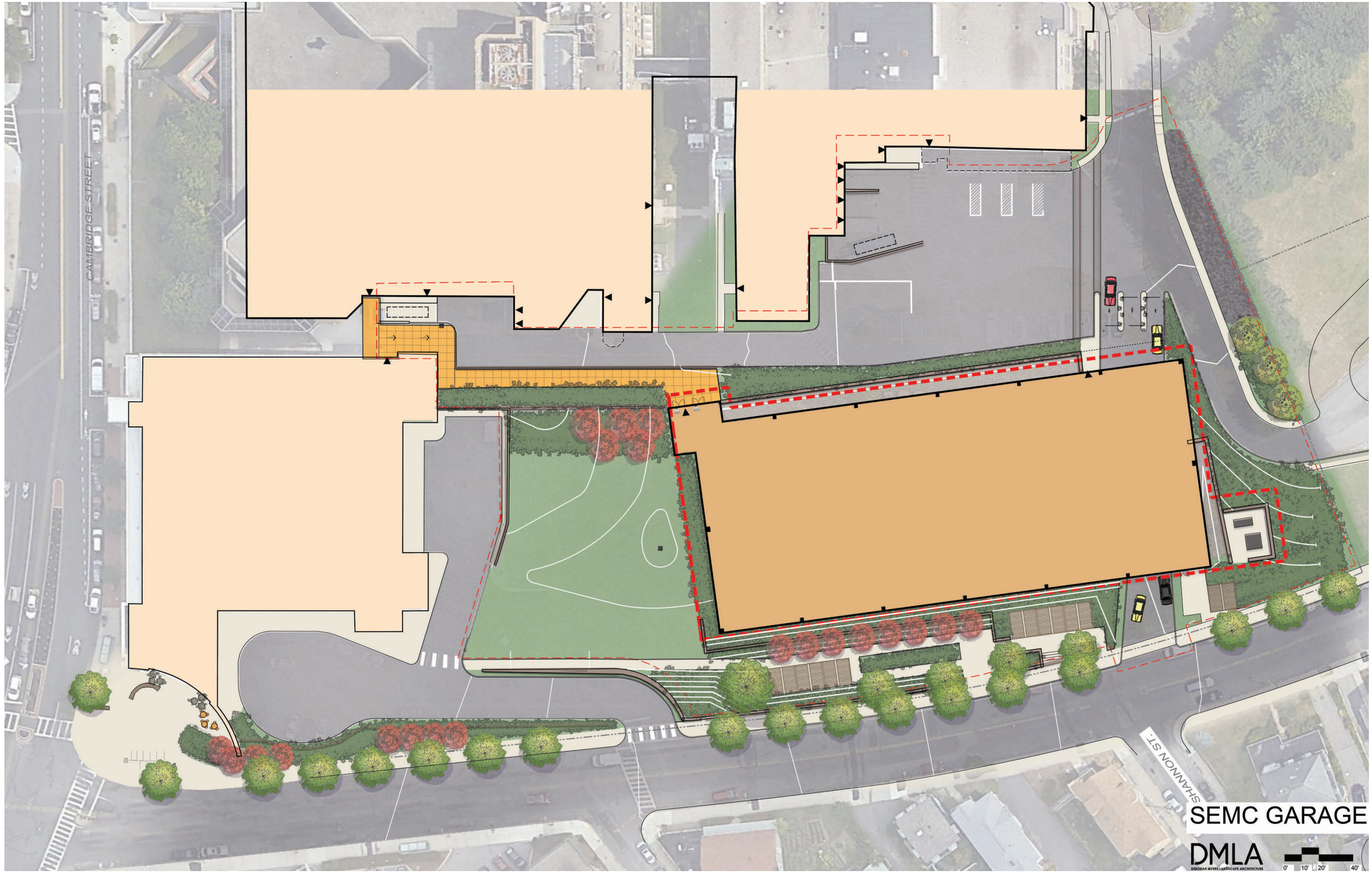


Figure 1-4
Project Site Plan
Source: Deborah Myers Landscape Architects, 2019

Chapter 2

PROJECT DESCRIPTION

CHAPTER 2: PROJECT DESCRIPTION

2.1 PROJECT SITE AND PUBLIC REALM

The Project Site is bounded by Washington Street on the southeast, the 14-acre SEMC Medical Campus on the north, and the St. Gabriel's Monastery site on the southwest, which is currently being redeveloped for residential use. The Project Site currently contains a paved surface parking lot and an undeveloped area that slopes downward from a high point on the SEMC Medical Campus at St. Joseph's Hall and the William F. Connell Pavilion, an emergency facility, to Washington Street. The Project Site is currently accessed via a driveway located at the intersection of Washington Street and Shepard Street. The surrounding neighborhood is characterized by a mixture of institutional, retail, and residential uses. The St. Gabriel's Monastery site and other BPDA approved projects will add significant new residential and retail development to the neighborhood. See Figure 2-1, Aerial View of Site, Figure 2-2, Existing Conditions Photographs Key, and Figures 2-3 through 2-5, Existing Conditions Photographs.

2.2 PROPOSED PROJECT

The Project will meet the changing SEMC parking needs, enhance open space, and improve access to the SEMC Medical Campus.

2.2.1 PROGRAM DESIGN GOALS

The primary programmatic design goal of the Project is to provide sufficient new parking supply to offset the loss of existing parking supply that will occur during the SEMC Medical Campus redevelopment and a slight increase in parking demand resulting from the redevelopment program, as described in the separate IMPNF. This program includes the demolition of SEMC's existing Garage A, the removal of the surface lot parking, and overall reduction of off-site parking use. Completion of the Project is necessary prior to beginning the other SEMC Medical Campus redevelopment projects to provide the on-site parking necessary to sustain SEMC operations.

The Project's design intent is to respond to the natural topography of the Project Site and moderate the scale between the existing SEMC buildings and the neighborhood across Washington Street. The parking structure will be comprised of structural precast tees, columns, and spandrels. The façades at the north, west, and south are largely covered with varying color and size aluminum rod screening. New amenities at the Project Site will include sidewalk paving, street trees, seating areas, tree groves, and seasonal plantings located west of the Project along Washington Street.

2.2.2 PROJECT PROGRAM

The SEMC parking garage is designed to include the following uses and features:

- 6 story structured above-grade parking;
- Approximately 610 vehicle parking spaces, including 13 accessible spaces;
- Secure and covered bicycle parking;
- Approximately 215,400 sf Gross Floor Area; and
- Approximately 51'-6" feet high above average grade plane.

The current design proposes a 11'-4" floor to floor height on the first two levels and all levels above that will be 10'-6" floor to floor. The exact floor to floor height may be slightly modified to obtain garage openness allowing for natural ventilation.

The City of Boston requires 0.5 secure/covered bicycle parking spaces be provided per 1,000 square feet of occupied development. The Proponent will work with the BPDA and the Boston Transportation Department (BTD) to develop the appropriate bicycle parking ratios and identify optimal parking locations. SEMC will accommodate bicycle parking in the overall SEMC Medical Campus master plan in the most convenient locations for cyclists.

2.3 ACCESS AND CIRCULATION

2.3.1 PARKING AND ACCESS

All existing surface parking within the Project Site will be eliminated with the exception of the parking for emergency and service vehicles. Existing service access points to the hospital, including St. Joseph's Hall and Seton Pavilion to the north, will remain and function as designated service and emergency access only areas. The existing driveway connection from the St. Gabriel's Monastery site to the Project Site will remain and be maintained at the current service level. The existing Washington Street Driveway that provides access to the William F. Connell Pavilion will not be affected by the Project.

A new driveway and garage entrance on Washington Street will allow vehicles to enter and exit the first level of the garage. This access point is aligned with Shannon Street to the southwest. The Project will also be accessible on the fourth-floor level from an entrance on Nevins Street, which is located to the east of the Project Site within the SEMC Medical Campus. Parking access control gates will be located at the

southeast corner of the parking garage and will allow for vehicular stacking and controlled entry and exit. A vehicular drop-off point will be located directly east of the Project within the SEMC Medical Campus at the fourth-floor level.

The new parking garage will have three pedestrian access points on the first, second, and fourth levels of the structure. The primary stair and elevator tower will be in the northeast corner of the garage. The main stair will connect all levels and will provide access at the second-floor level to the SEMC Medical Campus via an exterior covered walkway. The second pedestrian access point will be located in the southwest corner adjacent to the first-floor vehicular entrance and will connect all floors but will primarily be utilized for egress and internal pedestrian vertical circulation. The third access point will be located adjacent to the southeast vehicular entrance on the fourth-floor level. This point is anticipated to be used primarily by employees accessing SEMC buildings to the east of the parking structure. See Figure 2-6, Project Site Plan.

2.3.2 VEHICULAR CIRCULATION

The Project will improve vehicular access for patients, visitors, and staff. The Project will create more visible access for drivers, improve internal on-campus vehicular circulation patterns, and provide a clearly designated vehicular drop-off area east of the parking structure. Hospital service and emergency access and circulation will be improved with clearly designated travel ways and points of direct access to the hospital facilities. Additionally, the garage vehicular circulation has been designed to minimize impacts on surrounding neighborhood streets.

2.3.3 PEDESTRIAN AND BICYCLE CIRCULATION

Pedestrian circulation within the Project Site will be greatly improved to provide safe and full access to patients, visitors, and staff. A new exterior walkway will provide a covered connection between the Project and the SEMC Medical Campus via the William F. Connell Pavilion. This walkway will allow for pedestrian movement that is fully accessible and protected from the elements. Two additional walkways will be located to the east of the garage, including a sidewalk parallel to the east facing façade of the garage, that will provide entrance to the northeast stair tower as well as a new raised walkway adjacent to the southeast vehicular entrance that will connect to an existing sidewalk east of St. Margaret's Center for Women and Infants ("St. Margaret's Center"). The raised walkway will allow for direct and accessible pedestrian circulation from the parking garage and is anticipated to be used primarily by employees accessing SEMC buildings east of the parking structure. All exit and egress walkways from the parking stairways will be fully accessible.

The sidewalk at Washington Street will be improved with new paving and street trees. A new accessible sidewalk and series of amenity spaces will replace the existing path

from Washington street to the William F. Connell Pavilion. In addition, a semi-publicly accesible park-like space will be created within the garage frontage along Washington Street. The intent is to create a unique set of spaces for gathering, picnics, and passive play. The existing driveway connection from the St. Gabriel's Monastery site will continue to allow for a pedestrian connection to the Project Site.

The new and enhanced walkways within the Project Site will improve overall pedestrian movement within the Project and to the surrounding SEMC Medical Campus. These circulation routes will also link directly to the SEMC covered bike racks located at the SEMC parking garages, the William F. Connell Pavilion, and the existing Bluebike station located at the corner of Washington Street and Cambridge Street.

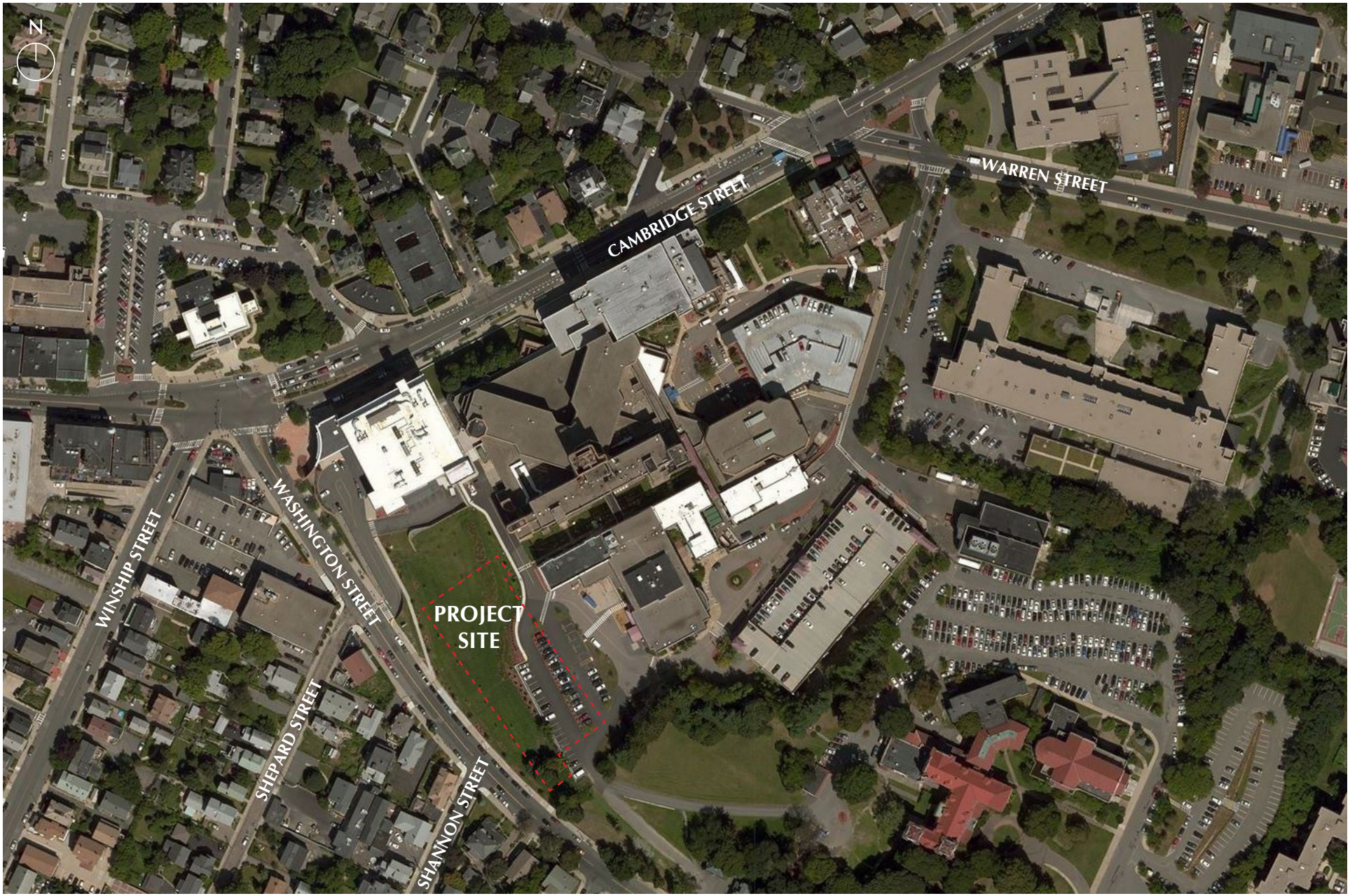
2.3.4 ACCESSIBILITY

Pedestrian circulation within the Project Site will provide safe and full access to patients, visitors, and staff and the Project will meet all applicable accessibility codes for egress and circulation both for vehicular and pedestrian zones. A new covered walkway will be located on the northeast side of the parking garage to allow fully accessible and protected pedestrian movement. A new sidewalk east of the garage and a new raised walkway adjacent to the southeast vehicular entrance will allow for an accessible pedestrian travel way from the garage to the SEMC facilities. The new accessible walkway connecting the Washington Street sidewalk to the SEMC Emergency Department will be enhanced with a wider walk dimension and gentle slope precluding the need for handrails. The sidewalk parallel to Washington Street will be improved with new paving.

2.4 OPEN SPACE AND LANDSCAPE

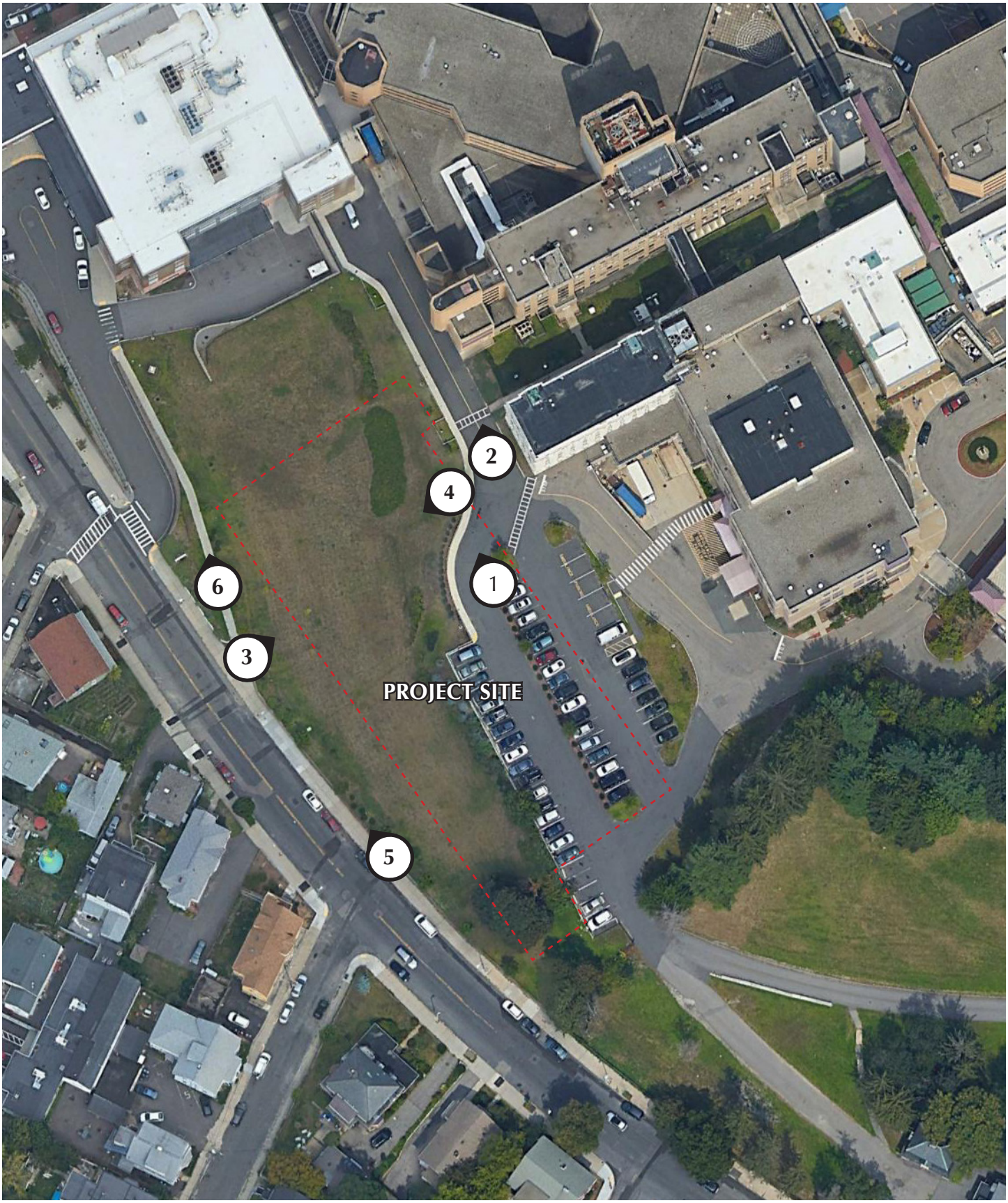
The Project will create enhanced open spaces within the Project Site and the SEMC Campus. A series of upright deciduous tree groves, ground covers, and seasonal plantings will be located directly west of the parking structure. These plantings will be integrated with a proposed slope and amenity spaces that will extend out from the west side of the parking structure to the Washington Street sidewalk. Additional plantings including trees, shrubs, and groundcovers will also extend down to the corner of Washington and Cambridge Street. New street trees will be planted along the sidewalk on Washington Street following the entire west boundary of the Project Site. Strategic sitting areas will also be located along the sidewalk on Washington Street to allow pedestrians to sit in sunny or shaded areas within the new landscape setting. The introduced Olmsted-like landscape treatment will provide continuity and important green space to the entire Washington Street streetscape extending from Cambridge Street to the St. Gabriel's Monastery site. In addition, the combination of plentiful plantings will provide a new SEMC Medical Campus landscape front to the surrounding neighborhood and welcoming entrance to the new parking garage.

The open space east of the parking garage will replace all current surface parking with the exception of the emergency and service vehicle accomodations. A new sidewalk east of the garage and a raised walkway adjacent to the southeast garage entrance will connect to an existing sidewalk east of St. Margaret's Center and other SEMC facilities. A covered pedestrian walkway at the northeast side of the parking garage will provide a safe and direct connection to the SEMC Medical Campus with new ornamental trees and groundcover plantings. See Figure 2-6, Site Plan.



Brighton, Massachusetts

Figure 2-1
Aerial View of Project Site
Source: Google Earth; Fort Point Associates, Inc., 2019



NOTE: NUMBERS CORRESPOND WITH PHOTOS IN FIGURES 2-3 THROUGH 2-5.

Brighton, Massachusetts

Figure 2-2

Existing Conditions Photographs Key

Source: Google Earth; Fort Point Associates, Inc., 2019

Photograph 1: View of the Project Site looking northeast from Western Avenue

Photograph 2: View from the Project Site looking north

Photograph 3: View of the Project Site looking north from Washington Street

Photograph 4: View of the Project Site looking south from SEMC Medical Campus

Photograph 5: View of the Project Site on Western Avenue

Photograph 6: View of the Project Site looking northeast

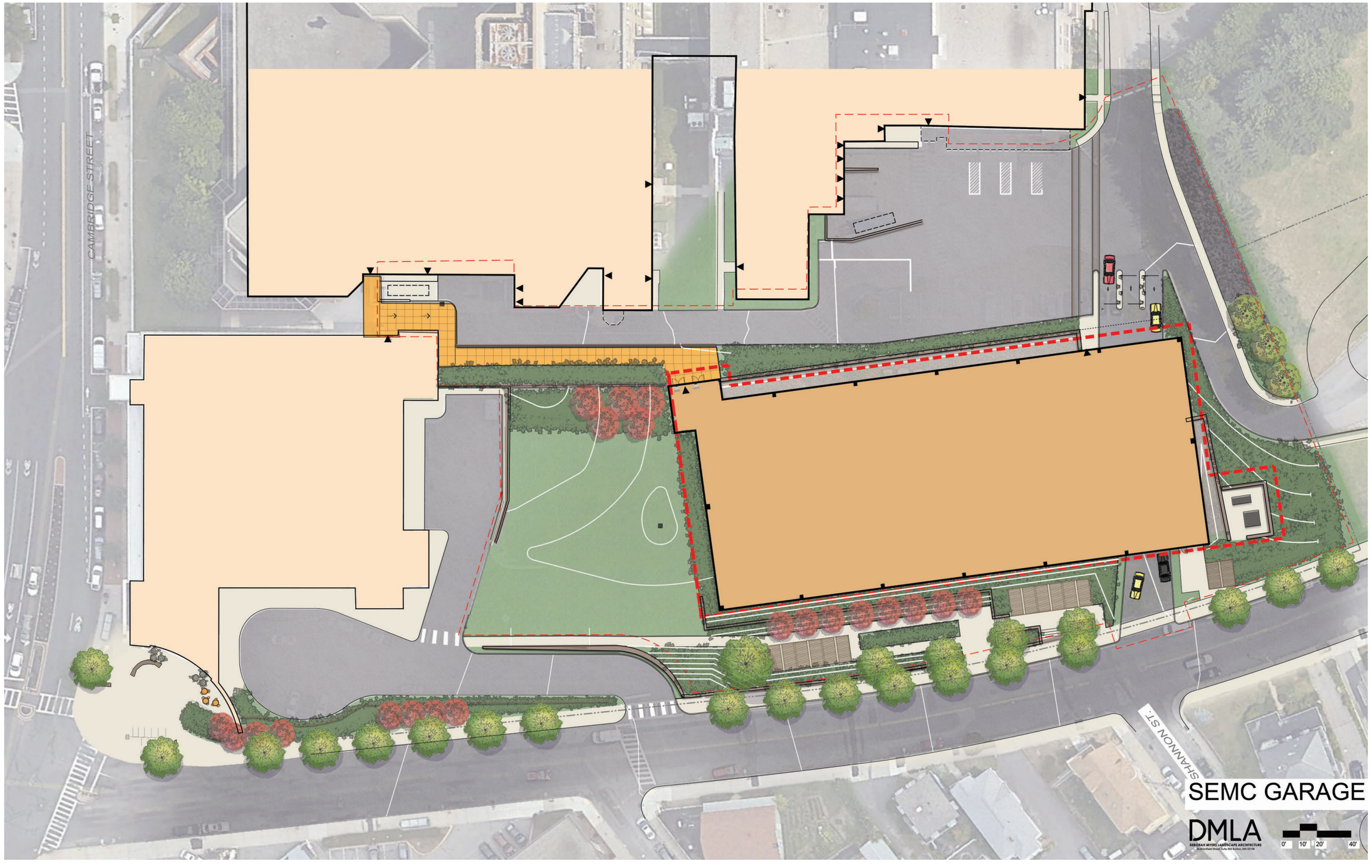


Figure 2-6
Project Site Plan
Source: Deborah Myers Landscape Architects, 2019

Chapter 3

URBAN DESIGN

CHAPTER 3: URBAN DESIGN

3.1 CAMPUS SETTING

The SEMC Medical Campus is in Boston's Brighton neighborhood and is bounded by Cambridge and Washington streets to the northwest, west, south, and southwest, Warren Street and the Brighton High School to the north, and by Nevins Street, Monastery Path, and the St. Gabriel's Monastery site to the east. The campus also includes the Medical Office Building at 280 Washington Street, which is situated on an approximately one-acre parcel across the street from the SEMC main entrance. The 280 Washington Street parcel is bounded by Washington Street and Shepard Street to the East, Winship Street to the west, the building at 288 Washington Street to the north, and by the buildings at 5 Shepard Street and 10 Winship Street to the south.

The SEMC Medical Campus includes 14 low-rise buildings built between 1917 and 2009, ranging in condition from stable to needing renovation. The existing SEMC Medical Campus is shown in the aerial photo provided as Figure 3-1 Neighborhood Context and Figure 3-2 SEMC Medical Campus.

3.2 NEIGHBORHOOD CONTEXT

The SEMC Medical Campus is located at a major roadway intersection and is part of a broader network of open spaces and streetscapes in Brighton. The SEMC Medical Campus is prominently visible from Washington Street and Cambridge Street. The architectural and urban design characteristics of Washington Street and the adjoining neighborhood create an important civic node. The goal of the Project design is to improve the landscape and streetscape on Washington Street and to soften the edges of the SEMC Medical Campus and provide a more seamless fit for a modern medical facility in the existing neighborhood context.

The Project will provide a new SEMC Medical Campus face along Washington Street. The new building will complement the existing adjacent hospital facilities and extend the SEMC Medical Campus urban character while recognizing, respecting, and reinforcing the scale and character of the surrounding Brighton residential neighborhood. A new landscape with extensive plantings and new seating areas will enhance the public realm by creating a strong street edge with building and landscape components.

New direct vehicular access to the SEMC Medical Campus will include signage and landscape features that will guide patients, visitors, and staff arriving by car from Washington Street. Pedestrian circulation along Washington Street will be maintained and enhanced with new

paving and street tress at SEMC Medial Campus entry and access points. See Figure 3-3, Proposed Site Plan.

3.3 MASSING

The Project will be carved into the existing sloping topography along Washington Street. The topography of the Project Site varies significantly and therefore will create varying massing perspectives. The maximum building height along the north and west elevations the structure will be approximately 55 to 60 feet, the height along the south will vary from approximately 25 to 50 feet, and the height along the east will be predominately 25 feet. The structure is set back from Washington Street approximately 25 to 50 feet to maintain the landscaping on the street front with an addition of one curb cut for the garage entrance. The primary stair and elevator core linking to parking structure to the campus will be in the northeast corner, visible from Washington Street but tucked back further into the Project Site, approximately 150 feet from Washington Street. At the southwest corner of the garage, facing Washington Street, there will be a secondary egress stair that will be integrated into the building façade treatment.

The approach divides the primary façades on the north, west, and south into three smaller masses that are further broken down through varying color and size aluminum rod screening which are selectively placed in different patterns and colors. The aluminum rods used along the northwest portion of the garage, as well as the southeast corner of the garage respond to the rapid grade change and mask the upper levels of the garage while the landscape is the focal point at the lower levels. This is an initial layout organization of the aluminum rod screening and the screening may be adjusted through the design process to allow for variation and become more or less opaque at various moments along the façades. In addition, the color palette and the number of different colors used has not yet been determined and will also be further defined and refined through the design process to achieve a balance between the conceptual design and the required openness for natural ventilation in the parking garage.

3.4 CHARACTER AND MATERIALS

The character of the Project will be a balance of the necessary form to achieve an efficient parking garage function and the required openness factor to maintain a naturally ventilated parking structure while elevating the overall architecture and deemphasizing the standard look of this building type. This will be achieved with different patterns, colors, textures, and materials that create variety and accentuate interesting views from different vantage points around the Project Site.

The current Project design proposes a façade with a series of aluminum rod screening over a predominantly precast concrete structure with a simple integral reveal pattern to provide shadow lines. Vertical aluminum rods will be used along the north, west, and south façades. The stair and elevator towers will consist of precast concrete and metal panels with an aluminum and glass curtain wall system at the stair towers. The stairs and elevator cores will

be primarily precast concrete construction and curtain wall system with metal railings. The interior of the structure will be light gray exposed precast concrete double tees, beam, and wall framing in the parking areas. The final Project elements, materials, color, and scale will be finalized based on feedback received during the design review process.

Landscaping will continue the line of trees from the neighboring St. Gabriel's Monastery site and create a buffer between the Project and Washington Street. See Figure 3-4, Ground Floor Plan, Figure 3-5, Typical Level Floor Plan, Figure 3-6, Roof Plan, Figure 3-7, East Elevation, Figure 3-8, West Elevation, Figure 3-9, North Elevation, and Figure 3-10, South Elevation.

3.5 VIEWS

The Project has an approximately 52 foot profile, however, the structure is set into a steep hillside and views of the structure will be low to the horizon at the SEMC Medical Campus. Views from Washington Street will encompass the entire height of the structure. Views will be softened with large trees and landscape materials.

The following rendered views are provided in Figures 3-11 through 3-15:

- Southwest: Primary view of the garage from Washington Street at the secondary stair tower and vehicle entry/exit.
- Northwest: Primary view of the garage from Washington Street near the its intersection with Cambridge street. This view focuses on the view to the main stair/elevator tower.
- Elevations: True elevation perspectives of each side of the parking structure.
- Sections: Transverse and longitudinal sections through the parking structure.
- Contextual elevation: elevation of the parking garage in relation to the existing SEMC buildings and a future building on the neighboring St. Gabriel's site.

3.6 OPEN SPACE AND LANDSCAPE MATERIALS

The Project includes significant improvements to open space features and landscape materials. A new SEMC Medical Campus landscape is proposed at Washington Street on the west side of the Project. Landscape elements will include new sidewalk paving and street trees along Washington Street. New street trees will provide shade at the sidewalk and at proposed seating area niches facing out to the street and surrounding neighborhood. A new walkway connecting from the Washington Street sidewalk to the William Connell Pavilion and Emergency Department will replace an existing access path with handrails with a new wide and gentle sloping walkway that precludes the need for handrails. Upright deciduous tree groves, groundcovers, and seasonal plantings will cover the west-facing slope which will

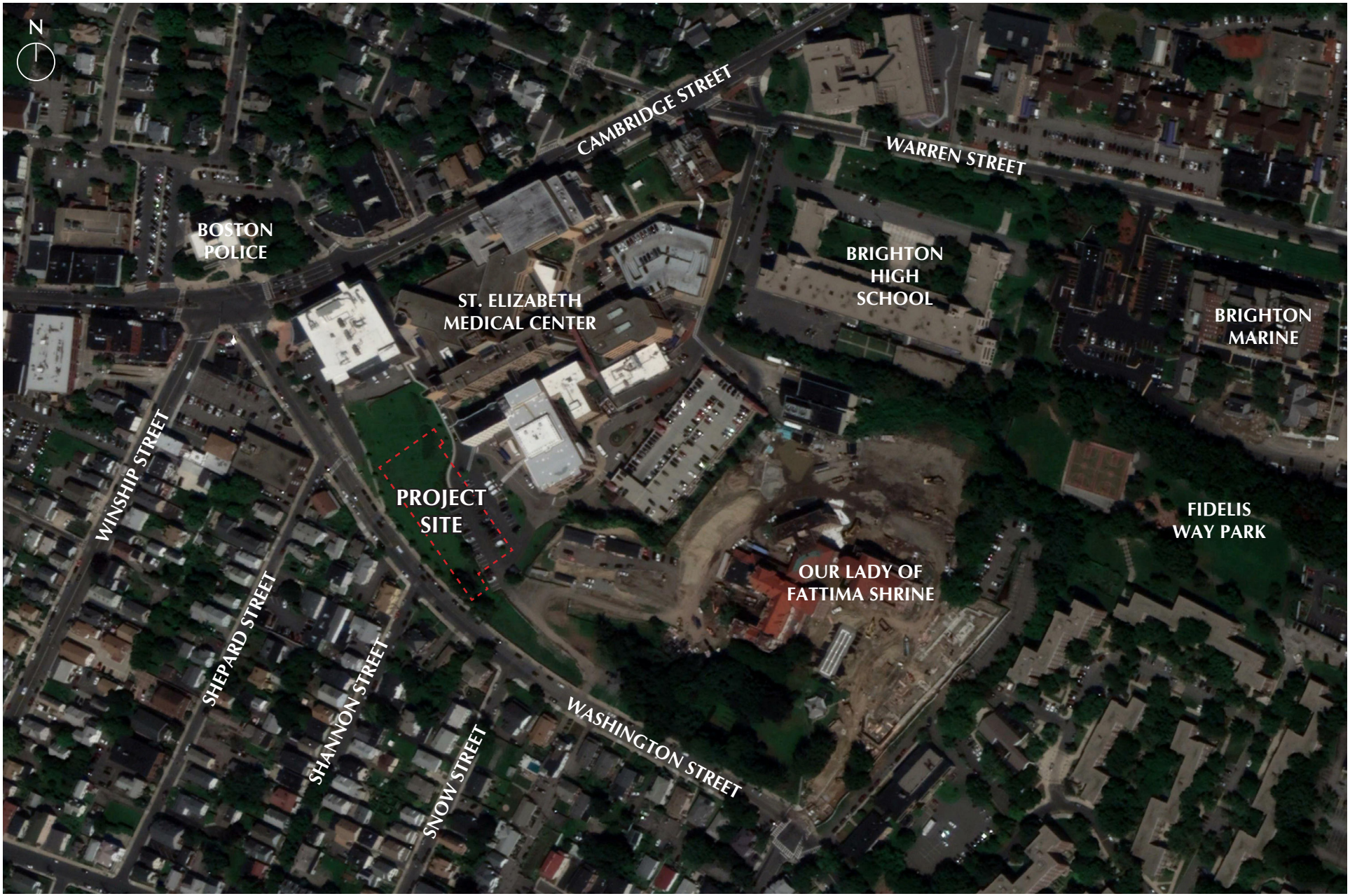
extend the entire length of the parking garage west façade down to the Washington Street sidewalk. The combination of pedestrian walks, seating areas, and plantings along the Project's west boundary will provide a new SEMC Medical Campus landscape front to the surrounding neighborhood and create a welcoming entrance to the Project. The open space east of and north of the parking structure will be enhanced with a new exterior covered walkway, raised pedestrian sidwalks, and landscape plantings adjacent to the northeast side of the garage and west side of the covered walkway. Figure 3-18, Landscape Plan.

3.7 PEDESTRIAN ENVIRONMENT

While the Project will accommodate expanded parking on the SEMC Medical Campus, the pedestrian environment has been designed to provide full access to patients, visitors, and staff. A new exterior covered walkway on the east and north of the structure will link the Project with the surrounding SEMC Medical Campus via the William F. Connell Pavilion building. This new exterior covered walkway will allow for pedestrian movement that is fully accessible and protected from the elements. A new sidewalk east of the garage and new raised walkway adjacent to the southeast parking garage entrance will connect to an existing sidewalk east of St. Margaret's Center and other SEMC Medical Campus facilities. This raised walkway will allow for a direct and accessible pedestrian travel way from the parking structure to St. Margaret's Center and other existing hospital facilities. The removal of surface parking, clear designated service zones, and traffic calming measures east of the garage will provide for an overall safer pedestrian environment.

The existing sidewalk at Washington Street with be enhanced with new paving, crosswalks, seating areas, and street trees. A new walkway connecting to the William Connell Pavilion and Emergency Department from the Washington Street sidewalk will allow for pedestrian access with generous walkway width and gentle slope condition precluding the need for site handrails. A new set of exterior steps near the existing Washington Street curb cut will create a direct pedestrian connection from Washington Street to the new accessible walkway leading to the William Connell Pavilion and Emergency Department.

The St. Gabriel's Monastery site southwest of the Project Site will improve pedestrian connections and access to the Project and SEMC Medical Campus. A new sidewalk is proposed at the SEMC service drive south of the parking structure at the SEMC and St. Gabriel's Monastery property line. This sidewalk will provide direct pedestrian access to the existing SEMC Parking Garage B and other portions of the SEMC Medical Campus.



Brighton, Massachusetts

Figure 3-1
Neighborhood Context
Source: Google Earth; Fort Point Associates, Inc., 2019

Figure 3-2
SEMC Medical Campus
Source: Steward St. Elizabeth's Medical Center of Boston, 2019

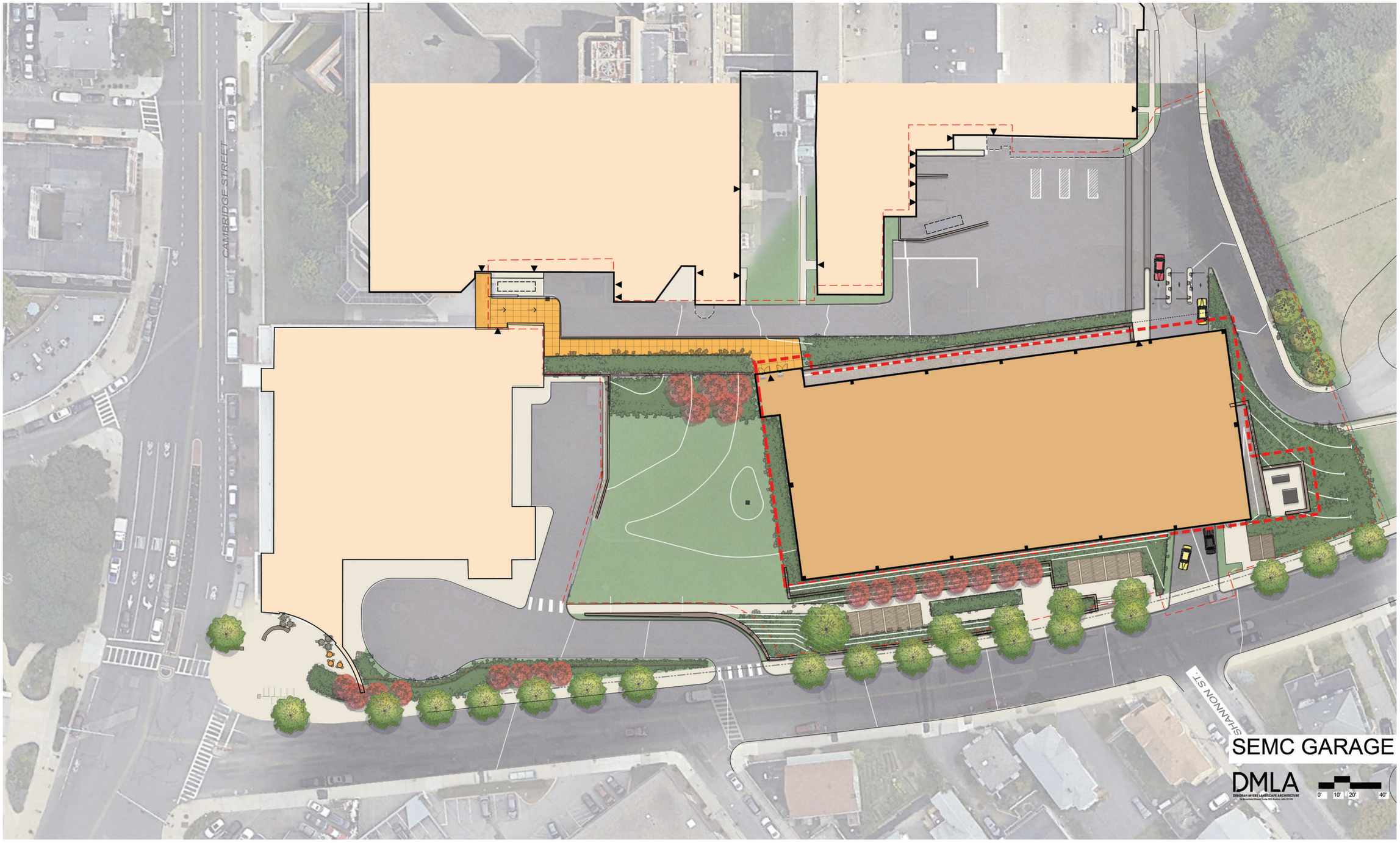


Figure 3-3
Proposed Site Plan
Source: Deborah Myers Landscape Architects, 2019

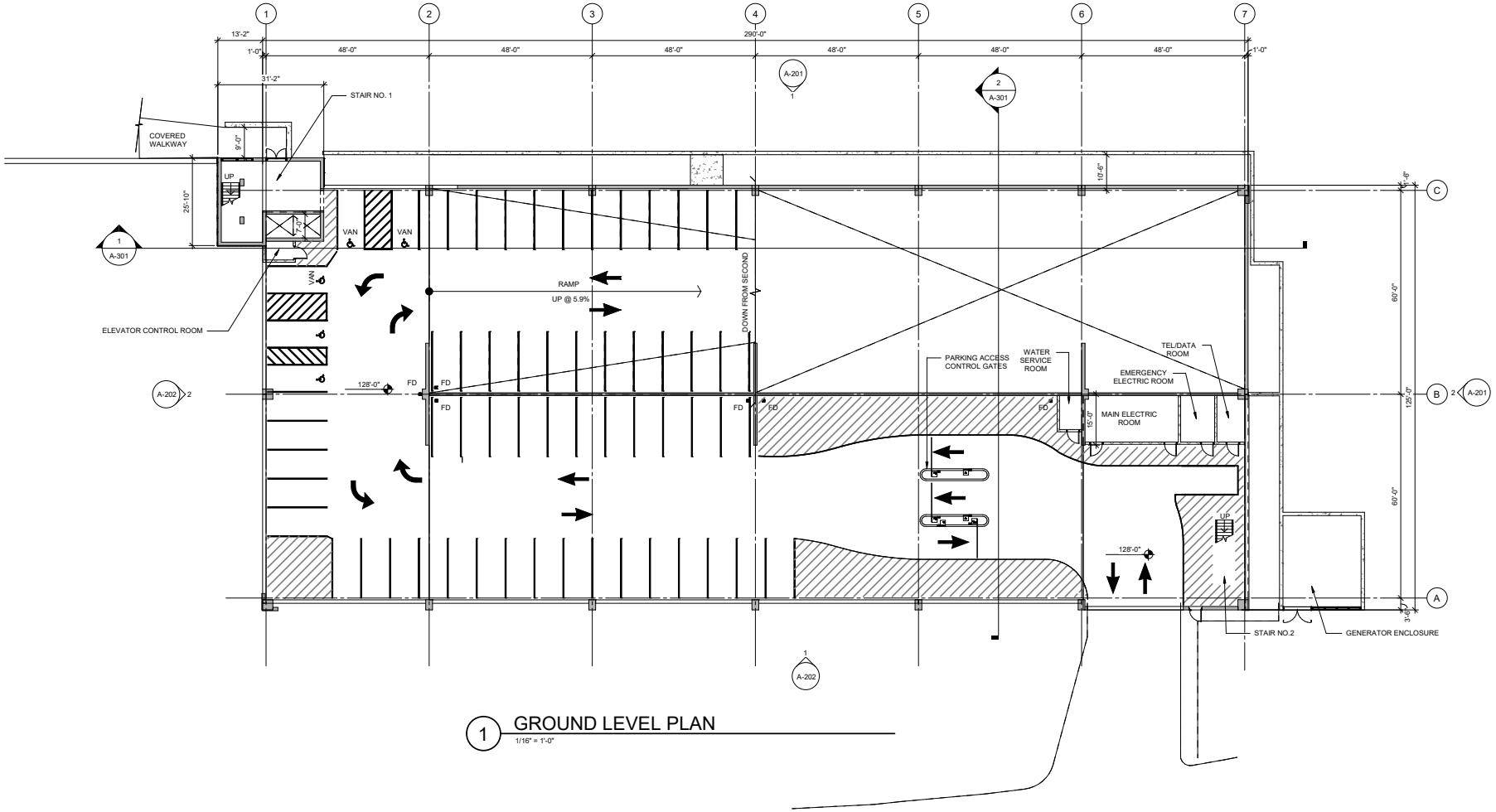
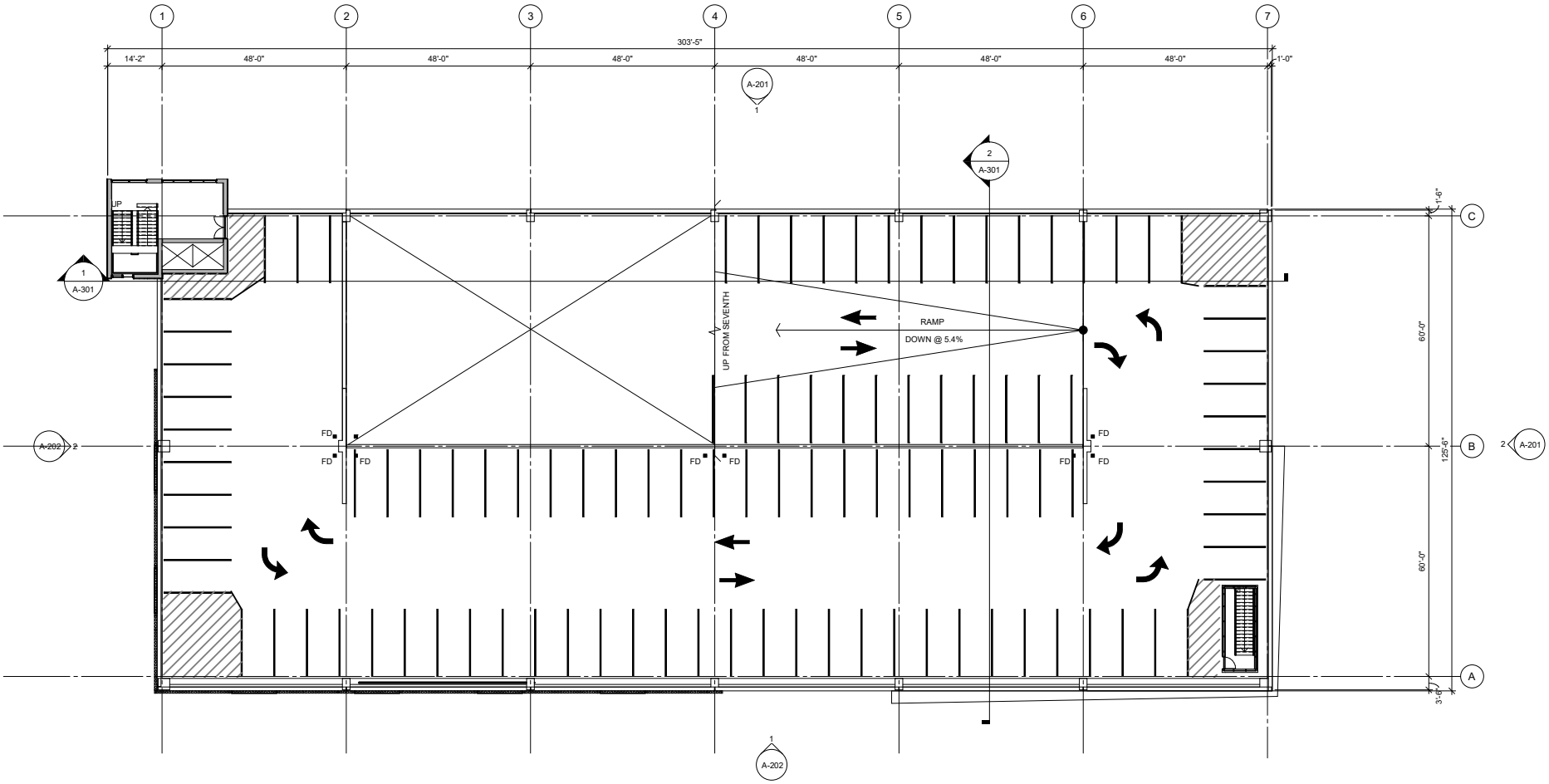
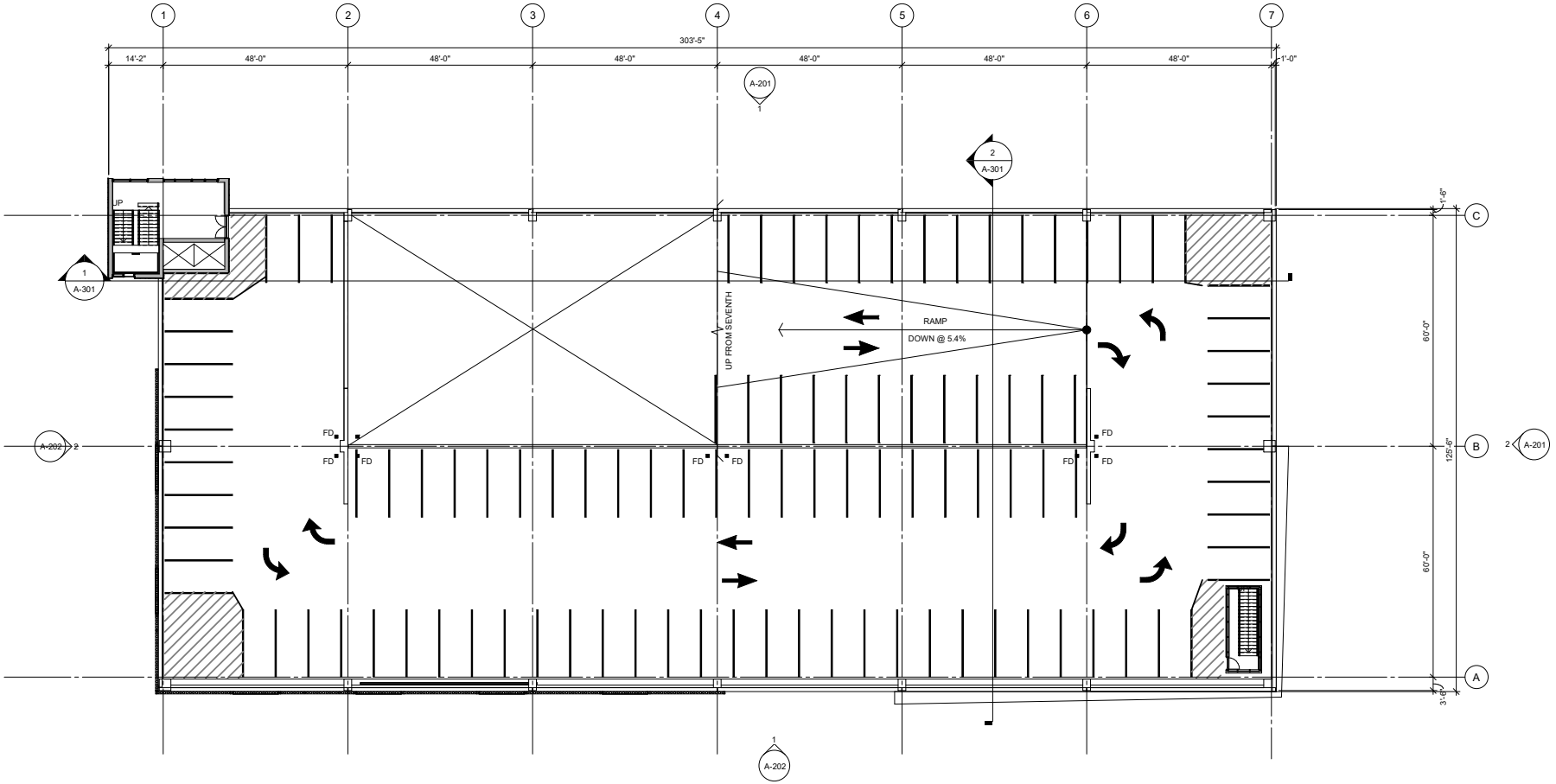


Figure 3-4
Ground Floor Plan
Source: Walker Consultants, 2019



1 TOP LEVEL PLAN
1/16" = 1'-0"

Figure 3-45
Typical Level Floor Plan
Source: Walker Consultants, 2019



1 TOP LEVEL PLAN
1/16" = 1'-0"

Figure 3-6
Roof Plan
Source: Walker Consultants, 2019

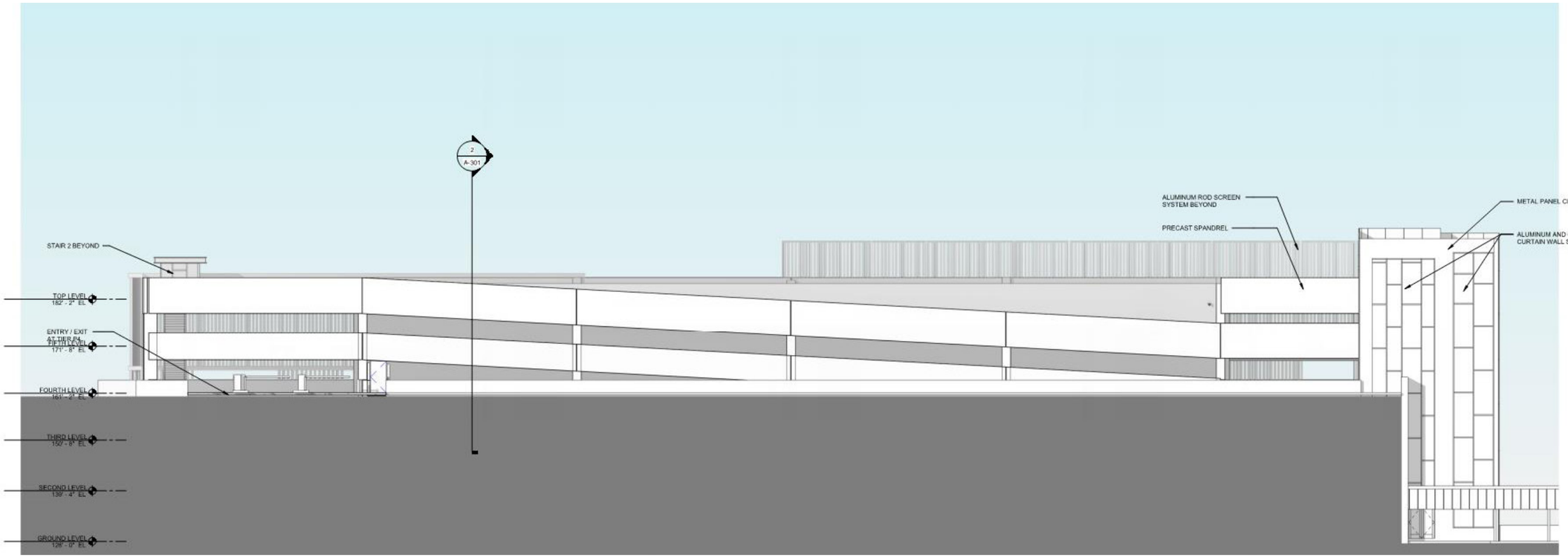


Figure 3-7
East Elevation
Source: Walker Consultants, 2019

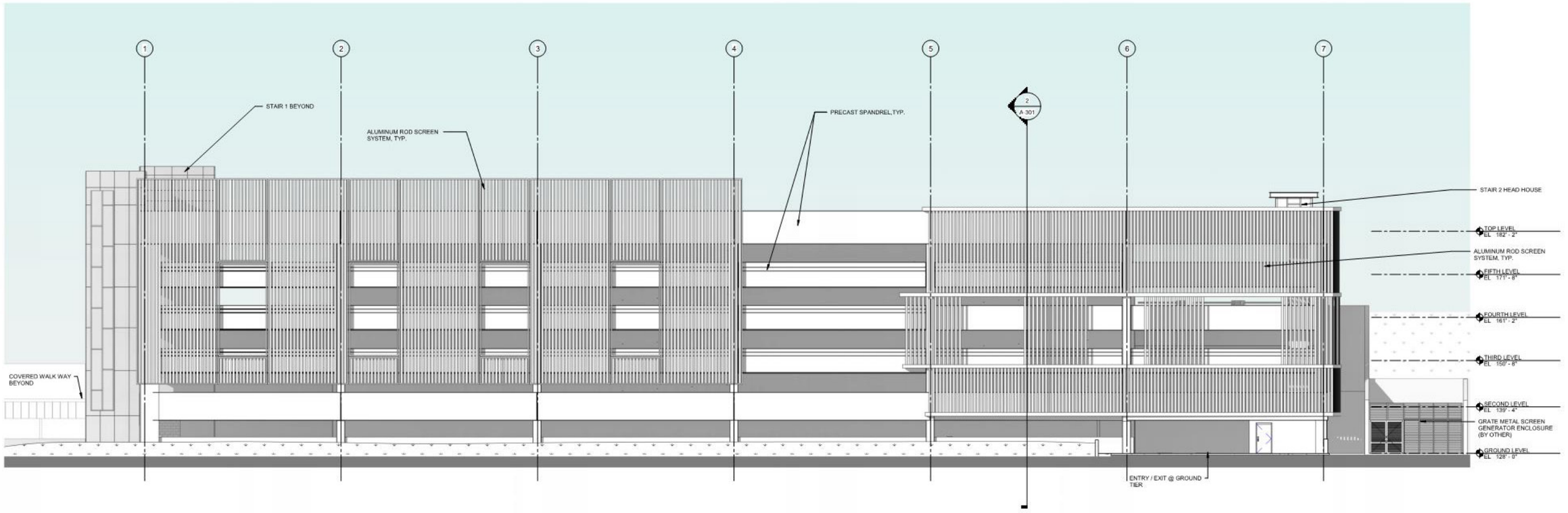


Figure 3-8
West Elevation
Source: Walker Consultants, 2019

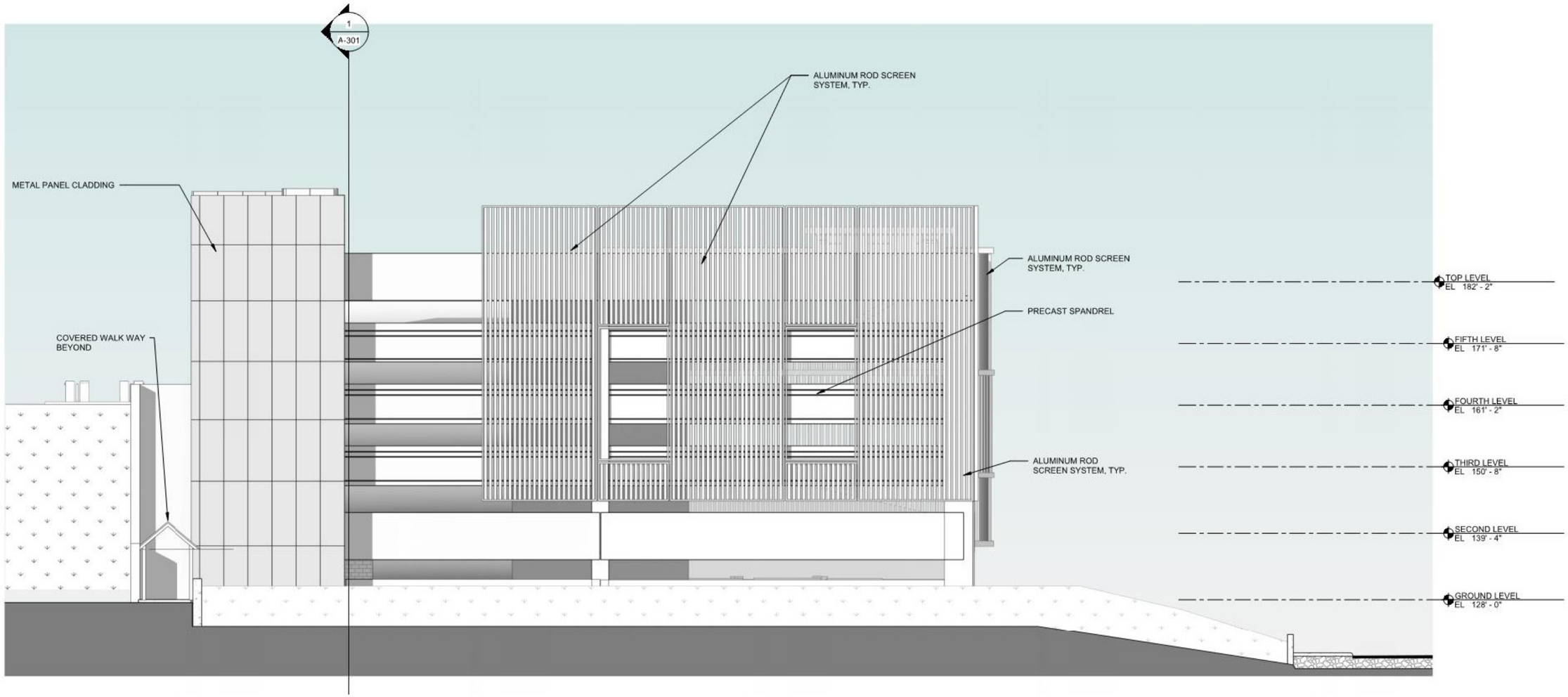


Figure 3-9
North Elevation
Source: Walker Consultants, 2019

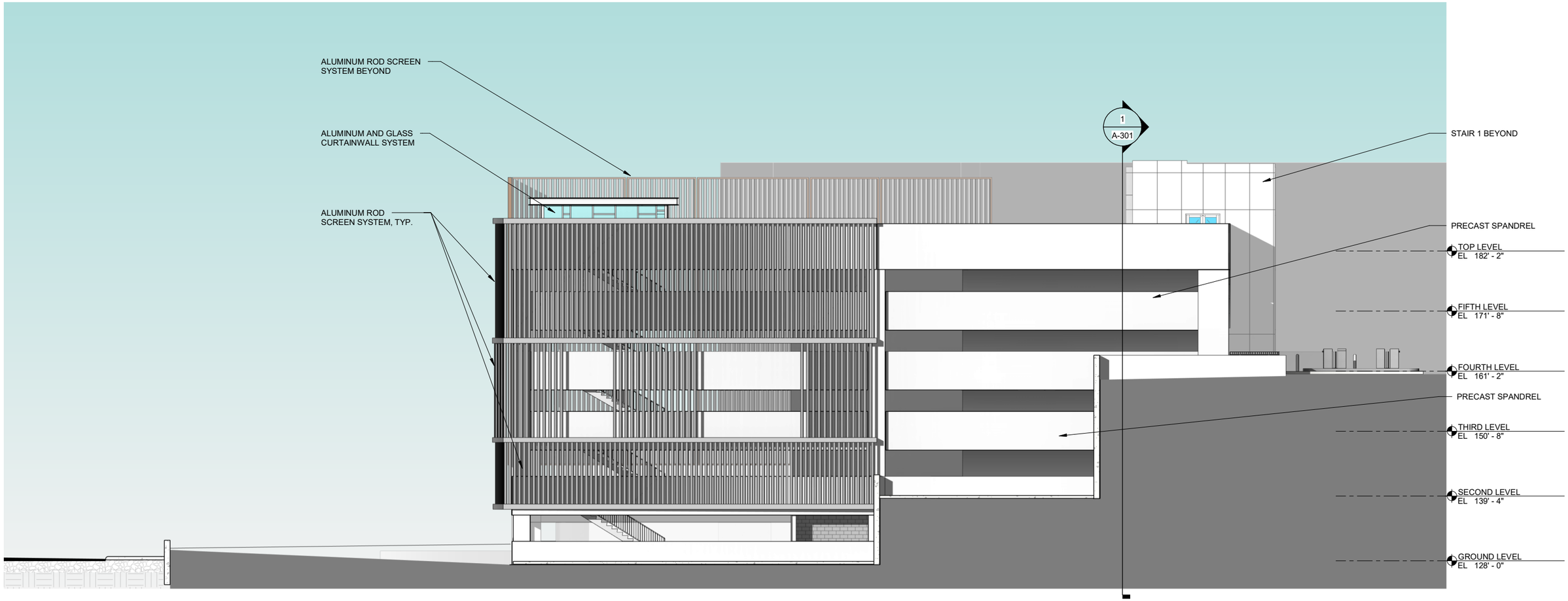


Figure 3-10
South Elevation
Source: Walker Consultants, 2019

Brighton, Massachusetts

Figure 3-11
Northwest Perspective
Source: Deborah Myers Landscape Architects, 2019

Brighton, Massachusetts

Figure 3-12
Southwest Perspective
Source: Deborah Myers Landscape Architects, 2019

Brighton, Massachusetts

Figure 3-13
Washington Street Pedestrian View
Source: Deborah Myers Landscape Architects, 2019

Figure 3-14
Washington Street View
Source: Deborah Myers Landscape Architects, 2019

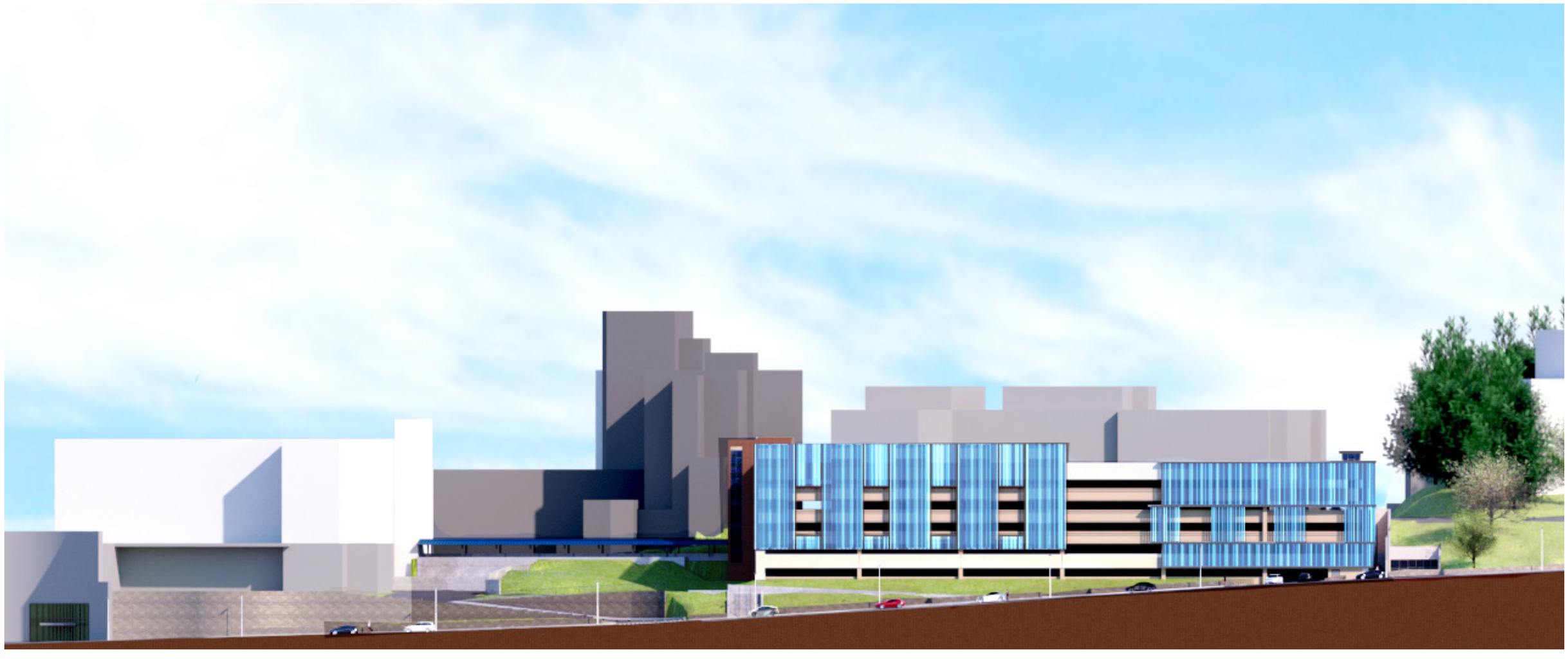


Figure 3-15
Washington Street Contextual Elevation View
Source: Walker Consultants, 2019

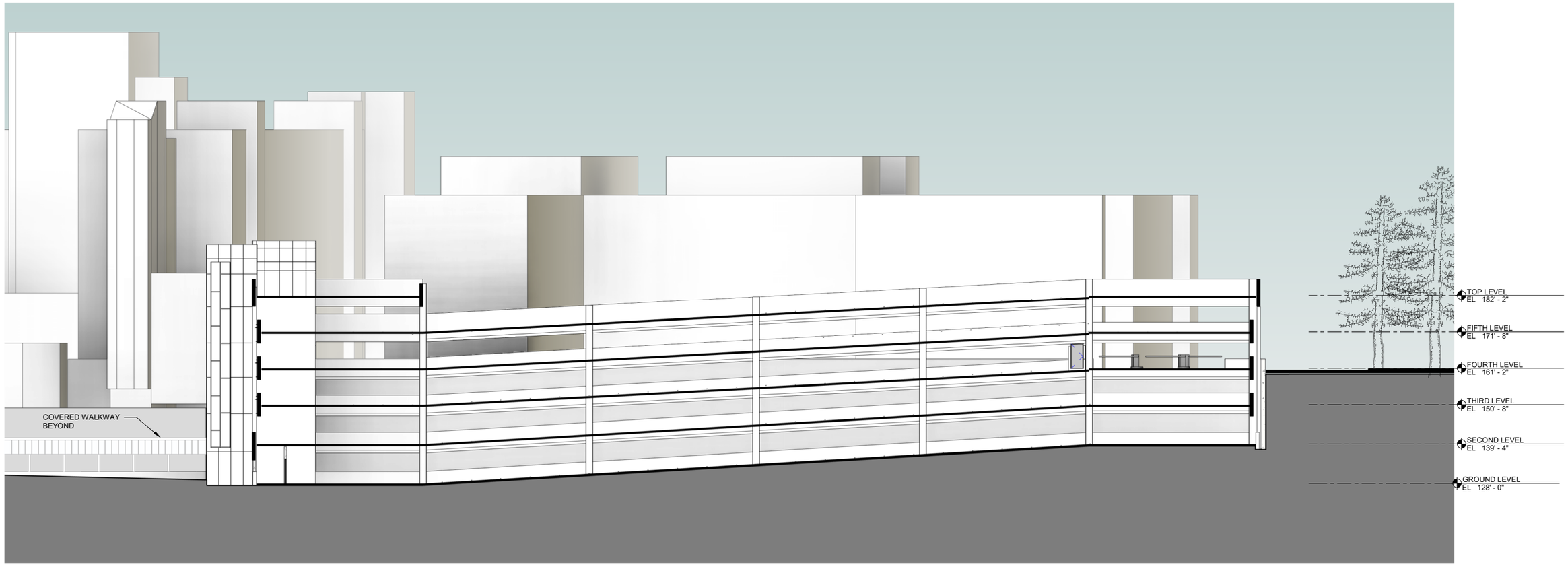


Figure 3-16
Longitudinal Section
Source: Walker Consultants, 2019

Figure 3-17
Transverse Section
Source: Walker Consultants, 2019

Figure 3-18
Landscape Plan
Source: Deborah Myers Landscape Architects, 2019

Chapter 4

SUSTAINABILITY

CHAPTER 4: SUSTAINABILITY

4.1 SUSTAINABLE DESIGN

The Project will incorporate sustainable measures within the design of the structure as well as with future operations.

4.2 ARTICLE 37/LEED COMPLIANCE

Typically, Leadership in Energy and Environmental Design (LEED) checklists are used to track compliance with Article 37 of the Boston Zoning Code (Article 37). However, in 2011 the U.S. Green Building Council (USGBC) ruled that buildings with more than 75% of floor area dedicated to parking are ineligible for certification. Therefore, it is not achievable for a parking structure to reach the City of Boston's requirement to be LEED certifiable, particularly due to several credit ineligibilities such as the indoor air quality credits.

Due to this exclusion, leaders in the parking industry developed the only rating system designed for parking structure sustainability through design and operation. In 2017, Green Business Certification Institute (GBCI) acquired Parksmart. Its goals are to cut operational costs, reduce environmental impacts, increase energy efficiency, better building environment, and encourage mobility options. The Project will strive to achieve Parksmart certifiability.

A preliminary Parksmart checklist is provided in Figures 4-1 through 4-6. This checklist will be updated throughout the design process.

4.3 SUSTAINABLE PRACTICES

The Project Team will incorporate or consider the following practices for the Project as the design progresses:

- Groundwater recharge of stormwater;
- Naturally-ventilated garage design; no mechanical ventilation and only heating/cooling in ancillary spaces (electric room, water service room, and similar spaces);
- Use of recycled materials;
- Use of regional materials;
- Recycling construction waste and other materials, use local labor, and source local and recycled materials;

- Application of only low or no VOC coatings;
- Offer bicycle parking and bicycle sharing on the Project Site;
- Carshare parking provided on the Project Site;
- Use a Project Site near public transportation (bus stops);
- Promote wayfinding within the garage;
- Prohibit/reduce exiting vehicle idling;
- Provide preferred parking for low-emitting and fuel-efficient vehicles;
- Charge for parking to encourage use of other transportation modes;
- Provide electric vehicle charging stations in the garage;
- Provide high-efficiency LED lighting throughout the garage;
- Control interior lighting with timers, photo sensors, and occupancy sensors;
- Provide programmable thermostats/sensor controls in occupiable spaces;
- Provide parking access equipment without cashier options to limit vehicle idling
- Use native plant selections for the landscape;
- Minimize irrigation/improve efficiency if irrigation is necessary;
- Regularly maintain surfaces and structures; and
- Clean the buildings with green, non-toxic approaches.

The parking facility will provide up to 5% of total spaces with electric vehicle (EV) charging capabilities and infrastructure to support an additional 10-percent of spaces in the future as demand for EV increases.

4.4 CLEAN AND RENEWABLE ENERGY PRACTICES

The structural system and foundations of the parking structure will be designed to accommodate a potential future photovoltaic (PV) rooftop array system to take advantage of the Project Site's southern exposure.

4.5 ENERGY EFFICIENCY ASSISTANCE

The Proponent may pursue the federal tax deduction incentive established in IRC Section 179D, which was enacted by the Energy Policy Act of 2005. This tax deduction was originally to expire at the end of 2007 but has been retroactively reinstated several years, most recently reinstated as part of the Bipartisan Budget Act of 2018. Filing for the deduction cannot occur until the year the project is complete. Therefore, it is unknown whether this deduction incentive will still be available at the completion of the Project. The incentive allows for a deduction of $0.30 to $0.60 per square foot of building for interior lighting systems that reduce the building's energy and power cost; deduction amount will depend the system. The parking structure lighting system will be designed with the intent of meeting the criteria for this tax deduction.

Parksmart Scorecard

Project Name:	
Project Registration #:	

Add Points Attempted for Each Option in White Columns Below

Parksmart Certification Measure	Options	Max Points Available	Points Attempted	Points Awarded
MANAGEMENT				
A1 - Parking Pricing	Parking Pricing	6	6	
A2 - Shared Parking	Shared Parking Program	2	2	
	Oversubscription of Parking Permits	2		
	Shared Parking Analysis	6		
A3 - TMA/TMO	Transportation Management Association / Organization	4		
A4 - Recycling Program	Active Recycling Program	2	2	
	Percentage of Recycling: At least 25% but less than 50%	1		
	Percentage of Recycling: 50% or more	2		
A5 - Sustainable Purchasing Program	Organized Sustainable Purchasing Program	2		
	Purchasing of Product Groups	1		
A6 - Proactive Operational Maintenance	Proactive Operational Maintenance	6	6	
A7 - Cleaning Procedures - Occupied Spaces	Cleaning Products & Hand Cleaners	2	2	
A8 - Cleaning Procedures - Parking Decks	Spot Cleaning / Oil Degreasing	1	1	
	Power Washing: Water is Disposed	2	2	
	Power Washing: Water is Recycled	3		
	Sweeping: Electric or Propane	1	1	
	Sweeping: Power Scrubber	1		
A9 - Building Systems Commissioning	USGBC LEED 2009 or v4 Enhanced Commissioning credit	8		
	USGBC LEED 2009 Fundamental Commissioning of Building Energy Systems prerequisite or v4 Fundamental Commissioning and Verification prerequisite	6		
	ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1-2007	6		
	California Commissioning Guide for New or Existing Buildings	6		
	ASHRAE Level II Audit	4		
	Comparable Established Certified Commissioning Authority (CxA) Standards	4		
A10 -Construction Waste Management	85% or more recycled or reused	6		
	At least 50% but less than 85% recycled or reused	4		
	At least 20% but less than 50% recycled or reused	2		
A11 - Regional Materials	At least 75% sourced regionally	6	3	
	At least 50% but less than 75% sourced regionally	3		
A12 - Regional Labor	At least 60% regional	3	3	
	At least 35% but less than 60% regional	1		
	Rideshare for laborers	1		

Figure 4-1
Parksmart Score Card
Source: Walker Consultants, 2019

Parksmart Certification Measure	Options	Max Points Available	Points Attempted	Points Awarded
A13 - Reused, Repurposed or Recycled Materials	At least 80% reused, repurposed or recycled	6		
	At least 50% but less than 80% reused, repurposed or recycled	4		
	At least 20% but less than 50% reused, repurposed or recycled	2	2	
A14 - Third Party Sustainability Certification	Platinum LEED 2009 or v4	12		
	Gold LEED 2009 or v4	10		
	Silver LEED 2009 or v4	8		
	Certified LEED 2009 or v4	6		
	Certified any level LEED v2.2	4		
	Four Green Globes	12		
	Three Green Globes	10		
	Two Green Globes	8		
	One Green Globes	6		
	Energy Conservation or Environmental Sustainability Program	2		
A15 - Credentialed Management	LEED Professional Credential (AP or AP with specialty)	4		
	Green Globes Assessor (GGA)	4		
	LEED Green Associate	3		
	Green Globes Professional (GGP)	3		
	Certified Administrator of Public Parking (CAPP)	2		
	Certified Parking Professional (CPP)	2	2	
	Facilities Management Administrator (FMA) or Real Property Administrator (RPA)	1		
	Certified Facility Manager (CFM)	1		
	Parksmart Advisor (formerly Green Garage Assessor)	1		
	Alternative Program	4		
A16 - Life Cycle Assessment	LCA performed and savings implemented on project totaling over $2 million	8		
	LCA performed and savings implemented on project totaling over $1 million	6		
	LCA performed and savings implemented on project totaling over $500,000	4		
	LCA performed and savings implemented on project totaling over $100,000	2		
(Must be at least 20) Subtotal		**90**	**32**	**0**

Brighton, Massachusetts

Figure 4-2
Parksmart Score Card
Source: Walker Consultants, 2019

Parksmart Certification Measure	Options	Max Points Available	Points Attempted	Points Awarded
PROGRAMS				
B1 - Placemaking	Placemaking	6	6	
B2 - Access to Mass Transit	Access to Mass Transit	4	4	
B3 - Wayfinding Systems - External	Dynamic Signage	1		
	Wayfinding System	2	2	
	Reservation System	1		
B4 - Wayfinding Systems - Internal	Parking Guidance via Single Space Detection	4		
	Parking Guidance via Electronic Level Occupancy Detection	3		
	Parking Guidance via Automatic Variable Signage	2		
	Parking Guidance via Manual Count and Static Signage	1		
B5 - Traffic Flow Plan	At least four traffic flow strategies	4	4	
	Average idle time of 5 seconds or less	4		
	At least three traffic flow strategies	3		
	At least two traffic flow strategies	2		
B6 - Carshare Program	Carshare Hub	5	5	
	Alternative Fuel Vehicles In Carshare Hub	1		
B7 - Rideshare Program	Rideshare: Reserved Spaces	4		
	Rideshare: Incentives	2		
B8 - Low-emitting and Fuel Efficient Vehicles	Preferred parking for low-emitting and fuel efficient vehicles	2	2	
	Discounted rates for low-emitting and fuel efficient vehicles	2		
B9 - Alternative Fuel Vehicles	AFV: Reserved Parking Spaces	3	3	
	AFV: Rate Discount	3		
B10 - Alternative Fuel Fleet Vehicles	At least 50% of fleet vehicles are powered by alternative fuels	4		
	At least 25% but less than 50% of fleet vehicles are powered by alternative fuels	2		
B11 - Bicycle Parking	Meets Tier One and Tier Two criteria	6		
	Meets Tier One criteria	4	4	
B12 - Bicycle Sharing/Rental	Contains bicycle sharing or bicycle rental hub	6	6	
	Promotes bicycle sharing or bicycle rental hub	4		
B13 - Marketing/Educational Program	Marketing/Educational Program	4	4	
(Must be at least 20) Subtotal		**64**	**40**	**0**

Figure 4-3
Parksmart Score Card
Source: Walker Consultants, 2019

Parksmart Certification Measure	Options	Max Points Available	Points Attempted	Points Awarded
TECHNOLOGY AND STRUCTURE DESIGN				
C1 - Idle Reduction Payment Systems	Idle Reduction Payment Systems	4	4	
C2 - Fire Suppression Systems	Halon Free Fire Suppression Systems	2		
C3 - No/Low VOC Coatings, Paints, Sealants	No/Low VOC Coatings, Paints, Sealants	2	2	
C4 - Tire Inflation Stations	Tire Inflation Stations	2		
C5 - EV Charging Stations	Two or more DC Fast Chargers	5		
	One DC Fast Charger	4	2	
	Two or more AC Level II EV Chargers, equaling at least 1% of all parking spaces	5		
	Two or more AC Level II EV Chargers, equaling at least 0.5% but less than 1% of all parking spaces	4	4	
	At least one AC Level II EV Charger, equaling less than 0.5% of all parking spaces	2		
	Level I equipped spaces equaling at least 0.5% of all parking spaces	1		
	No additional payment is required to charge vehicles	1		
C6 - HVAC Systems - Occupied Spaces	Energy Efficient System	2		
	CO Sensors	1		
	Programmable Thermostats	2		
	Environmentally Safer Coolants	1		
C7 - Ventilation Systems - Parking Decks	Demand Controlled Ventilation	3		
	Variable Air Flow System	2		
	Schedule or Occupancy Controls	1		
	Calibration and Maintenance	1		
	Design for Natural Ventilation	6	6	
C8 - Lighting Controls	At least 75% of lighting fixtures controlled by occupancy sensors	6	6	
	At least 50% of lighting fixtures controlled by occupancy sensors	4		
	At least 50% of lighting fixtures controlled by advanced programmable system	3		
	At least 50% of lighting fixtures controlled by simple timer	2		
	At least 25% of lighting fixtures on lighting controls	1		
	At least 60% of (exterior) lighting fixtures controlled by photocells or occupancy sensors	2	2	
	At least 60% of (exterior) lighting fixtures controlled by programmable timer	1		
C9 - Energy Efficient Lighting System	Lighting Power Density (LPD)	7	4	
	Average Rated Lamp Life	1		

Figure 4-4
Parksmart Score Card
Source: Walker Consultants, 2019

Parksmart Certification Measure	Options	Max Points Available	Points Attempted	Points Awarded
C10 - Stormwater Management	Implement an Erosion and Sedimentation Control Plan	2		
	Meet or exceed Municipal and Local Watershed Water Quality Control Targets	2		
	Retain minimum of 50% of total average rainfall	2		
C11 - Rainwater Harvesting	Rainwater Harvesting	4		
C12 - Greywater Reuse	Greywater Reuse	2		
C13 - Indoor Water Efficiency	Efficient Fixtures	2		
C14 - Water Efficient Landscaping	Water Efficient Landscaping	2	2	
C15 - Roofing Systems	Green Roof	6		
	Blue Roof	4		
	Carport or Canopy	3		
	High SRI Roofing	2		
	Solar Panels	2		
C16 - Renewable Energy Generation	At least 75% of energy is on-site renewable energy	12		
	At least 50% and less than 75% of energy is on-site renewable energy	10		
	At least 25% and less than 50% of energy is on-site renewable energy	8		
	At least 5% and less than 25% of energy is on-site renewable energy	6		
	At least 75% of energy is offset by RECs	4		
	At least 50% and less than 75% of energy is offset by RECs	3		
	At least 25% and less than 50% of energy is offset by RECs	2		
	At least 5% and less than 25% of energy is offset by RECs	1		
C17 - Design for Durability	Design for Durability	6	6	
C18 - Energy Resiliency - Storage	Grid Interactive Energy Storage	2		
	Grid and On-site Renewable Interactive Energy Storage	4		
(Must be at least 20) Subtotal		**88**	**38**	**0**
INNOVATION				
D1 - Innovative Approach	Innovative Approach	6		
TOTALS				
Management Subtotal		**90**	**32**	**0**
Programs Subtotal		**64**	**40**	**0**
Technology and Structure Design Subtotal		**88**	**38**	**0**
Innovation		**6**	**0**	**0**
Total		**248**	**110**	**0**

Figure 4-5
Parksmart Score Card
Source: Walker Consultants, 2019

Certification Achievement Levels	
Commissioned more than two years prior to project registration	
Certification Level	**Points**
Parksmart Pioneer	90+ points earned
Commissioned within two years of project registration or not yet commissioned	
Certification Level	**Points**
Parksmart Bronze	110-134 points earned
Parksmart Silver	135-159 points earned
Parksmart Gold	160+ points earned
Projects achieving Parksmart Pioneer must earn a minimum of 15 points in each of the three main certification categories (management, programs and technology and structure design) *Projects achieving Parksmart Bronze, Silver or Gold must earn a minimum of 20 points in each of the three main certification categories (management, programs, and technology and structure design)*	

Parksmart Scorecard - June 2016

Figure 4-6
Parksmart Score Card
Source: Walker Consultants, 2019

Chapter 5

TRANSPORTATION

CHAPTER 5: TRANSPORTATION

5.1 INTRODUCTION

MDM Transportation Consultants, Inc. (MDM) prepared an evaluation of transportation impacts for the proposed redevelopment Project. The proximity of the Project Site to the regional transportation system and Boston neighborhoods is shown in Figure 5-1, Site Location. This transportation study is prepared following the Boston Transportation Department (BTD) *Transportation Access Plan Guidelines* as well as traffic study guidelines as jointly issued by the Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs (EEA) and Massachusetts Department of Transportation (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 serve to accommodate Project-related traffic, loading and pedestrian activity, including elements of a Transportation Demand Management (TDM) program, for the Project.

5.1.1 PROJECT DESCRIPTION

SEMC is a regional 267-bed hospital with 28 emergency rooms and an adjacent medical office building which services central eastern Massachusetts. The SEMC Medical Campus includes approximately 975,000 gross square feet (gsf) of general hospital and office use with approximately 2,109 total employees (937 full-time employees and 1,172 part-time employees). Primary access and egress to the SEMC Medical Campus is provided via Warren Street. Access and egress to the emergency department and ambulatory service is provided along Washington Street. Secondary means of access to the SEMC Medical Campus is provided by way of easement over a separate driveway serving the adjoining St. Gabriel's Monastery property at 159-201 Washington Street. This driveway has limited use due to sign restrictions that prohibit its use by general traffic and is of immaterial consequence to the day to day operations of SEMC.

Parking supply for SEMC comprises a combination of surface lots, garage structures, and valet-operated stacked parking totaling 820 spaces located entirely within the SEMC Medical Campus. Employee related spaces also exist in numerous off-campus (satellite) surface lots located within the communities of Brighton and Watertown and for which SEMC-sponsored shuttle service is provided. These satellite lots, when combined with the SEMC Medical Campus parking supply totals 1,191 spaces to accommodate SEMC operations. The SEMC parking supply is subject to ongoing efforts by SEMC to secure off-site satellite parking arrangements to augment or replace satellite lots that have short-term lease arrangements as those leases expire.

As a point of reference, BTD has established parking goals for the Allston/Brighton section of Boston that are documented in *Access Boston 2000-2010* to range from 1.0 to 1.5 spaces per 1,000 sf of building area for non-residential uses. The calculated on-campus parking supply ratio for SEMC of 0.76 spaces per 1,000 sf of building area falls well below this range, indicating that on-campus parking supply is constrained. This condition requires ongoing and continuous search for short-term leases for satellite parking lots in surrounding neighborhoods and communities. A more detailed accounting of SEMC parking demands and supply ratios based on observed SEMC operations in presented in Section 5.6, which when combined with near-term programmatic changes at SEMC provides the basis of need for the proposed Project.

Certain programmatic changes are currently underway at SEMC that are accounted for in this transportation evaluation but that are independent of the Project and not subject to Article 80B review. Specifically, these include an expansion of 26 bed-units within the Connell building, additional operating facilities, and associated net employee increase of approximately 25 staff.

The development program includes a new approximately 610-space parking garage with a full access driveway to Washington Street and a separate access and egress driveway within the SEMC Medical Campus. The Project will allow consolidation of various off-campus satellite lots used for employee parking to the campus, the future elimination of the existing Garage A structure which will be replaced with a garden features, and improved circulation including improved patient drop-off area via Warren Street. The site plan is shown in Figure 5-2.

5.1.2 STUDY METHODOLOGY

This transportation evaluation is 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, pedestrian facilities, and safety characteristics. Next, future year (ten-year horizon) traffic conditions are forecast that account for other planned area developments, normal area growth, and development-related traffic and 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 necessary for Project-related impacts and to address traffic, pedestrian, bicycle, transit, safety, and construction period needs required to support the Project.

5.1.3 STUDY AREA

This study evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the Project Site, and that are likely to sustain a measurable level of traffic impact from the Project. The study area includes the following intersections as shown on Figure 5-1, Site Location:

1 - Washington Street/Cambridge Street/Winship Street – Signalized
2 - Washington Street/Emergency Department Driveway - Unsignalized
3 - Washington Street/Monastery Road – Signalized
4 - Cambridge Street/Sparhawk Street Warren Street - Signalized
5 - Warren Street/Nevins Street – Unsignalized
6 - Washington Street /Shannon Street/Proposed Driveway – Unsignalized

5.2 EXISTING CONDITIONS

In order to provide a basis for quantifying the transportation impacts of the Project, 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.

5.2.1 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 jurisdiction.

Cambridge Street

Cambridge Street is an east-west roadway under BTD jurisdiction that connects Memorial Drive and Washington Street. Cambridge Street is classified by MassDOT as an urban principle arterial roadway that provides two travel lanes in each direction with additional travel lanes provided at its major intersections. Parking is allowed along both sides of the roadway. Land uses along Cambridge Street include a mix of commercial and residential uses including Boston Green Academy, Saint Joseph Preparatory School, and the Boston Police District D-14 station. Sidewalks are provided along both sides of the roadway.

Washington Street

Washington Street is an east-west roadway under BTD jurisdiction that connects Route 95 in Weston to the west and Arlington Street to the east. Washington Street is classified by MassDOT as an urban principal arterial roadway that provides one travel lanes in each direction. Parking is allowed along the both sides of the roadway. Land uses along Washington Street are generally residential to the south of then site and primarily commercial to the north of the site and include The Green Briar, Zen Zone Spa, Café Mirror, and Rockland Trust. Sidewalks are provided along both sides of the roadway.

Warren Street

Warren Street is generally a northwest-southeast roadway under BTD jurisdiction within the study area. Warren Street is classified by MassDOT as an urban collector roadway and provides a connection between the Cambridge Street to the northwest and Commonwealth Avenue to the southeast. Warren Street provides one travel lane in each direction with sidewalks provided along both sides. Land use along Warren Street include Brighton High School, Franciscan Children's, and US Family Health Plan at Brighton Marine.

5.2.2 INTERSECTION DESCRIPTIONS

1) Washington Street/Cambridge Street/Winship Street – Signalized

Washington Street meets Cambridge Street to form a four-legged, signalized intersection. The Washington Street eastbound approach to the intersection consists of a through lane and a shared right-turn/hard right turn lane. The Cambridge Street westbound approach to the intersection consists of a through lane, a left-turn lane and a hard left turn lane. The Washington Street northbound approach to the intersection consists of a shared left-turn/hard left turn lane and a right-turn lane. The Winship Street northeast-bound approach to the intersection consists of a left-turn lane and a shared right-turn/hard right turn lane. Painted crosswalks are provided on all four approaches.

2) Washington Street/Emergency Department Driveway – Unsignalized

The SEMC Emergency Department Driveway meets Washington Street to form a three-legged, unsignalized intersection. The Washington Street northbound and southbound approaches to the intersection consist of a shared single travel lane with on-street parking provided along both sides. The Emergency Department Driveway Street westbound approach to the intersection consists of a single general-purpose travel lane under "STOP" control.

3) Washington Street/Monastery Road – Signalized

Monastery Road meets Washington Street to form a four-legged, signalized intersection. All approaches to the intersection consist of a single general-purpose travel lane. The westbound approach is under construction and will provide access to a proposed residential development. A driveway adjacent to the St. Gabriel's Monastery site's driveway provides access to SEMC's off-site parking lots (Annex Lot & RCAB Lot). The northbound and southbound Washington Street approaches provide MBTA bus stops just before the intersection.

4) Cambridge Street/Sparhawk Street/Warren Street – Signalized

Sparhawk Street and Warren Street meet Cambridge Street to form a four-legged, signalized intersection. The Sparhawk Street southbound approach to the intersection consists of a single general-purpose travel lane. The northbound Warren Street approach to the intersection consists of a left-turn lane, a through lane, and an unsignalized channelized right-turn lane under "STOP" sign control. The Cambridge Street eastbound approach to the intersection consist of a shared left-turn/through lane and a shared through/right-turn lane. The westbound Cambridge Street approach to the intersection consist of a left-turn lane and a shared through/right-turn lane.

5) Warren Street/Nevins Street – Unsignalized

Nevins Street meets Warren Street to form a four-legged, unsignalized intersection with the fourth leg being a channelized right turn lane from Warren Street to Cambridge Street. The Warren Street eastbound and westbound approaches to the intersection consist of a single general-purpose travel lane. The Nevins Street northbound approach to the intersection consists of a left-turn lane and a shared through/right-turn lane under "STOP" control.

6) Washington Street/Shannon Street – Unsignalized

Shannon Street meets Washington Street to form a three-legged, unsignalized intersection. The Washington Street northbound and southbound approaches to the intersection consists of a single general-purpose travel lane. Shannon Street is a one-way roadway providing the eastbound approach to the intersection which is under "STOP" sign control.

5.2.3 PEDESTRIAN FACILITIES

An inventory of the existing sidewalk system and pedestrian crossings in the study area has been conducted and is documented in Figure 5-3, Existing Pedestrian Facilities. The study area is served by an existing sidewalk system that will connects to area transportation that include the Boston Landing Station along the Framingham/Worcester commuter rail line and the B branch of the green line along Commonwealth Avenue.

As described in more detail in Chapter 3: Urban Design, the pedestrian environment within the SEMC Medical Campus will be designed to provide full access to patients, visitors, and staff to existing hospital facilities on the SEMC Medical Campus with enhanced connections to the existing sidewalk system along Washington Street. Key features will include a new exterior covered walkway link to the campus via the William F. Connell Pavilion building; a new sidewalk east of the garage and new raised walkway adjacent to the southeast parking garage entrance; the removal of surface parking, provision of clear designated service zones and traffic calming measures east of the garage to provide for an overall safer pedestrian environment. Sidewalk enhancements along Washington Street will include new paving, seating areas, and street trees with a new walkway connecting to the William Connell Pavilion/Emergency Department. Likewise, a new set of exterior steps near the existing Washington Street curb cut allows for a direct pedestrian connection from Washington Street to the new SEMC accessible walkway leading to the William Connell Pavilion/Emergency Department. The St. Gabriel's Monastery site southwest of the Project Site, which is currently being redeveloped for residential use, will improve pedestrian connections and access to the Project Site. A new sidewalk is also proposed at the SEMC service drive south of the parking structure at the SEMC and St. Gabriel's property line. This sidewalk will provide direct pedestrian access to the existing SEMC Parking Garage B and other portions of the SEMC Medical Campus.

5.2.4 BICYCLE SHARING SERVICES

Bicycle sharing services provide access to short-term bicycle transportation. BLUEbikes is Boston's bicycle sharing system which allows members to rent bicycles for a period of time and return them to any BLUEbikes 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 24 hour, 72 hour, monthly, and yearly increments. There are currently 17 bicycle docking stations located at Brighton Center (Washington Street at Cambridge Street), 15 bike docking stations located at the Warren Street at Commonwealth Avenue intersection, and a new station being placed near the Washington Street intersection with Commonwealth Avenue. A map of the existing BLUEbikes locations in the immediate study area is provided in Appendix B. Review of available online utilization reports for BLUEbikes (www.bluebikes.com) indicates that the Brighton Center BLUEbikes has regular availability with approximate 50 percent utilization rate.

5.2.5 BASELINE TRAFFIC VOLUMES

Traffic-volume data used in this study were obtained in June 2018 and are augmented with supplemental count data collected in December 2018 and February 2019. 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 midday shift change (2:00 p.m. to 4:00 pm) and weekday evening (4:00 p.m. to 6:00 p.m.) peak periods. These hours represent the combination of busiest activity periods of the Project 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, weekday midday and weekday evening peak hour traffic volume networks for study intersections are depicted in Figure 5-4, Figure 5-5 and Figure 5-6.

5.2.6 PEDESTRIAN AND BICYCLE VOLUMES

Given the highly urban characteristic 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, weekday midday, and weekday evening peak hour pedestrian and bicycle traffic volumes at the study intersections are provide in Figure 5-7, Figure 5-8, and Figure 5-9.

5.2.7 PUBLIC TRANSPORTATION

The Massachusetts Bay Transit Authority (MBTA) operates the Green Line service and Needham Commuter Rail service less than ½ mile from the Project Site at the along Commonwealth Avenue. Figure 5-10, Public Transportation 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 Framingham/Worcester Commuter Rail runs from Worcester to South Station with a stop in the area at Boston Landing. Service on this line generally runs on weekdays (Monday-Friday) 4:40 a.m. to 1:30 a.m. and 7:00 a.m. to 12:30 a.m. on Saturday and Sunday. Peak hour headways are approximately 30 minutes on weekdays to 2 hours on Saturday.

- **MBTA Subway Service:** The B branch of the Green Line subway runs from Boston College before merging with the C and D branches at Kenmore Station, with a stop in the immediate area at the intersection of Washington Street at Commonwealth Avenue. Service generally runs Monday through Sunday from 5:00 a.m. to 1:00 a.m. Headways are approximately 6 minutes.

- **Route 57:** Bus Route 57 runs from Watertown to Congress Street near Haymarket Station. The route passes near the Project site along Cambridge Street and Washington Street, with stops located near the intersection of Cambridge Street with Elko Street and Cambridge Street with Washington Street. Service generally runs Monday to Friday from 5:00 a.m. to 1:00 a.m., and Saturdays and Sundays from 6:00 a.m. to 1:00 a.m.

- **Route 65** Bus Route 65 runs from Brighton Square to Kenmore Station. The route passes near the Project Site along Washington Street, with a stop near the intersection of Washington Street and Cambridge Street. Service generally runs Monday to Friday from 6:00 a.m. to 8:30 p.m., and Saturdays and Sundays from 7:00 a.m. to 6:15 p.m.

- **Route 86:** Bus Route 86 runs from Cleveland Circle to Sullivan Square Station. The route passes near the Project site along Chestnut Hill Avenue and Market Street, with a stop located near the intersection of Washington Street and Chestnut Hill Avenue. Service generally runs Monday to Saturday from 5:30 a.m. to 12:30 a.m., and Sundays from 9:00 a.m. to 9:30 p.m.

5.3 FUTURE CONDITIONS

Evaluation of the Project impacts requires the establishment of a future baseline analysis condition. This section estimates future roadway and traffic conditions with and without the proposed Project. BTD guidelines require a 5-year planning horizon; however, as this evaluation is also intended to support an Institutional Master Plan (IMP) for SEMC, a 10-year horizon is used.

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 (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 future No-Build and projected Build transportation conditions in the study area.

5.3.1 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 (0.0 percent per year) growth rate. For purposes of this evaluation, a 0.5 percent growth rate was used (5.1 percent increase over a 10-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 as 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 the Appendix.

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 MEPA files and City of Boston BRA files indicates that there are currently twelve (12) proposed site-specific development projects in the area.

- ***SEMC Programmatic Changes:*** Certain programmatic changes are currently underway at SEMC that are accounted for in this Transportation evaluation but that are independent of the proposed development program and not subject to Article 80 review. Specifically, these include an expansion of 26 bed-units within the Connell building, additional operating facilities and associated net employee increase of approximately 25 staff. The Site-specific trip tracings are provided in the Appendix.

- ***159-201 Washington Street (St. Gabriel's Monastery):*** The restoration of the church to be used as an amenity space and the Fatima Shrine as well as 660 residential units and 510 parking spaces. The project is currently under construction. The Site-specific trip tracings are provided in the Appendix.

- ***139-149 Washington Street:*** This project is two proposed residential buildings. The 403,000± sf buildings will consist of approximately 180 rental units and 30 for-sale units and 220 parking spaces. The project is under review by the BRA. The Site-specific trip tracings are provided in the Appendix.

- ***Brighton Marine Health Center Residential Development:*** This development is a proposed mixed income residential building located at 77 Warren Street in the Brighton neighborhood of Boston. The project consists of 101 residential units and 101 parking spaces. The project is currently under construction. The Site-specific trip tracings are provided in the Appendix.

- ***425 Washington Street:*** This development is a proposed mixed-use development at the corner of Washington Street and Parsons Avenue in Brighton, MA. The proposed development consists of 54 residential units and 14,200± sf of ground floor retail uses including a bank and an urban grocery store with 125 off-street parking spaces. The project has been approved by the BRA. The Site-specific trip tracings are provided in the Appendix.

- ***101-105 Washington Street:*** This development is a proposed Synagogue, a new 70-unit residential building and a new Mikvah facility with 82 off-street parking spaces. The project has been approved by the BRA. The Site-specific trip tracings are provided in the Appendix.

- ***15-35 Washington Street:*** This project is an expansion of an existing grocery store, with 270 residential units above located on the corner of Washington Street and Corey Road. The project is under review by the BRA. The Site-specific trips are negligible and can be accounted for in the 0.5-percent compounded annual growth rate over 10 years.

- ***40 Mount Hood Road:*** This project is on a 1.7-acre site located at the corner of Mount Hood Road and Egremont Road in the Brighton neighborhood of Boston. The development will replace an existing 74 room hotel with 178-unit residential building with a mix of residential and condominium units. The project will provide 142 off-street parking spaces. The project has been approved by the BRA. The Site-specific trip tracings are provided in the Appendix.

- ***5 Washington Street:*** This development is a proposed 131,500 sf residential building that includes approximately 115 units and 12,500 sf of ground floor retail. The project has been approved by the BRA. The Site-specific trips are negligible and can be accounted for in the 0.5-percent compounded annual growth rate over 10 years.

- ***132 Chestnut Hill Avenue:*** This development is a proposed 61-unit residential building, on-site support and amenities for JCHE's residents, neighborhood-oriented retail/commercial space and 21 additional off-street parking spaces. The project is under construction. The Site-specific trips are negligible and can be accounted for in the 0.5-percent compounded annual growth rate over 10 years.

- ***386-388 Market Street:*** This development is a proposed 4 story building consisting of 17 residential units and 612 sf of commercial space, with 17 off-street parking spaces. The project is under construction. The Site-specific trips are negligible and can be accounted for in the 0.5-percent compounded annual growth rate over 10 years.

- ***212-214 Market Street:*** This development consists of 29 condominium units and 10,045 sf of commercial space, with 31 off-street parking spaces. The project is under construction. The Site-specific trips are negligible and can be accounted for in the 0.5-percent compounded annual growth rate over 10 years.

5.3.2 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 5.1 percent (0.5 percent compounded annually over 10 years) and adding site-specific trips associated with above area projects. The resulting 2028 No-Build traffic volumes are displayed in Figure 5-11 and Figure 5-12.

5.3.3 SITE-GENERATED TRAFFIC

Future Build condition traffic volumes were developed by estimating the number of peak-hour trips expected to be generated by the Project 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 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) 610 – Hospital and relocation of the Annex Lot and RCAB lot employees.

Mode Share

BTD Neighborhood Mode Splits

BTD publishes mode split rates for the section of Brighton that contains the SEMC Medical Campus (Area 10) that provide a baseline against which measured SEMC mode shares can be compared. As outlined above under Public Transportation Facilities, the SEMC Medical Campus is located within a well-served public transportation (MBTA Bus) service area with excellent access to an extensive sidewalk system and nearby bike share amenities (BlueBikes). The pedestrian and walk/bicycle mode share for the Area 10 section of Brighton for a work-related trip is summarized in Table 5-1.

Table 5-1: Mode Share (Brighton Area 10)

Period/Direction	Mode Share		
	Auto	Walk/Bike	Transit
Weekday Morning Peak Hour			
Entering	69%	21%	10%
Exiting	70%	13%	17%
Weekday Evening Peak Hour			
Entering	70%	13%	17%
Exiting	69%	21%	10%
Weekday Daily	75%	15%	10%

[1]Mode share assumptions per BTD's mode splits for Brighton (Area 10).

As summarized in the Table 5-1, walking/bike trips and transit trips account for approximately 30% of the work-related trips generated throughout Area 10, thus alternative transportation modes are shown to reduce the dependence on automobile trips.

SEMC Auto Mode Share Calculation – ITE Trip Basis

Auto mode share for SEMC may be estimated based on traffic volume data collected for the SEMC Medical Campus in June and November 2018 and comparing these trip data to projected trip activity based on Hospital use published by the Institute of Transportation Engineers (ITE). Table 5-2 presents a summary and comparison of measured SEMC trip activity for weekday peak hours to projected levels assuming a suburban-based hospital facility (i.e., traditionally auto-dependent locations). Traffic data are compared for the weekday AM peak period (6:00 a.m. to 9:00 a.m.) and weekday evening (4:00 p.m. to 6:00 p.m.) peak periods.

Table 5-2: Trip-Generation Summary – Existing SEMC Medical Campus (Autos)

Period/Direction	SEMCSITE TRIPS		
	SEMC Campus[1]	ITE Trip Gen[2]	SEMC vs ITE Projected (%)
Weekday Morning Peak Hour			
Entering	253	374	
Exiting	117	139	
Total	370	513	72%
Weekday Evening Peak Hour			
Entering	89	144	
Exiting	220	388	
Total	309	532	58%

Source: ITE *Trip Generation*, 10th Edition; 2017.

[1]Based on AM and PM Counts at the Site Driveways

[2]Based on ITE LUC 610 Hospital applied to 1900 employees; excludes equivalent employment levels at remote satellite lots at 65 Grove Street, Elks Lot and 280 Washington Street.

In summary, the existing SEMC auto mode shares averaging approximately 30 percent or more during peak hours is consistent with Brighton Area 10 auto mode share statistics.

SEMC Employee Survey Mode Share

In 2015 SEMC administered an employee mode share survey as part of the Massachusetts Department of Environmental Protection (DEP) Rideshare Regulation reporting requirements (310 CMR 7.16); the resulting 2015 Rideshare Report is included in Appendix B for reference. Subsequent to filing the 2015 Rideshare Regulation Report, SEMC was informed by DEP that filing of an annual Rideshare Report is no longer necessary on the basis that SEMC eligible employees fall below applicable thresholds as defined under the Rideshare Regulation. However, this 2015 report provides a basis for establishing a baseline of SEMC employee mode share and has led to (in combination with a more recent 2018 limited employee survey by SEMC) recent enhancements to the SEMC Transportation Demand Management (TDM) programs to foster further shifts to public transportation and alternative travel modes. In summary, inventoried employee commute data from the 2015 survey indicates that the single-occupant vehicle mode share for SEMC employees is 84%.

In May 2018, SEMC conducted a supplemental employee survey to quantify interest in transit and shuttle mode alternatives (See Appendix B); the survey response (355 employees) was below that obtained in the 2015 survey (967 employees) but clearly indicates a significant interest by responding employees (25% of respondents) to shift their commute to public transit and/or a potential private shuttle connection to Boston Landing that is being implemented by the adjacent property developer (CC&F). This response outcome led to SEMC policy to increase its transit subsidy program from $10/month to $40/month with a corresponding increase in employee participation in the subsidy program from just under 100 employees (prior to the increase) to 142 after the increase - representing a 42% increase in subsidy program participation.

Trip Generation Estimate

Trip-generation estimates for the proposed Project are based on ITE methodology for LUC 610 applied to the relocation of approximately 181 employees from remote parking lots located in Watertown/Brighton and adding observed trip activity based on empirical data for the relocation of trips associated with the nearby Annex and RCAB lots. The resulting relocated trip generation estimates are summarized in Table 5-3. Note that empirical (observed) trip data for the annex lot and RCAB lot employees is lower than ITE-based trip estimates which reflect the influence of alternative travel modes and travel demand management practices of SEMC; the ITE-based trip generation estimates for remote parking areas are not reduced to reflect these characteristics and hence are a conservative representation of likely trip activity.

Table 5-3: Trip-Generation Summary (Autos)

Period/Direction	PROJECTED SITE TRIPS Employee parking Relocation[1]
Weekday Morning Peak Hour	
Entering	49
Exiting	16
Total	65
Weekday Evening Peak Hour	
Entering	17
Exiting	60
Total	77

Source: ITE Trip Generation, 10th Edition; 2017.
[1]Based on ITE LUC 610 (Hospital) trip rates applied to 181 employees + relocation of observed Annex and RCAB lot trips.

As summarized in Table 5-3, the proposed Project is estimated to generate approximately 65 new vehicle trips to the area during the weekday morning peak hour (49 entering and 16 exiting), and 77 new vehicle trips to the area during the weekday evening peak hour (17 entering and 60 exiting).

5.3.4 TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of development-generated trips on the roadway network is a function of several variables including area population centers and the efficiency of these roadways leading to the site. Census 2010 Journey to Work data and 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 5-13. 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 trip-generation estimates shown in Table 5-3 and the distribution patterns as presented in the Figure 5-13. New development-related trips at each intersection for the weekday morning and weekday evening are quantified in Figure 5-14 and Figure 5-15.

5.3.5 BUILD TRAFFIC VOLUMES

Future Build condition traffic volumes were arrived at by adding Project-specific traffic volumes to the 2028 No-Build conditions. The 2028 Build condition traffic-volume networks for the weekday morning and weekday evening peak hours are displayed in Figure 5-16 and Figure 5-17.

5.3.6 TRAFFIC VOLUME INCREASES

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

Table 5-4: Traffic Volume Increases[1] – Weekday Morning Peak Hour

Intersection	2028 No-Build	2028 Build	Δ	%
1-Washington Street at Cambridge Street/Winship Street				
	1773	1803	+30	+1.7%
2-Washington Street at Emergency Department Driveway				
	913	943	+30	+3.3%
3-Washington Street at Monastery Road				
	1156	1168	+12	+1.0%
4-Cambridge Street at Sparhawk Street/Warren Street				
	1744	1770	+26	+1.5%
5-Warren Street at Nevins Street				
	1223	1225	+2	+0.2%
6-Washington Street at Shannon Street/ Proposed Driveway				
	918	975	+57	+6.2%

[1]Vehicles per hour (vph).

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

Intersection	2028 No-Build	2028 Build	Δ	%
1-Washington Street at Cambridge Street/Winship Street				
	1847	1879	+32	+1.7%
2-Washington Street at Emergency Department Driveway				
	992	1024	+32	+3.2%
3-Washington Street at Monastery Road				
	1222	1224	+2	+0.2%
4-Cambridge Street at Sparhawk Street/Warren Street				
	1747	1775	+28	+1.6%
5-Warren Street at Nevins Street				
	1124	1126	+2	+0.2%
6-Washington Street at Shannon Street/ Proposed Driveway				
	987	1051	+64	+6.5%

[1]Vehicles per hour (vph).

As summarized in Table 5-4 and Table 5-5 the additional trips generated by the Project is estimated to result in a nominal increase in traffic of less than 2% at the study intersections away from the site driveways during the peak hours. This results in one vehicle every two minutes or less, which is well within the day-to-day fluctuation of area roadways and will be imperceptible to the average motorist.

5.4 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. 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.

5.4.1 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 based on 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.

5.4.2 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 5-6 and Table 5-7 for the weekday morning and weekday evening peak hours, respectively. Detailed analysis results are presented in Appendix B.

Table 5-6: Intersection Capacity Analysis Results Weekday Morning Peak Hour

Intersection	Approach	Baseline			2028 No-Build			2028 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
1 – Washington St at Cambridge St/ Winship St	Eastbound	0.36	17	B	0.40	18	B	0.40	18	B
	Northbound	0.68	25	C	0.70	26	C	0.70	26	C
	Northwestbound	0.87	46	D	>1.0	77	E	>1.0	78	E
	Southbound	0.71	31	C	0.73	34	C	0.79	37	D
	Overall	**0.87**	**30**	**C**	**>1.0**	**43**	**D**	**>1.0**	**44**	**D**
2 – Washington St at Emergency Dwy	Southbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	WB Exit	0.01	12	B	0.02	14	B	0.02	15	B
3 – Washington St at Monastery Rd/ Old St. Gabriel Dwy	Southeastbound	0.41	10	B	0.41	6	A	0.40	6	A
	Northwestbound	0.53	12	B	0.49	7	A	0.50	7	A
	Northeastbound	0.03	<5	A	0.08	14	B	0.09	14	B
	Southwestbound	0.01	<5	A	0.58	15	B	0.57	15	B
	Overall	**0.53**	**11**	**B**	**0.58**	**8**	**A**	**0.57**	**8**	**A**
4 – Cambridge St at Warren St/ Sparhawk St	Eastbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Westbound	0.36	29	C	0.38	29	C	0.38	29	C
	Northeastbound	0.41	12	B	0.49	13	B	0.50	14	B
	Southwestbound	0.33	14	B	0.42	15	B	0.42	15	B
	Overall	**>1.0**	**35**	**D**	**>1.0**	**39**	**D**	**>1.0**	**40**	**D**
5 – Warren St at Nevins St	Eastbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Westbound	0.06	<5	A	0.06	<5	A	0.06	<5	A
	NB Exit	0.19	17	C	0.22	18	C	0.22	18	C
6 – Washington St at Shannon Street/ Proposed Site Dwy	Eastbound	0.00	<5	A	0.00	<5	A	0.03	<5	A
	Westbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Northbound	0.06	13	B	0.08	15	C	0.10	18	C
	SB Exit	n/a	n/a	n/a	n/a	n/a	n/a	0.05	16	C

[1]Volume-to-capacity ratio

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

[3]Level of service

Table 5-7: Intersection Capacity Analysis Results Weekday Evening Peak Hour

Intersection	Approach	Baseline			2028 No-Build			2028 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
1 – Washington St at Cambridge St/ Winship St	Eastbound	0.31	14	B	0.40	14	B	0.40	14	B
	Northbound	0.49	15	B	0.51	16	B	0.51	16	B
	Northwestbound	0.76	37	D	0.85	42	D	0.85	42	D
	Southbound	0.95	50	D	>1.0	>80	F	>1.0	>80	F
	Overall	**0.95**	**33**	**C**	**>1.0**	**55**	**D**	**>1.0**	**57**	**E**
2 – Washington St at Emergency Dwy	Southbound	0.01	<5	A	0.01	<5	A	0.01	<5	A
	WB Exit	0.03	14	B	0.04	17	C	0.05	18	C
3 – Washington St at Monastery Rd/ Old St. Gabriel Dwy	Southeastbound	0.53	12	B	0.60	8	A	0.61	7	A
	Northwestbound	0.42	11	B	0.39	5	A	0.39	5	A
	Northeastbound	0.11	8	A	0.27	13	B	0.27	13	B
	Southwestbound	0.01	11	B	0.41	13	B	0.35	12	B
	Overall	**0.53**	**11**	**B**	**0.60**	**7**	**A**	**0.61**	**7**	**A**
4 – Cambridge St at Warren St/ Sparhawk St	Eastbound	0.84	55	E	0.90	63	E	0.91	64	E
	Westbound	0.42	27	C	0.48	28	C	0.48	28	C
	Northeastbound	0.30	12	B	0.36	14	B	0.38	15	B
	Southwestbound	0.49	17	B	0.61	20	B	0.62	20	C
	Overall	**0.84**	**26**	**C**	**0.90**	**29**	**C**	**0.91**	**29**	**C**
5 – Warren St at Nevins St	Eastbound	0.00	<5	A	0.00	<5	A	0.00	<5	A
	Westbound	0.01	<5	A	0.02	<5	A	0.02	<5	A
	NB Exit	0.26	15	B	0.30	16	C	0.30	16	C
6 – Washington St at Shannon Street/ Proposed Site Dwy	Eastbound	0.00	<5	A	0.00	<5	A	0.01	<5	A
	Westbound	0.00	<5	A	0.00	<5	A	0.05	<5	A
	Northbound	0.03	13	B	0.04	16	C	0.00	19	C
	SB Exit	n/a	n/a	n/a	n/a	n/a	n/a	0.19	18	C

[1]Volume-to-capacity ratio

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

[3]Level of service

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 5-6 and Table 5-7 are as follows:

1. **Washington Street at Cambridge Street and Winship Street:** Traffic operations at this signalized intersection are LOS D during weekday morning peak hours and at LOS E during the weekday evening peak hours.

2. **Washington Street at Emergency Driveway:** Traffic operations at this unsignalized intersection are LOS B or better during weekday peak morning peak hour and LOS C or better during the weekday evening peak hour with no material change in intersection delays due to Project-related traffic.

3. **Washington Street at Monastery Road and Old St. Gabriel Driveway:** Traffic operations at this unsignalized intersection are well below capacity at LOS B or better during the morning and evening peak hours on weekdays.

4. **Cambridge Street at Warren Street and Sparhawk Street:** Traffic operations at this unsignalized intersection are LOS D or better during the morning peak hour, and LOS C or better during the evening peak hour on weekdays. The eastbound Sparhawk Street approach to the intersection continues to operate at LOS F with long delays during the weekday morning peak hour. There is no material change in intersection delays due to Project-related traffic (no change in delays overall).

5. **Warren Street at Nevins Street:** Traffic operations at this unsignalized intersection are LOS C during weekday peak hours under all analysis periods with no material change in intersection delays due to Project-related traffic (no change in delays overall).

6. **Washington Street at Shannon Street/Proposed Driveway:** Traffic operations for the approaches to Washington Street from Shannon Street and the proposed driveway will operate below capacity at LOS C or better during the morning and evening peak hours on weekdays.

5.5 PARKING

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

5.5.1 EXISTING PUBLIC PARKING SUPPLY

Curbside Public Parking

The existing on-street parking supply within one-quarter mile of the site includes approximately 734 parking spaces. The study area comprising curbside parking inventory is shown in Figure 5-18, which is color coded based on parking type, with summary inventory presented in **Table 5-8**. Detailed parking inventory data sheets included in Appendix B.

Table 5-8: On-Street Parking Supply – ¼ ± Mile Radius

	Parking Supply[1]		
Location	**1-2 Hour Parking**	**Resident Permit Only Parking**	**Unrestricted Parking[2]**
Bentley Street		<32>	-
Cambridge Street	57(2)	-	[32]
Dustin Street	30	-	-
Elko Street	-	<16>	-
Henshaw Street	31(1)	<9>	-
Larose Place	-	<10>	-
Mapleton Street	-	<60>	-
Menlo Street	-	<32>	-
Monastery Road	-	<23>	-
Murdock Street	3	<28>	-
Shannon Street	-	<56>	-
Shepard Street	-	<30>	-
Snow Street	-	<48>	-
Sparhawk Street	-	-	-
Union Street	-	<22>	-
Waldo Terrace	-	<10>	-
Warren Street	-	-	
Washington Street	56	<35>	[16]
Winship Street	8	<43>	-
Wirt Street	44	-	-
Total	**224(8)**	**<454>**	**[48]**

[1] (#) = Handicapped Parking Space

[2] [#] = Unrestricted Parking Space

[3] <#> = Resident Permit Parking Space

In summary, public on-street parking within 1/4 -mile of the SEMC Medical Campus totals 715 spaces, comprised of 205 time-limit restricted spaces (one to two-hour parking limit), 454 residents-only parking spaces (resident permit required), 48 unregulated spaces, and 8 handicapped parking spaces as summarized in Table 5-8.

SEMC Parking Supply

The SEMC parking supply comprises a combination of on-campus marked spaces, on-campus valet supply, and remote/satellite lots as shown in Figure 5-19 and summarized in Table 5-9**.** SEMC parking supply totals 820 spaces located entirely within the SEMC Medical Campus (737 marked spaces and 83 stacked/valet spaces) and 371 satellite/remote spaces in leased lots. Employee-related spaces in off-campus (satellite) surface lots are located within the communities of Brighton and Watertown and for which SEMC-sponsored shuttle service is provided. These satellite lots, when combined with the SEMC Medical Campus parking supply totals 1,191 spaces to accommodate SEMC operations. The SEMC parking supply is subject to ongoing

efforts by SEMC to secure off-site satellite parking arrangements to augment or replace satellite lots that have short-term lease arrangements as those leases expire.

As a point of reference, BTD has established parking goals for the Allston/Brighton section of Boston that are documented in *Access Boston 2000-2010* to range from 1.0 to 1.5 spaces per 1,000 sf of building area for non-residential uses. The calculated the parking supply ratios for SEMC fall well within (or below) this range, suggesting that parking supply is already constrained – a point further documented based on observed SEMC parking demands in the following section. The calculated parking supply ratios for SEMC range from 0.76 (when assuming only on-campus marked spaces) to 1.22 (when conservatively assuming the inclusion of near-term satellite lot leases in addition to campus valet and marked spaces). The loss of satellite lots that are under short-term lease arrangement (65 Grove Street, Annex Lot and RCAB Expansion Lot), results in an effective parking supply ratio of 0.98, inclusive of continued on-site valet operations.

Table 5-9: SEMC Parking Supply (Campus and Off-Site Leased Lots)

	Parking Supply[1]		
Location	**Marked Spaces**	**Stacked Valet[2]**	**Total**
On-Campus Supply			
St. Elizabeth's Medical Center Garage A	256	10	266
St. Elizabeth's Medical Center Garage B	398	25	423
Our Lady's Hall Lot	47	30	87
Main Entrance (Valet)	16	18	34
St. Margaret's/Service Building (Valet)	13	-	13
Maintenance Area (Adjacent Garage B)	7	-	7
Subtotal	**737**	**83**	**820**
Satellite Lots			
Elk's Lot	110	-	110
280 Washington Street	21		21
RCAB Expansion Lot	40	-	40
Annex Lot	100	-	100
65 Grove Street Lot	100	-	100
Subtotal	371	-	371
Total	**1,108**	**83**	**1,191**

[1]The parking supply as inventoried at St. Elizabeth's Medical Center on Tuesday, May 8, 2018 and Thursday November 29, 2018 and updated through April 1, 2019 based on discussions with SEMC staff.

[2] Valet parking supply reflects practical maximum limits based on operational experience by SEMC staff as of April 1, 2019.

A brief overview of SEMC parking facilities summarized in Table 5-9 is as follows:

- St. Elizabeth's Medical Center Garage A – 266 spaces
  Garage A consists of 256 marked parking spaces. Approximately 66 of these spaces are used by a valet service for patients and visitors with an additional 10 stacked valet spaces available on the 4th floor. The remaining 190± spaces are used by staff members.

- St. Elizabeth's Medical Center Garage B – 423 spaces
  Garage B located south of the main drop-off/ pick- up area for the St. Margaret's Building consists of 398 marked parking spaces. An additional 25 spaces are used for stacked valet parking.

- Annex Lot – 100 spaces
  The Annex lot located near St. Gabriel's monastery consists of 100 marked parking spaces used by hospital staff.

- RCAB Lot – 40 spaces
  The RCAB lot is located behind the annex lot and consists of 40 marked parking spaces used by hospital staff.

- Our Lady's Hall Lot – 77 spaces
  The on-site OLH lot consists of 47 marked parking spaces limited exclusively for staff with Our Lady's Hall permits and ambulance parking. An additional 30 spaces are used for stacked valet parking.

- Elk's Lot – 110 spaces
  The private Brighton Elks Lodge lot located at 326 Washington Street consists of 110 marked parking spaces marked for staff use.

- 65 Grove Street Lot – 100 spaces
  The Grove Street lot consists of 100 marked parking spaces for staff use located in the top two floors of the parking garage.

- Main Entrance (Valet) – 34 spaces
  The Main Entrance area lot consists of 16 marked parking spaces for patient valet use and 18 stacked valet parking spaces.

- Service Building (Valet) – 13 spaces
  The St Margaret's Center valet area consists of 13 marked parking spaces for patient valet use.

- Maintenance Area – 7 spaces
  The Maintenance Area includes 7 marked parking spaces for maintenance staff use.

- 280 Washington Street Lot – 21 spaces
  The 280 Washington Street includes 21 marked parking spaces marked for staff use.

The SEMC planning objective is to satisfy its own operational parking needs within the campus with limited reliance of remote or satellite parking. Under the proposed development program, a new 610-space parking garage is to be located at the site of the existing 47-space/30 valet capacity Our Lady's Hall (OLH) parking lot. This will allow demolition of the existing 256-space Garage A structure and will absorb employee parking demands that are currently met at remote satellite lots that have leases that are set to expire in the near-term including the Annex lot, RCAB Expansion Lot and 65 Grove Street Lot (a combined total of 240 spaces). The Project will also support near-term programmatic changes at SEMC that include additional operating room facilities and associated staffing that is not subject to Article 80 review or permitting, and a future planned Clinical Building that will be subject to a separate, future Article 80 filing.

5.5.2 OBSERVED PEAK PARKING DEMAND

A parking accumulation survey was conducted to identify parking trends within St. Elizabeth's Medical and off-site satellite lots on Tuesday, May 8, 2018 between 10:00 a.m. and 1:00 p.m. An on-street parking accumulation survey was also conducted to identify parking trends within an approximately one-quarter mile radius of the Project site on Thursday, November 29, 2018 during normal operating conditions. Supplemental parking observations were also conducted at St. Elizabeth's Medical and off-site satellite lots on November 29, 2018.

The on-street parking observations are summarized in Table 5-10. Likewise, the peak parking demands based on parking observations are summarized in Table 5-11 for on-site parking and further broken down by staff in Table 5-12 and Visitor/Patient in Table 5-13. Detailed parking observations are provided in Appendix B.

Table 5-10: On-Street Parking Demand – Weekday Midday (12:00 p.m.) – ¼ ± Mile Radius[1]

	Observed Parking Demand		
Roadway	**Occupied Spaces**	**Total**	**Percent Occupied**
Bentley Street	<11>	11	34%
Cambridge Street	56(1)[30]	87	96%
Dustin Street	6	6	20%
Elko Street	<13>	13	81%
Henshaw Street	12(1)<6>	19	46%
Larose Place	<3>	3	30%
Mapleton Street	<22>	22	37%
Menlo Street	<18>	18	56%
Monastery Road	<9>	9	39%
Murdock Street	<8>	8	26%
Shannon Street	<23>	23	41%
Shepard Street	<21>	21	70%
Snow Street	<14>	14	29%
Sparhawk Street	-	-	-
Union Street	<20>	20	91%
Waldo Terrace	<3>	3	70%
Warren Street	-	-	-
Washington Street	27 [16]<24>	67	63%
Winship Street	<27>	27	53%
Wirt Street	41	41	93%
Total	**142(2)[46]<222>**	**412**	**56%**

[1] The parking utilization of on street parking within a quarter mile of St. Elizabeth's Medical Center based on parking counts conducted on Thursday November 29, 2018.
= Time-restricted parking (<2-hour limit)
(#) = Handicapped Parking Space
[#] = Unrestricted Parking (no time limit)
<#> = Resident Permit Parking Space

Table 5-11: SEMC Parking Demand (Campus and Off-Site Leased Lots)

	Parking Supply[1]		
Location	**Occupied Spaces[2]**	**Total Spaces**	**Percent Occupied**
St. Elizabeth's Medical Center Garage A	250	266	94%
St. Elizabeth's Medical Center Garage B	386	423	91%
Annex Lot	101	100	101%
RCAB Expansion Lot	24	40	60%
Our Lady's Hall Lot	76	77	100%
Elk's Lot	110	110	100%
65 Grove Street Lot	91	100	91%
Main Entrance (Valet)	24	34	71%
Service Building (Valet)	12	13	92%
Maintenance Area	7	7	100%
280 Washington Street	16	21	76%
Total	**1,097**	**1,191**	**92%**

[1]The parking supply as shown in Table 5-12

[2]The parking utilization at St. Elizabeth's Medical Center based on parking counts conducted on Tuesday, May 8, 2018 and Thursday November 29, 2018

Table 5-12: Peak Parking Demand – Staff Parking

Location	**Staff Parking Spaces[2]**	**Peak Utilization**
St. Elizabeth's Medical Center Garage A	201	185
St. Elizabeth's Medical Center Garage B	230	251
Annex Lot	100	101
RCAB Expansion Lot	40	24
Our Lady's Hall Lot	77	76
Elk's Lot	110	110
Grove Street Lot	100	91
Maintenance Area	7	7
280 Washington Street	21	16
Total	**886**	**861 (103%)**

Table 5-13: Peak Parking Demand – Visitor/Patient Parking

Location	Visitor/Patient Parking Spaces[2]	Peak Utilization
St. Elizabeth's Medical Center Garage A	65	65
St. Elizabeth's Medical Center Garage B	193	135
Main Entrance (Valet)	34	24
Service Building (Valet)	13	12
Total	**305**	**236 (77%)**

[1]The parking supply as shown in Table 5-6

[2]The parking utilization at St. Elizabeth's Medical Center based on parking counts conducted on Tuesday, May 8, 2018 and Thursday November 29, 2018.

Key findings of the area parking surveys are as follows:

Public On-Street Parking – Weekday Midday Parking Demand:

The parking demand during the weekday midday period was observed to be 412 spaces. The resulting parking utilization for all inventoried spaces is approximately 56 percent, representing 322 vacant spaces that are almost exclusively limited to time-restricted (82) spaces and resident-only spaces (232). The limited number (48) of unrestricted spaces along Washington Street and Cambridge Street and time-restricted spaces (83 spaces) along these streets proximate to the SEMC Medical Campus are virtually fully utilized with no reserve during midday periods. The vast majority of vacancies relate to resident-only parking spaces. On neighborhood streets.

St. Elizabeth's Medical Campus and Off-Site Lease Lots:

The SEMC Medical Campus was observed to have a peak demand of 1,097 during the weekday midday peak hour. The resulting parking utilization is approximately 92% resulting in a reserve parking supply of fewer than 100 spaces for visitors/patients campus-wide. No reserve exists for employee-related spaces that are principally located in remote satellite lots and Garage A and Garage B, where valet/stacked parking is necessary to support demands.

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 while the SEMC parking supply including on-site and lease lots is at the effective capacity (92%) to accommodates existing SEMC parking needs.

In summary, current SEMC parking demands effectively represent full utilization with very limited reserve capacity to accommodate normal fluctuations in SEMC demands, requiring continued reliance of valet service and replacement of off-site lots as short-term leases expire.

Peak Parking Demand – ITE Basis

MDM has also reviewed peak parking generation estimates for SEMC based on current standards published by the Institute of Transportation Engineers (ITE) in *Parking Generation* (5th Edition, 2019). This analysis provides a relevant basis for comparing projected parking demands to actual campus parking characteristics.

ITE's *Parking Generation* establishes peak parking demand rates and associated statistical data for various land use categories based on a national database of land use types. Based on available data within *Parking Generation*, the primary land use type was selected that most closely reflect building use within the SEMC Medical Campus. This includes the following Land Use Code (LUC):

- **LUC 610 – Hospital:**

  A hospital is any institution where medical or surgical care and overnight accommodations are provided to non-ambulatory and ambulatory patients. LUC 610 parking rates apply to the St. Elizabeth's Medical Center main hospital, which includes approximately 975,000 gross square feet (gsf) and 267 bed-unit main hospital.

Trip rates published in Parking Generation for the given land use type is best correlated to beds as the independent variable; as such, an equation was applied to estimate average peak parking demand using campus statistics provided by SEMC staff. The 85th percentile trip rate was also applied to derive an appropriate "design" parking demand for the campus, and for comparison to existing parking supply. Results of the peak parking demand estimates based on ITE methodology are summarized in Table 5-9.

Table 5-14: Peak Parking Demand Estimates – ITE Basis

			Peak Parking Demand		
ITE LUC	**Description**	**Beds/Size**	**Average**	**95th Confidence**	**85th Percentile**
610	Hospital	267 beds	999	1,108	1,592

Source: ITE Parking Generation, 5th Edition (2019).
The hospital has approximately 267 beds with an employee count of 2,109 staff members (937 full time and 1,132 part-time).

As summarized in Table 5-14, the projected peak parking demand for the SEMC campus based on industry standard parking methodology is between 999 parked vehicles and 1,108 parked vehicles during the critical peak parking period. The 95th confidence estimated parking demand closely reflects actual observed peak parking demand at SEMC. The maximum, or "design" peak parking demand is estimated at 1,592 spaces based on 85th percentile parking rates. When compared to industry standard rates for an urban location Hospital (ITE LUC 610) SEMC is generating a peak parking demand that is more than 30 percent lower than industry standard peak design values for an urban hospital. This further corroborates that SEMC auto mode shares are in line with Brighton Area 10 auto mode share characteristics.

5.5.3 NO-BUILD PARKING DEMAND

The expansion of 26 bed-units within the Connell building, additional operating facilities and associated net employee increase of approximately 25 staff are expected to occur under future conditions. The projected parking demand is expected to increase to approximately 1,200± parking spaces. The resulting projected parking utilization of the existing SEMC parking supply (inclusive of leased off-site satellite lots) is expected to approach or exceed capacity, requiring ongoing and continuous search for short-term leases for satellite parking lots in surrounding neighborhoods and communities.

5.5.4 PROPOSED PARKING SUPPLY

The SEMC planning objective is to satisfy its own operational parking needs within the campus with limited reliance of remote or satellite parking. Under the proposed development program, a new 610 space parking garage is to be located at the site of the existing 47-space/30 valet capacity OLH parking lot. This will allow demolition of the 256-space Garage A structure and will absorb employee parking demands that are currently met at remote satellite lots that have leases that are set to expire in the near-term including the Annex lot, RCAB Expansion Lot and 65 Grove Street Lot (a combined total of 240 spaces). The resulting SEMC parking supply of under these conditions is 1,205 spaces (1,115 marked parking spaces and approximately 50 valet parking spaces) as summarized in Table 5-15. Note that valet operations within the Project are to be determined based on actual measured parking demands post-construction and may either replace the valet function currently located within Garage B or augment that valet function pending further review by SEMC.

Table 5-15: Proposed On-Site Parking Supply Including Adjacent Satellite Lots

	Proposed Parking Supply		
Location	**Marked Spaced**	**Stacked Valet**	**Total**
Campus Supply			
New SEMC On-Site Garage	600	25[1]	625
St. Elizabeth's Medical Center Garage B	398	25	423
Main Entrance (Valet)	6	-	6
St. Margaret's/Service Building (Valet)	13	-	13
Maintenance Area (Adjacent to Garage B)	7	-	7
Subtotal	**1,024**	**25**	**1,074**
Satellite Lots			
Elk's Lot	110	-	110
280 Washington Street	21	-	21
Subtotal	**131**	**-**	**131**
Total	**1,155**	**50**	**1,205**

[1] Valet parking supply at New Garage to be determined based on measured demands post-construction and may either replace the valet operations currently located within Garage B or will augment that service pending further review by SEMC.

In total, the current observed parking activity to be re-allocated to the Project include 566 vehicles (326 from Garage A and the OLH Lot and 240 from satellite lots). This re-allocation and absorption of SEMC parking necessitates a minimum Project size of at least 600 spaces to reflect current known peak demands and additional demands associated with planned programmatic increase of new operating facilities and 26 new bed-units at SEMC with associated staff increase of 25 persons, assuming that SEMC auto mode share characteristics remain unchanged from current conditions. As we previously note, these auto mode share characteristics are consistent with BTD Brighton Area 10 characteristics.

The Project sizing of 610 spaces is supported as described below but may require implementation of a supplemental valet service within the Project to fully support 85th percentile parking demands.

5.5.5 PROJECTED BUILD PARKING DEMAND

Given that the SEMC programmatic changes are independent of the proposed development program the projected parking demand under Build conditions is expected to remain consistent with no-build operations, the projected peak parking demand is not expected to materially increase with the construction of the Project. However, programmatic changes within the SEMC Medical Campus (expansion of 26 bed-units within the Connell building, additional operating facilities and associated net employee increase of approximately 25 staff) the projected parking demand is approximately 1,200± parking spaces. The resulting projected parking demand is expected to fully utilize available SEMC parking resources (including full use of nearby satellite lots) and may still require on-site valet service to fully support SEMC operations. The Project will generally allow relocation of off-site parkers (employees) at several short-term lease satellite lots (namely Grove Street Watertown, Annex Lot and RCAB Lot) to relocated to the SEMC Medical Campus. Under proposed conditions with consolidated parking at the SEMC Medical Campus, SEMC will have the ability to accommodate its own parking demand without relying on remote/short-term lease satellite lot parking activity. However, it is assumed that SEMC will retain the 280 Washington Street lot and the Elk's lot given their proximity to the SEMC Medical Campus.

5.5.6 SEMC BICYCLE PARKING INVENTORY

A bicycle accumulation survey was conducted to identify bicycle parking supply and trends within St. Elizabeth's Medical Center on Wednesday, January 12, 2019 between 11:00 a.m. and 12:00 p.m. An inventory of the adjacent BLUEbike station (Brighton Center) was also conducted to identify bike share trends adjacent to SEMC. The SEMC and adjacent BLUEbike parking locations are shown in Figure 5-20, which is color coded to reflect covered bicycle spaces, uncovered bicycle spaces, and BLUEbike station, with detailed data sheets included in Appendix B.

A review of the bicycle rack locations on the SEMC Medical Campus indicates approximately 50 bike spaces; a 30-bike rack in Garage A, a 10-bike rack in Garage B, and a 10-bike rack under the overhang near the emergency room entrance. The BLUEbike station adjacent to the campus (Brighton Center) has a capacity for 17 bicycles.

An inventory of bicycle parking on the SEMC Medical Campus indicated approximately 8 parked bicycles; 3 bicycles in Garage A, 2 bicycles in Garage B, 2 bicycles in the bike rack near the emergency room, and 1 bicycle attached to a fence post in the OLH lot. The bike parking inventory indicated that 9 bikes were docked at the Brighton Center BLUEbike station with 8 open docks. The observation is consistent with the 50% utilization rate as indicated in the online utilization reported.

5.6 RECOMMENDATIONS

Improvements that support projected traffic increases associated with the proposed development are identified that 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 transportation demand management (TDM). 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.

5.6.1 ACCESS AND CIRCULATION IMPROVEMENTS

Parking and Access

The Project Site is accessible via vehicular access from multiple points. The existing Washington Street Driveway leading to the William Connell Pavilion/Emergency Department will remain. A new curb opening/access point to the parking garage via Washington Street will enter/exit on the first-floor level of the garage. This access route is aligned with Shannon Street to the southwest. The project can be also accessed from Nevins Street on the campus directly to the parking garage on the fourth-floor level. Parking access control gates are located at the southeast corner of the parking garage. The parking access gates allow for vehicular stacking and controlled entry and exit to the parking garage.

Existing service access points to the hospital including St. Joseph's Hall and Seton Pavilion to the north will remain and function as designated service and emergency access only areas. The existing driveway connection from St. Gabriel's Monastery site to the Project Site will remain and be maintained at the current service level. It is assumed that all surface parking within the Project Site will be eliminated with the exception of the emergency and service vehicles.

There will be two vehicular access points to the parking garage. The first access point is located in the southwest corner of the garage on the first level connecting to Washington Street. The second access point is located in the southeast corner of the garage on the fourth supported level of the garage. The second vehicular entry/exit will be accessed through the SEMC Medical Campus by Nevins Street to Warren Street. There is one new planned curb cut on Washington Street associated with the Project.

The garage will have three pedestrian access points. The primary stair/elevator tower is located in the northeast corner and will connect all floors. Pedestrian access to the campus will be provided on the first, second, and fourth levels of the structure. This stair will be the primary pedestrian access point for visitors to the campus and will provide an exterior covered walkway link to the campus via the William F. Connell Pavilion building. The second pedestrian access point is located in the southwest corner adjacent to the vehicular entry/exit and will connect all floors. This stair will primarily be utilized for egress and internal pedestrian vertical circulation. The third access point is located on the east adjacent to the southeast vehicular entrance on the fourth level only. This point is anticipated to be used primarily by employees accessing SEMC buildings to the east of the parking structure. See Figure 2-6, Site Plan.

Vehicular Circulation

The SEMC parking garage will improve and direct vehicular access for patients, visitors, and staff. Two parking garage entry and exit locations on different levels will provide vehicular access at the southwest hospital campus perimeter. The garage access locations located at Washington and Nevins Street will allow for more visible access and more efficient internal on-campus vehicular circulation patterns. In addition, the parking garage vehicular circulation will be designed to minimize impacts on surrounding neighborhood streets.

The Project will eliminate existing surface parking and provide a clearly designated service area east of the parking structure. Hospital service and emergency access and circulation will be improved with clearly designated travel ways and points of direct access to the hospital facilities.

Existing and/or new plantings (e.g., shrubs, bushes) and structures (e.g., walls, fences, etc.) in the vicinity of the Project driveway will be maintained at a height of two feet or less above the adjacent roadway grade within the sight line triangles with respect to Washington Street and at the on-site circulation roadway to provide unobstructed sight lines for vehicles entering and exiting the SEMC Medical Campus.

5.6.2 PEDESTRIAN IMPROVEMENTS

Sidewalks and ADA compliant crosswalks will be provided to connect the Site's main entranceways with the on-site parking areas and the adjacent sidewalk systems along Washington Street, Cambridge Street, and Warren Street. The existing sidewalks provide connections to the adjacent neighborhood, commercial properties, and to the nearby MBTA stops and bike share station (BLUEbikes). ADA compliant ramps will be provided where required.

As described in more detail in Section 3.0, the pedestrian environment within the SEMC Medical Campus will be designed to provide full access to visitors, patients, and staff to existing hospital facilities on the SEMC Medical Campus with enhanced connections to the existing sidewalk system along Washington Street. Key features will include a new exterior covered walkway link to the campus via the William F. Connell Pavilion building; a new sidewalk east of the garage and new raised walkway adjacent to the southeast parking garage entrance; the removal of surface parking, provision of clear designated service zones and traffic calming measures east of the garage to provide for an overall safer pedestrian environment. Sidewalk enhancements along Washington Street will include new paving, crosswalks, seating areas and street trees with a new walkway connecting to the William Connell Pavilion/Emergency Department. Likewise, a new set of exterior steps near the existing Washington Street curb cut allows for a direct pedestrian connection from Washington Street to the new SEMC accessible walkway leading to the William Connell Pavilion/Emergency Department. The St. Gabriel's Monastery site southwest of the project site which is currently being redeveloped for residential use will improve pedestrian connections and access to the Project site. A new sidewalk is also proposed at the SEMC service drive south of the parking structure at the SEMC and St. Gabriel's property line. This sidewalk will provide direct pedestrian access to the existing SEMC Parking Garage B and other portions of the SEMC Medical Campus.

5.6.3 TRANSPORTATION DEMAND MANAGEMENT

Saint Elizabeth Medical Center (SEMC) is committed to reducing auto dependency by employees through the continued implementation and expansion of a Transportation Demand Management (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 and builds upon past and ongoing SEMC efforts to incentivize employee use of alternative travel modes. A preliminary list of TDM program elements are described below, to be refined and incorporated into a Transportation Access Plan Agreement (TAPA) following the Article 80 review process.

- **Allston Brighton TMA Membership**: SEMC has been a paid member of the Allston Brighton TMA since April 2014 and through 2018. SEMC will opt for continued membership in 2019. Membership entitles SEMC employees access to a number of programs that encourage mode shift to alternative travel modes including:

    - **Guaranteed Ride Home**: Eligible employees include those currently using public transit, carpool, vanpool, walking or biking to work at least three days a week or more are entitled to up to six (6) free cab rides home for use in cases of emergencies.

    - **Bus and Boat Program**: Employees include those who walk, bike or take any form of active commuting are eligible for monthly raffle prizes and awards administered through the TMA.

    - **Workout to Work Program**. Eligible employees include those who walk, bike, or takes any form of active commuting on their way to work. By logging miles, employees can win monthly raffles for gift cards, gear, and more. Enrolled employees also get invited to exclusive events and be eligible to be a part of the Bike Benefit program.

    - **Bicycle benefit reimbursement program**: Eligible employees include those currently using public transit, carpool, vanpool, walking or biking to work at least three days a week or more and are enrolled in the Workout to Work program. Participants are eligible to receive up to two $25 reimbursements over the course of a calendar year for eligible expenses including for a new safety gear, a new bike, or maintenance.

    - **Vanpool subsidy**: Employees currently driving alone three days a week or more are eligible. Participation is also extended to commuters who switched commuting modes within the last three months. Participants receive a total reimbursement of $150 towards their vanpool fare. The subsidy is spread out over the course of three months for up to $50 each month.

    - **Zipcar Discounts**: Allston-Brighton TMA members receive a discount on their Zipcar application fee and weekday driving rates. This benefit will be leveraged by a SEMC commitment to reserve car-sharing spaces in the new garage (number of spaces to be determined in consultation with car sharing service providers).

    - **Bicycle Benefits**: Employees opting in to the Bicycle Benefits sticker program are eligible for area business discounts. The TMA also assists in implementing a bike tune-up day for its members.

- ***On-Site Employee Transportation Coordinator***: SEMC has a designated on-site employee transportation coordinator (currently Ms. Nina DiNunzio) who works closely with the Human Resources Department. The employee transportation coordinator is responsible for disseminating relevant TDM information to employees, including posting TDM information at appropriate locations within the buildings, coordinating TMA-sponsored programs identified above with employees, administering employee transportation surveys and working with appropriate SEMC leadership in developing new or expanded TDM programs. The designated Transportation Coordinator will also responsible for developing, amending and issuing an Employee Manual for Transportation Services that outlines transportation demand management programs, policies and incentives. Recent programs administered through the Transportation Coordinator include a bike tune-up day for SEMC employees in June 2018, outreach to MBTA in May 2018 to identify and evaluate potential commuting options in conjunction with other TMA member employers, and administration of a SEMC employee survey in May 2018 targeted at identifying opportunities to encourage commuters to participate in public transportation.

- **SEMC TDM Outreach:** SEMC commits to assist in the establishment of a task force/coalition targeted at enhancing commuting options for employees in the Brighton area. In June 2018 through August 2018 SEMC held working sessions with numerous area institutions and employers including Saint John's Preparatory School, Franciscan Children's Hospital and Brighton Main Streets to identify and evaluate potential shared commuting options that may extend the reach and effectiveness of the Allston Brighton TMA programs. SEMC will continue these efforts in future years to augment, expand or identify TDM program measures that foster use of public transportation, carpooling/ridesharing, bicycle and other alternative travel modes.

- **Employee Manual for Transportation Services**: SEMC will prepare and issue an Employee Transportation Services Manual that will that identifies SEMC amenities, programs and policies aimed at reducing dependence on automobile travel including but not limited to on-site facilities and support services, public transportation routes and schedules, SEMC employee transit subsidy program, bike sharing amenities, and preferential parking for carpools/vanpools.

- **On-Site Support Services/Amenities**: The Property's facilities include services and physical amenities in locations that encourage employees to remain on-campus for essential services to reduce external vehicle-based trip making including:

    - A full cafeteria located in the Seton building (4th floor)

    - Vending machines located outside the Dining Room, as well as other locations throughout the campus

- On-site convenience retail outlet
- Employee-accessible showers and changing room
- Designated and conveniently located ride hailing service locations
- On-campus car sharing service parking

- **Private Shuttle Proportional Funding**: SEMC is engaged in discussions with adjacent developers (CC&F) who are implementing a private shuttle service with service connection to the Boston Landing MBTA stop in Brighton. A transportation survey conducted by SEMC in 2018 has identified potential for approximately 15 employees to benefit by this shuttle connection, bolstered by the added incentive of a recently increased employee transit subsidy program. SEMC commits to a funding contribution toward the private shuttle service that is proportional to actual employee ridership on the service.
- **Automatic Employee Payroll Transactions**: SEMC will continue to offer direct deposit and other automatic employee payroll transactions to reduce off-site related vehicle trips by its employees.
- **MassRIDES Promotion and Enrollment**: 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. SEMC will promote commuter assistance programs available through MassRIDES with information also be posted on the SEMC Medical Campus and within the Employee Transportation Services Manual.
- **Public Transportation Information & Promotion**: Posting of service and schedule information at the main SEMC building lobby, within employee break areas and within the Employee Transportation Services Manual.

- **Employee Transit Subsidies**: Through its ongoing employee surveys and outreach, SEMC has implemented a transit subsidy program that began in 2016 and was recently increased in 2018 that reimburses $40 of the cost of monthly T passes to employees working 20 or more hours per week who use public transit as their primary commuting option. SEMC has seen an uptick in employee participation in the subsidy program from 96 employees (prior to subsidy program increase in June 2018) to 142 employees following the subsidy increase. SEMC will continue to monitor employee participation in the transit subsidy program and will consider future increases to the subsidy program on an annual basis based on measured employee participation rates.

- **On-Site Transit Pass Sales/Commuter Tax Benefit Program**: To facilitate and encourage public transportation use, the Office of Human Resources sells MBTA passes on-site at reduced prices that reflect a $40 monthly subsidy for eligible employees (employees working more than 20 hours per week). A Commuter Tax Benefit Program is also available allowing pre-tax payroll deductions for purchase of monthly T passes.

- **Expanded Guaranteed Ride Home Program**: SEMC will administer an expanded Guaranteed Ride Home program to augment the TMA benefit for those employees who chose public transportation or active commuting options but must work unscheduled overtime in cases where an employee is mandated to stay late or work an additional shift.

- **Bicycle Facilities & Promotion**: In accordance with BTD guidelines, bicycle racks will be provided within the campus in close proximity to the building entrances for use by employees and visitors, including a new covered bike shelter adjacent to the Project. These racks will augment the existing campus supply of 50 bicycle spaces located in Garage B, Main hospital entrance and Emergency Department. The specific location and number of bike racks will be identified more specifically as the site plan is refined. Additionally, the on-site Transportation Coordinator will disseminate maps of on-site bicycle storage locations and maps of area bicycle routes.

- **Bicycle Sharing Service**: Bicycle sharing services provide access to short-term bicycle transportation. BLUEbikes is Boston's bicycle sharing system which allows members to rent bicycles for a period of time and return them to any BLUEbikes location. There are currently 17 bicycle docking stations located at Brighton Center, 11 bike docking stations located at the Warren Street at Commonwealth Avenue intersection, and a new station being placed near the Washington Street intersection with Commonwealth Avenue. A map of the existing BLUEbikes locations accessible by SEMC employees will be posted in building lobbies, employee break rooms and within the Employee Transportation Services Manual.

- **On-Site Showers/Lockers**: SEMC will make available shower and locker facilities within the campus to encourage bicycle and walk commuting. Specific locations to be determined by SEMC as part of the TAPA following the Article 80 review period.

- **Pedestrian Infrastructure/Walking Incentive**: The proposed site layout will include additional sidewalks and/or designated pathways to proposed buildings that connect to the existing sidewalk system. SEMC will install sidewalks with connections to the existing City sidewalk system to facilitate and encourage access to nearby public transportation, bike share locations, and car share locations.

- **Electric Vehicle Charging Stations and Preferential Parking for Low-Emission Vehicles**: Designated parking locations for those who use low-emission vehicles will be provided within the proposed Project where several electric vehicle charging stations will also be provided. SEMC will wire additional spaces within the Project to allow additional future charging stations to become operational pending monitoring of actual use over time.

- **Preferential Parking for Carpools and Vanpools**: Preferential parking locations for employees within the employee parking areas of Garage B and the New Garage will be designated for use by employees opting to participate in carpools and vanpools. Such carpools and vanpools will be acknowledged by pre-registration with the Transportation Coordinator and will be assigned to reserved/preferential parking spaces.

- **Ride-Hail Zones and Parking***:* SEMC will provide curbside pick-up/drop-off area closest to the main building entrance within the campus for ride hailing services such as Uber and Lyft. Likewise, curbside area near the Project will be designated for short-term use by ride hailing services that are located beyond the garage gated areas to facilitate employee access to these services.

- **Vehicle Sharing Services**: SEMC will provide designated car sharing spaces on-site within the Project for use by registered participants. This service will encourage employee to use public transportation with the option of having vehicle access when necessary. The number of shared vehicle spaces will be monitored and adjusted as needed to meet demands pending review by car sharing services such as Zip Car and Hertz.

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

5.6.4 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.

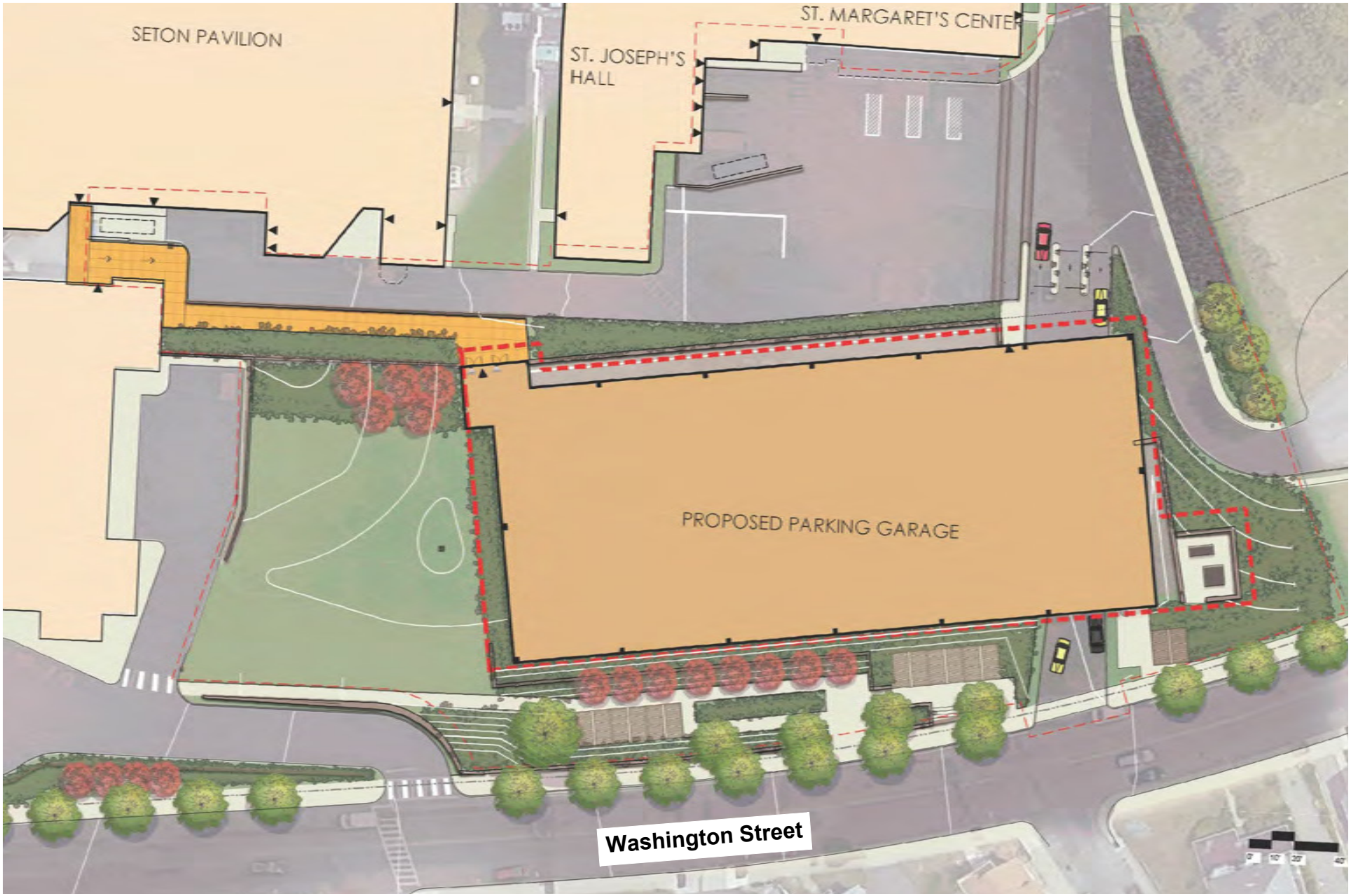
To minimize transportation impacts during the construction period, the following measures will be considered for the CMP:

- Construction workers will be encouraged to use public transportation and/or carpool;
- A subsidy for MBTA passes will be considered for full-time construction 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.
- Off-site parking will be provided for construction workers with shuttle service to the site if required.

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

Brighton, Massachusetts

Figure 5-1
Site Location
Source: MDM Transportation Consultants, Inc., 2019



Brighton, Massachusetts

Figure 5-2
Site Plan
Source: Deborah Myers Landscape Architects, 2019

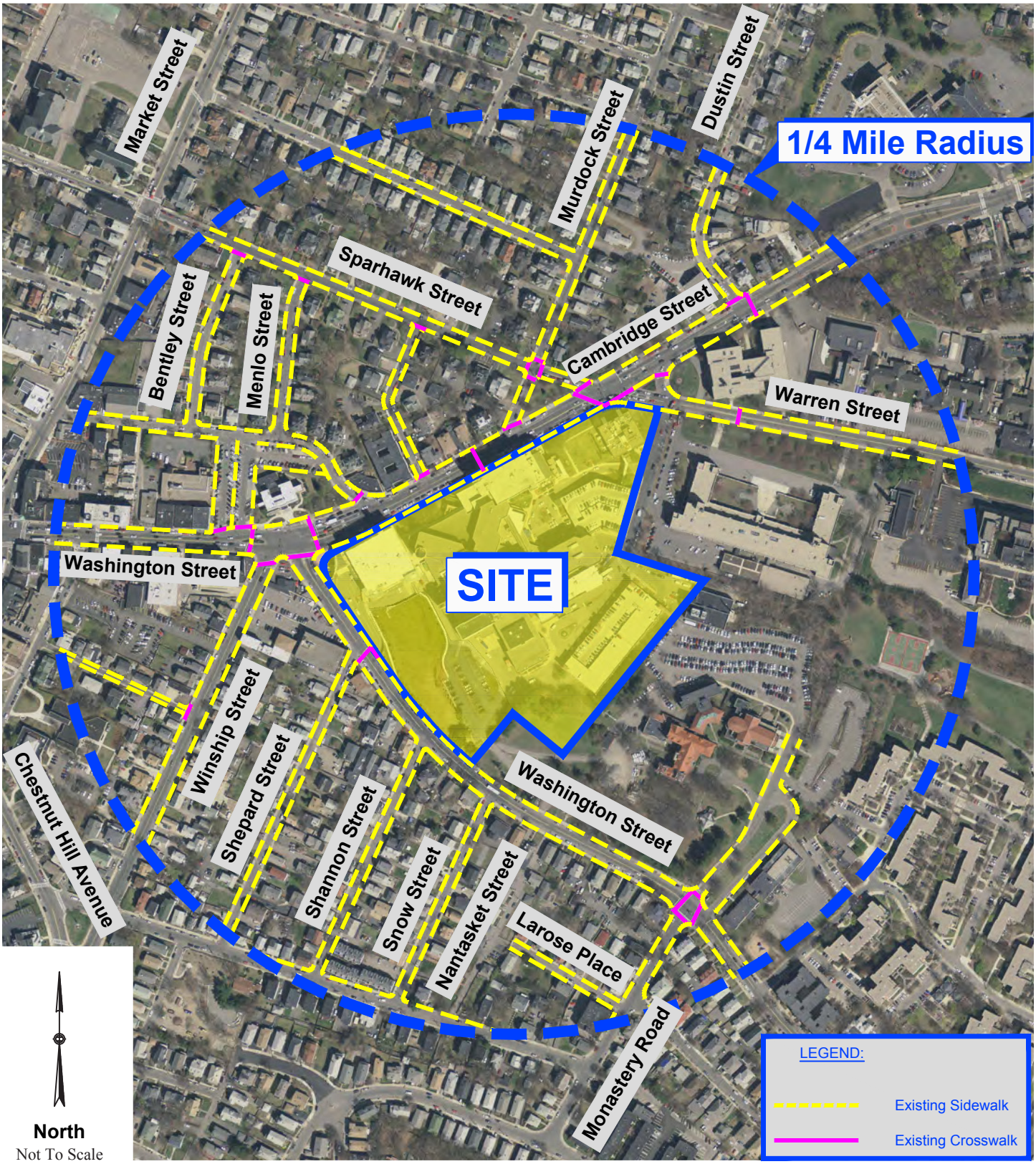


Figure 5-3
Existing Pedestrian Facilities
Source: MDM Transportation Consultants, Inc., 2019

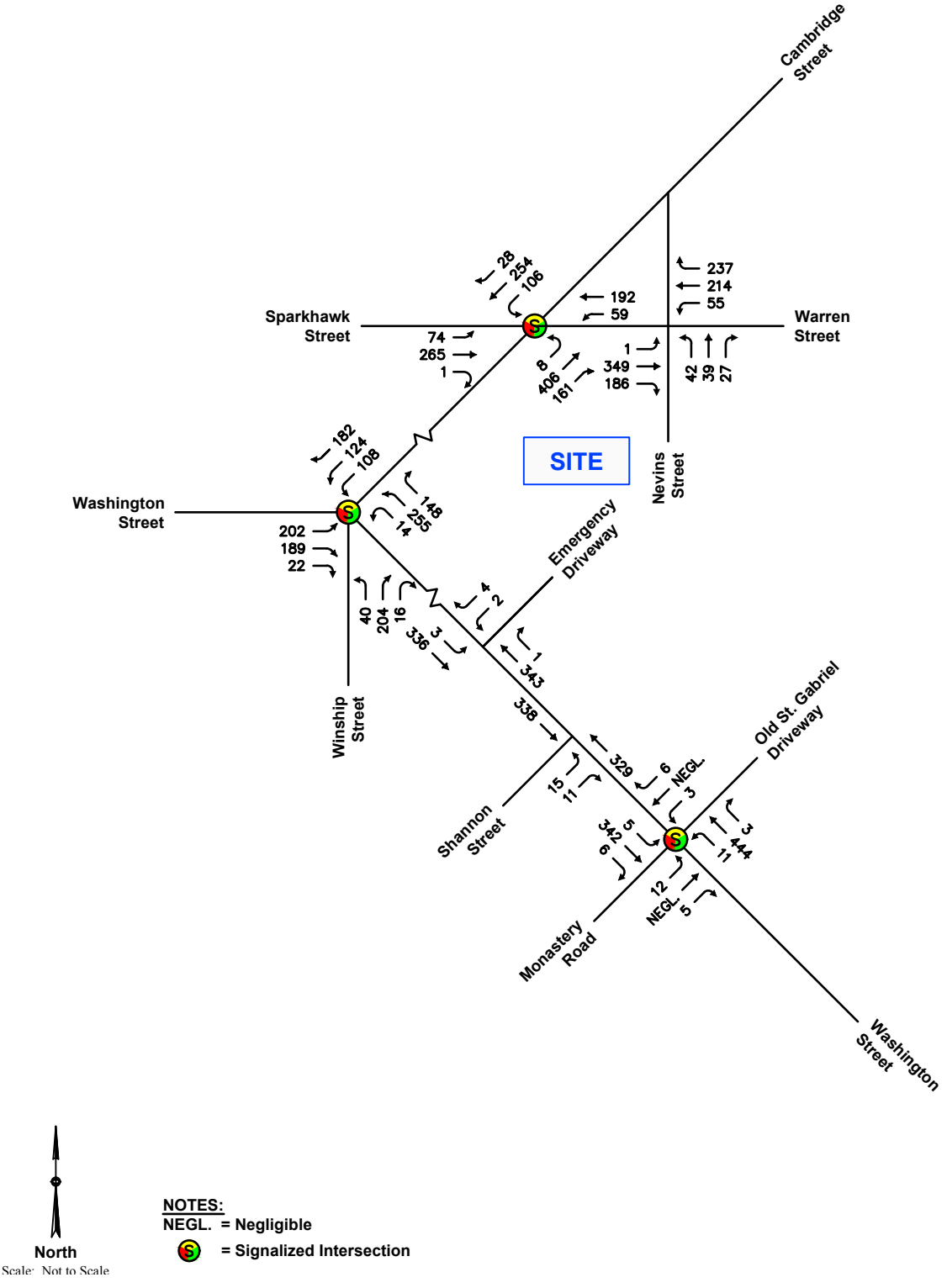
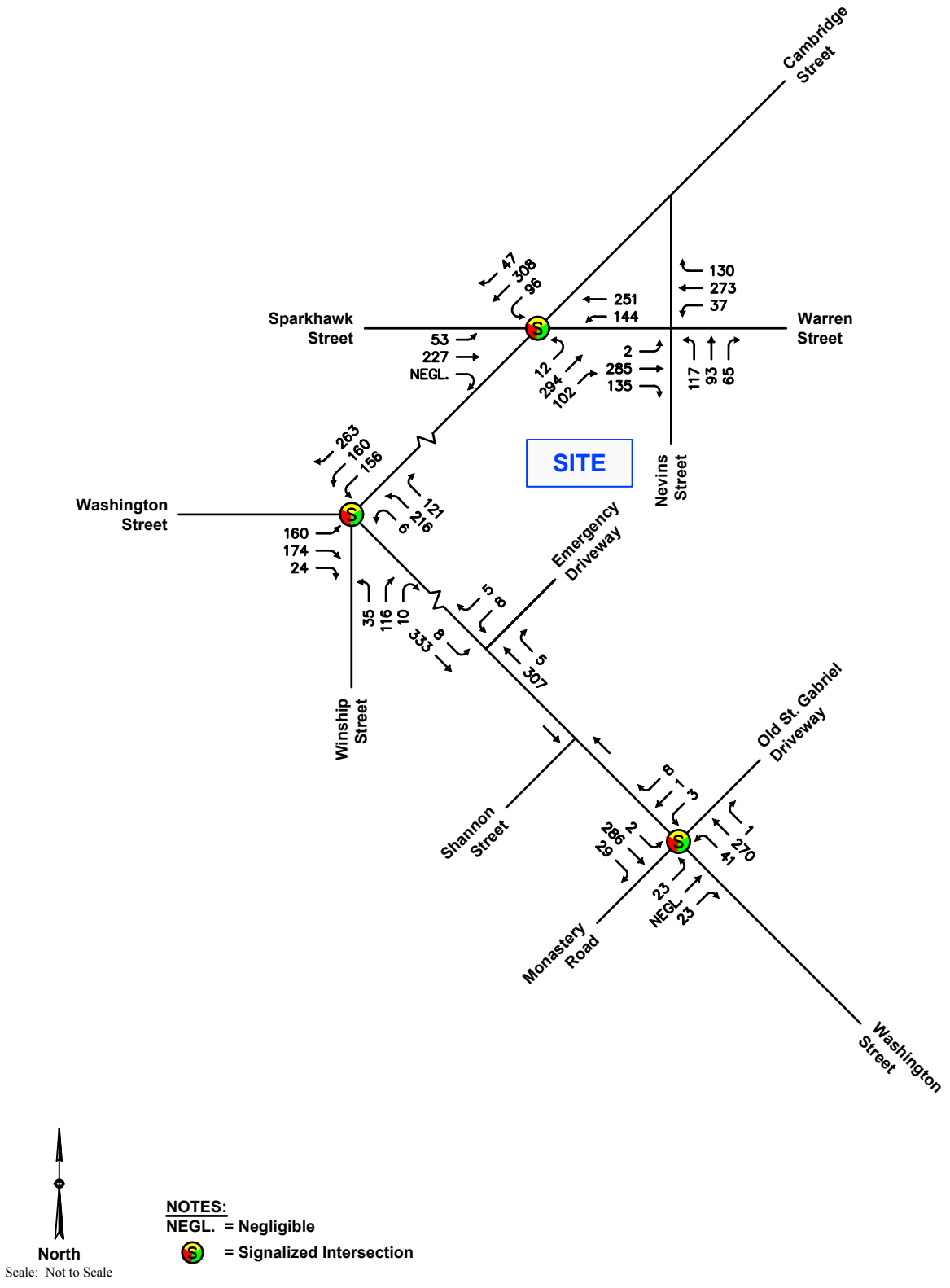


Figure 5-4

Baseline Conditions Weekday Morning Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019



Brighton, Massachusetts

Figure 5-5

Baseline Conditions Weekday Midday Peak Hour Volumes (Hospital Shift Change)

Source: MDM Transportation Consultants, Inc., 2019

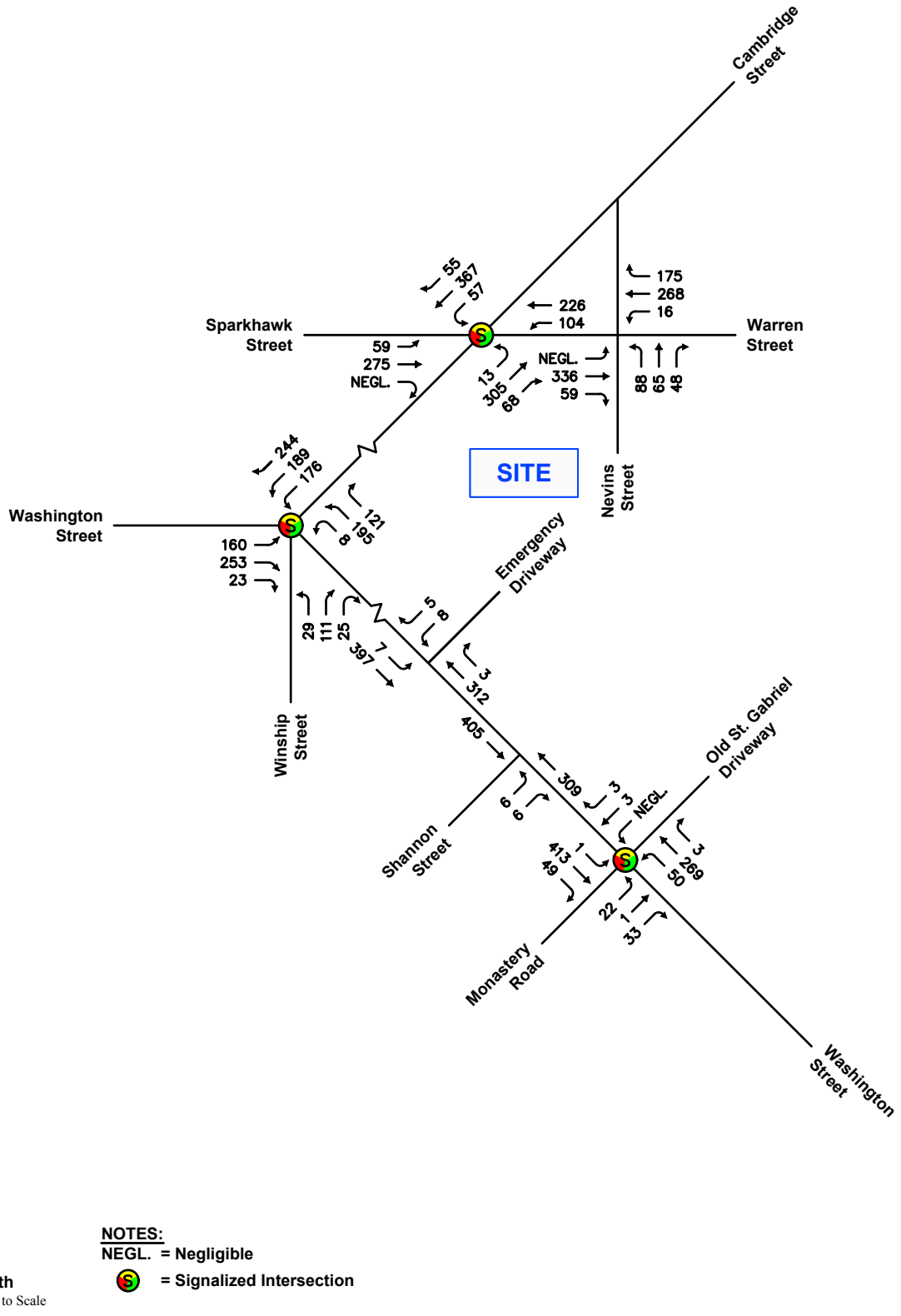
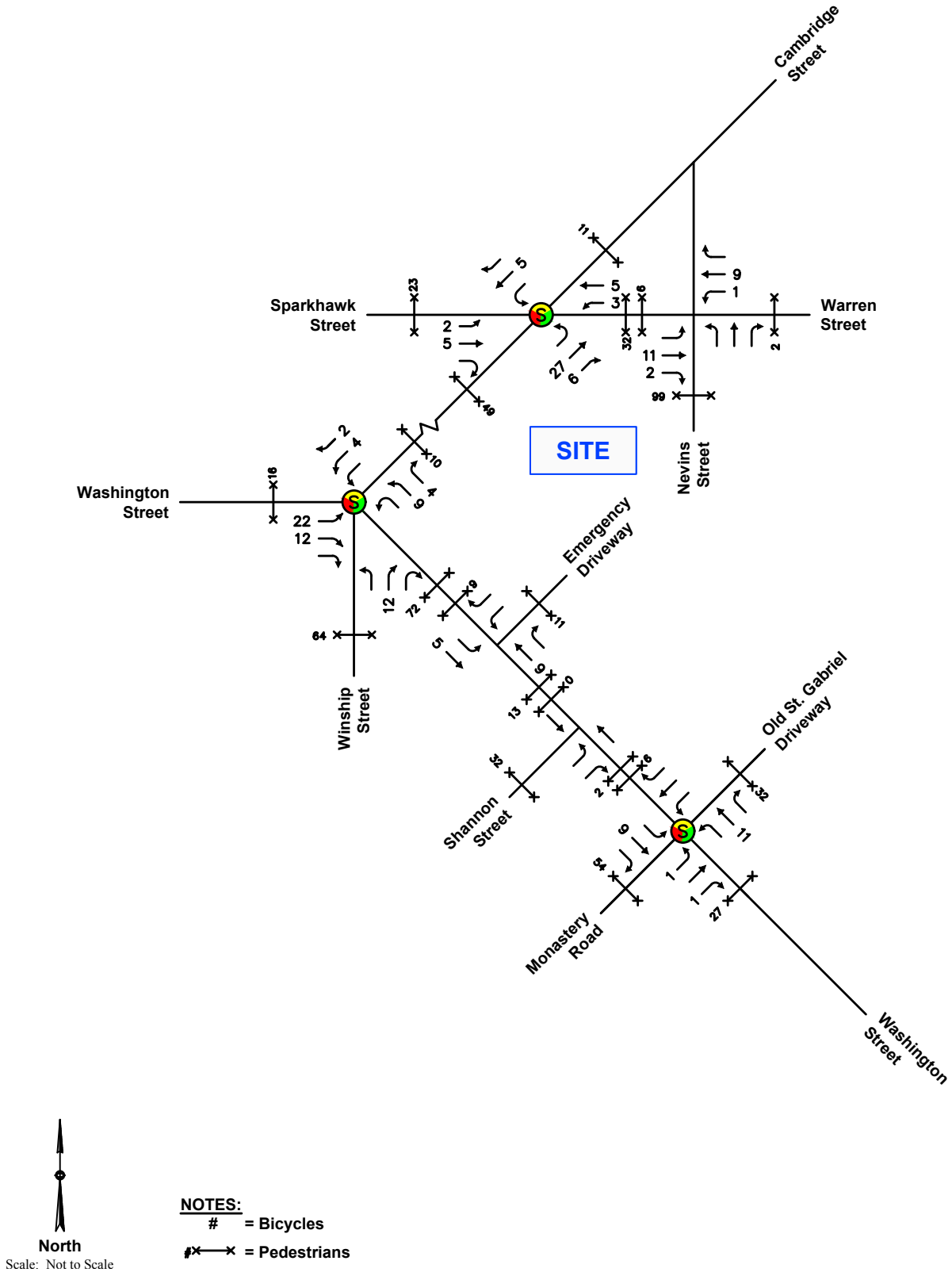


Figure 5-6

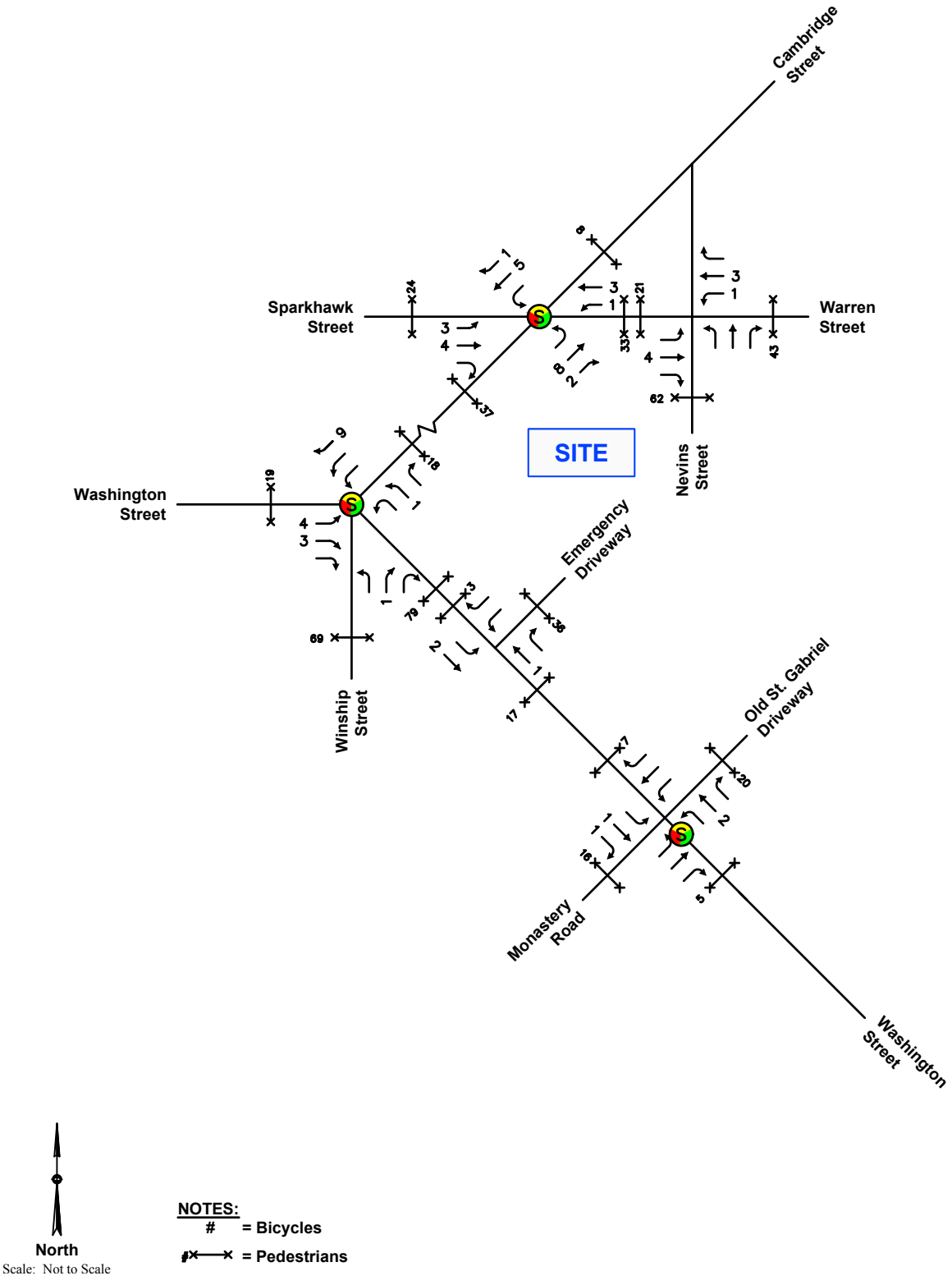
Baseline Conditions Weekday Evening Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019



2018 Existing Conditions Weekday Morning Peak Hour Pedestrian & Bicycle Volumes

Source: MDM Transportation Consultants, Inc., 2019

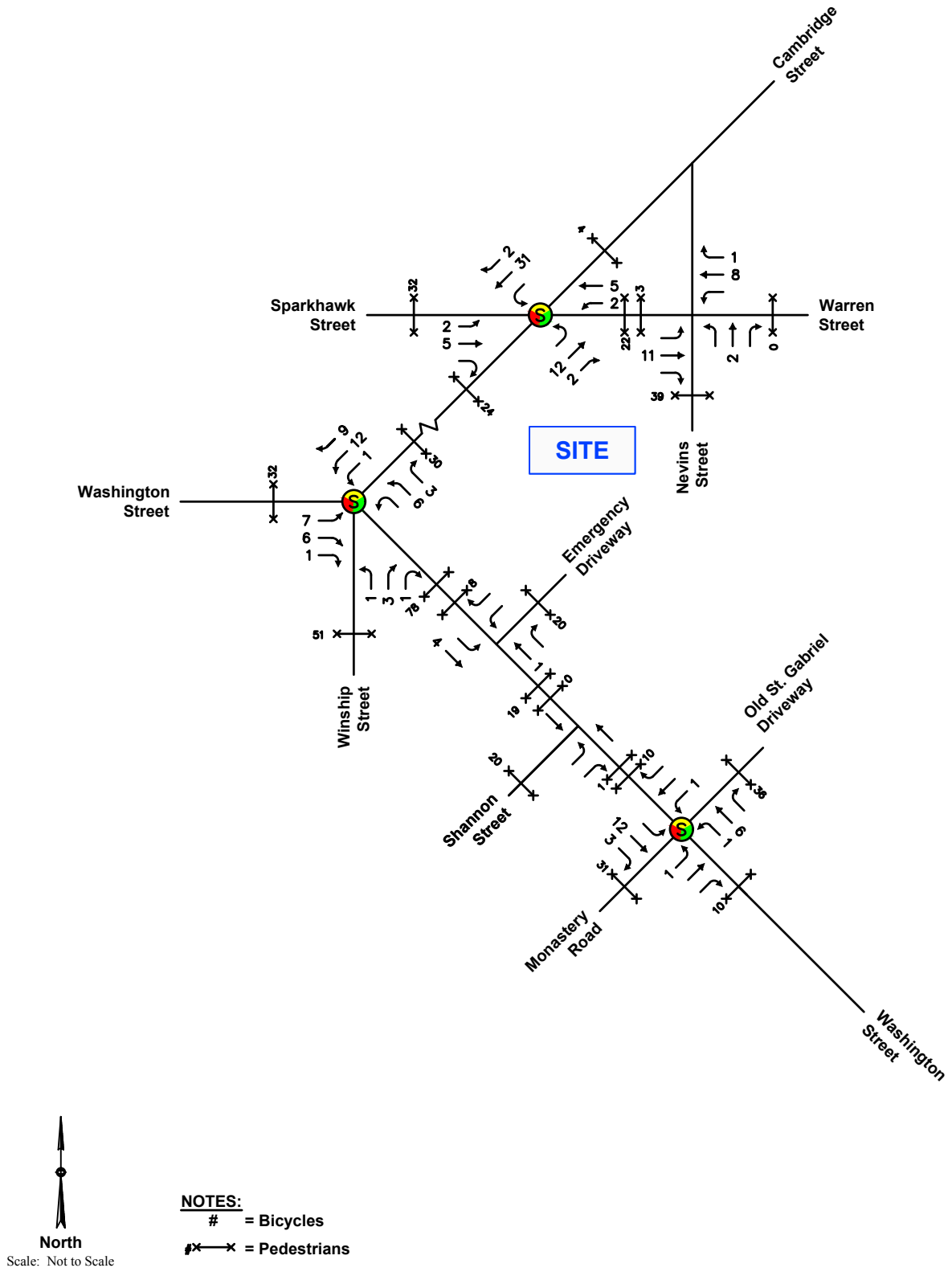


Brighton, Massachusetts

Figure 5-8

2018 Existing Conditions Weekday Midday Peak Hour Pedestrian & Bicycle Volumes (Hospital Shift Change)

Source: MDM Transportation Consultants, Inc., 2019



2018 Existing Conditions Weekday Evening Peak Hour Pedestrian & Bicycle Volumes

Source: MDM Transportation Consultants, Inc., 2019

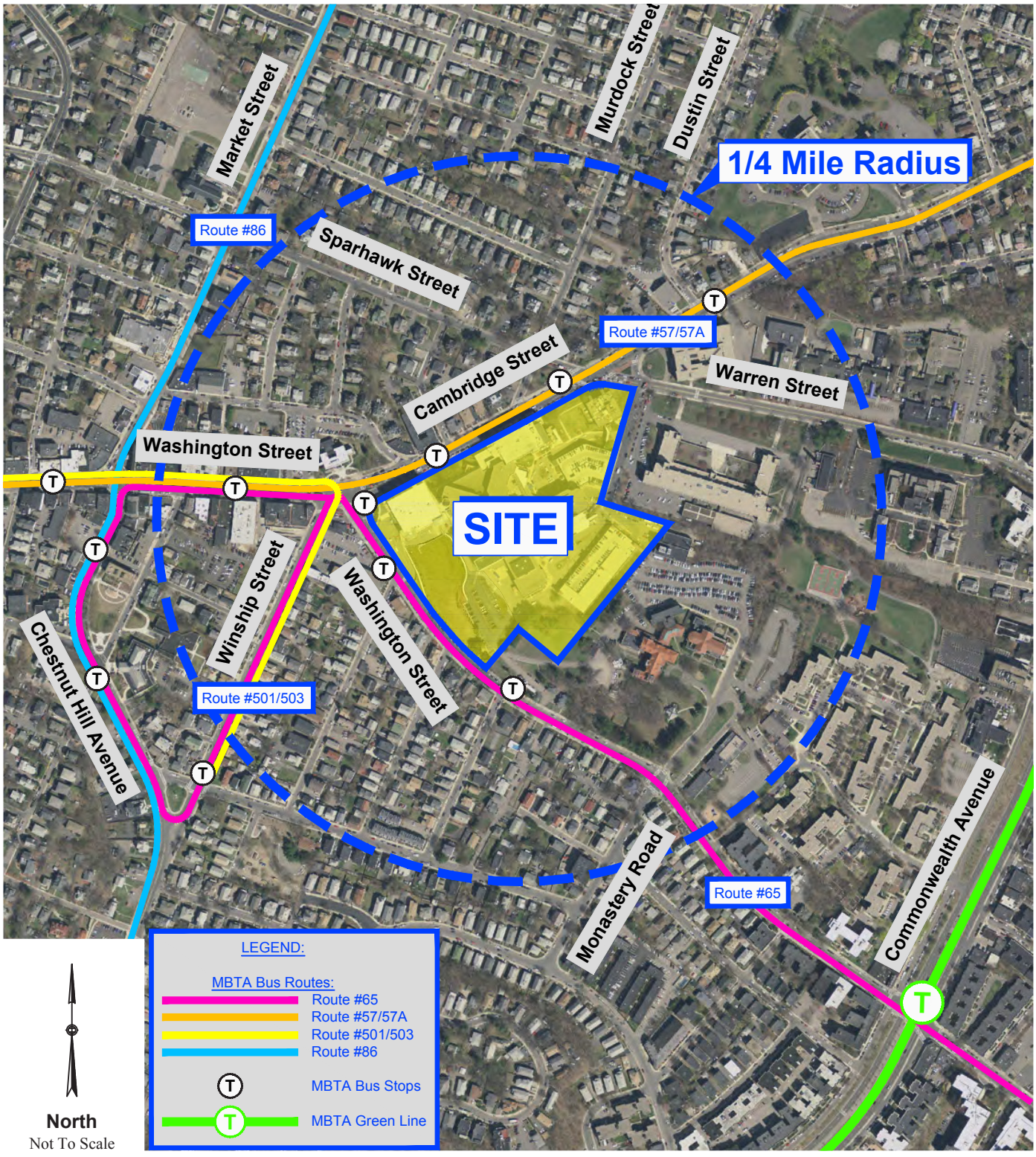


Figure 5-10
Public Transit
Source: MDM Transportation Consultants, Inc., 2019

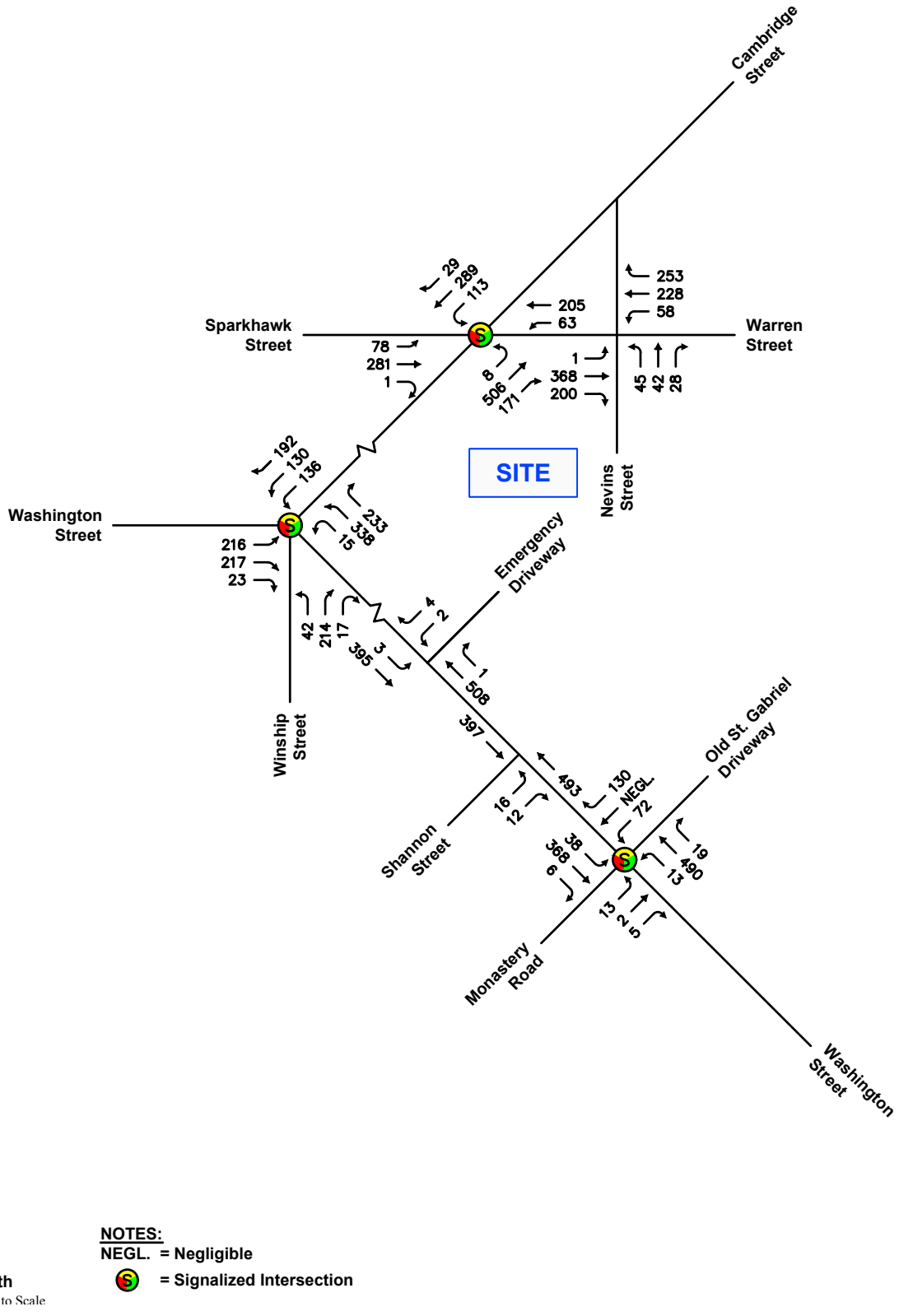


Figure 5-11

2028 No-Build Conditions Weekday Morning Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

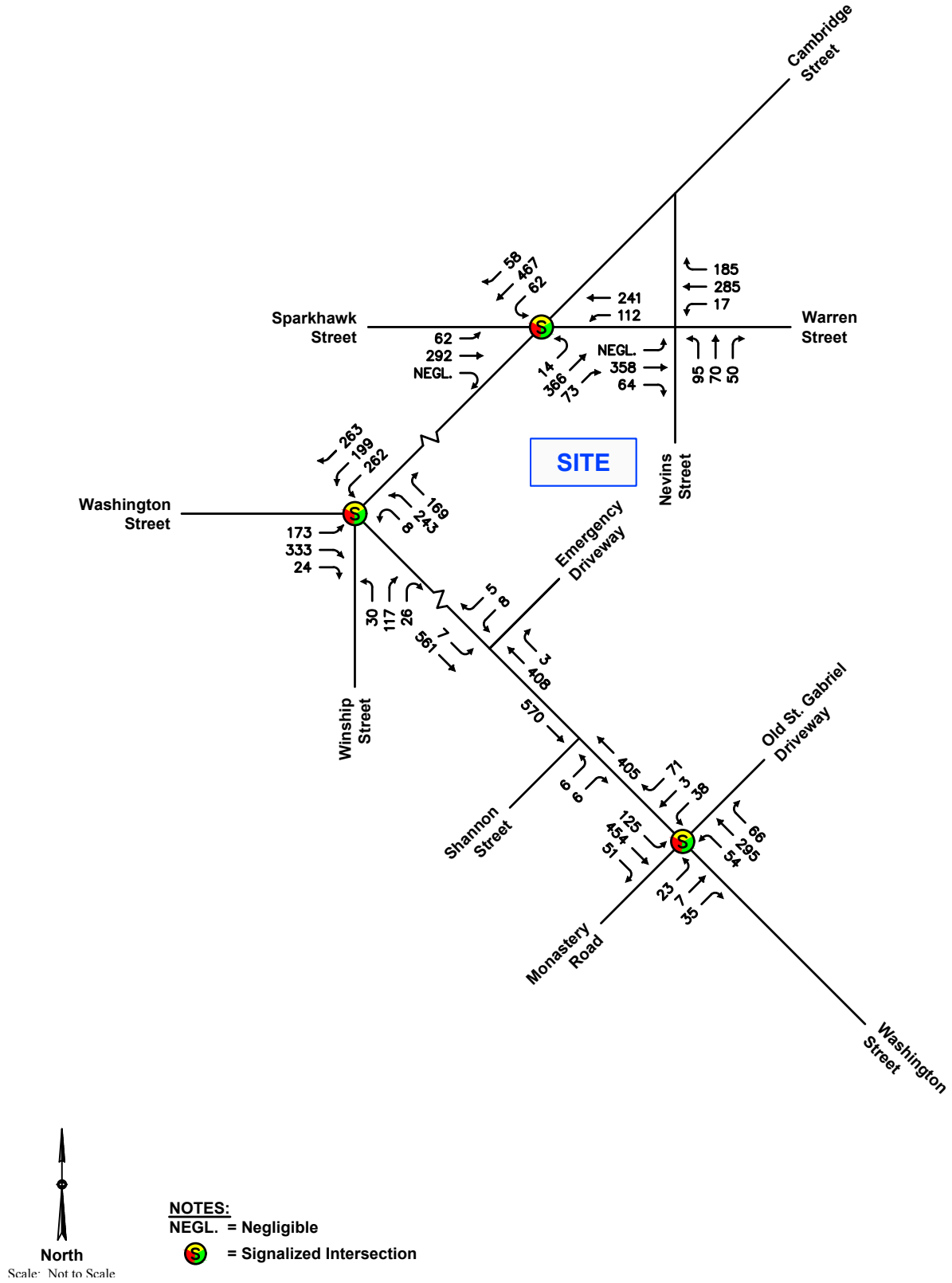


Figure 5-12

2028 No-Build Conditions Weekday Evening Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

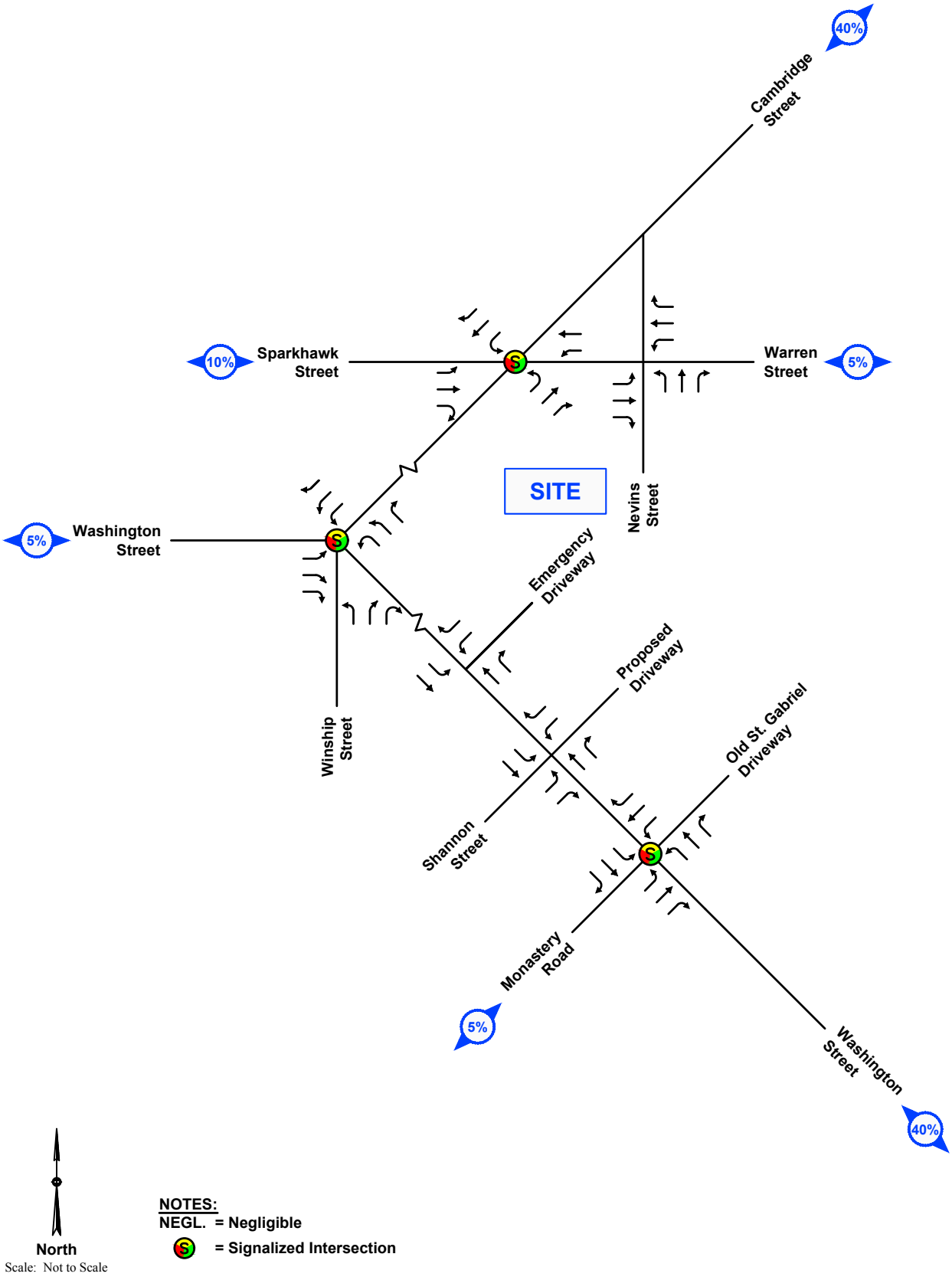


Figure 5-13
Trip Distribution
Source: MDM Transportation Consultants, Inc., 2019

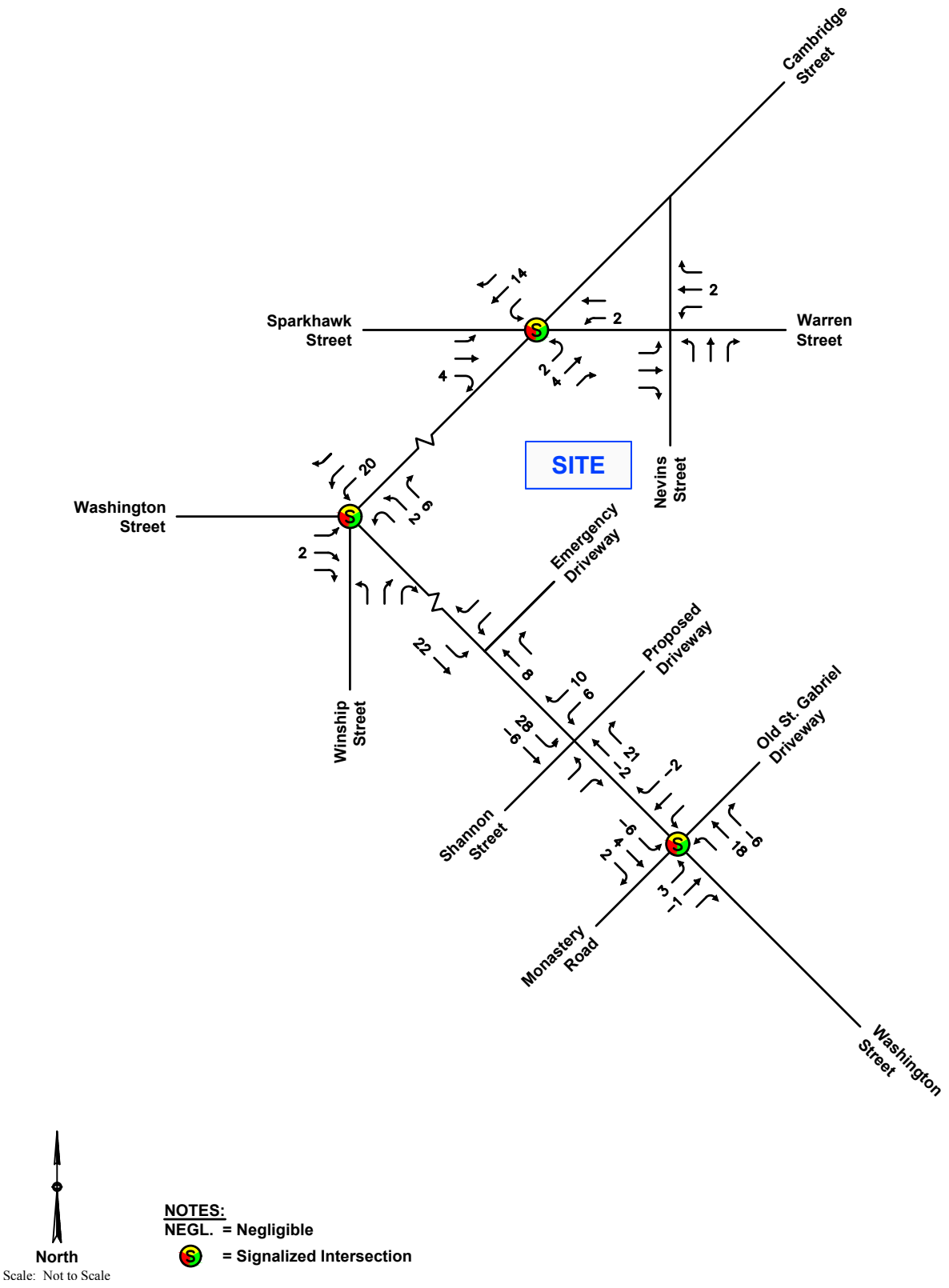


Figure 5-14

Trip Reassignment Weekday Morning Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

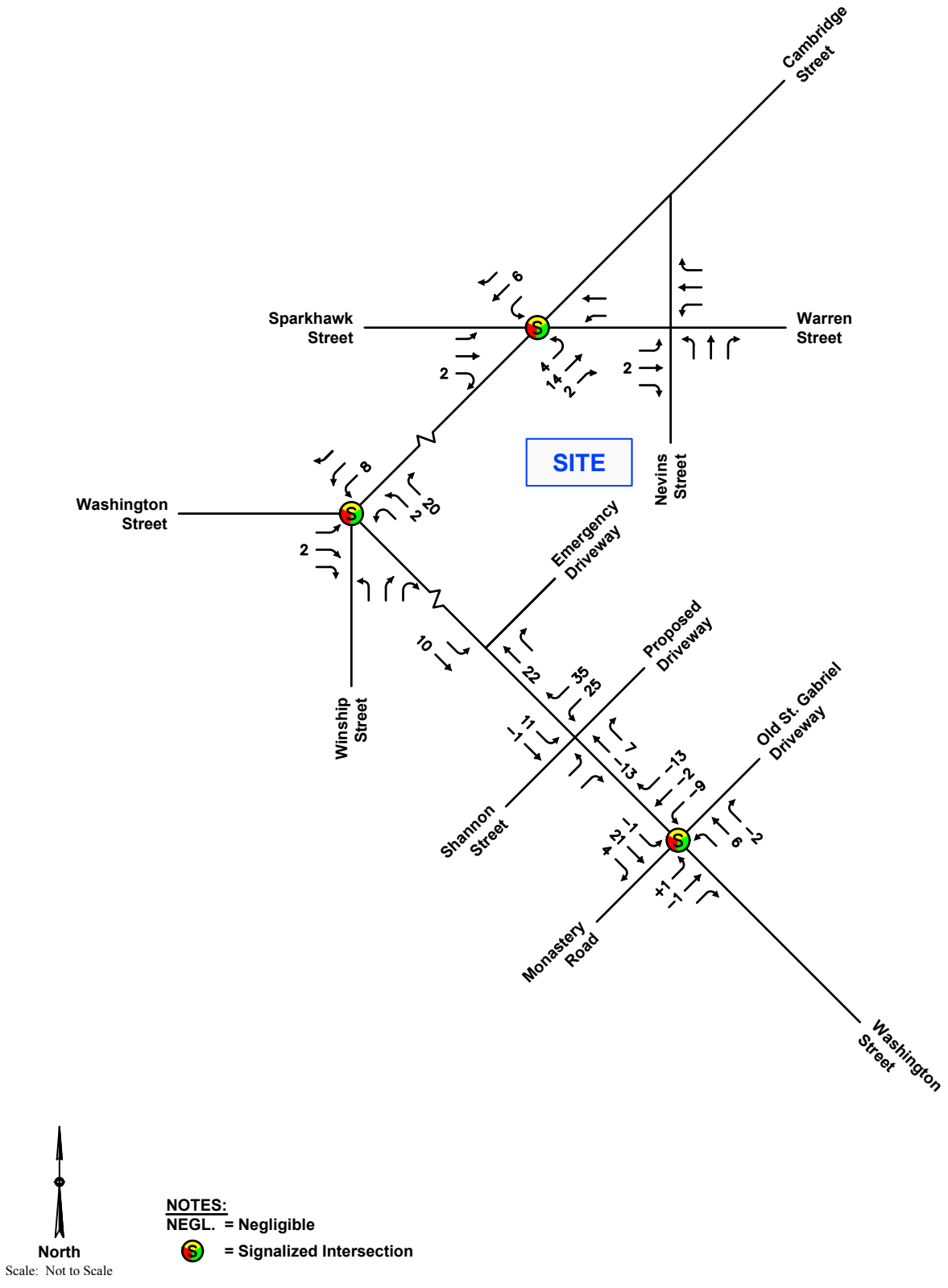


Figure 5-15

Trip Reassignment Weekday Evening Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

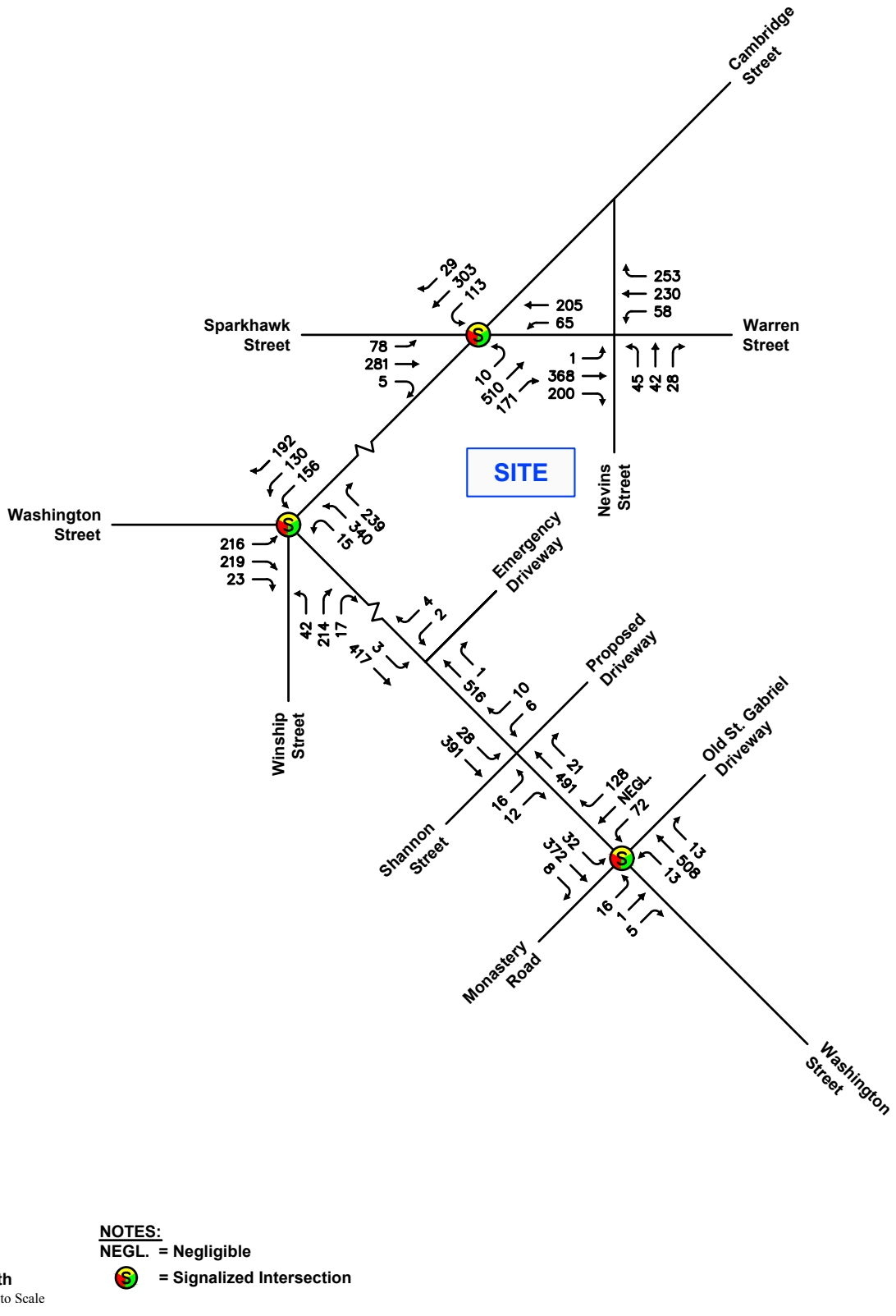


Figure 5-16

2028 Build Conditions Weekday Morning Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

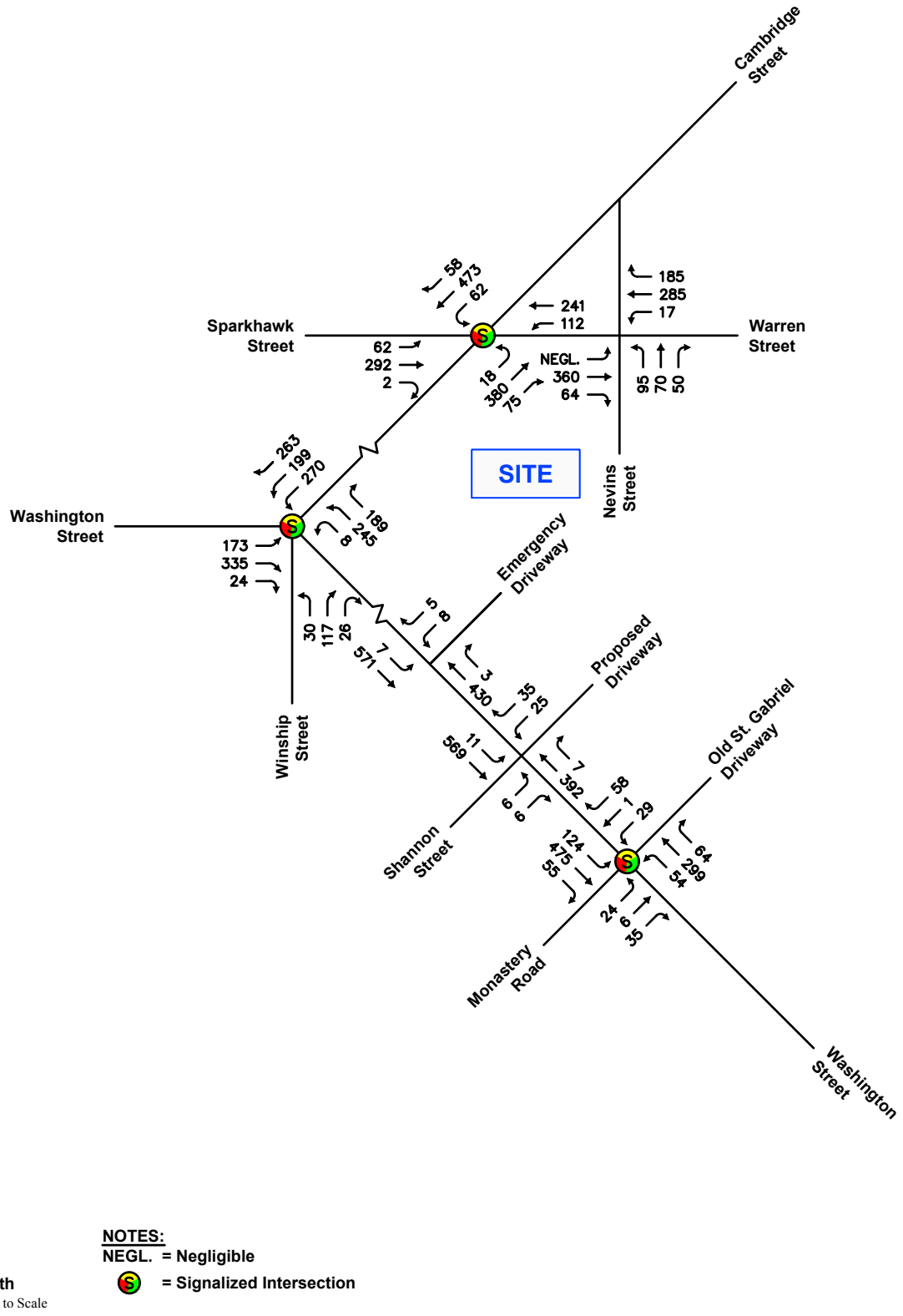


Figure 5-17

2028 Build Conditions Weekday Evening Peak Hour Volumes

Source: MDM Transportation Consultants, Inc., 2019

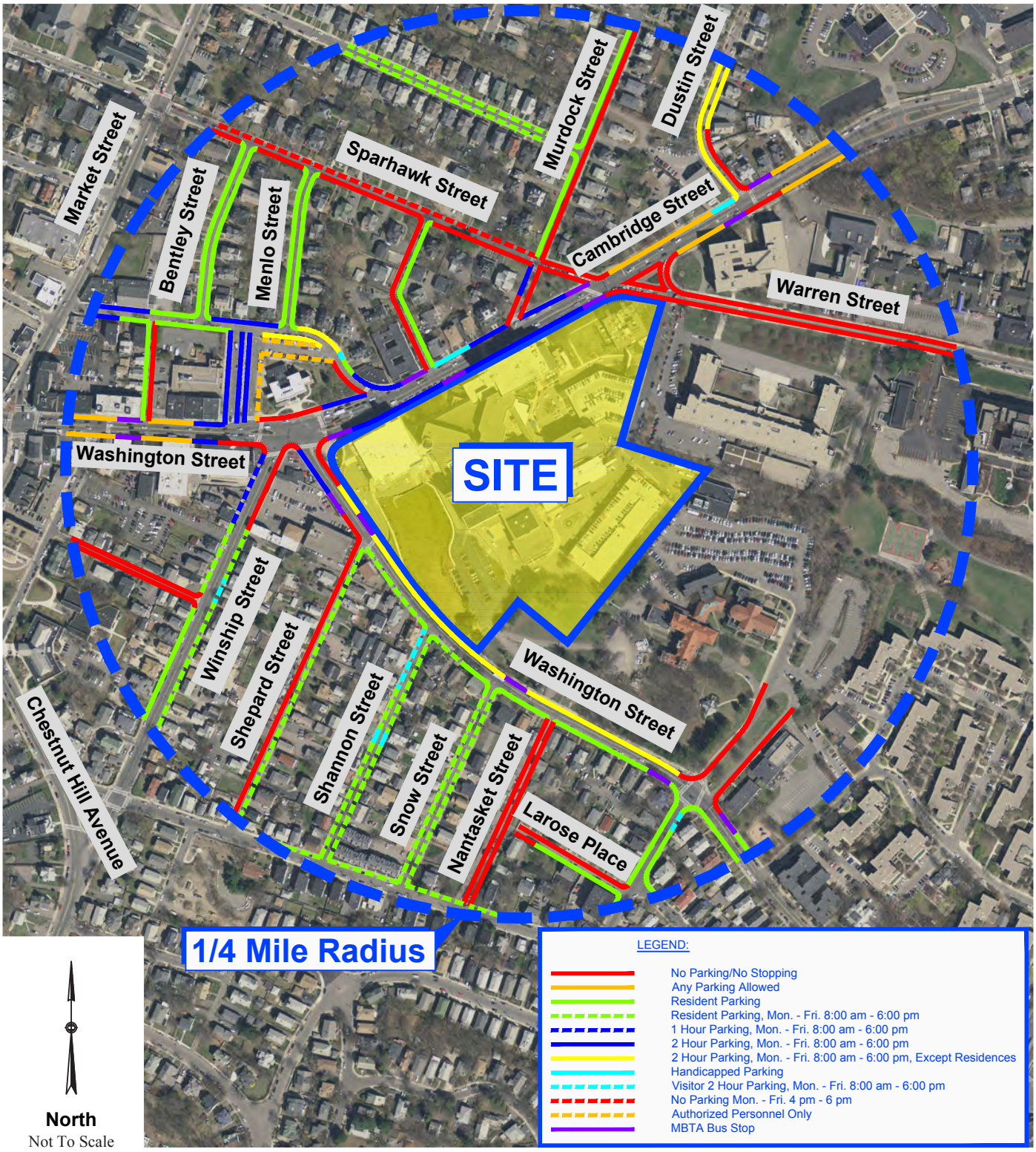


Figure 5-18
Parking Inventory
Source: MDM Transportation Consultants, Inc., 2019

Figure 5-19
Offsite Parking Locations
Source: MDM Transportation Consultants, Inc., 2019

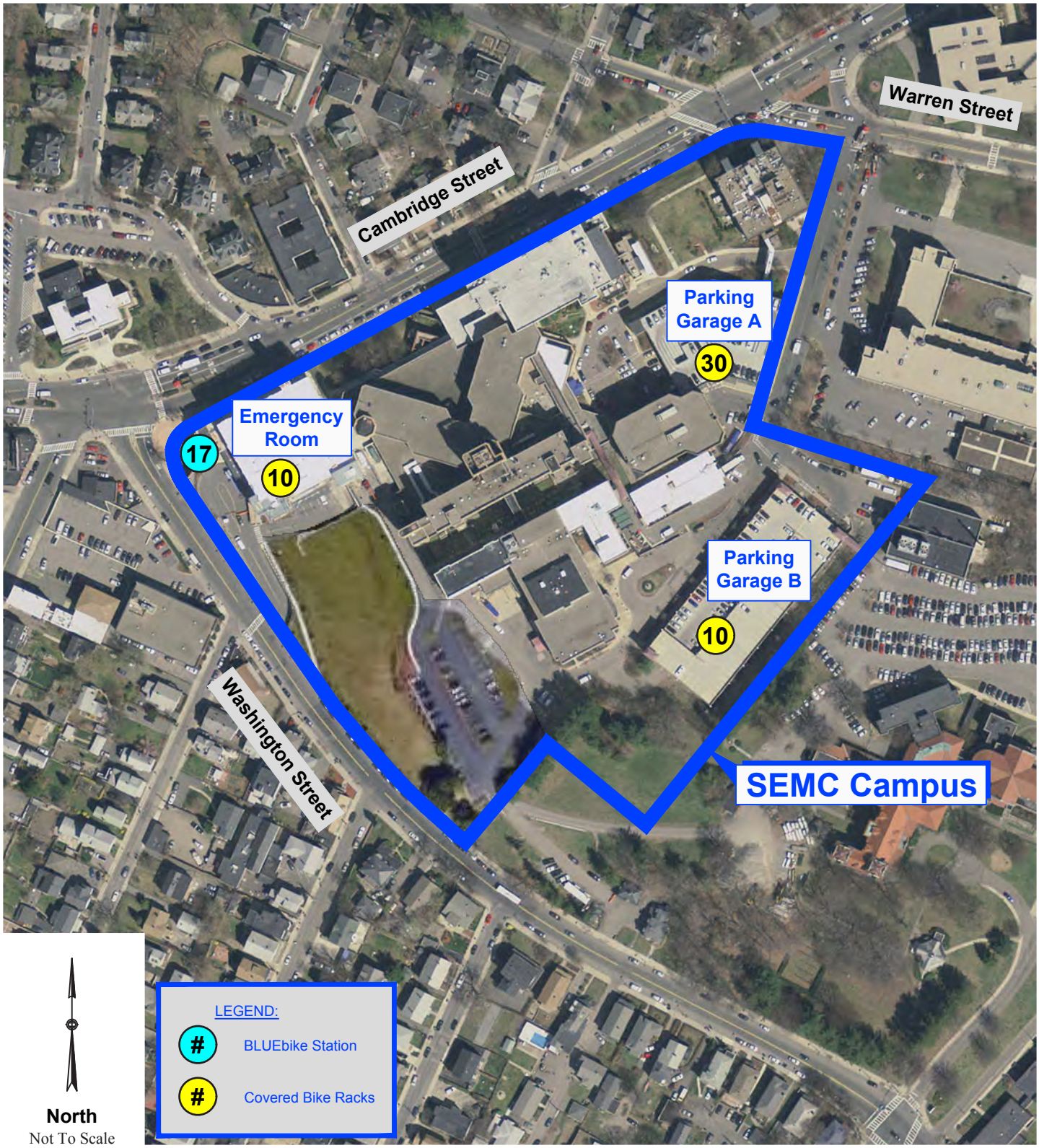


Figure 5-20
Existing Bicycle Rack Locations
Source: MDM Transportation Consultants, Inc., 2019

Chapter 6

ENVIRONMENT

CHAPTER 6: ENVIRONMENT

6.1 INTRODUCTION

The Project has been thoughtfully designed to consider existing site and program constraints and to improve the environmental conditions of the Project Site. The building will be constructed and operated in full compliance with local, state, and federal environmental regulations and will not create undue wind, shadow, noise, solar glare, or air quality impacts in the surrounding area. A Construction Management Plan (CMP) will be prepared and approved by the City prior to commencement of construction to avoid and mitigate construction period impacts.

6.2 WIND

The Project is not expected to have adverse pedestrian-level wind impacts adjacent to, and in the vicinity of, the Project Site due to its modest size construction set into the hillside and proximity to nearby buildings. The proposed parking structure is a low-rise building with an average roof height of approximately 55 to 60 feet along the north and west elevations, 25 to 55 feet along the south, and 25 feet along the east. The adjacent hospital buildings have a similar or higher average building roof height. Although a wind impact study was not required, it is expected that pedestrian level winds along adjacent sidewalks will not approach or exceed the BPDA guidelines for wind speeds of 31 miles per hour as a result of the placement of the proposed structure in the existing context.

6.3 SHADOW

Shadow analyses were conducted for the Project to ensure that the proposed parking structure would not create adverse shadow impacts on the adjacent sidewalk, Washington Street and adjacent hospital buildings. Specific times during the year were evaluated representative of the four seasons at morning, mid-day, afternoon, and evening. Shadow Study Dates and Times used for the shadow analyses are provided in Table 6-1. See Figures 6-1 through 6-4, Shadow Studies.

Table 6-1: Shadow Study Dates and Times

Date	Time
Vernal Equinox (March 21st)	9:00 AM, 12:00 PM, 3:00 PM
Summer Solstice (June 21st)	9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM
Autumnal Equinox (September 21st)	9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM

Date	Time
Winter Solstice (December 21st)	9:00 AM, 12:00 PM, 3:00 PM

Note: Shadows have been determine using the applicable altitude and azimuth data for the City of Boston.

The shadow study indicates that at the deepest cast-shadow condition at the Project Site, which is September 21 at 9am, the Project casts a shadow that generally does not reach the opposite end of Washington street.

6.4 DAYLIGHT

The Project is located on the south edge of the existing SEMC Medical Campus and is not directly adjacent to any existing structures or public spaces. Adequate daylight will be provided via the open spaces between existing and proposed buildings and via Washington Street.

6.5 SOLAR GLARE

A solar glare analysis is intended to measure potential reflective glare from the building onto streets, public open spaces, and sidewalks to determine the likelihood of visual impairment or discomfort due to reflective spot glare. The Project will be constructed primarily of precast concrete, eliminating potential for solar glare. The decorative aluminum rod screening is intended to have a non-gloss or matte finish that is not anticipated to have adverse solar glare impacts or create solar heat buildup in nearby buildings.

6.6 AIR QUALITY

The following section provides a qualitative analysis of air quality impacts related to the Project. Air quality impacts from construction operations are addressed in Section 6.12.

6.6.1 EXISTING AIR QUALITY

The Project Site currently is comprised of a surface parking lot with approximately 47 spaces. The existing surface lot spaces will be removed and relocated within the new parking structure.

6.6.2 PARKING FACILITY

The proposed parking structure will provide approximately 610 spaces. Once completed, an existing parking facility on the SEMC Medical Campus will be decommissioned and demolished. After removal, the net added spaces to the campus will be approximately 280 spaces. It is not anticipated that the net increase in parking supply will create significant adverse air quality impacts. The Project will also reduce

the off-site parking needs at two remote lots totaling approximately 240 spaces and the shuttling necessary for those lots.

The Project will be naturally ventilated through openings in the façade. Where the structure is built into the existing hillside, areaways will be constructed to facilitate natural ventilation on the lower levels of parking. By providing sufficient natural ventilation, no mechanical ventilation of the garage superstructure will be required to vent vehicle emissions from within the garage.

The Project incorporates design and program elements to reduce the environmental impact of the parking facility, including the following:

- The parking facility will provide up to 5% of total spaces with electric vehicle (EV) charging capabilities and infrastructure to support an additional 10-percent of spaces in the future as demand for EV increases.

6.6.3 TRAFFIC SOURCES

The SEMC Medical Campus is located in a dense, urban environment. Public transportation access directly to the hospital is provided by the MBTA's bus system. The primary vehicular access point to the campus is a driveway off Warren Street. The Project will create a secondary access point to the campus for vehicles. As a result, there will be fewer vehicle trips from the south of campus traversing Washington Street and Cambridge Street. The intersections at Washington Street/Cambridge Street and Cambridge Street /Warren Street are expected to see a decrease in volume related to hospital traffic.

6.6.4 BUILDING OPERATIONS SOURCES

The Project will have emergency power supplied by a new diesel generator. The generator will be preliminarily planned to be located in the southwest corner of the Project Site, however alternate locations such as the north end of the Project Site are currently being considered. The generator will be selected to comply with DEP standards. Measures will be taken to shield the generator.

6.7 NOISE

The Proponent does not anticipate an increase in permanent noise impacts associated with the Project. The Boston Air Pollution Control Commission regulates noise in the City based on zoning and land use classification. The regulations define fixed noise limits for daytime and nighttime use of equipment serving the building (for institutional areas, a maximum level of 60 decibels [dBA] for daytime use and 50 dBA for nighttime use is enforced). These levels are sound limits for equipment assessed at the boundaries of the Project. The limits apply to equipment that operates on a significant basis to serve the building, such as air conditioning

equipment and fans. In addition to the overall sound level requirements, the regulations specify octave band frequency limits for daytime and nighttime periods.

6.8 FLOOD ZONES

Federal Emergency Management Agency's (FEMA) Floor Insurance Rate Map (FIRM) for the City of Boston (Community Panel 25025C0057G, dated September 2009) was reviewed to determine if the Project Site lies within the 100-year floodplain. The Project Site falls within a Zone X, defined by FEMA as an "Area of Minimal Flood Hazard." Thus, the Project will not be susceptible to flood damage, nor will it lead to an increased floor or storm damage risk. According to the BPDA Sea Level Rise Flood Hazard Mapping Tool, the Project Site is not located within an existing or future 100-year floodplain.

6.9 WATER QUALITY

Water quality improvements will be provided via deep sump catch basins to capture runoff and an underground infiltration system providing treatment and recharge for the runoff from the Project Site.

6.10 GROUNDWATER

The Project will promote infiltration of rainwater into the ground with an underground infiltration system, and the Proponent will certify that the Project will not negatively impact groundwater levels on the Project Site or on adjacent lots in accordance with Boston Water and Sewer Commission and Article 32 requirements.

The Project will coordinate with the Boston Groundwater Trust to protect groundwater levels in the area, and it may include the installation of groundwater observation wells in the vicinity of the Project Site before site excavation to facilitate monitoring of the groundwater level before, during, and following construction.

6.11 GEOTECHNICAL

Based on available test boring information obtained at the Project Site, subsurface soil conditions underlying the proposed improvements are characterized by the following general soil profile:

Table 6-2: Project Site Soil Profile

General Description	Approximate Elevation of Top of Layer (BCB)
Fill	EL 114.5-138
Glacial Till	EL 105-130

6.11.1 FOUNDATION DESIGN AND CONSTRUCTION

No indication of bedrock was observed within the proposed Project limits. The geotechnical investigative data indicates that the northwest soil borings have been terminated in very dense soil that is expected to have sufficient bearing capacity for a shallow foundation system. Soil improvements will be required at the Southeast portion of the Project. This can be accomplished using a soil and grout mixing technique for a shallow foundation system. A reinforced concrete spread footing is the anticipated foundation system to support the Project loads.

6.12 SOLID AND HAZARDOUS WASTE

Soil sampling indicated there were no contaminated or hazardous materials for disposal at the Project Site. In the event that hazardous wastes are encountered, they will be handled according to state and local regulations. Solid wastes will be managed and disposed of in an environmentally responsible manner.

6.13 CONSTRUCTION IMPACTS

The following section describes impacts likely to result from the Project's construction and steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent has employed a construction manager who is responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies.

6.13.1 CONSTRUCTION MANAGEMENT PLAN

The Proponent will comply with applicable state and local regulations governing construction of the Project. The Proponent will require that the construction manager comply with the CMP developed in consultation with and approved by BTD prior to the commencement of construction. The construction manager will be bound by the CMP, which will include detailed information about construction activities, specific construction mitigation measures, construction materials, and access and staging area plans to minimize the impact on the surrounding neighborhood and pedestrian environment.

It is anticipated that the staging for the Project will be accommodated within the boundaries of the SEMC Medical Campus. Construction methodologies that ensure public safety and protect nearby residents will be employed. Techniques such as temporary barriers and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting, routing plans for trucking and delivery, and control of dust and noise.

6.13.2 CONSTRUCTION ACTIVITY SCHEDULE

The construction period for the Project is expected to last approximately 15 months. It is anticipated that construction will be completed in one phase and will start August 2020 and end December 2021. Typical construction activities will be scheduled from Monday through Friday. Occasional weekend or off-hour activity may be necessary to avoid impacts to vehicular and pedestrian traffic during the delivery of large construction equipment such as cranes, excavation equipment, and precast panels.

6.13.3 CONSTRUCTION TRAFFIC IMPACTS

Truck traffic will vary throughout the construction period and will be routed to minimize the traffic impacts. Trucking will be heaviest during the excavation and foundation work and then be spread evenly throughout the day thereafter. Primary access and egress at the Project Site will be restricted to gates approved by BTD and all construction contracts will include clauses restricting truck travel per BTD requirements.

6.13.4 CONSTRUCTION WORKER PARKING AND STAGING

The number of workers required for the construction of the Project will vary depending upon the stage of construction. The general contractor will be responsible for educating all construction workers about public transit options and encouraging the use of High Occupancy Vehicles (HOVs).

6.13.5 CONSTRUCTION AIR QUALITY

Measures will be implemented during construction to reduce and minimize truck idling, and to use non-diesel equipment where feasible.

6.13.6 CONSTRUCTION NOISE IMPACT

Noise impacts during construction will be primarily related to trucking operations, excavation operations, and erection of the structure. Trucking operations will be addressed in the construction management plan and will be coordinated with City of Boston ordinances. Geotechnical investigation indicated that the Project Site does not

contain rock strata, therefore blasting or other similar removal techniques are not anticipated. It is also anticipated that the foundation system will be a spread footing design and therefore driven pile foundations are not expected for the support of the building.

The Proponent's construction manager and design team is reviewing options for the temporary support of excavation and permanent site walls for the project. A design objective is to limit noise and vibrations considering the proximity to the operating medical center and neighboring properties. The geotechnical investigation indicated the presence of boulders and other obstructions in the soil profile; it is therefore assumed that sheet piles will not be a viable option. Consideration is being given to a system that could be installed by drilling operations, such as augured soldier piles and lagging. If it is determined to be necessary to drive piles, sheeting, or other similar operations, the Proponent will address these operations in the construction management plan

6.13.7 SEDIMENT CONTROL MEASURES

Erosion and sediment control measures will be placed in construction areas in accordance with the Project Stormwater Pollution Prevention Plan (SWPPP) and monitored and repaired as needed for the duration of the construction activities.

6.14 RODENT CONTROL

The City of Boston enforces the requirements established under Massachusetts State Sanitary Code, 105 CMR 410.550. This policy establishes that the elimination of rodents is required for issuance of any building permits. During construction, rodent control service visits will be made by a certified rodent control firm to monitor the situation.

6.15 WILDLIFE HABITAT

No local, state, or federal wildlife habitat has been identified at the Project Site.

6.16 HISTORIC AND ARCHAELOGICAL IMPACTS

An Area of Potential Effect (APE) of one-quarter mile has been analyzed for the purposes of identifying historic resources in the vicinity of the Project Site and assessing potential project-related impacts. A review of the Massachusetts Historical Commission (MHC) Inventory revealed 63 extant inventoried historic individual properties and all or portions of 10 MHC inventoried districts within the APE. Of these, one district and 32 historic properties are either listed or eligible for listing on the National Register of Historic Places. The resources are listed in Table 6-3: Inventoried Historic Properties and 6-4: Inventoried Historic Districts. See Figure 6-5, Historic Resources.

The Project Site is bordered on the south by the Washington–Warren Streets Institutional Area historic district (BOS.KG). Landscaping on the southeastern edge of the Project Site will mitigate any potential impacts to the adjacent district. Additionally, the siting of the Project within an existing hillside will reduce the visibility of the structure from the south and east.

Table 6-3: Inventoried Historic Properties

MACRIS #	Name	Address	Impact
BOS.8674	Saint Gabriel's Monastery Lady of Fatima Shrine	159 Washington Street	No Impact
BOS.8673	Saint Gabriel's Monastery Garage	159 Washington Street	No Impact
BOS.8672	Saint Gabriel's Monastery Building	159 Washington Street	No Impact
BOS.8671	Saint Gabriel's Monastery Retreat House	159 Washington Street	No Impact
BOS.8669	Brighton High School	20 Warren Street	No Impact
BOS.8488 *NRDIS		344-350 Washington Street	No Impact
BOS.8487 *NRDIS	Hardy and Streeter Building (Egyptian Bowling Alley)	345 Washington Street	No Impact
BOS.8486 *NRDIS	Post Office Building	332-334 Washington Street	No Impact
BOS.8485 *NRDIS	Charles W. And Frederick A. Davis Building/Andrew J. Granara Building	328 Washington Street	No Impact
BOS.8484 *NRDIS	Brighton Elk Lodge	326 Washington Street	No Impact
BOS.8483 *NRDIS	Knights of Columbus Council #21	321 Washington Street	No Impact
BOS.8482 *NRDIS		319 Washington Street	No Impact
BOS.8481 *NRDIS		312-324 Washington Street	No Impact
BOS.8480 *NRDIS	Luther C. Greenleaf Commercial Block	311-313 Washington Street	No Impact
BOS.8479 *NRDIS	National Market Bank	309 Washington Street	No Impact
BOS.8478 *NRDIS	M.F. Hill Block (Winship Spa)	290-298 Washington Street	No Impact
BOS.8473 *NRDIS	Filder And Gordon Apartments	10-16 Chestnut Hill Ave	No Impact
BOS.8472 *NRDIS		8 Chestnut Hill Ave	No Impact
BOS.8471		19-23 Academy Hill Road	No Impact

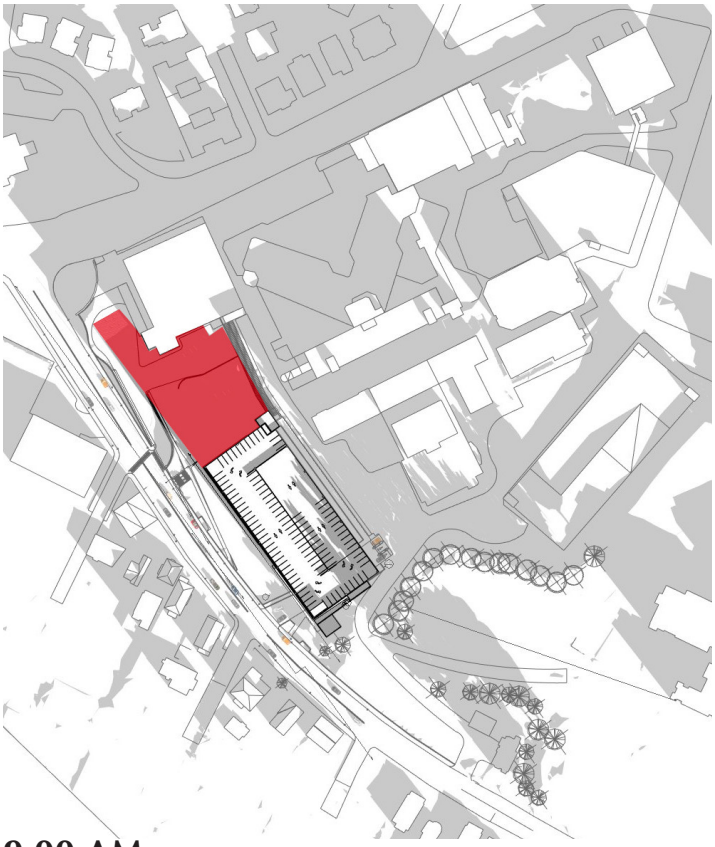
MACRIS #	Name	Address	Impact
BOS.8470 *NRDIS	John D. Willis Stables (Watson Brothers Auto Painter Building)	15 Academy Hill Road	No Impact
BOS.8469		7 Academy Hill Road	No Impact
BOS.8468 *NRDIS	Brighton First Church Parsonage (CWP And William House & Grocery Store)	4-10 Academy Hill Road	No Impact
BOS.8330 *NRDIS	Massachusetts Agricultural Society Exhibition Hall (Eastern Hotel - Agricultural Hall)	356-360 Washington Street	No Impact
BOS.8329 *NRDIS	William Wirt Warren Commercial Block (Brighton Masonic Hall)	329-337 Washington Street	No Impact
BOS.8328 *NRDIS	Brighton Police Station #14	301 Washington Street	No Impact
BOS.8327 *NRDIS	Nagle Building	300-310 Washington Street	No Impact
BOS.8326	Jared Coffin House (David Nevins House)	212 Washington Street	No Impact
BOS.8325	Saint Gabriel's Monastery Roman Catholic Church	159 Washington Street	No Impact
BOS.8324	Saint Gabriel's Monastery (Boston College Dorm Room)	159 Washington Street	No Impact
BOS.8322	Brighton High School	25 Warren Street	No Impact
BOS.8320		2 Menlo Street	No Impact
BOS.8319		16 Sparhawk Street	No Impact
BOS.8318		10 Sparhawk Street	No Impact
BOS.8315	Dr. Horace E. Marior House And Office	5 Sparhawk Street	No Impact
BOS.8314	Lucy A. Hayford House	1 Sparhawk Street	No Impact
BOS.8295	Ebenezer Smith House (Cephas Bracket House)	15-17 Peaceable Street	No Impact
BOS.8262		25 Murdock Street	No Impact
BOS.8260		5 Menlo Street	No Impact
BOS.8259		4 Menlo Street	No Impact
BOS.8258		9 Menlo Street	No Impact
BOS.8257 *NRDIS	Washington Building Imperial Hotel Rourke's Building	418-422 Market Street	No Impact
BOS.8254	JT Lythgoe Two-Family House	81 Mapleton Street	No Impact
BOS.8229	McMurty House	23 Henshaw Street	No Impact
BOS.8228	McMurtry House	17 Henshaw Street	No Impact
BOS.8227	McMurtry House	15 Henshaw Street	No Impact

MACRIS #	Name	Address	Impact
BOS.8140		16 Elko Street	No Impact
BOS.8127		50 Chestnut Hill Avenue	No Impact
BOS.8122	St. Elizabeth's Hospital (*demolished*)	748 Cambridge Street	No Impact
BOS.8121	Granville A. Fuller House	715 Cambridge Street	No Impact
BOS.15220	Sisters for Saint Joseph Roman Catholic Convent/Saint Gabriel's Roman Catholic Church Rectory	139 Washington Street	No Impact
BOS.15219	Saint Gabriel's Roman Catholic Church School (Allston-Brighton Head Start)	139 Washington Street	No Impact
BOS.13274 *NRDIS	Pellegrino Building	1A Winship Street	No Impact
BOS.13273 *NRDIS	Washington - Rourke	363-365 Washington Street	No Impact
BOS.13272 *NRDIS	Washington FJ Dorr Company Building	354 Washington Street	No Impact
BOS.13271 *NRDIS	Rockland House	338 Washington Street	No Impact
BOS.13265 *NRDIS		55 Henshaw Street	No Impact
BOS.13264 *NRDIS	Sullivan and Moulton Block	1-9 Henshaw Street	No Impact
BOS.13263 *NRDIS	Rotman and Shapiro Apartments	2-10 Elko Street	No Impact
BOS.13260 *NRDIS	Brighton Fire House - Municipal Building	24 Chestnut Hill Ave	No Impact
BOST.13256 *NRDIS	Brighton Municipal Courthouse	52 Academy Hill Road	No Impact
BOS.13255 *NRDIS	Holton Library	42 Academy Hill Road	No Impact
BOS.13254 *NRDIS	Marion Building	28-34 Academy Hill Road	No Impact
BOS.13253 *NRDIS		17-27 Academy Hill Road	No Impact

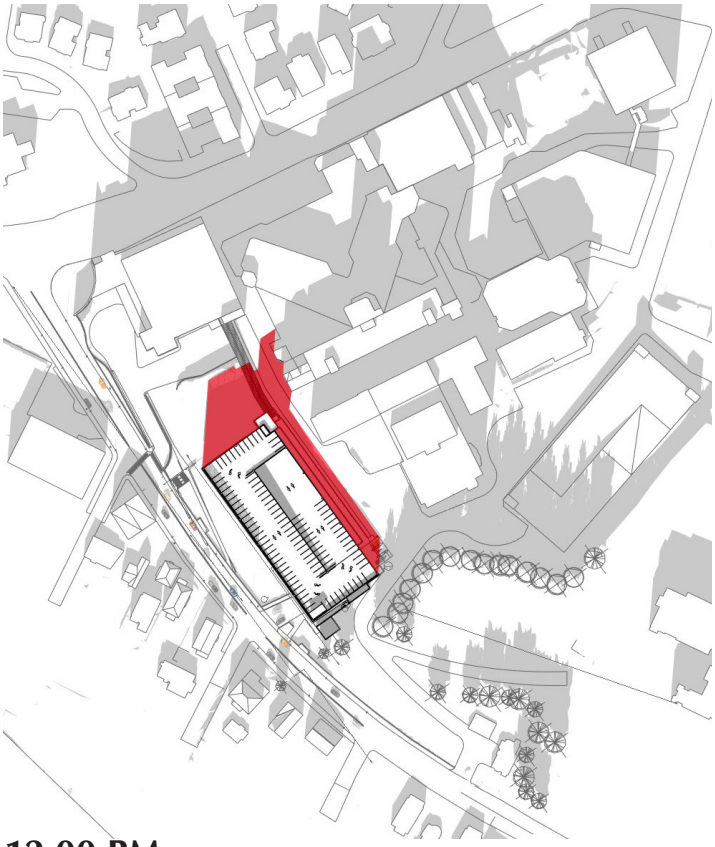
Table 6-4: Inventoried Historic Districts

MACRIS #	Name/Location	Description	Impact
BOS.JU	Brighton Center Commercial Area	One of the most historically significant areas within Allston-Brighton. Served as the focus of the community's educational and religious life in the early 18th century, with the first school established in 1722 and the first meetinghouse in 1744. The buildings in this district represent 200 years of commercial and residential architectural development.	No Impact
BOS.KG	Washington – Warren Streets Institutional Area	Encompasses five architecturally significant late 19th and early 20th century institutional complexes. These include: The William Howard Taft School, Brighton High School, Kennedy Memorial Hospital (Franciscan Children's Hospital), Marine Hospital, and Saint Gabriel's Church and Monastery.	No Impact
BOS.KX	Chestnut Hill Avenue, 11-83	Early street with long development history and variety of architectural styles and mid-to-late 19th century Federal style houses.	No Impact
BOS.KY	Elko Street, 11-22	Generally well-kept Mansard, Queen Anne, Shingle, and Colonial Revival style homes with detailing intact.	No Impact
BOS.LE	Henshaw Street, 11-25	Visually unified grouping of five Colonial Revival mansions of identical mass and scale.	No Impact
BOS.LJ	Mapleton Street, 5-81	Uniform street of distinctive 2-family Colonial Revival houses.	No Impact
BOS.LK	Menlo Street, 4-10	Well-cared for Queen Anne, Shingle, and Colonial Revival style homes with uniform massing, scale, and harmonious style that represent modest suburban homes of the late 19th century.	No Impact
BOS.LM	Murdock Street, 21-68 and Murdock Terrace, 1-8	Architecturally varied street with notable examples of late 19th century middle class suburban homes.	No Impact
BOS.LS	Sparhawk Street, 2-34	Late 19th century homes with notable Mansards, Stick, Queen Anne, and Colonial Revival style.	No Impact

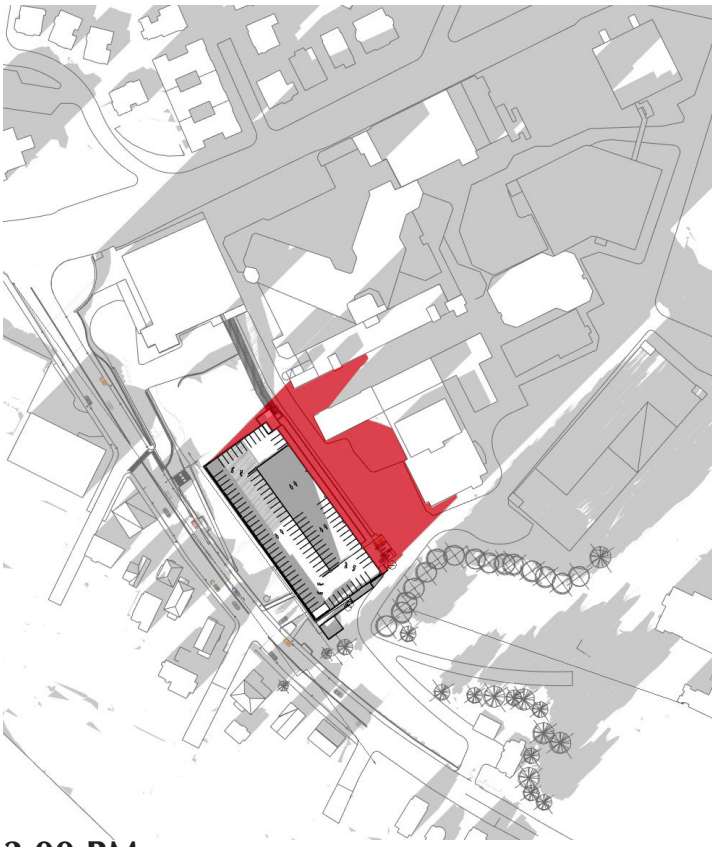
MACRIS #	Name/Location	Description	Impact
BOS.TE *NRDIS	Brighton Historic District	Well-preserved collection of historic resources that includes 56 buildings and a cemetery dating from 1765 to the 1940's. Resources document Brighton's transition from a rural agricultural village to an urban community.	No Impact



9:00 AM

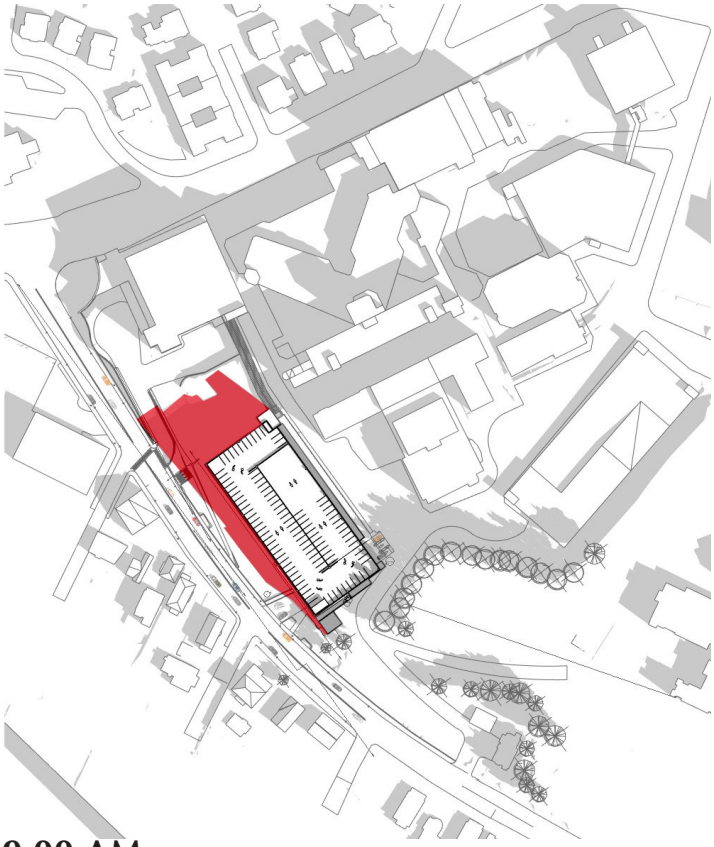


12:00 PM

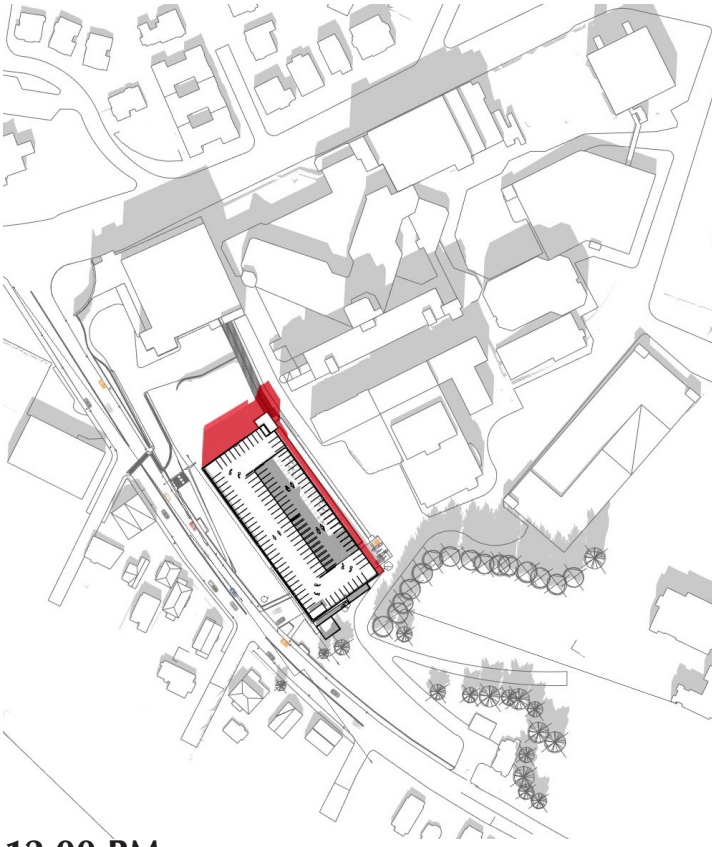


3:00 PM

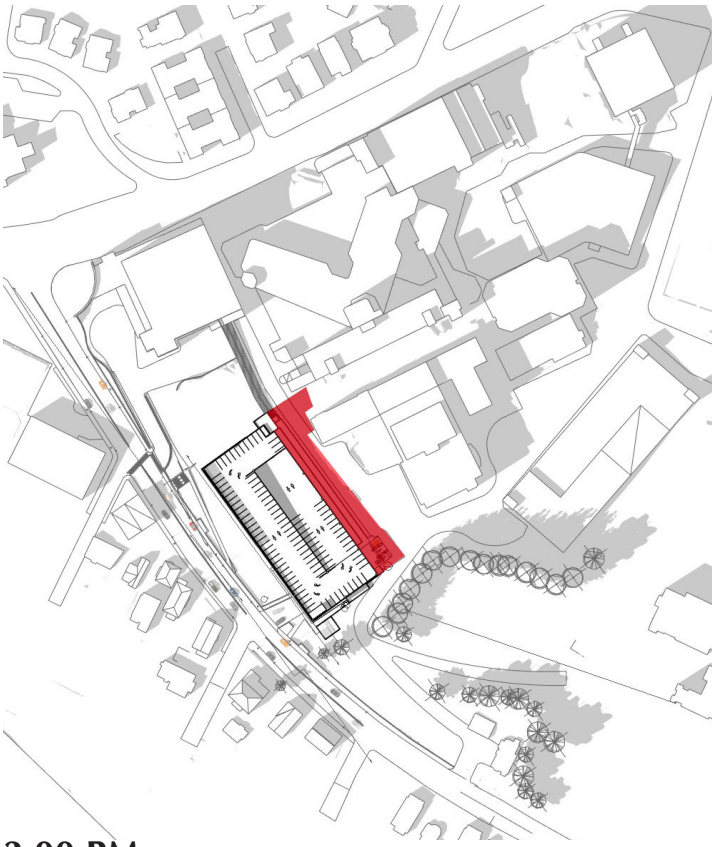
Figure 6-1
December Shadow Study
Source: Walker Consultants, 2019



9:00 AM

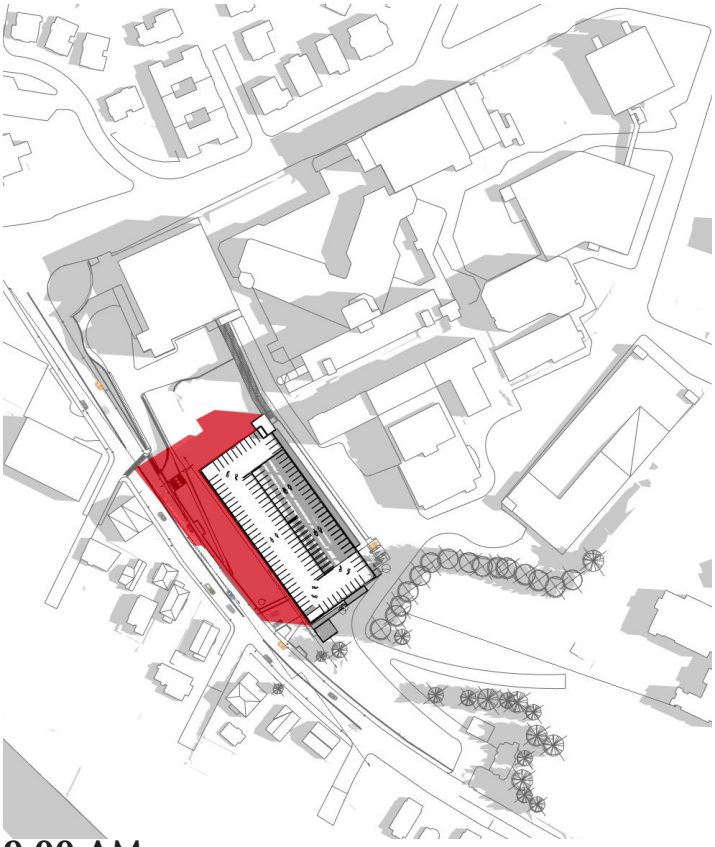


12:00 PM

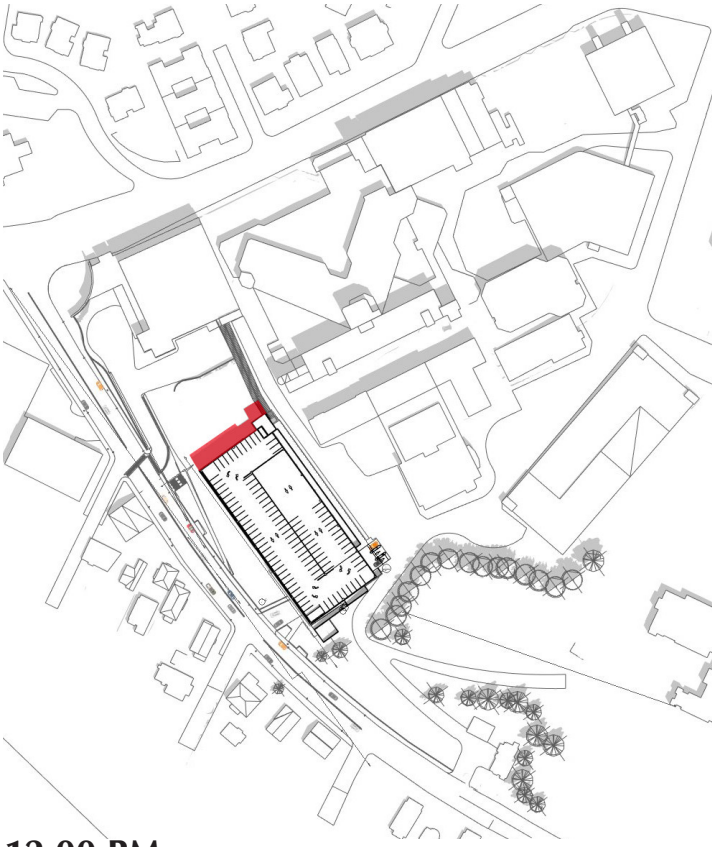


3:00 PM

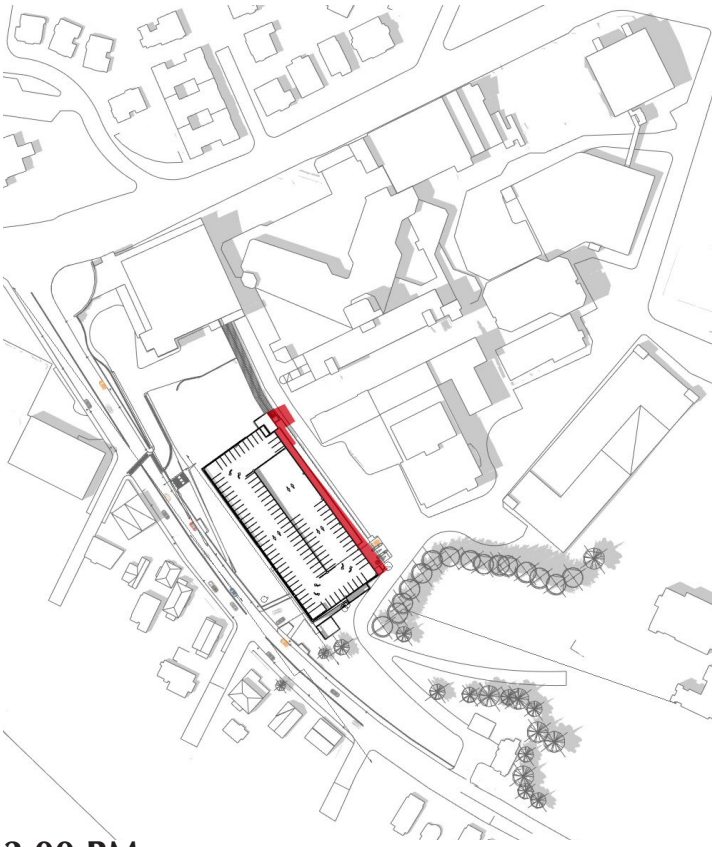
Figure 6-2
March Shadow Study
Source: Walker Consultants, 2019



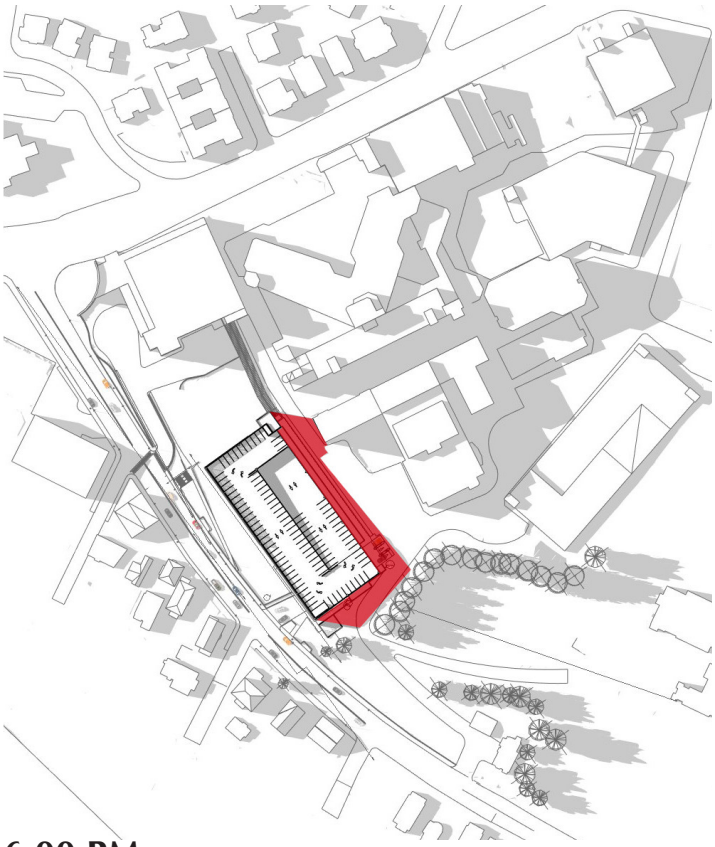
9:00 AM



12:00 PM

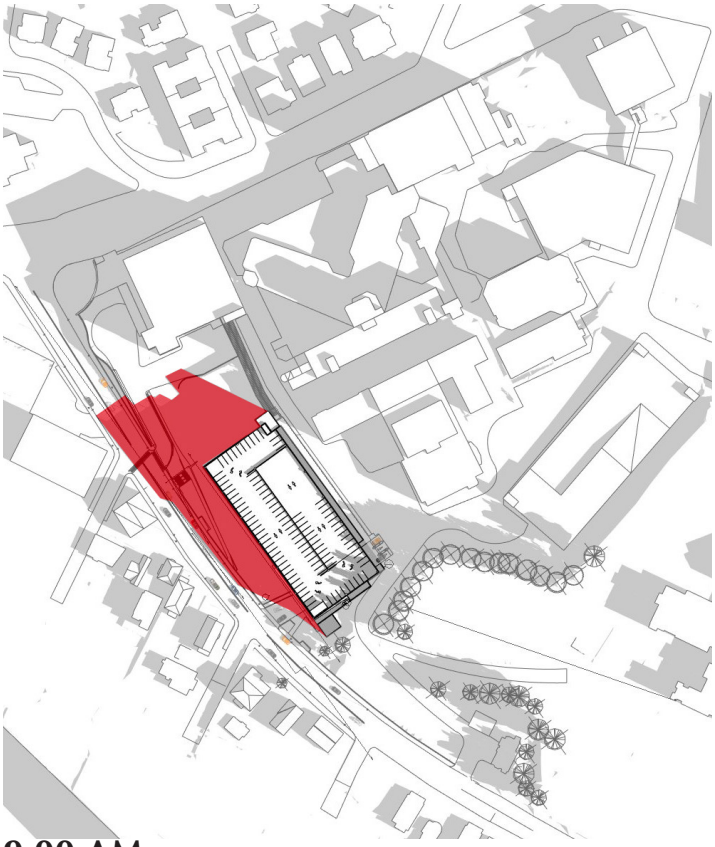


3:00 PM

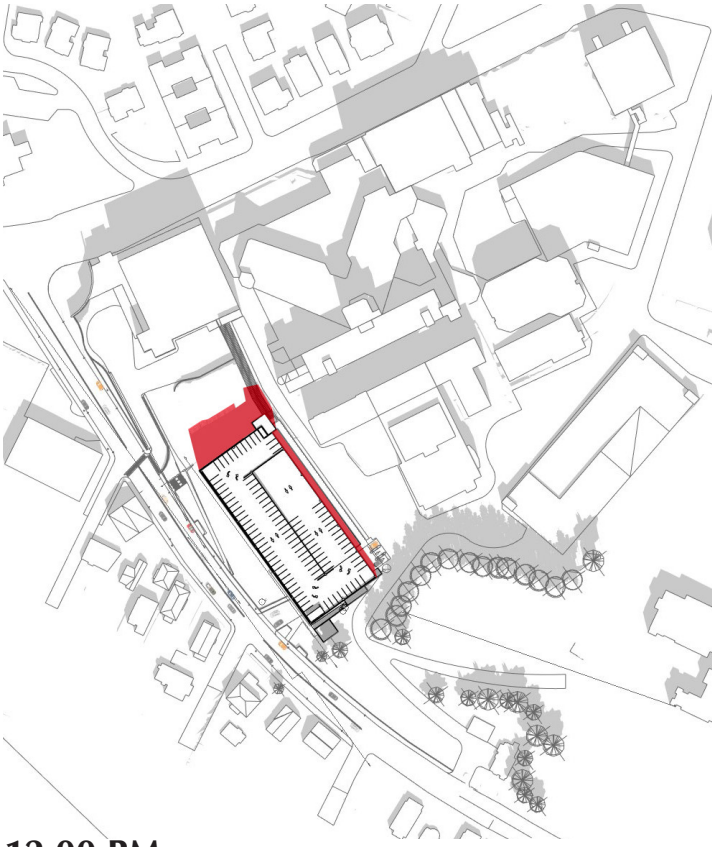


6:00 PM

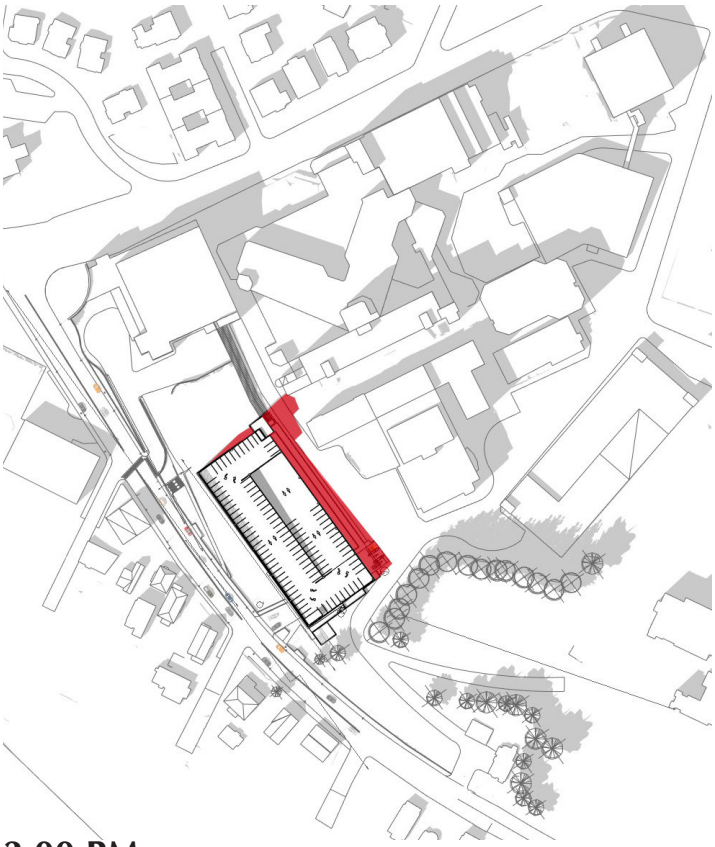
Figure 6-3
June Shadow Study
Source: Walker Consultants, 2019



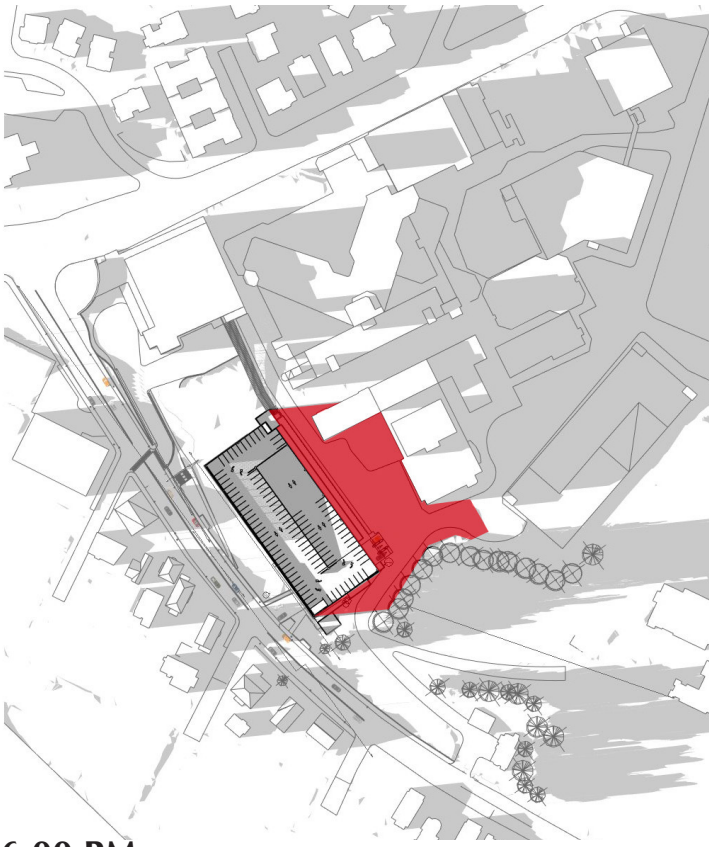
9:00 AM



12:00 PM



3:00 PM



6:00 PM

Brighton, Massachusetts

Figure 6-4
September Shadow Study
Source: Walker Consultants, 2019

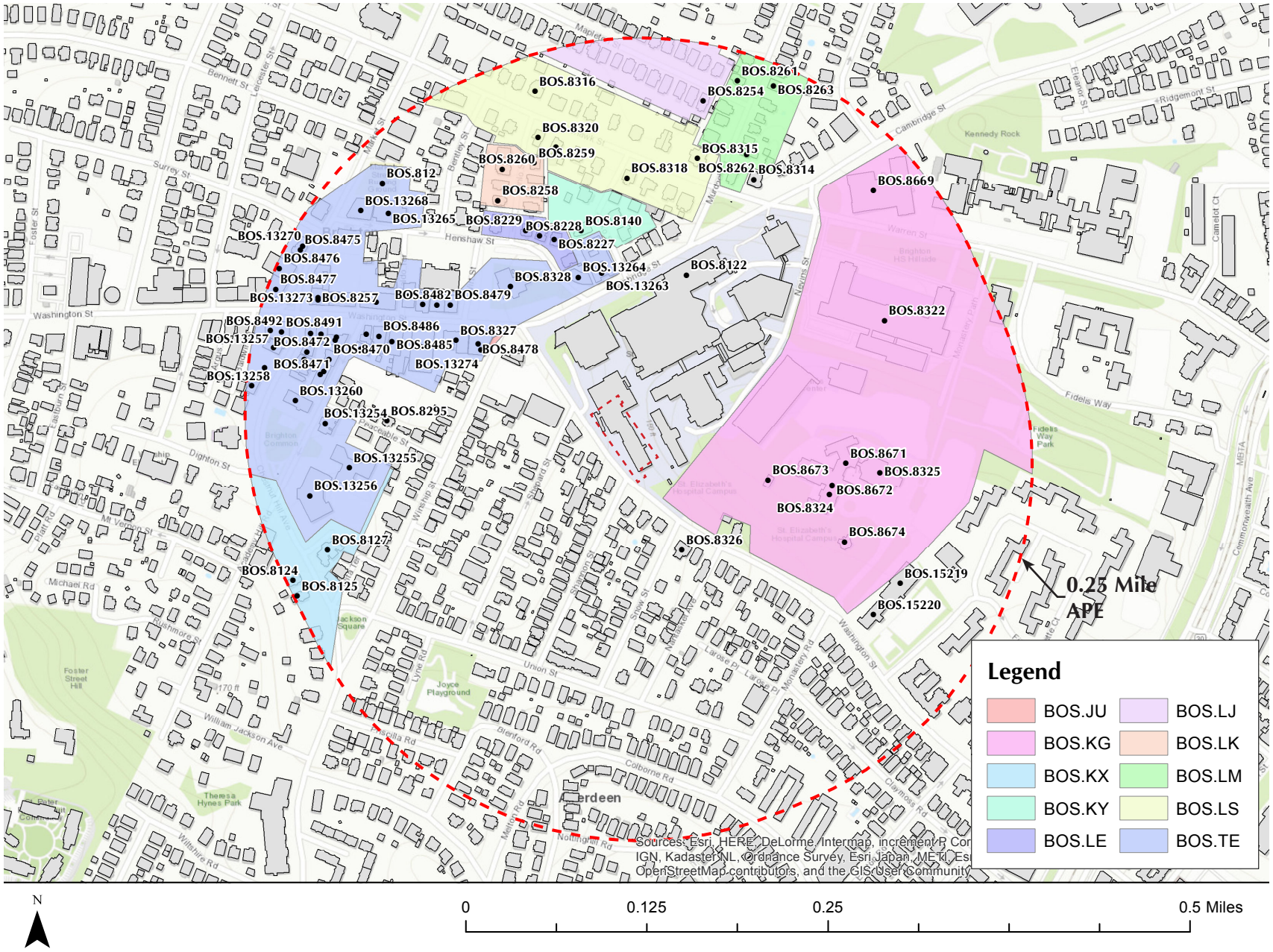


Figure 6-5
Historic Resources
Source: Fort Point Associates, Inc., 2019

Chapter 7

INFRASTRUCTURE

CHAPTER 7: INFRASTRUCTURE

7.1 INTRODUCTION

The following chapter outlines the existing utilities surrounding the Project Site, the connections required to provide service to the Project, and any impacts on the existing utility systems that may result from the construction of the Project. The following utility systems are discussed herein:

- Sewer;
- Domestic Water;
- Fire Protection;
- Drainage;
- Natural Gas;
- Electricity; and
- Telecommunications.

7.2 WASTEWATER INFRASTRUCTURE

7.2.1 EXISTING SEWER SYSTEM

The Boston Water and Sewer Commission (BWSC) owns and maintains the sewer system that services the City of Boston (the "City"). The BWSC sewer system connects to the Massachusetts Water Resources Authority (MWRA) interceptors for conveyance, treatment, and disposal through the MWRA Deer Island Wastewater Treatment Plant.

There is existing BWSC infrastructure in Washington Street adjacent to the Project Site, to the southwest of the Project area. There are some existing sanitary sewer connections located on-site that will be disturbed as part of construction and will have to be re-routed around the proposed garage structure and new services will be installed for the Project.

There are 15-inch and 10-inch BWSC sanitary sewer mains in Washington Street. The 10-inch main connects to a 20-inch by 26-inch sanitary sewer main within Cambridge Street. This flows northwest until it turns north along Dustin Street, converting to a 24-inch by 30-inch sewer main and connecting to another main within Bulkhead

Street. Eventually, this main within Bulkhead Street connects to a 144-inch combined sewer interceptor and flows to the Charles River.

The 15-inch main connects to an 18-inch sanitary sewer main within Cambridge Street. This flows northeast until it turns north along Market Street, eventually converting to a 24-inch by 30-inch sewer main. This connects to a 30-inch by 39-inch sewer main within North Beacon Street, and discharges to the same outfall as the 10-inch main.

7.2.2 PROJECTED SANITARY SEWER FLOW

Though a sanitary service will be provided for the proposed garage building, the Project will not contain any bathrooms or ancillary facilities which will contribute to the sanitary sewer system. In accordance with the State Plumbing Code, the drainage for the covered parking tiers will be will be discharged through an gas/oil/sand separator and through the proposed service into the sanitary sewer system.

Therefore, there will not be an anticipated regular sanitary flow generated by the Project. A maximum sanitary discharge rate, to ensure proper sizing of the service, will be calculated based on the 100-year rainfall rate and one-half the open area of the garage façade, as the bulk of the Project's wastewater will be generated by wind-blown rain onto the covered parking tiers. The volume of wind-blown rain is conservatively estimated as the 100-year storm event volume (2 ½-inches per hour per the State Plumbing Code) times one-half the open perimeter of the covered tiers. The volume of wastewater generated during this event is approximately 343 GPM.

7.2.3 SANITARY SEWER CONNECTION

The Project's impact on the existing BWSC 10-inch and 15-inch sewer mains in Washington Street were analyzed. The existing sewer system capacity calculations are presented in Table 7-1.

Table 7-1: Sewer Hydraulic Capacity Analysis

BWSC Sewer Manhole[1]	Slope[2] (%)	Diameter (Inches)	Manning's Number	Flow Capacity[3] (cfs)	Flow Capacity (mgd)
Washington Street					
99 to 100	4.8%	10	0.013	4.82	3.11
100 to 101	3.2%	10	0.013	3.92	2.53
			Minimum Flow Analyzed:	3.92	2.53
Washington Street					
93 to 94	0.7%	15	0.013	5.27	3.41
94 to 95	3.0%	15	0.013	11.20	7.24
			Minimum Flow Analyzed:	5.27	3.41

Table 7-1 indicates the hydraulic capacity of the existing 10-inch and 15-inch sewer mains in Washington Street. The minimum hydraulic capacity is 2.53 million gallons per day (mgd) or 3.92 cubic feet per second (cfs) for the 10-inch main in Washington Street, and 3.41 mgd or 5.27 cfs for the 15-inch main in Washington Street.

Based on the maximum flow estimate of 343 GPM (or 0.76 cfs), with a factor of safety estimate of 10 (0.83 cfs), no capacity problems are expected within the BWSC sewer systems in any of the adjacent roadways.

Proposed Conditions

The Proponent will coordinate with the BWSC on the design and capacity of any connections to the sewer system. The Project is not expected to generate regular sanitary sewer flows; please see above for a discussion of the maximum expected flow based on wind-blow rain. Approval for the sanitary flow will come from BWSC.

Sewer services for the existing buildings on-site will be relocated around the proposed work; as no sewer services exist to the area in question, a new service will be required. The new sewer services resulting from the Project will connect to the existing sanitary sewer mains in Washington Street.

[1] Manhole numbers taken from BWSC Sewer Map received 12/11/2018 prepared by Nitsch Engineering
[2] Inverts provided by BWSC on 12/11/2018
[3] Flow calculations based on Manning's Equation

Improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process for the Project. This process will include a comprehensive design review of the existing and proposed service connections, an assessment of Project demands and system capacity, and the establishment of service accounts.

7.3 WATER SYSTEM

7.3.1 EXISTING WATER SYSTEM

Water for the Project will be provided by BWSC, which is supplied by the MWRA system. There are five water systems within the City of Boston, and these provide service to portions of the City based on ground surface elevation. The five systems are the southern low (SL), southern high (SH), southern extra high (SEH), northern low (NL), and northern high (NH). Water mains are labeled by their system, pipe size, year installed, pipe material, and year cement lined (CL), if applicable. There is a 12-inch BWSC southern high main in Washington (SH 12 DICL 1989) adjacent to the project site. The existing BWSC water system is shown in Figure 7-2.

Existing Water Capacity

BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the Project Site was requested by the Proponent. Recent hydrant flow data was available near the Project Site. As the design progresses, the Proponent will request hydrant flows be conducted by BWSC adjacent to the Project, as hydrant flow test data must be less than one-year old when used for design.

7.3.2 ANTICIPATED WATER CONSUMPTION

Though a water service will be provided for the proposed garage building, the Project will not contain any bathrooms or ancillary facilities which will require daily water demand. The structure will require one domestic water service to facilitate annual washdowns or cleaning of the parking deck. Average daily water consumption for the parking garage will be minimal to none.

7.3.3 EXISTING WATER CAPACITY AND IMPACTS

BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the Project site was requested by the Proponent. Hydrant flow data was available for two hydrants near the Project site. The existing hydrant flow data is shown in Table 7-2.

Table 7-2: Existing Hydrant Flow Data

Flow Hydrant Number	Date of Test	Static Pressure (psi)	Residual Pressure (psi)	Total Flow (gpm)
H122(Washington St)	10/26/2018	50	46	1,736

Note: Data provided by BWSC on 12/28/2018

7.3.4 PROPOSED WATER SERVICE

The Proponent will coordinate with the BWSC on the design and capacity of any proposed connections to the water system. Existing water and fire services for the campus will be routed around the proposed work and will be replaced as necessary. New sewer services for the Project will connect to the existing water main in Washington Street.

New water services will be installed in accordance with the latest local, state, and federal codes and standards. Backflow preventers will be installed at both domestic and fire protection service connections. New meters will be installed with Meter Transmitter Units (MTU's) as part of the BWSC's Automatic Meter Reading (AMR) system.

7.4 STORM DRAINAGE SYSTEM

7.4.1 EXISTING STORM DRAINAGE SYSTEM

The existing Project Site is largely impervious, with a steep grassed sloped area encompassing much of the remaining area. Currently, stormwater runoff is collected by existing catch basins located around the Project Site and closed drainage systems incorporated into the existing Project Site. Within the Project Site is an existing storm water management system, including two small Cultec chamber infiltration areas. There is an existing BWSC storm drain main in Washington Street. There are also several catch basins and a swale located on site along Washington Street. Storm water discharges from the project area through a 10-inch storm drain to a BWSC owned 8-inch storm drain that converts to a 36-inch main and connects to a 42-inch storm drain within Cambridge Street. The existing BWSC Storm Drainage System is shown in Figure 7-1.

7.4.2 PROPOSED DRAINAGE CONDITIONS

The proposed condition for the Project Site is mostly impervious. The Project will meet or reduce the existing peak rates of stormwater discharge and volumes of stormwater runoff from the site and promote runoff recharge to the greatest extent

possible. The Project will strive to infiltrate 1.25 inches of stormwater runoff from impervious areas into the ground to the greatest extent possible. Different approaches to stormwater recharge will be assessed. It is anticipated that the stormwater recharge systems will work to passively infiltrate runoff into the ground with a gravity recharge system or a combination of storage tanks in the building and pumps. The underground recharge system, and any required site closed drainage systems, will be designed so that there will be no increase in the peak rate of stormwater discharge from the Project Site in the developed condition compared to the existing condition.

Improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process. The process will include a comprehensive design review of the proposed service connections, and assessment of Project demands and system capacity.

7.4.3 MITIGATION MEASURES

The Project will not affect the water quality of nearby water bodies. Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and BWSC storm drain systems. During construction, existing catch basins will be protected with filter fabric, straw bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with applicable MWRA and BWSC discharge permits. Once construction is complete, the Project will be in compliance with local and state stormwater management policies, as described below.

7.4.4 WATER QUALITY IMPACT

The Project will not affect the water quality of nearby water bodies. Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and BWSC storm drain systems. During construction, existing catch basins will be protected with filter fabric, straw bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with applicable MWRA and BWSC discharge permits. Once construction is complete, the Project will be in

compliance with local and state stormwater management policies, as described below.

7.4.5 DEP STORMWATER MANAGEMENT POLICY STANDARDS

In March 1997, Massachusetts Department of Environmental Protection (MassDEP) adopted a new Stormwater Management Policy to address non-point source pollution. In 1997, MassDEP published the Massachusetts Stormwater Handbook as guidance on the Stormwater Policy, which was revised in February 2008. The Policy prescribes specific stormwater management standards for development projects, including urban pollutant removal criteria for Projects that may impact environmental resource areas. Compliance is achieved through the implementation of Best Management Practices (BMPs) in the stormwater management design. The Policy is administered locally pursuant to MGL Ch. 131, s. 40.

A description of the Project's anticipated compliance with the Standards is outlined below:

Standard #1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

Compliance: The Project will comply with this Standard. The design will incorporate the appropriate stormwater treatment and no new untreated stormwater will be directly discharged to, nor will erosion be caused to wetlands or waters of the Commonwealth as a result of stormwater discharges related to the Project.

Standard #2: Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.

Compliance: The proposed design will comply with this Standard to the maximum extent practicable. The existing peak discharge rate will be met or will be decreased as a result of the improvements associated with the Project.

Standard #3: Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Compliance: The Project will comply with this standard to the maximum extent practicable.

Standard #4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when:

a. Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;

b. Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and

c. Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.

Compliance: The proposed design will comply with this standard. Within the Project site, there will be mostly roof, and paved pedestrian areas. Runoff from these paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system will be collected by area drainage and treated before discharging into the BWSC system.

Standard #5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated thereunder at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

Compliance: The proposed design will comply with this standard. The proposed design will include source control, pollution prevention and pretreatment practices, as necessary.

Standard #6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management

practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, considering site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

Compliance: Not Applicable. The proposed Project is not within an outstanding resource area.

Standard #7: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Compliance: The proposed design will comply with this standard. A plan to control temporary construction-related impacts including erosion, sedimentation, and other pollutant sources during construction and land disturbing activities will be developed and implemented.

Standard #8: A long-term operation and maintenance (O&M) plan shall be developed and implemented to ensure that stormwater management systems function as designed.

Compliance: The Project will comply with this standard. An O&M Plan including long-term Best Management Practices (BMP) operation requirements will be prepared for the Proposed Project and will assure proper maintenance and functioning of the stormwater management system.

Standard #9: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this standard. There will be no illicit connections associated with the Proposed Project. Temporary construction dewatering will be conducted in accordance with applicable BWSC and Massachusetts Water Resource Authority (MWRA) requirements, as necessary.

7.5 ELECTRICAL SERVICES

Electrical service will be provided from Washington Street. A transformer is anticipated to be provided in the southwest corner of the Project Site. The Project currently anticipates one electrical service panel for lighting, elevator and equipment operation within the parking structure.

An emergency generator of approximately 150KW will be provided to operate emergency lighting and the elevators during a service outage. The generator is anticipated to be provided in the southwest corner of the Project Site.

The Project will be lit by LED luminaires to achieve a minimum illumination level of 2 foot-candles and an average 6 foot-candle lighting level. The entrance areas of the garage will be lighted to 50 foot-candles level. The roof of the parking structure will be illuminated with pole mounted LED luminaires at approximately 20 feet above the roof parking level.

7.6 TELECOMMUNICATIONS

The Project will be provided with a telecommunication link between the garage and the main SEMC Medical Campus. An emergency phone system (e.g. "Blue Phone") will be provided at the stair/elevator lobbies. The telecommunication systems will be determined in coordination with the hospital's IT and Security departments.

7.7 HEATING AND COOLING

The Project will be an open structure and therefore is unheated/cooled. The ancillary utility rooms (i.e. water service, electrical, etc.) and equipment rooms (i.e. elevator control room) will be heated and cooled with wall-mounted mini-split units

7.8 NATURAL GAS SYSTEMS

The Project will not include natural gas utility service.

7.9 UTILITY PROTECTION DURING CONSTRUCTION

Existing public and private infrastructure located within any public or private rights-of-way shall be protected during construction. The installation of proposed utilities within a public way will be in accordance with the BWSC, Boston Public Works Department, Dig-Safe Program, and applicable utility company requirements. Specific methods for construction of proposed utilities where they are near or within existing BWSC water, sewer, and drain facilities will be reviewed by the BWSC as part of the Site Plan Review Process. The necessary permits will be obtained before the commencement of work.

7.10 FIRE PREVENTION

The Project will be provided with a fire alarm system consisting of pull stations and strobe lights in accordance with the state and local building code requirements. The parking structure will be designed as an "open" structure and will not require a sprinkler system. A dry-standpipe system will be installed at each stair core and throughout the parking structure. Fire service connection locations will be coordinated with the Boston Fire Department

Figure 7-1

Existing BWSC Sanitary Sewer System

Source: Boston Water and Sewer Commission, 2018

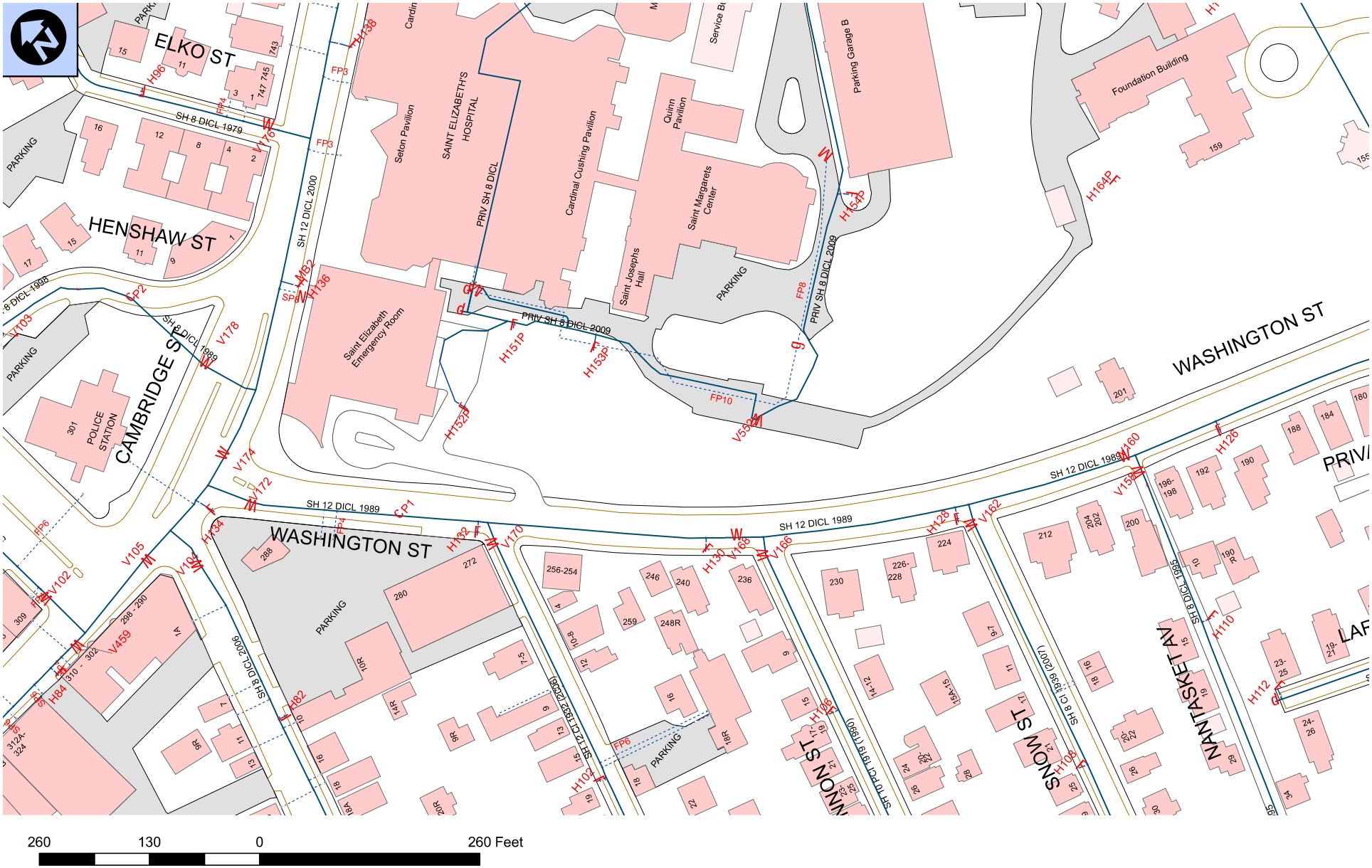


Figure 7-2
Existing BWSC Water System
Source: Boston Water and Sewer Commission, 2018

APPENDIX A

CLIMATE RESILIENCY CHECKLIST

boston planning & development agency

Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

A.1 - Project Information

Project Name:	St. Elizabeth's Medical Center Parking Garage			
Project Address:	253 Washington Street, Brighton, MA 02135			
Project Address Additional:				
Filing Type (*select*)	*Initial (PNF, **EPNF**, NPC or other substantial filing)* *Design / Building Permit (prior to final design approval), or* *Construction / Certificate of Occupancy (post construction completion)*			
Filing Contact	Harrison R. Bane	Steward Health Care	harrison.bane@steward.org	
Is MEPA approval required	*Yes/No*			

A.3 - Project Team

Owner / Developer:	Steward Health Care
Architect:	Walker Consultants
Engineer:	Nitsch Engineering
Sustainability / LEED:	Walker Consultants
Permitting:	Fort Point Associates, Inc.
Construction Management:	Gencon, Inc.

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Parking
List the First Floor Uses:	Parking
List any Critical Site Infrastructure and or Building Uses:	N/A

Site and Building:

Site Area:	*42,450 SF*	Building Area:	*215,400 GSF*
Building Height:	*51.5 Ft*	Building Height:	*6 Stories*
Existing Site Elevation – Low:	*122 Ft BCB*	Existing Site Elevation – High:	*157 Ft BCB*
Proposed Site Elevation – Low:	*120 Ft BCB*	Proposed Site Elevation – High:	*160 Ft BCB*
Proposed First Floor Elevation:	*128 Ft BCB*	Below grade levels:	*0 Stories*

Article 37 Green Building:

LEED Version - Rating System :	*Parksmart*	LEED Certification:	*Yes / No*

Proposed LEED rating:	*Certified/Silver/ Gold/Platinum*	Proposed LEED point score:	*110 Pts*

Building Envelope [The Garage is an open-air, naturally ventilated structure that does not require insulated walls, floors or ceilings. The ancillary rooms associated with the garage will have heating and cooling and will comply with the following values.]

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	*(R25c.i.)*	Exposed Floor:	*(R10c.i.)*
Foundation Wall:	*(R7.5c.i.)*	Slab Edge (at or below grade):	*(R10)*

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	*(%)*	Wall & Spandrel Assembly Value:	*(U)*
Area of Framed & Insulated / Standard Wall:	*(100%)*	Wall Value	*(R11.4c.i.)*
Area of Vision Window:	*%*	Window Glazing Assembly Value:	*(U)*
		Window Glazing SHGC:	*(SHGC)*
Area of Doors:	*%*	Door Assembly Value:	*(U)*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	*For a parking structure, the only baseline available in ASHREA 90.1 is 0.21 W per square foot for lighting. Loads are passed on an estimate of the transient nature of patient / visitor parking garage.*		
Annual Electric:	*1383750(kWh)*	Peak Electric:	*75460(kW)*
Annual Heating:	*0.75(MMbtu/hr)*	Peak Heating:	*0,75(MMbtu)*
Annual Cooling:	*10(Tons/hr)*	Peak Cooling:	*10(Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	*38%*	Have the local utilities reviewed the building energy performance?:	*No*
Energy Use - Below Mass. Code:	*NA%*	Energy Use Intensity:	*0.2(kBtu/SF)*

Back-up / Emergency Power System

Electrical Generation Output:	*177(kW)*	Number of Power Units:	1
System Type:	*200(kW)*	Fuel Source:	Diesel

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	*96(kW)*	Heating:	*0.34(MMbtu/hr)*
		Cooling:	*5(Tons/hr)*

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: *(Tons)*

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Sustainable energy performance design elements include use of recycled materials, use of regional materials, use of low/no VOC coatings

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

The garage is a naturally ventilated, open-air building; no mechanical ventilation, only heating/cooling in ancillary spaces (electric room, water service room, etc)

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Provide high-efficiency LED lighting throughout, provide lighting controls with timers, photo sensors and occupancy sensors, provide programmable thermostats/sensor controls in occupiable spaces, provide pay-on-foot parking system to reduce idling within structure

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

Groundwater recharge (confirm w/ Civil)

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Designed for future PV array system

Describe any energy efficiency assistance or support provided or to be provided to the project:

The Proponent may pursue the federal tax deduction incentive established in IRC Section 179D. This was enacted by the Energy Policy Act of 2005; this tax deduction was originally to expire at the end of 2007 but has been retroactively reinstated several years, most recently reinstated as part of the Bipartisan Budget Act of 2018. Filing for the deduction cannot occur until the year the project is complete; it is therefore unknown whether this deduction incentive will still be available at the completion of the project. The incentive allows for a deduction of $0.30 to $0.60 per square foot of building for interior lighting systems that reduce the building's energy and power cost; deduction amount will depend the system. The parking structure lighting system will be designed with the intent of meeting the criteria for this tax deduction.

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The garage is designed to accommodate future PV array that will offset the structure's carbon footprint. Further, as a means of adaptive reuse, if there is a future reduction in parking demand, the garage would accommodate app rides/TNC (Uber/Lyft)

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions [This does not apply to open-parking structure design. The building is to be open-air, non-mechanically ventilated. The ancillary rooms are located at the lowest level at a partially below-grade story and will unlikely be impacted by varying temperatures.]

Temperature Range - Low:	*Deg.*	Temperature Range - High:	*Deg.*
Annual Heating Degree Days:		Annual Cooling Degree Days	

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	#	Days – Above 100°:	#
Number of Heatwaves / Year:	#	Average Duration of Heatwave (Days):	#

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

This does not apply to open-parking structure design. The building is to be open-air, non-mechanically ventilated. The ancillary rooms are located at the lowest level at a partially below-grade story and will unlikely be impacted by varying temperatures.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

Use of natural ventilation as a non-mechanical strategy to support building functionality. The garage will have an emergency generator to support emergency lighting and electrical systems in case of a power outage.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm: *5.14 In.*

Describe all building and site measures for reducing storm water run-off:

On-site stormwater recharge for the remaining parking area, as well as on-site stormwater recharge for the buildings located in front of the buildings along Washington Street.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

On-site stormwater recharge for the remaining parking area, as well as on-site stormwater recharge for the buildings located in front of the buildings along Washington Street. The site is located above any FEMA or SLR-BFA flood zone. Backflow prevention included for the stormwater system consistent with plumbing code requirements.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA? *Yes / **No***

What Zone: A, AE, AH, AO, AR, A99, V, VE

Current FEMA SFHA Zone Base Flood Elevation: *Ft BCB*

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site. *Yes / **No***

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the

highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	*Ft BCB*		
Sea Level Rise - Design Flood Elevation:	*Ft BCB*	First Floor Elevation:	*Ft BCB*
Site Elevations at Building:	*Ft BCB*	Accessible Route Elevation:	*Ft BCB*

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

APPENDIX B

TRANSPORTATION

Appendix B
PNF Transportation Component Ch.5

- Traffic Volume Data
- Pedestrian/Bicycle Data
- Seasonal/Yearly Growth Calculations
- Bicycle Sharing
- Public Transportation Information
- Background Projects
- Trip Generation Data
- SEMC Mode Share Surveys
- Trip Distribution Calculations
- Capacity Analysis
- Parking Observations

Appendices Available Upon Request

APPENDIX C

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:	**Saint Elizabeth's Medical Caner Parking Garage**
Primary Project Address:	**253 Washington Street, Brighton MA 02135**
Total Number of Phases/Buildings:	**1**
Primary Contact (Name / Title / Company / Email / Phone):	**Judith Kohn / Vice President / Fort Point Associates, Inc. / jkohn@fpa-inc.com / 617-357-7044 x211**
Owner / Developer:	**Steward Health Care**
Architect:	**Walker Consultants**
Civil Engineer:	**Nitsch Engineering, Inc.**
Landscape Architect:	**Deborah Myers Landscape Architecture, Inc.**
Permitting:	**Fort Point Associates, Inc.**
Construction Management:	**Gencon, Inc.**

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.	**No.**

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

Article 80 | ACCESSIBILTY CHECKLIST

What are the dimensions of the project? The podium floor plate is approximately 20,500 sf for five stories. The upper floor plates are approximately 14,000 sf for 14 stories.				
Site Area:	*42,450 SF*	Building Area:		215,400 *GSF*
Building Height:	51.5 *FT.*	Number of Stories:		6
First Floor Elevation:	128.0' BCB	Is there below grade space:		*Yes / **No***
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:	Institutional classroom and teaching spaces			

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 CSEMC campus is located at 736 Cambridge Street in Boston's Allston-Brighton neighborhood. The main campus encompasses approximately 14 acres and is bounded by Cambridge and Washington streets to the northwest, west, south and southwest, Warren Street and the Brighton High School to the north, and by Nevins Street, Monastery Path and the St. Gabriel's School to the east. The campus also includes the Medical Office Building at 280 Washington Street, which is situated on an approximately 0.97 acre parcel across the street from the CSEMC main entrance. The 280 Washington Street parcel is bounded by Washington Street and Shepard Street to the East, Winship Street to the west, the building at 288 Washington Street to the north, and by the buildings at 5 Shepard Street and 10 Winship Street to the south.
List the surrounding accessible MBTA transit lines and their proximity to development site:	

commuter rail / subway stations, bus stops:	
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	The Site is located within the St. Elizabeth's Medical Center Campus and is surrounded by several health care buildings. Other institutions are located within 1 mile of driving distance and are listed below: *Public housing*: Washington Street Faneuil Gardens *Elderly and disabled housing*: JJ Carroll Commonwealth Elderly Patricia While *Hospitals*: Franciscan's Children's Hospital Brighton Marine *Education:* Boston College Brighton Campus Thomas A. Edison K8 School Mary Lyon School Winship Elementary School Brighton High School Boston Green Academy Jackson/Mann K-8 School Harriet A. Baldwin School Alexander Hamilton School Shaloh House Saint Columbkille Partnership School Mestiva High School Michael Driscoll School *Recreation:* Oak Square YMCA West End House Boys and Girls Club
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	*Public Library* Brighton Branch of the Boston Public Library

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:	NO
Are there sidewalks and pedestrian 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:	Yes - Existing concrete sidewalk on Washington Street is 9.5 feet wide along the Project Site frontage. Presently there are no ramps at the proposed curb cut location.
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:	Yes – verification will be provided during the EPNF comment period
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 – the propose sidewalks will be consistent with the Boston Complete Streets Guidelines.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	This information will be provided during the Article 80B review process.
List the proposed materials for each Zone. Will the proposed materials be on private property	All proposed sidewalks are cement concrete

or will the proposed materials be on the City of Boston pedestrian right-of-way?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	Not applicable.
Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	Yes – the Project will require Specific Repairs review by the PIC for work in sidewalks and installation of street trees.
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?	610: All spaces will be provided in a parking garage.
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?	13 accessible spaces include 3 van accessible spaces
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?	Dispersed through the parking garage including on floors which are directly accessible to exits
Has a drop-off area been identified? *If yes,* will it be accessible?	The parking garage does not have a drop-off area. Drop-off areas are located at buildings on the campus.
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:	Entryways will be flush. All elevators will be accessible.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes, the main entrances are flush conditions and are fully accessible.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	Accessible routes wayfinding signage packages will be developed during the Article 80 review process
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?	The Project will not be funding or improving the surrounding neighborhood, with the exception of installing trees in the public sidewalk areas.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs	Not applicable to a parking garage.

in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	
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.	Not applicable to a parking garage.
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 Project has not yet been reviewed by the Disability Advisory Board.
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. The Proponent plans to meet with the Disability Advisory board during the Article 80 review process.

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.

See attached Parking Accessibility Diagram.

Provide a diagram of the accessible route connections through the site, including distances.

See attached Site Accessibility Diagram.

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

APPENDIX D

BROADBAND READY BUILDINGS QUESTIONNAIRE

TO BE SUBMITTED ON-LINE

CITY of BOSTON | boston planning & development agency

ARTICLE 80 DESIGN REVIEW
BROADBAND READY BUILDINGS QUESTIONNAIRE

The City of Boston is working to cultivate a broadband ecosystem that serves the current and future connectivity needs of residents, businesses, and institutions. The real estate development process offers a unique opportunity to create a building stock in Boston that enables this vision. In partnership with the development community, the Boston Planning and Development Authority and the City of Boston will begin to leverage this opportunity by adding a broadband readiness component to the Article 80 Design Review. This component will take the form of a set of questions to be completed as part of the Project Notification Form. Thoughtful integration of future-looking broadband practices into this process will contribute to progress towards the following goals:

1. Enable an environment of competition and choice that results in all residents and businesses having a choice of 2 or more wireline or fixed wireless high-speed Internet providers
2. Create a built environment that is responsive to new and emerging connectivity technologies
3. Minimize disruption to the public right of way during and after construction of the building

The information that is shared through the Project Notification Form will help BPDA and the City understand how developers currently integrate telecommunications planning in their work and how this integration can be most responsive to a changing technological landscape.

Upon submission of this online form, a PDF of the responses provided will be sent to the email address of the individual entered as Project Contact. Please include this PDF in the Project Notification Form packet submitted to BPDA.

SECTION 1: GENERAL QUESTIONS

Project Information

- Project Name: St. Elizabeth's Medical Center Parking Garage
- Project Address Primary: ***253 Washington Street, Brighton, MA***
- Project Address Additional:
- Project Contact (name / Title / Company / email / phone) ***Andy Rougas Andy.rougas@steward.org***
- Expected completion date

Team Description

- Owner / Developer ***Steward St. Elizabeth's Medical Center of Boston***
- Architect ***Walker Consultants***
- Engineer (building systems): ***Walker Consultants***
- Permitting: ***Fort Point Associates, at Tetra Tech Company***
- Construction Management ***Gencon, Inc.***

SECTION 2: RIGHT OF WAY TO BUILDING

Point of Entry Planning

Point of entry planning has important implications for the ease with which your building's telecommunications services can be installed, maintained, and expanded over time.

#1: Please provide the following information for your building's point of entry planning (conduits from building to street for telecommunications). Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

- Number of Points of Entry: ***Unknown***
- Locations of Points of Entry:
- Quantity and size of conduits:
- Location where conduits connect (e.g. building-owned manhole, carrier-specific manhole or stubbed at property line):
- Other information/comments

#2: Do you plan to conduct a utility site assessment to identify where cabling is located within the street? This information can be helpful in determining the locations of POEs and telco rooms. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

SECTION 3: INSIDE OF THE BUILDING

Riser Planning

Riser capacity can enable multiple telecom providers to serve tenants in your building.

#3: Please provide the following information about the riser plans throughout the building. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

- Number of risers: ***Unknown***
- Distance between risers (if more than one)
- Dimensions of riser closets –
- Riser or conduit will reach to top floor -
- Number and size of conduits or sleeves within each riser –
- Proximity to other utilities (e.g. electrical, heating)-
- Other information/comments

Telecom Room

A well designed telecom room with appropriate security and resiliency measures can be an enabler of tenant choice and reduce the risk of service disruption and costly damage to telecom equipment.

#4: Please provide the following information about the telecom room plans. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

- What is the size of the telecom room? – ***N/A***
- ***rooms***

- Describe the electrical capacity of the telecom room (i.e. # and size of electrical circuits)

- Will the telecom room be located in an area of the building containing one or more load bearing walls? –***building***
- Will the telecom room be climate controlled? -

- If the building is within a flood-prone geographic area, will the telecom equipment will be located above the floodplain? -

- Will the telecom room be located on a floor where water or other liquid storage is present? -

- Will the telecom room contain a flood drain? -

- Will the telecom room be single use (telecom only) or shared with other utilities? -

- Other information/comments

Delivery of Service Within Building (Residential Only)
Please enter 'unknown' if these decisions have not yet been made or you are presently unsure. Questions 5 through 8 are for residential development only.

#5: Will building/developer supply common inside wiring to all floors of the building? - ***Unknown***
#6: If so, what transmission medium (e.g. coax, fiber)? Please enter 'unknown' if these decisions have not yet been made or you are presently unsure. ***-Unknown***
#7: Is the building/developer providing wiring within each unit? ***-Unknown***

#8: If so, what transmission medium (e.g. coax, fiber)? Please enter 'unknown' if these decisions have not yet been made or you are presently unsure. ***-Unknown***

SECTION 4: ACCOMMODATION OF NEW AND EMERGING TECHNOLOGIES

Cellular Reception

The quality of cellular reception in your building can have major impacts on quality of life and business operations.

Please provide the following information on your plans to facilitate high quality cellular coverage in your building. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

#9: Will the building conduct any RF benchmark testing to assess cellular coverage? ***- Unknown***

#10: Will the building allocate any floor space for future in-building wireless solutions (DAS/small cell/booster equipment)? ***-Unknown***

#11: Will the building be providing an in-building solution (DAS/ Small cell/

booster)? - ***Unknown***

#12: If so, are you partnering with a carrier, neutral host provider, or self-installing?

- Carrier
- Neutral host provider
- Self-installing

Rooftop Access
Building rooftops are frequently used by telecommunications providers to install equipment critical to the provision of service to tenants.

Please provide the following information regarding your plans for roof access and usage. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.

#13: Will you allow cellular providers to place equipment on the roof? - ***Unknown***

#14: Will you allow broadband providers (fixed wireless) to install equipment on the roof? - ***Unknown***

SECTION 5: TELECOM PROVIDER OUTREACH

Supporting Competition and Choice
Having a choice of broadband providers is a value add for property owners looking to attract tenants and for tenants in Boston seeking fast, affordable, and reliable broadband service. In addition to enabling tenant choice in your building, early outreach to telecom providers can also reduce cost and disruption to the public right of way. The following questions focus on steps that property owners can take to ensure that multiple wireline or fixed wireless broadband providers can access your building and provide service to your tenants.
#15: (Residential Only) Please provide the date upon which each of the below providers were successfully contacted, whether or not they will serve the building, what transmission medium they will use (e.g. coax, fiber) and the reason they provided if the answer was 'no'.

- Comcast
- RCN
- Verizon

- NetBlazr
- Starry

#16: Do you plan to abstain from exclusivity agreements with broadband and cable providers?

- Yes
- No
- **Unknown**

#17: Do you plan to make public to tenants and prospective tenants the list of broadband/cable providers who serve the building?

- Yes
- No
- **Unknown**

SECTION 6: FEEDBACK

The Boston Planning and Development Agency looks forward to supporting the developer community in enabling broadband choice for resident and businesses. Please provide feedback on your experience completing these questions.

The parking garage will have limited telecommunication services.

APPENDIX E

SMART UTILITIES CHECKLIST

Boston Smart Utilities Checklist

Date Submitted:	<<Timestamp>>
Submitted by:	<<Email Address>>

Background

The Smart Utilities Checklist will facilitate the Boston Smart Utilities Steering Committee's review of:

a) compliance with the Smart Utilities Policy for Article 80 Development Review, which calls for the integration of five (5) Smart Utility Technologies (SUTs) into Article 80 developments

b) integration of the Smart Utility Standards

More information about the Boston Smart Utilities Vision project, including the Smart Utilities Policy and Smart Utility Standards, is available at: www.http://bostonplans.org/smart-utilities

Note: Any documents submitted via email to manuel.esquivel@boston.gov will not be attached to the pdf form generated after submission, but are available upon request.

Part 1 - General Project Information

1.1 Project Name	Saint Elizabeth's Medical Center Parking Garage
1.2 Project Address	253 Washington Street
1.3 Building Size (square feet) **For a multi-building development, enter total development size (square feet)*	215,400 sf
1.4 Filing Stage	EPNF

Boston Smart Utilities Checklist

1.5 Filing Contact Information

1.5a Name	Cara Patttullo
1.5b Company	Fort Point Associates, Inc.
1.5c E-mail	cpattullo@fpa-inc.com
1.5d Phone Number	617-357-7044

1.6 Project Team

1.6a Project Owner/Developer	Steward Health Care
1.6b Architect	Walker Consultants
1.6c Permitting	Fort Point Associates
1.6d Construction Management	TBD

Part 2 - District Energy Microgrids

Fill out this section if the proposed project's total development size is equal to or greater than 1.5 million square feet.

Note on submission requirements timeline:

Feasibility Assessment Part A should be submitted with PNF or any other initial filing.

Feasibility Assessment Part B should be submitted with any major filing during the Development Review stage (i.e., DPIR)

District Energy Microgrid Master Plan Part A should be submitted before submission of the Draft Board Memorandum by the BPDA Project Manager (Note: Draft Board Memorandums are due one month ahead of the BPDA Board meetings)

District Energy Microgrid Master Plan Part B should be submitted before applying for a Building Permit

Please email submission to manuel.esquivel@boston.gov

Boston Smart Utilities Checklist

2.1 Consultant Assessing/Designing District Energy Microgrid (if applicable)	<<2.1 Consultant Assessing/Designing District Energy Microgrid (if applicable)>>
2.2 Latest document submitted	<<2.2 Latest document submitted>>
2.3 Date of latest submission	<<2.3 Date of latest submission>>
2.4 Which of the following have you had engagement/review meetings with regarding District Energy Microgrids? (select all that apply)	<<2.4 Which of the following have you had engagement/review meetings with regarding District Energy Microgrids? (select all that apply)>>
2.5 What engagement meetings have you had with utilities and/or other agencies (i.e., MA DOER, MassCEC) regarding District Energy Microgrids? (Optional: include dates)	<<2.5 What engagement meetings have you had with utilities and/or other agencies (i.e., MA DOER, MassCEC) regarding District Energy Microgrids? (Optional: include dates)>>

Part 3 - Telecommunications Utilidor

Fill out this section if the proposed project's total development size is equal to or greater than 1.5 million square feet OR if the project will include the construction of roadways equal to or greater than 0.5 miles in length.

Please submit a map/diagram highlighting the sections of the roads on the development area where a Telecom Utilidor will be installed, including access points to the Telcom Utilidor (i.e., manholes)

Please email submission to manuel.esquivel@boston.gov

3.1 Consultant Assessing/Designing Telecom Utilidor (if applicable)	<<3.1 Consultant Assessing/Designing Telecom Utilidor (if applicable)>>

Boston Smart Utilities Checklist

3.2 Date Telecom Utilidor Map/Diagram was submitted	<<3.2 Date Telecom Utilidor Map/Diagram was submitted>>
3.3 Dimensions of Telecom Utilidor (include units)	
3.3a Cross-section (i.e., diameter, width X height)	<<3.3a Cross-section (i.e., diameter, width X height)>>
3.3b Length	<<3.3b Length>>
3.4 Capacity of Telecom Utilidor (i.e., number of interducts, 2 inch (ID) pipes, etc.)	<<3.4 Capacity of Telecom Utilidor (i.e., number of interducts, 2 inch (ID) pipes, etc.)>>
3.5 Which of the following have you had engagement/review meetings with regarding the Telecom Utilidor? (select all that apply)	<<3.5 Which of the following have you had engagement/review meetings with regarding the Telecom Utilidor? (select all that apply)>>
3.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding the Telecom Utilidor? (Optional: include dates)	<<3.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding the Telecom Utilidor? (Optional: include dates)>>

Part 4 - Green Infrastructure

Fill out this section if the proposed project's total development size is equal to or greater than 100,000 square feet.

Please submit a map/diagram highlighting where on the development Green Infrastructure will be installed.

Please email submission to manuel.esquivel@boston.gov

Boston Smart Utilities Checklist

4.1 Consultant Assessing/Designing Green Infrastructure (if applicable)	Nitsch Engineering
4.2 Date Green Infrastructure Map/Diagram was submitted	The Green Infrastructure Plans are attached. They have not been submitted at this point.
4.3 Types of Green Infrastructure included in the project (select all that apply)	Recharge
4.4 Total impervious area of the development (in square inches)	10,961,712
4.5 Volume of stormwater that will be retained (in cubic inches)* **Note: Should equal to at least "Total impervious area (entered in section 4.4)" times "1.25 inches"*	17,089,920
4.6 Which of the following have you had engagement/review meetings with regarding Green Infrastructure? (select all that apply)	None that Nitsch has been involved in.
4.7 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Green Infrastructure? (Optional: include dates)	None to this date.

Part 5 - Adaptive Signal Technology (AST)

Fill out this section if as part of your project BTD will require you to install new traffic signals or make significant improvements to the existing signal system.

Boston Smart Utilities Checklist

Please submit a map/diagram highlighting the context of AST around the proposed development area, as well as any areas within the development where new traffic signals will be installed or where significant improvements to traffic signals will be made.

Please email submission to manuel.esquivel@boston.gov

5.1 Consultant Assessing/Designing Adaptive Signal Technology (if applicable)	<<5.1 Consultant Assessing/Designing Adaptive Signal Technology (if applicable)>>
5.2 Date AST Map/Diagram was submitted	<<5.2 Date AST Map/Diagram was submitted>>
5.3 Describe how the AST system will benefit/impact the following transportation modes	
5.3a Pedestrians	<<5.3a Pedestrians>>
5.3b Bicycles	<<5.3b Bicycles>>
5.3c Buses and other Public Transportation	<<5.3c Buses and other Public Transportation>>
5.3d Other Motorized Vehicles	<<5.3d Other Motorized Vehicles>>
5.4 Describe the components of the AST system (including system design and components)	<<5.4 Describe the components of the AST system (including system design and components)>>
5.5 Which of the following have you had engagement/review meetings with regarding AST? (select all that apply)	<<5.5 Which of the following have you had engagement/review meetings with regarding AST? (select all that apply)>>
5.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding AST? (Optional: include dates)	<<5.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding AST? (Optional: include dates)>>

Boston Smart Utilities Checklist

Part 6 - Smart Street Lights

Fill out this section if as part of your project PWD and PIC will require you to install new street lights or make significant improvements to the existing street light system.

Please submit a map/diagram highlighting where new street lights will be installed or where improvements to street lights will be made.

Please email submission to manuel.esquivel@boston.gov

6.1 Consultant Assessing/Designing Smart Street Lights (if applicable)	<<6.1 Consultant Assessing/Designing Smart Street Lights (if applicable)>>
6.2 Date Smart Street Lights Map/Diagram was submitted	<<6.2 Date Smart Street Lights Map/Diagram was submitted>>
6.3 Which of the following have you had engagement/review meetings with regarding Smart Street Lights? (select all that apply)	<<6.3 Which of the following have you had engagement/review meetings with regarding Smart Street Lights? (select all that apply)>>
6.4 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Smart Street Lights? (Optional: include dates)	<<6.4 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Smart Street Lights? (Optional: include dates)>>

Part 7 - Smart Utility Standards

The Smart Utility Standards set forth guidelines for planning and integration of SUTs with existing utility infrastructure in existing or new streets, including cross-section, lateral, and intersection diagrams. The Smart Utility Standards are intended to serve as guidelines for developers, architects, engineers, and utility providers for planning, designing, and locating

Boston Smart Utilities Checklist

utilities. The Smart Utility Standards will serve as the baseline for discussions on any deviations from the standards needed/proposed for any given utility infrastructure.

Please submit typical below and above grade cross section diagrams of all utility infrastructure in the proposed development area (including infrastructure related to the applicable SUTs).

Please submit typical below and above grade lateral diagrams of all utility infrastructure in the proposed development area (including infrastructure related to the applicable SUTs).

Please email submission to manuel.esquivel@boston.gov

7.1 Date Cross Section Diagram(s) was submitted	<<7.1 Date Cross Section Diagram(s) was submitted>>
7.2 Date Lateral Diagram(s) was submitted	<<7.2 Date Lateral Diagram(s) was submitted>>

LIMIT OF WORK

STORMWATER RECHARGE SYSTEM
280 LF OF 36" PERFORATED CPP
EMBEDDED IN CRUSHED STONE
TOP OF STONE EL=155.00
INV(36" CPP)=150.50
BOTTOM OF STONE EL=150.00

VOLUME OF STORMWATER TO BE RETAINED ON SITE:

1.25" X TOTAL IMPERVIOUS AREA = REQUIRED STORAGE VOLUME

1.25 in X 76,123 SF = 7,930 CF

PROPOSED RECHARGE SYSTEM #1
293 LF OF 24" PERFORATED CPP
SURROUNDED IN CRUSHED STONE
TOP OF STONE EL=119.33
BOT OF PIPE INV=116.50
BOT OF STONE EL=116.00

RE-USE EX. 8" DRAIN AS OVERFLOW

PROPOSED RECHARGE SYSTEM #2
338 LF OF 36" PERFORATED CPP
SURROUNDED IN CRUSHED STONE
TOP OF STONE EL=118.50
BOT OF PIPE INV=114.50
BOT OF STONE EL=114.00

SCALE:
1" = 40'

40 20 0 40 80

Nitsch Engineering

www.nitscheng.com
2 Center Plaza, Suite 430
Boston, MA 02108
T: (617) 338-0063
F: (617) 338-6472

- Civil Engineering
- Land Surveying
- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

GREEN INFRASTRUCTURE MAP/DIAGRAM

736 CAMBRIDGE STREET
BRIGHTON, MASSACHUSETTS

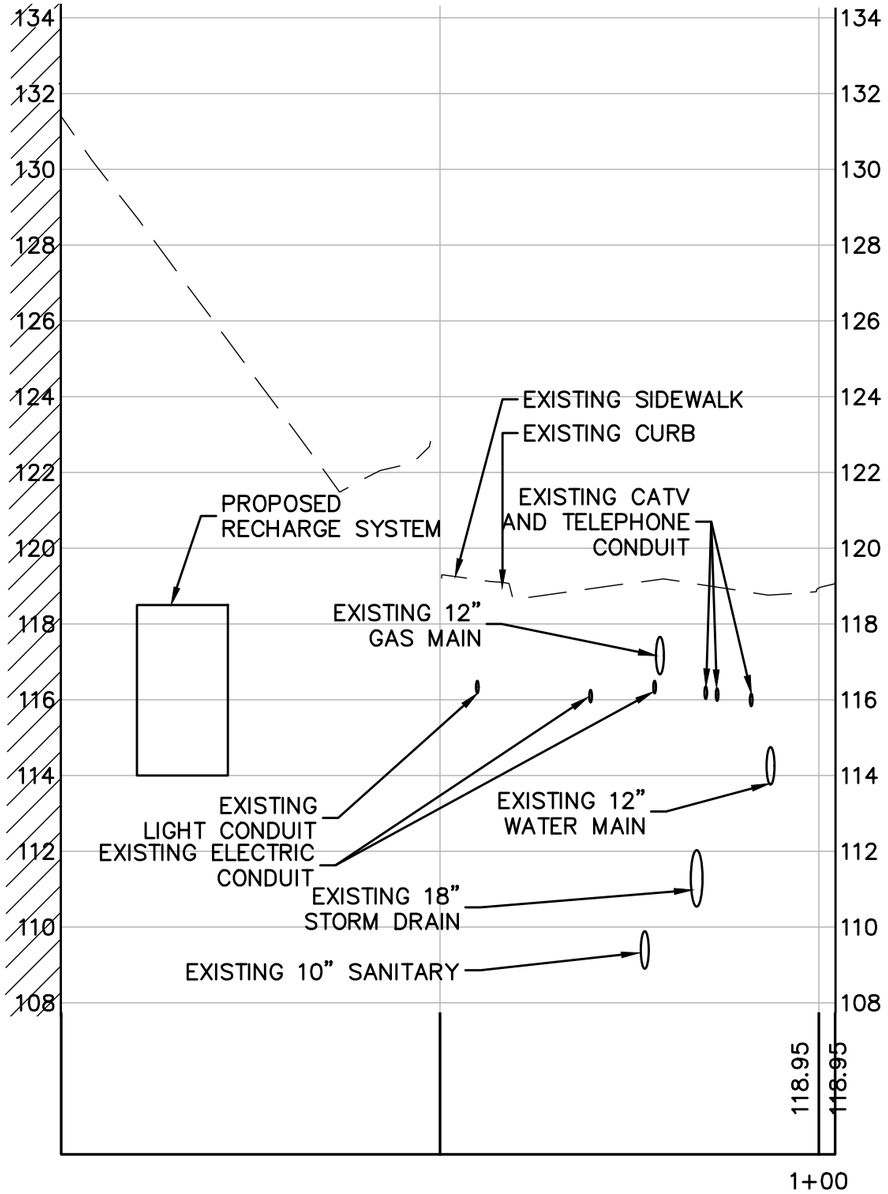
PREPARED FOR:
FORT POINT ASSOCIATES, INC.
31 STATE STREET, 3RD FLOOR, BOSTON, MA 02109

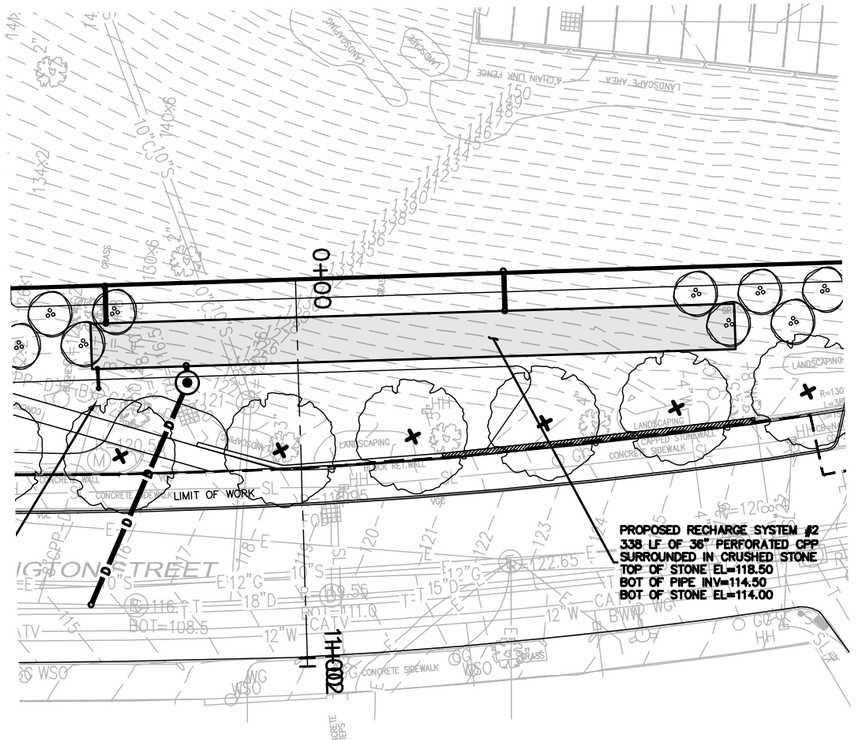
PROJECT #	12716.2
FILE:	13110SUC.DWG
SCALE:	1"=40'
DATE:	07/08/2019
PROJECT MGR:	JMS
SURVEYOR:	
DRAFTED BY:	WS
CHECKED BY:	JMS

SHEET:

C-1

OF REV.





UTILITY PROFILE VIEW

HORIZONTAL SCALE: 1"=20'
VERTICAL SCALE: 1"=4'

SCALE:
1" = 20'
20 10 0 20 40
4 2 0 4 8
1"=4'

PROFILE PLAN VIEW

SCALE: 1"=20'

SCALE:
1" = 20'
20 10 0 20 40

Nitsch Engineering
www.nitscheng.com
2 Center Plaza, Suite 430
Boston, MA 02108
T: (617) 338-0063
F: (617) 338-6472

- Civil Engineering
- Land Surveying
- Transportation Engineering
- Structural Engineering
- Green Infrastructure
- Planning
- GIS

GREEN INFRASTRUCTURE UTILITY PROFILE

736 CAMBRIDGE STREET
BRIGHTON, MASSACHUSETTS

PREPARED FOR:
FORT POINT ASSOCIATES, INC.
31 STATE STREET, 3RD FLOOR, BOSTON, MA 02109

PROJECT # 12716.2
FILE: 12716.2CUT.DWG
SCALE: AS SHOWN
DATE: 07/08/2019
PROJECT MGR: JMS
SURVEYOR:
DRAFTED BY: WS
CHECKED BY: JMS

SHEET:
C-2
OF REV.