PROJECT NOTIFICATION FORM

Submitted Pursuant to Article 80B of the Boston Zoning Code

200-204 Old Colony Avenue, South Boston

May 2018

Submitted To:
Boston Planning and Development Agency
One City Hall Square
Boston MA, 02201

Submitted By:
All Saints Development, LLC
160 Federal Street, 11th Floor
Boston, MA 02110

EMBARC

MLF CONSULTING LLC

Prepared By:
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In Association With:
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Howard Stein Hudson
Soden Sustainability Consulting
Tech Environmental, Inc.
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Wonzy/Barbar & Associates, Inc.
Cooperstown Environmental, LLC

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41 Brush Hill Road
Newton, MA 02461

May 2018

Mr. Brian Golden, Director
Boston Planning and Development Agency
One City Hall Square, 9th Floor
Boston, MA 02201
Attn: Raul Duverge, Senior Project Manager

RE: Project Notification Form
Proposed Mixed-Use Educational Uses
Multi-Family Residential Development
200 - 204 Old Colony Avenue, South Boston

Dear Director Golden:

On behalf of All Saints Development LLC (the "Proponent"), as developer of two parcels of land totaling 0.29 acres (12,574 sf), occupied by an existing building used by Notre Dame Education Center, and a second building formerly occupied as a single-family residence at 11 Frederick Street in the City of Boston's South Boston neighborhood (the "Project Site"), we are pleased to submit this Project Notification Form ("PNF") to the Boston Planning and Development Agency ("BPDA") in accordance with the Article 80B-2 Large Project Review requirements of the Boston Zoning Code. The development proposal is for approximately 68,713 gross square feet ("gsf") of floor area excluding the one-floor, below-grade garage. The program includes up to 54 residential apartment units on floors 2-5, replacement of the existing on-site school uses in approximately 9,380 gsf on the 1st floor, and approximately 39 below-level garage parking spaces accessed from Frederick Street by an auto-lifter (the "Proposed Project"). The Project will include on-site bicycle storage for approximately 54 bicycles.

The Proposed Project will exceed the 50,000 square foot size threshold of Article 80 for a project within a Boston neighborhood, and therefore requires several additional filings pursuant to Large Project Review regulations. A Letter of Intent

to File a Project Notification Form was filed with the BPDA on March 9, 2018 (attached hereto as **Appendix "A").**

In support of the Article 80 Large Project Review process, the Proponent has conducted, and continues to conduct, community and neighborhood outreach including meetings and discussions with elected representatives and other officials. The Proponent has also made presentations to residents of the surrounding neighborhood sponsored by relevant local civic associations.

On behalf of the entire project team, we would like to thank you and the BPDA staff assigned to the Proposed Project, particularly the Senior Project Manager, Raul Duverge, and the reviewing BPDA Urban Designers, Matthew Martin and Michael Cannizzo, for their invaluable assistance to date in assisting the development team in shaping the Proposed Project and in completing this comprehensive PNF filing.

We believe that the Proposed Project will constitute a significant positive addition to the South Boston neighborhood with much-needed new transit-oriented housing while maintain the existing school providing invaluable adult education for the neighborhood and City. We look forward to continuing the Large Project Review process and advancing the Proposed Project through public review with the cooperation of the BPDA, other City officials, members of the Impact Advisory Group, and the South Boston community.

In accordance with BPDA requirements, please find attached ten (10) copies of the PNF plus an electronic copy for the BPDA On-Line Development Portal.

Very truly yours,
MITCHELL L. FISCHMAN ("MLF") CONSULTING LLC

Mitchell L. Fischman, Principal

Table of Contents

APPENDICES

List of Tables

List of Figures

1.0 EXECUTIVE SUMMARY

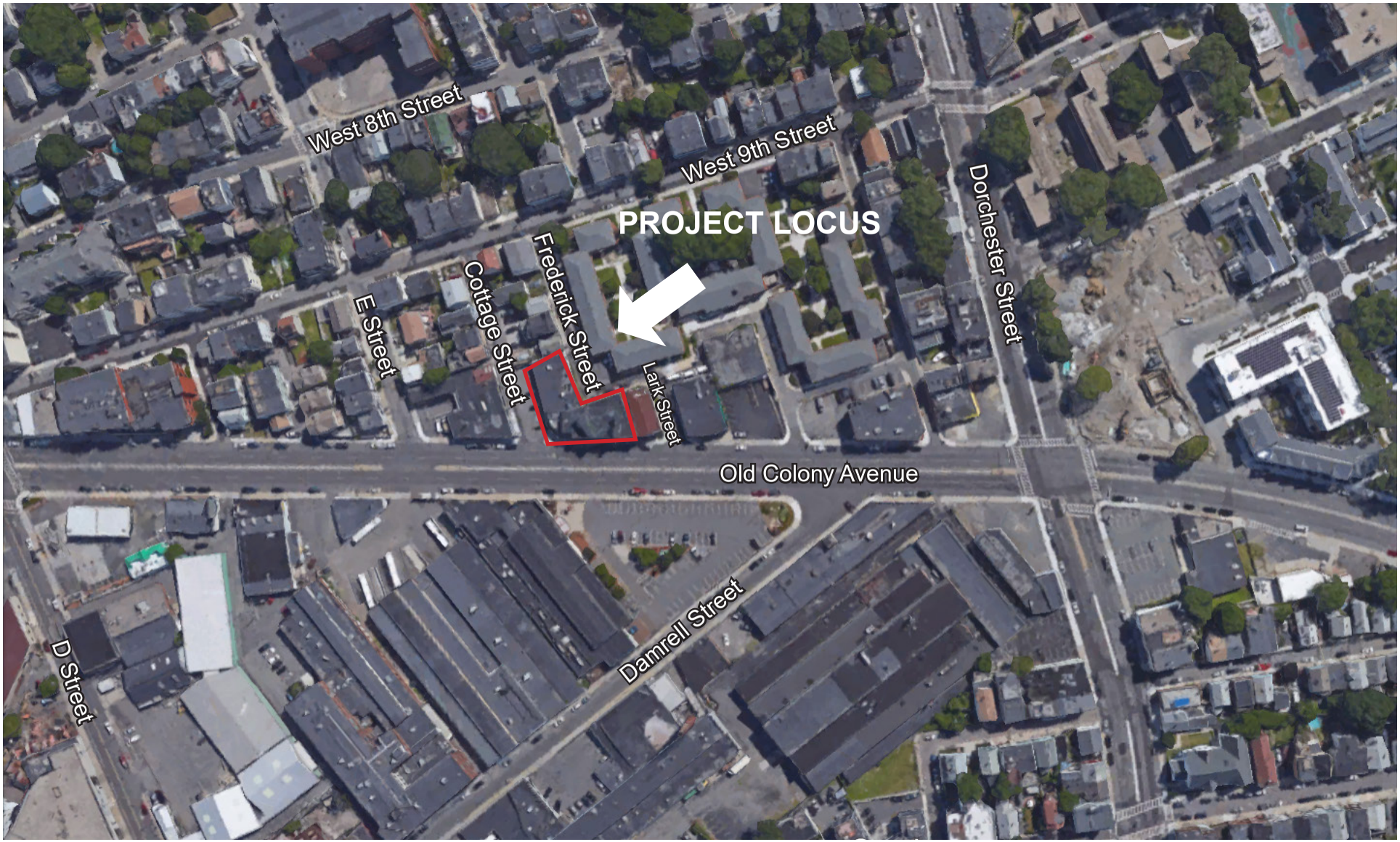
1.1 Introduction

All Saints Development, LLC (the "Proponent") is submitting this Project Notification Form ("PNF") for a proposed mixed-use, multi-family residential development and a replacement facility for the Notre Dame Education Center at 200-204 Old Colony Avenue in the South Boston neighborhood of Boston (the "Proposed Site"). The Proposed Project is expected to include approximately 68,713 gross square feet ("gsf") of zoning-defined floor area excluding the one-floor, below-grade garage. The program includes up to 54 residential apartment units on floors 2-6, replacement of the existing on-site school uses in approximately 9,380 gsf on the 1st floor, and approximately 39 below-level garage parking spaces accessed from Frederick Street by an auto-lifter (the "Proposed Project").

The proposed site includes 0.29 acres (12,574 sf) of land occupied by an existing building used by Notre Dame Education Center and a second building occupied as a single-family residence at 11 Frederick Street which includes a fenced yard and storage shed, with the entire property bounded to the north by Cottage Street, to the south by Lark Street, to the west by Old Colony Avenue, and to the east by Frederick Street. The scope and scale of the Proponent's residential program is also intended to further the residential policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan. Please see **Figures 1-1** thru **1-6**.

A Letter of Intent (LOI) to File a Project Notification Form was filed with the Boston Planning and Development Agency for the proposed mixed-use development on March 9, 2018 (See **Appendix A**).

The nearby neighborhood is a mix of multi-unit condominiums and apartment residences, light industrial, retail, and other commercial uses. MBTA buses run on Routes 5, 9, 10, 11, 16, 17, 18, and CT3 close to the site, and the Andrew Square MBTA Redline Line rapid transit stations is less than three blocks from the site. Andrew Square Station provides a direct connection to South Station and downtown Boston, and points north to Cambridge and south to Quincy. The context of the immediate area is supportive of, and well-suited to the proposed scale and scope of the Proposed Project, including several buildings of four to six stories in height, and the recently approved Washington Village across Old Colony Avenue have structures up to 22-floors.



200-204 Old Colony Avenue

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Figure 1-1. Project Locus. 200- 204 Old Colony Avenue

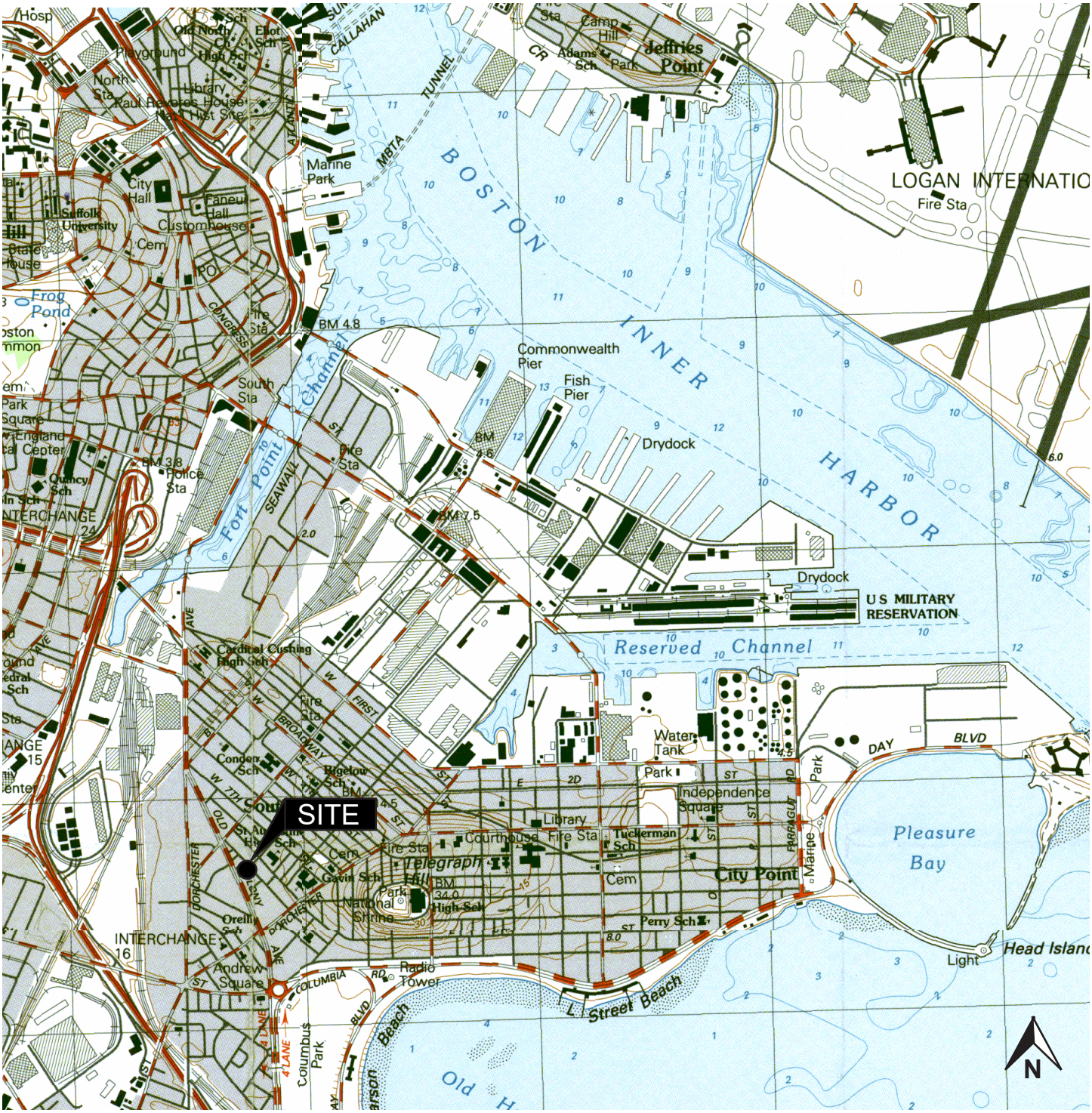

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Figure 1-2. USGS Map.
200- 204 Old Colony Avenue

Figure 1-3. Existing Site Photos

Façade of 200 Old Colony Ave

View of 200-204 Old Colony Ave

Figure 1-4. Existing Site Photos

Front of 200 Old Colony Ave Looking North

Front of 200 Old Colony Ave Looking South

Figure 1-5. Existing Site Photos

View of New Construction Next to 200-204 Old Colony Ave

Adjacent New Construction Along Old Colony Ave

Figure 1-6. Existing Site Photos

Ironworkers Local 7 Along Old Colony Ave Across from the Site

Existing Washington Street Village

Figure 1-7. Existing Site Photos

22-27 Lark Street

22-27 Lark Street and Rear of Building along Lark Street

1.2 Detailed Project Description

1.2.1 Existing Conditions Plan

The proposed site includes approximately 0.29 acres (12,574 sf) of land occupied by an existing two structures, bounded to the north by Cottage Street, to the south by Lark Street, to the west by Old Colony Avenue, and to the east by Frederick Street. The 200-204 Old Colony Avenue site is currently occupied by the Notre Dame Educational Center, an adult education school, on two floors of the existing two floor building with an entrance at the corner of Old Colony Avenue and Cottage Street, which will be demolished to allow for the new construction to commence. The rooftop billboard at 200-204 will also be discontinued and eliminated once the demolition is completed. A second single-family residence at 11 Frederick Street to the rear of the school building will also be demolished to allow the development proposal to proceed. (See **Figure 1-8**. **Existing Conditions Plan.**)

1.2.2 Detailed Project Program

The Project proposes construction of approximately 54 multi-family residential units in a six-story building with an overall height of up to 60 feet, a total overall project floor area of approximately 68,713 square feet of FAR GSF (excluding the parking garage) with approximately 39 garage spaces in the basement level accessed from Frederick Street (the "Proposed Project"). The residential units currently planned include 4 three-bedroom, 7 two-bedroom plus, 12 two-bedroom, 15 one-bedroom plus, 11 one-bedroom and 5 studio units. Service vehicle access will be provided from Frederick Street. The context of the immediate area is supportive and well-suited for the proposed scale and scope of the Proposed Project. It includes several buildings of four to six stories in height, and the recently approved Washington Village across Old Colony Avenue have structures up to 22-floors. See Project Dimensions in **Table 1-1** below.

Table 1-1. Approximate Project Dimensions of Proposed Project

Lot Area	0.28 acres / 12,574 square feet
Total Floor Area	68,713 square feet
Floor Area Ratio (FAR)	5.46
Number of Floors	6
Height*	59'-11"

*Height from Average Front Grade

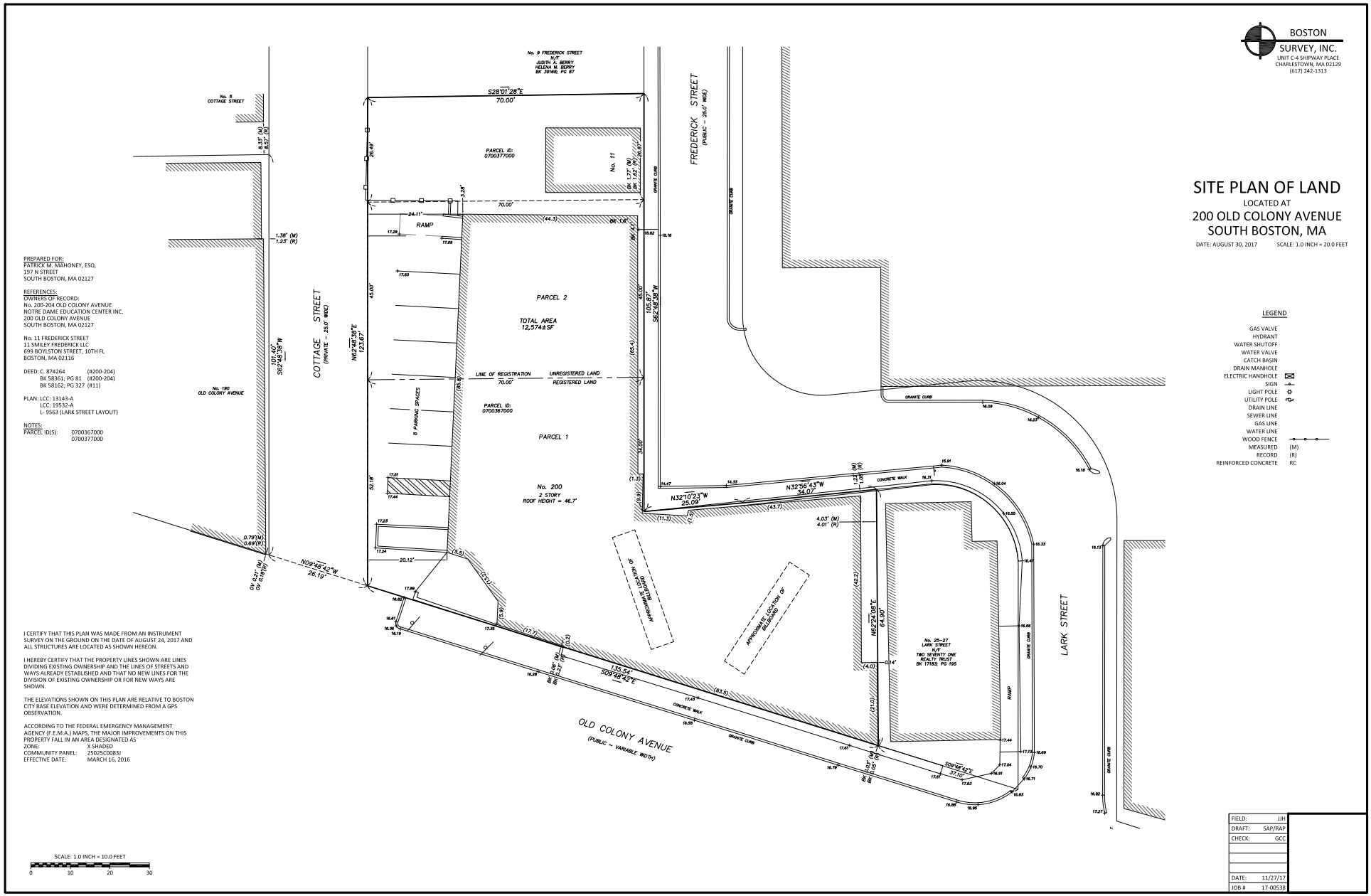

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Figure 1-8. Existing Conditions Plan

Executive Summary

1.3 Summary of Project Impacts and Mitigation

1.3.1 Urban Design

The proposed building at 200-204 Old Colony Avenue will be an important addition to this neighborhood. The property is currently occupied by a one-story stucco building, connected to a two-story brick building. The ongoing South Boston Dorchester Avenue Planning Initiative has brought together stakeholders in this area with the consensus being that future development will focus on higher density residential uses and associated commercial uses. This site is well suited to this type of development in that it is proximate to public transportation options as well as the commercial and transportation nodes that occur in South Boston.

The building has been designed to be responsive to the planning goals established by The South Boston Dorchester Avenue Planning Initiative. The Planning Initiative outlines various "zones" with the planning area. Each zone has prescribed uses, heights, lot coverage ratio and setbacks. Additionally, each zone prescribes different setbacks along different streets and lot locations.

200-204 Old Colony Avenue is located in Use Zone 3, Lot Coverage Zone 1 and Height Zone of 60 feet. The development team believes the building conforms to both the letter and the intent of these planning objectives. The Proponent has elected to limit the main building height to 60 feet, in keeping with the planning initiative, and believes that 6-stories and 60 feet are appropriate for the initial development in this neighborhood. The building massing and proposed height will also be an appropriate scale and a transition between the planned Washington Village high-rise development to the West, and the three-story residential neighborhood to the East.

The exterior building material ("skin") will be a combination of terracotta, high-density fiber cement, cedar, and glass fenestration. These materials and massing are intended to complement both the current and future context. The terra cotta communicates with the surrounding brick buildings in the area, and creates a strong visual base for the building, while the cedar brings a natural warmth and tangibility into the site. Large expanses of glass at the ground floor level will promote interaction between the education center and the community, and a full-height glass curtainwall system announces the entry to the residences. Windows will be a combination of operable and fixed sashes. The building's fenestration, proposed canopies, and signage will create distinct entry points for each use that will also complement one another along the façade.

As referenced, the proposed building height is approximately 60 feet to the top of the highest occupiable floor. Mechanical equipment will rise above that point but will be set back from the edges of the building so as to not be visible from the street.

The Proponent has already made presentations of the Proposed Project's conceptual design to the neighborhood and Boston Planning and Development Agency as it has continued to complete modifications to its schematic design plans.

1.3.2 Sustainable Design

To meet the City of Boston Requirements of Article 37, the project is demonstrating the compliance with the LEED BD&C v4 criteria. The project is currently tracking 54 points in the YES column with 14 in the study column. Further study over the coming weeks and months will determine final credit achievement. We have outlined in the narrative in **Section 3.4** how the project intends to achieve the prerequisites and credits for the LEED BD&C v4 certification (see **Figure 3-19** at the end of **Section 3.0**).

In conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the BPDA requires projects subject to Boston Zoning Article 80 Large Project Review to complete a Resiliency Checklist to assess potential adverse impacts that might arise under future climate conditions, and any project resiliency, preparedness, and/or mitigation measures identified early in the design stage. The Resiliency Checklist (Climate Change Questionnaire) is provided in **Appendix E.**

1.3.3 Pedestrian Level Wind Conditions

The height of the proposed structure will not exceed 60 feet. Wind conditions are expected to be similar to that of existing buildings in the neighborhood where buildings range from 4-6 floors or higher.

1.3.4 Shadow Impact Analysis

EMBARC Architecture + Design Studio, the Project's architect, prepared a shadow study to assess the potential shadow impacts of the Project on the surrounding neighborhood with the shadow drawings contained in detail in **Section 4.1**. Even with the proposed height of 6-floors, the Proposed Project's shadow impacts are generally not extensive. New shadow is generally limited to the streets surrounding the Site. Late afternoon and evening shadows will extend in an easterly/northeasterly direction toward D Street and Dorchester Street, respectively. Overall, the Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surroundings.

1.3.5 Daylight Analysis

Although the Proposed Project would cause an increase in daylight obstruction when compared to the existing condition, the Proposed Project was designed to be of a similar massing to existing buildings along Old Colony Avenue although the building is higher along the Cottage Street. Daylight obstruction values for the Proposed Project are expected to be consistent with, and typical to, the surrounding neighborhood.

1.3.6 Solar Glare

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

1.3.7 Air Quality Analysis

Tech Environmental, Inc., the Project's air quality consultant, conducted analyses to evaluate the existing air quality in the Project area, predict the worst-case air quality impacts from the Project's enclosed parking garage, and evaluate the potential impacts of Project-generated traffic on the air quality at the most congested local intersections (See **Section 4.2**).

Recent representative air quality measurements from the Massachusetts Department of Environmental Protection (DEP) monitors reveal that the existing air quality in the Project area is in compliance with Massachusetts and National Ambient Air Quality Standards (NAAQS) for all of the criteria air pollutants.

The worst-case air quality impacts from the Project's parking garage will not have an adverse impact on air quality. The maximum one-hour and eight-hour ambient CO impacts from the parking garage, at all locations around the Project site, including background CO concentrations, are predicted to be safely in compliance with the NAAQS for CO.

A microscale air quality analysis was not performed for the Proposed Project due to the estimated Project trip generation having minimal impacts on the overall delays at the four intersections. Therefore, the motor vehicle traffic generated by the project will not have a significant impact on air quality at any intersection in the Project area and a microscale air quality analysis is not necessary for this Project. The air quality in the Project area will remain safely in compliance with the NAAQS for CO after the Project is built.

1.3.8 Noise Analysis

Tech Environmental, Inc., the Project's noise consultant, conducted a noise study to determine whether the operation of the proposed Project will comply with the Massachusetts DEP Noise Policy and City of Boston Noise Regulations (See **Section 4.3**).

This acoustical analysis involved five steps: (1) establishment of pre-construction ambient sound levels in the vicinity of the Site; (2) identification of potential major noise sources; (3) development of noise source terms based on manufacturer specifications (where available) and similar project designs; (4) conservative predictions of maximum sound level impacts at sensitive locations using industry standard acoustic methodology; and (5) determination of compliance with applicable City of Boston noise regulations, ordinances and guidelines and with the DEP Noise Policy.

Nighttime ambient baseline sound level (L_{90}) monitoring was conducted at three locations deemed to be representative of the nearby residential areas, during the time period when human activity is at a minimum and any future noise would be most noticeable. The lowest nighttime L_{90} measured in the Project area was 44.4 dBA.

The design for the Proposed Project is expected to include the following significant mechanical equipment:

- (50) Air Cooled Condensing Units
- (4) Mitsubishi VRF systems
- (1) 4-Ton Roof Top Unit Carrier

The 200-204 Old Colony Avenue project will not create a noise nuisance condition and will fully comply with the most stringent sound level limits set by the Massachusetts DEP Noise Policy and City of Boston Noise Regulations.

1.3.9 Stormwater Management and Water Quality

The Proposed Project is expected to improve the water quality (See **Section 4.4**). The Project will not result in an increase in impervious area. It is not expected that the Project will be able to propose stormwater infiltration on site due to high groundwater.

1.3.10 Solid and Hazardous Waste

Solid Waste

During the preparation of the Site, debris, including asphalt, trash, and demolition debris will be removed from the Project Site. The Proponent will ensure that waste removal and disposal during construction and operation will be in conformance with the City and DEP's Regulations for Solid Waste.

In order to meet the requirements for the Boston Environmental Department and the LEED™ rating system, the Project will include space dedicated to the storage and collection of recyclables, including dedicated dumpsters at the trash room. The recycling program will meet or exceed the City's guidelines, and provide areas for waste paper and newspaper, metal, glass, and plastics (21 through 27, co-mingled).

Hazardous Waste

Cooperstown Environmental LLC ("Cooperstown") has performed a Phase I Environmental Site Assessment ("ESA") at the property. The Phase I ESA was to investigate for evidence for any recognized environmental conditions at the Site, which includes the presence or likely presence of any hazardous substances or petroleum products in, on, or at the property. This assessment did

not reveal any Recognized Environmental Conditions in connection with this Site. De minimus conditions including problems associated with the hydraulic component of the elevator is considered a housekeeping issue and should be repaired to prevent a substantial release.

Based on area topography, proximity to surface water bodies, and groundwater monitoring well gauging data at the nearby site at the corner of 8th and Dorchester Streets (McPhail Associates LLC, 2016), groundwater flow in the area would be expected to flow toward the Boston Harbor. Depth to water was expected to be 5-10 feet bgs according to he2015 groundwater gauging activities at the nearby site. Soils encountered during the drilling included urban fill, glacial till, and organic layer with peat, and marine sand and Boston Blue Clay.

If needed, the project proponent will retain a Licensed Site Professional (LSP) to manage the environmental aspects of the project, including proper management and/or off-site disposal of contaminated soil and groundwater encountered during construction. If necessary, the LSP will also prepare the required Massachusetts Contingency Plan (MCP) (310 CMR 40.0000) regulatory submittals.

1.3.11 Groundwater Impacts

Based on the results of the explorations performed at the subject site by Cooperstown Environmental LLC, the groundwater flow in the area would be expected to flow southeast toward the Boston Harbor. Groundwater likely flows toward the harbor although local groundwater flow may vary due to the presence of underground utilities such as sewers, storm drains, and heterogenous subsurface conditions. Soils encountered during drilling included urban fill, glacial till, an organic layer of peat, and marine sand and Boston Blue Clay surface across the site is generally underlain by a fill layer that ranges from about 5 to 10 feet according to groundwater gauging activities at a nearby site below the existing ground surface. The fill layer is underlain by a natural sand deposit.

Based on the anticipated soil conditions described above and additional soil borings that are currently being completed, a proposed foundation support for the proposed building is being finalized. Excavation for construction of the building foundations and below grade level is anticipated to extend below the ground surface and groundwater dewatering during excavation is anticipated. Should groundwater be encountered during excavation of the building foundations, construction dewatering will consist of localized sumps in conjunction with on-site recharge of the groundwater.

1.3.12 Construction Impacts Analysis

Section 4.7 describes impacts likely to result from the Proposed Project's construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager who will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all

appropriate regulatory agencies. The Project's geotechnical consultant will provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

Construction is expected to commence in the 2nd quarter 2019 and will require approximately 14 months to complete.

The Proponent will comply with applicable state and local regulations governing construction of the Project. The Proponent will require that the general contractor comply with the Construction Management Plan ("CMP") developed in consultation with and approved by the Boston Transportation Department ("BTD"), prior to the commencement of construction. The construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters. All deliveries will be from Old Colony Avenue facilitated by a police detail.

Most construction activities will be accommodated within the current site boundaries. 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 Construction Management Plan to be filed with BTD in accordance with the City's transportation maintenance plan requirements. To minimize transportation impacts during the construction period, there will be limited construction worker parking on-site, carpooling will be encouraged, secure on-site spaces will be provided for workers' supplies and tools so they do not have to be brought to the site each day, and subsidies for MBTA passes will be considered. The Construction Management Plan to be executed with the City prior to commencement of construction will document all committed measures.

1.3.13 Wetlands/Flood Hazard Zone

The existing Project Site is not a part of a wetland resource area regulated by the Massachusetts Wetland Protection Act. The Proposed Project is approximately 1,550 feet outside of the current 100-year flood zone as shown on FEMA maps. The 100-year flood is at an elevation of 10 feet and the 500-year flood is at an elevation of approximately 11 feet based on NAVD 88. The ground floor elevation of the proposed building is at 11.6 feet.

1.3.14 Historic Resources Component

According to files at the Massachusetts Historical Commission, there are no structures listed in the National or State Register of Historic Places, or in the Inventory of Historical and Archaeological Assets of the Commonwealth on-site. It is not expected that the Project will cause adverse impacts on the historic or architectural elements of nearby historic resources outside the Project Site (see **Section 5.0**).

1.3.15 Infrastructure Systems Component

An infrastructure system's analysis (**Section 6.0**) was completed by Howard Stein Hudson, the Project's Civil Engineer. The existing infrastructure surrounding the site appears sufficient to service the needs of the Proposed Project. This section describes the existing sewer, water, and drainage systems surrounding the site and explains how these systems will service the development. This analysis also discusses any anticipated Project-related impacts on the utilities and identifies mitigation measures to address these potential impacts.

1.3.16 Transportation Component

Section 7.0 presents the comprehensive transportation study completed by Howard Stein Hudson for the proposed Project in conformance with the BTD Guidelines as outlined in Access Boston 2000-2010. The study analyzes existing conditions within the Project study area, as well as conditions forecast to be in place under the seven-year planning horizon of 2025.

Access to the Site will be provided along Frederick Street to the south of the site. Vehicles will access the on-site parking garage via a mechanical lift to accommodate one car at a time. For delivery trips, vehicles up to the size of a 36-foot box truck (SU-36) will access the side along Frederick Street, adjacent to the parking garage entrance.

The Project will contain 39 below-grade parking spaces. This results in a parking ratio of approximately 0.72 parking spaces per residential unit, consistent with the BTD maximum parking goals. Loading and service operations will occur on-site, with a designated loading area provided along the south side of the building along Frederick Street.

The analysis identifies the number of trips generated by the Project using ITE's *Trip Generation Manual*, 10th Edition and employs mode use data for the area surrounding the Project site based on BTD data for Area 8 – Inner Red Line. Based on the land use of the Project, it is estimated to generate approximately 156 new vehicle trips on a daily basis, with nine trips during the a.m. peak hour (three entering/six exiting) and ten trips during the p.m. peak hour (six entering/four exiting). According to the trip generation rates, the Project will have minimal impact on the surrounding neighborhood.

The Proponent is committed to implementing a transportation demand management ("TDM") program that supports the City's efforts to reduce dependency on the automobile by encouraging alternatives to driving alone, especially during peak travel periods. Proposed measures include, but are not limited to, employing an on-site transportation coordinator; providing transit information (schedules, maps, and fare information) to residents, employees, and visitors; providing on-site secure bicycle storage; providing a guaranteed ride home program to employees; and providing a transit pass program to the employees. The transportation coordinator will oversee all transportation issues including managing valet operations, service and loading, and TDM programs.

1.3.17 Response to Climate Change Questionnaire

Please see **Appendix E** for the Proponent's Response to the City of Boston's Climate Change Questionnaire.

1.3.18 Response to City of Boston Accessibility Guidelines

Please see **Appendix F** for the Proponent's Response to the City of Boston's Accessibility Guidelines.

1.3.19 Response to BPDA Broadband Questionnaire

Please see **Appendix G** for the Proponent's Response to the BPDA Broadband Questionnaire.

2.0 GENERAL INFORMATION

2.1 Applicant Information

2.2 Project Proponent

The Proponent is All Saints Development, LLC. The principals are **Patrick Mahoney**, an attorney with extensive experience in real estate transactions, and **Enda Madigan**, an experienced local real estate developer, with extensive experience in project management and real estate development.

2.2.1 Project Team

Project Name	200 - 204 Old Colony Avenue, South Boston
Property Owner / Developer	**All Saints Development, LLC** c/o Patrick M. Mahoney, Esq 160 Federal Street, 11th Floor Boston, MA 02110 Patrick M. Mahoney, Esq. 160 Federal Street, 11th Floor Boston, MA 02110 patrick@patrickmmahoney.com Tel: 617-939-3922 Enda Madigan 47 Winter Street Braintree, MA 02184 endamary@aol.com Tel: 617-571-0117
Article 80 Permitting Consultant	**Mitchell L. Fischman Consulting ("MLF Consulting") LLC** 41 Brush Hill Road Newton, MA 02461 Mitchell L. Fischman mitchfischman@gmail.com Tel: 781-760-1726

Legal Counsel	**Adams & Morancy, P.C.** 350 West Broadway South Boston, MA 02127 George Morancy, Esq. gmorancy@admorlaw.com Tel: 617-269-5800
Architect	**EMBARC Architecture + Design Studio** 60 K Street So. Boston, MA 02127 Dartagnan Brown dbrown@embarcstudio.com Tel: 617-780-6834 Katie Fielder kfiedler@embarcstudio.com Tel: 617-752-4864 Camila Matho cmatho@embarcstudio.com Tel: 617-766-8330
Landscape Architect	**VERDANT Landscape Architecture** 318 Harvard Street, Suite 25 Brookline, MA 02446 Blair Hynes Tel: 617-735-1180
Public Outreach/Media	**Boston Navigation** 128 G Street South Boston, MA 02127 William Linehan bostonnavigation@gmail.com Tel: 617-224-6911

Transportation Planner / Engineer	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Brian Beisel, P.E. bbeisel@hshassoc.com Tel: 617-348-3330 Michael Littman mlittman@hshassoc.com Tel: 617-482-7080
Civil Engineer/ Infrastructure	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Tel: 617-482-7080 Richard Latini, P.E. rlatini@hshassoc.com James Downing, P.E. jdowning@hshassoc.com Haley Vermes hvermes@hshassoc.com
LEED/ Sustainability Consultant	**Soden Sustainability Consulting** 19 Richardson Street Winchester, MA 01890 Tel: 617-372-7857 Colleen Ryan Soden, LEED AP BD+C colleen@sodensustainability.com
Noise and Air Consultant	**Tech Environmental, Inc.** Hobbs Brook Office Park 303 Wyman Street, Suite 295 Waltham, MA 02451 Marc C. Wallace mwallace@techenv.com Tel: 781-890-2220 x30
Geotechnical Engineer	**Kevin Martin, P.E.** 7 Marshall Road Hampstead, NH 03841 Tel: 781-718-4084 kevinmartinpe@aol.com

MEP/FP	**Wozny/Barbar & Associates, Inc.** 1076 Washington Street Hanover, MA 02339 Zbigniew M. Wozny zwozny@wbaengineers.com Tel: 617-781-826-4144, ext. 107
Environmental / 21E	**Cooperstown Environmental LLC** 23 Main Street Andover, MA 01810 Tel: 978-470-4755 www.copperstownenv.com
Surveyor	**Boston Survey** P.O. Box 290220 Charlestown, MA 02129 George Collins gcollins@bostonsurveyinc.com
Construction Commencement	2nd Quarter 2019
Construction Completion	4th Quarter 2020
Status of Project Design	Schematic

2.2.2 Legal Information

Legal Judgments or Actions Pending Concerning the Proposed Project:
None.

History of Tax Arrears on Property Owned in Boston by the Applicant:
There is no current or past history of tax arrears on property owned by the Applicant.

Nature and Extent of Any and All Public Easements:
The Site is bounded by utility easements for sewer, electric, telephone and gas. Additionally, there are utilities that cross the Site.

2.3 Public Benefits

The Proposed Project will provide substantial public benefits to the City of Boston and the South Boston neighborhood including:

- The creation of 54 new multi-family housing units, including 9 affordable units in accordance with the City's Inclusionary Development Policy (IDP);
- The introduction of new neighborhood residents who will provide support to the local community and utilize local businesses;
- Maintaining the current adult education center providing important educational and social services to hundreds of local and city residents;
- Encouraging the use of alternative modes of transportation, such as mass transit, ride sharing services, and bicycle use;
- Improving the safety and visual appearance of the site and surrounding neighborhood by replacing a single-story commercial building with an attractive new mixed-use building;
- Exploring the planting of new street trees, improved sidewalks, and other streetscape amenities to improve and enhance the pedestrian landscape and experience;
- Establishing a premier example of sustainable construction and development;
- Temporary creation of many new jobs in the construction and building trade industries;
- Substantial addition to real property taxes for the City of Boston.

2.4 Regulatory Controls and Permits

2.4.1 Zoning Overview

The Project Site is located within a Restricted Manufacturing ("M-1") zoning district under the base Boston Zoning Code and will therefore require several variances from the terms of the currently applicable code sections. The surrounding neighborhood is a mix of commercial/retail, residential, and office uses. More significant, the site is within the area of the South Boston Dorchester Avenue Planning Initiative, a planning initiative commenced by the BPDA and the City of Boston for the purpose of ensuring that the 144 acres of the Study Area are strategically planned for a broader type of uses and a scale of development best suited to the future growth of the Dorchester Avenue corridor. A product of months of intensive participation by a broad group of area residents, property owners, business owners, advocates, public agencies, and other stakeholders, the Plan details a framework for new zoning for the area that will allow for future growth in a manner that is consistent with the community's vision. The development team has taken great care to work within the applicable framework of the Plan, with respect to building height, density, setbacks, parking, and design, in order to achieve a Proposed Project that lives up to the objectives of the Planning Initiative. While 39 off-street garage parking spaces are currently programmed, the final amount of off-street parking and loading will be reviewed and determined by the BPDA pursuant to the provisions of the Article 80 Large Project review process.

2.4.2 Boston Zoning Code – Use Requirements

Multifamily residential use is a conditional use within the relevant M-1 zoning district. It is anticipated the Proposed Project will require a conditional use permit for the multifamily residential use.

2.4.3 Boston Zoning Code – Dimensional Requirements

The Proposed Project will include approximately 68,713 gross square feet of floor area on a site that consists of 12,574 square feet of land, for a resulting projected floor area ratio of approximately 5.46. Current M-1 zoning establishes a maximum FAR of 1.0. The applicable dimensional regulations under zoning require a minimum lot size of 53,000 square feet for the planned 54 multi-family dwelling units, a front setback as determined by Article 80 review, side setbacks of approximately 15 feet, a rear setback of approximately 14 feet, and a maximum building height of 2-½ stories and 35 feet. Four-hundred (400) square feet of usable open space per dwelling unit is required by zoning. It is anticipated that the Proposed Project will require variances for insufficient minimum lot size for additional dwelling units, excessive building height, excessive FAR, insufficient side yard setback, insufficient rear yard setback, and insufficient usable open space. It is important to note that the development team is being responsive to cues about future height, density, and off-street parking goals being discussed as part of the ongoing South Boston Dorchester Avenue Planning Initiative. As a project that is subject to Large Project Review, required off-street parking spaces and off-street loading facilities are expected to be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the Proposed Project will also be reviewed pursuant to Large Project Review.

Table 2-1. M-1 Zoning District - Dimensional and Off-Street Parking Requirements

Dimensional Element	M-1 Zoning (H-1)[1]	Proposed Project*	Expected Zoning Relief Required?
Minimum Lot Size	5,000 sf	12,574 sf	No
Minimum Lot Size (Add'l Dwelling Units)	1,000 sf	12,574 sf total	Yes
Max. Floor Area Ratio	1.0	5.46	Yes
Max. Building Height	35 feet 2-½ Stories	59'-11" 6-Stories	Yes
Minimum Lot Width	50 feet	70 feet	No
Minimum Lot Frontage	50 feet	135.54 feet	No
Minimum Front Yard Setback	Per Article 80	Per Article 80 5 feet Proposed	Per Article 80
Minimum Side Yard	15 feet	3'-1" feet	Yes
Minimum Rear Yard	14'.29" feet	0 feet	Yes
Required Off-Street Parking	Per Article 80	39	Per Article 80
Minimum Number of Loading Bays	Per Article 80	None	Per Article 80
Minimum Usable Open Space	400 SF/D.U.	5.45 SF/D.U. (Total 300 SF/D.U.)	Yes

* The dimensions cited in this table may change as the Proposed Project undergoes ongoing review by BPDA staff.

[1]See Section 13-4. Dwellings in Nonresidential Districts. Any dwelling in an L, B, M, I, MER or W district shall conform to the lot area, lot width, usable open space, and yard requirements for the nearest S, R or H district, or in the case of any dwelling in a B-8 or B-10 district, to the lot area, lot width, usable open space and yard requirements for the least restricted residence district; provided however, that if the nearest S, R, or H district, or the least restricted residence district does not specify a minimum lot width, any such dwelling shall have a minimum street frontage of not less than 50 feet.

2.4.4 Preliminary List of Permits or Other Approvals Which May be Sought

Agency Name	Permit or Action*
Local Agencies	
Boston Planning and Development Agency	Article 80 Review and Execution of Related Agreements; Section 80B-6 Certificate of Compliance
Boston Public Safety Commission Committee on Licenses	Garage License, Flammable Fuels
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan
Boston Department of Public Works Public Improvements Commission	Possible Sidewalk Repair Plan; Curb-Cut Permit; Street/Sidewalk Occupancy Permit; Permit for Street Opening
Boston Fire Department	Approval of Fire Safety Equipment
Boston Water and Sewer Commission	Approval for Sewer and Water and Connections; Construction Site Dewatering; and Storm Drainage
Boston Department of Inspectional Services	Building Permits; Certificates of Occupancy; Other Construction-Related Permits

*This is a preliminary list based on project information currently available. It is possible that not all of these permits or actions will be required, or that additional permits may be needed.

2.5 Public Review Process and Agency Coordination

In support of the required Article 80 Large Project Review process, the Proponent has conducted, and will continue to conduct, community outreach with neighbors and abutters of the Site, including meetings and discussions with the elected representatives and officials from the area, and with area residents. Specifically, the Proponent presented project plans at a meeting hosted by South Boston's elected officials on February 1, 2018, and at a meeting held with leaders of the Cityside Neighborhood Association and Andrew Square Civic Association on March 28, 2018.

The Proponent has also discussed the Proposed Project with representatives of the Boston Planning and Development Agency prior to filing this Project Notification Form in order to identify issues/concerns as well as design requirements related to the Project.

In accordance with Article 80 requirements, an Impact Advisory Committee ("IAG") has been formed and neighborhood meeting will be scheduled to review the PNF and receive community comments on the Project during the PNF public review period.

The Proponent will continue to meet with public agencies, neighborhood representatives, local business organizations, abutting property owners, and other interested parties, and will follow the requirements of Article 80 pertaining to the public review process.

2.6 Development Impact Project ("DIP") Status

Based on current schematic design plans, it is not anticipated that the Proposed Project will be subject to the requirements of Section 80B-7 of the Article 80, owing to the fact that the Proposed Project will not consist of an aggregate gross floor area of more than 100,000 square feet.

3.0 URBAN DESIGN AND SUSTAINABILITY COMPONENT

3.1 Urban Design Overview

The proposed building at 200-204 Old Colony Avenue will be an important addition to this South Boston neighborhood. The property is currently occupied by a one-story, stucco building, connected to a two-story brick building. The ongoing South Boston Dorchester Avenue Planning Initiative has brought together stakeholders in this area with the consensus being that future development will focus on higher density residential uses and associated commercial uses. This site is well suited to this type of development in that it is proximate to public transportation options as well as the commercial and transportation nodes that occur close by in South Boston.

The proposed building has been designed to be responsive to the planning goals established by The South Boston Dorchester Avenue Planning Initiative, which outlines various "zones" within the planning area. Each zone has prescribed uses, heights, lot coverage ratio and setbacks. Additionally, each zone prescribes different setbacks along different streets and lot locations.

200-204 Old Colony Avenue is located in Use Zone 3, Lot Coverage Zone 1 and a Height Zone of 60 feet. The development team believes the building conforms to both the letter and the intent of these planning objectives. The Proponent has elected to limit the main building height to 60 feet, in keeping with the planning initiative, and believes that 6-stories and 60 feet are appropriate for this project as it is expected to be the initial development in this neighborhood under the new zoning. The building massing and proposed height will also be an appropriate scale and a transition between the planned Washington Village's high-rise development to the West, and the three-story residential neighborhood to the East.

The exterior building materials ("skin") will be a combination of terra cotta, high-density fiber cement, cedar, and glass fenestration. These materials and proposed massing are intended to complement both the current and future neighborhood context. The terra cotta communicates with the surrounding brick buildings in the area, and creates a strong visual base for the building, while the cedar brings a natural warmth and tangibility into the site. Large expanses of glass at the ground floor level will promote interaction between the education center and the community, and a full-height glass curtainwall system announces the entry to the residences. Windows will be a combination of operable and fixed sashes. The building's fenestration, proposed canopies, and signage will create distinct entry points for each use that will also complement one another along the façade.

As referenced, the proposed building height is approximately 60 feet to the top of the highest occupiable floor at the sixth-story roof. Mechanical equipment will rise above that point, but will be set back from the edges of the building so as to not be visible from the street.

The Proponent has made a number of presentations of the Proposed Project's conceptual design to the neighborhood and Boston Planning and Development Agency as it has continued to complete modifications to its schematic design plans.

In order to maximize ceiling heights, large windows and open floor plans, the economic ramifications of various structural systems were assessed in close collaboration with contractors and consultant members of the team. This effort resulted in a straightforward, wood-frame construction over a two-story structure of steel, and a concrete below-grade parking level. The mechanical solution avoids ventilation louvers on the exterior facades and the plumbing stacks are aligned vertically, addressing the necessary economy and efficiency of this building type.

The Urban Design figures as well as the LEED v4 BD+C Checklist, are included at the end of this section **(Figures 3-1** thru **3-19)**.

3.2 Building Design

The proposed 200-204 Old Colony Avenue Project is a six-story mixed-use building, consisting primarily of 54 multi-family residential units. In addition to the residences, the ground floor of the new building will remain home for the Notre Dame Education Center – a comprehensive adult education center. There will also be a below-grade garaged parking for 39 vehicles and 54 bicycles. Additional bicycle storage will be provided by outdoor bicycle racks accessible to visitors to the site in accordance with BTD guidelines.

The Proponent is committing to adopting materials that are consistent with, and complementary to the surrounding context of the neighborhood. The form of the building is broken up into a series of bays that introduce a vertical rhythm to the horizontality of the site, while also providing each residential unit with a connection to the outdoors via private deck or a Juliette balcony.

3.3 Landscape Design

As indicated on the Landscape Plan (**Figures 3-2** through **3-5**), street trees will be planted along Old Colony Ave within a 3'-0" "Furnishing Zone" (as specified in the Boston Complete Streets Design Guidelines). The sidewalk along Old Colony will be over 12'-0" wide, allowing for 2'-0" for landscape and 6'-6" minimum for pedestrian traffic. Public bike racks will also be placed within the furnishing zone on Old Colony, and additional trees will provide a buffer with the abutting neighbor. All details, including caliper and species selection, will be approved by the City of Boston Parks and Recreation Department.

3.4 Sustainable Design/Energy Conservation

The proposed project involves developing a new approximately 68,713 gross square feet ("gsf") of zoning-defined floor area excluding 10,750 sf in the one-floor, below-grade garage with 54 multi-family units on a site located at 200-204 Old Colony Avenue in the South Boston neighborhood.

To meet the City of Boston Requirements the project is demonstrating the compliance with the LEED BD&C v4 criteria. The project is currently tracking 54 points in the YES column with 14 in the study column. Further study over the coming weeks and months will determine final credit achievement. We have outlined in the narrative below, how the project intends to achieve the prerequisites and credits for the LEED BD&C v4 certification (see **Figure 3-19** at the end of this section).

3.4.1 Introduction

Sustainability informs every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The Project embraces the opportunity to positively influence the urban environment. Its urban location takes advantage of existing infrastructure while some access to public transit will reduce dependence on single-occupancy vehicle trips and minimize transportation impacts.

The LEED v4 for Building Design and Construction (BD&C) rating system tracks the sustainable features of a Project by achieving points in following categories: Location & Transportation; Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation and Design Process. The Proponent and Project Team are committed to an integrated design approach using the LEED BD&C v4 rating system as a guide and intend to meet certifiability requirements as stated above. This rating will meet or exceed Boston's Green Building standard.

3.4.2 Location and Transportation

The Location and Transportation credit category encourages development on previously developed land, minimizing a building's impact on ecosystems and waterways, regionally appropriate landscaping, and smart transportation choice.

The Site has been previously developed earning sensitive land protection. The Site is also located on a brownfield where soil or groundwater contamination has been identified, and where the local, state, or national authority (whichever has jurisdiction) requires its remediation. We will perform remediation to the satisfaction of that authority.

The Site is in a neighborhood with several amenities within 0.5 miles of the Project Site. The Project is providing bicycle facilities and showers for the occupants of the building along with charging stations and low emitting dedicated parking spaces.

The Site has access to the following busses within 0.25 miles of the project including Routes 5, 9, 10, 11, 16, 17, 18, and CT3. Access to the MBTA redline at Andrew station is within 0.3 miles of the project.

3.4.3 Sustainable Sites

The development of sustainable sites is at the core of sustainable design. Sustainable Site design provides quality open space with active landscape elements that can both mitigate stormwater and provide shade and thermal comfort for the building occupants.

The Project will evaluate Low Impact Development (LID) Strategies to promote infiltration for quality stormwater management.

As required by LEED, the Project will create and implement an erosion and sedimentation control plan for all construction activities associated with the Project. The plan will conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent.

The Project will evaluate compliance with light pollution reduction from the buildings and the site lighting. The roofing and paving material will be SRI complaint for the Heat Island Reduction credits.

3.4.4 Water Efficiency

Buildings are major users of our potable water supply and conservation of water preserves a natural re-source while reducing the amount of energy and chemicals used for sewage treatment. The goal of the Water Efficiency credit category is to encourage smarter use of water, inside and out.

Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside. To satisfy the requirements of the Indoor Water Use Reduction Prerequisite and credit, the Project will incorporate water conservation strategies that include low-flow plumbing fixtures for water closets and faucets. To satisfy the requirements of the Outdoor Water Use Reduction Prerequisite and credit, the landscape will be designed so it will not require a permanent irrigation system with plant material that is native and adaptive.

The Project is targeting significant indoor water use reduction from the baseline for each building. All newly installed toilets, urinals, private lavatory faucets, kitchen sinks and showerheads that are eligible for labeling will be low-flow and have the Water Sense label.

The Project will also review installing permanent water meters that measure the total potable water use for the building and associated grounds in addition to water meters for two or more of the following water sub-systems, as applicable to the project:

- Indoor plumbing fixtures and fittings;
- Domestic hot water; and
- Boiler.

Metering data will be compiled into monthly and annual summaries, and the resulting whole-project water usage data will be shared with USGBC.

3.4.5 Energy & Atmosphere

According to the U.S. Department of Energy, buildings use 39 percent of the energy and 74 percent of the electricity produced each year in the United States. The Energy and Atmosphere credit category encourages a wide variety of energy strategies: commissioning; energy use

monitoring; efficient design and construction; efficient appliances, systems and lighting; the use of renewable and clean sources of energy, generated on-site or off-site; and other innovative practices.

Fundamental Commissioning and Enhanced Commissioning will be pursued for the project. Envelope Commissioning will also be evaluated as an alternative.

A whole-building energy simulation will be performed for the project demonstrating a minimum improvement of 20 percent for new construction according to ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with errata. The Project Team will continue to analyze efficiency measures during the design process and account for the results in design decision making. The team will use energy simulation of efficiency opportunities, past energy simulation analyses for similar buildings.

The Project will evaluate installing new building-level energy meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc.).

The Project will also evaluate incorporating on-site clean/renewable energy production. At minimum, the building will be constructed to allow for a future rooftop solar installation, or "solar ready."

As required by LEED, the Project will not use chlorofluorocarbon (CFC)-based refrigerants in new heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems. The Project will target the use of refrigerants used in heating, ventilating, air-conditioning, and refrigeration (HVAC&R) equipment that minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change.

The Proponent will engage in a contract for 50 percent and perhaps 100 percent of the Project's energy from green power, carbon offsets, or renewable energy certificates (RECs).

3.4.6 Materials & Resources

During both construction and operations, buildings generate tremendous waste and use many materials and resources. The Materials & Resources credit category encourages the selection of sustainable materials, including those that are harvested and manufactured locally, contain high-recycled content, and are rapidly renewable. It also promotes the reduction of waste through building and material reuse, construction waste management, and ongoing recycling programs.

As required by LEED, the Project will provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable materials for the entire building. Collection and storage areas may be separate locations. Recyclable materials will include mixed paper, corrugated cardboard, glass, plastics, and metals. The Project will also take appropriate

measures for the safe collection, storage, and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.

To comply with both the prerequisite and credit requirements related to construction waste management, the Project will develop and implement a construction and demolition waste management plan that will identifying at least five materials (both structural and nonstructural) targeted for diversion and approximate a percentage of the overall Project waste that these materials represent. The Project will divert at least 75 percent of the total construction and demolition material; diverted materials must include at least four material streams. The Project will also consider completing a life-cycle assessment.

Careful material selection will be performed for the Project. Where possible the Project hopes to integrate products that have Environmental Product Declarations (EPD), Sourcing of raw materials and corporate sustainability reporting, and Material Ingredients disclosures.

3.4.7 Indoor Environmental Quality

The U.S. Environmental Protection Agency estimates that Americans spend about 90 percent of their day in-doors, where the air quality can be significantly worse than outside. The Indoor Environmental Quality credit category promotes strategies that can improve indoor air through low emitting materials selection and increased ventilation. It also promotes access to natural daylight and views.

As required by LEED, the Project will meet the minimum requirements of ASHRAE Standard 62.1–2010, Sections 4–7, Ventilation for Acceptable Indoor Air Quality (with errata), or a local equivalent, whichever is more stringent. Also, during building operations the Proponent will institute a No Smoking Policy to prohibit the use of all tobacco products inside the building and within 25 feet of the building entrance, air intakes, and operable windows.

The Project will provide enhanced indoor air quality strategies. The Project will provide entryway systems, interior cross-contamination prevention, and filtration. The Project will target low emitting materials for all materials within the building interior (defined as everything within the waterproofing membrane). This includes requirements for product manufacturing volatile organic compound (VOC) emissions in the indoor air and the VOC content of materials.

The Project will develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building, meeting or exceeding all applicable recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings under Construction, 2nd edition, 2007, ANSI/SMACNA 008–2008, Chapter 3. The Project will follow strict IAQ guidelines and protect absorptive materials stored on-site from moisture damage. The Project also will pursue either a building flush out or air quality testing.

The Project will meet the criteria for the thermal comfort criteria both for controllability and the ASHRAE 55 standards.

Daylight will be evaluated for energy efficiency opportunities and benefits for the occupants. The Project will achieve a direct line of sight to the outdoors for at least 75 percent of all regularly occupied floor area. View glazing in the contributing area will provide a clear image of the exterior, not obstructed by frits, fibers, patterned glazing, or added tints that distort color balance.

3.4.8 Innovation and Design Process

The Innovation in Design and Innovation in Operations credit categories provide additional points for projects that use new and innovative technologies, achieve performance well beyond what is required by LEED credits, or utilize green building strategies that are not specifically addressed elsewhere in LEED. This credit category also rewards projects for including a LEED Accredited Professional on the team to ensure a holistic, integrated approach to design, construction, operations and maintenance. The following five credits are being pursued and/or evaluated for the project:

- Innovation in Design: Education & Outreach
- Innovation in Design: Green Housekeeping
- Innovation in Design: Integrated Pest Management
- Innovation in Design: Walkable Sites
- Innovation in Design: EP Quality Transit
- LEED AP: Colleen Soden

Regional Priority

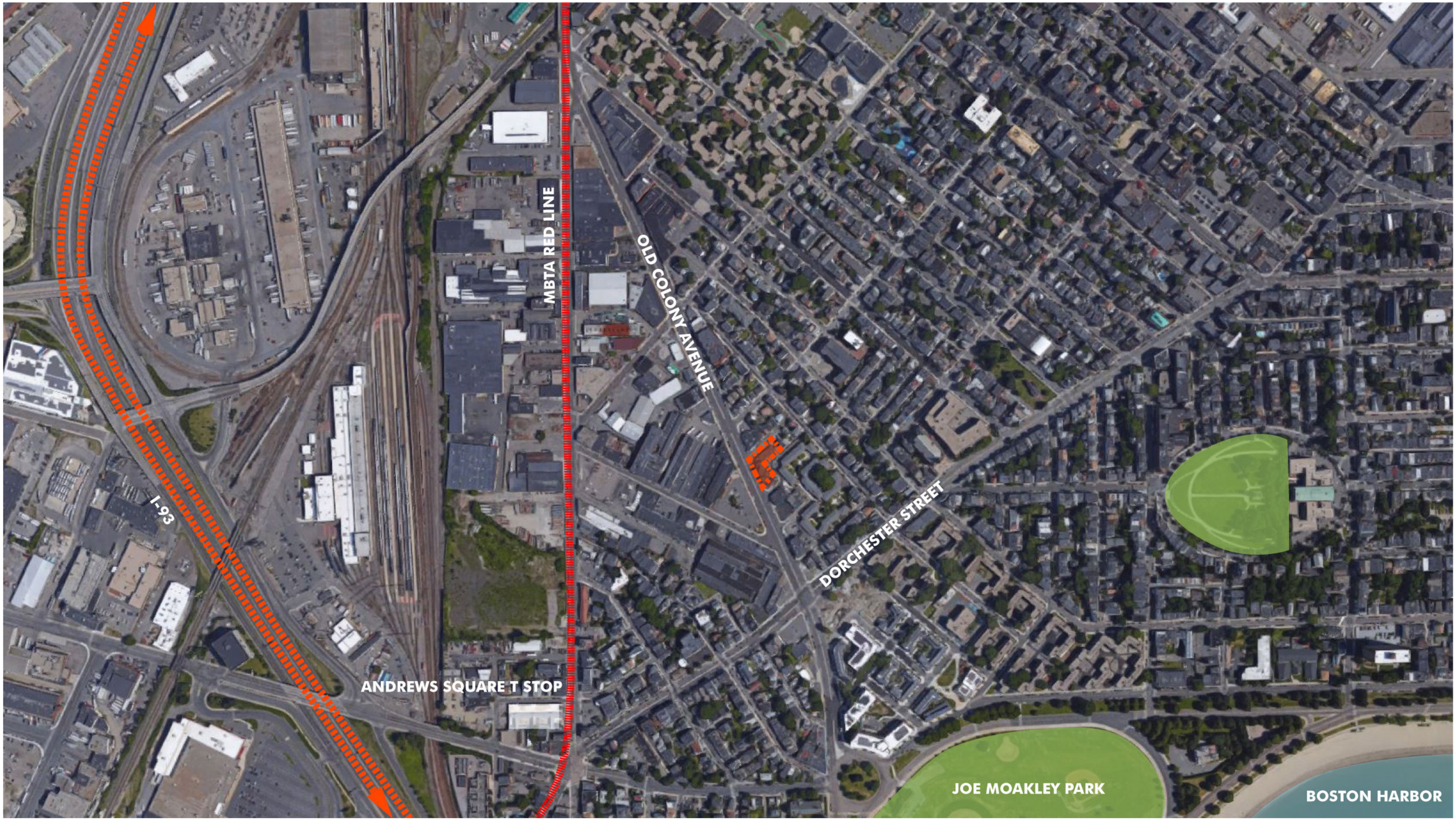
Up to 4 points are available to projects based on location.

- Regional Priority: Indoor Water Use Reduction (yes)
- Regional Priority: High Priority Site (yes)
- Regional Priority: Optimize Energy (yes)
- Regional Priority: Renewable Energy (maybe)

3.5 Urban Design Figures and LEED Checklist

Urban design figures and renderings depicting the Proposed Project, and the LEED v4 BD+C Checklist include:

Figure 3-1. Site Context Plan
Figure 3-2. Landscape Site Plan
Figure 3-3. Complete Streets
Figure 3-4. Streetscape
Figure 3-5. Abutters
Figure 3-6. Basement Plan
Figure 3-7. Ground Floor Plan
Figure 3-8. Second Floor Plan
Figure 3-9. Third – Fifth Floor plans
Figure 3-10. Sixth Floor Plan
Figure 3-11. Roof Plan
Figure 3-12. Old Colony Elevation
Figure 3-13. Cottage Street Elevation
Figure 3-14. Frederick Street Elevation
Figure 3-15. Lark Street Elevation
Figure 3-16. Perspective
Figure 3-17: Material Diagram
Figure 3-18. Site Section
Figure 3-19. LEED v4 BD+C Checklist



200-204 Old Colony Avenue

SITE CONTEXT PLAN

EMBARC

FIGURE: 3-1

EMBARC STUDIO
ARCHITECTURE + DESIGN

VERDANT
LANDSCAPE ARCHITECTURE

LANDSCAPE SITE PLAN
200-204 OLD COLONY AVE
BOSTON, MA

MARCH 2018

FIGURE:
3-2

Neighborhood Connector

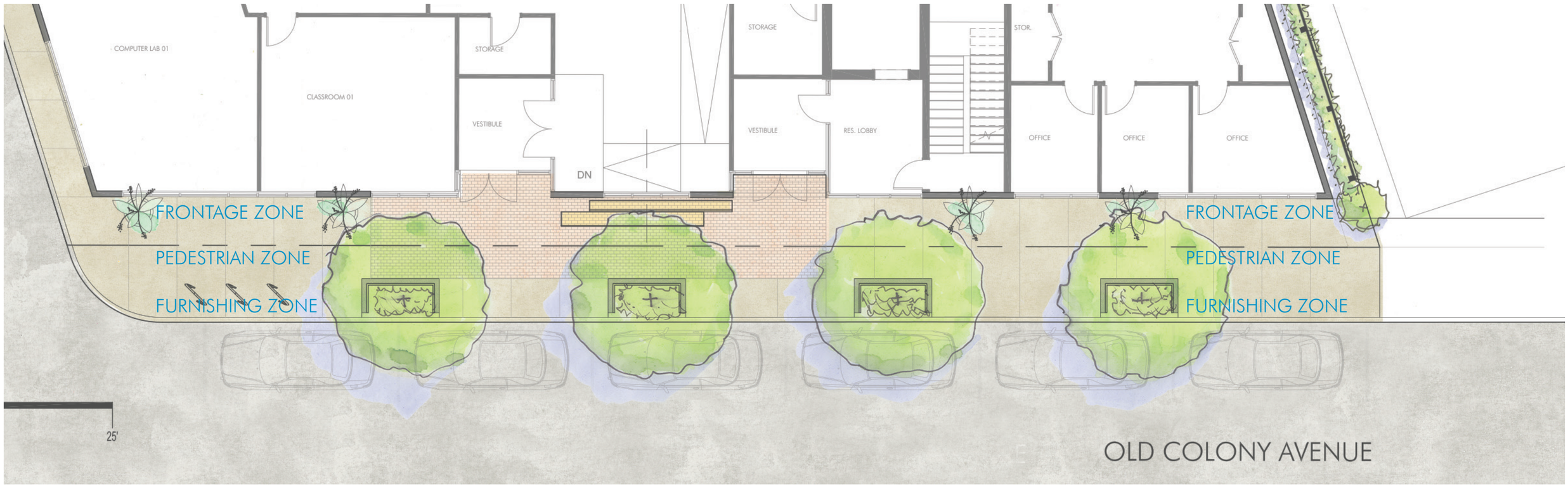
Neighborhood Connectors balance the needs of people passing through with those who live and work along the street. Regularly spaced trees and lighting in the Greenscape/ Furnishing Zone provide unifying elements on long streets connecting neighborhoods such as Hyde Park Avenue. This type of street can have a relatively high volume of pedestrians and often includes transit routes. The Greenscape/Furnishing Zone is a critical buffer between pedestrians and high volume traffic, and can also provide opportunities for stormwater treatment and air pollution mitigation, especially with new tree plantings.

COMPLETE STREETS
Old Colony Avenue is a Neighborhood Connector Street

	Preferred	Minimum	Old Colony
Frontage Zone:	2′	0′	2′
Pedestrian Zone:	8′	5′	6.5′
Furnishing Zone:	5′	1′-6″	3′
Curb Zone:		6″	6″
Total Width	15′-6″	7′	12′+

Boston Complete Streets

Design Guidelines
2013



EMBARC STUDIO
ARCHITECTURE + DESIGN

VERDANT
LANDSCAPE ARCHITECTURE

COMPLETE STREETS
200-204 OLD COLONY AVE
BOSTON, MA

MARCH 2018

FIGURE:
3-3

SIGNATURE BENCH

PROPOSED RACK

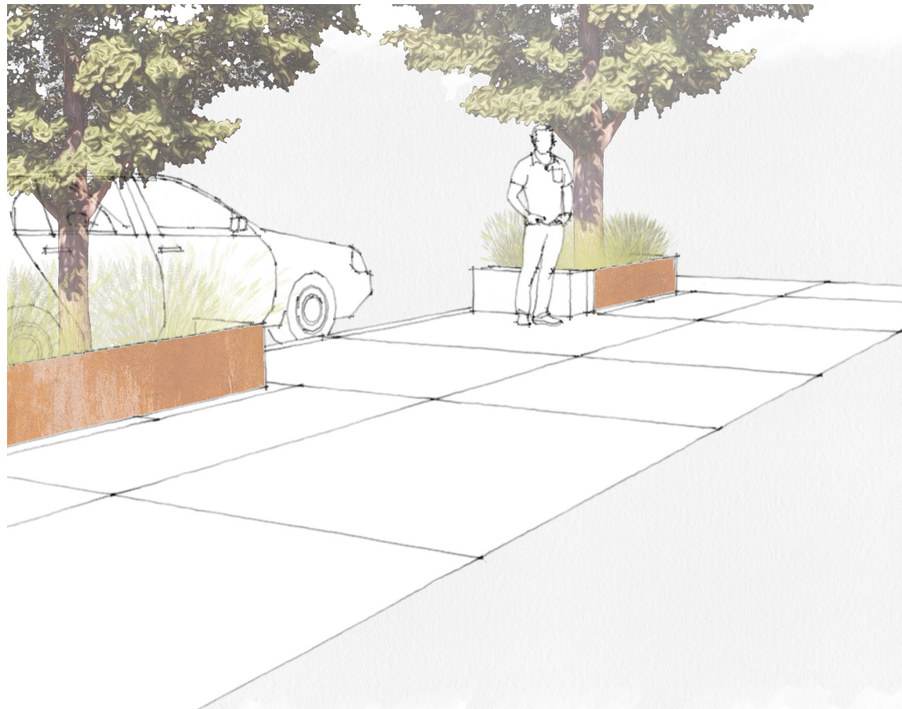
Good bike parking design using permanently fixed racks, orderly appearance, secure and simple to use.

200-204 OLD COLONY AVE

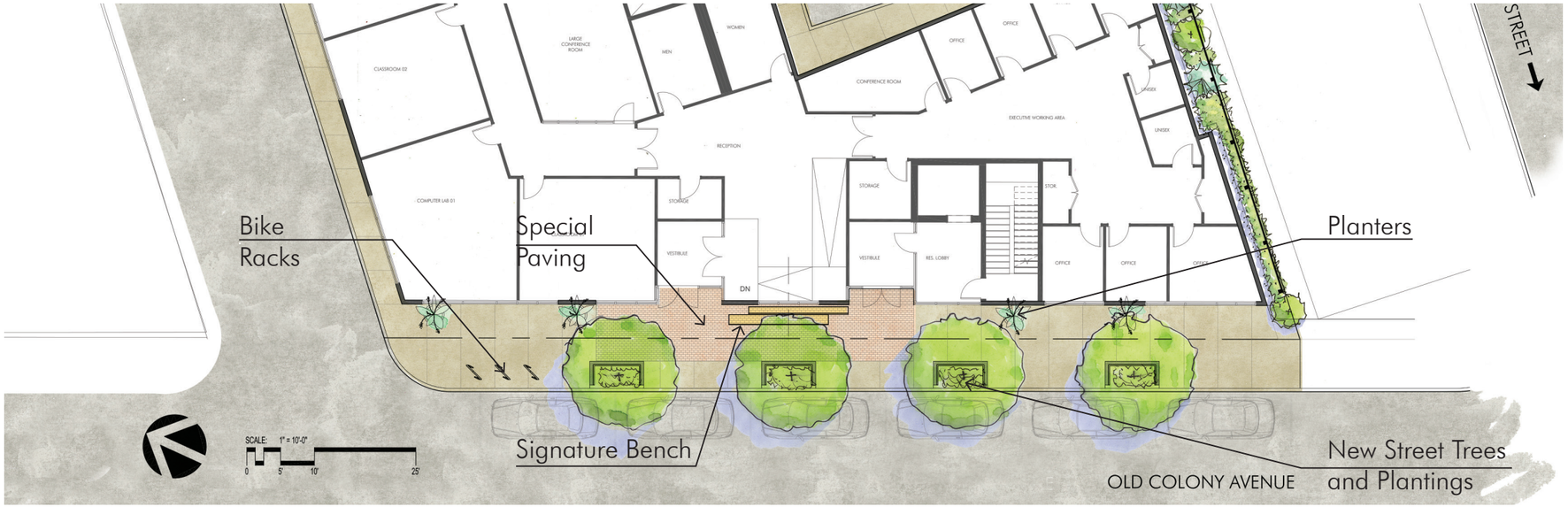
Frontage

- Special Paving to demarcate entries
- Street trees in Tree Planters with perennials, re-use reclaimed granite found on site and integrate it with Planter Design as seating element
- Signature Bench
- Planters for Curb Appeal
- Bike racks

URBAN STREET TREES



TREE PLANTER: Steel with Reclaimed Granite as Seating Element



EMBARC STUDIO ARCHITECTURE + DESIGN

VERDANT LANDSCAPE ARCHITECTURE

STREETSCAPE
200-204 OLD COLONY AVE
BOSTON, MA

MARCH 2018

FIGURE: 3-4

FASTIGIATE URBAN TREES
Columnar Trees At Abutters

CONCEPT
Narrow Trees for Narrow Site providing a soft screen for neighboring properties

SITE FENCE
Horizontal board fence at Abutters for screening and privacy.

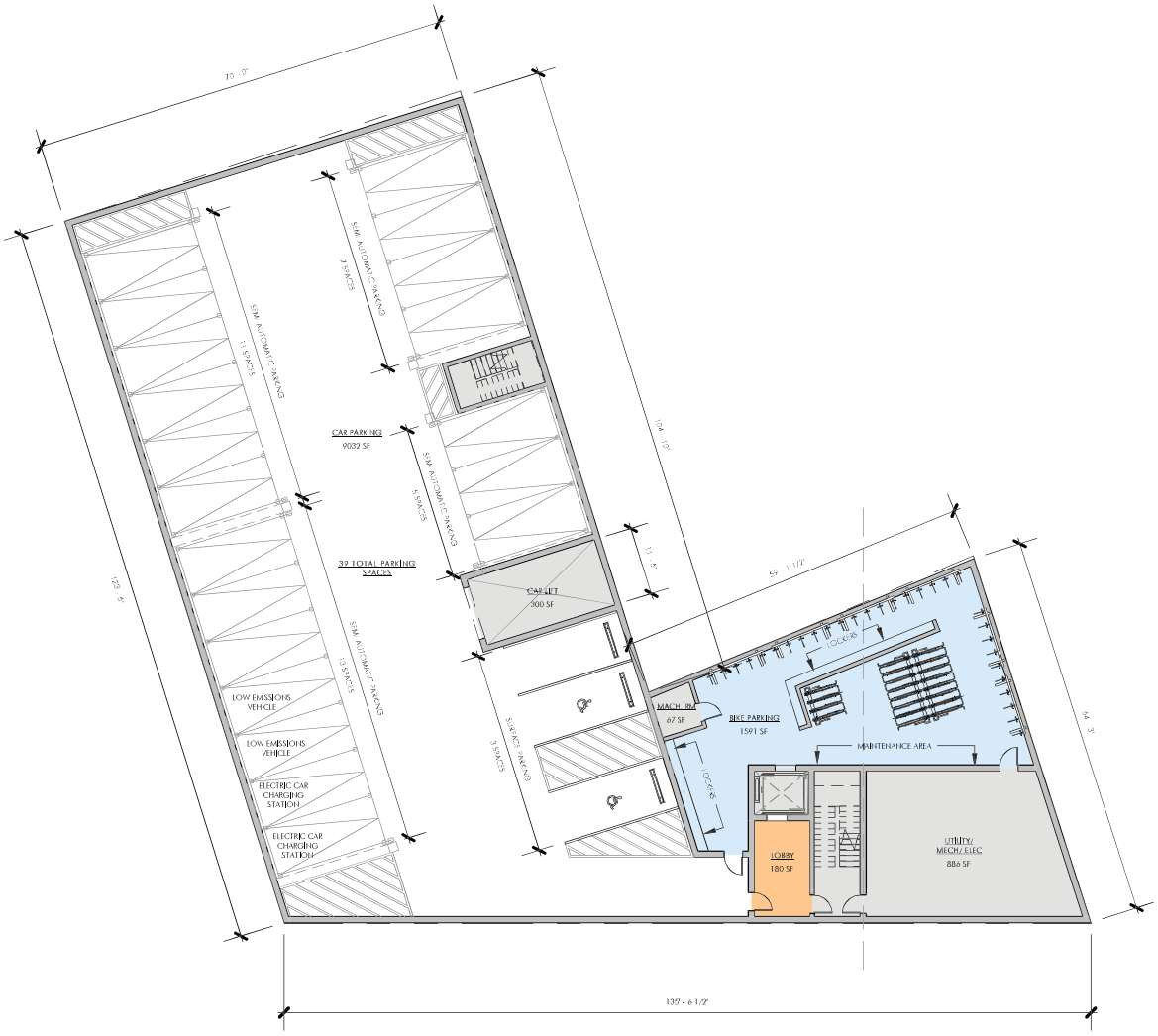
EMBARC STUDIO
ARCHITECTURE + DESIGN

VERDANT
LANDSCAPE ARCHITECTURE

ABUTTERS
200-204 OLD COLONY AVE
BOSTON, MA

MARCH 2018

FIGURE:
3-5



N

1/32" = 1'-0"

200-204 Old Colony Avenue

PARKING LEVEL PLAN

FIGURE: 3-6

EMBARC

N

1/32" = 1'-0"

200-204 Old Colony Avenue

GROUND FLOOR PLAN

FIGURE: 3-7

EMBARC

N

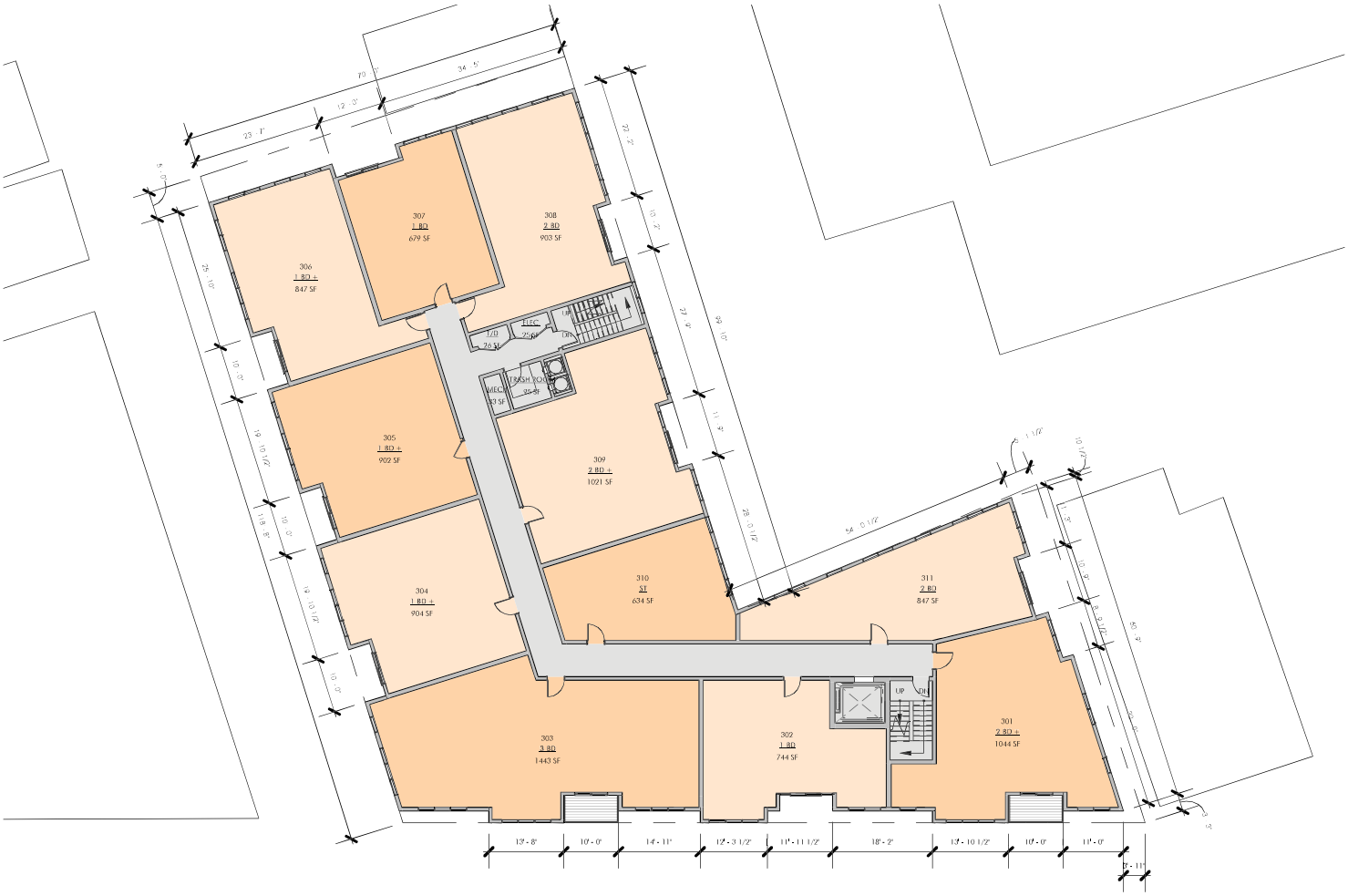
1/32" = 1'-0"

200-204 Old Colony Avenue

SECOND FLOOR PLAN

EMBARC

FIGURE: 3-8



N

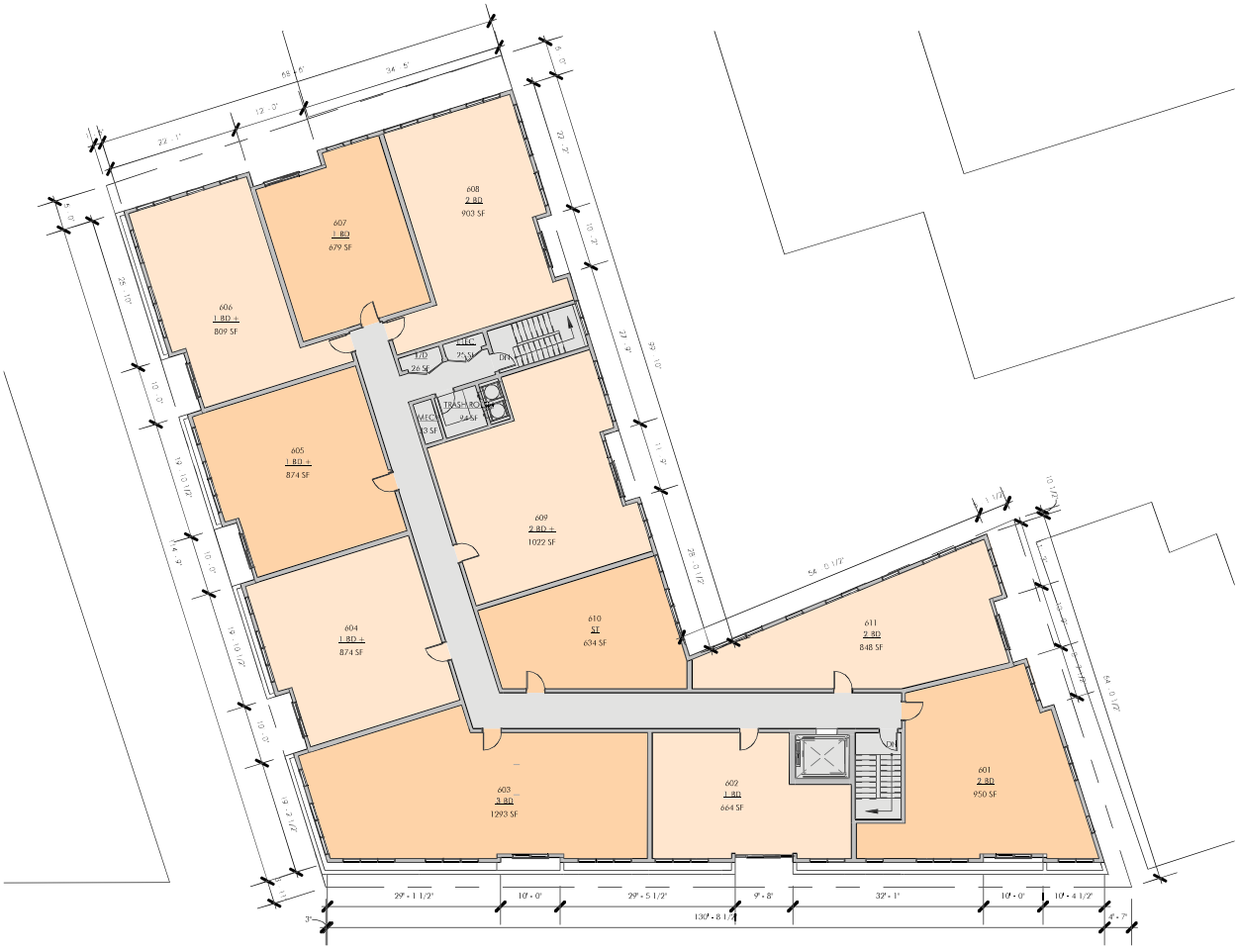
1/32" = 1'-0"

200-204 Old Colony Avenue

FLOORS 3-5 PLAN

EMBARC

FIGURE: 3-9



N

1/32" = 1'-0"

200-204 Old Colony Avenue

SIXTH FLOOR PLAN

EMBARC

FIGURE: 3-10

N

1/32" = 1'-0"

200-204 Old Colony Avenue

ROOF PLAN

EMBARC

FIGURE: 3-11

200-204 Old Colony Avenue

OLD COLONY AVENUE ELEVATION

EMBARC

FIGURE: 3-12

200-204 Old Colony Avenue

COTTAGE STREET ELEVATION

EMBARC

FIGURE: 3-13

200-204 Old Colony Avenue

REAR ELEVATION

EMBARC

FIGURE: 3-14

200-204 Old Colony Avenue

LARK STREET ELEVATION

EMBARC

FIGURE: 3-15

200-204 Old Colony Avenue

OLD COLONY AVENUE PERSPECTIVE A

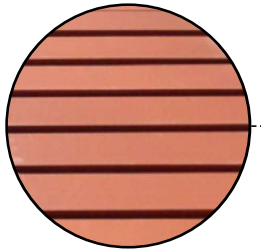
EMBARC

FIGURE: 3-16

CEDAR

FIBER CEMENT PANEL - OKO SKIN

FIBER CEMENT PANEL - OKO SKIN



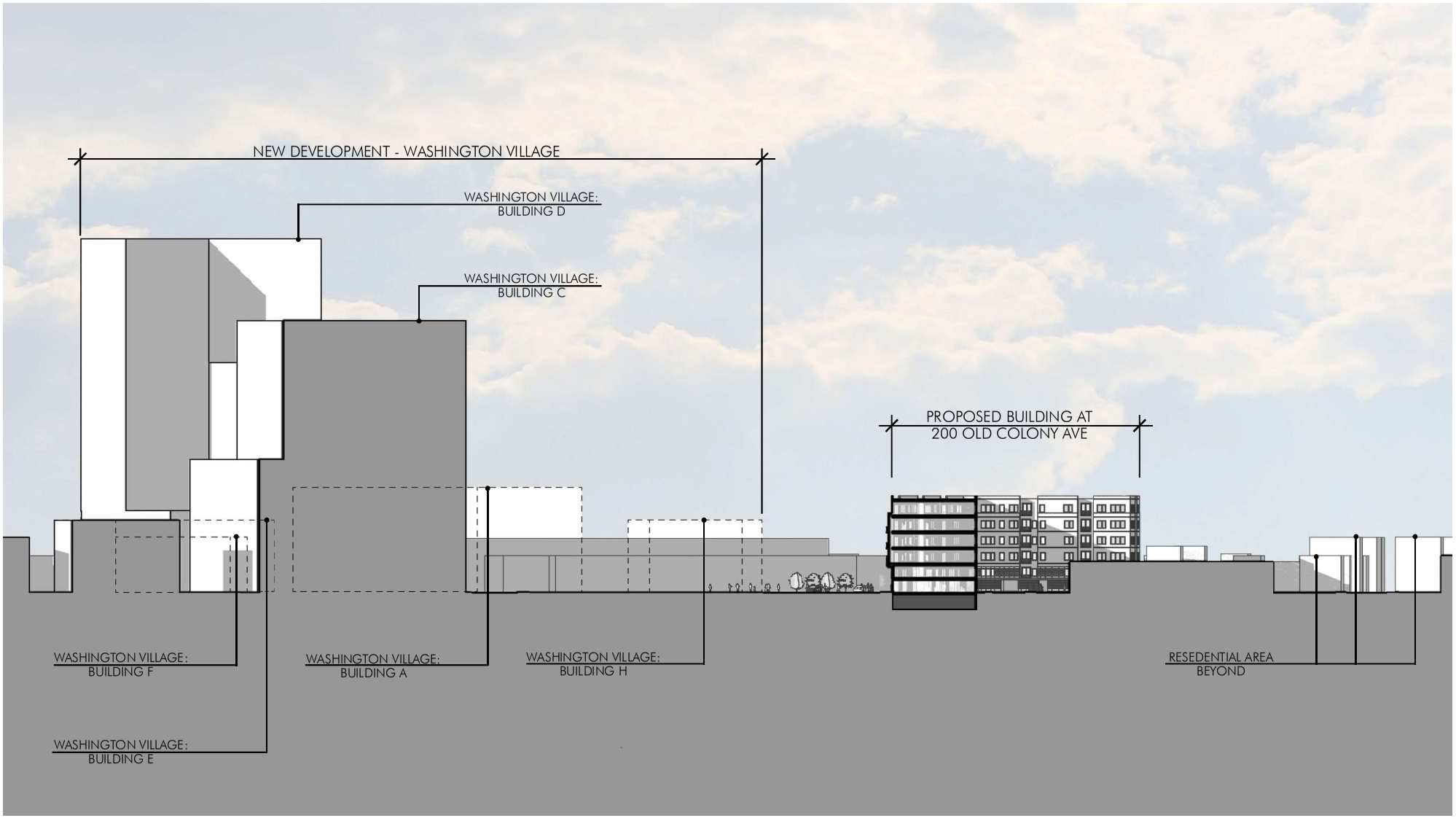
TERRACOTTA

200-204 Old Colony Avenue

MATERIAL DIAGRAM

EMBARC

FIGURE: 3-17


NEW DEVELOPMENT - WASHINGTON VILLAGE
WASHINGTON VILLAGE:
BUILDING D
WASHINGTON VILLAGE:
BUILDING C
PROPOSED BUILDING AT
200 OLD COLONY AVE
WASHINGTON VILLAGE:
BUILDING F
WASHINGTON VILLAGE:
BUILDING A
WASHINGTON VILLAGE:
BUILDING H
RESEDENTIAL AREA
BEYOND
WASHINGTON VILLAGE:
BUILDING E

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

Project Checklist

Project Name: Old Colony

Date: 19-Apr-18

Figure 3-19

Y	?	N			
	1		Credit	Integrative Process	1

13	2	1	**Location and Transportation**		16
			Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
2			Credit	High Priority Site	2
2	2	1	Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

2	1	7	**Sustainable Sites**		10
Y			Prereq	Construction Activity Pollution Prevention	Required
		1	Credit	Site Assessment	1
		2	Credit	Site Development - Protect or Restore Habitat	2
		1	Credit	Open Space	1
		3	Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1

7	1	3	**Water Efficiency**		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
5		1	Credit	Indoor Water Use Reduction	6
		2	Credit	Cooling Tower Water Use	2
	1		Credit	Water Metering	1

14	5	12	**Energy and Atmosphere**		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
4		2	Credit	Enhanced Commissioning	6
8	2	8	Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
		2	Credit	Demand Response	2
	1		Credit	Renewable Energy Production	3
	1		Credit	Enhanced Refrigerant Management	1
2			Credit	Green Power and Carbon Offsets	2

2	2	9	**Materials and Resources**		13
Y			Prereq	Storage and Collection of Recyclables	Required
Y			Prereq	Construction and Demolition Waste Management Planning	Required
		5	Credit	Building Life-Cycle Impact Reduction	5
	1	1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations	2
		2	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
	1	1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

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

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

3	1	0	**Regional Priority**		4
1			Credit	Regional Priority: Indoor Water Use	1
1			Credit	Regional Priority: High Priority Site	1
1			Credit	Regional Priority: Optimize Energy	1
	1		Credit	Regional Priority: Renewable	1

54	14	40	**TOTALS**	Possible Points:	110

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

4.0 ENVIRONMENTAL PROTECTION COMPONENT

4.1 Shadow Impacts Analysis

4.1.1 Introduction

The following shadow study describes and graphically depicts anticipated new shadow impacts from the Project compared to shadows from existing buildings. The study presents the existing and built conditions for the proposed Project for the hours 9:00 AM, 12:00 Noon, and 3:00 PM for the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21). In addition, shadows are depicted for 6:00 PM during the summer solstice and vernal & autumnal equinoxes. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the proposed project are provided in **Figures 4-1** through **4-14**.

4.1.2 Vernal Equinox (March 21)

Figures 4-1 through **4-3** depict shadow impacts on June 21.

At 9:00 AM, shadows are cast in a Northwesterly direction onto portions of Cottage Street, and onto a small portion of the adjacent building.

At 12:00 Noon, new shadow is cast in a Northerly direction over portions of Cottage Street.

At 3:00 PM, new shadow is cast in a Northeasterly direction over parts of Frederick Street and directly adjacent buildings.

4.1.3 Summer Solstice (June 21)

Figures 4-4 through **4-7** depict shadow impacts on June 21.

At 9:00 AM, shadows are cast in a Northwesterly direction onto portions of Cottage Street, and onto a small portion of the adjacent building.

At 12:00 Noon, new shadow is cast in a Northerly direction over portions of Cottage Street.

At 3:00 PM, new shadow is cast in a Northeasterly direction over parts of Frederick Street and the directly adjacent building.

At 6:00 PM, new shadow extends to the East, towards West 9th Street and onto neighboring buildings and onto the other side of Frederick Street and along Lark Street.

4.1.4 Autumnal Equinox (September 21)

Figures 4-8 through **4-11** depict shadows on March 21.

At 9:00 AM, shadows are cast in a Northwesterly direction onto Cottage Street, portions of the adjacent building, and on a small portion of Old Colony Avenue.

At 12:00 Noon, new shadow is cast in a Northerly direction over Cottage Street and on small portions of the adjacent buildings.

At 3:00 PM, new shadow is cast in a Northeasterly direction over parts of Frederick Street and directly adjacent buildings.

At 6:00 PM, no new shadows are cast over the site.

4.1.5 Winter Solstice (December 21)

Figures 4-12 through **4-14** depict shadow impacts on December 21. Winter sun casts the longest shadows of the year.

At 9:00 AM, are cast in a Northwesterly direction onto the adjacent building, and a portion of Old Colony Avenue.

At 12:00 Noon, new shadow is cast in a Northerly direction over Cottage Street and some adjacent buildings.

At 3:00 PM, new shadow from the Project is cast in a Northeasterly direction over W 9th Street, and over neighboring residential buildings.

4.1.6 Summary

Even with the proposed height of 6-floors, the Proposed Project's shadow impacts are generally not extensive. New shadow is generally limited to the streets surrounding the Site. Late afternoon and evening shadows will extend in an easterly/northeasterly direction toward West 8th Street. Overall, the Project's shadow impacts will be consistent with current patterns and will not adversely impact the Project Site and surroundings.

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

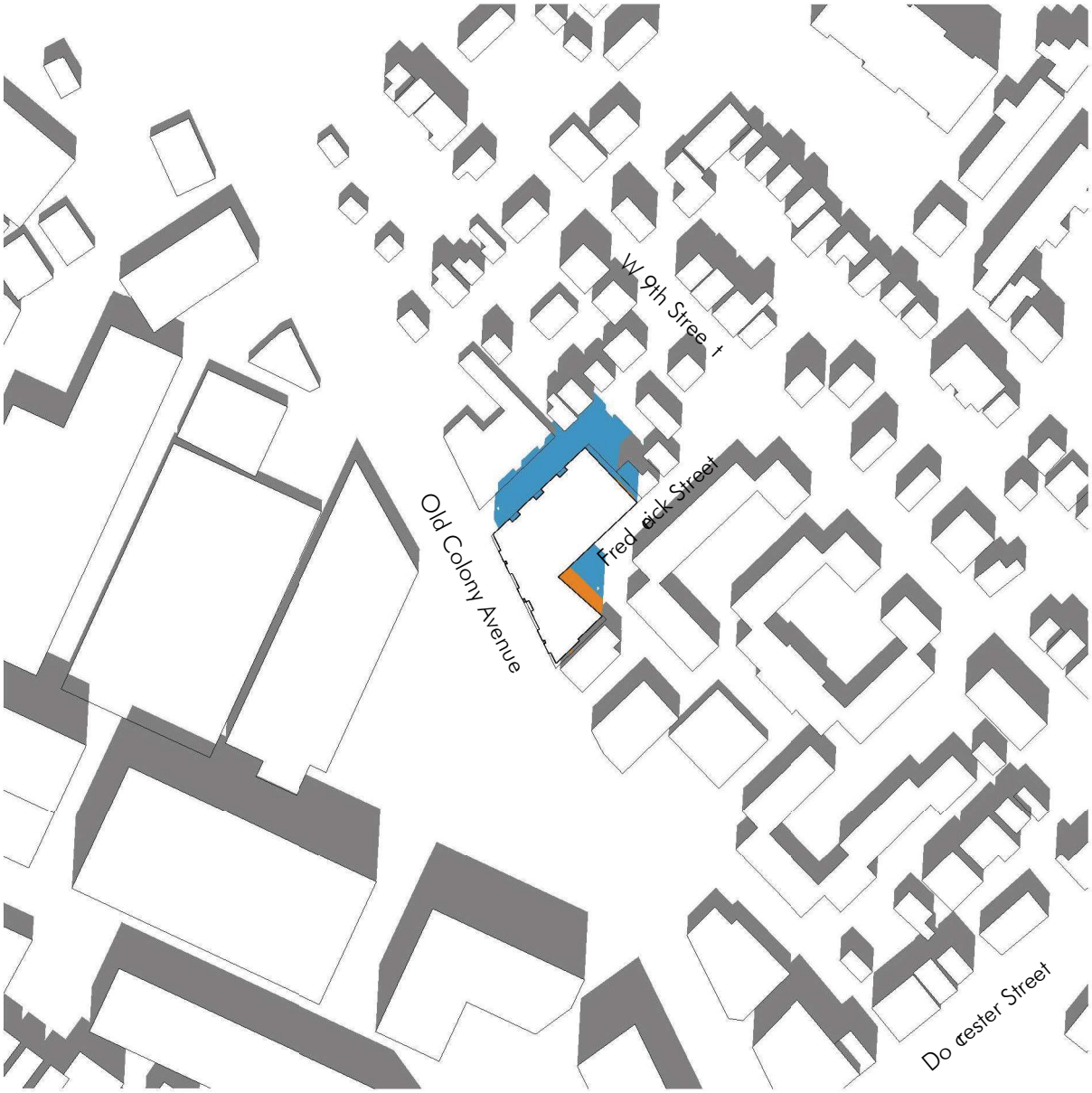
1" = 160'-0"

SHADOW STUDY; VERNAL EQUINOX (MARCH 21), 9 AM

23.4 ALTITUDE, 112.7 AZIMUTH

EMBARC

FIGURE: 4-1



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; VERNAL EQUINOX

200-204 Old Colony Avenue 46.5 ALTITUDE, 161

EMBARC

FIGURE: 4

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDIN

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; VERNAL EQUINOX (MARCH 21), 3 PM

39.2 ALTITUDE, 223.3 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-3

EMBARC

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; VERNAL EQUINOX (MARCH 21), 6 PM

9.9 ALTITUDE, 261.6 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-4

EMBARC

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDIN

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

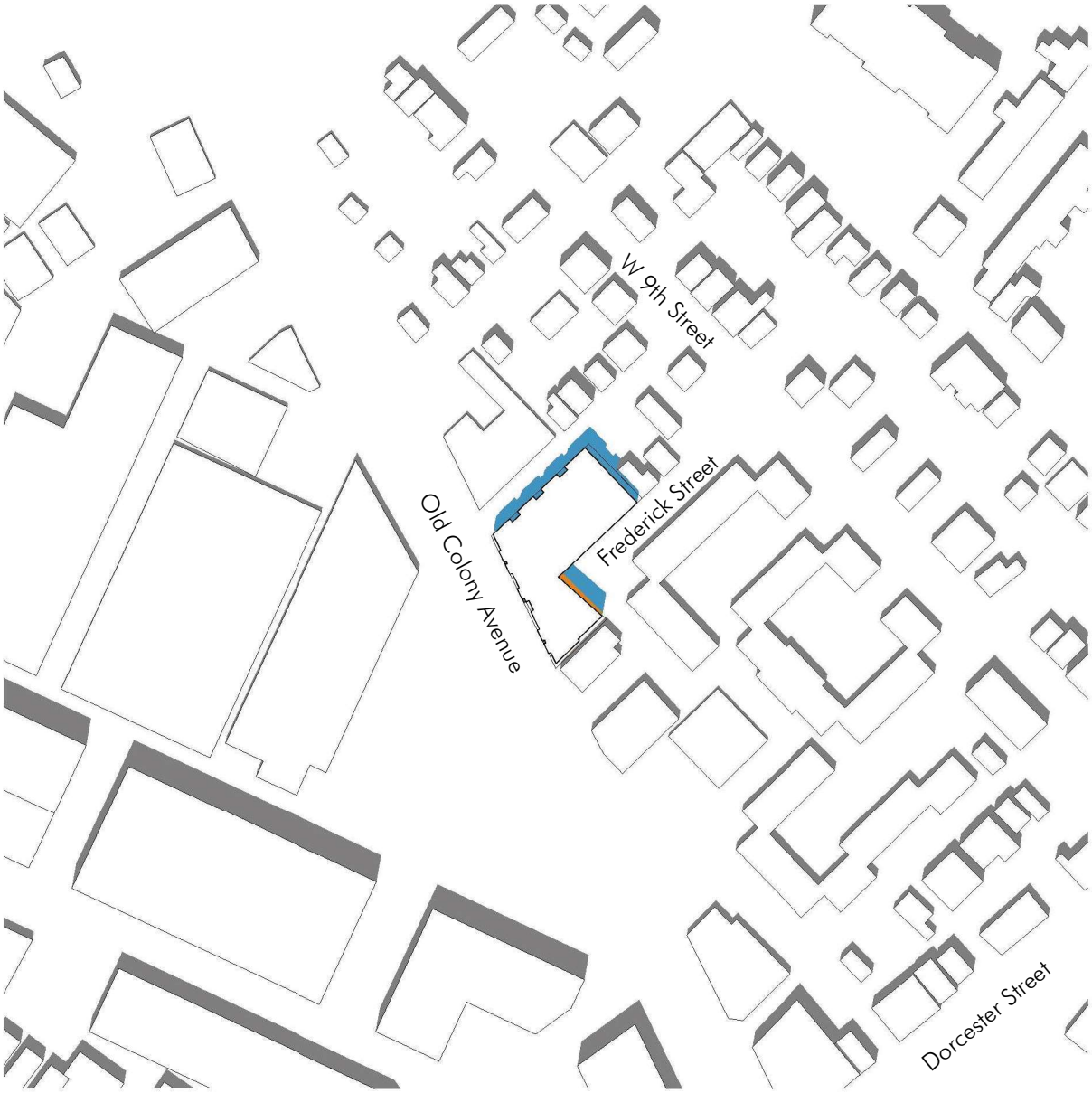
SHADOW STUDY; SUMMER SOLSTICE (JUNE 21), 9AM

39.9 ALTITUDE, 93.5 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-5

EMBARC



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

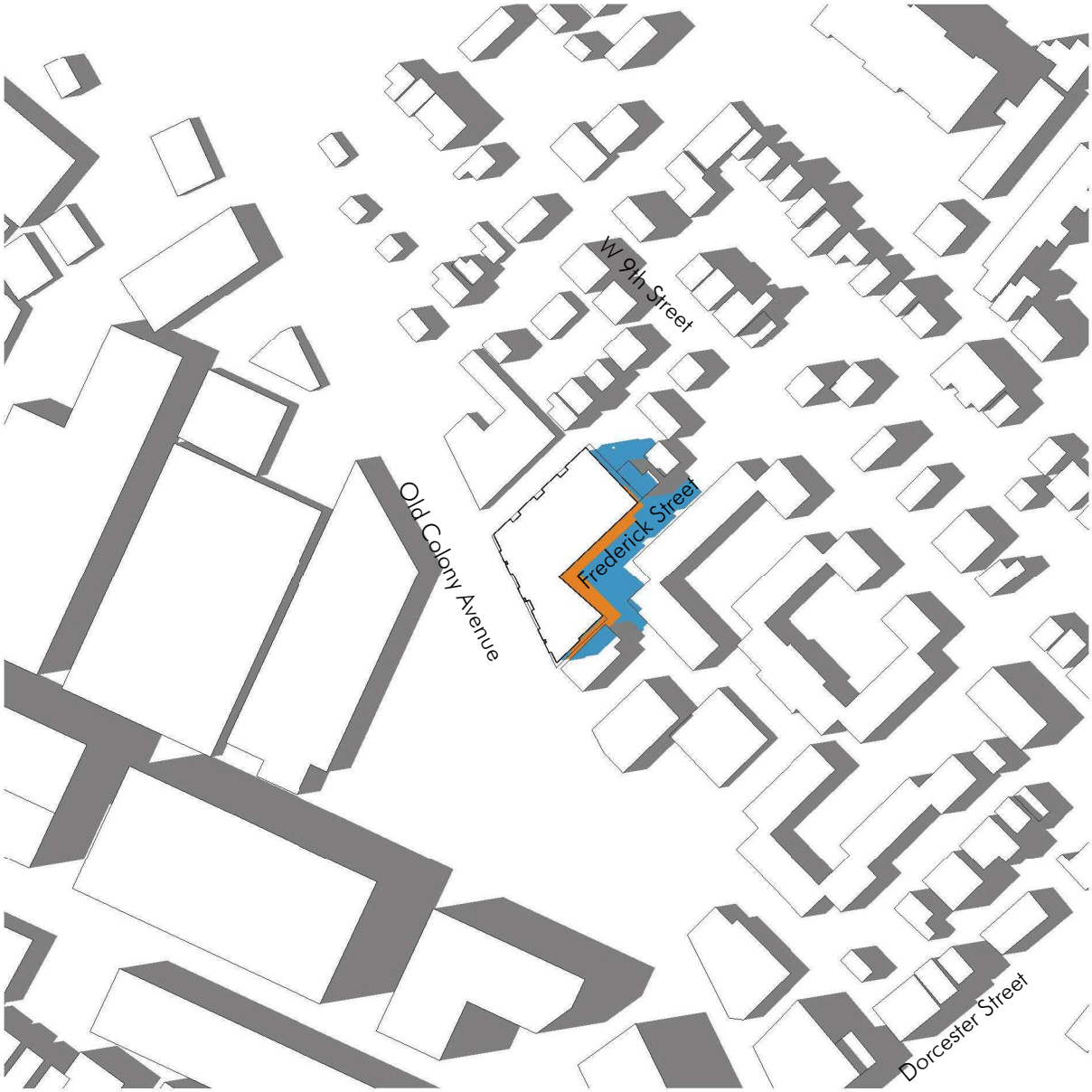
SHADOW STUDY; SUMMER SOLSTICE (JUNE 21), 12 PM

68.8 ALTITUDE, 149.5 AZIMUTH

200-204 Old Colony Avenue

EMBARC

FIGURE: 4-6



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

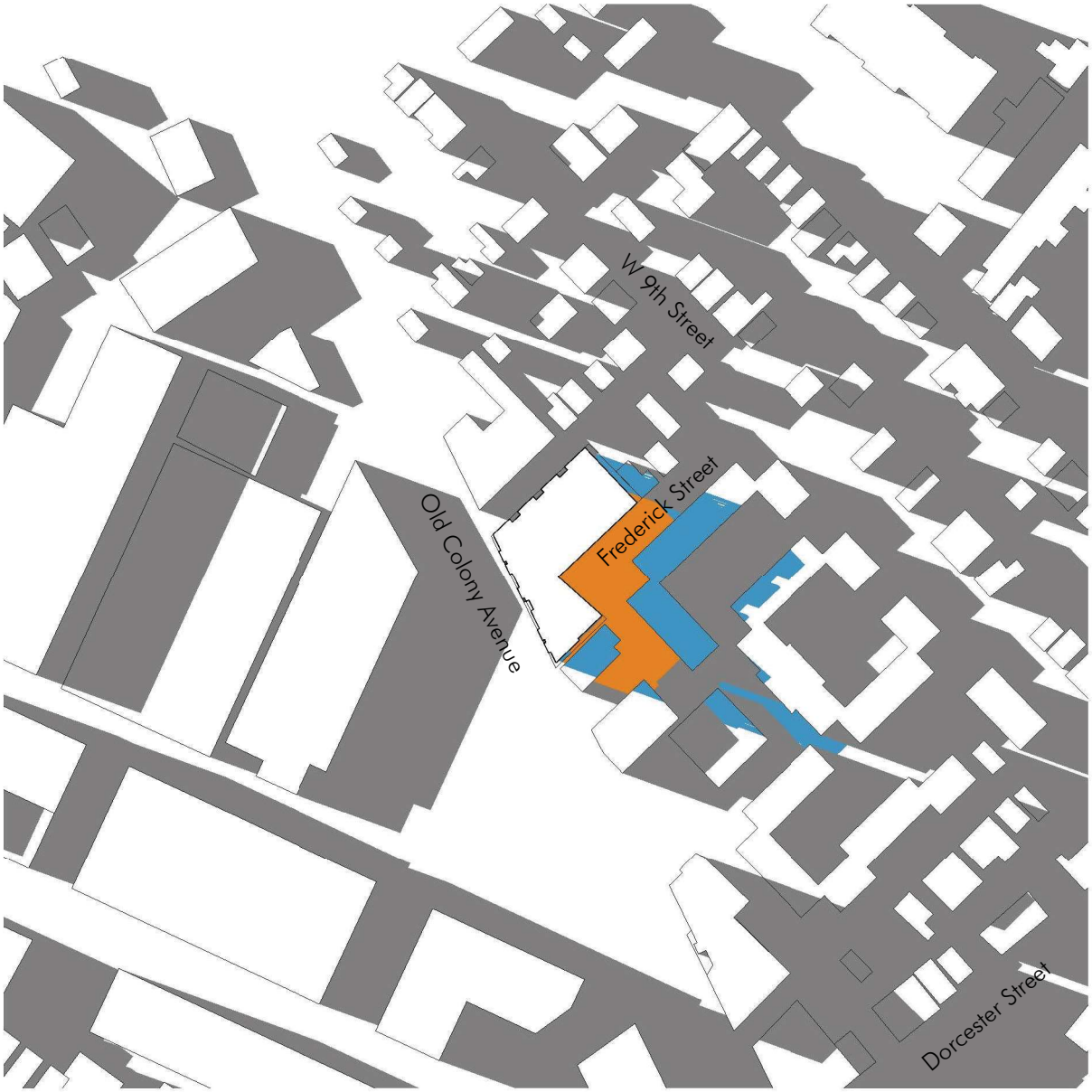
SHADOW STUDY; SUMMER SOLSTICE (JUNE 21), 3 PM

56.5 ALTITUDE, 246.4 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-7

EMBARC



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; SUMMER SOLSTICE (JUNE 21), 6 PM

23.8 ALTITUDE, 280.7 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-8

EMBARC

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

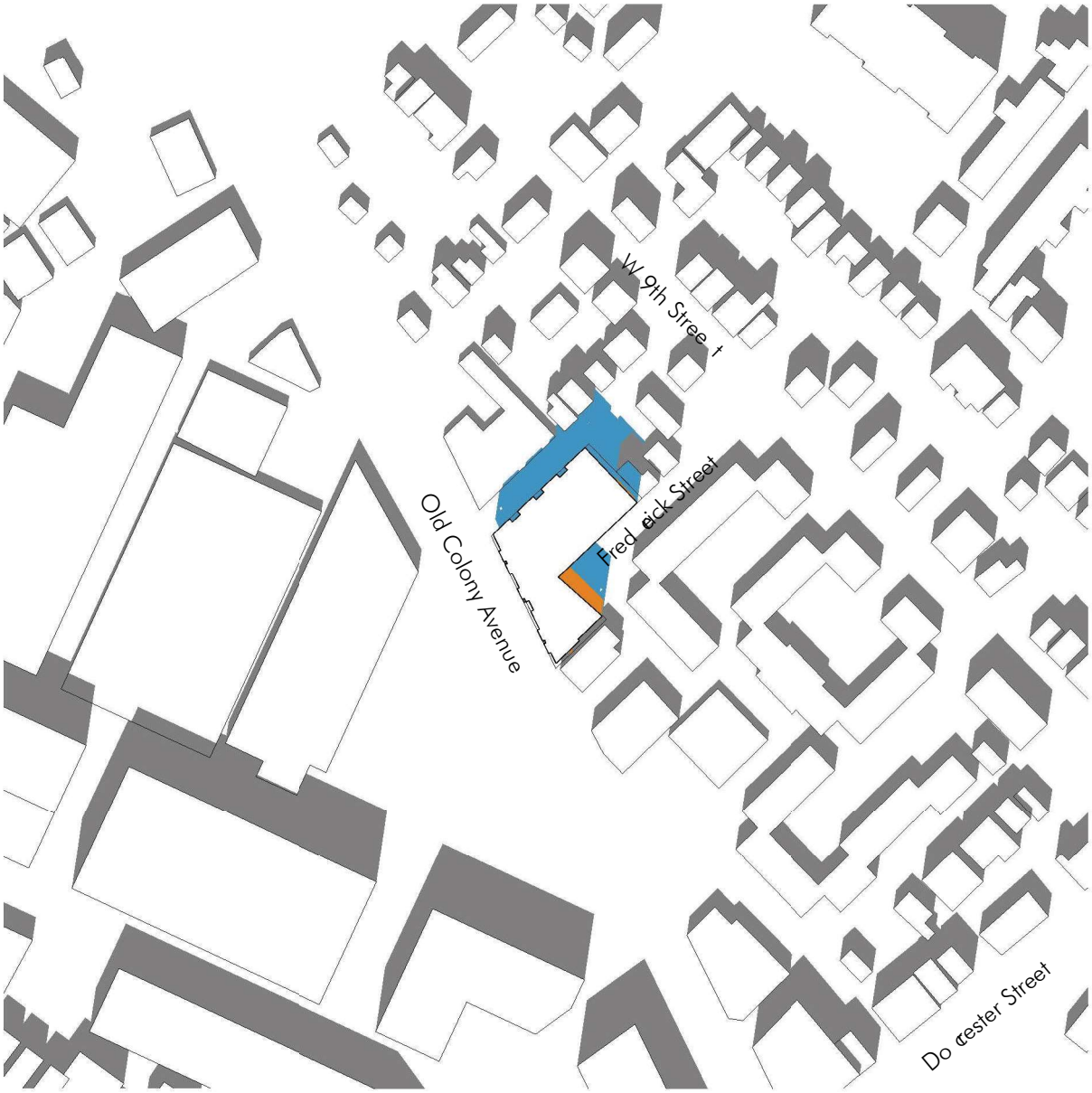
1" = 160'-0"

SHADOW STUDY; AUTUMNAL EQUINOX (SEPTEMBER 21), 9 AM

26.0 ALTITUDE, 115.3 AZIMUTH

EMBARC

FIGURE: 4-9



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; AUTUMNAL EQUINOX (

200-204 Old Colony Avenue 47.4 ALTITUDE, 166

EMBARC

FIGURE: 4

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDIN

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; AUTUMNAL EQUINOX (SEPTEMBER 21), 3 PM

37.4 ALTITUDE, 227.2 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-11

EMBARC

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; AUTUMNAL EQUINOX (SEPTEMBER 21), 6 PM

7.3 ALTITUDE, 264.0 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-12

EMBARC

- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

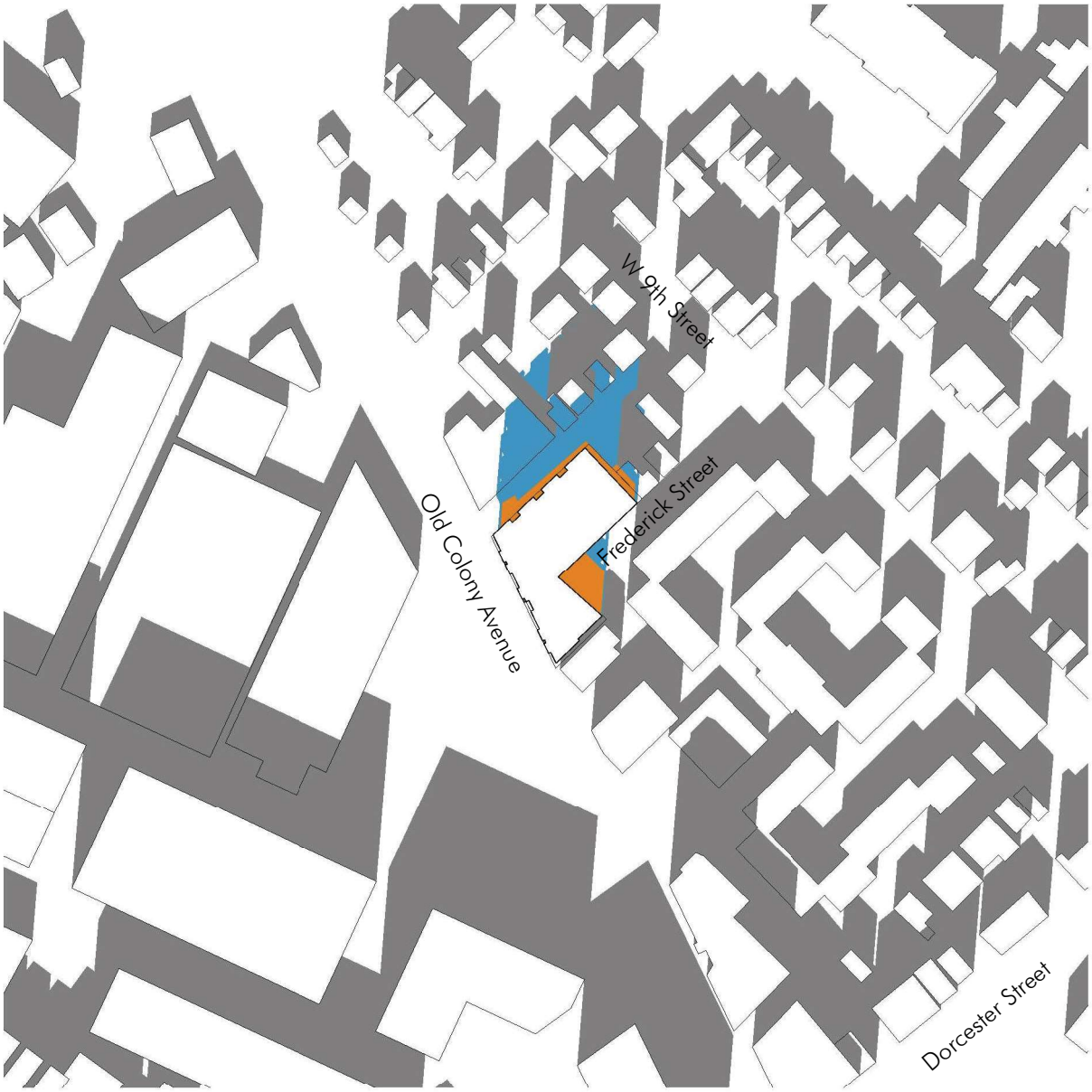
SHADOW STUDY; WINTER SOLSTICE (DECEMBER 21), 9 AM

14.4 ALTITUDE, 141.9 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-13

EMBARC



- SHADOW OF EXISTING BUILDING

- SHADOW OF PROPOSED BUILDING

- EXISTING SURROUNDING SHADOWS

N

1" = 160'-0"

SHADOW STUDY; WINTER SOLSTICE (DECEMBER 21), 12 PM

24.2 ALTITUDE, 184.4 AZIMUTH

200-204 Old Colony Avenue

FIGURE: 4-14

EMBARC

4.2 Air Quality

Tech Environmental, Inc. performed air quality analyses for the Project. These analyses consisted of: 1) an evaluation of existing air quality; 2) an evaluation of potential carbon monoxide (CO) impacts from the operation of the Project's enclosed parking garage, and 3) a microscale CO analysis for intersections in the Project area that meet the BPDA criteria for requiring such an analysis.

4.2.1 Existing Air Quality

The City of Boston is currently classified as being in attainment of the Massachusetts and National Ambient Air Quality Standards (NAAQS) for all of the criteria air pollutants except ozone (see **Table 4.2-1**). These air quality standards have been established to protect the public health and welfare in ambient air, with a margin for safety.

The Massachusetts Department of Environmental Protection (DEP) currently operates air monitors in various locations throughout the city. The closest, most representative, DEP monitors for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), fine particulate matter ($PM_{2.5}$), coarse particulate matter (PM_{10}), and lead are located at Dudley Square (Harrison Avenue). Harrison Avenue, Boston, MA. The closest, most representative, DEP monitor for ozone is located at Dudley Square (Harrison Avenue).

Table 4.3-2 summarizes the DEP air monitoring data, for the most recent available, complete, three-year period (2014-2016), that are considered to be representative of the project area. **Table 4.3-2** shows that the existing air quality in the Project area is generally much better than the NAAQS. The highest impacts relative to a NAAQS are for ozone, NO_2 and $PM_{2.5}$. Ozone is a regional air pollutant on which the small amount of additional traffic generated by this Project will have an insignificant impact. The Project's operations will not have a significant impact on local NO_2 and $PM_{2.5}$ concentrations.

Table 4.2-1. Massachusetts and National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	NAAQS (µg/m^3)
Sulfur Dioxide (SO_2)	1-hour^P 3-hour^S Annual^P (Arithmetic Mean)	196[a] 1,300[b] 80
Carbon Monoxide (CO)	1-hour^P 8-hour^P	40,000[b] 10,000[b]
Nitrogen Dioxide (NO_2)	1-hour^P Annual$^{P/S}$ (Arithmetic Mean)	188[c] 100
Coarse Particulate Matter (PM_{10})	24-hour$^{P/S}$	150
Fine Particulate Matter ($PM_{2.5}$)	24-hour$^{P/S}$ Annual^P (Arithmetic Mean) Annual^S (Arithmetic Mean)	35[d] 12[e,f] 15
Ozone (O_3)	8-hour$^{P/S}$	137[g]
Lead (Pb)	Rolling 3-Month Avg.$^{P/S}$	0.15

P = primary standard; S = secondary standard.
[a] 99th percentile 1-hour concentrations in a year (average over three years).
[b] One exceedance per year is allowed.
[c] 98th percentile 1-hour concentrations in a year (average over three years).
[d] 98th percentile 24-hour concentrations in a year (average over three years).
[e] Three-year average of annual arithmetic means.
[f] As of March 18, 2013, the U.S. EPA lowered the $PM_{2.5}$ annual standard from 15 ug/m^3 to 12 ug/m^3.
[g] Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration must not exceed 0.070 ppm (137 ug/m^3) (effective December 28, 2015); the annual PM_{10} standard was revoked in 2006.

Table 4.2-2. Representative Existing Air Quality in the Project Area

Pollutant, Averaging Period	Monitor Location	Value ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
CO, 1-hour	Harrison Avenue, Boston	2,760	40,000	7%
CO, 8-hour	Harrison Avenue, Boston	1,375	10,000	14%
NO_2, 1-hour	Von Hillern Street	94.7	188	50%
NO_2, Annual	Von Hillern Street	32.9	100	33%
Ozone, 8-hour	Harrison Avenue, Boston	110	137	80%
PM_{10}, 24-hour	Harrison Avenue, Boston	61	150	41%
$PM_{2.5}$, 24-hour	Von Hillern Street	15.2	35	41%
$PM_{2.5}$, Annual	Von Hillern Street	6.5	12	54%
Lead, Quarterly	Harrison Avenue, Boston	0.017	1.5	1%
SO_2, 1-hour	Harrison Avenue, Boston	23.1	197	12%

Source: MassDEP, http://www.mass.gov/eea/agencies/massdep/air/quality/air-monitoring-reports-and-studies.html, downloaded February 20, 2018.

Notes:

(1) Annual averages are highest measured during the most recent three-year period for which data are available (2014 - 2016). Values for periods of 24-hours or less are highest, second-highest over the three-year period unless otherwise noted.

(2) The eight-hour ozone value is the 3-year average of the annual fourth-highest values, the 24-hour $PM_{2.5}$ value is the 3-year average of the 98th percentile values, the annual $PM_{2.5}$ value is the 3-year average of the annual values – these are the values used to determine compliance with the NAAQS for these air pollutants.

(3) The one-hour NO_2 value is the -year average of the 98th percentile values and the one-hour SO_2 value is the -year average of the 99th percentile values.

(4) Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration must not exceed 0.070 ppm (137 ug/m^3) (effective December 28, 2015); the annual PM_{10} standard was revoked in 2006 and the 3-hour SO_2 standard was revoked by the US EPA in 2010.

4.2.2 Impacts from Parking Garage

The Project also includes a parking garage designed to provide parking spaces for 26 vehicles. An analysis of the worst-case air quality impacts from the proposed parking garage was performed (see **Appendix B**). The procedures used for this analysis are consistent with U.S. EPA's Volume 9 guidance.[2] CO emissions from motor vehicles operating inside the garage were calculated and the CO concentrations inside the garage and surrounding the Project were based on morning and afternoon peak traffic periods.

[2] US EPA, "Guidelines for Air Quality Maintenance Planning and Analysis Volume 9 (Revised): Evaluating Indirect Sources," EPA-450/4-78-001, September 1978.

The objective of this analysis was to determine the maximum CO concentrations at the closest sensitive receptors surrounding the Project. These closest sensitive receptors include: air intakes located on the proposed building and nearby existing buildings, and pedestrians at ground level anywhere near the Project. The parking garage CO emissions were modeled using an U.S. EPA-approved air model.

Garage Ventilation System

The proposed parking garage will require mechanical ventilation. The garage ventilation system will be designed to provide adequate dilution of the motor vehicle emissions before they are vented outside. The design of the garage ventilation system will meet all building code requirements. Full ventilation of the garage will require a maximum flow of approximately 14,400 cubic feet per minute (cfm) of fresh air. This quantity of air is designed to meet the building code and will be more than adequate to dilute the emissions inside the parking garage to safe levels before they are vented outside.

Peak Garage Traffic Volumes

The peak morning and afternoon one-hour entering and exiting traffic volumes for the garage are shown in **Table 4.2-3**.

Table 4.2-3. Peak-Hour Garage Traffic Volumes

Period	Entering (vehicles/hour)	Exiting (vehicles/hour)	Total (vehicles/hour)
Morning Peak Hour	3	7	10
Afternoon Peak Hour	7	4	11

Source: Howard-Stein Hudson, Inc.

Motor Vehicle Emission Rates

The U.S. Environmental Protection Agency (EPA) MOVES2014 emission factor model was used to calculate single vehicle CO emissions rates, for a vehicle speed of 5 mph. The inputs to the MOVES2014 model followed the latest guidance from the Massachusetts Department of Environmental Protection (DEP) and were performed for the future traffic year of 2025. The CO emission rate calculated by MOVES2014, for vehicles moving at 5 miles per hour (mph), was 2.976 grams per vehicle-mile for each entering and exiting vehicle. These emission rates apply to wintertime conditions when motor vehicle CO emissions are greatest due to cold temperatures. MOVES2014 model output is provided in the **Appendix B.**

To determine the maximum one-hour CO emissions inside the garage it was necessary to estimate the amount of time each motor vehicle will be in the parking garage with its engine running. To be conservative, it was assumed that every car entering the garage will travel to the farthest parking spot, and that the vehicles leaving the garage will have to travel the same distance from inside the garage to the exit. The calculations in **Appendix B** show the distance each vehicle was calculated to travel in the garage for the weekday afternoon peak period.

Peak Garage CO Emission Rate and CO Concentration Inside the Garage

The peak one-hour CO emission rate for the parking garage was calculated to be 0.016 grams per minute for the morning peak hour and 0.018 grams per minute for the afternoon peak hour. Applying the maximum volumetric garage ventilation flow rate for the parking garage, the peak one-hour CO concentration inside the garage was calculated to be 0.035 parts of CO per million parts of air (ppm) for the morning peak hour and 0.039 ppm for the afternoon peak hour. Therefore, the peak one-hour CO concentration inside the garage will be 0.039 ppm with a peak one-hour emission rate of 0.018 grams/minute (0.00030 grams/second), corresponding to the afternoon peak period. These predictions represent conservative estimates of the peak garage CO emissions and concentrations.

Peak Ambient CO Concentration

Worst-case concentrations of CO from the parking garage were predicted for locations around the building with using AERMOD model (Version16216r) in screening-mode. The results of the air quality analysis for locations outside and around the building are summarized in **Table 4.2-4**. The results in **Table 4.2-4** represent all outside locations on and near the Project Site, including nearby building air intakes and nearby residences. **Appendix B** contains the AERMOD model output.

The AERMOD model in screening-mode was used to predict the maximum concentration of CO by modeling the parking garage emissions as volume sources using worst-case meteorological conditions for an urban area. The screening-mode option simulates modeling results predicted by AERMOD. The predicted concentrations presented here represent the worst-case air quality impacts from the building heating system and parking garage at all locations on and around the Project. AERMOD predicted one-hour average concentrations of air pollutants.

AERMOD predicted that the maximum one-hour CO concentration from the parking garage will be 0.00041 ppm (0.52 $\mu g/m^3$). This concentration represents the maximum CO concentration at any location surrounding the Project. AERSCREEN guidance allows the maximum eight-hour CO impact to be conservatively estimated by multiplying the maximum one-hour impact by a factor of 0.9 (i.e. the eight-hour impact is 90% of the one-hour impact). The maximum predicted eight-hour CO concentration was determined to be approximately 0.00037 ppm (0.00041 ppm x 0.9).

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare in ambient air, with a margin for safety. The NAAQS for CO are 35 ppm for a one-hour average and 9 ppm for an eight-hour average. The Commonwealth of Massachusetts has established the same standards for CO. The CO background values of 2.2 ppm for a one-hour period and 1.1 ppm for an eight-hour period were added to the maximum predicted garage ambient impacts to represent the CO contribution from other, more distant, sources. With the background concentration added, the peak, total, one-hour and eight-hour CO impacts from the parking garage, at any location around the building, will be no larger than 2.20041 ppm and 1.10037 ppm, respectively. These maximum predicted total CO concentrations (garage exhaust impacts plus background) are safely in compliance with the NAAQS. This analysis demonstrates that the operation of the parking garage will not have an adverse impact on air quality.

Table 4.2-4. Peak Predicted Parking Garage Air Quality Impacts

Location	Peak Predicted One-Hour Impact (ppm)	One-Hour NAAQS (ppm)	Peak Predicted Eight-Hour Impact (ppm)	Eight-Hour NAAQS (ppm)
Outside – Surrounding the Building* (Parking Garage)	2.20041**	35 (NAAQS)	1.10037**	9 (NAAQS)

NAAQS = Massachusetts and National Ambient Air Quality Standards for CO (ppm = parts per million)
* Representative of maximum CO impact at all nearby residences, buildings, and sidewalks.
** Includes background concentrations of 2.2 ppm for the one-hour period and 1.1 ppm for the eight-hour period.

4.2.3 Microscale CO Analysis for Selected Intersections

The Boston Planning & Development Agency (BPDA) and the DEP typically require a microscale air quality analysis for any intersection in the Project study area where the level of service (LOS) is expected to deteriorate to D and the proposed project causes a 10% increase in traffic (unless the increase in traffic volume is less than 100 vehicles per hour (vph)), or where the level of service is E or F and the project contributes to a reduction in LOS. For such intersections, a microscale air quality analysis is required to examine the carbon monoxide (CO) concentrations at sensitive receptors near the intersection.

A microscale air quality analysis was not performed for this Project due to the Project trip generation having minimal impacts on the overall delays at the four intersections. The Old Colony Avenue/Lark Street intersection LOS and Old Colony Avenue/Cottage Street intersection LOS is expected to deteriorate to a D during the morning peak hour. However, the Project will only generate approximately 10 motor vehicle trips during the morning peak traffic hour. This represents an increase of approximately 1 vehicle trip every six minutes during the morning peak hour. This increase in traffic generates an additional 6 seconds in delay time on the Lark Street queue of the Old Colony Avenue/Lark Street intersection, and less than 1 second in additional delay time at the Old Colony Avenue/Cottage Street intersection. The increase in traffic volume is still well below the 100 vph threshold. **Table 4.2-5** shows a comparison of the Existing (2018) and Build (2025) LOS at the four intersections.

Table 4.2-5. Summary of Build Case Level of Service

Intersection	Existing LOS (AM/PM)	Build LOS (AM/PM)	Requires Analysis?
Old Colony Avenue/Lark Street	C/C	D/C	NO*
Old Colony Avenue/Cottage Street	C/C	D/C	NO*
Old Colony Avenue/E Street	A/A	A/A	NO
W 9th Street/Frederick Street	A/A	A/A	NO

The LOS shown represents the overall delay at each intersection
*Project does not contribute to reduction in level of service.

Source: Howard/Stein-Hudson Associates, Inc.

Conclusions

The motor vehicle trip generation from the Project will not have a significant impact on motor vehicle delays and air pollutant emissions at the analyzed intersections. Therefore, the motor vehicle traffic generated by the Project will not have a significant impact on air quality at any intersection in the Project area and a microscale air quality analysis is not necessary for this Project.

4.3 Noise Impacts

Tech Environmental, Inc., performed a noise study to determine whether the operation of the proposed Project will comply with the City of Boston Noise Regulations and the Massachusetts Department of Environmental Protection ("DEP") Noise Policy.

4.3.1 Common Measures of Community Noise

The unit of sound pressure is the decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 70 dB is added to another sound of 70 dB, the total is only a 3-decibel increase (or 73 dB), not a doubling to 140 dB. Thus, every 3 dB increase represents a doubling of sound energy. For broadband sounds, a 3 dB change is the minimum change perceptible to the human ear. **Table 4.3-1** gives the perceived change in loudness of different changes in sound pressure levels.[3]

[3] American Society of Heating, Refrigerating and Air Conditioning Engineers, Inc., 1989 ASHRAE Handbook--Fundamentals (I-P) Edition, Atlanta, GA, 1989.

Table 4.3-1. Subjective Effects of Changes in Sound Pressure Levels

Change in Sound Level	Apparent Change in Loudness
3 dB	Just perceptible
5 dB	Noticeable
10 dB	Twice (or half) as loud

Non-steady noise exposure in a community is commonly expressed in terms of the A-weighted sound level (dBA); A-weighting approximates the frequency response of the human ear. Levels of many sounds change from moment to moment. Some are sharp impulses lasting 1 second or less, while others rise and fall over much longer periods of time. There are various measures of sound pressure designed for different purposes. To establish the background ambient sound level in an area, the L_{90} metric, which is the sound level exceeded 90 percent of the time, is typically used. The L_{90} can also be thought of as the level representing the quietest 10 percent of any time period. Similarly, the L_{10} can also be thought of as the level representing the quietest 90 percent of any time period. The L_{10} and L_{90} are broadband sound pressure measures, i.e., they include sounds at all frequencies.

Sound level measurements typically include an analysis of the sound spectrum into its various frequency components to determine tonal characteristics. The unit of frequency is Hertz (Hz), measuring the cycles per second of the sound pressure waves, and typically the frequency analysis examines nine octave bands from 32 Hz to 8,000 Hz. A source is said to create a pure tone if acoustic energy is concentrated in a narrow frequency range and one octave band has a sound level 3 dB greater than both adjacent octave bands.

The acoustic environment in an urban area such as the Project area results from numerous sources. Observations show that major contributors to the background sound level in the Project area include motor vehicle traffic on local and distant streets, aircraft over-flights, mechanical equipment on nearby buildings, nature noises such as insects, tree frogs, small animals, and general city noises such as street sweepers and police/fire sirens. Typical sound levels associated with various activities and environments are presented in **Table 4.4-2**.

4.3.2 Noise Regulations

Commonwealth Noise Policy

The DEP regulates noise through 310 CMR 7.00, “Air Pollution Control.” In these regulations “air contaminant” is defined to include sound and a condition of “air pollution” includes the presence of an air contaminant in such concentration and duration as to “cause a nuisance” or “unreasonably interfere with the comfortable enjoyment of life and property.”

Regulation 7.10 prohibits "unnecessary emissions" of noise. The DEP DAQC Policy Statement 90-001 (February 1, 1990) interprets a violation of this noise regulation to have occurred if the noise source causes either:

1. An increase in the broadband sound pressure level of more than 10 dBA above the ambient level; or
2. A "pure tone" condition.

The ambient background level is defined as the L_{90} level as measured during equipment operating hours. A "pure tone" condition occurs when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dB or more.

The DEP does not regulate noise from motor vehicles accessing a site or the equipment backup notification alarms. Therefore, the provisions described above only apply to a portion of the sources that may generate sound following construction of the Project.

Local Regulations

The City of Boston Environment Department regulates noise through the Regulations for the Control of Noise as administered by the Air Pollution Control Commission. The Project is located in an area consisting of commercial and residential uses. The Project will have low-rise residential uses to the north, east, and south. The Project must comply with Regulation 2.2 for noise levels in Residential Zoning Districts at these residential locations**. Table 4.3-3** lists the maximum allowable octave band and broadband sound pressure levels for residential and business districts. Daytime is defined by the City of Boston Noise Regulations as occurring between the hours of 7:00 a.m. and 6:00 p.m. daily except Sunday. Compliance with the most restrictive nighttime residential limits will ensure compliance for other land uses with equal or higher noise limits.

Table 4.3-2. Common Indoor and Outdoor Sound Levels

Outdoor Sound Levels	Sound Pressure (μPa)	Sound Level (dBA)	Indoor Sound Levels
	6,324,555	110	Rock Band at 5 m
Jet Over-Flight at 300 m		105	
	2,000,000	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		95	
	632,456	90	Food Blender at 1 m
Diesel Truck at 15 m		85	
Noisy Urban Area—Daytime	200,000	80	Garbage Disposal at 1 m
		75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		65	Normal Speech at 1 m
	20,000	60	
Quiet Urban Area—Daytime		55	Quiet Conversation at 1m
	6,325	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		45	
	2,000	40	Empty Theater or Library
Quiet Suburb—Nighttime		35	
	632	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		25	Empty Concert Hall
Rustling Leaves	200	20	Average Whisper
		15	Broadcast and Recording Studios
	63	10	
		5	Human Breathing
Reference Pressure Level	20	0	Threshold of Hearing

Notes: μPa, or micro-Pascals, describes sound pressure levels (force/area). DBA, or A-weighted decibels, describes sound pressure on a logarithmic scale with respect to 20 μPa (reference pressure level).

Table 4.3-3. Maximum Allowable Sound Pressure Levels (dB) City of Boston

Octave Band (Hz)	Zoning District		
	Residential (Daytime)	Residential (All Other Times)	Business (anytime)
32 Hz	76	68	79
63 Hz	75	67	78
125 Hz	69	61	73
250 Hz	62	52	68
500 Hz	56	46	62
1000 Hz	50	40	56
2000 Hz	45	33	51
4000 Hz	40	28	47
8000 Hz	38	26	44
Broadband (dBA)	**60**	**50**	**65**

4.3.3 Pre-Construction Sound Level Measurements

Existing baseline sound levels in the Project area were measured during the quietest overnight period when human activity and street traffic were at a minimum, and when the Project's mechanical equipment (the principal sound sources) could be operating. Since the Project's mechanical equipment may operate at any time during a 24-hour day, a weekday between 11:00 p.m. and 4:00 a.m. was selected as the worst-case time period, i.e., the time period when Project-related sounds may be most noticeable due to the quieter background sound levels. Establishing an existing background (L_{90}) during the quietest hours of the facility operation is a conservative approach for noise impact assessment and is required by the DEP Noise Policy.

The nighttime noise measurement locations are as follows (see the **Figure 1** in the **Appendix C**):

Monitoring Location #1: 99 Lark Street

Monitoring Location #2: **7** Cottage Street

Monitoring Location #3: Intersection of W 9th Street and Lark Street

Broadband (dBA) and octave band sound level measurements were made with a Larson Davis Type 831 environmental sound level analyzer, at each monitoring location, for a duration of approximately thirty minutes. The full octave band frequency analysis was performed on the frequencies spanning 16 to 16,000 Hertz. A time-integrated statistical analysis of the data used to quantify the sound variation was also performed, including the calculation of the L_{90}, which is used to set the ambient background sound level.

The Larson Davis 831 is equipped with a ½" precision condenser microphone and has an operating range of 5 dB to 140 dB and an overall frequency range of 3.5 Hz to 20,000 Hz. This meter meets or exceeds all requirements set forth in the ANSI S1.4-1983 Standards for Type 1 quality and accuracy and the State and City requirements for sound level instrumentation. Prior to any measurements, this sound analyzer was calibrated with an ANSI Type 1 calibrator that has an accuracy traceable to the National Institute of Standards and Technology (NIST). During all measurements, the Larson Davis was tripod mounted at approximately five feet above the ground in open areas away from vertical reflecting surfaces.

The sound level monitoring was conducted Wednesday night, February 28th, into Thursday morning, March 1st, 2018. Weather conditions during the sound survey were conducive to accurate sound level monitoring: the temperature was 47°F, the skies were clear, and the winds were 7 to 11 miles per hour (mph), from the south southwest. The microphone of the sound level analyzer was fitted with a 7-inch windscreen to negate any effects of wind-generated noise.

The nighttime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for an urban area. A significant source of existing sound at all locations is motor vehicle traffic on local streets, sirens and aircraft over-flights.

The results of the nighttime baseline sound level measurements are presented in **Table 4.3-4**, and the complete measurement printouts are provided in **Appendix C**. The nighttime background L_{90} level was 49.9 dBA at Location #1, 45.6 dBA at Location #2, and 44.4 dBA at Location #3. The octave band data in **Table 4.3-4** show that no pure tones were detected in the nighttime noise measurements.

Noise monitoring at the Project Site during the afternoon peak traffic period was used to evaluate the existing ambient sound levels and to evaluate conformance with the Site Acceptability Standards established by HUD for residential development. The purpose of the HUD guidelines is to provide standards for determining the acceptability of residential project locations with regards to existing sound levels. The HUD criteria regarding the day-night average sound level (L_{dn}) are listed below. These standards apply to L_{dn} measurements taken several feet from the building in the direction of the predominant source of noise.

- Normally Acceptable – L_{dn} not exceeding 65 dBA
- Normally Unacceptable – L_{dn} above 65 dBA but not exceeding 75 dBA
- Unacceptable – L_{dn} above 75 dBA.

These HUD standards do not apply to this Project, but are used as guidance regarding the suitability of the Project area with regard to background sound levels.

Daytime sound level measurements were taken to help estimate the L_{dn} for the Project Site. A 30-minute sound level measurement was taken during the morning, on Wednesday, February 28, 2018 between 9:00 a.m. and 9:30 a.m. at 99 Lark Street (the closest location to the project). The weather conditions during the sound survey were conducive to accurate sound level monitoring: the skies were clear, and the winds were approximately 10 mph. The microphone of the sound level analyzer was fitted with a 7-inch windscreen to negate any effects of wind-generated noise.

The daytime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for an urban area. The main sources of noise during the morning period sound level measurements were motor vehicle traffic on nearby local streets, construction, passing sirens, and aircraft over-flights.

The L_{eq} measured during the morning period was 65.8 dBA at 99 Lark Street. The L_{eq} sound level measured during the nighttime at the same location was 59.5 dBA. Using both the daytime and nighttime L_{eq} sound levels, the calculated L_{dn} for the site is 67.6 dBA, which is slightly above the HUD guideline noise limit of 65 dBA primarily due to the traffic on Old Colony Avenue.

It is assumed that standard building construction practices will result in at least a 30 dBA reduction of sound from outdoor sound levels. The Proponent will incorporate sound mitigation, as necessary, to assure that the typical urban sound sources do not result in noise impacts greater than 45 dBA inside the residential units closest to the neighboring streets.

Table 4.3-4. Nighttime Baseline Sound Level Measurements, February 28th – March 1st, 2018

Sound Level Measurement	(Location #1) 99 Lark Street 11:15 p.m. – 11:45 p.m.	(Location #2) 7 Cottage Street 11:54 p.m. – 12:24 a.m.	(Location #3) Intersection of W 9th Street and Lark Street 12:32 a.m. – 1:02 a.m.
Broadband (dBA)			
Background (L_{90})	49.9	45.6	44.4
Octave Band L_{90} (dB)			
16 Hz	57.5	50.0	48.8
32 Hz	59.5	52.7	50.3
63 Hz	57.6	52.6	51.5
125 Hz	52.9	47.2	46.7
250 Hz	49.2	44.9	43.2
500 Hz	46.7	42.2	41.6
1000 Hz	46.8	42.9	41.2
2000 Hz	37.5	32.5	30.9
4000 Hz	23.2	15.3	17.2
8000 Hz	15.0	13.2	13.5
16000 Hz	15.2	13.9	14.1
Pure Tone?	No	No	No

4.3.4 Reference Data and Candidate Mitigation Measures

The mechanical systems for the Proposed Project are in the early design stage. Typical sound power data for the equipment of the expected size and type for the Project have been used in the acoustic model to represent the Project's mechanical equipment. The sound levels from all potential significant Project noise sources are discussed in this section.

The design for the Proposed Project is expected to include the following significant mechanical equipment:

- (50) Air Cooled Condensing Units
- (4) Mitsubishi VRF systems
- (1) 4-Ton Roof Top Unit Carrier

The equipment listed above, which will be located on the building rooftop, was included in the noise impact analysis. The Project's traffic was not included in the noise analysis because motor vehicles are exempt under both the City of Boston and Massachusetts DEP noise regulations.

The sound generation profiles for the mechanical equipment noise sources operating concurrently under full-load conditions were used to determine the maximum possible resultant sound levels from the Project Site as a whole, to define a worst-case scenario. To be in compliance with City and DEP regulations, the resultant sound level must not exceed the allowable octave band limits in the City of Boston noise regulation and must be below the allowable incremental noise increase, relative to existing noise levels, as required in the DEP Noise Policy.

This sound level impact analysis was performed using sound generation data for representative equipment to demonstrate compliance with noise regulations. As the building design evolves, the sound generation for the actual equipment selected may differ from the values that were utilized for the analysis.

4.3.5 Calculated Future Sound Levels

Methodology

Future maximum sound levels at the upper floors of all existing residences bordering the Project, and at the nearest residential property lines, were calculated with acoustic modeling software assuming simultaneous operation of all mechanical equipment at their maximum loads.

The Cadna-A computer program, a comprehensive 3-dimensional acoustical modeling software package was used to calculate Project generated sound propagation and attenuation.[4] The model is based on ISO 9613, an internationally recognized standard specifically developed to ensure the highly accurate calculation of environmental noise in an outdoor environment. ISO 9613 standard incorporates the propagation and attenuation of sound energy due to divergence with distance, surface and building reflections, air and ground absorption, and sound wave diffraction and shielding effects caused by barriers, buildings, and ground topography.

Receptors

The closest/worst-case sensitive (residential) location is to the south of the project area at Frederick Street Condos. This location was selected based on the proximity of the equipment (smaller distances correspond to larger noise impacts) and the amount of shielding by the project (residences further from the project will experience less shielding from the Project's rooftop mechanical equipment, which may result in larger potential noise impacts from the Project). This location is expected to receive the largest sound level impacts from the Project's rooftop mechanical equipment. It can be classified as a residential zone.

The sound level impacts from the building's mechanical equipment were predicted at the closest residential location, as well as additional residential uses to the east (7 & 9 Frederick Street), south and north (1,3,5 &7 Cottage Street) Figure 1 in Appendix C shows the locations of the

[4]Cadna-A Computer Aided Noise Abatement Program, Version 4.3

modeled noise receptors. Noise impacts at other nearby noise-sensitive locations (residences, parks, etc.) farther from the Project Site will be less than those predicted for these receptors.

4.3.6 Compliance with State and Local Noise Standards

The City of Boston and DEP noise standards apply to the operation of the mechanical equipment at the proposed Project. The details of the noise predictions are presented in **Tables 4.3-5** through **4.3-11**. The sound impact analysis includes the simultaneous operation of the Project's rooftop HVAC equipment. The predicted sound levels are worst-case predictions that represent all hours of the day, as the analysis assumes full operation of the mechanical equipment 24-hours a day. The typical sound level impacts from the mechanical equipment will likely be lower than what is presented here, since most of the mechanical equipment will operate at full-load only during certain times of the day and during the warmer months of the year, it is not likely that all of the mechanical equipment will operate at the same time. Sound level impacts at locations farther from the Project (e.g. other residences, etc.) will be lower than those presented in this report.

City of Boston Noise Standards

The noise impact analysis results, presented in **Tables 4.3-5** through **4.3-11**, reveal that the sound level impact at the upper floors of the closest residences will be between 33.3 and 36.5 dBA. The smallest sound level impact of 33.3 dBA is predicted to occur at 9 Frederick Street. The largest sound level impact of 36.5 dBA is predicted to occur at 5 Cottage Street. Noise impacts predicted at all locations are in compliance with the City of Boston's nighttime noise limit (50 dBA) for a residential area. Note that sound levels from the Project will be below the residential nighttime limits at all times. The results also demonstrate compliance with the City of Boston, residential, non-daytime, octave band noise limits at both closest locations.

The City of Boston noise limits for business areas are significantly higher than the nighttime noise limits for residential areas (see **Table 4.3-3**). The Project will also easily comply with the City of Boston business area noise limits at all surrounding commercial properties.

Massachusetts DEP Noise Regulations

The predicted sound level impacts at the worst-case residential locations were added to the measured L_{90} value of the quietest daily hour to test compliance with DEP's noise criteria. Assuming the Project's mechanical noise is constant throughout the day, the Project will cause the largest increase in sound levels during the period when the lowest background noise occurs. Minimum background sound levels (diurnal) typically occur between 12:00 a.m. and 5:00 a.m.

The predicted sound level impacts at the upper floors of the closest residences were added to the L_{90} values measured during the period with the least amount of background noise to test compliance with DEP's noise criteria. The predicted noise impacts at the property line and the closest residences were added to the most-representative measured L_{90} values to determine the

largest possible increase in the sound level at each location during the quietest hour at the Project Site.

As shown in **Tables 4.3-5** through **4.3-11**, the Project is predicted to produce a less than 1 dBA change in the background sound levels at all modeled locations. Therefore, the Project's worst-case sound level impacts during the quietest nighttime periods will be in compliance with the DEP allowed noise increase of 10 dBA. The noise predictions for each octave band indicate that the mechanical equipment will not create a pure tone condition at any location.

Table 4.3-5. Estimated Future Sound Level Impacts – Anytime Frederick St. Condos (Closest/Worst Case Residence) – Location R1

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	41
63 Hz	67	40
125 Hz	61	38
250 Hz	52	33
500 Hz	46	30
1000 Hz	40	32
2000 Hz	33	22
4000 Hz	28	14
8000 Hz	26	7
Broadband (dBA)	**50**	**33**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	49.9
200-204 Old Colony Avenue Project*	33.8
Calculated Combined Future Sound Level	50.0
Calculated Incremental Increase	+0.1
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-6. Estimated Future Sound Level Impacts – Anytime 7 Cottage St. – Location R2

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	40
63 Hz	67	39
125 Hz	61	37
250 Hz	52	33
500 Hz	46	30
1000 Hz	40	32
2000 Hz	33	22
4000 Hz	28	14
8000 Hz	26	7
Broadband (dBA)	**50**	**33**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	45.6
200-204 Old Colony Avenue Project*	34.5
Calculated Combined Future Sound Level	45.9
Calculated Incremental Increase	+0.3
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-7. Estimated Future Sound Level Impacts – Anytime, 5 Cottage St. – Location R3

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	39
63 Hz	67	39
125 Hz	61	37
250 Hz	52	33
500 Hz	46	32
1000 Hz	40	34
2000 Hz	33	25
4000 Hz	28	18
8000 Hz	26	11
Broadband (dBA)	**50**	**35.3**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	45.6
200-204 Old Colony Avenue Project*	36.5
Calculated Combined Future Sound Level	46.1
Calculated Incremental Increase	+0.5
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-8. Estimated Future Sound Level Impacts – Anytime, 3 Cottage St. – Location R4

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	38
63 Hz	67	37
125 Hz	61	35
250 Hz	52	32
500 Hz	46	30
1000 Hz	40	32
2000 Hz	33	23
4000 Hz	28	16
8000 Hz	26	8
Broadband (dBA)	**50**	**33**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	45.6
200-204 Old Colony Avenue Street Project*	34.5
Calculated Combined Future Sound Level	45.9
Calculated Incremental Increase	+0.3
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-9. Estimated Future Sound Level Impacts – Anytime, 1 Cottage St. – Location R5

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	37
63 Hz	67	36
125 Hz	61	34
250 Hz	52	30
500 Hz	46	29
1000 Hz	40	31
2000 Hz	33	22
4000 Hz	28	14
8000 Hz	26	6
Broadband (dBA)	**50**	**32**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	45.6
200-204 Old Colony Avenue Project*	33.3
Calculated Combined Future Sound Level	45.8
Calculated Incremental Increase	+0.2
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-10. Estimated Future Sound Level Impacts – Anytime, 9 Frederick St. – Location R6

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	42
63 Hz	67	40
125 Hz	61	36
250 Hz	52	32
500 Hz	46	29
1000 Hz	40	31
2000 Hz	33	21
4000 Hz	28	13
8000 Hz	26	6
Broadband (dBA)	**50**	**32**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	45.6
200-204 Old Colony Avenue Project*	33.3
Calculated Combined Future Sound Level	45.8
Calculated Incremental Increase	+0.2
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

Table 4.3-11. Estimated Future Sound Level Impacts – Anytime, 7 Frederick St. – Location R7

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	38
63 Hz	67	37
125 Hz	61	31
250 Hz	52	26
500 Hz	46	30
1000 Hz	40	32
2000 Hz	33	21
4000 Hz	28	13
8000 Hz	26	7
Broadband (dBA)	**50**	**32**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	45.6
200-204 Old Colony Avenue Project*	34.2
Calculated Combined Future Sound Level	45.9
Calculated Incremental Increase	+0.3
Compliance with DEP Noise Policy?	Yes

* Assumes full-load operation of all mechanical equipment.
Note: DEP Policy allows a sound level increase of up to 10 dBA

4.3.7 Conclusions

Sound levels at all nearby sensitive locations and at all property lines will fully comply with the most stringent City of Boston and DEP daytime and nighttime sound level limits. This acoustic analysis demonstrates that the Project's design will meet the applicable acoustic criteria.

4.4 Stormwater Management and Water Quality

The Project will not result in an increase in impervious area. It is expected that there will be no stormwater infiltration on site due to high groundwater.

Floodplain Resiliency

The Proposed project is approximately 1,550 feet outside of the current 100-year flood zone as shown on FEMA maps. The 100-year flood is at an elevation of 10 feet and the 500-year flood is at an elevation of approximately 11feet based on NAVD 88. The ground floor elevation of the building is 11.6 feet (See **Figure 4-15. FEMA Map**).

4.5 Solid and Hazardous Waste Materials

4.5.1 Solid Waste

During the preparation of the Site, debris, including asphalt, trash, and demolition debris will be removed from the Project Site. The Proponent will ensure that waste removal and disposal during construction and operation will be in conformance with the City and DEP's Regulations for Solid Waste.

Upon completion of construction, the Project is estimated to generate approximately 76 tons of solid waste per year, based on the assumption that each of the 54 units will each generate approximately 1.4 tons per year. A significant portion of the waste will be recycled. The project will also include ambitious goals for construction waste management in order to meet the requirements for the LEED™ rating system. This strategy will divert demolition and construction waste by reusing and recycling materials.

In order to meet the requirements for the Boston Environmental Department and the LEED™ rating system, the Project will include space dedicated to the storage and collection of recyclables. The recycling program will meet or exceed the City's guidelines, and provide areas for waste paper and newspaper, metal, glass, and plastics.

4.5.2 Construction Impact

The following section describes impacts likely to result from the 200-204 Old Colony Avenue Project construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager who will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

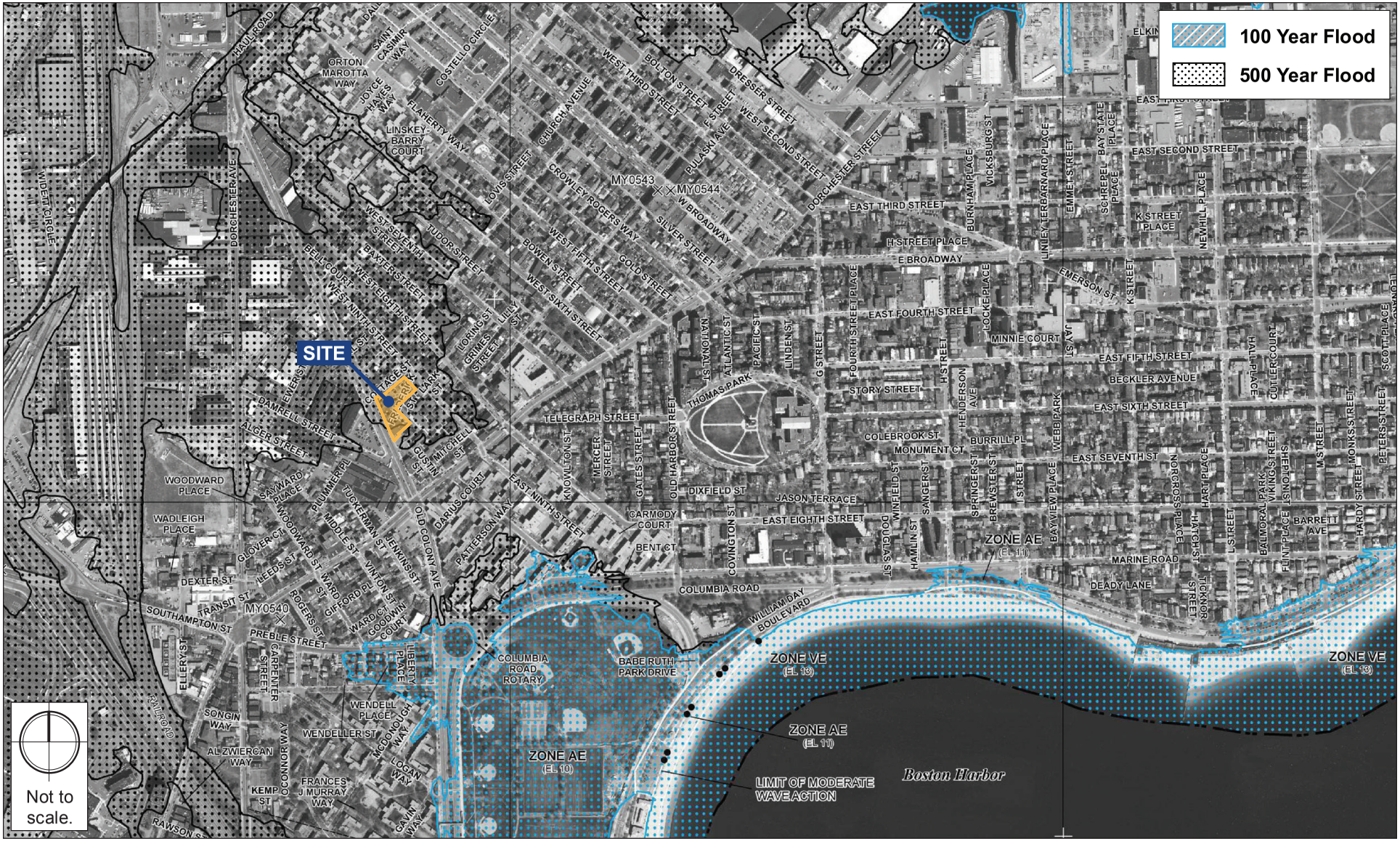


Figure 4-15

FEMA MAP

4.5.1 Construction Management Plan

The Proponent will comply with applicable state and local regulations governing construction of the Project. The Proponent will require that the general contractor comply with the Construction Management Plan, ("CMP") developed in consultation with and approved by the Boston Transportation Department ("BTD") prior to the commencement of construction. The construction manager will be bound by the CMP, which will establish the guidelines for the duration of the Project and will include specific mitigation measures and staging plans to minimize impacts on abutters.

Proper pre-construction planning with the neighborhood will be essential to the successful construction of this Project. Construction methodologies that will ensure safety will be employed, signage will include construction manager contact information with emergency contact numbers.

The Proponent will also coordinate construction with other ongoing projects in the neighborhood.

4.5.2 Proposed Construction Program

Construction Activity Schedule

The construction period for the Proposed Project is expected to last approximately 14 months, beginning in the 2nd Quarter 2019 and reaching completion in the 4th Quarter 2020. The City of Boston Noise and Work Ordinances will dictate the normal work hours, which will be from 7:00 AM to 6:00 PM, Monday through Friday.

Perimeter Protection/Public Safety

The CMP will describe any necessary sidewalk closures, pedestrian re-routings, and barrier placements and/or fencing deemed necessary to ensure safety around the Site perimeter. If possible, the sidewalk will remain open to pedestrian traffic during the construction period. Barricades and secure fencing will be used to isolate construction areas from pedestrian traffic. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to ensure pedestrian safety.

Proper signage will be placed at every corner of the Project as well as those areas that may be confusing to pedestrians and automobile traffic.

The Proponent will continue to coordinate with all pertinent regulatory agencies and representatives of the surrounding neighborhoods to ensure they are informed of any changes in construction activities.

4.5.3 Construction Traffic Impacts

Construction Vehicle Routes

Specific truck routes will be established with BTD through the CMP. These established truck routes will prohibit travel on any residential side streets. Construction contracts will include clauses restricting truck travel to BTD requirements. Maps showing approved truck routes will be provided to all suppliers, contractors, and subcontractors. It is anticipated that all deliveries will be via Old Colony Avenue directly to the site and facilitated by a police detail.

Construction Worker Parking

The number of workers required for construction of the Project will vary during the construction period. However, it is anticipated that all construction workers will arrive and depart prior to peak traffic periods.

Limited parking in designated areas of the Project Site and lay-down area(s) will be allowed. Parking will be discouraged in the immediate neighborhood. Further, public transit use will be encouraged with the Proponent and construction manager working to ensure the construction workers are informed of the public transportation options serving the area. Terms and conditions related to worker parking will be written into each subcontractor's contract. The contractor will provide a weekly orientation with all new personnel to ensure enforcement of this policy.

Pedestrian Traffic

The Site abuts sidewalks on two streets. Pedestrian traffic may be temporarily impacted in these areas. The Construction Manager will minimize the impact the construction of the proposed building will have and the adjacent sidewalks. The contractor will implement a plan that will clearly denote all traffic patterns. Safety measures such as jersey barriers, fencing, and signage will be used to direct pedestrian traffic around the construction site and to secure the work area.

4.5.4 Construction Environmental Impacts and Mitigation

Construction Air Quality

Construction activities may generate fugitive dust, which will result in a localized increase of airborne particle levels. Fugitive dust emission from construction activities will depend on such factors as the properties of the emitting surface (e.g. moisture content), meteorological variables, and construction practices employed.

To reduce the emission of fugitive dust and minimize impacts on the local environment the construction contractor will adhere to a number of strictly enforceable mitigation measures.

These measures may include:

- Using wetting agents to control and suppress dust from construction debris;
- Ensuring that all trucks traveling to and from the Project Site will be fully covered;
- Removing construction debris regularly;
- Monitoring construction practices closely to ensure any emissions of dust are negligible;
- Cleaning streets and sidewalks to minimize dust and dirt accumulation;
- Monitoring construction activities by the job site superintendent and safety officer; and
- Wheel-washing trucks before they leave the Project Site during the excavation phase.

Construction Noise Impacts

To reduce the noise impacts of construction on the surrounding neighborhood, a number of noise mitigation measures will be included in the CMP. Some of the measures that may be taken to ensure a low level of noise emissions include:

- Initiating a proactive program for compliance to the City of Boston's noise limitation impact;
- Scheduling of work during regular working hours as much as possible;
- Using mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously operating equipment, such as air compressors and welding generators;
- Scheduling construction activities so as to avoid the simultaneous operation of the noisiest construction activities;
- Turning off all idling equipment;
- Reminding truck drivers that trucks cannot idle more than five (5) minutes unless the engine is required to operate lifts of refrigeration units;
- Locating noisy equipment at locations that protect sensitive locations and neighborhoods through shielding or distance;
- Installing a site barricade at certain locations;
- Identifying and maintaining truck routes to minimize traffic and noise throughout the project;
- Replacing specific construction techniques by less noisy ones where feasible, e.g., using vibration pile driving instead of impact driving if practical and mixing concrete off-site instead of on-site; and
- Maintaining all equipment to have proper sound attenuation devices.

4.5.5 Rodent Control

The City of Boston enforces the requirements established under Massachusetts State Sanitary Code, Chapter 11, 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.

5.0 HISTORIC RESOURCES COMPONENT

This section provides a discussion of the history of the Project Site and the historic resources/ districts in the Project vicinity.

5.1 Historic Resources on the Project Site and Property History

A search of the Sanborn Maps as a part of the Phase 1 Environmental Site Assessment, as far back as 1899, indicate that the Site and surrounding area have been used for a mix of residential and commercial purposes for over 100-years.

In 1888, the Site contained two stables, a shed, a vacant building and a dwelling. The site was bordered to the southwest by railroad tracks, in place of what is Old Colony Avenue at the present time. Because Old Colony Avenue did not exist at that time, the address was most likely listed as Frederick Street, which ends at the Site on the 1988 map through the 1964 map. In 1899, the site contained three stables, a shed in a different location, and a small outbuilding at the rear of the building. Old Colony Boulevard was proposed parallel to the railroad tracks.

The original portion of the present day building was constructed in 1920, with an addition between 1950 and 1964, which remains at present. Uses of the property have included machinist, engineers, electric supply, retail establishments, and ambulance garage, and the existing private school focused on adult education.

By the 1923 map, one stable remained on the property, and an additional shed appeared at the rear of the dwelling. Old Colony Avenue had then replaced the railroad tracks. By 1950, only a machine shop is present, and the rest of the parcel is vacant. By 1960, the parcel had grown in size and Frederick Street was then connected to Lark Street.

According to files at the Massachusetts Historical Commission, no on-site structures are listed in the National or State Register of Historic Places, or the Inventory of Historical and Archaeological Assets of the Commonwealth. It is not expected that the Project will cause adverse impacts on any historic or architectural elements of nearby historic resources outside the Project Site.

5.2 Historic Districts and Resources

Historic resources within one-quarter-mile radius of the Proposed Project are summarized in **Table 5-1** that follows and listed on **Figure 5-1. Historic Resources**.

Table 5.1 Historic Resources in the Vicinity of the Project Site

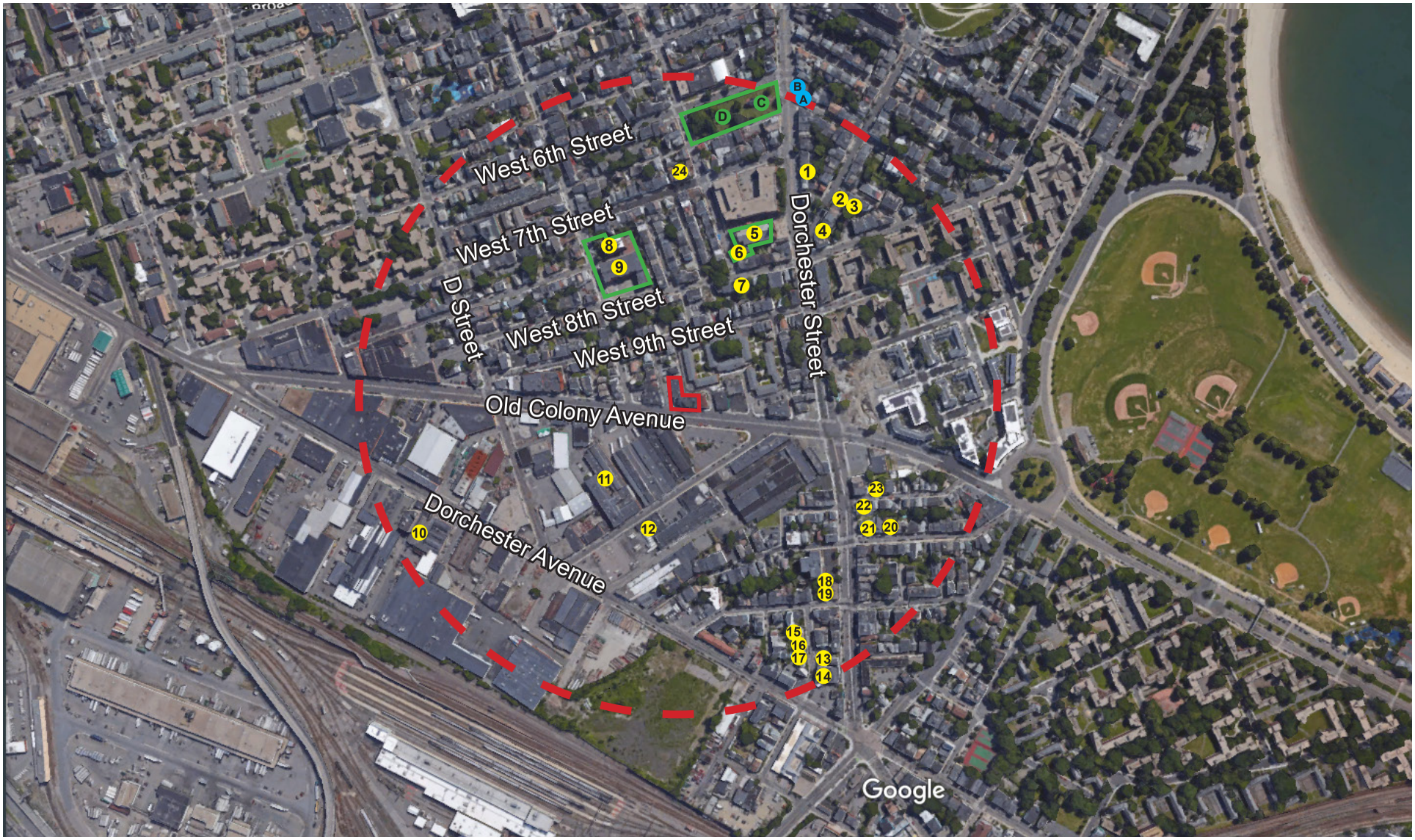
Key to Historic Resources in Figure 5-1	Historic Resource	Source of Listing
National Register of Historic Places		
A	Samuel J. F. Thayer House	MHC Inventory
B	Jeremiah Collins House	MHC Inventory
Preservation Restriction		
C	Saint Augustine Roman Catholic Chapel	MHC Inventory
D	Saint Augustine Cemetery	MHC Inventory
Properties Included the MA Inventory of Historical and Archaeological Assets		
1	William H. Mason House	MHC Inventory
2	Thomas M. Mullin- John E. Willis Double House	MHC Inventory
3	John W. Reardon House	MHC Inventory
4	Andrew Gustave Delaporte House	MHC Inventory
5	Saint Augustine Roman Catholic Church and Rectory	MHC Inventory
6	Blessed Sacrament Roman Catholic Chapel	MHC Inventory
7	Augustus King Double House	MHC Inventory
8	Saint Augustine Roman Catholic Church Convent	MHC Inventory
9	Saint Augustine Roman Catholic Parochial School	MHC Inventory
10	Norway Iron Works Machine Shop	MHC Inventory
11	S. A. Woods Woodworking Machinery Company	MHC Inventory
12	S. A. Woods Woodworking Machinery Company Stable	MHC Inventory

13	Robert Hussey House	MHC Inventory
14	Unity Unitarian Chapel - Washington Village Chapel	MHC Inventory
15	NA	MHC Inventory
16	NA	MHC Inventory
17	NA	MHC Inventory
18	Augustus C. Richmond House	MHC Inventory
19	Augustus C. Richmond House	MHC Inventory
20	NA	MHC Inventory
21	Dorchester Street Methodist Episcopal Church	MHC Inventory
22	Boston Fire House Horse Hose Company #10	MHC Inventory
23	NA	MHC Inventory
24	Mary Cunningham - Benjamin Furber Double House	MHC Inventory

The Proposed Project is not expected to have effects on any of the listed historically significant resources in **Table 5-1.**

5.3 Archaeological Resources

No known archaeological resources were located within the Project site during the review of Massachusetts Historic Commission files and MACRIS; therefore, no impacts to archaeological resources are anticipated.



MLF CONSULTING LLC

Figure 5-1. Historic Resources

6.0 INFRASTRUCTURE SYSTEMS COMPONENT

The existing infrastructure surrounding the site appears sufficient to service the needs of the Proposed Project. The following sections describe the existing sewer, water, and drainage systems surrounding the site and explain how these systems will service the development. The analysis also discusses any anticipated Project-related impacts on the utilities and identifies mitigation measures to address these potential impacts.

A detailed infrastructure analysis will be performed when the Project proceeds into the Design Development Phase. The Project's team will coordinate with the appropriate utilities to address the capacity of the area utilities to provide services for the new building. A Boston Water and Sewer Commission (BWSC) Site Plan and General Service Application is required for the new water, sanitary sewer, and storm drain connections. In addition, a Storm Water Pollution Prevention Plan will be submitted specifying best management measures for protecting the BWSC drainage systems during construction.

A Drainage Discharge Permit Application is required from BWSC for any construction dewatering. The appropriate approvals from the Massachusetts Water Resource Authority (MWRA), Massachusetts Department of Environmental Protection (MassDEP), and the U.S. Environmental Protection Agency (EPA) will also be sought.

6.1 Sanitary Sewer System

6.1.1 Existing Sewer System

The sanitary sewer system in the vicinity of the Project site is owned, operated, and maintained by BWSC (see **Figure 6-1**). There is an existing 12-inch combined sewer located in Lark Street, a 12-inch combined sewer in Frederick, one 12-inch and one 18-inch combined sewer in Old Colony Avenue.

The total sewer flow from the existing building is estimated at 1,470 per day (gpd) based on the existing building uses and design sewer flows provided in 310 CMR 12.203: System Sewage Flow Design Criteria, as summarized in **Table 6-1**.

Table 6-1. Existing Sanitary Sewer Flows

Use	Quantity	Unit Flow Rate	Estimated Maximum Daily Flow (gpd)
School	147 people	10 gpd/person	1,470 gpd
Total			**1,470 gpd**

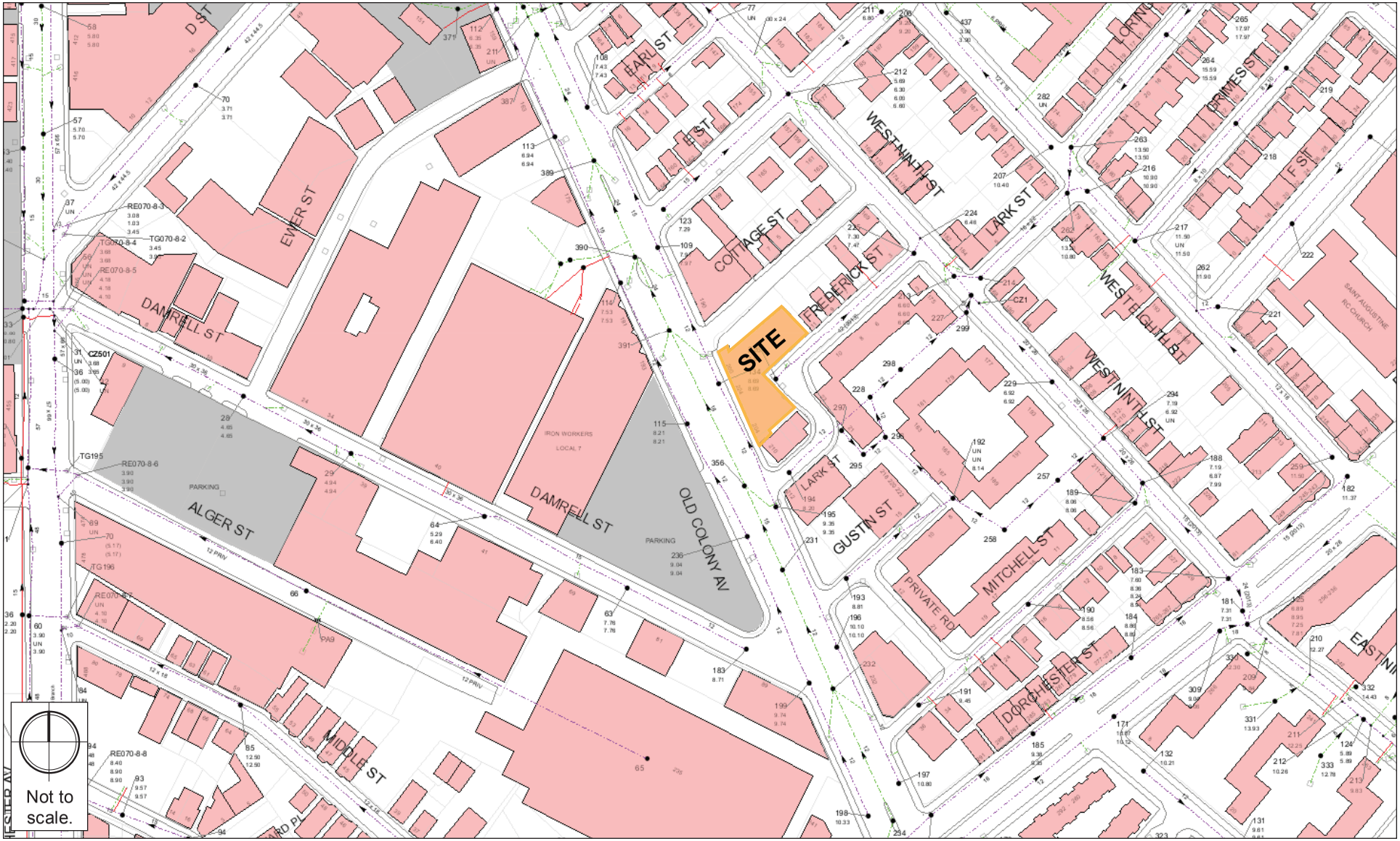


Figure 6-1
BWSC Sanitary Sewer Map

6.1.2 Project-Generated Sewage Flow

The Project will generate an estimated 13,900 gallons per day (gpd) based on design sewer flows provided in 314 CMR 7.00-Sewer System Extension and Connection Permit Program as summarized in **Table 6-2**. This is a net increase of 12,430 gpd over the estimated flows from the existing buildings.

Table 6-2. Projected Sanitary Sewer Flows

Use	Quantity	Unit Flow Rate	Estimated Maximum Daily Flow (gpd)
Residential Dwelling	113 bedrooms	110 gpd/bedroom	12,430gpd
School	147 people	10 gpd/person	1,470 gpd
Total			**13,900 gpd**

6.1.3 Sanitary Sewage Connection

It is anticipated that the sanitary services for the Project will tie into the 12-inch combined sewer in Old Colony Avenue. It is expected that the building will have one 10-inch sanitary service. The proponent will submit a Site Plan to BWSC for review and approval. All existing building services will be cut and capped at the main if the wyes are not reused.

6.1.4 Sewer System Mitigation

To help conserve water and reduce the amount of wastewater generated by the Proposed Project, the Proponent will investigate the use of water-efficient toilets, aerated shower-heads, and low-flow lavatory faucets in compliance with all pertinent Code requirements to reduce water usage and sewer generation.

6.2 Water System

6.2.1 Existing Water Service

The water distribution system in the vicinity of the Project site is owned and maintained by BWSC (see **Figure 6-2**). There is a 12-inch PCI (1909) line located in Old Colony Avenue to the west of the Project site.

According to records, the existing building has a separate domestic and fire protection water services that connect to the 8-inch DICL (2013) water main in Cottage Street. The locations of the existing water services will be confirmed as the Project moves to the Design Development phase.

There is one hydrant located in the vicinity of the Project site. The hydrant is on the west side of Old Colony Avenue located in the sidewalk opposite to the property (H 138). The Proponent will

confirm this with BWSC and the Boston Fire Department (BFD) during the detailed design phase.

The BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the site will be requested by the Proponent. If hydrant flow data is not available for any hydrants located near the project site, as the design progresses, the Proponent will request hydrant flows be conducted by the BWSC adjacent to the site. Hydrant flow data must be less than a year old to be used as a design tool. The Proponent will confirm that the flow and pressure is sufficient for the redevelopment and coordinate any proposed changes with BWSC and the Boston Fire Department (BFD) during the detailed design phase.

6.2.2 Anticipated Water Consumption

The maximum daily water demand is estimated to be 15,290 gpd based on the sewage flow estimate and an added factor for system losses including the average requirements for the Project's cooling system. More detailed water use and meter sizing calculations will be submitted to BWSC as part of the Site Plan approval process.

6.2.3 Proposed Water Service

It is anticipated that separate domestic water and fire protection services for the Project will be directly tapped from the 8-inch service main in Cottage Street. The water supply systems servicing the building will be gated so as to minimize public hazard or inconvenience in the event of a water main break. Final locations and sizes of the services will be provided on a Site Plan during the detailed design phase and submitted to BWSC for review and approval.

Water service to the building will be metered in accordance with BWSC's requirements. The property owner will provide a suitable location for a Meter Transmission Unit (MTU) as part of BWSC's Automatic Meter Reading System. Water meters over 3-inches will be provided with a bypass to allow BWSC testing without service interruption. A backflow preventer will be installed on the fire protection service and will be coordinated with BWSC's Cross Connection Control Department. Separate services will be provided for domestic use and fire protection.

6.3 Water Supply System Mitigation

As discussed in the Sewer System Mitigation Section, water conservation measures such as low-flow fixtures, aerated showerheads, and dual-flush toilets are being considered to reduce potable water usage.

6.4 Storm Drainage System

6.4.1 Existing Drainage Conditions

The storm drain system in the vicinity of the Project site is owned and maintained by BWSC (see **Figure 6-1**). There are catch basins that collect stormwater on Old Colony Avenue that connect with the street's 18-inch storm drain.

The existing building occupies a large portion of the site. Rooftop runoff from the existing building is conveyed by building service pipes to the surrounding municipal storm drain system. Runoff from parking lot and paved surfaces around the property is generally captured in off-site catch basins. There are no existing stormwater management systems that would attenuate peak flows and the Project site provides little opportunity for recharge. Very little water quality treatment is realized before these areas are drained to the municipal storm drain system.

6.4.2 Proposed Drainage Systems

The proposed building will occupy almost the entire Project site. All roof runoff will discharge to the 18-inch storm drain in Old Colony Ave.

After construction, the Project site will continue to consist primarily of impervious surfaces, associated with building roofs and the paved sidewalks surrounding the Project site. The existing drainage patterns will not change significantly as the runoff will continue to drain to surrounding municipal storm drain systems.

All storm drain system improvements will be designed in accordance with BWSC's design standards and the BWSC "Requirements for Site Plans." A Site Plan will be submitted for BWSC approval and a General Service Application will be completed prior to any off-site storm drain work. Any storm drain connections terminated as a result of construction will be cut and capped at the storm drain in the street in accordance with BWSC standards.

Erosion and sediment controls will be used during construction to protect adjacent properties and the municipal storm drain system. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system.

6.5 Water Quality

The Proposed Project is not expected to have negative impacts on the water quality of the Boston Harbor since the impervious area onsite is being slightly decreased. Erosion and sediment controls will be used during construction to protect adjacent properties and the municipal storm drain system. 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 EPA and BWSC discharge permits. Once construction is complete, the Proposed Project will be in compliance with BWSC Site Plan requirements.

6.6 Electric Systems

Eversource owns and maintains the electrical transmission system located in Old Colony Avenue. The actual size and location of the proposed building services will be coordinated with Eversource during the detailed design phase. It is anticipated that a transformer room will be provided on the first floor of the proposed building.

The Proponent is investigating energy conservation measures, including high efficiency lighting.

6.7 Telephone and Cable Systems

Verizon, Comcast, and RCN provide telephone service in the Project area. It is anticipated that telephone service can be provide by any of the providers. Any upgrades will be coordinated with the provider. Telephone systems will be reviewed with the provider as the design progresses.

Comcast and RCN provide cable and internet service in the Project area. It is expected that Comcast and/or RCN can provide services to the Project site. Any upgrade required to the services will be coordinated with the services providers.

6.8 Steam and Gas Systems

National Grid owns and maintains a 6-inch gas main in Old Colony Avenue. The Project is expected to use natural gas for heating and domestic hot water. The actual size and location of the building services will be coordinated with National Grid during the detailed design phase. Veolia Energy does not own or maintain any steam infrastructure within the vicinity of the Project site.

6.9 Utility Protection During Construction

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

7.0 TRANSPORTATION COMPONENT

7.1 Introduction

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the proposed redevelopment to be located at 200 Old Colony Avenue (the "Project" and/or "Site"), in Boston's South Boston neighborhood. This transportation study adheres to the Boston Transportation Department's (BTD) Transportation Access Plan Guidelines and the Boston Planning and Development Agency (BPDA) Article 80 development review process. The study includes an evaluation of existing condition, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity. The project is not expected to have a significant impact on the existing neighborhood or surrounding transportation facilities.

7.2 Project Description

The Project site is located at 200 Old Colony Avenue along the east side of Old Colony Avenue bounded by Cottage Street to the north, Frederick Street and the Gavin Foundation to the south, and adjacent residential buildings to the east. Andrew Station of the MBTA Red Line is located approximately one-half of a mile to the southwest of the Project site. The Project site currently consists of a two-story brick building housing the Notre Dame Education Center ("NDEC") and a single-family home located at 11 Frederick Street. The two billboards on the roof of the NDEC will be removed. The NDEC is an adult education center that helps adults earn their high school diploma or diploma equivalent, learn English, and learn other technical skills that are useful in the workplace to increase employability. The current building has eight perpendicular parking spots, and a loading area along Cottage Street to the north of the building. One hitch bicycle rack is provided near the entrance of the NDEC along Old Colony Avenue.

The Project will include the demolition of the existing building and the construction of a new six story building and one level of underground parking. The ground floor will continue to contain the NDEC, reducing the overall size from approximately 12,000 sf to 10,000 sf. The upper five floors will contain 54 new residential units. The underground parking garage will contain 23 parking spaces accessed by a car-lift along Frederick Street.

7.2.1 Study Area

The transportation study area is generally bounded by Old Colony Avenue to the west, E Street to the north, Frederick Street and Lark Street to the south, and West 9th Street to the east. The study area includes the following four intersections, shown in **Figure 7-1**:

- Old Colony Avenue/Lark Street (unsignalized);
- Old Colony Avenue/Cottage Street (unsignalized);
- Old Colony Avenue/E Street (unsignalized); and
- West 9th Street/Frederick Street (unsignalized).

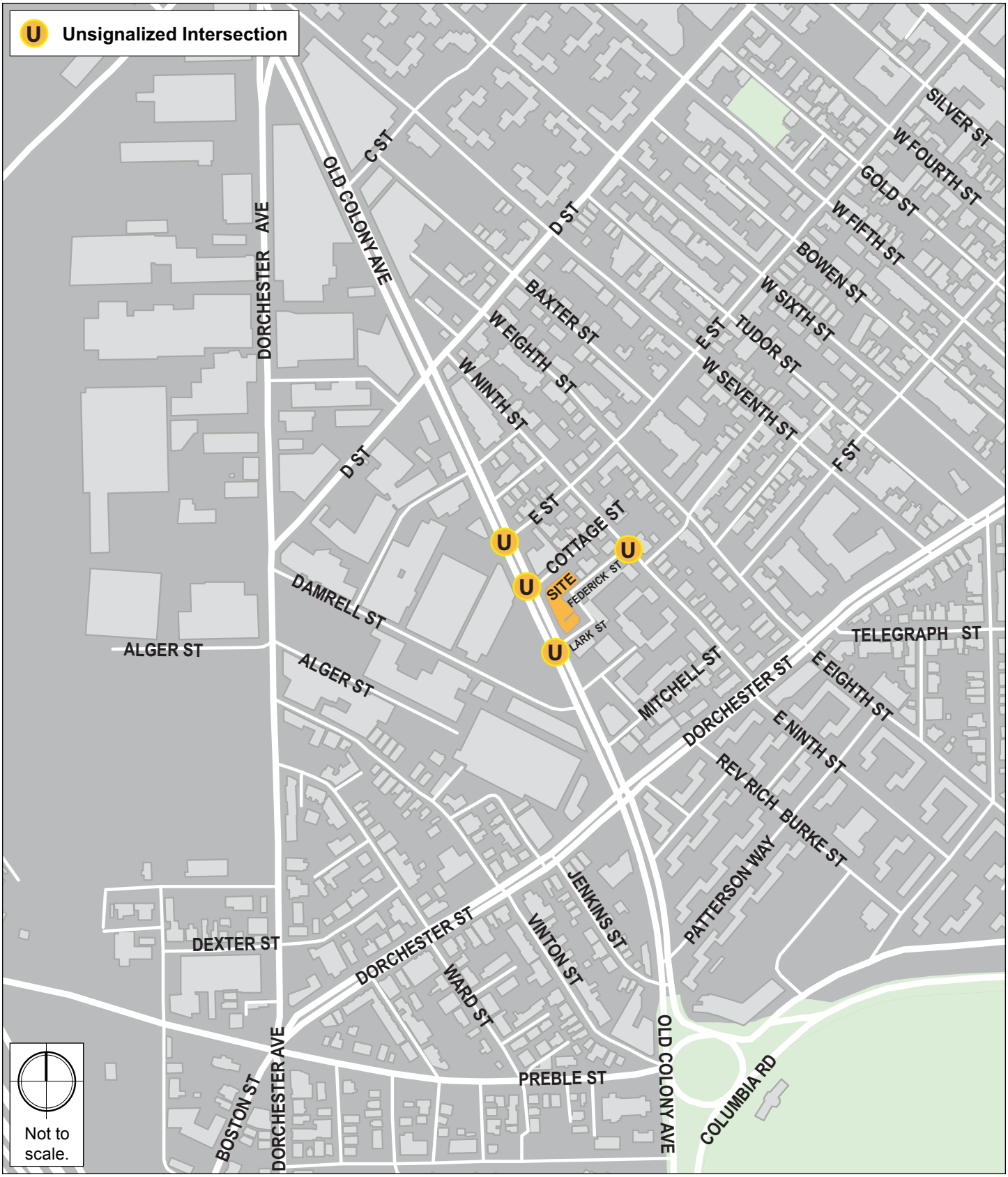


Figure 7-1.
Study Area Intersections

7.2.2 Study Methodology

The Existing (2018) Condition analysis includes an inventory of the existing transportation condition such as traffic characteristics, parking, curb usage, transit, pedestrian circulation, bicycle facilities, loading, and site condition. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. The traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation condition analysis evaluates potential transportation impacts associated with the Project. Long-term impacts are evaluated for the year 2025, based on a seven-year horizon from the year of the filing of this traffic study.

The No-Build (2025) Condition includes general background traffic growth, traffic growth associated with specific developments (not including this Project), and transportation improvements that are planned in the vicinity of the Project site.

The Build (2025) Condition includes a net increase in traffic volume due to the addition of Project-generated trip estimates to the traffic volumes developed as part of the No-Build (2025) Condition. Expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies are identified.

The final part of the transportation study identifies measures to mitigate Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety, or construction related issues that are necessary to accommodate the Project.

An evaluation of short-term traffic impacts associated with construction activities is also provided.

7.3 Existing (2018) Condition

This section includes descriptions of existing study area roadway geometries, intersection traffic control, peak-hour vehicular and pedestrian volumes, average daily traffic volumes, transit availability, parking, curb usage, and loading condition.

7.3.1 Existing Roadway Condition

The study area includes the following roadways, which are categorized according to the Massachusetts Department of Transportation ("MassDOT") Office of Transportation Planning functional classifications:

Old Colony Avenue is a two-way, four-lane roadway located adjacent to the west of the Project site. Old Colony Avenue is classified as a principal arterial roadway under the City of Boston's jurisdiction and runs predominately in a north-south direction between Dorchester Avenue to the north in South Boston and Kosciuszko Circle to the south in Dorchester. In the vicinity of the site, on-street parking and sidewalks are provided along both sides of the roadway. An at grade cobble median separates the northbound and southbound traffic.

E Street is a one-way eastbound, one-lane roadway located to the north of the Project site. E Street is classified as an urban collector roadway under the City of Boston's jurisdiction and runs in a predominately east-west direction between Old Colony Avenue to the west and Fargo Street to the east. In the vicinity of the site, on-street parking and sidewalks are provided along both sides of the roadway.

Frederick Street is a one-way westbound, one-lane roadway located adjacent to the south of the Project site. Frederick Street is classified as a local roadway under the City of Boston's jurisdiction and runs in a predominately east-west direction between W 9th Street to the east and Lark Street to the west. On-street parking is provided on the north side of the roadway. Sidewalks are provided on both sides of the road.

Lark Street is a one-way westbound, one-lane roadway located to the south of the Project site. Lark Street is classified as a local roadway under the City of Boston's jurisdiction and runs in a predominately east-west direction between Frederick Street to the east and Old Colony Avenue to the west. On-street parking is provided on the north side of the roadway. Sidewalks are provided on both sides of the road.

Cottage Street is a two-way, two-lane roadway located adjacent to the north of the Project site. Cottage Street is classified as a private roadway open to public access and runs in a predominately east-west direction between W 9th Street to the east and Old Colony Avenue to the west. Private on-street parking is provided along both sides of the roadway. Parallel parking is provided on the north side of the roadway and perpendicular parking is provided on the south side of the roadway. Sidewalks are not provided along Cottage Street.

West 9th Street is a one-way northbound, one-lane roadway located to the east of the Project site. West 9th Street is classified as a local roadway under the City of Boston's jurisdiction and runs in a predominately north-south direction between Dorchester Street to the south and D Street to the north. On-street parking and sidewalks are provided along both sides of the roadway.

7.3.2 Existing Intersection Condition

The existing study area intersections are described below. Intersection characteristics such as traffic control, lane usage, pedestrian facilities, pavement markings, and adjacent land use are described.

Old Colony Avenue/Lark Street is a three-legged, unsignalized intersection located to the south of the Project site. The Lark Street westbound approach consists of one shared left-turn/right-turn lane. The Old Colony Avenue northbound and southbound approaches consist of two through lanes. A mountable cobble median separates the northbound and southbound traffic. On-street parking is provided along all approaches to the intersection. No crosswalks are provided at the intersection, however, wheelchair ramps are provided across Lark Street.

Old Colony Avenue/Cottage Street is a three-legged, unsignalized intersection located adjacent to the north of the Project site. The Cottage Street westbound approach consists of one shared left-turn/right-turn lane. The Old Colony Avenue northbound approach consists of a through lane and a shared through/right-turn lane. The Old Colony Avenue southbound approach consists of a shared left-turn/through lane and a through lane. A mountable cobble median separates the northbound and southbound traffic. On-street parking is provided along all approaches to the intersection. No crosswalks are provided at the intersection, however, wheelchair ramps are provided across Cottage Street.

Old Colony Avenue/E Street is a three-legged, unsignalized intersection with two approaches, located to the north of the Project site. The Old Colony Avenue northbound approach consists of a through lane and a shared through/right-turn lane. The northbound right-turn maneuver is restricted between 7:00 – 9:00 a.m. The Old Colony Avenue southbound approach consists of a shared left-turn/through lane and a through lane. A concrete median separates the northbound and southbound traffic. On-street parking is provided along all approaches to the intersection. No crosswalks are provided at the intersection, however, wheelchair ramps are provided across E Street.

West 9th Street/Frederick Street is a three-legged, unsignalized intersection with one approach, located to the northeast of the Project site. The West 9th Street northbound approach consists of a shared through/right-turn lane. On-street parking is provided along all approaches to the intersection. No crosswalks are provided at the intersection, however, wheelchair ramps are provided across Frederick Street and West 9th Street.

7.3.3 Existing Parking and Curb Use

An inventory of the on-street parking in the vicinity of the Project was collected. On-street parking generally consists of South Boston resident only parking and unrestricted parking. The on-street parking regulations within the study area are shown in **Figure 7-2**.

7.3.4 Car Sharing Services

Car sharing enables easy access to short-term vehicular transportation. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location.

Car sharing, predominantly served by Zipcar in the Boston area, provides easy access to vehicular transportation for those who do not own cars. There are five nearby car sharing locations within walking distance of the Project site and are shown in **Figure 7-3.**

7.3.5 Existing Traffic Data

Traffic volume data was collected in the study area intersections on January 31, 2018. Turning Movement Counts (TMCs) were conducted during the weekday a.m. and p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively) at the study area intersections. The TMCs collected vehicle classification including car, heavy vehicle, pedestrian, and bicycle movements. Based on the TMC data, the vehicular traffic peak hours for the study area intersection are generally 7:30 a.m. – 8:30 a.m. and 4:45 p.m. – 5:45 p.m. The detailed traffic counts are provided in **Appendix D.**

In order to account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT were reviewed. The most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the January 2018 TMCs. The seasonal adjustment factor for roadways similar to the study area (Group 6 – Urban Arterials) during the month of January is 1.03. This indicates that average month traffic volumes are approximately three percent higher than the traffic volumes that were collected. The traffic counts were adjusted by three percent to reflect average month condition in order to provide a conservatively high analysis consistent with the peak season traffic volumes. The MassDOT 2011 Weekday Seasonal Factors table is provided in **Appendix D**.

7.3.6 Existing (2018) Traffic Volumes

Existing traffic volumes were balanced, where necessary, to develop the Existing (2018) Condition vehicular traffic volumes. The Existing (2018) Condition weekday a.m. and p.m. peak hour traffic volumes are shown in **Figure 7-4** and **Figure 7-5**, respectively.

Figure 7-2.
On-Street Parking

Figure 7-3.
Car Sharing Locations

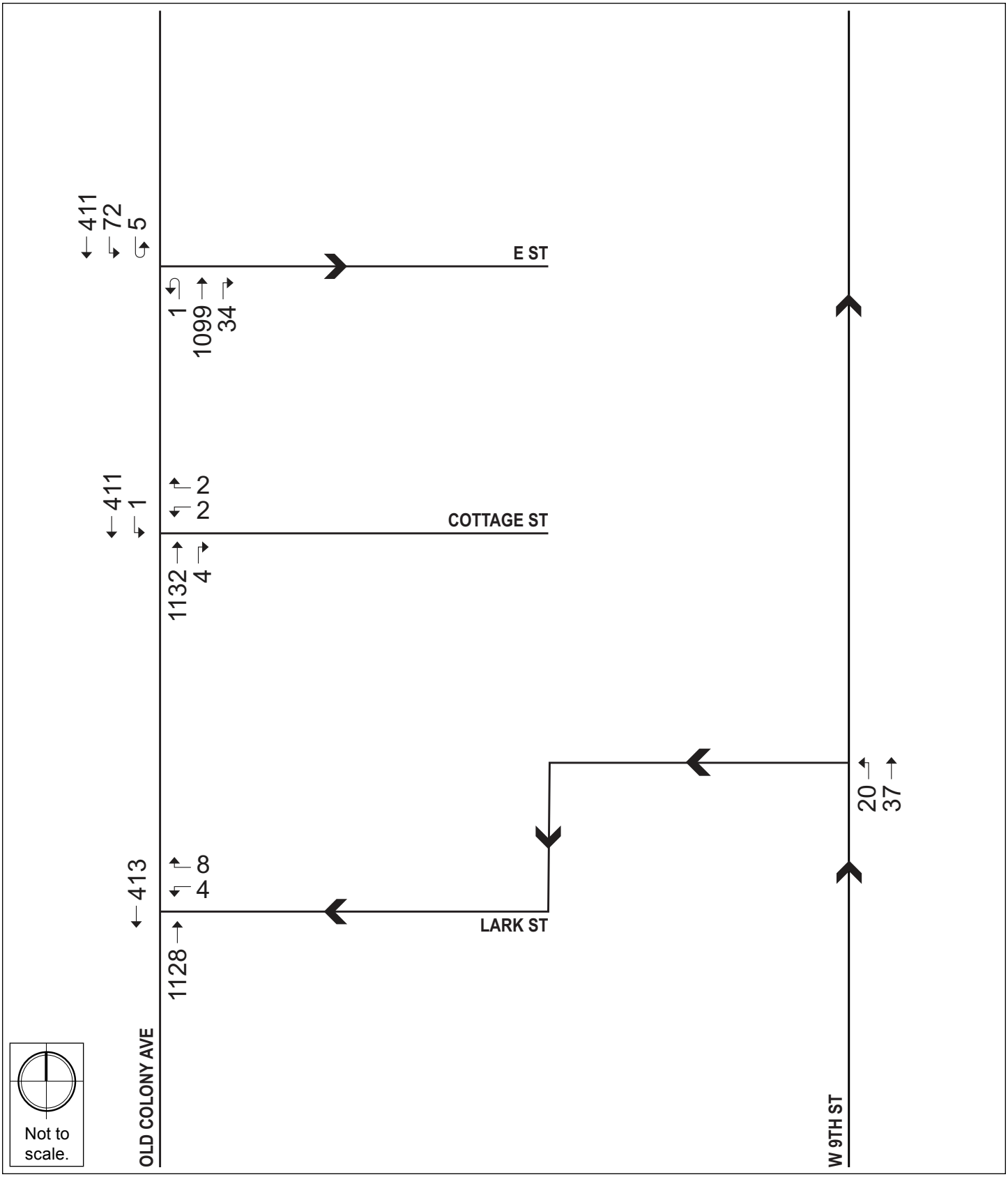


Figure 7-4.
Existing (2018) Condition Traffic Volumes, Weekday a.m. Peak Hour

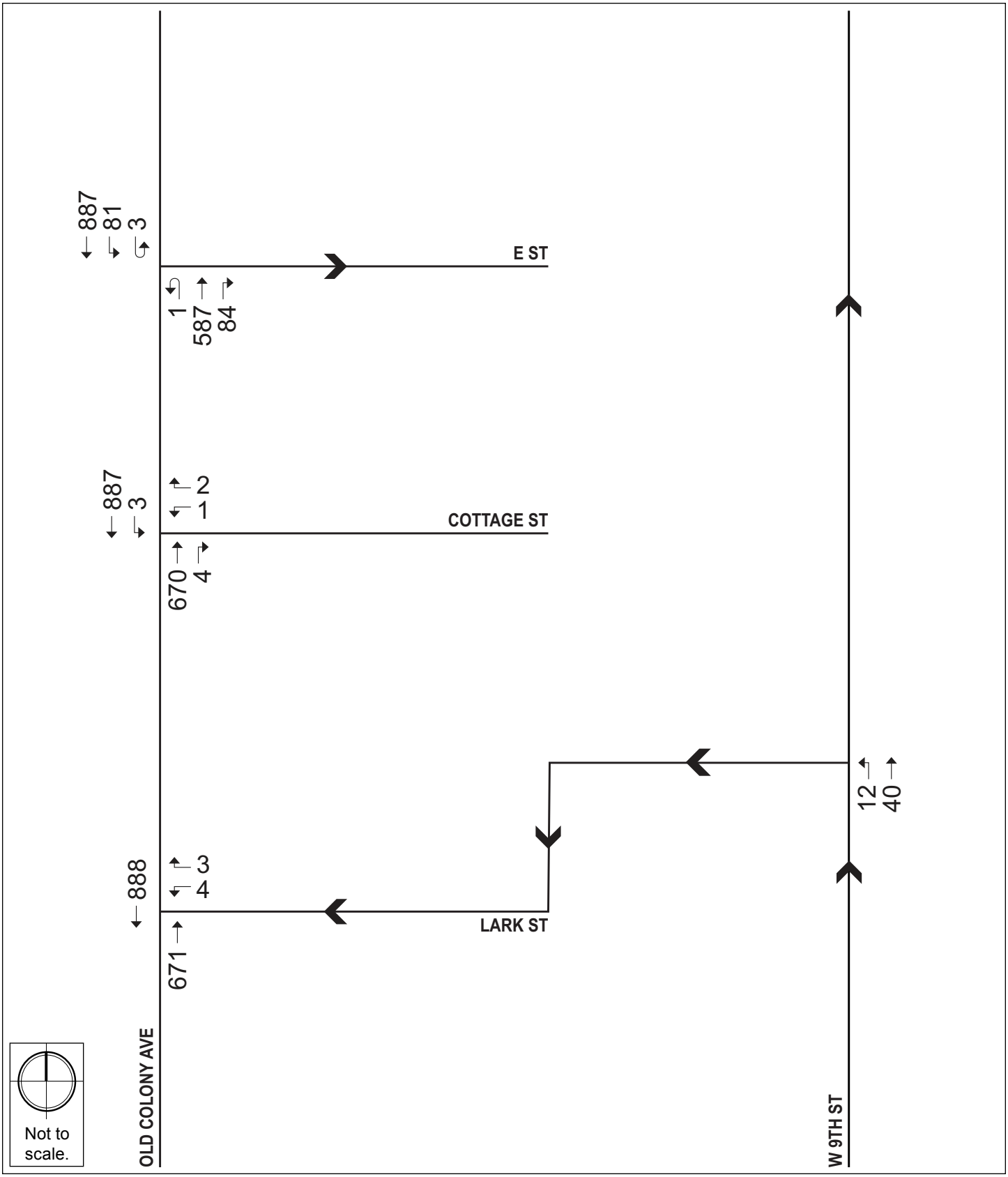


Figure 7-5.
Existing (2018) Condition Traffic Volumes, Weekday p.m. Peak Hour

7.3.7 Existing Pedestrian Condition

Sidewalks are provided along both sides of all of the roadways in the study area, with the exception of Cottage Street. In general, the sidewalks provided along nearby roadways are in good condition with few cracks and level grades. The closest crosswalks across Old Colony Avenue are located at the signalized intersection with D Street (approximately 700 ft to the north) or Dorchester Street (approximately 700 ft to the south). Wheelchair ramps are typically provided along Old Colony Avenue to cross the minor streets.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs on January 31, 2018 at the study area intersection. The weekday a.m. and p.m. peak hours pedestrian volumes are presented in **Figure 7-6**.

7.3.8 Existing Bicycle Condition

In recent years, bicycle use has increased dramatically throughout the City of Boston. The following roadways within the study area are designated bicycle routes on the City of Boston's "Bike Routes of Boston" map. Dorchester Avenue, Old Colony Avenue, W 8th Street, D Street, and Preble Street are designated as intermediate routes suitable for riders with some on-road experience. Southampton Street is designated as advanced route suitable for traffic-confident cyclists with on-road experience. Old Colony Avenue adjacent to Moakley Park to the south has buffered bike lanes and Dorchester Avenue and D Street have bike lanes and sharrows depending on the cross section.

Bicycle counts were conducted concurrent with the vehicular TMCs on January 31, 2018 and are presented in **Figure 7-7**. It is also important to note that the majority of the traffic counts were conducted in the winter months when bicycling activity is typically lower than it is during the spring and summer months.

The site is also located in proximity to bicycle sharing stations provided by Hubway. Hubway is the bicycle sharing system in the Boston area, which was launched in 2011 and consists of over 185 stations and 1,800 bicycles in four municipalities. There are three Hubway stations located in proximity to the Project site, as shown in **Figure 7-8**.

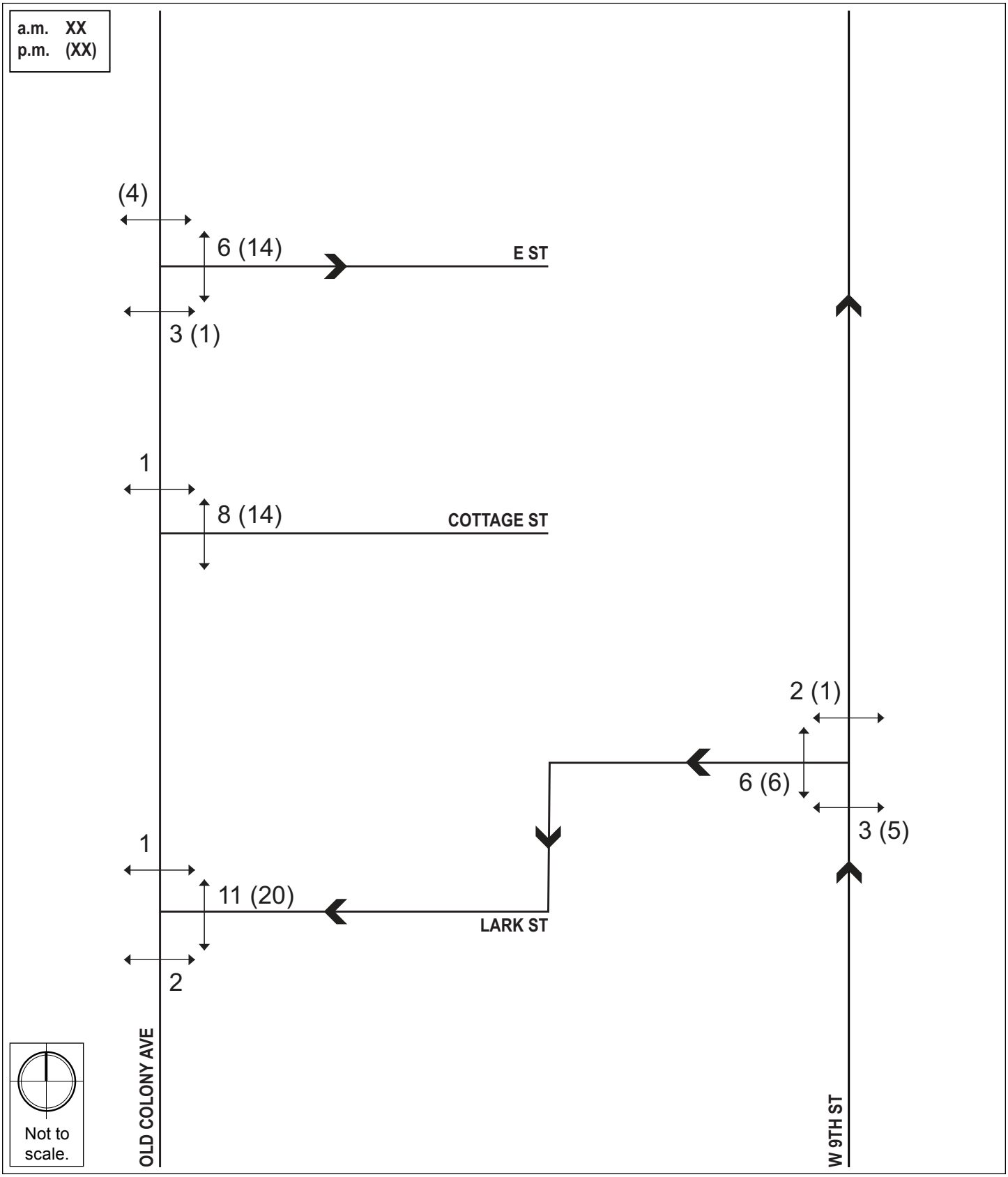


Figure 7-6.
Existing (2018) Condition Pedestrian Volumes, a.m. and p.m. Peak Hours

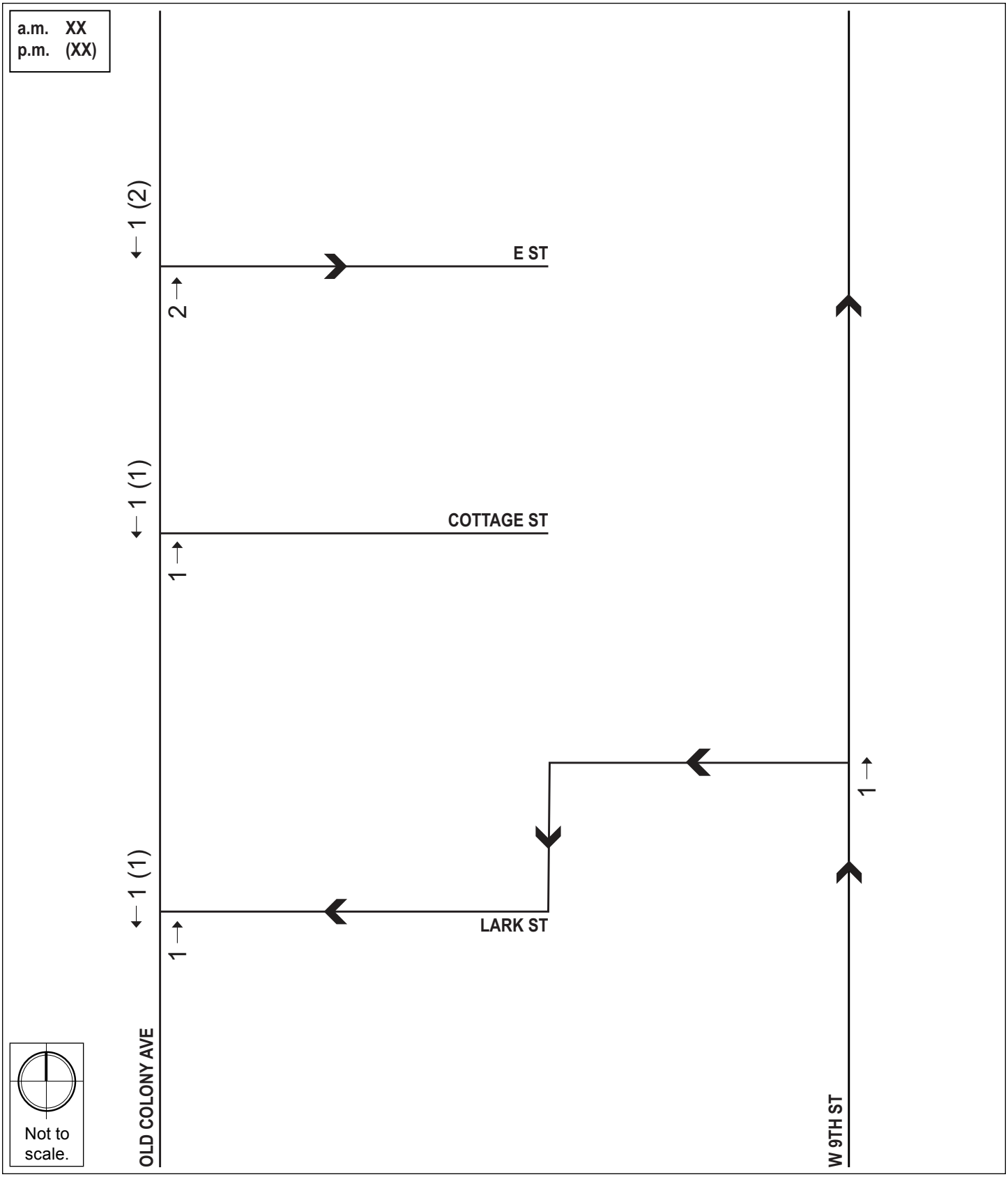


Figure 7-7.
Existing (2018) Condition Bicycle Volumes, a.m. and p.m. Peak Hours

Figure 7-8.
Bicycle Sharing Locations

7.3.9 Existing Public Transportation

The Project site is located in Boston's South Boston neighborhood with several public transportation opportunities. The Project site is in the vicinity of the MBTA's Andrew Station along with nine MBTA bus routes. Andrew Station is located within a ten-minute walk of the Project site and provides access to the MBTA Red Line and eight MBTA bus routes. **Table 7-1** describes each public transportation route located in the vicinity of the Project site, with a map of the nearby public transportation services shown in **Figure 7-9**.

MBTA Red Line – The Red Line branch of the MBTA subway system provides convenient access to downtown Boston and other neighborhoods such as Cambridge, Quincy, Braintree, Milton, Dorchester, and Mattapan. The Red Line consists of two branches operating between Alewife Station to the north and splitting at JFK/UMass to Ashmont Station or Braintree Station to the south. Andrew Station is located two stops to the south of South Station, which provides access to bus terminals, commuter rail lines, regional rail lines, and Logan Airport via the MBTA Silver Line. Both the branches operate with headways of approximately nine minutes during peak hours and runs from 5:15 a.m.to 1:12 a.m.

Table 7-1. Existing Public Transportation

MBTA Transit Service	Description	Weekday Service Duration	Peak-Hour Headway (minutes)
Rapid Transit			
Red Line	Alewife – Ashmont Alewife – Braintree	5:15 a.m. -1:12 a.m. 5:15 a.m.-1:12 a.m.	9 9
Local Bus Routes			
5	City Point – McCormack Housing	9:05 a.m.-3:24 a.m.	60
9	City Point – Copley Square	5:13 a.m.-1:13 a.m.	5
10	City Point – Copley Square	4:55 a.m.-1:31 a.m.	20
11	City Point – Downtown	5:11 a.m.-1:24 a.m.	10
16	Forrest Hills Station – Andrew Station or UMass	5:00 a.m.-1:29 a.m.	15
17	Fields Corner – Andrew Station	5:12 a.m.-10:14 p.m.	14
18	Andrew Station – Ashmont	6:30 a.m.-6:50 p.m.	30
CT3	Beth Israel Deaconess or BU Medical Campus – Andrew Station	6:05 a.m.-8:36 p.m.	20

Headway is the time between service, Headways vary.

Figure 7-9.
Existing Public Transportation

7.4 No-Build (2025) Condition

The No-Build (2025) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. Infrastructure improvements include roadway, public transportation, pedestrian, and bicycle improvements. The No-Build (2025) Condition does not include the impact of the Project.

7.4.1 Background Traffic Growth

The methodology to account for generic future background traffic growth, independent of large development projects, may be affected by changes in demographics, smaller scale development projects, or projects unforeseen at this time. Based on a review of recent and historic traffic data collected recently and to account for any additional unforeseen traffic growth, a one-half percent per year annual traffic growth rate was used.

7.4.2 Specific Development Traffic Growth

Traffic volumes associated with the larger or closer known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Five projects have been identified and were specifically accounted for in the future traffic. **Figure 7-10** show the specific development programs accounted for, which are summarized as follows:

Washington Village – This project calls for the construction of eight new buildings consisting of approximately 894,600 sf of space. The total development will include approximately 98,600 sf of retail space including a grocery store, 656 residential units, and 560 parking spaces. This project has been approved by the BPDA Board.

270 Dorchester Avenue – This project includes the construction of a new six-story building consisting of 114 residential units and approximately 6,520 sf of commercial space with parking for 120 vehicles in a two-level below-grade parking garage. This project has been approved by the BPDA board.

248 Dorchester Avenue – This project includes the construction of 159 hotel rooms with approximately 15,000 sf to 20,000 sf of commercial and restaurant space. This project will also provide about 60 at-grade valet parking spots. This project has been approved by the BPDA Board.

14 West Broadway – This project calls for the construction of approximately 47 residential units and 11,151 sf of commercial and restaurant space. The project will also provide 70 parking spaces in an underground garage. This project is currently under construction.

Figure 7-10.
Specific Development Projects

South Boston Boutique Hotel – This project includes the construction of a new 87,000 sf, 156-room hotel. This project will not provide on-site parking and will instead provide on-site valet service for visitors. The project is currently under construction.

7.4.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby improvement projects in the vicinity of the study area. Two improvement projects have been identified that could affect future travel patterns in the area.

Plan: South Boston Dot Avenue – In December 2016, the BPDA released the draft of the Plan: South Boston Dot Avenue. The plan provides recommendations and strategies around affordable housing, jobs and businesses, guidelines for urban design, and suggestions for improvements to transportation, connections, open space, sustainability, and the public realm. The Project site is included within the BPDA planning area.

Washington Village – The proposed Washington Village development will construct several improvements in the area to be completed within the seven-year No-Build timeframe horizon. The improvements will be completed in three phases corresponding with the construction of Washington Village. During Phase 1 it is proposed that the signalized intersection of Old Colony Avenue/Dorchester Avenue will undergo timing improvements and geometric improvements enhancing pedestrian safety. The unsignalized intersection of Old Colony Avenue/Damrell Street will undergo geometric improvements enhancing pedestrian safety. The circuit breaker at D Street is proposed to be removed enhancing circulation in the area. During Phase 2, a protected bike lane is proposed to be installed along Old Colony Avenue. Phase 3 will include geometric improvements along Dorchester Avenue.

7.4.4 No-Build (2025) Condition Traffic Volumes

The one-half percent per year annual growth rate was applied to the Existing (2018) Condition traffic volumes, then the traffic volumes associated with the background development project listed above was added to develop the No-Build (2025) Condition traffic volumes. The No-Build (2025) weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure 7-11** and **Figure 7-12**, respectively.

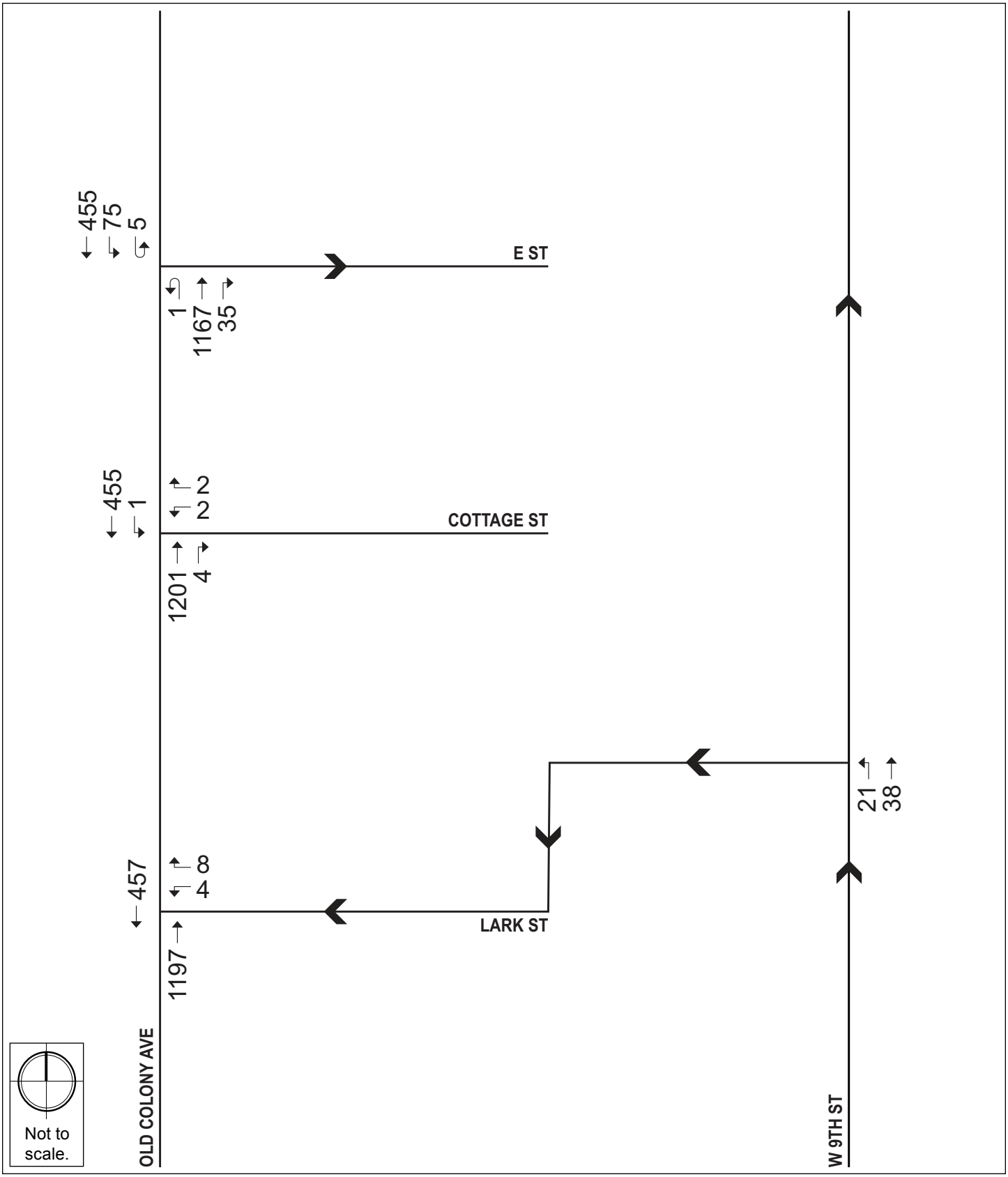


Figure 7-11.
No-Build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

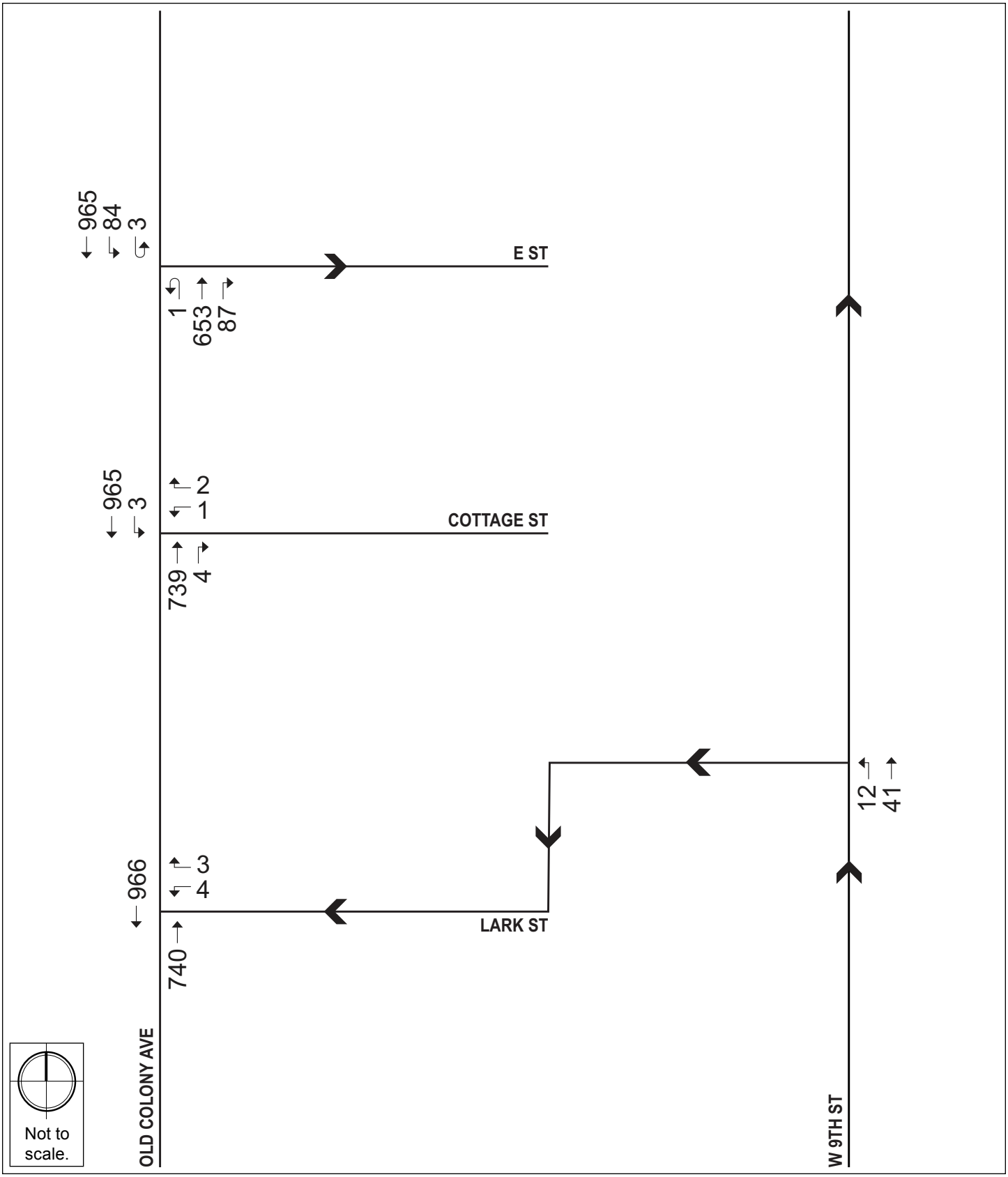


Figure 7-12.
No-Build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

7.5 Build (2025) Condition

As previously summarized, the Project will include the demolition of the existing buildings and the construction of a new six story building and one level of underground parking. The ground floor will continue to contain the NDEC, reducing the size from approximately 12,000 sf to 10,000 sf. The upper five floors will contain 54 new residential units. The underground parking garage will contain 23 parking spaces accessed by a car lift along Frederick Street.

7.5.1 Site Access and Circulation

Vehicular access will be provided along Frederick Street to the south of the site. Vehicles will access the on-site parking garage via a mechanical lift to accommodate one car at a time. The lift will bring vehicles to a below-grade parking level where they will self-park. Pedestrian access to the building will be provided via two entrances. The primary entrance will be located in the central lobby along Old Colony Avenue. A secondary pedestrian entrance will be provided along Frederick Street near the vehicle lift. The ground plan is shown in **Figure 7-13**.

7.5.2 Parking

The parking goals developed by the BTD for this section of South Boston are a maximum of 0.75 to 1.25 parking spaces per residential unit within a ten-minute walk of an MBTA station. As previously mentioned, the Project will include 39 parking spaces in a below-grade garage. Semi-automatic mechanical lifts will be used to stack vehicles to maximize the efficiency of the parking level. The 39 parking spaces results in a parking ratio of approximately 0.72 parking spaces per residential unit, consistent with the BTD parking ratio maximum for the area.

7.5.3 Loading and Service Accommodations

Residential units primarily generate delivery trips related to small packages and prepared food. The NDEC relies on daily deliveries similar to a school or office of similar size. Loading and service operations will occur on-site, located on the south side of the building along Frederick Street, adjacent to the parking garage entrance. Deliveries to the Project site will likely be limited to 36-foot-long box trucks (SU-36) or smaller delivery vehicles. Residential move-in/move-out activity will take place within the site.

Figure 7-13.
Site Plan

7.5.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents. Based on BTD guidelines, the Project will supply a minimum of 54 secure bicycle parking/storage spaces within the parking garage, at a rate of one secure indoor bicycle parking spaces per residential unit. Additional storage will be provided by outdoor bicycle racks accessible to visitors to the site in accordance with BTD guidelines.

7.5.5 Trip Generation Methodology

Determining the future trip generation of the Project is a complex, multi-step process that produces an estimate of vehicle trips, transit trips, walk trips, and bicycle trips associated with a proposed development and a specific land use program. A project's location and proximity to different travel modes determines how people will travel to and from a project site.

To estimate the number of trips expected to be generated by the Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*[5] were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel mode shares such as walking, bicycling, and transit.

To estimate the unadjusted number of vehicular trips for the Project, the following ITE land use code (LUCs) was used:

Land Use Code 221 – Multifamily Housing (Mid-Rise). Mid-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have between three and ten floors. The trip generation estimates are based on the average rate per dwelling units.

7.5.6 Existing Trip Generation Projection

The overall square footage of the NDEC will be reduced from 12,000 sf to 10,000 sf. According to the NDEC, the school will continue to generate on average approximately 250-person trips, including staff members, students, and youth groups, even though the site size of the school will be reduced. Classes run in the morning, afternoon, and evening to accommodate all day students and adults with full time jobs. According to the NDEC, a large portion of the people accessing the NDEC walk to the site from the surrounding neighborhood, some take transit, and some drive. The trip generation did not include the NDEC as the enrollment of the school and associated trips are not projected to change.

5 Trip Generation Manual, 9th Edition; Institute of Transportation Engineers; Washington, D.C.; 2012.

7.5.7 Mode Share

BTD provides vehicle, transit, and walking mode share rates for different areas of Boston. The Project is located within designated Area 8 – Inner Red Line, which includes areas along the Red Line from Broadway Station to JFK/UMass Station. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[6]. The person trips were then distributed to different modes according to the mode shares shown in **Table 7-2**.

Table 7-2. Travel Mode Shares

Land Use		*Walk/Bicycle Share[1]*	*Transit Share[1]*	*Auto Share[1]*	*Vehicle Occupancy Rate[1]*
Daily					
Residential	In	24%	23%	53%	1.13
	Out	24%	23%	53%	1.13
a.m. Peak					
Residential	In	22%	29%	49%	1.13
	Out	30%	26%	44%	1.13
p.m. Peak					
Residential	In	30%	26%	44%	1.13
	Out	22%	29%	49%	1.13

1. Based on rates published by the Boston Transportation Department for Area 8 – Inner Red Line.

The mode share percentages shown in **Table 7-2** were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates. The trip generation for the Project by mode is shown in **Table 7-3**. The detailed trip generation information is provided in **Appendix D.**

6 *Summary of Travel Trends: 2009 National Household Travel Survey*; FHWA; Washington, D.C.; June 2011.

Table 7-3. Trip Generation Summary

Land Use		*Walk/Bicycle*	*Transit*	*Private Auto*
Daily				
Residential	In	40	38	78
	Out	40	38	78
	Total	80	76	154
a.m. Peak				
Residential	In	1	2	3
	Out	5	4	6
	Total	6	6	9
p.m. Peak				
Residential	In	5	4	6
	Out	2	3	4
	Total	7	7	10

1. Based on ITE LUC 221 – Multifamily Housing (Mid-rise), 54 dwelling units, average rate.

The Project is expected to generate approximately 154 new daily vehicle trips with ten new vehicle trips (three entering and six exiting) during the weekday a.m. peak hour and ten new vehicle trips (six entering and four exiting) during the weekday p.m. peak hour. The project is also expected to generate 80 new daily pedestrian trips and 76 new daily transit trips. The trips associated with the NDEC have not been included in the calculation but are expected to remain the same due to the small decrease in education space.

7.5.8 Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 8 – Inner Red Line and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in **Figure 7-14**.

7.5.9 Build (2025) Traffic Volumes

The vehicle trips were distributed through the study area. The project-generated trips for the weekday a.m. and p.m. peak hours are shown in **Figure 7-15** and **Figure 7-16**, respectively. The trip assignments were added to the No-Build (2025) Condition vehicular traffic volumes to develop the Build (2025) Condition vehicular traffic volumes. The Build (2025) weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure 7-17** and **Figure 7-18**, respectively.

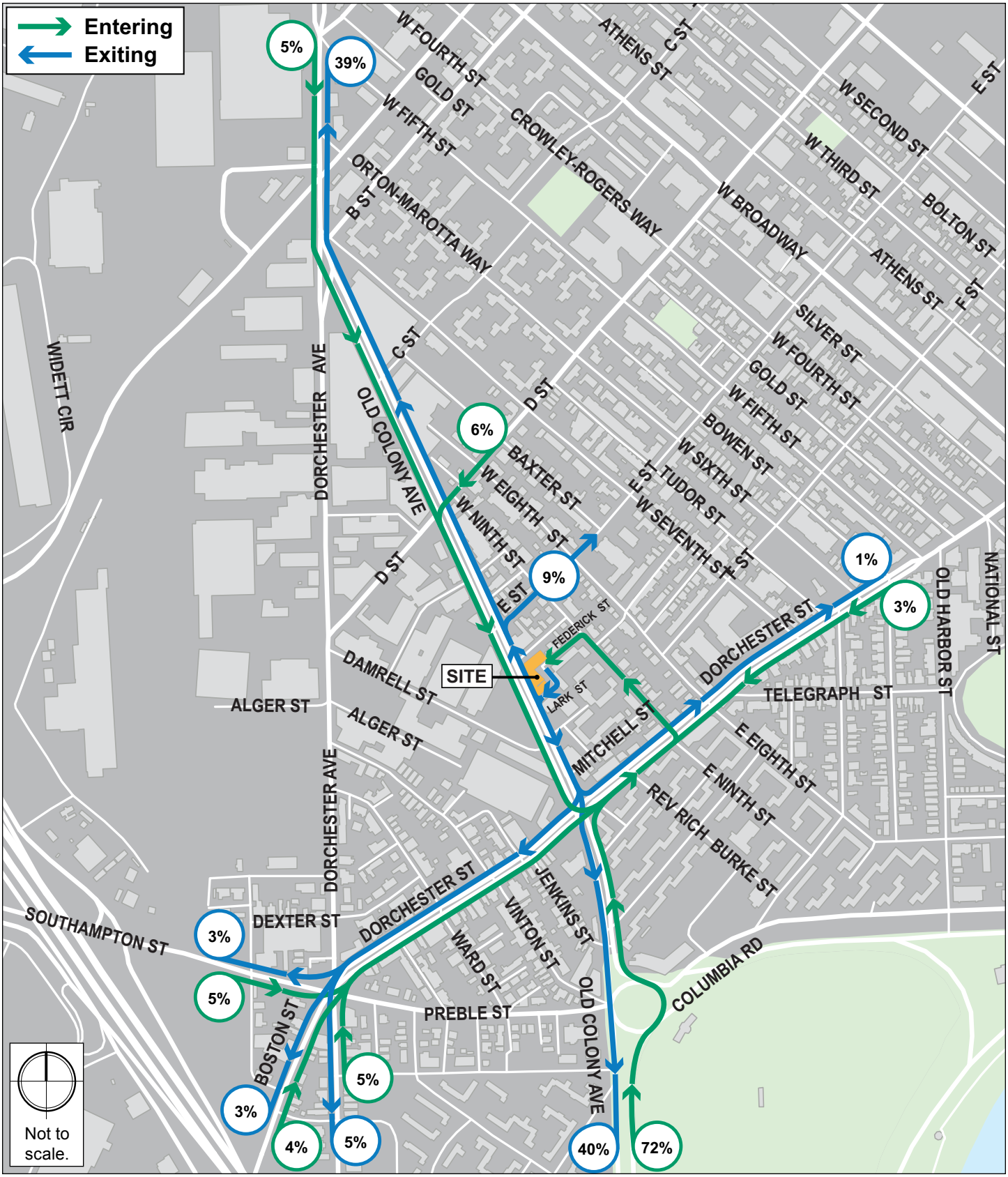


Figure 7-14.
Trip Distribution

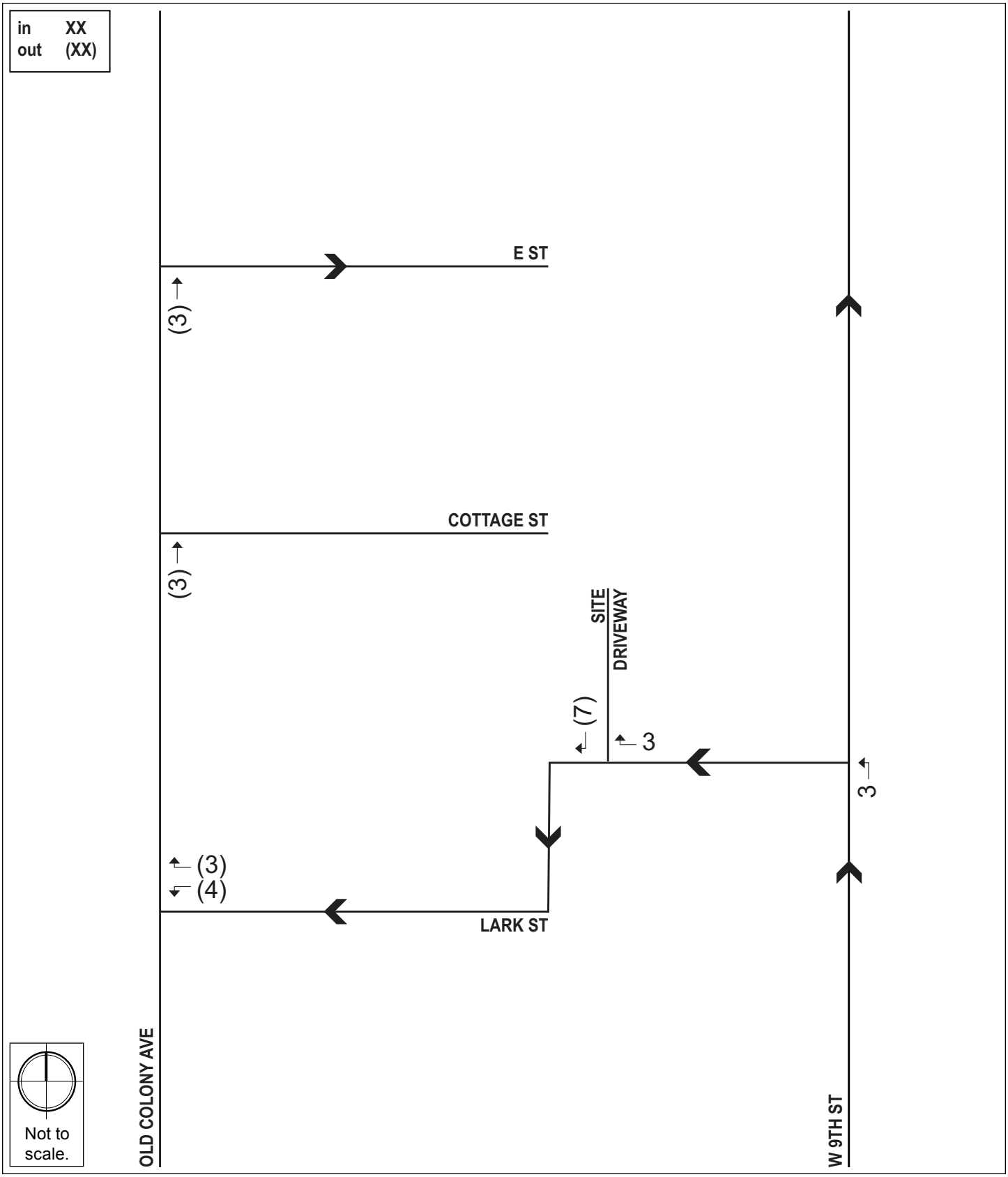


Figure 7-15.
Project Generated Vehicle Trip Assignment, Weekday a.m. Peak Hour

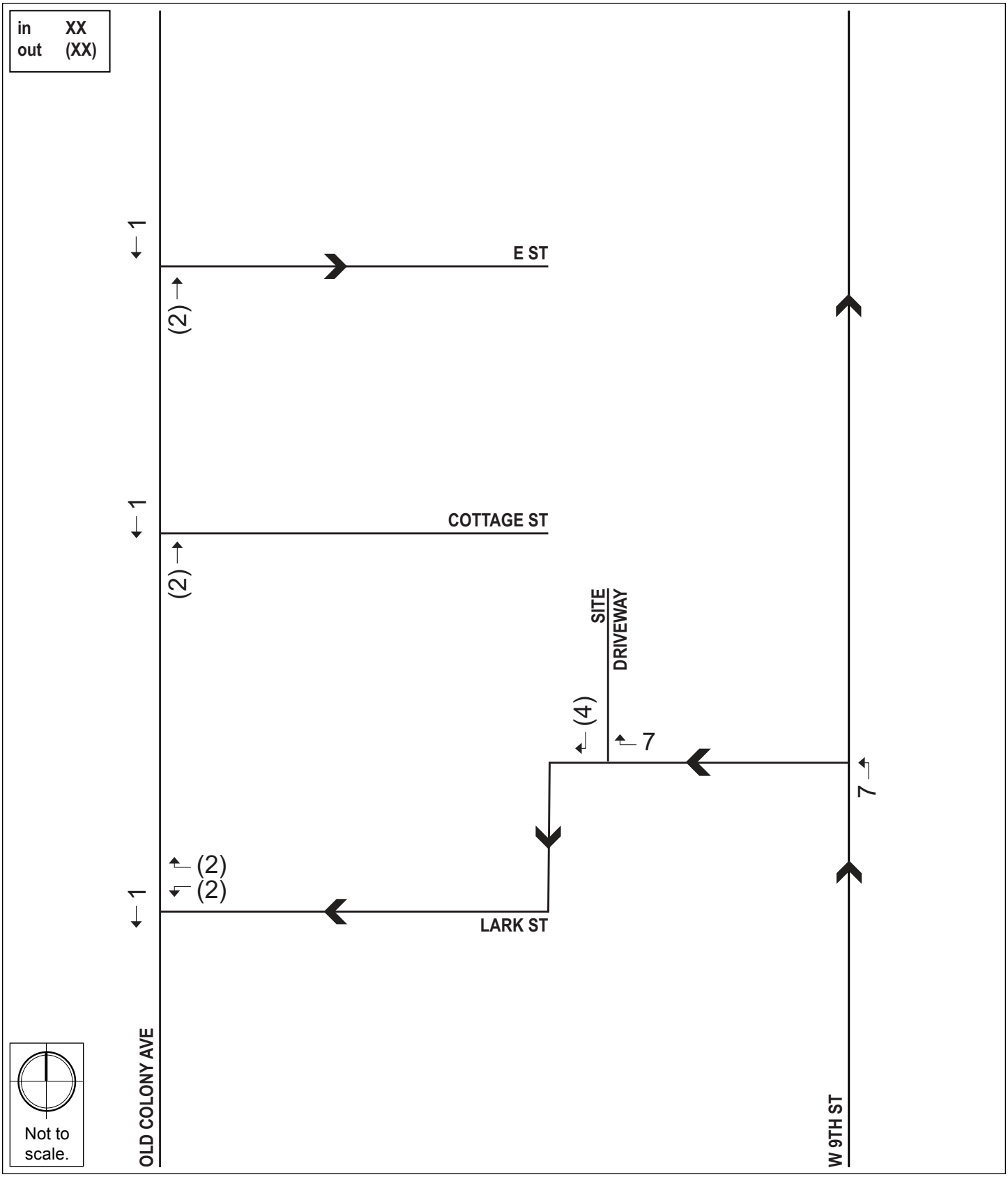


Figure 7-16.
Project Generated Vehicle Trip Assignment, Weekday p.m. Peak Hour

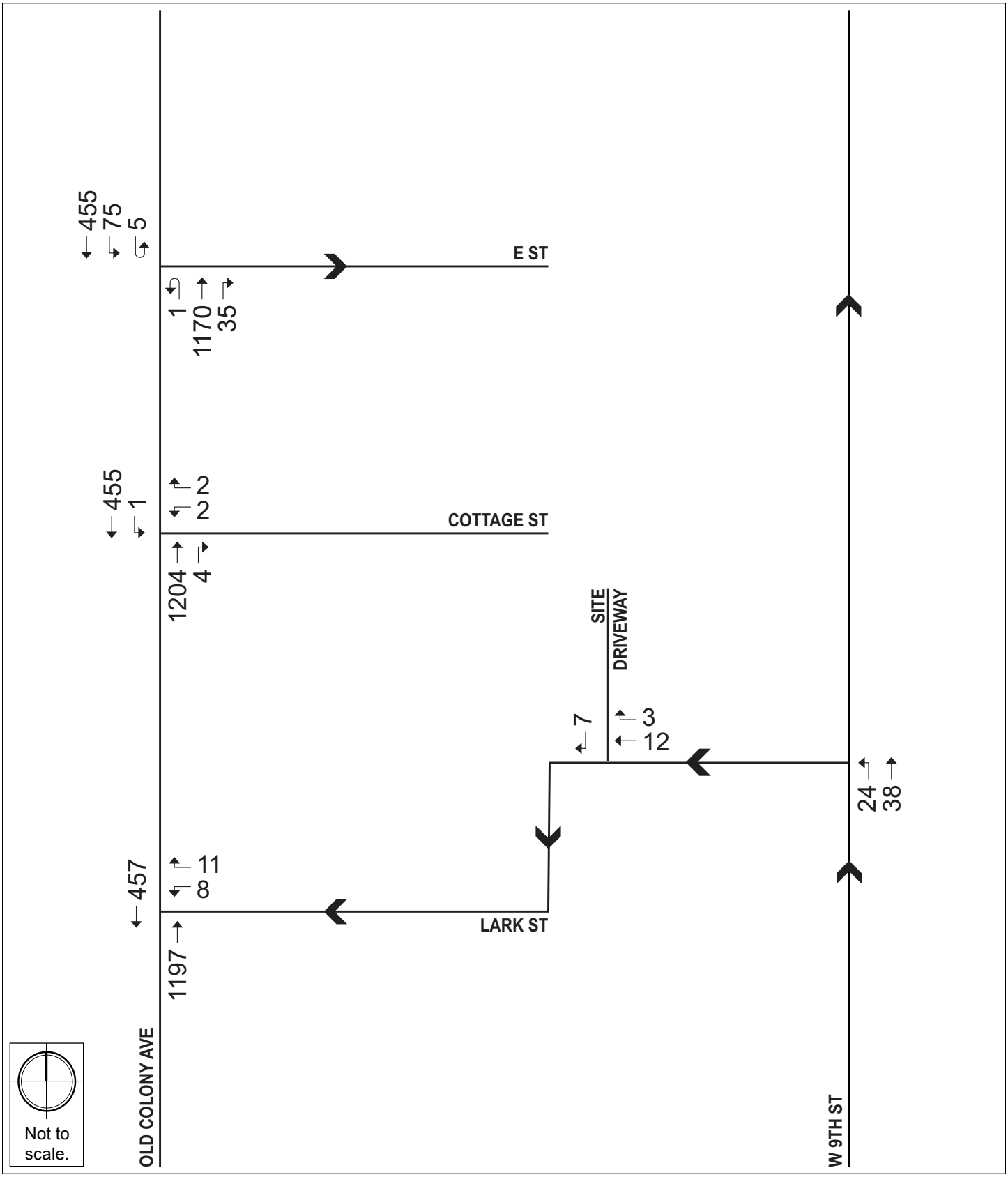


Figure 7-17.
Build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

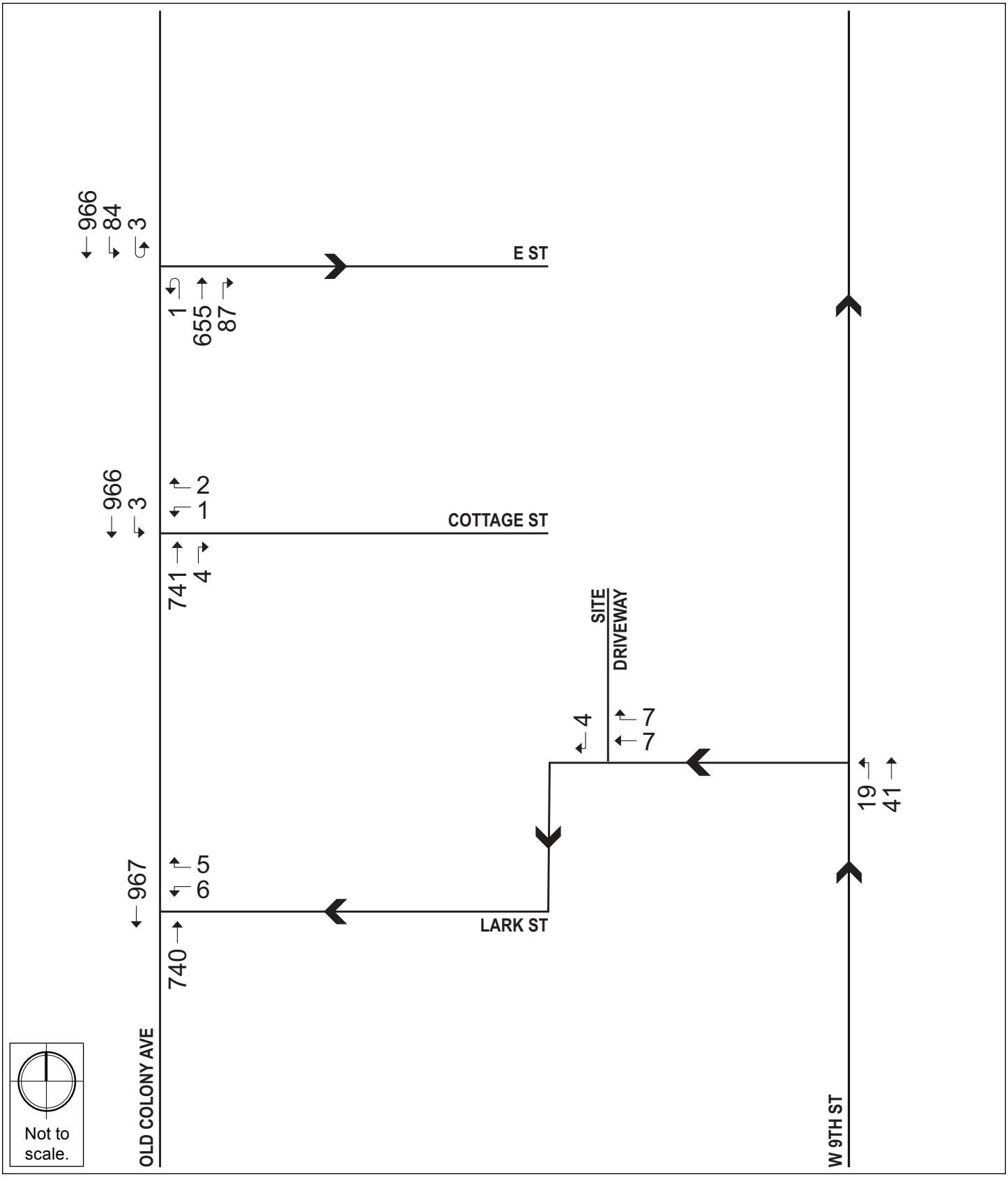


Figure 7-18.
Build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

7.6 Traffic Operation Analysis

Trafficware's Synchro (version 9) software package was used to calculate average delay and associated LOS at the study area intersections. This software is based on the traffic operational analysis methodology of the Transportation Research Board's 2010 Highway Capacity Manual (HCM).

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. **Table 7-4** displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst condition, with significant traffic delay. LOS D or better is typically considered acceptable in an urban area. However, LOS E or F is often typical for a stop controlled minor street that intersects a major roadway.

Table 7-4. Vehicle Level of Service Criteria

Level of Service	Average Stopped Delay (sec/veh)	
	Signalized Intersection	Unsignalized Intersection
A	≤10	≤10
B	>10 and ≤20	>10 and ≤15
C	>20 and ≤35	>15 and ≤25
D	>35 and ≤55	>25 and ≤35
E	>55 and ≤80	>35 and ≤50
F	>80	>50

Source: 2010 Highway Capacity Manual, Transportation Research Board.

In addition to delay and LOS, the operational capacity and vehicular queues are calculated and used to further quantify traffic operations at intersections. The following describes these other calculated measures.

The volume-to-capacity (v/c) ratio is a measure of congestion at an intersection approach. A v/c ratio below one indicates that the intersection approach has adequate capacity to process the arriving traffic volumes over the course of an hour. A v/c ratio of one or greater indicates that the traffic volume on the intersection approach exceeds capacity.

The 50th percentile queue length, measured in feet, represents the maximum queue length during a cycle of the traffic signal with typical (or median) entering traffic volumes.

The 95th percentile queue length, measured in feet, represents the farthest extent of the vehicle queue (to the last stopped vehicle) upstream from the stop line during five percent of all signal cycles. The 95th percentile queue will not be seen during each cycle. The queue would be this long only five percent of the time and would typically not occur during off-peak hours. Since volumes fluctuate throughout the hour, the 95th percentile queue represents what can be considered a "worst case" scenario. Queues at the intersection are generally below the 95th

percentile queue throughout the course of the peak hour. It is also unlikely that the 95th percentile queues for each approach to the intersection will occur simultaneously.

Table 7-5 and **Table 7-6** summarize the Existing (2018) Condition, the No-Build (2025) Condition, and the Build (2025) Condition capacity analysis for the study area intersection during the weekday a.m. and p.m. peak hours, respectively. The detailed analysis of the Synchro results is provided in **Appendix D.**

Table 7-5. Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Movement	Existing (2018) Condition				No-Build (2025) Condition				Build (2025) Condition			
	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)
Old Colony Ave/Lark St	-	-	-	-	-	-	-	-	-	-	-	-
Lark St WB left/right	C	21.9	0.12	10	C	24.2	0.13	11	D	30.1	0.24	22
Old Colony Ave NB thru | thru	A	0.0	0.36	0	A	0.0	0.38	0	A	0.0	0.38	0
Old Colony Ave SB thru | thru	A	0.0	0.12	0	A	0.0	0.14	0	A	0.0	0.14	0
Old Colony Ave/Cottage St	-	-	-	-	-	-	-	-	-	-	-	-
Cottage St WB left/right	C	24.4	0.02	2	D	27.1	0.02	2	D	27.3	0.02	2
Old Colony Ave NB thru | thru/right	A	0.0	0.48	0	A	0.0	0.51	0	A	0.0	0.51	0
Old Colony Ave SB left/thru | thru	A	0.0	0.17	0	A	0.1	0.19	0	A	0.1	0.19	0
Old Colony Avenue/E Street	-	-	-	-	-	-	-	-	-	-	-	-
Old Colony Ave NB thru | thru/right	A	0.0	0.47	0	A	0.0	0.50	0	A	0.0	0.50	0
Old Colony Ave SB left/thru | thru	A	5.4	0.17	11	A	5.7	0.15	13	A	5.7	0.15	13
W 9th Street/Frederick Street	-	-	-	-	-	-	-	-	-	-	-	-
W 9th Street NB left/thru	A	2.6	0.01	1	A	2.6	0.01	1	A	2.8	0.01	1

Gray shading indicates decrease in LOS from Existing Condition below LOS E or LOS F.

Table 7-6. Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection/Movement	Existing (2018) Condition				No-Build (2025) Condition				Build (2025) Condition			
	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)	LOS	Delay (s)	V/C ratio	95th Percentile Queue (ft)
Old Colony Avenue/Lark Street	-	-	-	-	-	-	-	-	-	-	-	-
Lark St WB left/right	C	19.4	0.05	4	C	21.8	0.05	4	C	21.2	0.08	6
Old Colony Ave NB thru | thru	A	0.0	0.20	0	A	0	0.22	0	A	0.0	0.22	0
Old Colony Ave SB thru | thru	A	0.0	0.27	0	A	0	0.29	0	A	0.0	0.29	0
Old Colony Ave/Cottage Street	-	-	-	-	-	-	-	-	-	-	-	-
Cottage St WB left/right	C	16.1	0.02	2	C	17.7	0.03	2	C	17.7	0.03	2
Old Colony Ave NB thru | thru/right	A	0.0	0.27	0	A	0.0	0.30	0	A	0.0	0.30	0
Old Colony Ave SB left/thru | thru	A	0.1	0.36	0	A	0.1	0.39	0	A	0.1	0.39	0
Old Colony Avenue/E Street	-	-	-	-	-	-	-	-	-	-	-	-
Old Colony Ave NB thru | thru/right	A	0.0	0.23	0	A	0.0	0.26	0	A	0.0	0.26	0
Old Colony Ave SB left/thru | thru	A	2.9	0.36	8	A	3.0	0.39	8	A	3.0	0.39	8
W 9th Street/Frederick Street	-	-	-	-	-	-	-	-	-	-	-	-
W 9th Street NB thru/right	A	1.7	0.01	1	A	1.7	0.01	1	A	2.3	0.01	1

As shown in Table 7-5 and Table 7-6, all of the intersections and approaches have acceptable operations (LOS D or better) under the Existing (2018) Condition, the No-Build (2025) Condition, and the Build (2025) Condition.

7.7 Transportation Demand Management

The Proponent is committed to implementing Transportation Demand Management (TDM) measures to minimize automobile usage and Project related traffic impacts. TDM will be facilitated by the nature of the Project (which does not generate significant peak hour trips) and its proximity to numerous public transit alternatives.

On-site management will keep a supply of transit information (schedules, maps, and fare information) to be made available to the residents of the building and well as staff and students of the NDEC. The Proponent will work with the City to develop a TDM program appropriate to the Project and consistent with its level of impact.

The Proponent is prepared to take advantage of good transit access in marketing the site to future residents by working with them to implement the following TDM measures to encourage the use of non-vehicular modes of travel.

The TDM measures for the Project may include but are not limited to the following:

- **Transportation Coordinator**: The Proponent will encourage building to designate a full-time, on-site employee as the transportation coordinator for the site. The transportation coordinator will oversee all transportation issues. This includes managing vehicular operations, service and loading operations, and TDM programs.
- **Information and Promotion of Travel Alternatives**: The Proponent will encourage the building to provide public transit system maps, schedules, and other information on transit services in the area;
- **Annual News Letter**: The Proponent will encourage the building to provide an annual (or more frequent) newsletter or bulletin summarizing transit, ridesharing, bicycling, alternative work schedules, and other travel options;
- **Real Time Transit Info**: he Proponent will encourage the building to provide real-time information on travel alternatives via the Internet in the building lobby.
- **Transit Pass Programs**: The Proponent will encourage the NDEC to encourage employees to use public transit or travel alternatives and will offer on-site transit pass sales and MBTA pass subsidies to full-time employees.
- **Electric Vehicle Charging**: The Proponent will explore the feasibility of providing electric vehicle charging station(s) within the garage.
- **Vehicle Sharing Program**: The Proponent will explore the feasibility of providing spaces in the garage for a car sharing service.
- **Bicycle Accommodation**: The Proponent will provide bicycle storage in secure, sheltered areas for residents and employees to encourage bicycling as an alternative mode of

transportation. Subject to necessary approvals, public use bicycle racks for visitors will be placed near building entrances.

7.8 Transportation Mitigation Measures

While the traffic impacts associated with the new trips are minimal, the Proponent will continue to work with the City of Boston to create a Project that efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. As part of the Project, the Proponent will bring all abutting sidewalks and pedestrian ramps to the City of Boston standards in accordance with the Boston Complete Streets design guidelines. This will include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps, improvements to street lighting where necessary, planting of street trees, and providing bicycle storage racks surrounding the site, where appropriate.

The Proponent is responsible for 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. Because 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 above and any additional transportation improvements to be undertaken as part of this Project will be defined and documented in the TAPA.

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.

7.9 Evaluation of Short-Term Construction Impacts

Most construction activities will be accommodated within the current site boundaries. 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 Construction Management Plan to be filed with BTD in accordance with the City's transportation maintenance plan requirements. The Construction Management Plan will document all committed measures and will be executed with the City prior to commencement of construction.

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

- Limited construction worker parking on-site;
- Encouragement of worker carpooling;
- Consideration of a subsidy for MBTA passes for full-time employees; and
- Providing secure spaces on-site for workers' supplies and tools so they do not have to be brought to the site each day.

8.0 COORDINATION WITH GOVERNMENTAL AGENCIES

8.1 Architectural Access Board Requirements

This Project will comply with the requirements of the Architectural Access Board. The Project will also be designed to comply with the Standards of the Americans with Disabilities Act.

8.2 Massachusetts Environmental Policy Act

Based on information currently available, development of the Proposed Project will not result in a state permit/state agency action or meet a review threshold that would require MEPA review by the MEPA Office of the Executive Office of Energy and Environmental Affairs.

8.3 Boston Civic Design Commission

The Project is not expected to exceed the 100,000 gross square feet size threshold requirement for review by the Boston Civic Design Commission.

9.0 PROJECT CERTIFICATION

This form has been circulated to the Boston Planning and Development Agency as required by Article 80 of the Boston Zoning Code.

All Saints Development, LLC

Name

May 8, 2018
Date

Mitchell L. Fischman ("MLF") Consulting LLC

Signature of Preparer
Mitchell L. Fischman, Principal

05/8/18
Date

APPENDIX A – LETTER OF INTENT TO FILE PNF, MARCH 9, 2018

A&M Adams & Morancy
COUNSELORS - AT - LAW

Via In-Hand Delivery

March 9, 2018

Brian Golden, Director
Boston Planning and Development Agency
One City Hall Square, 9th Floor
Boston, MA 02201
Attn: Raul Duverge, Project Manager

RE: Letter of Intent to File Project Notification - Article 80 Large Project Review
200-204 Old Colony Avenue, South Boston, Ward 7

Dear Director Golden:

This office represents All Saints Development, LLC (the "Proponent"), a Massachusetts Limited Liability Company and proposed owner-developer with respect to the real estate property at 200-204 Old Colony Avenue in South Boston (the "Project Site"). The purpose of this letter is to notify the Boston Planning and Development Agency (the "BPDA") of the Proponent's intent to file an Expanded Project Notification Form (the "PNF") with the BPDA pursuant to Article 80B, Large Project Review, of the Boston Zoning Code (the "Code").

Our client's project contemplates the construction of a new mixed-use building to contain approximately 55 residential apartment units on floors two through five, and approximately 9,500 gross square feet of adult educational space on the first floor, with a total project floor area of approximately 70,000 square feet, served by at least 26 garage parking spaces, including an automobile elevator to a lower-level garage accessed from Frederick Street (the "Proposed Project").

The ground floor space will be deeded by the Proponent to the current owner/occupant of the Premises, the Notre Dame Education Center (the "NDEC"), a comprehensive adult education center that has been operating in South Boston since 1992. Since its inception, NDEC has provided more than 9,000 adults from all over the Boston area the skills they need to make a better life, including such programs as the Workforce Readiness Initiative, Adult Basic Education, an Alternative High School Diploma Program, ESOL and LEAD classes for immigrants learning English, and U.S. citizenship classes.

The scope and scale of the Proponent's residential program is intended to further the residential policy goals of Boston Mayor Walsh's 2030 Housing Plan, and the proposed design is

expected to be in conformity with the BPDA's South Boston Dorchester Avenue Planning Initiative.

The Project Site 12,574 of land occupied by an existing two-story commercial brick building, bounded to the north by Cottage Street, to the south by Lark Street, to the west Old Colony Avenue, and to the east by Frederick Street. The nearby neighborhood is a mix of commercial/retail, residential, and office uses. The Project Site is service by the MBTA's Nos. 5, 10 and 11 bus routes, and by the Andrew Square Red Line rapid transit station is a 5-minute walk from the proposed site, providing connections to South Station and downtown Boston and points north to Cambridge and south to Quincy. The context of the immediate area is supportive and well-suited for the proposed scale and scope of the Proposed Project. It includes several buildings of four to six stories in height. Please see Figure 1 - Project Locus.

The Project Site is located within an M-1 restricted manufacturing zoning district under the base Code and will therefore require several variances from the terms of the currently applicable Code sections. More significant, the Project Site is within the area of the South Boston Dorchester Avenue Planning Initiative, a planning initiative (the "Plan") commenced by the BPDA and the City of Boston for the purpose of ensuring that the 144 acres of the Study Area are strategically planned for a broader type of uses and a scale of development best suited to the future growth of the Dorchester Avenue corridor. A product of months of intensive participation by a broad group of area residents, property owners, business owners, advocates, public agencies, and other stakeholders, the Plan, as already approved by the BPDA Board of Directors, details a framework for new zoning for the area that will allow for future growth in a manner that is consistent with the community's vision. The development team has taken great care to work within the applicable framework of the Plan, with respect to building height, density, setbacks, parking, and design, in order to achieve a Proposed Project that lives up to the objectives of the Plan. While 26 garage parking spaces are currently programmed, the final amount of off-street parking and loading will be reviewed and determined by the BPDA pursuant to the provisions of the Article 80B Large Project review process.

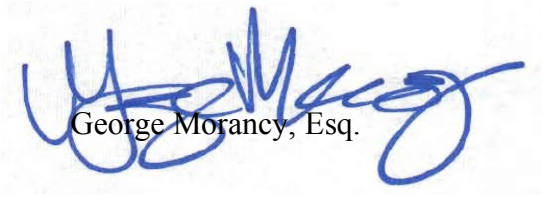
The Proposed Project exceeds the 50,000 square foot total build-out size requirement for a project in a Boston neighborhood and, therefore, will require preparation of filings under the Large Project Review regulations, pursuant to Article 80B of the Code. The Expanded PNF filing is expected to address many issues normally presented in a Draft Project Impact Report ("DPIR") including a transportation analysis, and air and noise, shadow, infrastructure, historic resources, and other environmental evaluations, that will help explain potential impacts from the Proposed Project, and any needed mitigation measures to reduce those impacts.

Prior to submitting this Letter of Intent, our client conducted extensive preliminary community outreach to seek initial input and support for the Proposed Project, including meeting with South Boston's elected officials at Boston City Hall, and going door-to-door in the immediate vicinity of the Project Site, and we look forward to continuing to process and shape the Proposed Project with this most important constituency.

We thank you for your time and attention to this matter, and our team looks forward to working with your staff, members of the Impact Advisory Group to be formed, local officials,

and the community at large towards a realizing a successful outcome for South Boston and the City as a whole. With that in mind, please also do not hesitate to contact me if you have any questions, or if I can provide any additional information.

Very truly yours,

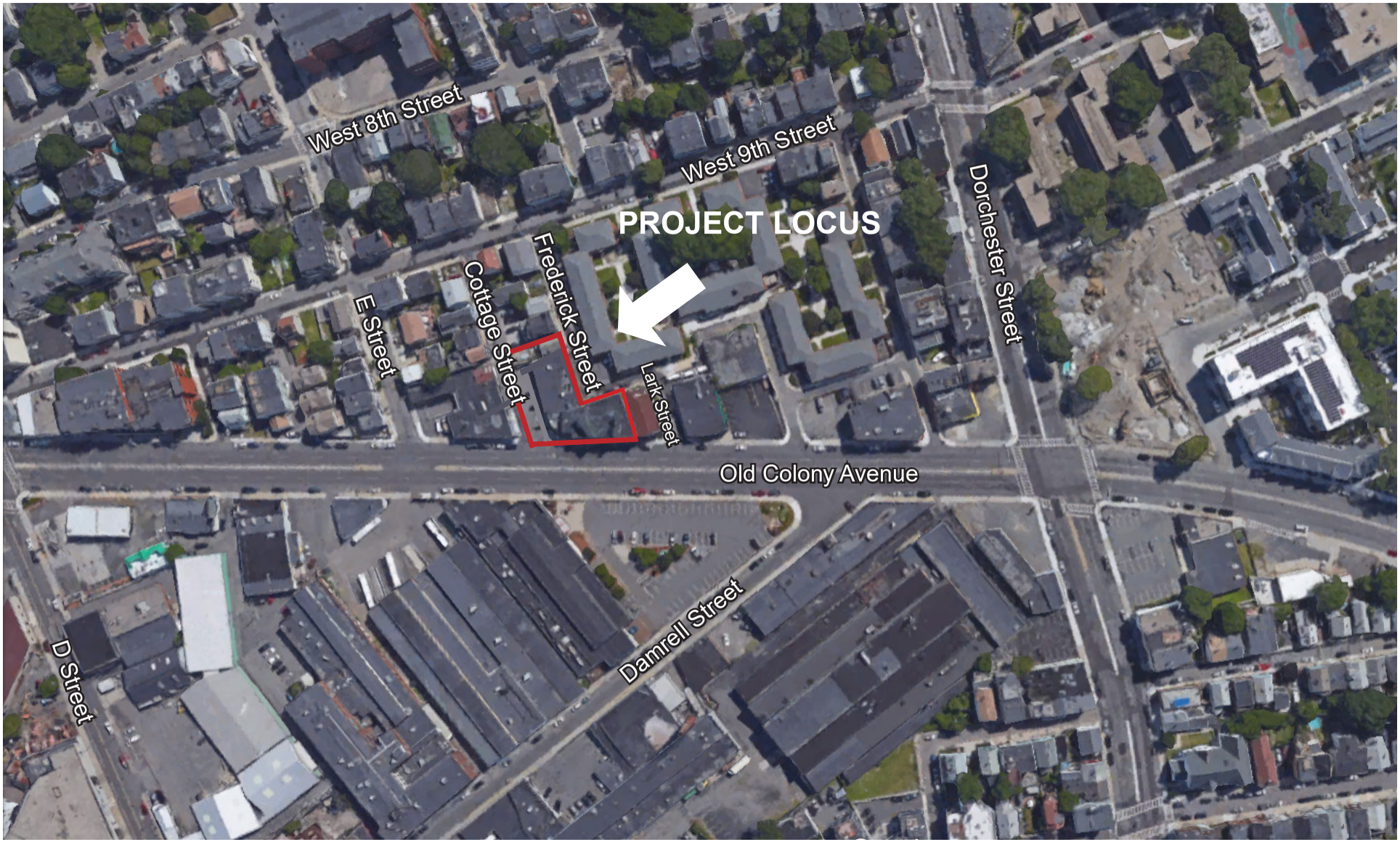


George Morancy, Esq.

cc: Jonathan Greeley, BPDA
Raul Duverge, BPDA
Michael Christopher, BPDA
John Allison, Mayor's Office of Neighborhood Services
City Councilor Michael F. Flaherty
City Councilor Ed Flynn
State Representative Nick Collins
Mitchell L. Fischman, MLF Consulting LLC

Attachment: Figure 1 - Project Locus

350 West Broadway, South Boston, MA 02127-1972
Tel.: 617-269-5800 • Fax: 617-269-5923



200-204 Old Colony Avenue

FIGURE 1

MLF CONSULTING LLC

Figure 1. Project Locus

Letter of Intent to File PNF

APPENDIX B – AIR QUALITY APPENDIX

APPENDIX B
AIR QUALITY

200-204 OLD COLONY AVENUE
PROJECT NOTIFICATION FORM

Pages **Contents**

 *** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN NoUrbTran

                                          ***   MODEL SETUP OPTIONS SUMMARY   ***
 -

 **Model Is Setup For Calculation of Average CONCentration Values.

   -- DEPOSITION LOGIC --
 **NO GAS DEPOSITION Data Provided.
 **NO PARTICLE DEPOSITION Data Provided.
 **Model Uses NO DRY DEPLETION. DRYDPLT = F
 **Model Uses NO WET DEPLETION. WETDPLT = F

 **Model Uses URBAN Dispersion Algorithm for the SBL for   1 Source(s),
   for Total of   1 Urban Area(s):
   Urban Population =   31279.0 ; Urban Roughness Length = 1.000 m
 **Non-DFAULT option to ignore morning transition from nighttime urban boundary layer (NoUrbTran) selected.

 **Model Allows User-Specified Options:
         1. Stack-tip Downwash.
         2. Model Assumes Receptors on FLAT Terrain.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.
         6. Urban Roughness Length of 1.0 Meter Used.

 **Other Options Specified:
         NOCHKD   - Suppresses checking of date sequence in meteorology files
         SCREEN   - Use screening option
 which forces calculation of centerline values

 **Model Assumes No FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of: CO

 **Model Calculates 1 Short Term Average(s) of: 1-HR

 **This Run Includes: 1 Source(s);   1 Source Group(s); and   570 Receptor(s)

                with: 0 POINT(s), including
                           0 POINTCAP(s) and   0 POINTHOR(s)
                 and: 1 VOLUME source(s)
                 and: 0 AREA type source(s)
                 and: 0 LINE source(s)
                 and: 0 OPENPIT source(s)
                 and: 0 BUOYANT LINE source(s) with   0 line(s)

 **Model Set To Continue RUNning After the Setup Testing.

 **The AERMET Input Meteorological Data Version Date: 16126

 **Output Options Selected:
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
          Model Outputs External File(s) of High Values for Plotting (PLOTFILE Keyword)
          Model Outputs Separate Summary File of High Ranked Values (SUMMFILE Keyword)

 **NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

**Misc. Inputs: Base Elev. for Pot. Temp. Profile (m MSL) = 5.00 ; Decay Coef. = 0.000 ; Rot. Angle = 0.0
Emission Units = GRAMS/SEC ; Emission Rate Unit Factor = 0.10000E+07
Output Units = MICROGRAMS/M**3

**Approximate Storage Requirements of Model = 3.6 MB of RAM.

**Input Runstream File: CO_5yrs_CO.DTA
**Output Print File: CO_5yrs_CO.LST

**File for Summary of Results: W:\Apps\aermod\4330\CO_5yrs_CO.SUM

*** AERMOD - VERSION 16216r *** *** Old Colony Development Project *** 03/02/18
*** AERMET - VERSION 16126 *** *** CO 1-Hour Screening Modeling *** 18:02:15
PAGE 2

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN NoUrbTran

*** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
(1=YES; 0=NO)

```
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1  1 1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1 1  1 1 1 1 1
```

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** AERMOD - VERSION 16216r *** *** Old Colony Development Project *** 03/02/18
*** AERMET - VERSION 16126 *** *** CO 1-Hour Screening Modeling *** 18:02:15
PAGE 3

*** MODELOPTs: NonDFAULT CONC FLAT NOCHKD SCREEN NODRYDPLT NOWETDPLT URBAN NoUrbTran

*** UP TO THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

Surface file: Urban.sfc Met Version: 16126
Profile file: Urban.PFL
Surface format: FREE
Profile format: FREE
Surface station no.: 11111 Upper air station no.: 22222
Name: UNKNOWN Name: UNKNOWN
Year: 2010 Year: 2010

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
10	01	01	1	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	10.	10.0	255.2	2.0
10	01	02	2	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	20.	10.0	255.2	2.0
10	01	03	3	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	30.	10.0	255.2	2.0
10	01	04	4	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	40.	10.0	255.2	2.0
10	01	05	5	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	50.	10.0	255.2	2.0
10	01	06	6	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	60.	10.0	255.2	2.0
10	01	07	7	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	70.	10.0	255.2	2.0
10	01	08	8	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	80.	10.0	255.2	2.0
10	01	09	9	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	90.	10.0	255.2	2.0
10	01	10	10	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	100.	10.0	255.2	2.0
10	01	11	11	01	-1.2	0.043	-9.000	0.020	-999.	21.	5.5	1.00	1.62	0.21	0.50	110.	10.0	255.2	2.0

```
 10 01 12  12 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  120.   10.0  255.2    2.0
 10 01 13  13 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  130.   10.0  255.2    2.0
 10 01 14  14 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  140.   10.0  255.2    2.0
 10 01 15  15 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  150.   10.0  255.2    2.0
 10 01 16  16 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  160.   10.0  255.2    2.0
 10 01 17  17 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  170.   10.0  255.2    2.0
 10 01 18  18 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  180.   10.0  255.2    2.0
 10 01 19  19 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  190.   10.0  255.2    2.0
 10 01 20  20 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  200.   10.0  255.2    2.0
 10 01 21  21 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  210.   10.0  255.2    2.0
 10 01 22  22 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  220.   10.0  255.2    2.0
 10 01 23  23 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  230.   10.0  255.2    2.0
 10 01 24  24 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  240.   10.0  255.2    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW  sigmaV
 10 01 01 01   10.0 1   10.    0.50   255.3   99.0  -99.00  -99.00

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION 16216r ***   *** Old Colony Development Project                                    ***        03/02/18
 *** AERMET - VERSION 16126  ***   *** CO 1-Hour Screening Modeling                                      ***        18:02:15
                                                                                                                   PAGE   4
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN  NoUrbTran

                                          *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                                    ** CONC OF CO       IN MICROGRAMS/M**3                        **

                                                    DATE                                                                NETWORK
GROUP ID                          AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZHILL, ZFLAG)    OF TYPE  GRID-ID
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

ALL      HIGH   1ST HIGH VALUE IS       0.51618  ON 10010112: AT (  330808.20,  4688806.30,     5.00,     5.00,    0.00)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION 16216r ***   *** Old Colony Development Project                                    ***        03/02/18
 *** AERMET - VERSION 16126  ***   *** CO 1-Hour Screening Modeling                                      ***        18:02:15
                                                                                                                   PAGE   5
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN  NoUrbTran

 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            2 Warning Message(s)
 A Total of            0 Informational Message(s)

 A Total of        18504 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of            0 Missing Hours Identified (  0.00 Percent)


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***
```

INDOOR GARAGE ANALYSIS PROGRAM

```
PROJECT:  200-204 OLD COLONY AVE GARAGE PEAK PM HOUR - YEAR: 2025


DISTANCE IN:                53  METERS
DISTANCE OUT:               53  METERS


TOTAL PEAK VOLUME:           11 VEH/HOUR

CO RATE:            2.976 GRAMS CO/MILE

SPEED IN GARAGE:           5.0  M.P.H.

VENT CFM:               14,353  CFM



TOTAL CO EMISSIONS =      0.018 GRAMS/MIN = 0.00030 GRAMS/SEC
TOTAL VENTILATION  =        406 CU. M/MIN


PEAK 1-HOUR CO CONCENTRATION FROM VEHICLES:   0.039 PPM
```

MOVES2014 OUTPUT

Road Type ID	Link Length (miles)	Link Volume (Vehicles/Hr)	Link Avg Speed (Miles/Hr)	Pollutant	Emission Factor (Grams/veh-mi)
5	0.033	10	5	CO	2.976
5	0.033	11	5	CO	2.976

APPENDIX C – NOISE APPENDIX

APPENDIX C
NOISE

200-204 OLD COLONY AVENUE
PROJECT NOTIFICATION FORM

Page **Contents**

Figure 1
Sound Monitoring & Modeling Locations
200-204 Old Colony Rd Boston, MA

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

Cadna Noise Modeling Results

City of Boston Noise Ordinance Analysis

Name	ID	Sound	Octave Band Day								
		Level	31	63	125	250	500	1000	2000	4000	8000
		(dBA)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)	(dB)
7 Cottage St	Top_Floor	33.4	40.1	38.9	36.5	32.5	30.3	32.3	22.3	14.4	6.8
Frederick St Condos	Top_Floor	32.8	40.7	40	38.3	33.3	30.4	30.9	20.8	12.9	5.5
5 Cottage St	Top_Floor	35.3	39.3	38.5	36.8	33.3	31.7	34.4	25.2	18.1	11.2
3 Cottage St	Top_Floor	33.4	38.4	37.4	35.3	31.7	29.9	32.4	22.9	15.5	7.5
1 Cottage St	Top_Floor	32.1	37.1	36	33.7	30.3	28.6	31.2	21.8	14.3	6.1
9 Frederick St	Top_Floor	32.1	41.9	40	36.6	32.1	29.2	30.8	20.6	13	6.3
7 Frederick St	Top_Floor	33.3	40.6	39.2	36.1	31.9	29.8	32.1	22.2	14.3	6.1

MassDEP Noise Policy Analysis

Nighttime

Name	ID	Project Level (dBA)	Background Level (dBA)	Total New Level (dBA)	Increase Over Existing (dBA)
7 Cottage St	Top_Floor	34.5	45.6	45.9	0.3
Frederick St Condos	Top_Floor	33.8	49.9	50.0	0.1
5 Cottage St	Top_Floor	36.5	45.6	46.1	0.5
3 Cottage St	Top_Floor	34.5	45.6	45.9	0.3
1 Cottage St	Top_Floor	33.3	45.6	45.8	0.2
9 Frederick St	Top_Floor	33.3	45.6	45.8	0.2
7 Frederick St	Top_Floor	34.2	45.6	45.9	0.3

Daytime

Name	ID	Project Level (dBA)	Background Level (dBA)	Total New Level (dBA)	Increase Over Existing (dBA)
7 Cottage St	Top_Floor	34.5	53	53.1	0.1
Frederick St Condos	Top_Floor	33.8	56.2	56.2	0.0
5 Cottage St	Top_Floor	36.5	53	53.1	0.1
3 Cottage St	Top_Floor	34.5	53	53.1	0.1
1 Cottage St	Top_Floor	33.3	53	53.0	0.0
9 Frederick St	Top_Floor	33.3	53	53.0	0.0
7 Frederick St	Top_Floor	34.2	53	53.1	0.1

APPENDIX D – TRANSPORTATION APPENDIX

- Traffic Counts
- MassDOT 2011 Weekday Seasonal Factors
- Trip Generation
- Synchro

TRAFFIC COUNTS

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 1
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	E Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

TOTAL (CARS & TRUCKS)

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	196	6	1	11	97	1	0	0	0	0	0	0	0	0
7:15 AM	0	0	247	9	0	13	96	0	0	1	0	0	0	0	0	0
7:30 AM	0	0	289	11	2	14	94	1	0	0	0	0	0	0	0	0
7:45 AM	1	0	275	9	1	17	99	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	251	6	2	20	103	0	0	0	0	1	0	0	0	0
8:15 AM	0	0	252	7	0	19	101	1	0	0	0	1	0	0	0	0
8:30 AM	0	0	243	5	1	17	98	0	0	1	0	0	0	0	0	0
8:45 AM	0	0	235	5	0	15	95	0	0	0	0	0	0	0	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	128	13	1	17	219	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	135	14	1	14	204	2	0	0	0	0	0	0	0	0
4:30 PM	0	0	137	15	2	11	181	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	143	19	1	17	206	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	145	22	0	22	223	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	142	21	1	21	219	1	0	0	0	0	0	0	0	0
5:30 PM	0	0	139	20	1	19	215	0	0	0	0	0	0	0	0	0
5:45 PM	1	0	133	18	0	18	209	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**0**	**1067**	**33**	**5**	**70**	**397**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**
PHF	**0.92**				**0.95**				**0.50**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:45 PM to 5:45 PM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**0**	**569**	**82**	**3**	**79**	**863**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.98**				**0.97**				**0.00**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 1
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	E Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TRUCKS

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	5	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**2**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.35**				**0.00**				**0.00**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Parking Lot Driveway Eastbound				E Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.25**				**0.00**				**0.00**			

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 1
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	E Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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PEDESTRIANS & BICYCLES

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Parking Lot Driveway Eastbound					E Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	1		0	0	0	0		0	0	0	1		0	0	0	2	
7:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	1	
7:30 AM	0	0	0	0		0	1	0	0		0	0	0	2		0	0	0	1	
7:45 AM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	0	1	
8:00 AM	0	1	0	2		0	0	0	0		0	0	0	1		0	0	0	2	
8:15 AM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	2	
8:30 AM	0	0	0	0		0	0	0	1		0	0	0	0		0	0	0	2	
8:45 AM	0	0	0	2		0	0	0	0		0	0	0	0		0	0	0	3	

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Parking Lot Driveway Eastbound					E Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	1	0	0		0	1	0	0		0	0	0	3		0	0	0	1	
4:15 PM	0	0	0	0		0	0	0	0		0	0	0	5		0	0	0	1	
4:30 PM	0	0	0	0		0	1	0	0		0	0	0	2		0	0	0	5	
4:45 PM	0	0	0	0		0	1	0	3		0	0	0	2		0	0	0	4	
5:00 PM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	1	
5:15 PM	0	0	0	0		0	0	0	0		0	0	0	3		0	0	0	4	
5:30 PM	0	0	0	1		0	1	0	1		0	0	0	1		0	0	0	5	
5:45 PM	0	0	0	2		0	0	0	1		0	0	0	3		0	0	0	7	

AM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Parking Lot Driveway Eastbound					E Street Westbound				
7:30 AM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
8:30 AM	0	2	0	3		0	1	0	0		0	0	0	4		0	0	0	6	

PM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Parking Lot Driveway Eastbound					E Street Westbound				
4:45 PM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:45 PM	0	0	0	1		0	2	0	4		0	0	0	7		0	0	0	14	

[1] *Peak hours corresponds to vehicular peak hours.*

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 2
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Cottage Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TOTAL (CARS & TRUCKS)

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	202	3	0	0	97	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	255	1	0	0	96	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	300	0	0	0	94	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	285	1	0	0	100	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	256	2	0	1	103	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	258	1	0	0	102	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	246	3	0	0	98	0	0	0	0	0	0	1	0	2
8:45 AM	0	0	240	0	0	0	95	0	0	0	0	0	0	1	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	139	1	0	3	216	0	0	0	0	0	0	1	0	2
4:15 PM	0	0	147	1	0	1	203	0	0	0	0	0	0	1	0	2
4:30 PM	0	0	151	0	0	0	181	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	163	1	0	0	207	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	167	1	0	1	222	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	161	2	0	2	217	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	159	0	0	0	215	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	152	0	0	0	210	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**1099**	**4**	**0**	**1**	**399**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**
PHF	**0.92**				**0.96**				**0.00**				**1.00**			
HV %	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:45 PM to 5:45 PM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**650**	**4**	**0**	**3**	**861**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**
PHF	**0.97**				**0.97**				**0.00**				**0.38**			
HV %	**0.0%**	**0.0%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 2
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Cottage Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TRUCKS

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**3**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.75**				**0.44**				**0.00**				**0.00**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Cottage Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.25**				**0.00**				**0.00**			

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 2
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Cottage Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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PEDESTRIANS & BICYCLES

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Cottage Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	3	
7:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
7:30 AM	0	0	0	0		0	1	0	1		0	0	0	0		0	0	0	2	
7:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	3	
8:00 AM	0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	1	
8:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	2	
8:30 AM	0	1	0	0		0	0	0	1		0	0	0	0		0	0	0	4	
8:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	4	

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Cottage Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	1	0	0		0	1	0	0		0	0	0	0		0	0	0	3	
4:15 PM	0	0	0	1		0	0	0	0		0	0	0	0		0	0	0	1	
4:30 PM	0	0	0	0		0	2	0	1		0	0	0	0		0	0	0	4	
4:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	2	
5:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	4	
5:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	4	
5:30 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	4	
5:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	3	

AM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Cottage Street Westbound				
7:30 AM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
8:30 AM	0	1	0	0		0	1	0	1		0	0	0	0		0	0	0	8	

PM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Cottage Street Westbound				
4:45 PM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:45 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	14	

[1] *Peak hours corresponds to vehicular peak hours.*

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 3
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

TOTAL (CARS & TRUCKS)

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	205	0	0	0	97	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	256	0	1	0	96	0	0	0	0	0	0	2	0	0
7:30 AM	0	0	296	0	1	0	95	0	0	0	0	0	0	3	0	4
7:45 AM	1	0	285	0	0	0	101	0	0	0	0	0	0	1	0	1
8:00 AM	0	0	259	0	0	0	103	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	257	0	0	0	102	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	249	0	0	0	99	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	240	0	0	0	96	0	0	0	0	0	0	1	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	140	0	0	0	217	0	0	0	0	0	0	2	0	0
4:15 PM	0	0	148	0	0	0	204	0	0	0	0	0	0	2	0	0
4:30 PM	0	0	151	0	0	0	181	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	163	0	0	0	208	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	167	0	0	0	222	0	0	0	0	0	0	2	0	1
5:15 PM	0	0	162	0	0	0	217	0	0	0	0	0	0	1	0	1
5:30 PM	0	0	159	0	0	0	215	0	0	0	0	0	0	1	0	0
5:45 PM	1	0	151	0	1	0	210	0	0	0	0	0	0	0	0	1

AM PEAK HOUR 7:30 AM to 8:30 AM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	1	**0**	**1097**	**0**	**1**	**0**	**401**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**8**
PHF	**0.93**				**0.98**				**0.00**				**0.43**			
HV %	**0.0%**	**0.0%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:45 PM to 5:45 PM	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**651**	**0**	**0**	**0**	**862**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**3**
PHF	**0.97**				**0.97**				**0.00**				**0.58**			
HV %	**0.0%**	**0.0%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 3
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TRUCKS

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
7:00 AM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:00 AM	**0**	**0**	**3**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.75**				**0.44**				**0.00**				**0.00**			

PM PEAK HOUR	Old Colony Avenue Northbound				Old Colony Avenue Southbound				Eastbound				Lark Street Westbound			
4:00 PM to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.50**				**0.25**				**0.00**				**0.00**			

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 3
Location:	South Boston, MA
Street 1:	Old Colony Avenue
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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PEDESTRIANS & BICYCLES

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Lark Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	2	
7:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	1	
7:30 AM	0	0	0	1		0	1	0	0		0	0	0	0		0	0	0	1	
7:45 AM	0	1	0	0		0	0	0	0		0	0	0	0		0	0	0	3	
8:00 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	3	
8:15 AM	0	0	0	1		0	0	0	1		0	0	0	0		0	0	0	4	
8:30 AM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	0	5	
8:45 AM	0	0	0	1		0	0	0	0		0	0	0	0		0	0	0	12	

	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Lark Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	1	0	1		0	0	0	0		0	0	0	0		0	0	0	3	
4:15 PM	0	0	0	1		0	1	0	0		0	0	0	0		0	0	0	2	
4:30 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	3	
4:45 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	5	
5:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	4	
5:15 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	7	
5:30 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	4	
5:45 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	5	

AM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Lark Street Westbound				
7:30 AM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
8:30 AM	0	1	0	2		0	1	0	1		0	0	0	0		0	0	0	11	

PM PEAK HOUR[1]	Old Colony Avenue Northbound					Old Colony Avenue Southbound					Eastbound					Lark Street Westbound				
4:45 PM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:45 PM	0	0	0	0		0	1	0	0		0	0	0	0		0	0	0	20	

[1] *Peak hours corresponds to vehicular peak hours.*

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 4
Location:	South Boston, MA
Street 1:	182 W 9th Street
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TOTAL (CARS & TRUCKS)

	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	3	11	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	5	9	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	7	7	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	4	9	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	11	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	10	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	3	11	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	2	8	0	0	0	0	0	0	0	0	0	0	0	0	0

	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	4	7	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	3	10	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	13	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	3	9	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	8	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**19**	**36**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.98**				**0.00**				**0.00**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:00 PM to 5:00 PM	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**12**	**39**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.85**				**0.00**				**0.00**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 4
Location:	South Boston, MA
Street 1:	182 W 9th Street
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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TRUCKS

	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 7:00 AM to 8:00 AM	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.00**				**0.00**				**0.00**			

PM PEAK HOUR 4:00 PM to 5:00 PM	182 W 9th Street Northbound				182 W 9th Street Southbound				Lark Street Eastbound				Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.00**				**0.00**				**0.00**			

Client:	Michael Littman, PE
Project #:	166_051_HSH
BTD #:	Location 4
Location:	South Boston, MA
Street 1:	182 W 9th Street
Street 2:	Lark Street
Count Date:	1/31/2018
Day of Week:	Wednesday
Weather:	Sun w/ Clouds, 30°F

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PEDESTRIANS & BICYCLES

	182 W 9th Street Northbound					182 W 9th Street Southbound					Lark Street Eastbound					Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	1	0	1		0	0	0	1		0	0	0	2		0	0	0	0	
7:15 AM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0	
7:30 AM	0	0	0	2		0	0	0	1		0	0	0	2		0	0	0	0	
7:45 AM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0	
8:00 AM	0	1	0	1		0	0	0	0		0	0	0	3		0	0	0	0	
8:15 AM	0	0	0	1		0	0	0	1		0	0	0	1		0	0	0	0	
8:30 AM	0	0	0	0		0	0	0	2		0	0	0	3		0	0	0	0	
8:45 AM	0	0	0	0		0	0	0	1		0	0	0	2		0	0	0	0	

	182 W 9th Street Northbound					182 W 9th Street Southbound					Lark Street Eastbound					Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	0	0	4		0	0	0	0		0	0	0	3		0	0	0	0	
4:15 PM	0	0	0	1		0	0	0	1		0	0	0	2		0	0	0	0	
4:30 PM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0	
4:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
5:00 PM	0	0	0	1		0	0	0	1		0	0	0	3		0	0	0	0	
5:15 PM	0	0	0	0		0	0	0	0		0	0	0	1		0	0	0	0	
5:30 PM	0	0	0	0		0	0	0	1		0	0	0	1		0	0	0	0	
5:45 PM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	

AM PEAK HOUR[1]	182 W 9th Street Northbound					182 W 9th Street Southbound					Lark Street Eastbound					Westbound				
7:00 AM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
8:00 AM	0	1	0	3		0	0	0	2		0	0	0	6		0	0	0	0	

PM PEAK HOUR[1]	182 W 9th Street Northbound					182 W 9th Street Southbound					Lark Street Eastbound					Westbound				
4:00 PM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:00 PM	0	0	0	5		0	0	0	1		0	0	0	6		0	0	0	0	

[1] *Peak hours corresponds to vehicular peak hours.*

WEEKDAY SEASONAL FACTORS

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2011 WEEKDAY SEASONAL FACTORS *

* Note: These are weekday factors. The average of the factors for the year will not equal 1, as weekend data are not considered.

FACTOR GROUP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
GROUP 1 - WEST INTERSTATE	0.98	0.93	0.90	0.89	0.90	0.88	0.91	0.90	0.89	0.89	0.93	0.95
Use group 2 for R5, R6, & R0 GROUP 2 - **RURAL MAJOR COLLECTOR (R-5)**	1.12	1.12	1.07	0.99	0.91	0.90	0.86	0.86	0.92	0.93	1.01	1.05
GROUP 3A - RECREATIONAL **(1-4) See below	1.26	1.25	1.20	1.06	0.96	0.89	0.76	0.76	0.92	0.99	1.08	1.14
GROUP 3B - RECREATIONAL ***(5) See below	1.22	1.26	1.22	1.06	0.96	0.90	0.72	0.74	0.97	1.02	1.14	1.15
GROUP 4 - I-495 INTERSTATE	1.02	1.00	1.00	0.96	0.92	0.89	0.85	0.83	0.93	0.96	1.01	1.03
GROUP 5 - EAST INTERSTATE	1.04	1.00	0.96	0.93	0.92	0.91	0.91	0.89	0.93	0.93	0.96	1.01
GROUP 6: Use group 6 for U2, U3, U5, U6, U0, R2, & R3 **URBAN ARTERIALS, COLLECTORS & RURAL ARTERIALS (R-2, R-3)**	1.03	1.01	0.96	0.92	0.91	0.90	0.92	0.92	0.93	0.92	0.97	0.97
GROUP 7 - I-84 PROXIMITY (STA. 17, 3921)	1.24	1.24	1.15	1.04	0.99	1.00	0.93	0.89	1.05	1.05	1.05	1.12
GROUP 8 - I-295 PROXIMITY (STA. 6590)	1.00	0.99	0.95	0.92	0.94	0.91	0.93	0.92	0.95	0.94	0.97	0.95
GROUP 9 - I-195 PROXIMITY (STA. 7)	1.13	1.05	1.03	0.95	0.89	0.87	0.86	0.79	0.88	0.91	0.99	1.03

RECREATIONAL: (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)

2.PLYMOUTH(SOUTH OF RTE.3A)

7014, 7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108,7178

3.MARTHA'S VINEYARD

4.NANTUCKET

***GROUP 3B:

5.PERMANENTS 2 & 189

1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,

1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,

1105,1106,1107,1108,1113,1114,1116,2196,2197,2198

2011 AXLE CORRECTION FACTORS

ROAD INVENTORY FUNCTIONAL CLASSIFICATION	AXLE CORRECTION FACTOR
RURAL	
1	0.95
2	0.97
3	0.98
0,5,6	0.98
URBAN	
1	0.96
2,3	0.98
5	0.98
0,6	0.99
I-84	0.90

ROUND OFF

0 - 999.....10

> 1,000.....100

Apply I-84 factor to stations:

3290, 3921, 3929

TRIP GENERATION

200 Old Colony Avenue

Trip Generation Assessment

HOWARD STEIN HUDSON

19-Jan-2018

XX HARD CODED TO BALANCE

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate[1]	Unadjusted Person-Trips	Transit Share[3]	Transit Person-Trips	Walk/Bike/ Other Share[3]	Walk/ Bike/ Other Trips	Auto Share[3]	Auto Person-Trips	Assumed Local Auto Occupancy Rate[5]	Total Adjusted Auto Trips
Daily Peak Hour															
Multifamily Housing (Mid Rise)[6]	55	Total		5.440	300	1.13	**340**	23%	**78**	24%	**82**	53%	**180**	1.13	**160**
	units	In	50%	2.720	150	1.13	**170**	23%	**39**	24%	**41**	53%	**90**	1.13	**80**
		Out	50%	2.720	150	1.13	**170**	23%	**39**	24%	**41**	53%	**90**	1.13	**80**
Total		Total			**300**		**340**		**78**		**82**		**180**		**160**
		In			**150**		**170**		**39**		**41**		**90**		**80**
		Out			**150**		**170**		**39**		**41**		**90**		**80**
AM Peak Hour															
Multifamily Housing (Mid Rise)[6]	55	Total		0.360	20	1.13	**23**		**6**		**6**		**11**	1.13	**10**
	units	In	26%	0.094	5	1.13	**6**	29%	**2**	22%	**1**	49%	**3**	1.13	**3**
		Out	74%	0.266	15	1.13	**17**	26%	**4**	30%	**5**	44%	**8**	1.13	**7**
Total		Total			**20**		**23**		**6**		**6**		**11**		**10**
		In			**5**		**6**		**2**		**1**		**3**		**3**
		Out			**15**		**17**		**4**		**5**		**8**		**7**
PM Peak Hour															
Multifamily Housing (Mid Rise)[6]	55	Total		0.440	24	1.13	**27**		**7**		**7**		**13**	1.13	**11**
	units	In	61%	0.268	15	1.13	**17**	26%	**4**	30%	**5**	44%	**8**	1.13	**7**
		Out	39%	0.172	9	1.13	**10**	29%	**3**	22%	**2**	49%	**5**	1.13	**4**
Total		Total			**24**		**27**		**7**		**7**		**13**		**11**
		In			**15**		**17**		**4**		**5**		**8**		**7**
		Out			**9**		**10**		**3**		**2**		**5**		**4**

1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational
2. Based on ITE Trip Generation Handbook, 3rd Edition method
3. Mode shares based on peak-hour BTD Data for Area 1
4. Vehicle Trips = 70% Private Auto and 30% Taxi. Taxi trip rate based on CTPS Taxi activity rates for Hotel lane use, as adopted by Central Artery/Tunnel Project
5. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
6. ITE Trip Generation Manual, 10th Edition, LUC 221 (Multifamily Housing Mid-Rise (3-10 floors)), average rate

SYNCHRO REPORTS

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	8	1128	0	0	413
Future Volume (Veh/h)	4	8	1128	0	0	413
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.43	0.43	0.93	0.93	0.98	0.98
Hourly flow rate (vph)	9	19	1213	0	0	421
Pedestrians	11		2			1
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	3.5		3.5			3.5
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1436	618			1224	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1436	618			1224	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	96			100	
cM capacity (veh/h)	125	432			570	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	28	606	606	210	210
Volume Left	9	0	0	0	0
Volume Right	19	0	0	0	0
cSH	241	1700	1700	1700	1700
Volume to Capacity	0.12	0.36	0.36	0.12	0.12
Queue Length 95th (ft)	10	0	0	0	0
Control Delay (s)	21.9	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	21.9	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	45.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	1132	4	1	411
Future Volume (Veh/h)	2	2	1132	4	1	411
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	2	2	1230	4	1	428
Pedestrians	8					1
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	1					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1456	626			1242	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1456	626			1242	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	122	428			563	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	820	414	144	285
Volume Left	2	0	0	1	0
Volume Right	2	0	4	0	0
cSH	190	1700	1700	563	1700
Volume to Capacity	0.02	0.48	0.24	0.00	0.17
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	24.4	0.0	0.0	0.1	0.0
Lane LOS	C			A	
Approach Delay (s)	24.4	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	45.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (veh/h)	0	0	1	1099	34	5	72	411
Future Volume (Veh/h)	0	0	1	1099	34	5	72	411
Sign Control	Stop			Free				Free
Grade	0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	1195	37	0	76	433
Pedestrians	6							
Lane Width (ft)	0.0							
Walking Speed (ft/s)	3.5							
Percent Blockage	0							
Right turn flare (veh)								
Median type				None				None
Median storage veh)								
Upstream signal (ft)								
pX, platoon unblocked			0.00			0.00		
vC, conflicting volume	1588	622	0			0	1238	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1588	622	0			0	1238	
tC, single (s)	6.8	6.9	0.0			0.0	4.1	
tC, 2 stage (s)								
tF (s)	3.5	3.3	0.0			0.0	2.2	
p0 queue free %	100	100	0			0	87	
cM capacity (veh/h)	87	434	0			0	570	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	797	435	220	289
Volume Left	0	0	76	0
Volume Right	0	37	0	0
cSH	1700	1700	570	1700
Volume to Capacity	0.47	0.26	0.13	0.17
Queue Length 95th (ft)	0	0	11	0
Control Delay (s)	0.0	0.0	5.4	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.3	
Approach LOS				

Intersection Summary					
Average Delay			0.7		
Intersection Capacity Utilization			56.8%	ICU Level of Service	B
Analysis Period (min)			15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	20	37	0	0
Future Volume (Veh/h)	0	0	20	37	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.92	0.92
Hourly flow rate (vph)	0	0	20	38	0	0
Pedestrians	6			3	2	
Lane Width (ft)	0.0			12.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	86	9	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86	9	6			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	909	1075	1628			

Direction, Lane #	NB 1
Volume Total	58
Volume Left	20
Volume Right	0
cSH	1628
Volume to Capacity	0.01
Queue Length 95th (ft)	1
Control Delay (s)	2.6
Lane LOS	A
Approach Delay (s)	2.6
Approach LOS	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	21.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	3	671	0	0	888
Future Volume (Veh/h)	4	3	671	0	0	888
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	7	5	692	0	0	915
Pedestrians	20					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	2					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1170	366			712	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1170	366			712	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	99			100	
cM capacity (veh/h)	185	625			880	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	12	346	346	458	458
Volume Left	7	0	0	0	0
Volume Right	5	0	0	0	0
cSH	262	1700	1700	1700	1700
Volume to Capacity	0.05	0.20	0.20	0.27	0.27
Queue Length 95th (ft)	4	0	0	0	0
Control Delay (s)	19.4	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	19.4	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	37.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	2	670	4	3	887
Future Volume (Veh/h)	1	2	670	4	3	887
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.38	0.38	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	3	5	691	4	3	914
Pedestrians	14					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	1					
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1170	362			709	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1170	362			709	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	99			100	
cM capacity (veh/h)	186	632			887	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	8	461	234	308	609
Volume Left	3	0	0	3	0
Volume Right	5	0	4	0	0
cSH	333	1700	1700	887	1700
Volume to Capacity	0.02	0.27	0.14	0.00	0.36
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	16.1	0.0	0.0	0.1	0.0
Lane LOS	C			A	
Approach Delay (s)	16.1	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	39.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (veh/h)	0	0	1	587	84	3	81	889
Future Volume (Veh/h)	0	0	1	587	84	3	81	889
Sign Control	Stop			Free				Free
Grade	0%			0%				0%
Peak Hour Factor	0.92	0.92	0.98	0.98	0.98	0.97	0.97	0.97
Hourly flow rate (vph)	0	0	0	599	86	0	84	916
Pedestrians	14							
Lane Width (ft)	0.0							
Walking Speed (ft/s)	3.5							
Percent Blockage	0							
Right turn flare (veh)								
Median type				None				None
Median storage veh)								
Upstream signal (ft)								
pX, platoon unblocked			0.00			0.00		
vC, conflicting volume	1282	356	0			0	699	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1282	356	0			0	699	
tC, single (s)	6.8	6.9	0.0			0.0	4.1	
tC, 2 stage (s)								
tF (s)	3.5	3.3	0.0			0.0	2.2	
p0 queue free %	100	100	0			0	91	
cM capacity (veh/h)	145	646	0			0	907	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	399	286	389	611
Volume Left	0	0	84	0
Volume Right	0	86	0	0
cSH	1700	1700	907	1700
Volume to Capacity	0.23	0.17	0.09	0.36
Queue Length 95th (ft)	0	0	8	0
Control Delay (s)	0.0	0.0	2.9	0.0
Lane LOS			A	
Approach Delay (s)	0.0		1.1	
Approach LOS				

Intersection Summary					
Average Delay			0.7		
Intersection Capacity Utilization			57.9%	ICU Level of Service	B
Analysis Period (min)			15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	12	39	0	0
Future Volume (Veh/h)	0	0	12	39	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.85	0.85	0.92	0.92
Hourly flow rate (vph)	0	0	14	46	0	0
Pedestrians	6			5	1	
Lane Width (ft)	0.0			12.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	81	11	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	81	11	6			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	918	1071	1628			

Direction, Lane #	NB 1
Volume Total	60
Volume Left	14
Volume Right	0
cSH	1628
Volume to Capacity	0.01
Queue Length 95th (ft)	1
Control Delay (s)	1.7
Lane LOS	A
Approach Delay (s)	1.7
Approach LOS	

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	21.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	4	8	1197	0	0	457
Future Volume (Veh/h)	4	8	1197	0	0	457
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.43	0.43	0.93	0.93	0.98	0.98
Hourly flow rate (vph)	9	19	1287	0	0	466
Pedestrians	11		2			1
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	3.5		3.5			3.5
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1533	656			1298	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1533	656			1298	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	95			100	
cM capacity (veh/h)	108	408			535	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	28	644	644	233	233
Volume Left	9	0	0	0	0
Volume Right	19	0	0	0	0
cSH	216	1700	1700	1700	1700
Volume to Capacity	0.13	0.38	0.38	0.14	0.14
Queue Length 95th (ft)	11	0	0	0	0
Control Delay (s)	24.2	0.0	0.0	0.0	0.0
Lane LOS	C				
Approach Delay (s)	24.2	0.0		0.0	
Approach LOS	C				

Intersection Summary				
Average Delay			0.4	
Intersection Capacity Utilization			47.1%	ICU Level of Service
Analysis Period (min)			15	

A

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	1201	4	1	455
Future Volume (Veh/h)	2	2	1201	4	1	455
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	2	2	1305	4	1	474
Pedestrians	8					1
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	1					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1554	664			1317	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1554	664			1317	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	105	405			528	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	870	439	159	316
Volume Left	2	0	0	1	0
Volume Right	2	0	4	0	0
cSH	167	1700	1700	528	1700
Volume to Capacity	0.02	0.51	0.26	0.00	0.19
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	27.1	0.0	0.0	0.1	0.0
Lane LOS	D			A	
Approach Delay (s)	27.1	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	47.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (veh/h)	0	0	1	1167	35	5	75	455
Future Volume (Veh/h)	0	0	1	1167	35	5	75	455
Sign Control	Stop			Free				Free
Grade	0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	1268	38	0	79	479
Pedestrians	6							
Lane Width (ft)	0.0							
Walking Speed (ft/s)	3.5							
Percent Blockage	0							
Right turn flare (veh)								
Median type				None				None
Median storage veh)								
Upstream signal (ft)								
pX, platoon unblocked			0.00			0.00		
vC, conflicting volume	1690	659	0			0	1312	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1690	659	0			0	1312	
tC, single (s)	6.8	6.9	0.0			0.0	4.1	
tC, 2 stage (s)								
tF (s)	3.5	3.3	0.0			0.0	2.2	
p0 queue free %	100	100	0			0	85	
cM capacity (veh/h)	73	411	0			0	534	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	845	461	239	319
Volume Left	0	0	79	0
Volume Right	0	38	0	0
cSH	1700	1700	534	1700
Volume to Capacity	0.50	0.27	0.15	0.19
Queue Length 95th (ft)	0	0	13	0
Control Delay (s)	0.0	0.0	5.7	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.4	
Approach LOS				

Intersection Summary					
Average Delay	0.7				
Intersection Capacity Utilization	60.4%	ICU Level of Service			B
Analysis Period (min)	15				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	21	38	0	0
Future Volume (Veh/h)	0	0	21	38	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.92	0.92
Hourly flow rate (vph)	0	0	21	39	0	0
Pedestrians	6			3	2	
Lane Width (ft)	0.0			12.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	89	9	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	89	9	6			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	905	1075	1628			

Direction, Lane #	NB 1
Volume Total	60
Volume Left	21
Volume Right	0
cSH	1628
Volume to Capacity	0.01
Queue Length 95th (ft)	1
Control Delay (s)	2.6
Lane LOS	A
Approach Delay (s)	2.6
Approach LOS	

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	21.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	4	3	740	0	0	966
Future Volume (vph)	4	3	740	0	0	966
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.944					
Flt Protected	0.972					
Satd. Flow (prot)	1412	0	3087	0	0	3087
Flt Permitted	0.972					
Satd. Flow (perm)	1412	0	3087	0	0	3087
Link Speed (mph)	25		25			25
Link Distance (ft)	138		318			197
Travel Time (s)	3.8		8.7			5.4
Confl. Peds. (#/hr)				20	20	
Peak Hour Factor	0.58	0.58	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)	0	0	0	0	0	0
Adj. Flow (vph)	7	5	763	0	0	996
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	763	0	0	996
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	2	739	4	3	965
Future Volume (vph)	1	2	739	4	3	965
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.916		0.999			
Flt Protected	0.982					
Satd. Flow (prot)	1384	0	3083	0	0	3087
Flt Permitted	0.982					
Satd. Flow (perm)	1384	0	3083	0	0	3087
Link Speed (mph)	25		25			25
Link Distance (ft)	180		197			152
Travel Time (s)	4.9		5.4			4.1
Confl. Peds. (#/hr)				14	14	
Peak Hour Factor	0.38	0.38	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)	0	0	0	0	0	0
Adj. Flow (vph)	3	5	762	4	3	995
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	766	0	0	998
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	0	0	1	653	87	3	84	965
Future Volume (vph)	0	0	1	653	87	3	84	965
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor								
Frt				0.982				
Flt Protected								0.996
Satd. Flow (prot)	0	0	0	3031	0	0	0	3074
Flt Permitted								0.996
Satd. Flow (perm)	0	0	0	3031	0	0	0	3074
Link Speed (mph)	25			25				25
Link Distance (ft)	124			152				459
Travel Time (s)	3.4			4.1				12.5
Confl. Peds. (#/hr)			1		14	4	14	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.98	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)			0	0	0	0	0	0
Adj. Flow (vph)	0	0	1	666	89	3	87	995
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	756	0	0	0	1085
Sign Control	Stop			Free				Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.4%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	12	41	0	0
Future Volume (vph)	0	0	12	41	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.989		
Satd. Flow (prot)	0	0	0	1522	0	0
Flt Permitted				0.989		
Satd. Flow (perm)	0	0	0	1522	0	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	221			112	366	
Travel Time (s)	6.0			3.1	10.0	
Confl. Peds. (#/hr)	1	5	6			6
Peak Hour Factor	0.92	0.92	0.85	0.85	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)			0	0		
Adj. Flow (vph)	0	0	14	48	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	62	0	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	11	1197	0	0	457
Future Volume (Veh/h)	8	11	1197	0	0	457
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.43	0.43	0.93	0.93	0.98	0.98
Hourly flow rate (vph)	19	26	1287	0	0	466
Pedestrians	11		2			1
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	3.5		3.5			3.5
Percent Blockage	1		0			0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1533	656			1298	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1533	656			1298	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	94			100	
cM capacity (veh/h)	108	408			535	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	45	644	644	233	233
Volume Left	19	0	0	0	0
Volume Right	26	0	0	0	0
cSH	188	1700	1700	1700	1700
Volume to Capacity	0.24	0.38	0.38	0.14	0.14
Queue Length 95th (ft)	22	0	0	0	0
Control Delay (s)	30.1	0.0	0.0	0.0	0.0
Lane LOS	D				
Approach Delay (s)	30.1	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	47.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	2	1204	4	1	455
Future Volume (Veh/h)	2	2	1204	4	1	455
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	1.00	1.00	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	2	2	1309	4	1	474
Pedestrians	8					1
Lane Width (ft)	12.0					12.0
Walking Speed (ft/s)	3.5					3.5
Percent Blockage	1					0
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1558	666			1321	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1558	666			1321	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	104	404			526	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	4	873	440	159	316
Volume Left	2	0	0	1	0
Volume Right	2	0	4	0	0
cSH	166	1700	1700	526	1700
Volume to Capacity	0.02	0.51	0.26	0.00	0.19
Queue Length 95th (ft)	2	0	0	0	0
Control Delay (s)	27.3	0.0	0.0	0.1	0.0
Lane LOS	D			A	
Approach Delay (s)	27.3	0.0		0.0	
Approach LOS	D				

Intersection Summary				
Average Delay	0.1			
Intersection Capacity Utilization	47.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (veh/h)	0	0	1	1170	35	5	75	455
Future Volume (Veh/h)	0	0	1	1170	35	5	75	455
Sign Control	Stop			Free				Free
Grade	0%			0%				0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Hourly flow rate (vph)	0	0	0	1272	38	0	79	479
Pedestrians	6							
Lane Width (ft)	0.0							
Walking Speed (ft/s)	3.5							
Percent Blockage	0							
Right turn flare (veh)								
Median type				None				None
Median storage veh)								
Upstream signal (ft)								
pX, platoon unblocked			0.00			0.00		
vC, conflicting volume	1694	661	0			0	1316	
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1694	661	0			0	1316	
tC, single (s)	6.8	6.9	0.0			0.0	4.1	
tC, 2 stage (s)								
tF (s)	3.5	3.3	0.0			0.0	2.2	
p0 queue free %	100	100	0			0	85	
cM capacity (veh/h)	73	410	0			0	532	

Direction, Lane #	NB 1	NB 2	SB 1	SB 2
Volume Total	848	462	239	319
Volume Left	0	0	79	0
Volume Right	0	38	0	0
cSH	1700	1700	532	1700
Volume to Capacity	0.50	0.27	0.15	0.19
Queue Length 95th (ft)	0	0	13	0
Control Delay (s)	0.0	0.0	5.7	0.0
Lane LOS			A	
Approach Delay (s)	0.0		2.4	
Approach LOS				

Intersection Summary					
Average Delay			0.7		
Intersection Capacity Utilization			60.4%	ICU Level of Service	B
Analysis Period (min)			15		

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	24	38	0	0
Future Volume (Veh/h)	0	0	24	38	0	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.92	0.92
Hourly flow rate (vph)	0	0	24	39	0	0
Pedestrians	6			3	2	
Lane Width (ft)	0.0			12.0	0.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	0			0	0	
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	95	9	6			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	95	9	6			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	99			
cM capacity (veh/h)	896	1075	1628			

Direction, Lane #	NB 1
Volume Total	63
Volume Left	24
Volume Right	0
cSH	1628
Volume to Capacity	0.01
Queue Length 95th (ft)	1
Control Delay (s)	2.8
Lane LOS	A
Approach Delay (s)	2.8
Approach LOS	

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	21.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	5	740	0	0	967
Future Volume (vph)	6	5	740	0	0	967
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Ped Bike Factor						
Frt	0.936					
Flt Protected	0.974					
Satd. Flow (prot)	1403	0	3087	0	0	3087
Flt Permitted	0.974					
Satd. Flow (perm)	1403	0	3087	0	0	3087
Link Speed (mph)	25		25			25
Link Distance (ft)	138		318			197
Travel Time (s)	3.8		8.7			5.4
Confl. Peds. (#/hr)				20	20	
Peak Hour Factor	0.58	0.58	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)	0	0	0	0	0	0
Adj. Flow (vph)	10	9	763	0	0	997
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	763	0	0	997
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.7%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1	2	741	4	3	966
Future Volume (vph)	1	2	741	4	3	966
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor						
Frt	0.916		0.999			
Flt Protected	0.982					
Satd. Flow (prot)	1384	0	3083	0	0	3087
Flt Permitted	0.982					
Satd. Flow (perm)	1384	0	3083	0	0	3087
Link Speed (mph)	25		25			25
Link Distance (ft)	180		197			152
Travel Time (s)	4.9		5.4			4.1
Confl. Peds. (#/hr)				14	14	
Peak Hour Factor	0.38	0.38	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)	0	0	0	0	0	0
Adj. Flow (vph)	3	5	764	4	3	996
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	768	0	0	999
Sign Control	Stop		Free			Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

Lane Group	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	0	0	1	655	87	3	84	966
Future Volume (vph)	0	0	1	655	87	3	84	966
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor								
Frt				0.982				
Flt Protected								0.996
Satd. Flow (prot)	0	0	0	3031	0	0	0	3074
Flt Permitted								0.996
Satd. Flow (perm)	0	0	0	3031	0	0	0	3074
Link Speed (mph)	25			25				25
Link Distance (ft)	124			152				459
Travel Time (s)	3.4			4.1				12.5
Confl. Peds. (#/hr)			1		14	4	14	
Peak Hour Factor	0.92	0.92	0.98	0.98	0.98	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%
Parking (#/hr)			0	0	0	0	0	0
Adj. Flow (vph)	0	0	1	668	89	3	87	996
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	0	0	758	0	0	0	1086
Sign Control	Stop			Free				Free

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization 62.5%		ICU Level of Service B	
Analysis Period (min) 15			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	19	41	0	0
Future Volume (vph)	0	0	19	41	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected				0.985		
Satd. Flow (prot)	0	0	0	1516	0	0
Flt Permitted				0.985		
Satd. Flow (perm)	0	0	0	1516	0	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	221			112	366	
Travel Time (s)	6.0			3.1	10.0	
Confl. Peds. (#/hr)	1	5	6			6
Peak Hour Factor	0.92	0.92	0.85	0.85	0.92	0.92
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)			0	0		
Adj. Flow (vph)	0	0	22	48	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	70	0	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type:	CBD		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX E – RESPONSE TO CLIMATE CHANGE QUESTIONNAIRE

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

A.1 - Project Information

Project Name:	**200-204 Old Colony**			
Project Address:	**200 Old Colony Ave**			
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	*Mitchell L. Fischman*	*MLF Consulting LLC*	*mitchfischman@gmail.com*	*Tel: 781-760-1726*
	***Yes**/no*		*Date: 05/08/18*	

A.3 - Project Team

Owner / Developer:	**All Saints Development, LLC** **c/o Patrick M. Mahoney** **160 Federal Street, 11th Floor** **Boston, MA 02110**
Architect:	**Embarc Studio, LLC**
Engineer:	**Wozny/Barbar & Associates, Inc.**
Sustainability / LEED:	**Soden Sustainability LLC**
Permitting:	**MLF Consulting LLC**
Construction Management:	**TBD**

A.3 - Project Description and Design Conditions

List the principal Building Uses:	**Residential**
List the First Floor Uses:	**Lobby, School**
List any Critical Site Infrastructure and or Building Uses:	**n/a**

Site and Building:

Site Area:	***12, 574 SF***	Building Area:	*68,713 GSF*
Building Height:	***70 Ft***	Building Height:	*6-Stories*
Existing Site Elevation – Low:	***15.23 Ft BCB***	Existing Site Elevation – High:	*18.09 Ft BCB*
Proposed Site Elevation – Low:	***15.23 Ft BCB***	Proposed Site Elevation – High:	*17.66 Ft BCB*
Proposed First Floor Elevation:	***17.66 Ft BCB***	Below grade levels:	*1 -Story*

Article 37 Green Building:

LEED Version - Rating System :	**LEED BD&C v4**	LEED Certification:	*Yes / **No***
Proposed LEED rating:	*Certified/**Silver**/ Gold/Platinum*	Proposed LEED point score:	***54 Pts***.

Building Envelope

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:	*(R)*	Exposed Floor:	*(R)*
Foundation Wall:	*(R)*	Slab Edge (at or below grade):	*(R)*

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:	*(%)*	Wall Value	*(R)*
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			
Annual Electric:	*(kWh)*	Peak Electric:	*(kW)*
Annual Heating:	*(MMbtu/hr)*	Peak Heating:	*(MMbtu)*
Annual Cooling:	*(Tons/hr)*	Peak Cooling:	*(Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	*%*	Have the local utilities reviewed the building energy performance?:	*Yes / no*
Energy Use - Below Mass. Code:	*%*	Energy Use Intensity:	*(kBtu/SF)*

Back-up / Emergency Power System

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

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

Electric:	*(kW)*	Heating:	*(MMbtu/hr)*
		Cooling:	*(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:

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

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

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

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

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

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):

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

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:

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:

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: ***6 in.***

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

The project site will not result in an increase in impervious area. No storm water infiltration will be designed on site due to high groundwater elevation.

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):

Design adaptations to efficiently accommodate future rain events that are more significant will be discussed with the project team.

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:	***17.9 Ft BCB***		
Sea Level Rise - Design Flood Elevation:	***18.9 Ft BCB***	First Floor Elevation:	***17.66 Ft BCB***
Site Elevations at Building:	***17.39-17.66 Ft BCB***	Accessible Route Elevation:	***17.66 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.:

Project site is not located within the 100-year floodplain, necessary design measures will be discussed with the project team.

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.:

Design accommodations for the proposed Building Design Flood Elevation will be discussed with the project team.

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:

Shelter accommodations for building occupants will be discussed with the design team.

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

Rapid recovery strategies will be discussed with the design team.

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.:

Future site design and infrastructure adaptation strategies will be discussed with the project team.

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

Future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation will be discussed with the project team.

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 F – RESPONSE TO COB ACCESSIBILITY GUIDELINES

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.

1. Project Information:
If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	**200-204 Old Colony Avenue**
Primary Project Address:	**200 Old Colony Avenue, South Boston**
Total Number of Phases/Buildings:	**1**
Primary Contact (Name / Title / Company / Email / Phone):	**Patrick M. Mahoney, Esq. / All Saints Development, LLC / Patrick@patrickmmahoney.com / 617-939-3922**
Owner / Developer:	**All Saints Development, LLC**
Architect:	**Embarc Studio, LLC**
Civil Engineer:	**Howard Stein Hudson**
Landscape Architect:	**Verdant Landscape Architecture**
Permitting:	**MLF Consulting LLC**
Construction Management:	**TBD**

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.	

2. Building Classification and Description:

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

What are the dimensions of the project?

Site Area:	***12,547 SF***	Building Area:	***79,136 GSF***
Building Height:	***59'-11" Ft..***	Number of Stories:	***6 Floors***
First Floor Elevation:	**17.0' FT**	Is there below grade space:	***Yes***

What is the Construction Type? (Select most appropriate type)

	☑**Wood Frame**	Masonry	☑Steel Frame	☑Concrete

What are the principal building uses? (IBC definitions are below – select all appropriate that apply)

	Residential – One - Three Unit	☑ **Residential - Multi-unit, Four +**	Institutional	Educational
	☑ **Business**	☑ **Mercantile**	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	***Adult Education, Entrance Lobby for Residences above***			

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 proposed site is located in South Boston, on the corner of Old Colony Ave and Cottage Street.**
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	**The Red Line, Andrew Station lies 0 .4 miles to the Southwest of the site. Two bus routes – routes 5 and 10 – stop at the corner of Old Colony Ave and Dorchester Street.**

List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	**Affordable/Public Housing:** Boston Housing Authority West Broadway Development located on West Broadway and D Street **School:** JF Condon School, Perkins School, UP Academy Charter School, Excel High School **Police:** C-6 Police Station **Fire:** Engine 39 located on 272 D Street **Hospitals:** South Boston Community Health Center, Boston Medical Center
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	**Public Library:** Boston Public Library (South Boston Branch) **Community Center:** Condon Community Center **Recreation:** Joe Moakley Park
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:	**MLF Consulting is not aware of the project site being located within a historic district.**
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 sidewalks abuts the project site along Old Colony Ave, Cottage Street, and Frederick Street.** **The existing sidewalk material is concrete with granite curbing. The physical condition of the existing concrete sidewalk is good.**
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, with modifications for new vehicular curb cut into the property along Frederick Street.** **No, the existing sidewalks and pedestrian ramps have not been verified as being in compliance at this time but will be verified during the project design.**

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 (along Old Colony Ave); Neighborhood Connector**
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	**Along Old Colony Ave, the sidewalk width will be approximately 12'-6". Concrete walkway paving will include a 2' frontage zone, a 6'-6" clear width pedestrian zone, a 3' furnishing zone, and a 6" curb.** **Along Cottage Street and Frederick Street the sidewalks consist of pedestrian sidewalks approximately 3'-6" wide. Existing slopes to be confirmed.**
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	**The paving material for the pedestrian zone will be poured in place concrete (replaced in kind as required) with special paving at the entries.**
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?	**Tree plantings and bike racks are proposed within the 3' site furnishing zone. Planters and seating are proposed within the 2' frontage zone.** **All site furnishings will be clear of the 6'-6" pedestrian zone.**
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.**

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?	**39 Parking Spaces within a below-grade 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?	**(1) accessible space and (1) van accessible space with 8' wide access aisles.**
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?	**Accessible visitor parking is located within the lower level parking garage, adjacent to the elevator lobby.**
Has a drop-off area been identified? ***If yes*****,** will it be accessible?	**No**

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:	**Flush Condition at all entryway locations. An accessible ramp is provided within the school entry lobby to navigate down to the main ground floor level, which will be located approximately 24" below street grade. The apartment building is serviced by an elevator and flush condition at the entryway. All common areas are accessible.**

Are the accessible entrances and standard entrance integrated? ***If yes,*** describe. ***If no***, what is the reason?	**Yes. The ground floor access will be flush with the street grade.**
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	**All future way finding signage will be developed to meet Building Code and Accessibility Board Requirements.**

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?	**54 Residential Units**
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?	**54 apartment units; it has not been determined at this time whether the units will be rental or for sale.** **At this time, 45 market rate units and 9 affordable units.**
If a residential development, how many accessible Group 2 units are being proposed?	**3 units.**
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none,*** describe reason.	**It will be a mix of affordable and market rate units. Final combination to be determined.**
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.	**Not Applicable.**

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.	**No.**
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes*****,** describe:	**Yes, and elevator will provide access all main floors. An interior ramp will also provide access from grade to the ground-floor use.**

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?	**Per the Landscape Plan, tree plantings/planters are proposed along Old Colony Ave and as a visual buffer between the neighboring buildings. Bicycle racks are also proposed on the sidewalk along Old Colony Ave.**
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	**All of the building will be accessible.**

Are any restrooms planned in common public spaces? ***If yes*****,** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	**Yes. Two restrooms will be located off of the ground floor entry lobby. They are planned to be single-stall, ADA compliant. Designations of "Family/Companion" restrooms are to be determined.**
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?	**Not at this time. This will be done during the review period for the PNF.**
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?	**Not at this time. This will be done during the review period for the PNF.**

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 Figures F-1 thru F-3**
Provide a diagram of the accessible route connections through the site, including distances. **See attached Figures F-1 thru F-3**
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. **See attached Figures F-1 thru F-3**
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project.

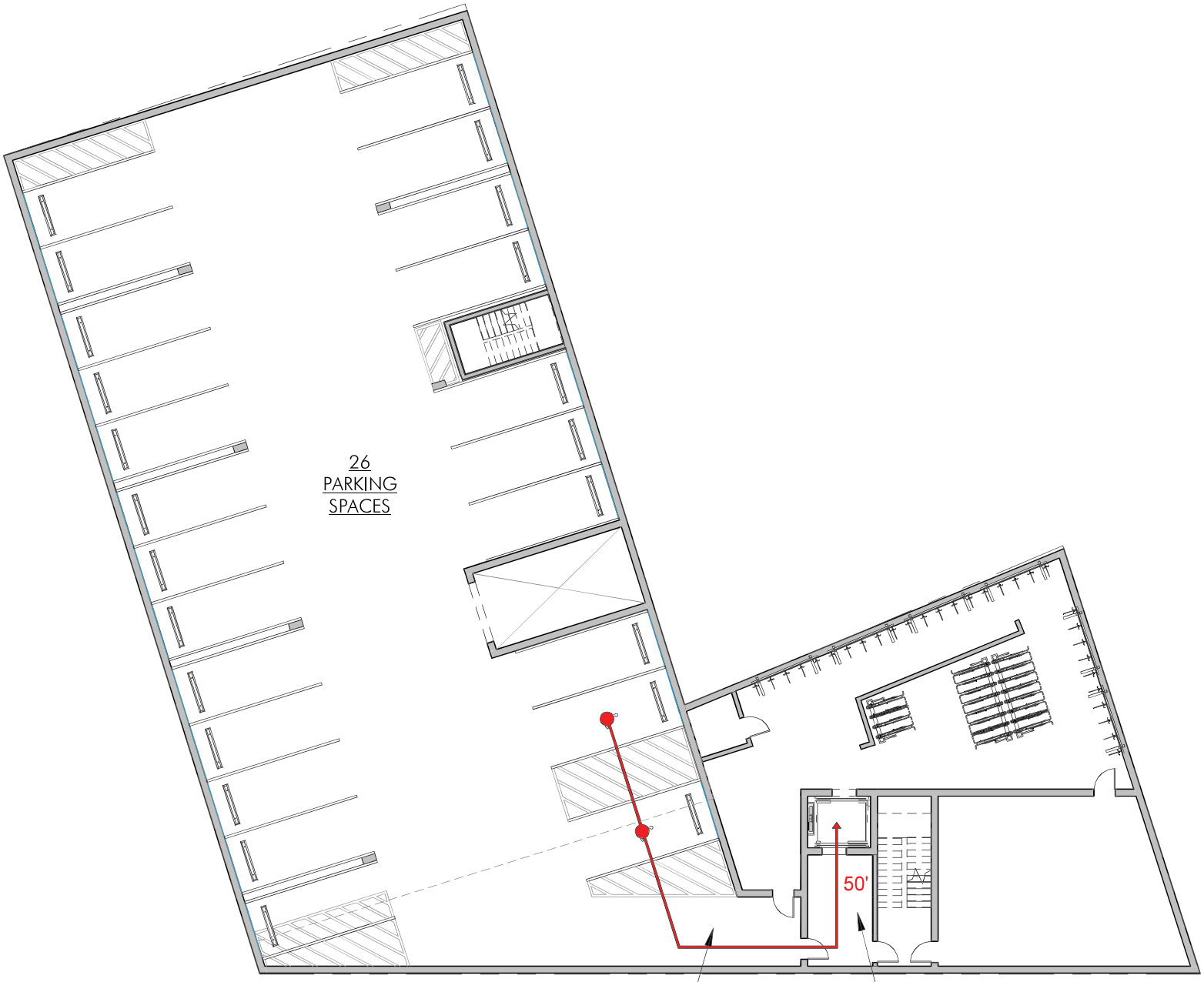
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open 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

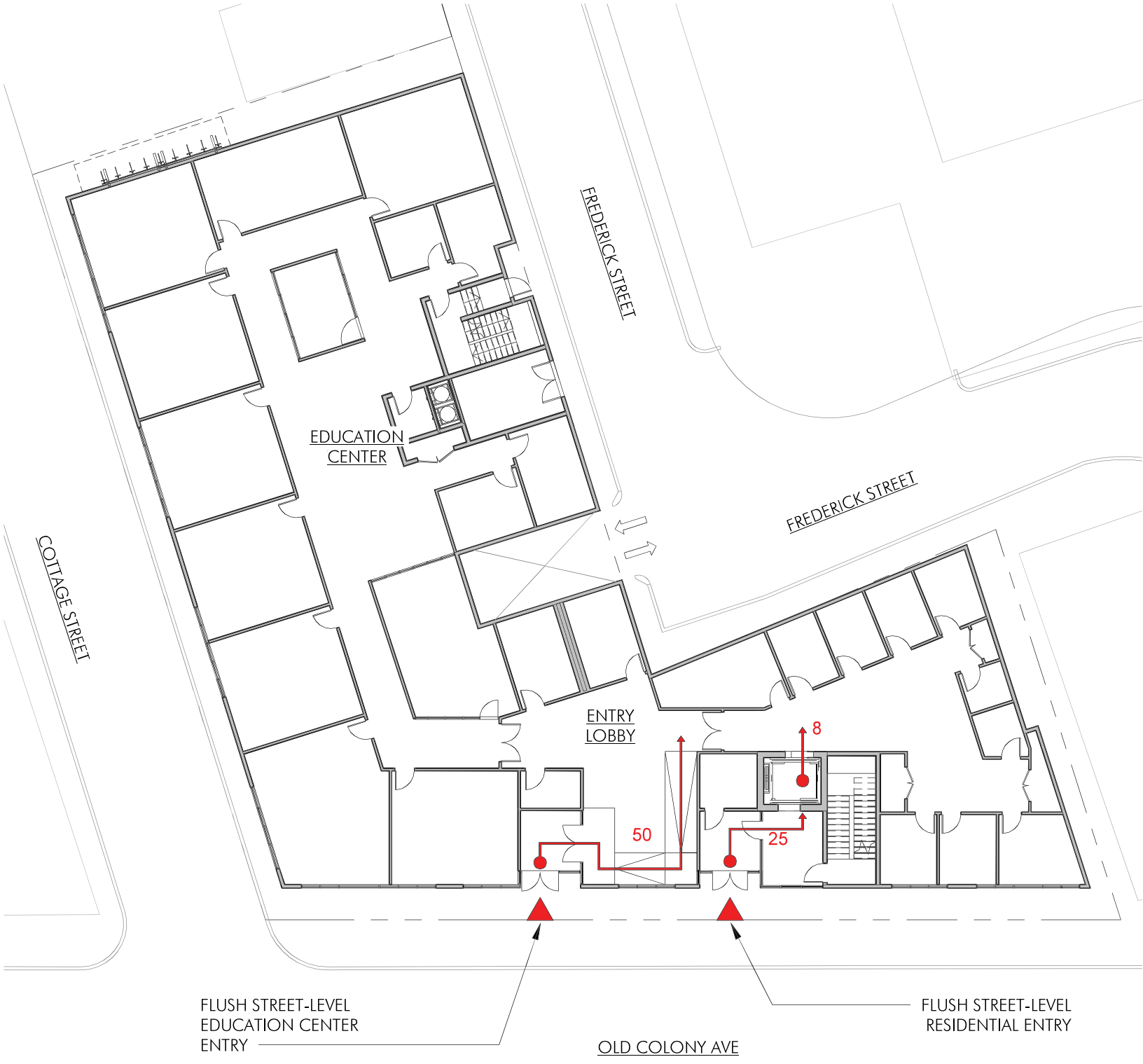


200-204 Old Colony Avenue

PARKING LEVEL ACCESSIBILITY DIAGRAM

EMBARC

FIGURE: F-1



200-204 Old Colony Avenue

GROUND FLOOR ACCESSIBILITY DIAGRAM

FIGURE: F-2

EMBARC

APPENDIX G – RESPONSE TO BPDA BROADBAND QUESTIONNAIRE

Appendix G- Response to BPDA Broadband Questionnaire

Broadband Ready Buildings Questionnaire for Inclusion in BPDA Article 80 Development Review

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.

Appendix G- Response to BPDA Broadband Questionnaire

Section 1: General Questions

For consistency, general intake questions below are modeled after Boston Planning and Development Agency Climate Change Resiliency and Preparedness Checklist.

Project Information:

- Project Name: **200-204 Old Colony Avenue, South Boston**
- Project Address Primary: **200-204 Old Colony Avenue, South Boston**
- Project Address Additional:
- Project Contact: **Patrick Mahoney, Esq./ All Saints Development LLC/Patrick@patrickmmohoney.com/617-939-3922**
- Expected completion date: **4th Quarter, 2020**

Team Description:

- Owner / Developer: **All Saints Development, LLC**
- Architect: **EMBARC Architecture + Design Studio**
- Engineer (building systems): **Wozny/Barbar & Associates, Inc.**
- Permitting: **MLF Consulting LLC**
- Construction Management: **TBD**

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: **Old Colony Avenue**
- Locations of Points of Entry: **TBD- Unknown**
- Quantity and size of conduits: **TBD-Unknown**
- Location where conduits connect (e.g. building-owned manhole, carrier-specific manhole or stubbed at property line): **TBD- Unknown**
- 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.

- Yes
- No
- **Unknown**

Appendix G- Response to BPDA Broadband Questionnaire

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

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

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

- Will the telecom room be climate controlled?
    - Yes
    - No
    - **Unknown**

- If the building is within a flood-prone geographic area, will the telecom equipment will be located above the floodplain?
    - Yes
    - No
    - **Unknown**

Appendix G- Response to BPDA Broadband Questionnaire

- Will the telecom room be located on a floor where water or other liquid storage is present?
    - Yes
    - No
    - **Unknown**

- Will the telecom room contain a flood drain?
    - Yes
    - No
    - **Unknown**

- Will the telecom room be single use (telecom only) or shared with other utilities?
    - Telecom only
    - Shared with other utilities
    - **Unknown**
- 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?
- Yes
- No
- **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.

#7: Is the building/developer providing wiring within each unit?
- Yes
- No
- **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. **TBD- Unknown**

Appendix G- Response to BPDA Broadband Questionnaire

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?

- Yes
- No
- **Unknown**

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

- Yes
- No
- **Unknown**

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

- Yes
- No
- **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.

Appendix G- Response to BPDA Broadband Questionnaire

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

- Yes
- No
- **Unknown**

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

- Yes
- No
- **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 - enter contact info
- RCN - enter contact info
- Verizon - enter contact info
- Wicked Broadband - enter contact info
- WebPass
- Starry
- Level 3
- Cogent
- Lightower
- XO Communications
- AT&T
- Zayo
- Other(s) - please specify - enter contact info: **TBD- Unknown**

Appendix G- Response to BPDA Broadband Questionnaire

#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 for Boston Planning and Development Agency

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.

200-204 Old Colony Avenue, South Boston

Project Notification Form | May 2018