PROJECT NOTIFICATION FORM

The Parkway Apartments

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

Submitted by:
Lincoln Parkway, LLC
221 Crescent Street, Suite 102A
Waltham, MA 02453

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

In Association with:
SK&I Architecture
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC
Howard Stein Hudson
R.W. Sullivan Engineering
GZA Geoenvironmental, Inc.
LandDesign
Nauset Strategies

September 4, 2018

Epsilon ASSOCIATES INC.

EXPANDED PROJECT NOTIFICATION FORM

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Epsilon
ASSOCIATES INC.

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Chapter 1.0

Introduction/Project Description

1.0 INTRODUCTION/ PROJECT DESCRIPTION

1.1 Introduction

Lincoln Parkway, LLC (the Proponent), proposes to develop an approximately 4.6-acre site (the Project site) at 1507 VFW Parkway in the West Roxbury neighborhood of Boston. The existing site currently contains a dilapidated surface parking lot, a private drive (A Street), and undeveloped land. The site will be developed with a 258 unit residential, neighborhood apartment community in two detached, four-story buildings with 387 garage parking spaces (the Project).

The Project will transform a long-vacant site located on a major transportation artery at the City's gateway with Dedham, into a vibrant residential community that will provide a strong urban edge along the VFW Parkway. Sidewalks abutting the site will be improved with the installation of new, accessible ramps, improvements to street lighting where necessary, and planting of street trees. In addition to the benefits to the public realm, the Project also provides new housing units, including new on-site affordable housing, construction and permanent jobs, and improved tax revenues for the City of Boston.

This Expanded Project Notification Form (PNF) is being submitted to the Boston Redevelopment Authority (BRA), doing business as the Boston Planning and Development Agency (BPDA), to initiate review of the Project under Section 80B of the Boston Zoning Code (Zoning Code), Large Project Review. No zoning relief is required as the Project is designed to be well-below the allowable density per Code. The PNF offers a description of the Project, its minimal impacts and proposed mitigation strategies, and its substantial benefits to the City of Boston.

1.2 Project Identification

Address/Location:	1507 VFW Parkway
Developer:	Lincoln Parkway, LLC 221 Crescent Street, Suite 102A Waltham, MA 02453 (781) 398-2223 John J. Noone Basil Koutsogeorgas

Architect:	SK&I Architecture 7735 Old Georgetown Road, Suite 1010 Bethesda, MD 20814 (301) 654-9300 Dr. Abed Benzina Christopher Huffer
Legal Counsel:	Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC One Financial Center Boston, MA 02111 (617) 542-6000 Daniel O. Gaquin, Esq. Jeffrey R. Porter, Esq.
Permitting Consultants:	Epsilon Associates, Inc. 3 Clock Tower Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Cindy Schlessinger Talya Moked
Transportation Consultant and Civil Engineer:	Howard Stein Hudson 11 Beacon Street, Suite 1010 Boston, MA 02108 (617) 482-7080 Guy Busa Richard Latini Brian Beisel Jay Carroll
MEP Engineer	R. W. Sullivan Engineering 529 Main Street, Suite 203 Boston, MA 02129 (617) 523-8227 Michael O'Rourke
Geotechnical Consultant:	GZA Geoenvironmental, Inc. 248 Vanderbilt Avenue Norwood, MA 02062 (781) 278-3700 Matthew Smith

Landscape Design	LandDesign 200 South Peyton Street Alexandria, VA 22314 (703) 549-7784 Gabriela Clark
Community Outreach:	Nauset Strategies One Design Place, Suite 638 Boston, MA 02210 (617) 523-3097 Michael K. Vaughan Christine McMahon

1.3 Project Description

1.3.1 Project Site

The Project site is an approximately 4.6-acre site located in the West Roxbury neighborhood of Boston, bound by the Veterans of Foreign Wars (VFW) Parkway to the east, Dedham Street to the north, Second Street to the west, and Prime Honda Boston to the south. The Project site currently contains a dilapidated surface parking lot with approximately 90 parking spaces, a private drive (A Street), and undeveloped land. The surface parking lot is in poor condition and does not appear to be in use. A slope along the site's eastern edge raises the site's grade to meet the elevation of the VFW Parkway (approximately eight feet of total elevation change). Pedestrian walkways currently exist on the east side of the site adjacent to the VFW Parkway and the north side of the site adjacent to the northern edge of Dedham Street. See Figure 1-1 for an aerial locus map, and Figures 1-2 to 1-4 for existing conditions of the Project site.

1.3.2 Area Context

The Project site is located on the VFW Parkway to the west and north of the Dedham town line. The Project site is adjacent to residential (Boston Trailer Park and Charles River Realty Apartments) and commercial (Mobil Gas Station and Prime Honda of Boston) uses. The site is ½ mile south of the VA Medical Hospital West Roxbury and one mile south of the West Roxbury Educational Complex. The VFW Parkway is the main vehicular corridor that connects the site to Boston, Brookline, Jamaica Plain, and Forest Hills to the northeast and Dedham and Interstate 95 to the southwest. The Spring Street at Charles River Stop for the 36 and 52 MBTA Buses are ¼ mile to the north. The site is also located along a portion of the VFW Parkway that is lined primarily with surface parking lots serving miscellaneous

retail outlets. Although the site is located on the VFW Parkway, it is not part of the VFW Parkway Greenbelt Protection Overlay District but is part of the West Roxbury Neighborhood District and the Route 1 Community Commercial Neighborhood Business Subdistrict.

1.3.3 Proposed Project

The Project, as shown in Table 1-1, will develop the underutilized site with a 258 unit residential neighborhood apartment community in two detached, four-story buildings on either side of A Street. The Project will include 387 garage parking spaces in a five-level internal parking garage, allowing residents direct access to the building. The Project will include modern clubhouse amenities, an outdoor pool, and ample open space. See Figure 1-5 for a site plan. Floor plans and elevations are provided in Appendix A. Table 1-2 provides the anticipated unit mix.

Table 1-1 Project Program

Project Element	Approximate Dimension
Residential	258 units
Parking	387 spaces
Total Gross Floor Area	**351,000 sf**
Height	4 stories/ 45 feet
Parcel Area	200,376 sf (4.6 acres)
Floor Area Ratio	1.75

Table 1-2 Unit Mix

Level	One Bedroom	One Bedroom + Den	Two Bedroom	Total Units*
1	36	0	20	56
2	35	4	25	64
3	36	4	29	69
4	36	4	29	69
Total	**143**	**12**	**103**	**258**

*Unit mix and floor plan layouts are subject to change as design progresses

The Project is organized in two blocks (A and B) divided by an interior private drive that serves as a welcoming entrance court and as the main connection to the VFW Parkway and the adjacent neighborhood. Main lobbies and residential amenities are located at the ground level with residential units overlooking the court. A strong urban edge is provided along the VFW Parkway and Dedham Street while a large landscaped setback and open courtyards face Second Street and the adjacent neighbors.

G:\Projects2\MA\Boston\5136\MXD\aerial_20180626.mxd

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

The Parkway Apartments West Roxbury, Massachusetts

Epsilon Associates Inc.

Figure 1-1

Aerial Locus Map

The Parkway Apartments West Roxbury, Massachusetts

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Figure 1-2

Existing Conditions

The Parkway Apartments West Roxbury, Massachusetts

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Figure 1-3

Existing Conditions

The Parkway Apartments West Roxbury, Massachusetts

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Figure 1-4

Existing Conditions

0' 30' 60' 120'

The Parkway Apartments West Roxbury, Massachusetts

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Figure 1-5

Site Plan

1.4 Public Benefits

The Project will generate numerous and varied public benefits for the surrounding neighborhood and the City of Boston as a whole, both during construction and on an ongoing basis upon its completion.

Improved Design

The Project will improve a currently vacant site with a residential apartment community that will provide a strong urban edge along the VFW Parkway and Dedham Street along with a large landscaped setback and open courtyards facing Second Street and the adjacent neighbors.

Sustainable Design/Green Building

The Proponent is committed to building a LEED certifiable project, incorporating sustainable design features into the Project to preserve and protect the environment.

Inclusionary Affordable Housing

The Project is subject to the Mayor's Executive Order regarding inclusionary affordable housing, dated February 29, 2000, as amended, as well as the Inclusionary Development Policy (IDP). Thirteen percent (13%) of the 258 dwelling units in the Project will be on-site IDP units.

Increased Employment

The Project will create approximately 300 construction jobs and approximately 15 permanent jobs upon stabilization.

New Property Tax

The Project will result in approximately $918,000 of increased tax revenues compared to the existing condition.

1.5 City of Boston Zoning

The Project site is part of the West Roxbury Neighborhood District, which is governed by §56 of the Boston Zoning Code, and Table F thereof. The Project site is also part of the Route 1 Community Commercial (CC) Neighborhood Business Subdistrict per Zoning Code §56-14. Although the site is located on the VFW Parkway, it is not part of the VFW Parkway Greenbelt Protection Overlay District, which terminates at Spring Street to the North. The site is part of Zone C with respect to the IDP. The Site abuts a Multifamily Residential zone to the West. No zoning relief is required as the Project is designed to be well-below the allowable density per Code, containing a total Floor Area Ratio of 1.75 (2.0 allowed) and lot coverage of 48% allowing significant open space.

1.6 Legal Information

1.6.1 Legal Judgments Adverse to the Proposed Project

The Proponent is not aware of any legal judgments in effect or legal actions pending that are adverse to the Project.

1.6.2 History of Tax Arrears on Property

The Proponent does not have a history of tax arrears on any property owned within the City of Boston.

1.6.3 Site Control/ Public Easements

Lincoln Parkway, LLC controls the site under the Purchase and Sale Agreement dated June 6, 2018. The property is subject to an order of taking by the Commonwealth for a sewer main easement, which was under MWRA management. The sewer line was cut, capped, filled, and replaced with a new sewer line in the VFW Parkway right of way by the MWRA as part of the 2004 sewer improvements. The Proponent has facilitated the MWRA to surplus the designation of the sewer easement and has requested a release from DCAMM, as part of the entitlement process.

A site survey is included as Appendix B.

1.7 Anticipated Permits

Table 1-3 presents a preliminary list of permits and approvals from governmental agencies that are expected to be required for the Project, based on currently available information. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.

Table 1-3 Anticipated Permits and Approvals

Agency	Permit, Review or Approval
Federal Agencies	
Environmental Protection Agency	NPDES General Construction Permit
State Agencies	
Department of Environmental Protection	Notification prior to construction
Executive Office of Energy and Environmental Affairs	Massachusetts Environmental Policy Act review
Massachusetts Department of Transportation	State Highway Access Permit
Massachusetts Historical Commission	State Register Review

Table 1-3 Anticipated Permits and Approvals (Continued)

Agency	Permit, Review or Approval
State Agencies	
Massachusetts Water Resources Authority	Direct Connection Permit
City Agencies	
Boston Civic Design Commission	Schematic Design Review
Boston Committee on Licenses/Public Safety Commission	Parking Garage Permit Flammable Storage License (parking garage)
Boston Conservation Commission	Order of Conditions
Boston Inspectional Services Department	Building Permit; Other construction-related permits; Certificates of Occupancy
Boston Interagency Green Building Committee	Zoning Article 37 Green Buildings
Boston Planning & Development Agency	Large Project Review (Section 80B) Cooperation Agreement Boston Residents Construction Employment Plan Affordable Housing Agreement and Restriction
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Agreement
Boston Water and Sewer Commission	Site Plan Review; Dewatering Discharge permit

1.8 Public Participation

As part of its planning efforts, the Proponent met with nearby neighbors, residents, and representatives of neighborhood groups, elected officials, and public agencies. Neighborhood groups such as the West Roxbury Neighborhood Council, West Roxbury Business and Professional Associates, West Roxbury Main Streets, and Boston Trailer Park Tenants Association, Inc. will be consulted throughout the community process. The Proponent has also met with the BPDA and other City agencies on multiple occasions.

The Proponent continues to be committed to a comprehensive and effective community outreach and will continue to engage the community to ensure public input on the Project. The Proponent looks forward to working with the BPDA and city agencies, local officials, neighbors, and others as the design and review processes move forward.

1.9 Schedule

It is anticipated that construction will commence in the second quarter of 2019. Once begun, construction is expected to last approximately 22 months.

Chapter 2.0

Transportation

2.0 TRANSPORTATION

The Project team has conducted an evaluation of the transportation impacts of the Project in the West Roxbury neighborhood of Boston. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and BPDA Article 80 Large Project Review process. This study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, loading operations, transit services, and pedestrian activity. The Project is anticipated to have minimal impact on traffic conditions. All of the study area intersections and approaches continue to operate at the same levels of service during the weekday a.m. and p.m. peak hours as they did in the Existing Condition and No Build Condition.

2.1 Project Description

The Project site is located on the southwest edge of the West Roxbury neighborhood of Boston on the west side of Veterans of Foreign Wars (VFW) Parkway to the south of Dedham Street.

The site is approximately 4.6 acres of vacant land and currently contains a dilapidated surface parking lot with approximately 90 parking spaces, a private road (A Street), and an empty lot. The A Street curb cut provides access to the site.

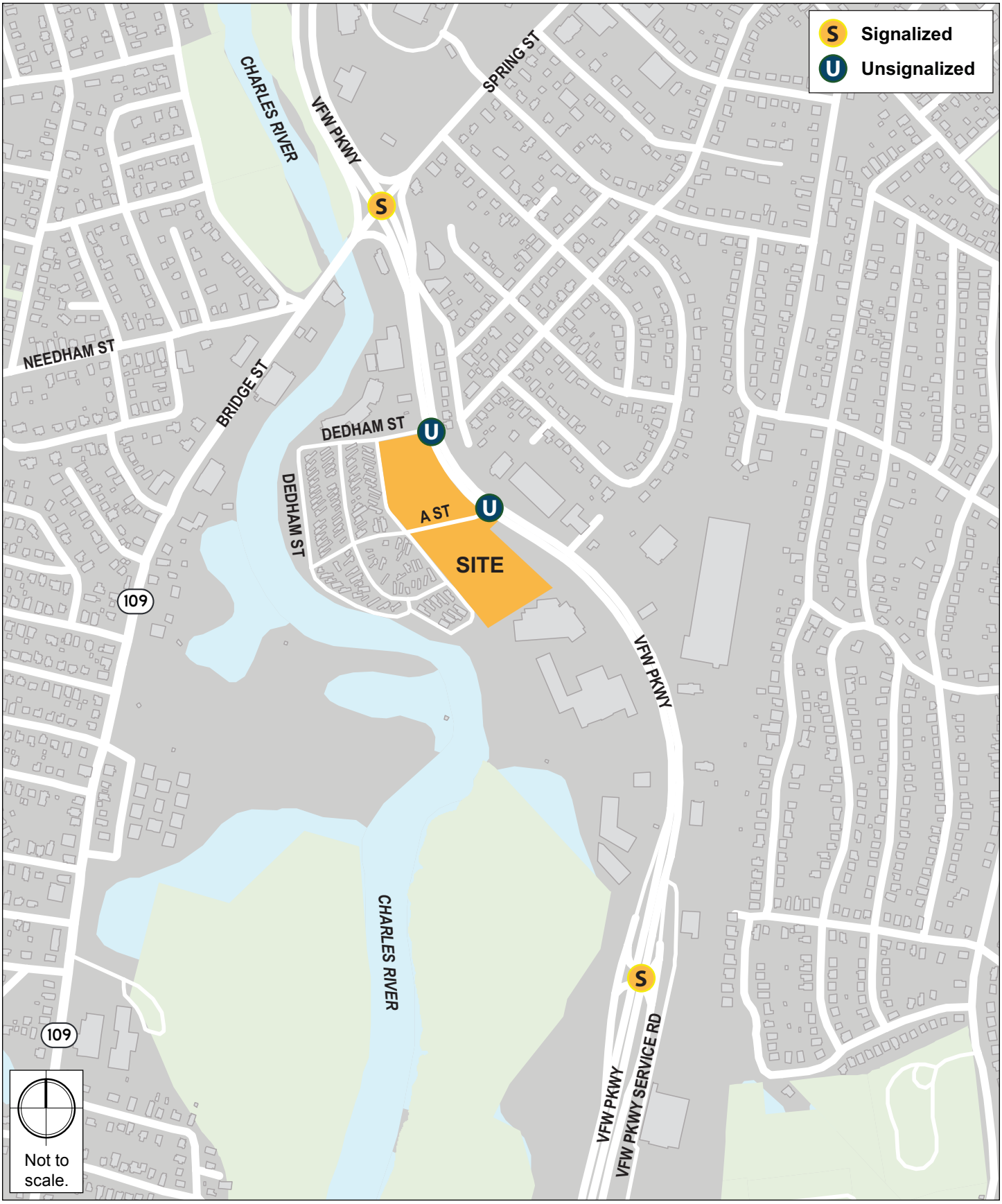
The proposed Project will include two separate four-story, residential buildings that include 258 residential units and amenities for the residents. The Project also includes 387 parking spaces located in an above ground, five level garage, which is "wrapped" by one of the residential buildings, shielding it from public view.

Vehicular access to the garage will be provided by a single driveway from A Street. Pedestrian access to the residential units will be provided along A Street via two lobbies. Pedestrian connectivity will be provided between the garage and the two residential buildings. Loading, deliveries, and trash pick-up will take place on the Project site in two enclosed loading bays, at the western corner of each building along A Street.

2.1.1 Study Area

The transportation study area runs along the VFW Parkway, bounded by Bridge Street and Spring Street to the north, and the U-Turn junction of VFW Parkway to the south. The study area consists of the following intersections in the vicinity of the Project site, also shown on Figure 2-1:

- VFW Parkway/Bridge Street/Spring Street (signalized);
- U-turn junction at VFW Parkway (signalized);
- VFW Parkway/Dedham Street (unsignalized); and
- VFW Parkway/A Street (unsignalized).



The Parkway Apartments **West Roxbury, Massachusetts**

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Figure 2-1
Study Area Intersections

2.1.2 Study Methodology

This transportation study and its supporting analyses were conducted in accordance with BTD guidelines and are described below.

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

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. The long-term transportation 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 analysis 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 analysis includes a net change 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 analysis. The transportation study identified expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies.

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.

2.2 Existing Condition

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

2.2.1 Existing Roadway Conditions

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

VFW Parkway is a four lane, two-way roadway located adjacent to the east of the Project site. It is classified as an urban principal arterial (Class 2) under MassDOT jurisdiction and runs in a predominately north-south direction between Centre Street to the north and the Boston Providence Turnpike to the south. A seven-foot median between the two directions of travel that contains guardrails on either side and a fence exists in the vicinity of the Project site. A service road is provided on the northbound side of traffic on VFW Parkway that begins approximately 2,100 feet south of the VFW Parkway U-turn interchange and ends at the U-turn interchange. Sidewalks are provided along both sides of VFW Parkway. Parking is prohibited on both sides of the roadway.

Bridge Street is a two-way, predominately two-lane roadway located to the north of the Project site. In the vicinity of the Project site, Bridge Street is a two-way, three lane roadway with a channelized right turn without storage in the eastbound direction. It is classified as an urban principal arterial (Class 3) under MassDOT jurisdiction and runs in a predominately east-west direction between Spring Street to the east and High Street to the west. Bridge Street is a part of Route 109, which runs in a predominately east-west direction between Spring Street to the east and Route 16 in Milford to the west. Sidewalks are provided along both sides of Bridge Street. Parking is prohibited on both sides of the roadway.

Spring Street is a four lane, two-way roadway located to the north of the Project site. It is classified as an urban minor arterial under BTD's jurisdiction and runs in a predominately east-west direction between Centre Street to the east and Bridge Street to the west. Sidewalks positioned approximately six feet away from the roadway are provided on both sides of Spring Street. Parking is prohibited on both sides of the roadway.

Dedham Street is a two-way, two lane, paved roadway located adjacent to the north of the Project site. It is classified as local, private road and runs in a predominately east-west direction from VFW Parkway to the east and Boston Trailer Park to the west. A sidewalk is provided on the south side of the roadway.

A Street is a two-way two lane, unpaved roadway that runs through the center of the Project site. It is classified as a local, private road and runs in a predominately east-west direction between VFW Parkway to the east and Dedham Street to the west.

2.2.2 Existing Intersection Conditions

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.

VFW Parkway/Bridge Street/Spring Street is a signalized, four-legged intersection that consists of four approaches. The Bridge Street eastbound approach consists of three lanes: an exclusive left-turn lane, a shared left-turn/through lane, and a channelized right-turn lane. The Spring Street westbound approach consists of three lanes: an exclusive left-turn lane, an

exclusive through lane, and a channelized right-turn lane. The VFW Parkway northbound approach consists of four lanes: an exclusive left-turn lane, two through lanes, and a channelized right-turn lane. The VFW Parkway southbound approach consists of four car lanes and two bike lanes: an exclusive left-turn lane, two through lanes, a bike through lane, a channelized right-turn lane and bike right-turn lane. None of the departure legs have a bike lane. An MBTA bus stop serving routes 36 and 52 is located on the Spring Street westbound approach and at the Spring Street departure leg. An approximately eight-foot wide median separates the directions of traffic on the VFW Parkway northbound approach and an approximately nine-foot wide grass median separates the directions of traffic on the VFW Parkway southbound approach. Sidewalks, wheelchair ramps, and crosswalks are located on all approaches. There is pedestrian signal equipment on all approaches excluding the channelized right-turn lanes. Parking is prohibited on all approaches to the intersection.

The *U-turn junction at VFW Parkway* is a signalized, eight-legged intersection that consists of four approaches. This intersection can be simplified into four intersections, VFW Parkway jughandle, VFW Parkway Frontage Road, VFW Parkway U-Turns, and VFW Parkway SB Split. The VFW Parkway jughandle intersection consists of three legs and one approach. The VFW Parkway jughandle southbound approach consists of two lanes, one exclusive left-turn (the movement to make a U-turn maneuver) lane and one exclusive through lane. The VFW Parkway Frontage Road intersection consists of three legs and one approach. The VFW Parkway Frontage Road northbound approach consists of two lanes, one exclusive left-turn (the movement to make a U-turn maneuver) lane and one exclusive through lane. The VFW Parkway U-Turns intersection consists of eight legs and four approaches. The VFW Parkway SB U-turn eastbound approach consists of one exclusive left-turn lane (this is the same lane as the VFW Parkway jughandle southbound left-turn lane). The VFW Parkway NB U-turn westbound approach consists of one exclusive left-turn lane (this is the same lane as the VFW Parkway Frontage Road northbound left-turn lane). The VFW Parkway northbound and southbound approaches consist of two through lanes. The VFW Parkway SB Split intersection consists of three legs and one approach. The VFW Parkway southbound approach consists of two lanes, a shared through/right-turn lane and a through lane. Sidewalks are provided on the outer edges of the junction but there is no parking or pedestrian crosswalks, ramps or signal equipment provided. Parking is prohibited on all approaches

VFW Parkway/Dedham Street is an unsignalized, three-legged intersection that consists of three approaches. The Dedham Street eastbound approach consists of a single right-turn lane. The VFW Parkway northbound approach consists of two through lanes. The VFW Parkway southbound approach consists of two lanes: a through lane and a shared through/right-turn lane. There is a seven-foot wide median between the two directions of travel on VFW Parkway, prohibiting the Dedham Street eastbound approach and VFW Parkway northbound approach from turning left. Sidewalks are provided on both sides of VFW Parkway and wheelchair ramps on VFW Parkway across Dedham Street, but there are no crosswalks or pedestrian signal equipment. Parking is prohibited on all approaches.

VFW Parkway/A Street is an unsignalized, three-legged intersection that consists of three approaches. The A Street eastbound approach consists of a single right-turn lane. The VFW Parkway northbound approach consists of two through lanes. The VFW Parkway southbound approach consists of two lanes: a through lane and a shared through/right-turn lane. An approximately seven-foot wide median separates the two directions of travel on VFW Parkway, prohibiting the A Street eastbound approach and VFW northbound approach from turning left. There is also a telephone pole on A Street separating the approach and departure legs. Sidewalks are provided on both sides of VFW Parkway, but there are no wheelchair ramps, crosswalks, or pedestrian signal equipment. Parking is prohibited on all approaches.

2.2.3 Existing Parking

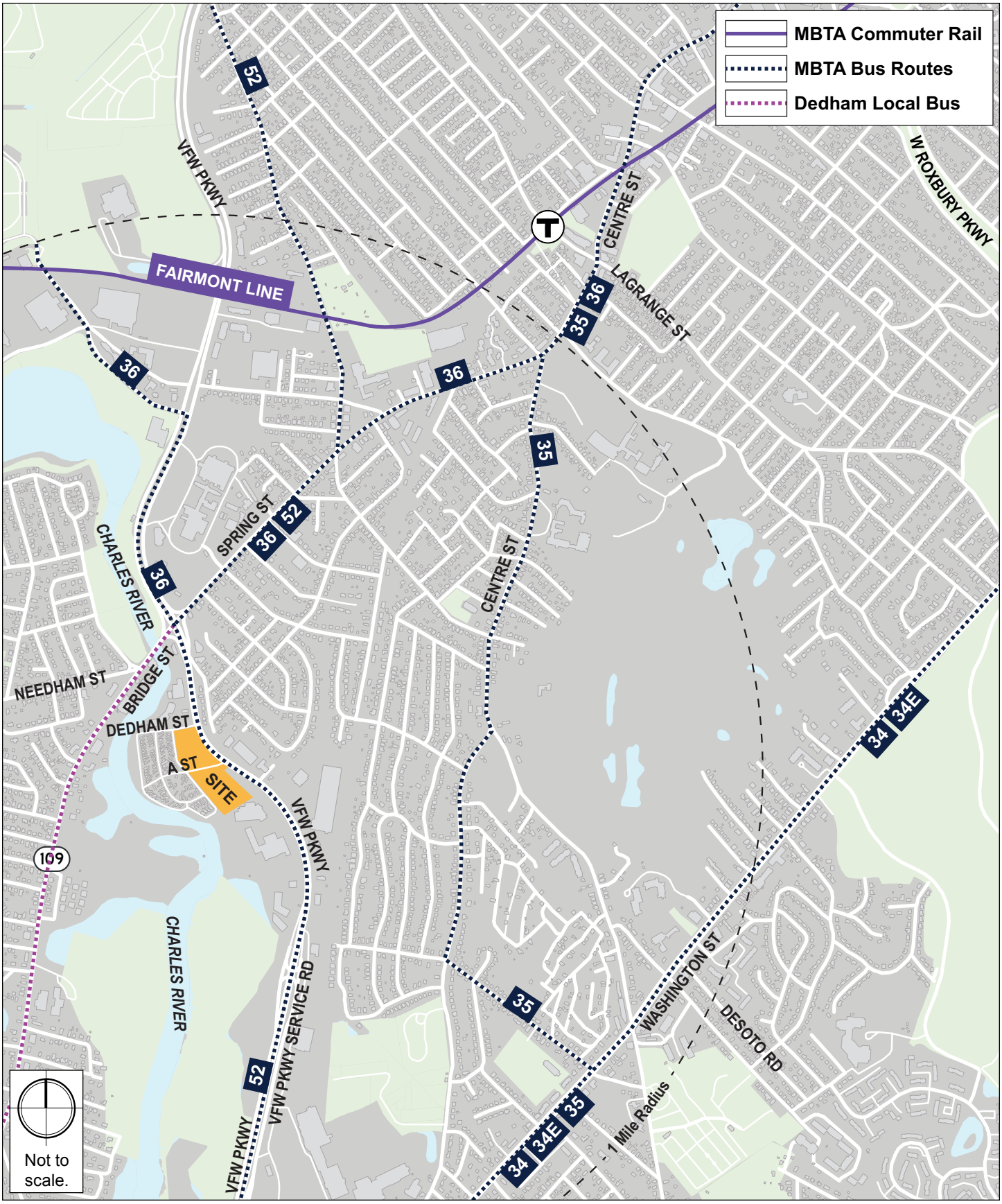
An inventory of the existing on-street and off-street parking, as well as car sharing services in the vicinity of the Project, was collected. On-street parking surrounding the Project site is prohibited. The private roads associated with the Boston Trailer Park (Dedham Street, A Street, Second Street, Riverway Street, and M Avenue) are not regulated. The existing Project site currently contains approximately 90 parking spaces in a dilapidated surface lot accessed on VFW Parkway. The lot is in poor condition and does not appear to be in use.

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. Zipcar is the primary company in the Boston car sharing market. There is not any car sharing locations within walking distance of the site.

2.2.7 Existing Public Transportation Services

The Project site is located in Boston's West Roxbury neighborhood on the border of Dedham with several public transportation opportunities. The MBTA Bus Route 52 travels adjacent to the east side of the site, along the VFW Parkway. The nearest bus stop is located approximately 2,000 feet to the northeast. Bus Route 36 provides access between the VFW Parkway and Forest Hills via the West Roxbury Commuter Rail.

Figure 2-2 maps all of the public transportation services located in close proximity of the Project site, and Table 2-1 provides a brief summary of all routes.



The Parkway Apartments **West Roxbury, Massachusetts**

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Figure 2-2
Public Transportation

Table 2-1 Existing Public Transportation Service Summary

Route	Description	Peak-hour Headway (in minutes)*	Weekday Service Duration
Train Route			
Commuter Rail	Needham Heights	10	6:05 a.m.– 12:00
Local Bus Routes			
DED	Dedham Local Bus Route	10	6:45 a.m.– 5:10
34	Forest Hills – Dedham Line	15	1:55 a.m.– 4:55
34E	Walpole Center/Dedham Line – Forest Hills Station	10-20	4:35 a.m.– 1:19 a.m.
35	Forest Hills – Dedham Mall	15	5:23 a.m.– 9:17
36	Forest Hills – Charles River/Millennium Park/Rivermoor Industrial Park	10	4:37 a.m.– 1:10 a.m.
52	Watertown Yard – Charles River	30	6:15 a.m.– 7:30

* Headway is the time between buses.

2.2.4 Existing Traffic Data

Traffic volume data was collected at the four study area intersections on Thursday, March 29, 2018. Turning Movement Counts (TMCs) and vehicle classification counts were conducted during the weekday a.m. peak period and the weekday p.m. peak period (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively). The traffic classification counts included car, heavy vehicle, pedestrian, and bicycle movements. The detailed traffic counts for the study area intersections are provided in Appendix C.

2.2.4.1 Existing Vehicular Traffic Volumes

To account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT was reviewed. The most recent (2011) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments of the March 2018 TMCs. The seasonal adjustment factor for roadways similar to the study area (Group 6) is 0.96. This indicates that average month traffic volumes are approximately four percent less than the traffic volumes that were collected. Therefore, the traffic counts were not adjusted downward to reflect average month conditions and provide a conservatively high analysis consistent with the peak season traffic volumes. The MassDOT 2011 Weekday Seasonal Factors table is provided in Appendix C.

The existing traffic volumes that were collected in March 2018 were balanced through the network to develop the Existing (2018) Condition traffic volumes. The Existing (2018) Condition weekday a.m. and p.m. peak hour traffic volumes are shown in Figure 2-3 and Figure 2-4, respectively.

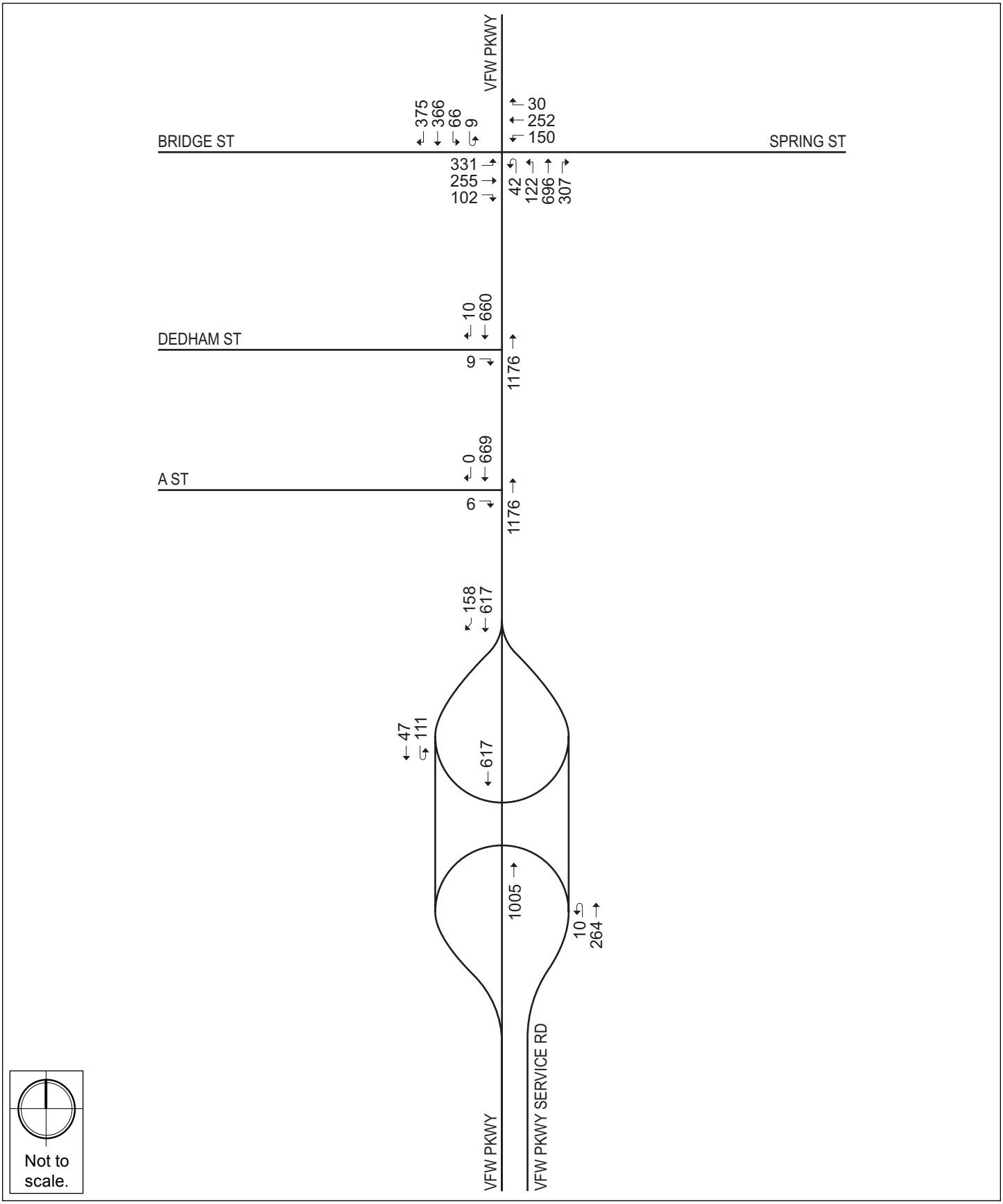

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Figure 2-3

Existing (2018) Condition Traffic Volumes, Weekday a.m. Peak Hour

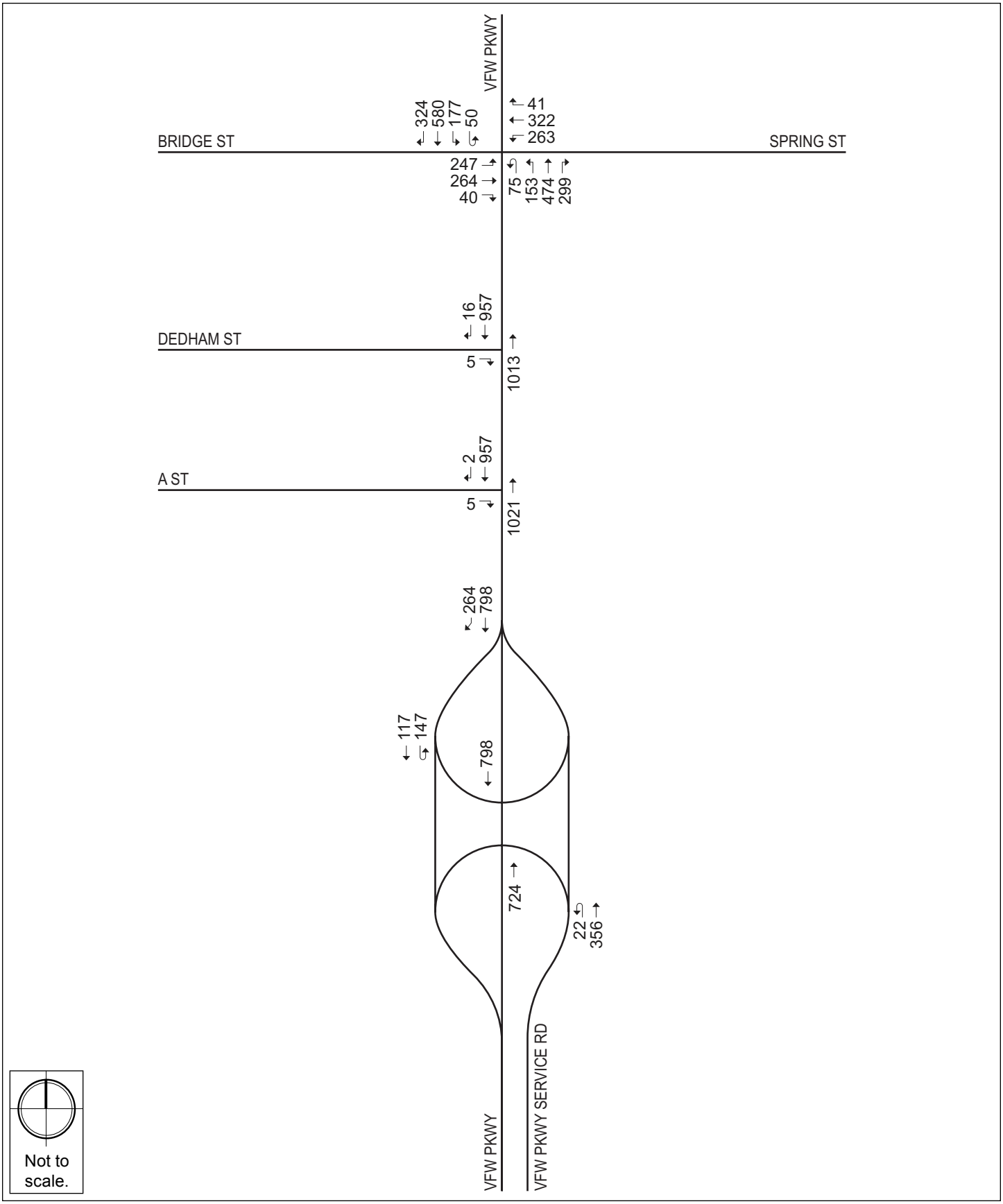

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Figure 2-4

Existing (2018) Condition Traffic Volumes, Weekday p.m. Peak Hour

2.2.4.2 Existing Bicycle Volumes and Accommodations

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is located in close proximity to bicycle facilities. The City of Boston's "Bike Routes of Boston" map shows VFW Parkway, Bridge Street, and Spring Street designated as advanced routes, suitable for experienced and traffic confident cyclists. Bicycle lanes are provided along VFW Parkway north of the intersection of VFW Parkway/Bridge Street/Spring Street.

Bicycle counts were conducted concurrent with the vehicular TMCs on March 29, 2018 and are presented in Figure 2-5.

Hubway (BlueBikes) is the Boston area's largest bicycle sharing service, which was launched in 2011 and currently consists of more than 3,400 shared bicycles at more than 190 stations throughout Boston, Brookline, Cambridge, and Somerville. However, Hubway is not located within walking distance of this site at this time.

2.2.4.3 Existing Pedestrian Volumes and Accommodations

The sidewalks that are provided are generally in good condition near the Project site. Crosswalks and pedestrian signal and phasing equipment is provided at the signalized intersection of VFW Parkway and Bridge Street/Spring Street.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs on March 29, 2018 at the study area intersections and are presented in Figure 2-6.

2.3 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. These infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements.

2.3.1 Background Traffic Growth

The methodology to account for future traffic growth, independent of the Project, consists of two parts. The first part of the methodology accounts for general background traffic growth that may be affected by changes in demographics, automobile usage, and automobile ownership. Based on a review of recent and historic traffic data collected for nearby projects and to account for any additional unforeseen traffic growth, a one-half percent per year annual traffic growth rate was used to develop the future conditions traffic volumes.

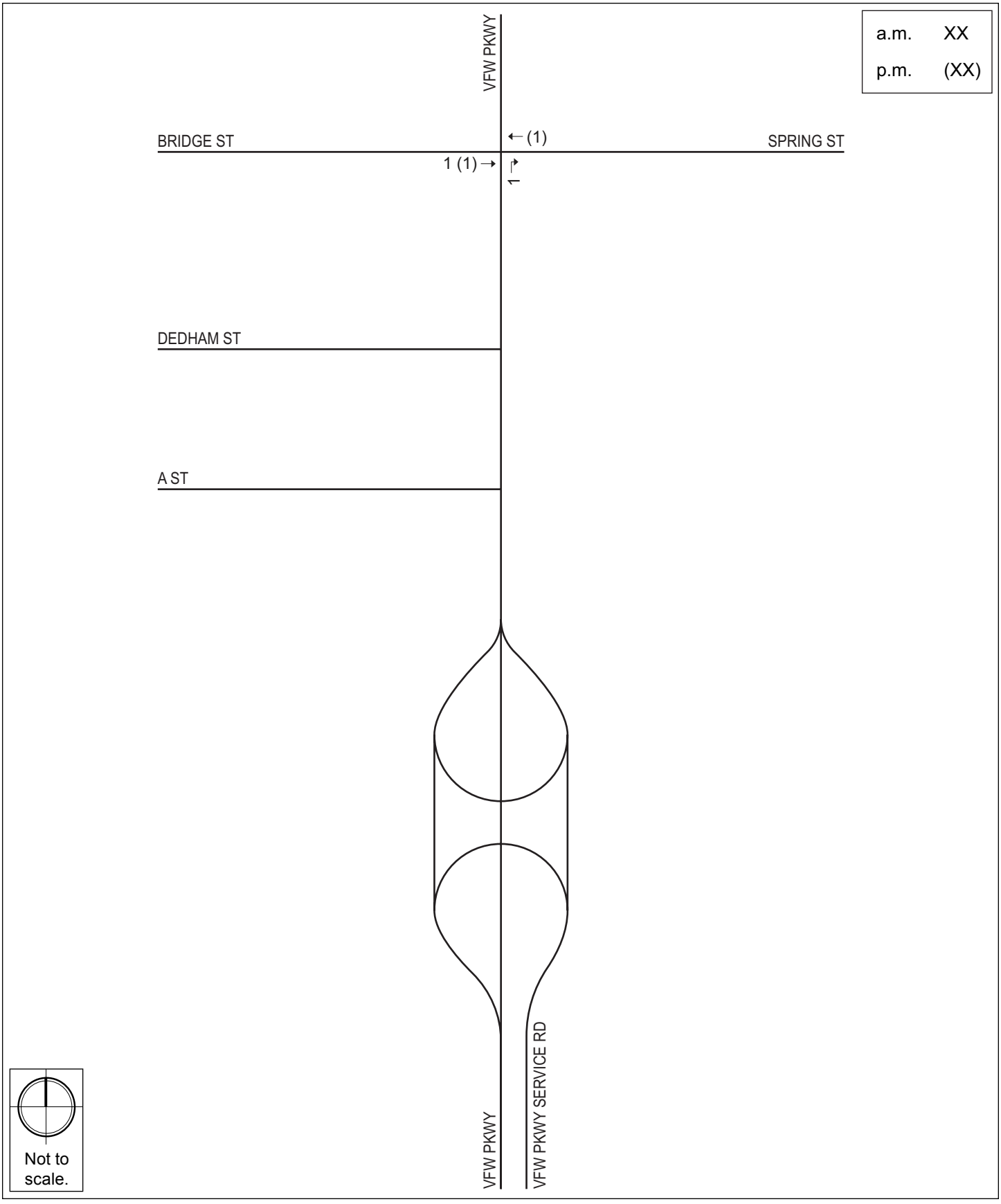

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Figure 2-5

Existing (2018) Condition Bicycle Volumes, Weekday a.m. and p.m. Peak Hours

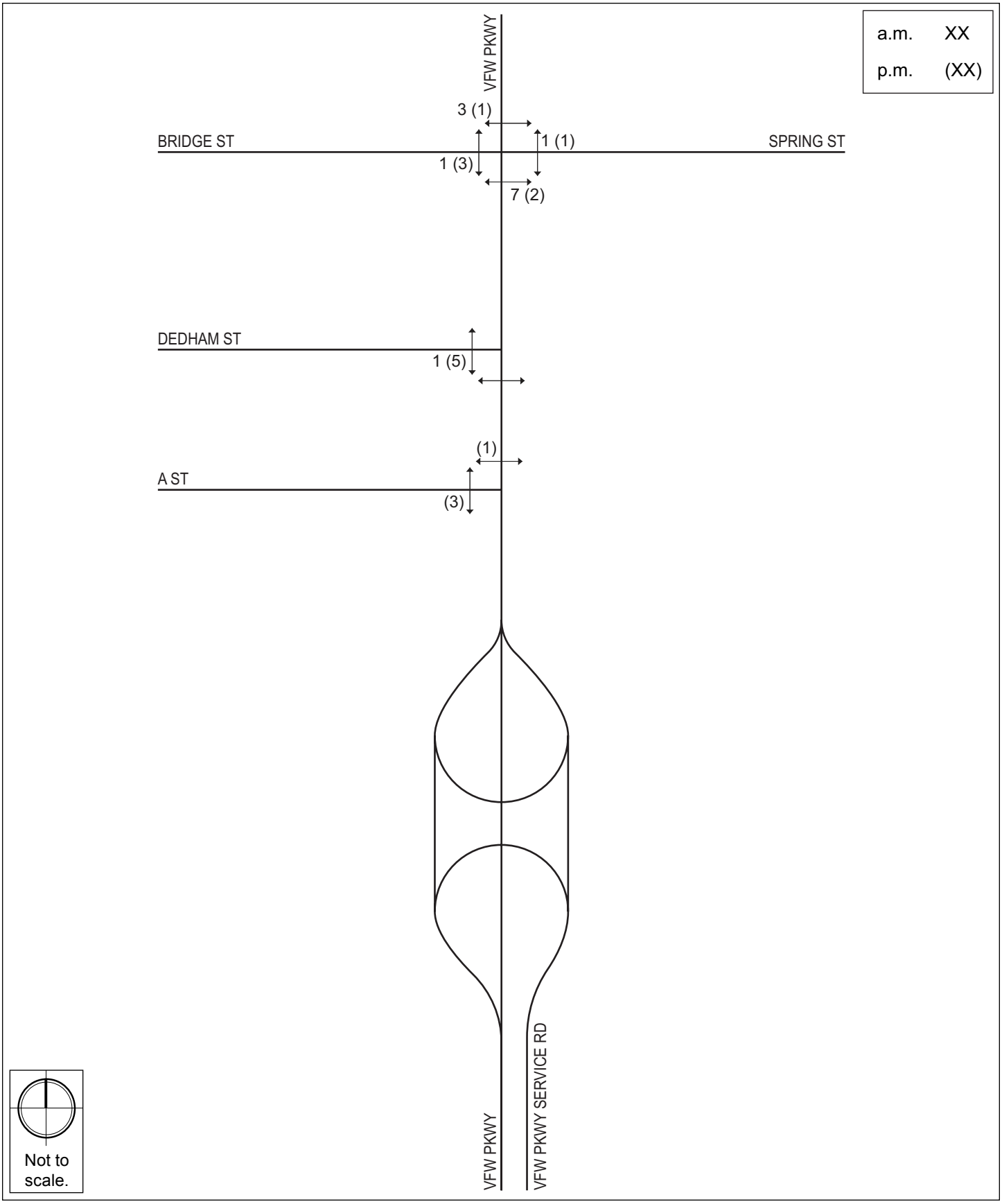

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Figure 2-6

Existing (2018) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

2.3.2 Specific Development Traffic Growth

The second part of the methodology identifies any specific planned developments that are expected to affect traffic patterns throughout the study area within the future analysis time horizon. Figure 2-7 shows the specific development projects in the vicinity of the study area, which are summarized below:

425 LaGrange – This project is located to the northeast of the Project site and proposes to construct 40 units in a three story, residential development. The project will also include 65 parking spaces in a below-grade parking garage. This project has been approved by the BPDA Board.

99 Rivermoor – This project is located to the north of the project site and includes approximately 154,376 gross square feet (gsf) of floor area to be used as a self-storage facility with 2,500 gsf of new office space, 75 exterior surface spaces to be used for long-term vehicle storage and 77 exterior surface parking spaces for patrons of the facility. This project completed construction in April 2018.

It is anticipated that any increase in traffic volumes from the above two projects will be accounted for in the background growth rate.

1235-1237 VFW Parkway – This project is located to the north of the Project site and will consist of the construction of approximately 80 rental units and 126 parking spaces in a below-grade lot and in a surface lot. This project is currently under construction.

270 Baker Street – This project is located to the north of the Project site and proposes to retain approximately 30,000 square feet of office space in an existing three-story structure and construct 16 units in two and a half story townhouse style structures as well as 40 units in three and a half story multi-family residential structures. The project will provide approximately 72 surface spaces for office building, 30 sub-grade structured parking spaces beneath the residential townhomes, and 63 sub-grade structured parking spaces. This project has been approved by the BPDA Board.

2.3.3 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. Based on this review, a Road Safety Audit (RSA) was conducted by MassDOT in November 2015 at the intersection of VFW Parkway/Spring Street/Bridge Street. At this time, a date to implement the recommendations of the RSA is not known.

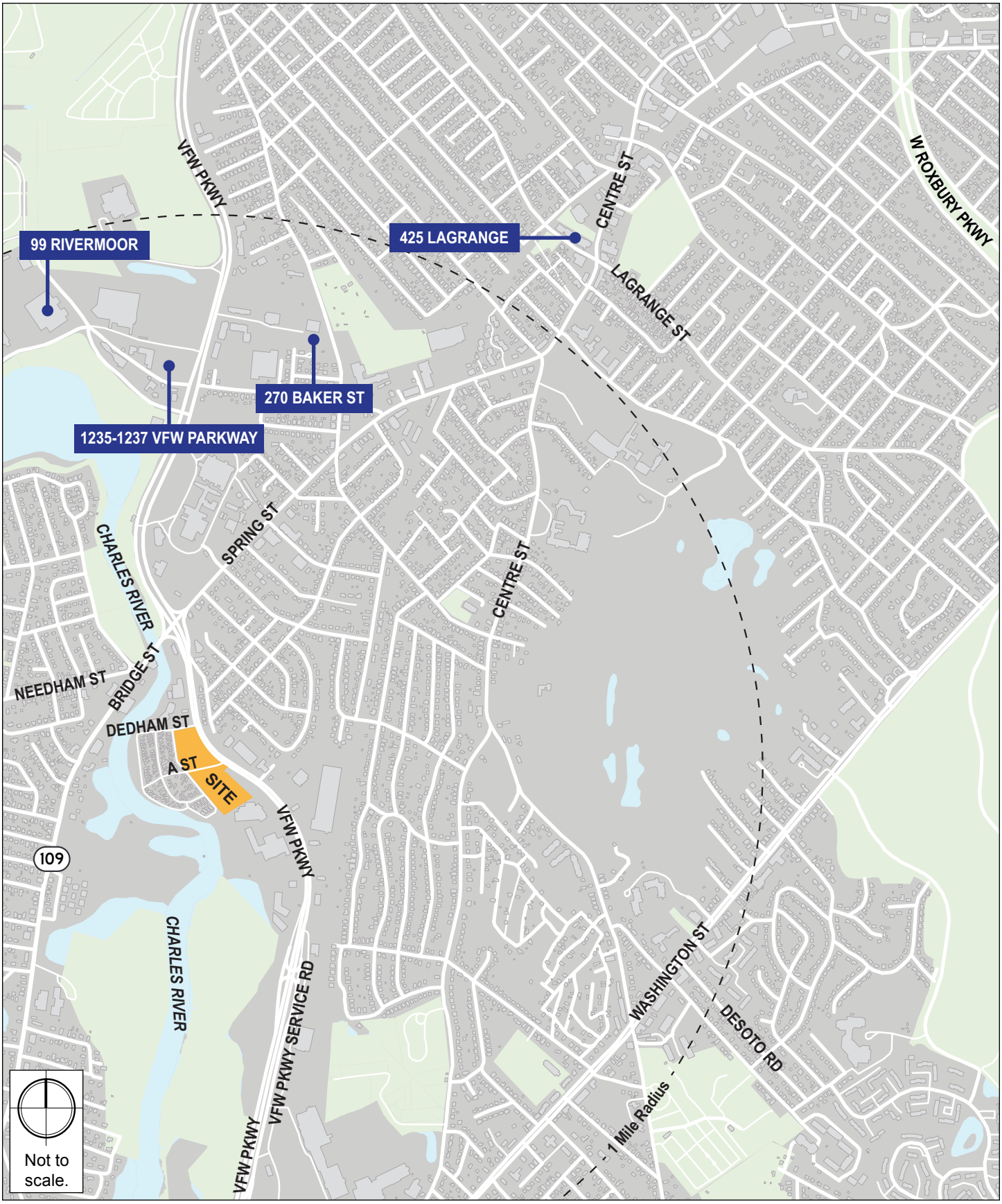

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Figure 2-7
Background Projects

2.3.4 No-Build (2025) Condition Traffic Volumes

The one-half percent per year annual growth rate, compounded annually, was applied to the Existing (2018) Condition traffic volumes, then the traffic volumes associated with the background development projects were added to develop the No-Build (2025) Condition traffic volumes. The No-Build (2025) Condition weekday a.m. peak hour and p.m. peak hour traffic volumes are shown on Figure 2-8 and Figure 2-9, respectively.

2.4 Build (2025) Condition

As previously summarized, the Project will consist of approximately 258 residential units and 387 parking spaces to be provided in an above grade garage. Additionally, covered, secure storage for one bicycle per unit will be provided on the Project site.

2.4.1 Site Access and Vehicle Circulation

Vehicular access to the Project site will be provided at a 24-foot curb-cut along A Street. The driveway will provide residents access to the parking garage. Primary pedestrian access to the residential lobbies will be provided on both sides of A Street. Pedestrian connectivity will be provided between the garage and residential lobbies. The site access plan is shown in Figure 2-10.

2.4.2 Loading and Service Accommodations

Residential units primarily generate delivery trips related to small packages and prepared food on a daily basis. Residential units also generate move-in/move-out activity, although less frequently. Loading, deliveries, and trash pick-up will take place on the Project site in two enclosed loading bays, at the western corner of each building along A Street. Each can accommodate a 36-foot box truck (SU-36).

2.4.3 Project Parking

The includes 387 parking spaces located in an above ground, five level garage, which is "wrapped" by one of the residential buildings, shielding it from public view.

The parking goals developed by the BTD for this section of West Roxbury are a maximum of 1.00 to 1.50 parking spaces per residential unit. The Project is providing the maximum allowed parking ratio of 1.50 parking spaces per residential unit.

2.4.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents and employees and short-term bicycle racks for visitors. Based on BTD guidelines, the Project will supply one indoor secure bicycle parking/storage for every residential unit.

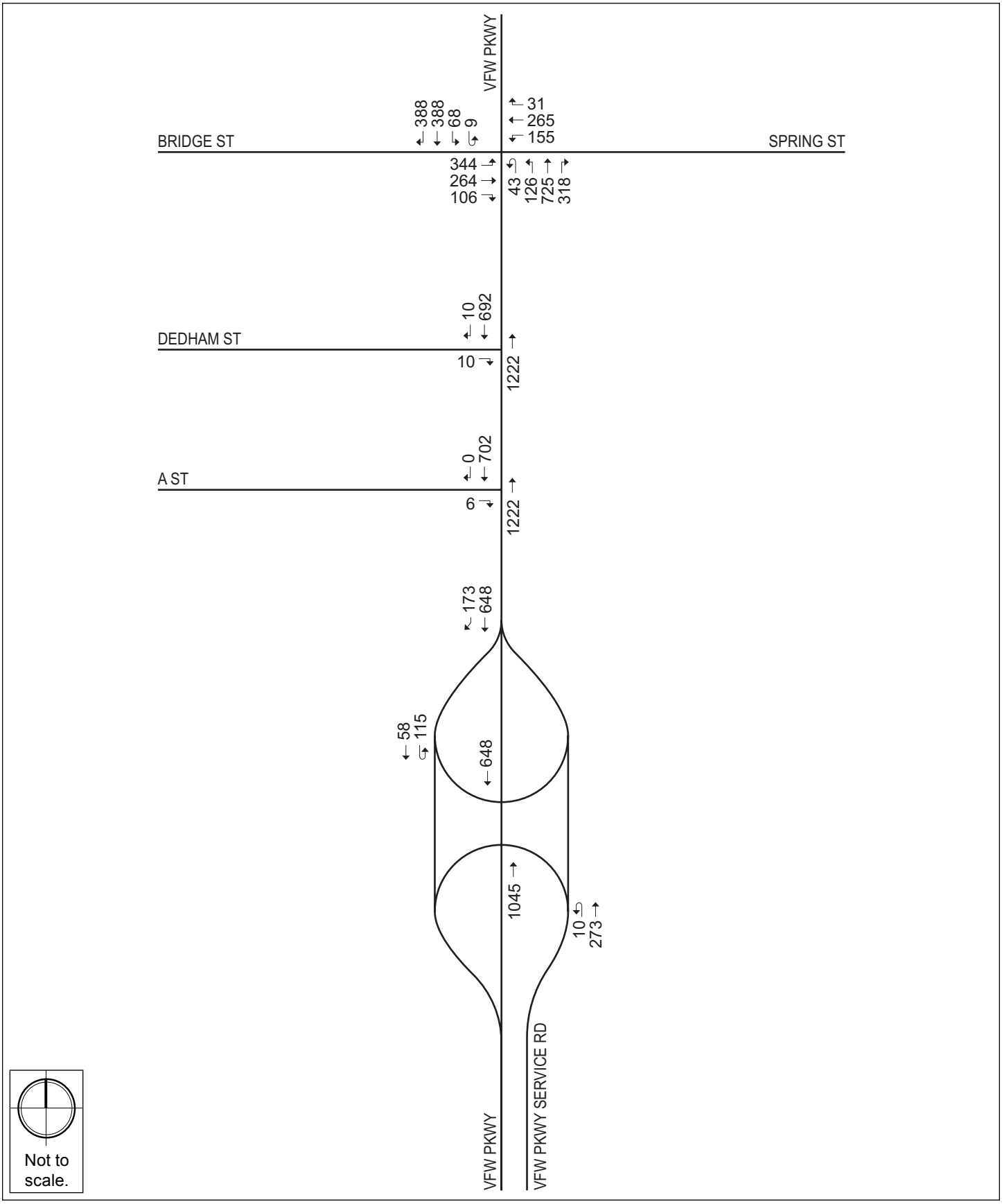

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Figure 2-8

No-build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

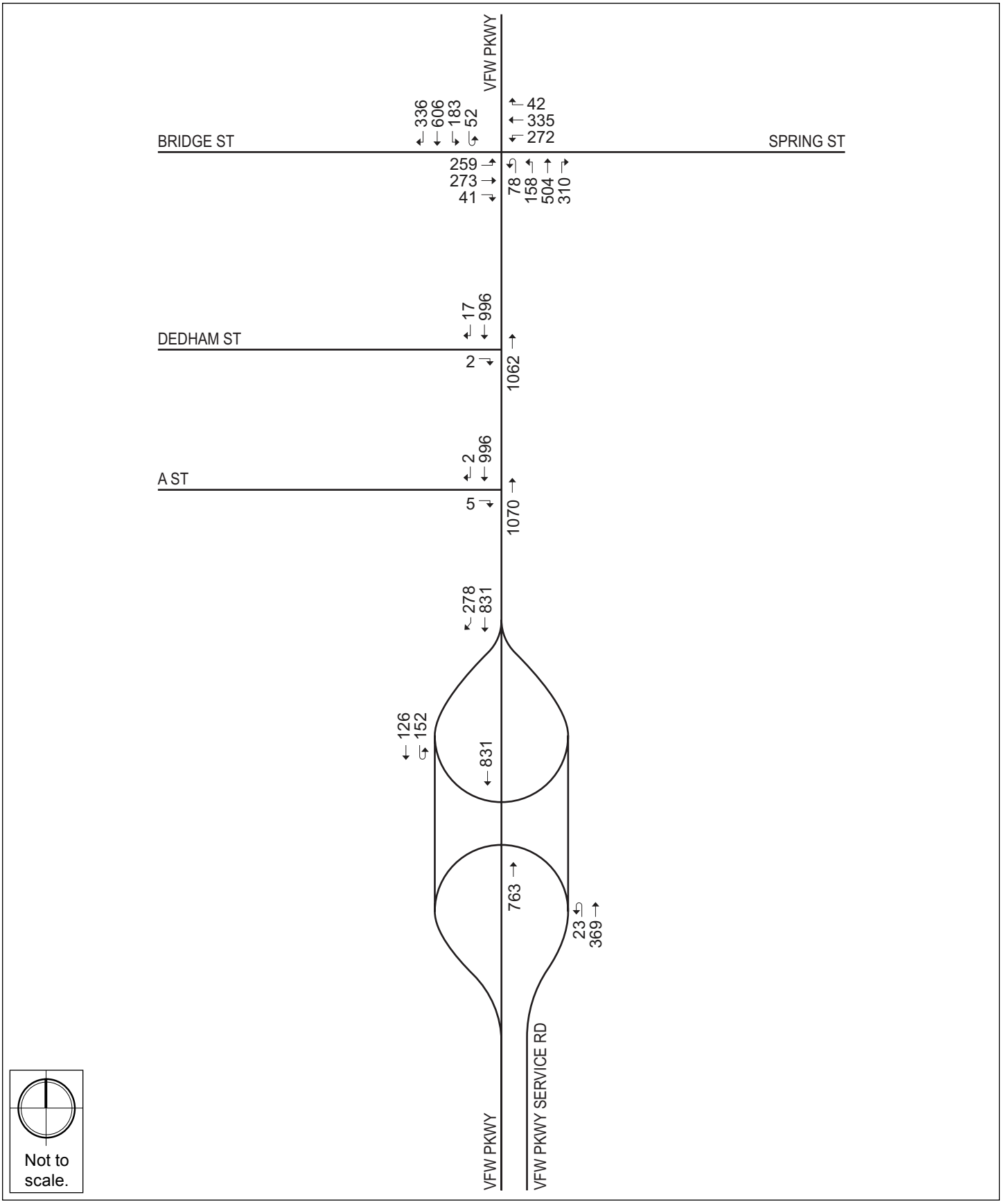

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Figure 2-9

No-build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

Pedestrian Access

Vehicle Access

Delivery/Loading Access

VETERANS OF FOREIGN WARS PARKWAY (ROUTE

UNEXCAVATED

1 BR
2 BR
BIKE SHOP
LOBBY
LOBBY/ AMENITY
LOADING
TRASH
WATER
ELECT
GAS METER
MECH EXHAUST

Not to scale.

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Figure 2-10
Site Plan

2.4.5 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, and walk/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 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[1] 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 (LUC) was used:

Land Use Code 221 – Multifamily Housing (Mid-Rise). The Multifamily Housing Mid-Rise LUC 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. Calculations of the number of trips use ITE's average rate per dwelling units.

2.4.6 Travel Mode Share

The American Census Survey (ACS) provides travel mode share rates of people traveling to work via walking/biking, transit and vehicles for different census tracts in Massachusetts. The Project site is located in Census Tract 1304.02 and borders Census Tract 4021.01 in Dedham. The travel mode share rates from each census tract were used to get more accurate mode share data as the Project site shares characteristics with both tracts. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[2]. The travel mode shares are shown in Table 2-2.

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

[2] Summary of Travel Trends: 2009 National Household Travel Survey; FHWA; Washington, D.C.; June 2011.

Table 2-2 Travel Mode Shares

Land Use	Direction	Walk/ Bicycle Share	Transit Share	Auto Share	Vehicle Occupancy
Daily					
Residential	In	5%	10%	85%	1.13
	Out	5%	10%	85%	1.13
a.m. Peak Hour					
Residential	In	5%	10%	85%	1.13
	Out	5%	10%	85%	1.13
p.m. Peak Hour					
Residential	In	5%	10%	85%	1.13
	Out	5%	10%	85%	1.13

2.4.7 Project Trip Generation

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

Table 2-3 Project Trip Generation

Land Use		Walk/Bicycle Trips	Transit Trips	Vehicle Trips
Daily				
Residential[1]	In	40	79	596
	Out	40	79	596
	Total	80	158	1,192
a.m. Peak Hour				
Residential[1]	In	1	3	20
	Out	4	8	58
	Total	5	11	78
p.m. Peak Hour				
Residential[1]	In	4	8	58
	Out	3	5	37
	Total	7	13	95

1 ITE Trip Generation Rate, 10th Edition, LUC 221 (Multifamily Housing Mid-Rise), 258 units.

As shown in Table 2-3, during the a.m. peak hour there is expected to be five pedestrian/bicycle trips (one in and four out), 11 transit trips (three in and eight out), and 78 vehicle trips (20 in and 58 out). During the p.m. peak hour there is expected to be seven pedestrian/bicycle trips (4 in and 3 out), 13 transit trips (eight in and five out), and 95 vehicle trips (58 in and 37 out).

2.4.8 Trip Distribution

The trip distribution identifies the various travel paths for vehicles associated with the Project. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 19 – West Roxbury, and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution for the Project is illustrated in Figure 2-11.

2.4.9 Build (2025) Condition Traffic Volumes

The Project-generated trips for the a.m. and p.m. peak hours are shown in Figure 2-12 and Figure 2-13, 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) Condition a.m. and p.m. peak hour traffic volumes are shown on Figure 2-14 and Figure 2-15, respectively.

2.5 Traffic Capacity 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 the average delay per vehicle for all vehicles entering an intersection. Table 2-4 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 2-4 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.

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Figure 2-11
Trip Distribution

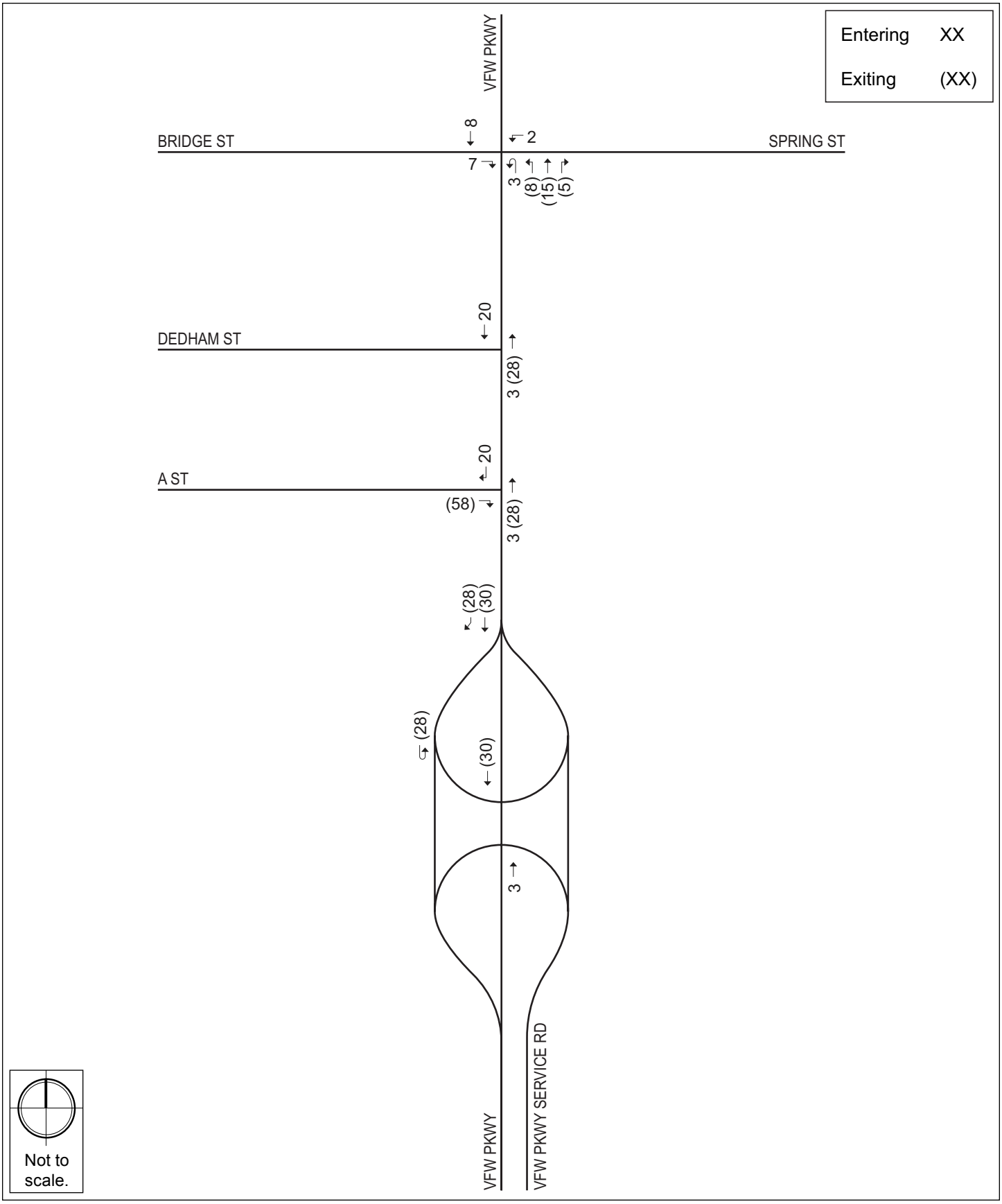

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Figure 2-12

Project-generated Vehicle Trips, Weekday a.m. Peak Hour

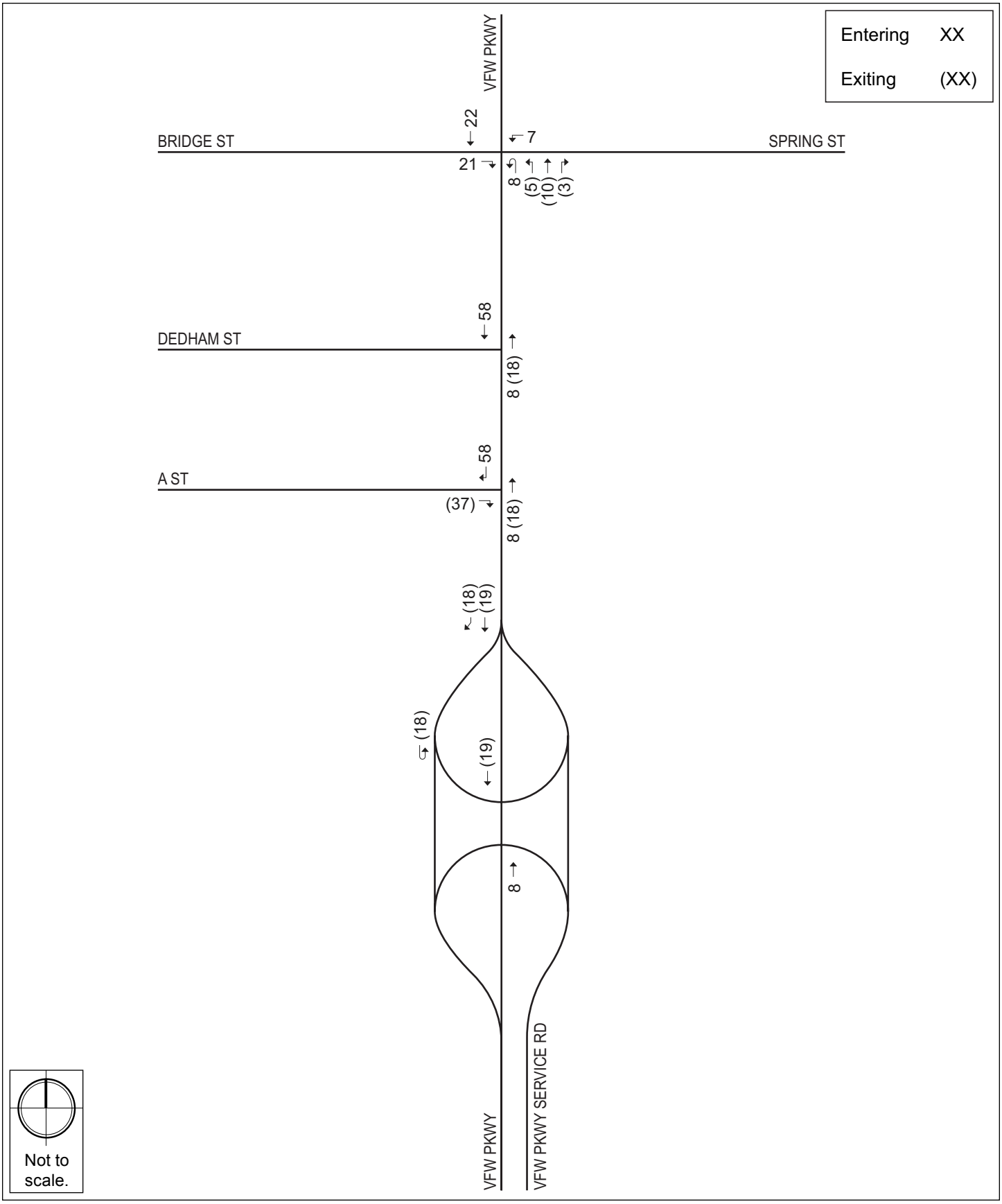

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Figure 2-13

Project-generated Vehicle Trips, Weekday p.m. Peak Hour

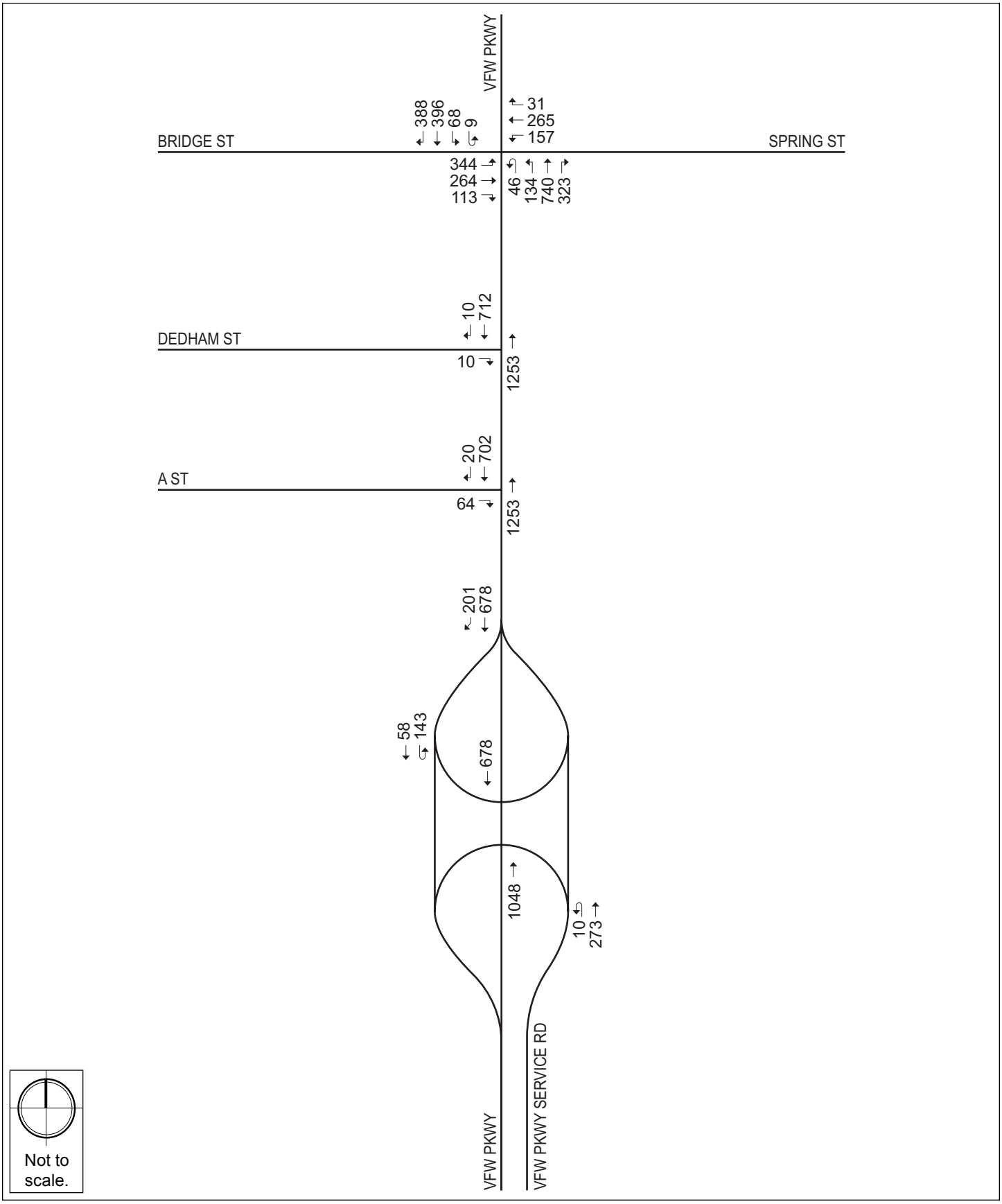

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Figure 2-14

Build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

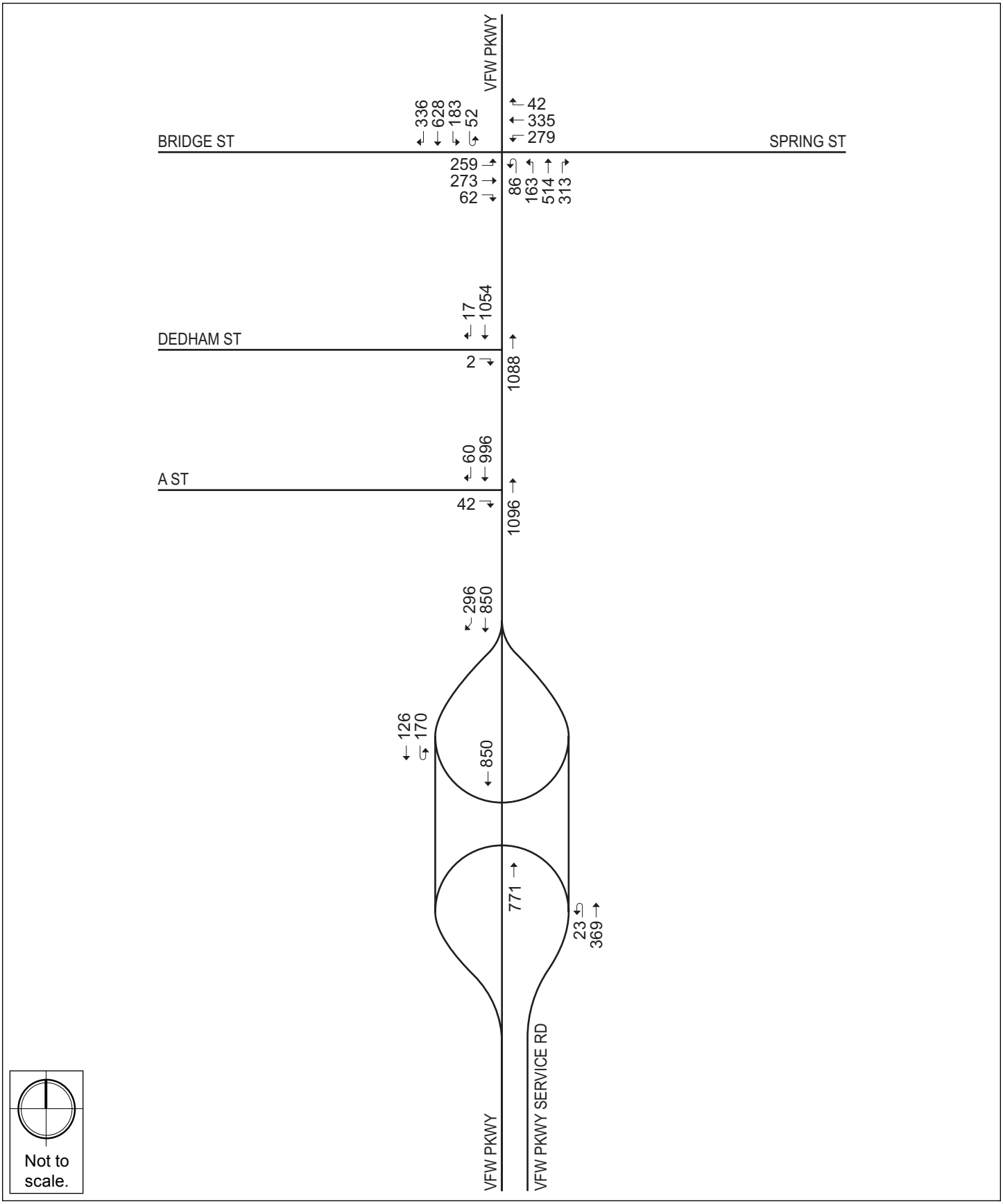

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Figure 2-15

Build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

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 2-5 and Table 2-6 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 C.

2.5.1 Existing (2018) Condition Traffic Capacity Analysis

As shown in Table 2-5 and Table 2-6, in the Existing (2018) Condition of, a majority of the study area intersections and approaches operate at acceptable levels of service (LOS D or better) during the weekday a.m. and p.m. peak hours, with the exception of the following movements:

- The VFW Parkway/Bridge Street/Spring Street intersection operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour. The Bridge Street eastbound left approach operates at LOS E during the a.m. peak hour and LOS D during the p.m. peak hour. The Bridge Street eastbound left/through/right approach operates at LOS F during both the a.m. and p.m. peak hours. The VFW Parkway northbound left approach operates at LOS F during both the a.m. and p.m. peak hours. The VFW Parkway southbound left approaches operates at LOS F during both the a.m. and the p.m. peak hours. The longest queues at the intersection occur at the Bridge Street eastbound left/through/right approach during both the a.m. and p.m. peak hours.

2.5.2 No-Build (2025) Condition Traffic Capacity Analysis

As shown in the No-Build (2025) Condition, all of the study area intersections and approaches continue to operate at the same levels of service during the weekday a.m. and p.m. peak hours as they did in the Existing Condition.

2.5.3 Build (2025) Condition Traffic Capacity Analysis

As shown in the Build (2025) Condition, all of the study area intersections and approaches continue to operate at the same levels of service during the weekday a.m. and p.m. peak hours as they did in the Existing and No-Build Condition.

Table 2-5 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	Queues (ft) 50th	Queues (ft) 95th	LOS	Delay (s)	V/C Ratio	Queues (ft) 50th	Queues (ft) 95th	LOS	Delay (s)	V/C Ratio	Queues (ft) 50th	Queues (ft) 95th
Signalized Intersections															
VFW Parkway/Bridge St/Spring St	**E**	**62.9**	**-**	**-**	**-**	**E**	**68.8**	**-**	**-**	**-**	**E**	**75.4**	**-**	**-**	**-**
Bridge Street EB left	E	61.1	0.89	155	#347	E	69.8	0.94	168	#365	E	71.0	0.94	169	#370
Bridge Street EB left/thru/right	F	121.5	1.14	~241	#475	F	141.2	1.19	~268	#496	F	153.2	1.22	~280	#513
Spring Street WB left	C	28.3	0.40	67	118	C	27.9	0.39	69	121	C	27.8	0.39	69	121
Spring Street WB thru/right	D	36.4	0.70	133	213	D	36.2	0.70	141	225	D	35.9	0.70	139	221
VFW Parkway NB left	F	402.4	1.74	~121	#261	F	432.9	1.81	~131	#268	F	491.2	1.95	~145	#289
VFW Parkway NB thru | thru	D	40.2	0.84	171	#304	D	44.8	0.88	187	#322	D	47.1	0.91	195	#340
VFW Parkway NB right	A	6.8	0.51	0	64	A	6.9	0.52	0	66	A	6.9	0.53	0	67
VFW Parkway SB left	F	100.5	0.85	39	#131	F	107.6	0.88	42	#134	F	100.4	0.84	40	#131
VFW Parkway SB thru | thru	C	28.9	0.46	85	143	C	29.9	0.50	95	152	C	29.6	0.49	94	152
VFW Parkway SB right	A	7.1	0.58	0	73	A	7.2	0.60	0	75	A	7.2	0.59	0	74
VFW Parkway U-Turns	**B**	**11.8**	**-**	**-**	**-**	**B**	**12.2**	**-**	**-**	**-**	**B**	**11.5**	**-**	**-**	**-**
VFW Parkway SB U-turn EB left	B	11.9	0.21	22	50	B	12.0	0.21	22	51	B	12.5	0.26	28	61
VFW Parkway NB U-turn WB	B	10.2	0.02	2	9	B	10.2	0.02	2	9	B	10.2	0.02	2	9
VFW Parkway NB thru |thru	B	13.1	0.70	112	169	B	13.7	0.73	120	178	B	12.6	0.67	106	159
VFW Parkway SB thru | thru	A	9.4	0.40	53	84	A	9.6	0.42	56	88	A	9.7	0.44	60	94
Unsignalized Intersections															
VFW Parkway/Dedham St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dedham Street EB right	A	0.0	0.35	-	0	A	9.8	0.02	-	1	A	9.9	0.02	-	2
VFW Parkway NB thru | thru	A	0.0	0.27	-	0	A	0.0	0.36	-	0	A	0.0	0.38	-	0
VFW Parkway SB thru |	A	0.0	0.14	-	0	A	0.0	0.28	-	0	A	0.0	0.28	-	0
VFW Parkway/A Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A Street EB right	B	10.6	0.02	-	1	B	10.7	0.02	-	1	B	11.5	0.11	-	9
VFW Parkway NB thru | thru	A	0.0	0.27	-	0	A	0.0	0.37	-	0	A	0.0	0.37	-	0
VFW Parkway SB thru |	A	0.0	0.14	-	0	A	0.0	0.28	-	0	A	0.0	0.28	-	0

Grey shading indicates an Existing Condition LOS of LOS E or LOS F.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

Table 2-6 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	Queues (ft) 50th	Queues (ft) 95th	LOS	Delay (s)	V/C Ratio	Queues (ft) 50th	Queues (ft) 95th	LOS	Delay (s)	V/C Ratio	Queues (ft) 50th	Queues (ft) 95th
Signalized Intersections															
VFW Parkway/Bridge St/Spring St	**F**	**139.1**	-	-	-	**F**	**148.5**	-	-	-	**F**	**157.2**	-	-	-
Bridge Street EB left	D	46.8	0.72	127	#237	D	50.5	0.76	135	#256	D	50.5	0.76	135	#256
Bridge Street EB left/thru/right	F	91.9	1.02	~216	#393	F	105.0	1.07	~230	#409	F	127.5	1.14	~257	#441
Spring Street WB left	C	30.2	0.55	124	200	C	30.1	0.55	129	206	C	30.5	0.56	133	212
Spring Street WB thru/right	D	35.8	0.73	179	277	D	35.8	0.73	188	290	D	35.8	0.73	188	290
VFW Parkway NB left	F	783.9	2.64	~219	#360	F	837.0	2.76	~229	#371	F	906.5	2.92	~245	#390
VFW Parkway NB thru | thru	C	34.0	0.62	128	180	D	35.5	0.66	137	192	D	35.9	0.68	141	195
VFW Parkway NB right	A	7.1	0.52	0	65	A	7.2	0.53	0	66	A	7.2	0.54	0	66
VFW Parkway SB left	F	788.8	2.65	~221	#362	F	849.7	2.78	~231	#374	F	849.7	2.78	~231	#374
VFW Parkway SB thru | thru	D	38.5	0.76	164	#227	D	41.2	0.80	173	#254	D	43.1	0.83	181	#269
VFW Parkway SB right	A	7.3	0.55	0	67	A	7.6	0.57	1	71	A	8.4	0.57	7	79
VFW Parkway U-Turns	**B**	**10.**	-	-	-	**B**	**10.7**	-	-	-	**B**	**10.8**	-	-	-
VFW Parkway SB U-turn EB left	B	12.6	0.227	29	63	B	12.7	0.28	30	65	B	13.0	0.33	34	72
VFW Parkway NB U-turn WB	B	10.5	0.04	4	15	B	10.5	0.04	4	15	B	10.5	0.04	4	15
VFW Parkway NB thru |thru	A	10.0	0.47	64	100	B	10.2	0.49	69	106	B	10.3	0.50	70	107
VFW Parkway SB thru | thru	B	10.5	0.52	74	113	B	10.7	0.54	78	119	B	10.9	0.55	81	122
Unsignalized Intersections															
VFW Parkway/Dedham St	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dedham Street EB right	A	0.0	0.30	-	0	A	9.4	0.00	-	0	A	9.4	0.00	-	0
VFW Parkway NB thru | thru	A	0.0	0.39	-	0	A	0.0	0.32	-	0	A	0.0	0.33	-	0
VFW Parkway SB thru |	A	0.0	0.20	-	0	A	0.0	0.40	-	0	A	0.0	0.40	-	0
VFW Parkway/A Street	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A Street EB right	B	12.0	0.01	-	1	B	12.2	0.01	-	1	B	13.2	0.10	-	8
VFW Parkway NB thru | thru	A	0.0	0.39	-	0	A	0.0	0.32	-	0	A	0.0	0.33	-	0
VFW Parkway SB thru |	A	0.0	0.19	-	0	A	0.0	0.40	-	0	A	0.0	0.40	-	0

Grey shading indicates an Existing Condition LOS of LOS E or LOS F.

~ Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

2.6 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 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 and patrons of the site. 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 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:

- Orientation Packets: The Proponent will provide orientation packets to new residents containing information on available transportation choices, including transit routes/schedules. On-site management will work with residents and tenants as they move in to help facilitate transportation for new arrivals.

- TransitScreen: The Proponent will install a TransitScreen at the property which is a real-time display of mobility options including trains, busses, and ride-sharing services.

- Provide an annual (or more frequent) newsletter or bulletin summarizing transit, ridesharing, bicycling, and other travel options.

- Transportation Coordinator: The Proponent will designate a transportation coordinator to oversee transportation issues, including parking, service and loading, and deliveries, and will work with residents as they move in to raise awareness of public transportation, bicycling, and walking opportunities.

- Website: Provide information on travel alternatives for employees and visitors via the Internet and in the building lobby.

- Electric Vehicle Charging: The Proponent will provide two electric vehicle charging station(s) within the garage.

- Vehicle Sharing Program: The Proponent is actively working with Zipcar to provide up to two car-sharing spaces on the site.

- Bicycle Accommodation: The Proponent will provide bicycle storage in secure, sheltered areas for residents. Subject to necessary approvals, public use bicycle racks for visitors will be placed near building entrances.

2.7 Transportation Mitigation Measures

While the traffic impacts associated with the new Project generated 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. Any 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. See Section 2.8 for additional information related to the CMP.

2.8 Evaluation of Short-term Construction Impacts

Most construction activities will be accommodated within the current Project 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 CMP to be filed with BTD in accordance with the City's transportation maintenance plan requirements.

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

- 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.

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

Chapter 3.0

Environmental Review Component

3.0 ENVIRONMENTAL REVIEW COMPONENT

3.1 Wind

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

The proposed Project is four stories and approximately 45 feet tall at its highest point. The other buildings surrounding the Project site are primarily two to four story buildings, the Project is not significantly taller than its surroundings. In addition, the Project will include new trees on the sidewalks surrounding the Project, which serve to reduce wind speeds. Due to the Project's low height, along with significant landscaping included in the Project, any potential wind impacts are anticipated to be minimal.

3.2 Shadow

3.2.1 Introduction and Methodology

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

The shadow analysis presents the existing shadow and net new shadow that would be created by the proposed Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 3.2-1 to 3.2-14 at the end of this section.

The shadow impact analysis shows that new shadow from the Project will be limited to the streets and sidewalks adjacent to the Project site. The Project will not cast new shadows onto nearby public open spaces during any of the fourteen time periods studied.

3.2.2 Vernal Equinox (March 21)

At 9:00 a.m. during the vernal equinox, new shadow from the Project will be cast to the northwest onto Dedham Street, and across Second Street and A Street. No new shadow will be cast onto nearby public open spaces.

At 12:00 p.m., new shadow from the Project will be cast to the north onto small portions of Dedham Street and A Street. No new shadow will be cast onto nearby public open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the northeast onto VFW Parkway and its western sidewalk. No new shadow will be cast onto nearby public open spaces.

3.2.3 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, new shadow from the Project will be cast to the west onto portions of Second Street and A Street. No new shadow will be cast onto nearby public open spaces.

At 12:00 p.m., no new shadow will be cast onto nearby streets, sidewalks, or public open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the east onto VFW Parkway's western sidewalk. No new shadow will be cast onto nearby public open spaces.

At 6:00 p.m., new shadow from the Project will be cast to the southeast onto VFW Parkway and its western sidewalk, and across A Street. No new shadow will be cast onto nearby public open spaces.

3.2.4 Autumnal Equinox (September 21)

At 9:00 a.m., new shadow from the Project will be cast to the northwest onto Dedham Street, Second Street, and across A Street. No new shadow will be cast onto nearby public open spaces.

At 12:00 p.m., new shadow from the Project will be cast to the north onto small portions of Dedham Street and A Street. No new shadow will be cast onto nearby public open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the northeast onto VFW Parkway and its western sidewalk. No new shadow will be cast onto nearby public open spaces.

At 6:00 p.m., new shadow from the Project will be cast to the east across A Street and the VFW Parkway and its sidewalks. No new shadow will be cast onto nearby public open spaces.

3.2.5 Winter Solstice (December 21)

The winter solstice creates the least favorable conditions for sunlight in New England. The sun angle during the winter is lower than in any other season, causing the shadows in urban areas to elongate and be cast onto large portions of the surrounding area.

At 9:00 a.m., new shadow from the Project will be cast to the northwest across Dedham Street, Second Street, and A Street. No new shadow will be cast onto nearby public open spaces.

At 12:00 p.m., new shadow from the Project will be cast to the north across Dedham Street, onto VFW Parkway and its western sidewalk, and A Street. No new shadow will be cast onto nearby public open spaces.

At 3:00 p.m., new shadow from the Project will be cast to the northeast across Dedham Street, VFW Parkway and its sidewalks, and onto a small portion of A Street. No new shadow will be cast onto nearby public open spaces.

3.2.6 Conclusions

The shadow impact analysis shows that new shadow from the Project will be limited to the streets and sidewalks adjacent to the Project site. The Project will not cast new shadows onto nearby public open spaces or bus stops during any of the fourteen time periods studied.

3.3 Daylight Analysis

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of a project site. The Project consists of two four-story buildings with a roadway between the two buildings. Due to the Project's setback from the street, limited height, and space between the buildings, it is anticipated that the amount of daylight obstruction under the proposed condition will be similar to other buildings in the area.

3.4 Solar Glare

The Project materials are still being studied and glazing of the windows will be determined as the design progresses. Due to the type of potential glass and glazing proposed, solar glare impacts are not currently anticipated.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-1

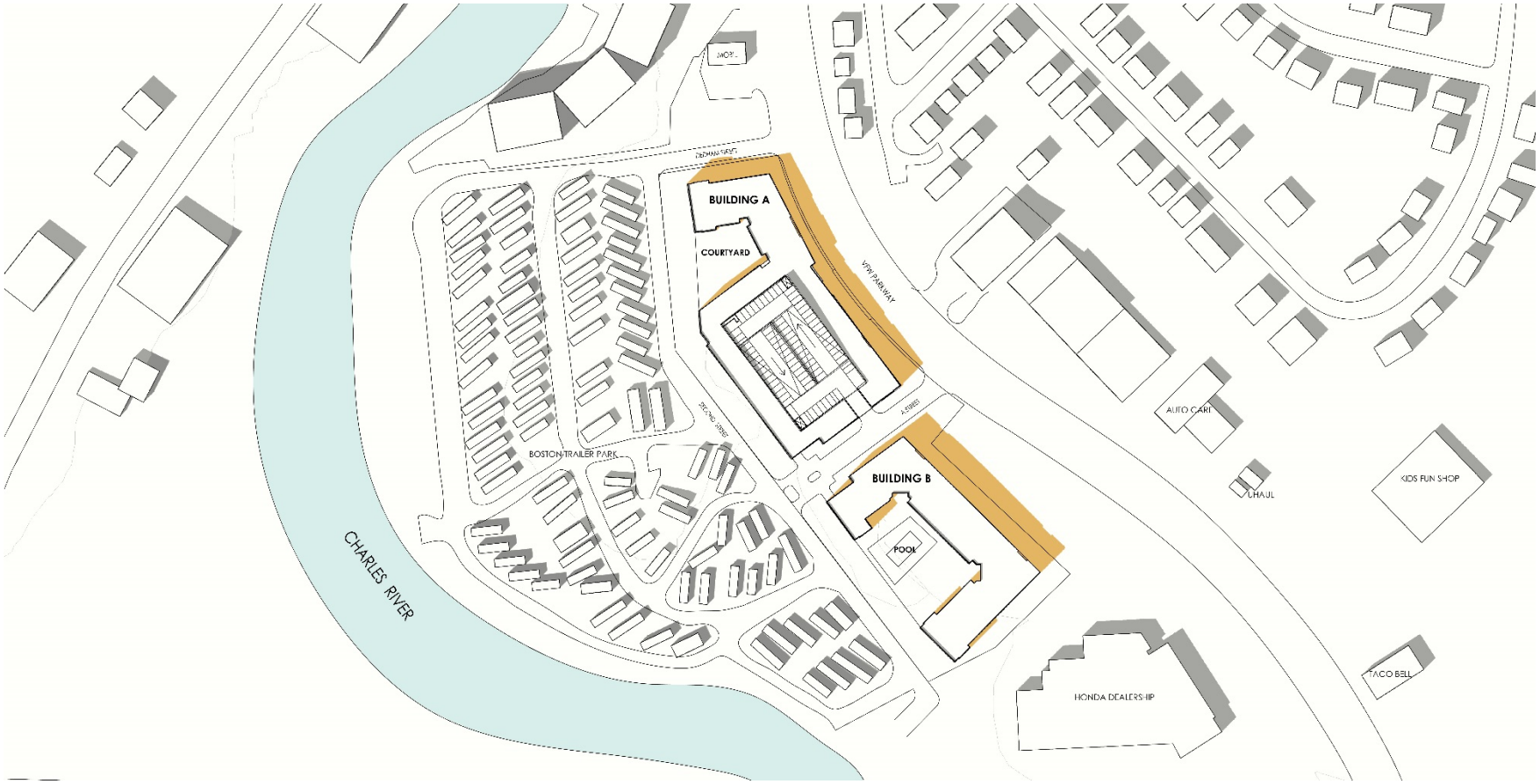
Shadow Study: March 21, 9:00 a.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-2

Shadow Study: March 21, 12:00 p.m.



The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-3

Shadow Study: March 21, 3:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-4

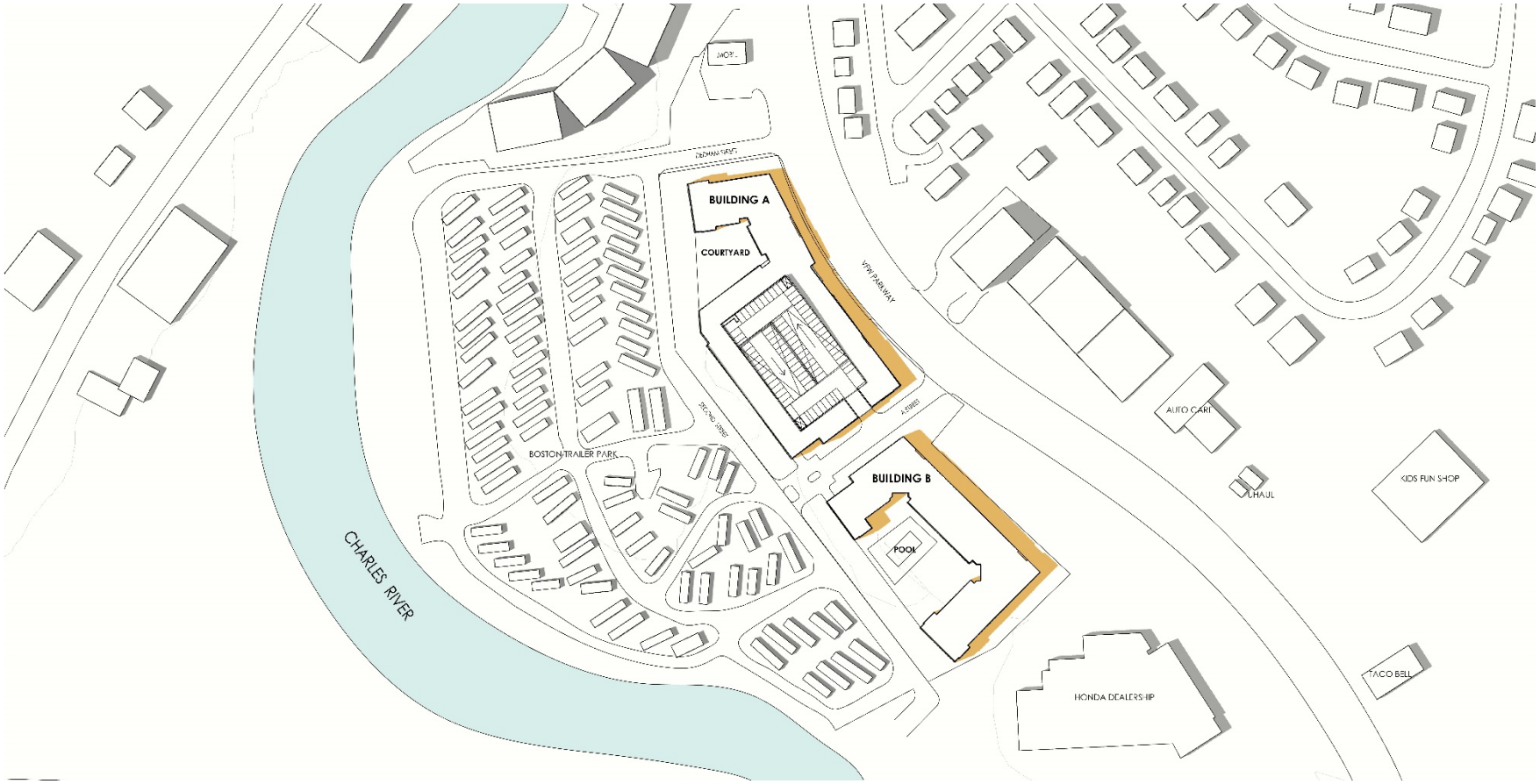
Shadow Study: June 21, 9:00 a.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-5

Shadow Study: June 21, 12:00 p.m.

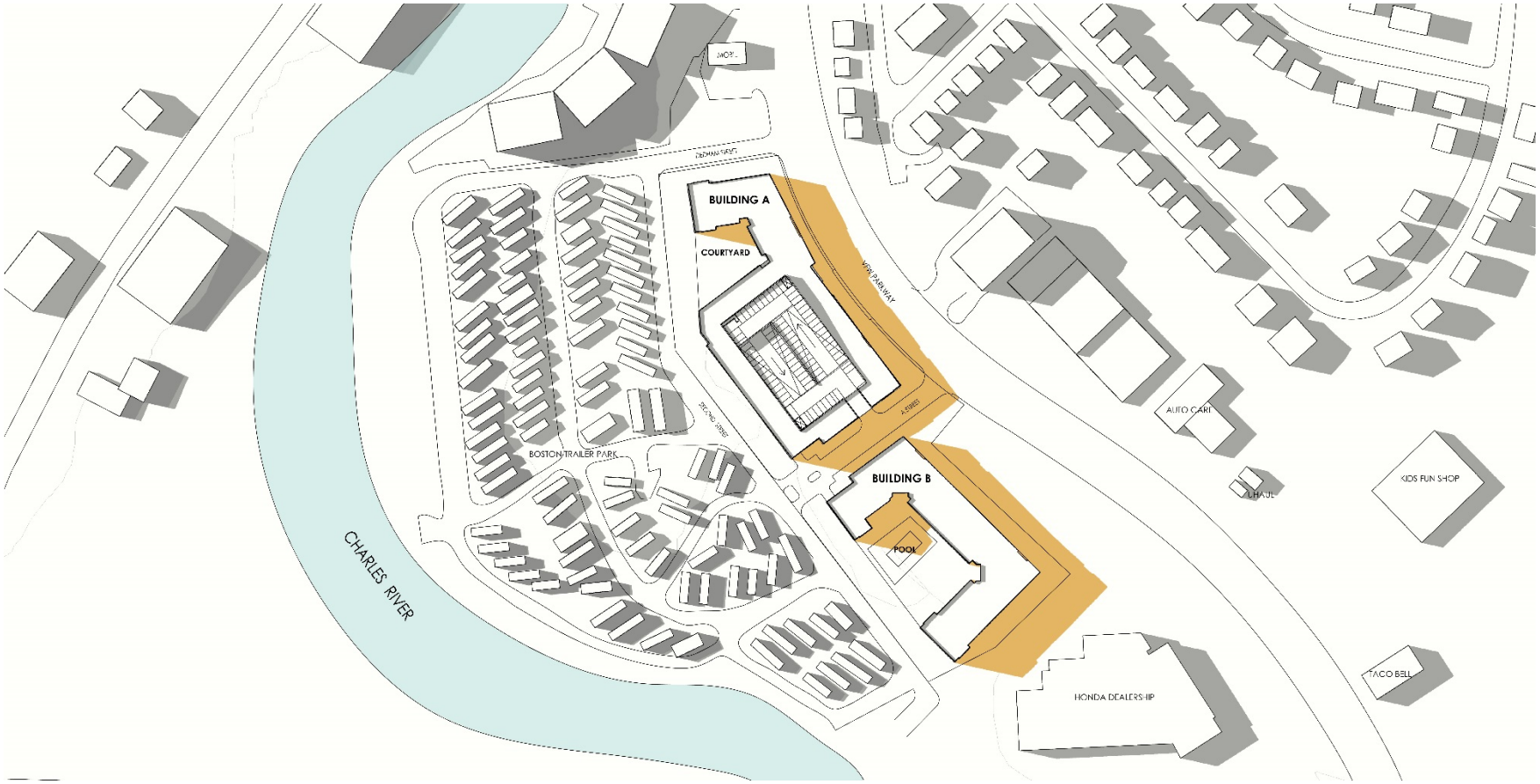


The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-6

Shadow Study: June 21, 3:00 p.m.



The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-7

Shadow Study: June 21, 6:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-8

Shadow Study: September 21, 9:00 a.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-9

Shadow Study: September 21, 12:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-10

Shadow Study: September 21, 3:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-11

Shadow Study: September 21, 6:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-12

Shadow Study: December 21, 9:00 a.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-13

Shadow Study: December 21, 12:00 p.m.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 3.2-14

Shadow Study: December 21, 3:00 p.m.

3.5 Air Quality Analysis

3.5.1 Introduction

The BPDA requires that proposed projects evaluate the air quality in the local area, and assess any adverse air quality impacts attributable to a project.

The Project does not generate enough traffic to require a mesoscale vehicle emissions quantification analysis. However, the Project creates new trips through local intersections operating at LOS D or worse. Therefore, a microscale analysis of carbon monoxide has been completed to provide information on the Project's impact to air quality from mobile sources.

Any new stationary sources will be reviewed by the Massachusetts Department of Environmental Protection (MassDEP) during permitting under the Environmental Results Program, as required. It is expected that all stationary sources will be small, and any impacts from stationary sources would be minimal.

3.5.2 National Ambient Air Quality Standards and Background Concentrations

Background air quality concentrations and federal air quality standards were utilized to conduct the air quality impact analysis as described above. Federal National Ambient Air Quality Standards (NAAQS) were developed by the U.S. Environmental Protection Agency (EPA) to protect the human health against adverse health effects with a margin of safety. The modeling methodologies were developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[1] The following sections outline the NAAQS standards and detail the sources of background air quality data.

3.5.2.1 National Ambient Air Quality Standards

The 1970 Clean Air Act was enacted by the U.S. Congress to protect the health and welfare of the public from the adverse effects of air pollution. As required by the Clean Air Act, EPA promulgated NAAQS for the following criteria pollutants: nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM) (PM-10 and PM-2.5), carbon monoxide (CO), ozone (O_3), and lead (Pb). The NAAQS are listed in Table 3.5-1. Massachusetts Ambient Air Quality Standards (MAAQS) are typically identical to NAAQS (differences are highlighted in **bold** in Table 3.5-1).

NAAQS specify concentration levels for various averaging times and include both "primary" and "secondary" standards. Primary standards are intended to protect human health, whereas secondary standards are intended to protect public welfare from any known or

[1] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005

anticipated adverse effects associated with the presence of air pollutants, such as damage to vegetation. The more stringent of the primary or secondary standards were applied when comparing to the modeling results for this Project.

The NAAQS also reflect various durations of exposure. The non-probabilistic short-term periods (24 hours or less) refer to exposure levels not to be exceeded more than once a year. Long-term periods refer to limits that cannot be exceeded for exposure averaged over three months or longer.

Table 3.5-1 National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$) Primary	NAAQS ($\mu g/m^3$) Secondary	MAAQS ($\mu g/m^3$) Primary	MAAQS ($\mu g/m^3$) Secondary
NO_2	Annual [1]	100	Same	100	Same
	1-hour [2]	**188**	None	**None**	None
SO_2	Annual [1][9]	80	None	80	None
	24-hour [3][9]	365	None	365	None
	3-hour [3]	None	1300	None	1300
	1-hour [4]	**196**	None	**None**	None
PM-2.5	Annual [1]	**12**	**15**	**None**	**None**
	24-hour [5]	**35**	**Same**	**None**	**None**
PM-10	Annual [1][6]	**None**	None	**50**	Same
	24-hour [3][7]	150	Same	150	Same
CO	8-hour [3]	10,000	Same	10,000	Same
	1-hour [3]	40,000	Same	40,000	Same
Ozone	8-hour [8]	**147**	Same	**235**	Same
Pb	3-month [1]	1.5	Same	1.5	Same

[1] Not to be exceeded.
[2] 98th percentile of one-hour daily maximum concentrations, averaged over three years.
[3] Not to be exceeded more than once per year.
[4] 99th percentile of one-hour daily maximum concentrations, averaged over three years.
[5] 98th percentile, averaged over three years.
[6] EPA revoked the annual PM-10 NAAQS in 2006.
[7] Not to be exceeded more than once per year on average over three years.
[8] Annual fourth-highest daily maximum eight-hour concentration, averaged over three years.
[9] EPA revoked the annual and 24-hour SO_2 NAAQS in 2010. However, they remain in effect until one year after the area's initial attainment designation, unless designated as "nonattainment".

Source: http://www.epa.gov/ttn/naaqs/criteria.html and 310 CMR 6.04

3.5.2.2 Background Concentrations

To estimate background pollutant levels representative of the area, the most recent air quality monitor data reported by the MassDEP to EPA was obtained for 2014 to 2016. Data for the pollutant and averaging time combinations were obtained from the EPA's AirData website.

The Clean Air Act allows for one exceedance per year of the CO and SO2 short-term NAAQS per year. The highest second-high accounts for the one exceedance. Annual NAAQS are never to be exceeded. The 24-hour PM-10 standard is not to be exceeded

more than once per year on average over three years. To attain the 24-hour PM-2.5 standard, the three-year average of the 98th percentile of 24-hour concentrations must not exceed 35 μg/m3. For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. To attain the one-hour NO2 standard, the three-year average of the 98th percentile of the maximum daily one-hour concentrations must not exceed 188 μg/m3.

Background concentrations were determined from the closest available monitoring stations to the proposed development. All pollutants are not monitored at every station, so data from multiple locations are necessary. The closest monitor is at Harrison Avenue in Boston, roughly six miles northeast of the Project site. A summary of the background air quality concentrations are presented in Table 3.5-2.

Table 3.5-2 Observed Ambient Air Quality Concentrations and Selected Background Levels

Pollutant	Averaging Time	2014	2015	2016	Background Concentration ($\mu g/m^3$)	NAAQS	Percent of NAAQS
SO_2 (1)(6)(7)	1-Hour (5)	32.2	24.6	12.3	23.1	196.0	12%
	3-Hour (6)	56.3	22.8	13.4	56.3	1300.0	4%
	24-Hour	13.4	11.3	5.0	13.4	365.0	4%
	Annual	2.8	2.1	1.2	2.8	80.0	3%
PM-10	24-Hour	61.0	28.0	29.0	61.0	150.0	41%
	Annual	13.9	12.4	11.8	13.9	50.0	28%
PM-2.5	24-Hour (5)	12.7	19.0	16.3	16.0	35.0	46%
	Annual (5)	6.0	8.8	6.2	7.0	12.0	58%
NO_2 (3)(7)	1-Hour (5)	95.9	99.6	92.1	95.9	188.0	51%
	Annual	29.6	28.1	24.8	29.6	100.0	30%
CO (2)(7)	1-Hour	1963.1	1560.9	2750.4	2750.4	40000.0	7%
	8-Hour	1489.8	1031.4	2062.8	2062.8	10000.0	21%
Ozone (4)	8-Hour	106.0	109.9	113.9	113.9	147.0	77%
Lead	Rolling 3-Month	0.014	0.016	0.017	0.017	0.15	12%

Notes:
From 2014-2016 EPA's AirData Website
(1) SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.
(2) CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.
(3) NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.
(4) O_3 reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1963 $\mu g/m^3$.
(5) Background level is the average concentration of the three years.
(6) The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.
(7) CO monitor at Kenmore Square was deactivated in January 2015. Harrison Avenue monitor used for 2015 and 2016.

Air quality in the vicinity of the Project site is generally good, with all local background concentrations found to be well below the NAAQS.

3.5.3 Mobile Sources

Mobile sources of air pollution include emissions from gasoline, diesel, and natural gas fueled vehicle traffic. Emissions from mobile sources have continually decreased as engine technology and efficiency have been improved.

3.5.3.1 Methodology

The BPDA typically requests an analysis of the effect on air quality of the increase in traffic generated by projects subject to Large Project Review. This "microscale" analysis is typically required for any intersection where 1) Project traffic would impact intersections or roadway links currently operating at LOS D, E, or F or would cause LOS to decline to D, E, or F; 2) Project traffic would increase traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour); or, 3) the Project will generate 3,000 or more new average daily trips on roadways providing access to a single location. The microscale analysis involves modeling of CO emissions from vehicles idling at and traveling through signaled intersections. Predicted ambient concentrations of CO for the Build and No-Build cases are compared with federal (and state) ambient air quality standards for CO.

The microscale analysis typically examines ground-level CO impacts due to traffic queues in the immediate vicinity of a project. CO is used in microscale studies to indicate roadway pollutant levels since it is the most abundant pollutant emitted by motor vehicles and can result in so-called "hot spot" (high concentration) locations around congested intersections. The NAAQS standards do not allow ambient CO concentrations to exceed 35 parts per million (ppm) for a one-hour averaging period, and nine ppm for an eight-hour averaging period, more than once per year at any location. The widespread use of CO catalysts on current vehicles has reduced the occurrences of CO hotspots. Air quality modeling techniques (computer simulation programs) are typically used to predict CO levels for both existing and future conditions to evaluate compliance of the roadways with the standards. The microscale analysis has been conducted using the latest versions of EPA's MOVES and CAL3QHC programs to estimate CO concentrations at sidewalk receptor locations. Baseline (2018) and future year (2025) emission factor data calculated from the MOVES model, along with traffic data, were input into the CAL3QHC program to determine CO concentrations due to traffic flowing through the selected intersections. The modeling methodology was developed in accordance with the latest MassDEP modeling policies and Federal modeling guidelines.[2]

[2] 40 CFR 51 Appendix W, Guideline on Air Quality Models, 70 FR 68228, Nov. 9, 2005

Existing background values of CO at the nearest monitor location at Harrison Avenue were obtained from MassDEP. CAL3QHC results were then added to background CO values of 2.4 ppm (one-hour) and 1.8 ppm (eight-hour), as provided by MassDEP, to determine total air quality impacts due to the Project. These values were compared to the NAAQS for CO of 35 ppm (one-hour) and 9 ppm (eight-hour).

Modeling assumptions and backup data for results presented in this section are provided in Appendix D.

Intersection Selection

One signalized intersection included in the traffic study meet the above conditions described at the beginning of this section (see Chapter 2). The traffic volumes and LOS calculations provided in Chapter 2 form the basis of evaluating the traffic data versus the microscale thresholds. The sole intersection found to meet the criteria was the intersection of VFW Parkway, Spring Street, and Bridge Street, because it currently operates at LOS E during the a.m. peak hour and LOS F during the p.m. peak hour.

Microscale modeling was performed for the intersection based on the aforementioned methodology. The 2018 Existing Condition and the 2025 No-Build and Build conditions were each evaluated for both morning (a.m.) and afternoon (p.m.) peak.

Emissions Calculations (MOVES)

The EPA MOVES computer program was used to estimate motor vehicle emission factors on the roadway network. Emission factors calculated by the MOVES model are based on motor vehicle operations typical of daily periods. The Commonwealth's statewide annual Inspection and Maintenance (I&M) program was included, as well as the county specific vehicle age registration distribution, fleet mix, meteorology, and other inputs. The inputs for MOVES for the existing (2018) and future year (2025) are provided by MassDEP.

All link types for the modeled intersections were input into MOVES. Idle emission factors are obtained from factors for a link average speed of 0 miles per hour (mph). Moving emissions are calculated based on speeds at which free-flowing vehicles travel through the intersection as stated in traffic modeling (Synchro) reports. A speed of 25 mph is used for all free-flow traffic, consistent with the City of Boston speed limit. Speeds of 10 and 15 mph were used for right (and U-turns, if necessary) and left turns, respectively. Roadway emissions factors were obtained from MOVES using EPA guidance.

Winter CO emission factors are typically higher than summer. Therefore, January weekday emission factors were conservatively used in the microscale analysis.

Receptors & Meteorology Inputs

A set of 169 receptors were placed in the vicinity of the modeled intersection. Receptors extended approximately 300 feet on the sidewalks along the roadways approaching the intersections. The roadway links and receptor locations of the modeled intersections are presented in Figure 3.5-1.

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance[3], a wind speed of one meter per second, stability class D (4), and a mixing height of 1,000 meters were used. To account for the intersection geometry, wind directions from 0° to 350°, every 10° were selected. A surface roughness length of 321 centimeters was selected.[4]

Impact Calculations (CAL3QHC)

The CAL3QHC model predicts one-hour concentrations using queue-links at signalized intersections, worst-case meteorological conditions, and traffic input data. The one-hour concentrations were scaled by a factor of 0.9 to estimate eight-hour concentrations.[5] The CAL3QHC methodology was based on EPA CO modeling guidance. Signal timings were provided directly from the traffic modeling outputs.

For use in the microscale analysis, background concentrations of CO in ppm were required. The corresponding maximum background concentrations in ppm were 2.4 ppm (2,750 $\mu g/m^3$) for one-hour and 1.8 ppm (2,062 $\mu g/m^3$) for eight-hour CO.

3.5.3.2 Air Quality Results

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 3.5-3 through 3.5-6 for the 2018 and 2025 scenarios. Eight-hour average concentrations are calculated by multiplying the maximum one-hour concentrations by a factor of 0.9.

The results of the one-hour and eight-hour maximum modeled CO ground-level concentrations from CAL3QHC were added to EPA supplied background levels for comparison to the NAAQS. These values represent the highest potential concentrations at the intersection as they are predicted during the simultaneous occurrence of "defined"

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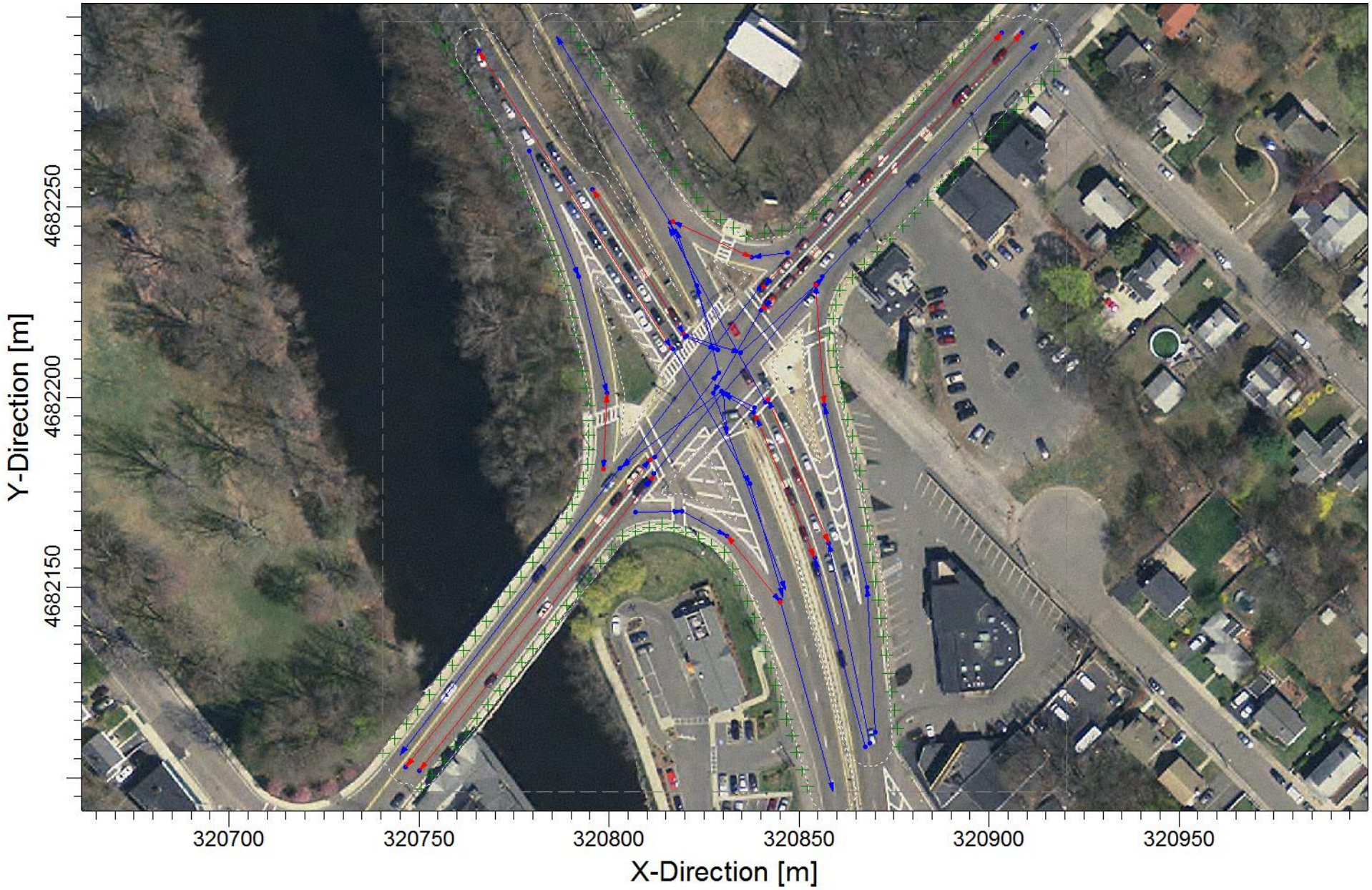
[3] U.S. EPA, *Guideline for Modeling Carbon Monoxide from Roadway Intersections.* EPA-454/R-92-005, November 1992.

[4] U.S. EPA, *User's Guide for CAL3QHC Version 2: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections*. EPA –454/R-92-006 (Revised), September 1995.

[5] U.S. EPA, AERSCREEN User's Guide; EPA-454/B-11-001, March 2011.



The Parkway Apartments **West Roxbury, Massachusetts**

Epsilon ASSOCIATES INC.

Figure 3.5-1

Intersection of VFW Parkway, Spring Street, & Bridge Street

worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the Project for the modeled Build Case conditions (0.3 ppm) plus background (2.4 ppm) is 2.7 ppm. The highest eight-hour traffic-related concentration predicted in the area of the Project for the modeled Build Case conditions (0.3 ppm) plus background (1.8 ppm) is 2.1 ppm. All concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

Table 3.5-3 Summary of Microscale Modeling Analysis (Existing 2018)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.4	2.4	2.8	35
	PM	0.4	2.4	2.8	35
8-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.4	1.8	2.2	9
	PM	0.4	1.8	2.2	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

Table 3.5-4 Summary of Microscale Modeling Analysis (No-Build 2025)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.2	2.4	2.6	35
	PM	0.2	2.4	2.6	35
8-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.2	1.8	2.0	9
	PM	0.2	1.8	2.0	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

Table 3.5-5 Summary of Microscale Modeling Analysis (Build 2025)

Intersection	Peak	CAL3QHC Modeled CO Impacts (ppm)	Monitored Background Concentration (ppm)	Total CO Impacts (ppm)	NAAQS (ppm)
1-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.3	2.4	2.7	35
	PM	0.2	2.4	2.6	35
8-Hour					
VFW Parkway, Spring Street, and Bridge Street	AM	0.3	1.8	2.1	9
	PM	0.2	1.8	2.0	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.

3.5.3.3 Conclusions

Results of the microscale analysis show that all predicted CO concentrations are well below one-hour and eight-hour NAAQS. Therefore, it can be concluded that there are no anticipated adverse air quality impacts resulting from increased traffic in the area.

3.6 Stormwater/Water Quality

Please see Section 7.3.

3.7 Flood Hazard Zones/ Wetlands

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the site located in the City of Boston - Community Panel Number 25025C0068G indicates the FEMA Flood Zone Designations for the site area. The map shows that a portion of the Project site is located in Zone AE "Areas with a 1% chance of flood", and other portions of the site are in Zone X "Areas with a 0.2% chance of flooding with average depths of less than one foot or with drainage areas less than 1 square mile; and areas protected by levees from the 1% annual chance flood". Chapter 4 includes a discussion of how the Project will be designed to account for the site's location within the 100-year flood zone.

The site contains Bordering Land Subject to Flooding.

3.8 Geotechnical Impacts

The preliminary geotechnical engineering study was performed by GZA GeoEnvironmental, Inc. (GZA) for a proposed multi-family residential development located at 1507 Veterans of Foreign Wars Parkway in West Roxbury, Massachusetts (site).

The site consists of an approximately 4.6-acre parcel of land improved with a paved parking lot on the northern portion of the property; the southern portion of the property is a vacant lot. The site is relatively flat with an elevated area in the eastern portion of the site. The site grades range from Elevation 109 feet in the eastern portion of the site to Elevation 96 feet in the southern portion of the site. The proposed Project will consist of two four-story residential buildings and a four-story, five-level concrete parking garage; no basement areas are planned. The finished floor of the proposed buildings will be at Elevation 98.5 feet.

3.8.1 Subsurface Soil and Bedrock Conditions

The site was originally filled and developed as early as 1929. Additional filling likely occurred more recently in the eastern portion of the site. Based on five test borings advanced to depths of 21 to 31 feet below ground surface, subsurface conditions generally consisted of fill overlying organics (peat) over glacial till. The encountered thicknesses and generalized descriptions, in descending order from ground surface, are presented in Table 3.8-1.

Table 3.8-1 Generalized Subsurface Conditions

Soil Unit	Approximate Thickness (ft)	Generalized Description
Fill	7.0 - 18.2	Very loose to medium dense, light brown to dark brown, fine to medium SAND, with varying amounts of Silt, and up to about 20 percent Gravel. Buried asphalt was encountered in the fill stratum in test boring B-5.
Organics	2.4 - 5.2	Very soft to medium stiff organics consisting of amorphous peat with varying amounts of silt were encountered in each test boring.
Glacial Till	>8.0 - >17.6	Medium dense to very dense, brown to gray, fine to coarse SAND with up to 50 percent Silt and/or up to 50 percent. The bottom of Glacial Till was not observed in any of the test borings.

3.8.2 Groundwater

Groundwater was encountered across the site at depths as shallow as two feet; however, the shallow groundwater depths are indicative of "perched" groundwater as the result of poor drainage in the subsurface soils. Groundwater conditions and levels can fluctuate, due to season, precipitation, infiltration, soil conditions and other factors. Bedrock was not encountered during the recent exploration program. However, bedrock was encountered during the MWRA sewer line relocation project in the VFW Parkway that borders the eastern portion of the site. Bedrock was encountered in the MWRA probes at elevations ranging from Elevation 98 feet to Elevation 78 feet. The proposed Project is not located in the Groundwater Conservation Overlay District.

3.8.3 Project Impacts and Foundation Considerations

Compacted aggregate piers (CAPs) and grouted piers (GPs) are likely to be a technically feasible foundational support option for the site. CAPs and GPs will improve the density of the existing fill and organic soils in-place, such that a spread footing foundation can be used over the improved fill and underlying organics.

Installation will be managed by a licensed engineer, including all monitoring and testing during this phase of construction.

3.9 Solid and Hazardous Waste

3.9.1 Hazardous Waste

GZA was retained to perform a Phase I Environmental Site Assessment (ESA) of the property located at 1507 Veterans of Foreign Wars Parkway, West Roxbury, Massachusetts (hereafter referred to as the site). GZA performed this Phase I ESA in connection with the Proponent's planned purchase of the site.

The Phase I ESA was performed in general conformance with the scope and limitations of ASTM International's Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process - E1527-13 (ASTM E1527-13), and included visual observation of the site; a review of historical information, environmental databases, and information provided by the user; and interviews with current site representatives.

The site consists of an approximately 4.6-acre, irregularly-shaped parcel of land improved with a paved parking lot on the northern-most portion of the property. The remainder of the site consisted of vacant, overgrown land separated into sections by fencing.

Based on available historical information, the site was filled and developed as early as 1929 as a recreational area including a dance hall building located on the northern end of the Site. Additional portions of the site were developed prior to 1950 with residential mobile

homes associated with the Boston Trailer Park. The recreational building was removed between 1955 and 1960, and the northern portion of the site was redeveloped as paved parking prior to 1995. The residential trailers were removed between 2003 and 2006.

Based on the findings of the Phase I ESA and professional judgment, GZA has identified that there are no Recognized Environmental Conditions (RECs) for: historic use information, previous site investigations, site reconnaissance, regulatory database review, user-provided information, de minimis conditions, data gaps and their significance.

Future site redevelopment activities might encounter residual urban fill contamination in soil or groundwater related to past filling. Impacted material either will be managed on or off the site in conformance with applicable federal, state, and local regulations.

3.9.2 Operation Solid and Hazardous Waste Generation

The Project will generate solid waste typical of residential uses. Solid waste is expected to include wastepaper, cardboard, glass bottles and food. Recyclable materials will be recycled through a program implemented by building management. The Project will generate approximately 264 tons of solid waste per year.

With the exception of household hazardous wastes typical of hotel and residential developments (e.g., cleaning fluids and paint), the Project will not involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials.

3.9.3 Recycling

A dedicated recyclables storage and collection program will facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in landfills. The recycling program will be fully developed in accordance with LEED standards as described in Chapter 4.

3.10 Noise Impacts

3.10.1 Introduction

A sound level assessment was conducted that included a baseline sound monitoring program to measure existing sound levels in the vicinity of the Project, computer modeling to predict operational sound levels from proposed mechanical equipment, and a comparison of future Project sound levels to applicable City of Boston Zoning District Noise Standards.

This analysis, which is consistent with BPDA requirements for noise studies, indicates that with appropriate noise controls, predicted sound levels from the Project will comply with local noise regulations.

3.10.2 Noise Terminology

There are several ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. The following information defines the sound level measurement terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities found in the environment. A property of the decibel scale is that the sound pressure levels of two or more separate sounds are not directly additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a three-dB increase (53 dB), which is equal to doubling in sound energy but not equal to a doubling in quantity (100 dB). Thus, every three-dB change in sound level represents a doubling or halving of sound energy. Relative to this characteristic, a change in sound levels of less than three dB is imperceptible to the human ear.

Another property of decibels is that if one source of noise is 10 dB (or more) louder than another source, then the total sound level is simply the sound level of the higher-level source. For example, a sound source at 60 dB plus another sound source at 47 dB is equal to 60 dB.

A sound level meter (SLM) that is used to measure noise is a standardized instrument.[6] It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various circumstances. The most commonly used weighting network is the A-weighting (there are also C-, and Z-weighting networks) because it most closely approximates how the human ear responds to sound at various frequencies, described in Hertz (Hz). The A-weighting network is the accepted scale used for community sound level measurements, and sounds are frequently reported as detected with a sound level meter with this weighting. A-weighted sound levels emphasize middle frequency sounds (i.e., middle pitched – around 1,000 Hz), and de-emphasize low and high frequency sounds. A-weighted sound levels are reported in decibels designated as "dBA".

Because the sounds in the environment vary with time, many different sound metrics may be used to quantify them. There are two typical methods used for describing variable sounds. These are exceedance levels and equivalent levels, both of which are derived from a large number of moment-to-moment A-weighted sound pressure level measurements. Exceedance levels are values from the cumulative amplitude distribution of all of the sound levels observed during a measurement period. Exceedance levels are designated L_n, where "n" can have a value between 0 and 100 in terms of percentage. Equivalent levels are designated L_{eq} and quantify a hypothetical steady sound that would have the same energy as

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[6] *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983, published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

the actual fluctuating sound observed. The several sound level metrics that are commonly reported in community noise monitoring and are presented in this report are described below.

- L_{90} is the sound level in dBA exceeded 90 percent of the time during a measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the residual sound level, which is the sound level observed when there are no obvious nearby intermittent noise sources.

- L_{50} is the median sound level, the sound level in dBA exceeded 50 percent of the time during the measurement period.

- L_{10} is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the intrusive sound level because it is caused by occasional louder noises like those from passing motor vehicles.

- L_{max} is the maximum instantaneous sound level observed over a given period.

- L_{eq} is a sound pressure level commonly A-weighted and presented in dBA. The equivalent level represents the time average of the fluctuating sound pressure, but because sound is represented on a logarithmic scale and the averaging is done with time-averaged mean square sound pressure values, the L_{eq} is primarily controlled by loud noises if there are fluctuating sound levels.

In the design of noise controls, which do not function quite like the human ear, it is important to understand the frequency spectrum of the noise source of interest. The spectra of noises are usually stated in terms of octave-band sound pressure levels, in dB, with the frequency bands being those established by standard (American National Standards Institute [ANSI] S1.11, 1986). To facilitate the noise control design process, the estimates of noise levels in this analysis are also presented in terms of octave-band sound pressure levels. Octave-band measurements and modeling are used in assessing compliance with the City of Boston noise regulations.

3.10.3 Noise Regulations and Criteria

The City of Boston has both a noise ordinance and noise regulations. Chapter 16 §26 of the Boston Municipal Code sets the general standard for noise that is unreasonable or excessive: louder than 50 decibels between the hours of 11:00 p.m. and 7:00 a.m., or louder than 70 decibels at all other hours. The Boston Air Pollution Control Commission (BAPCC) has adopted regulations based on the city's ordinance - "Regulations for the Control of Noise in the City of Boston", which distinguish among residential, business, and industrial districts in the City. In particular, BAPCC Regulation 2 is applicable to the sounds from the Project and is considered in this noise study.

Table 3.10-1 below presents the "Zoning District Noise Standards" contained in Regulation 2.5 of the BAPCC "Regulations for the Control of Noise in the City of Boston," adopted December 17, 1976. These maximum allowable sound pressure levels apply at the property line of the receiving property. The "Residential Zoning District" limits apply to any lot located within a residential zoning district or to any residential use located in another zone except an Industrial Zoning District, according to Regulation 2.2. Similarly, per Regulation 2.3, business limits apply to any lot located within a business zoning district not in residential or institutional use.

Table 3.10-1 City Noise Standards, Maximum Allowable Sound Pressure Levels

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

Notes:
1. Noise standards from Regulation 2.5 "Zoning District Noise Standards", City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", adopted December 17, 1976.
2. All standards apply at the property line of the receiving property.
3. dB and dBA based on a reference pressure of 20 micropascals.
4. Daytime refers to the period between 7:00 a.m. and 6:00 p.m. daily, except Sunday.

3.10.4 Existing Conditions

A background noise level survey was conducted to characterize the existing "baseline" acoustical environment in the vicinity of the Project. Existing noise sources around the site include: vehicular and truck traffic along the parkway and local streets, pedestrian traffic, distant and nearby mechanical noise, construction activity and equipment operation, birds, wind, rustling vegetation, planes passing by overhead and the general city soundscape.

3.10.5 Noise Monitoring Methodology

Since noise impacts from the Project on the community will be highest when background noise levels are the lowest, the study was designed to measure community noise levels under conditions typical of "quiet periods" for the area. Therefore, daytime measurements were scheduled to avoid peak traffic conditions. Sound level measurements were made on

Tuesday, June 19, 2018 during the daytime (2:00 p.m. to 3:40 p.m.) and on Wednesday, June 20, 2018 during nighttime hours (12:20 a.m. to 2:00 a.m.). All measurements were 20 minutes in duration.

Sound levels were measured at publicly accessible locations at a height of five feet (1.5 meters) above ground level, under low wind conditions, and with dry roadway surfaces. Wind speed measurements were made with a Davis Instruments TurboMeter electronic wind speed indicator, and temperature and humidity measurements were made using a General Tools digital psychrometer. Unofficial observations about meteorology or land use in the community were made solely to characterize the existing sound levels in the area and to estimate the noise sensitivity at properties near the Project site.

3.10.6 Noise Monitoring Locations

The selection of the noise monitoring locations was based upon a review of zoning and land use in the Project area. Four noise monitoring locations were selected as representative sites to obtain a sampling of the ambient baseline noise environment. These measurement locations are depicted on Figure 3.10-1 and described below.

- **Location 1** is located on the northwest corner of the Project site along the northern side of Dedham Street. The location is adjacent to the apartment building that is located at 1461 VFW Parkway and just south of the Mobil gas station. This location is representative of the closest residences to the north of the Project.

- **Location 2** is located on the west side of the Project site across the street on Second St. This location was located in front of trailer A12 and is representative of the adjacent residences to the west of the Project in the Boston Trailer Park.

- **Location 3** is located along at the corner of Second Street and E Avenue on the southwest corner of the Project site. This location was located nearby trailer E15 and is representative of the adjacent residences and commercial properties to the south and southwest of the Project in the Boston Trailer Park and the car dealership Prime Honda-Boston.

- **Location 4** is located across the VFW Parkway to the east of the Project site. This location was located in front of the Marshview Place Condominiums and is representative of the adjacent residential receptors to the east at Marshview Place and along nearby Caledonian Avenue and Laurie Avenue.

3.10.7 Noise Monitoring Equipment

A Larson Davis Model 831 sound level meter equipped with a PCB PRM831 preamplifier, a PCB 377B20 half-inch microphone, and manufacturer-provided windscreen was used to collect background sound pressure level data. This instrumentation meets the "Type 1 - Precision" requirements set forth in ANSI S1.4 for acoustical measuring devices. The

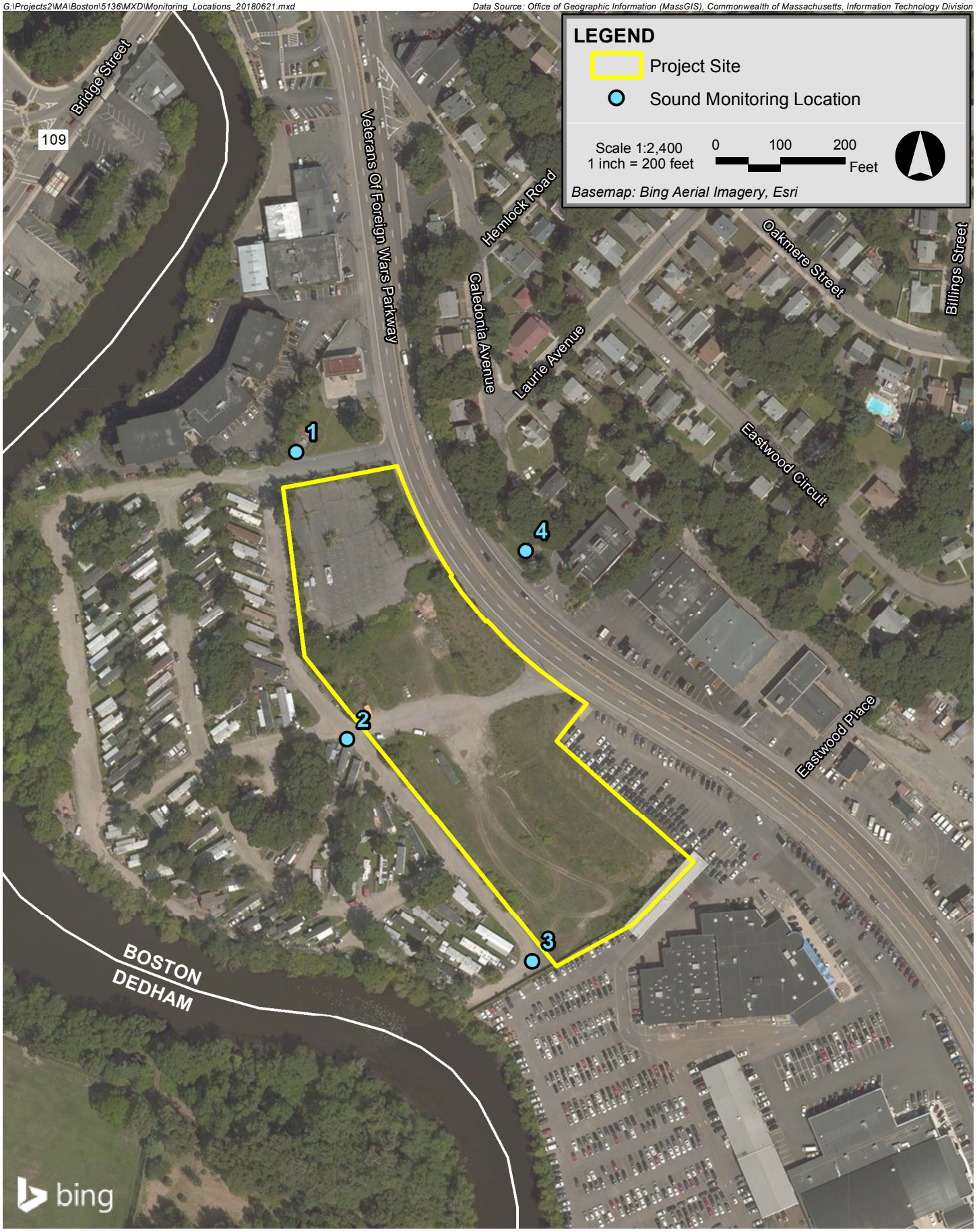
measurement equipment was calibrated in the field before and after the surveys with a Larson Davis CAL200 acoustical calibrator which meets the standards of IEC 942 Class 1L and ANSI S1.40-1984. Statistical descriptors (e.g., L_{eq}, L_{90}, etc.) were measured for each 20-minute sampling period, with octave-band sound levels corresponding to the same data set processed for the broadband levels.

3.10.8 Measured Background Sound Levels

Baseline noise monitoring results are presented in Table 3.10-2 and summarized below:

- The daytime residual background (L_{90}) measurements ranged from 48 to 62 dBA;
- The nighttime residual background (L_{90}) measurements ranged from 41 to 53 dBA;
- The daytime equivalent level (L_{eq}) measurements ranged from 53 to 68 dBA;
- The nighttime equivalent level (L_{eq}) measurements ranged from 48 to 69 dBA.

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



The Parkway Apartments **West Roxbury, Massachusetts**

Epsilon Associates Inc.

Figure 3.10-1

Sound Monitoring Locations

Table 3.10-2 Summary of Measured Background Noise Levels – June 19, 2018 (Daytime) & June 20, 2018 (Nighttime)

Location	Period	Start Time	L_{eq}	L_{max}	L_{10}	L_{50}	L_{90}	L_{90} Sound Pressure Level by Octave-Band Center Frequency (Hz)									
								31.5	63	125	250	500	1000	2000	4000	8000	16000
			dBA	dBA	dBA	dBA	dBA	dB	dB	dB	dB	dB	dB	dB	dB	dB	dB
1	Day	2:36 PM	57	68	60	57	53	62	61	57	53	49	49	42	41	40	43
2	Day	2:59 PM	66	96	61	55	52	61	59	56	50	47	48	42	42	40	43
3	Day	3:22 PM	53	67	54	51	48	60	58	52	45	44	44	38	38	40	43
4	Day	2:02 PM	68	78	70	67	62	62	63	63	61	58	59	49	44	41	44
1	Night	1:05 AM	55	69	57	54	53	58	64	58	53	44	45	49	43	40	43
2	Night	12:42 AM	48	66	51	44	41	55	57	49	39	38	37	35	36	40	43
3	Night	12:20 AM	49	67	52	43	41	54	57	45	40	38	36	35	36	40	43
4	Night	1:31 AM	69	83	73	67	51	55	64	57	51	45	43	41	38	40	43

Note: Sound pressure levels are rounded to the nearest whole decibel.

Weather Conditions:

	Date	Temp	RH	Sky	Wind
Daytime	Tuesday, June 19, 2018	84 °F	36%	Mostly Clear	NW @ 8 mph
Nighttime	Wednesday, June 20, 2018	65 °F	63%	Partly Cloudy	Calm

Monitoring Equipment Used:

	Manufacturer	Model	S/N
Sound Level Meter	Larson Davis	LD831	2155
Microphone	Larson Davis	377B20	112256
Preamp	Larson Davis	PRM831	16478
Calibrator	Larson Davis	Cal200	13676

3.10.9 Future Conditions – Overview of Potential Project Noise Sources

The primary sources of continuous sound exterior to the Project will consist of ventilation and cooling noise sources. Numerous noise sources will be located on the rooftops with air conditioner units for both Building A and Building B. Both Building A and Building B will contain a janitor closet exhaust fan and a trash exhaust fan on their respective rooftops. A garage exhaust fan will be located on the rooftop of the parking garage that is in the middle of Building A. It is assumed that the garage intake air will be obtained by a passive system with no associated noise sources. Both Buildings A and B will contain four floors with a total height of 45 feet.

Table 3.10-3 provides an anticipated list of the major sources of sound. Sound power levels used in the acoustical modeling of each piece of equipment are presented in Table 3.10-4. Sound power level data were provided by the respective manufacturer of each piece of equipment.

Table 3.10-3 Modeled Noise Sources

Noise Source	Quantity	Approximate Location & Elevation	Size/Capacity
Air Conditioners	290	Rooftop Area Building A- 150 units Building B- 140 units, 145 ft	5 Tons
Garage Exhaust Fan	1	Top Floor of Parking Garage, 147 ft	28,000 CFM
Janitor Closet/Trash Exhaust Fans	4	Rooftop Area, 145 ft	1,250 CFM

Table 3.10-4 Modeled Sound Power Levels per Noise Source

Noise Source	Broad-band (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
Carrier Air Conditioner 24ACC4[2]	68	46[1]	46[1]	46	57	60	64	61	56	50
Greenheck SBE-3L48-75 Sidewall Belt Drive Fan	89	97[1]	97[1]	97	90	87	82	78	75	71
Greenheck GB-101-3 Belt Drive Centrifugal Roof Exhaust Fan	74	77[1]	77[1]	77	76	73	65	63	58	51

1. No data provided by manufacturer. Octave-band sound level assumed to be equal to the 125 Hz band level.
2. Octave-band sound levels provided are A-weighted.

3.10.10 Noise Modeling Methodology

The noise impacts associated with the Project were predicted at the nearest and most representative receptors using the CadnaA noise calculation software developed by DataKustik GmbH. This software uses the ISO 9613-2 international standard for sound propagation (Acoustics - Attenuation of sound during propagation outdoors - Part 2:

General method of calculation). The benefits of this software are a refined set of computations due to the inclusion of topography, ground attenuation, multiple building reflections, drop-off with distance, and atmospheric absorption. The CadnaA software allows for octave-band calculation of noise from multiple noise sources, as well as computation of diffraction around building edges.

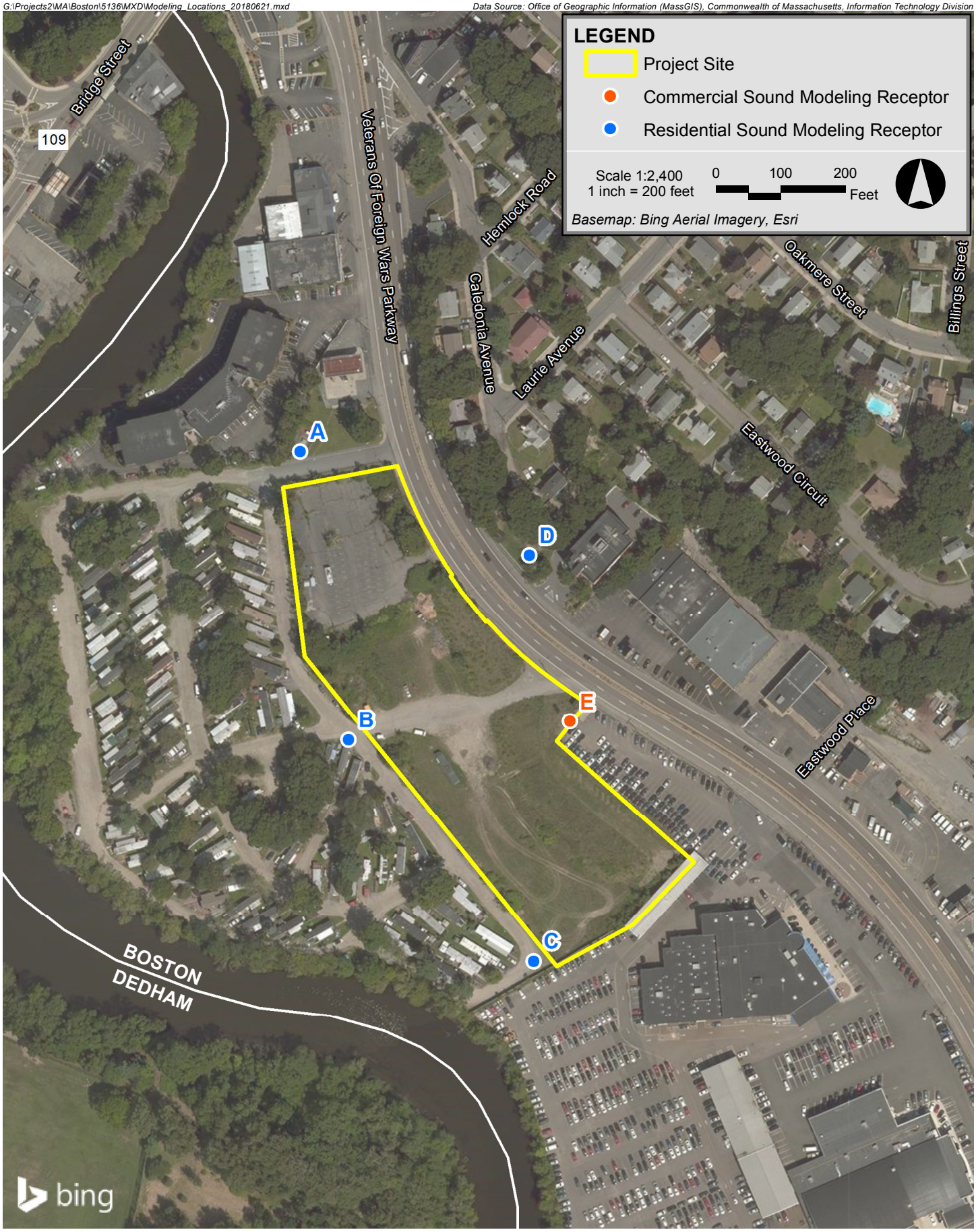
Five modeling locations at a height of five feet (1.5 meters) above grade were included in the modeling scenario, consisting of the nearest noise-sensitive receptors and property lines in the vicinity of the Project site, and were evaluated against the applicable noise limits. Modeling locations A, B, C & D are identical to measurement locations 1, 2, 3 & 4 respectively. One additional modeling location (E) was added for an additional commercial property immediately to the east of the Project. The modeling receptors, which correspond to residential and commercial uses in the community, are depicted in Figure 3.10-2.

3.10.11 Future Sound Levels – Nighttime & Daytime

With no emergency equipment included as a part of the Project, the analysis of sound levels at night, along with the day, included all the mechanical equipment operating at maximum loads to simulate worst-case operation conditions at nearby receptors. The predicted exterior Project-only sound levels range from 30 to 37 dBA at nearby receptors. The City of Boston Residential and Business limits have been applied to the appropriate locations. Predicted sound levels from Project-related equipment are within the broadband and octave-band nighttime limits under the City Noise Standards at the modeling locations. The evaluation is presented in Table 3.10-5. The nighttime noise limits are more restrictive than the daytime limits. Given that no additional noise sources are expected to operate during the daytime, predicted sound levels are also within the daytime broadband and octave-band limits.

Table 3.10-5 Comparison of Future Predicted Project-Only Nighttime Sound Levels to the City of Boston Limits

Modeling Location ID	Zoning / Land Use	Broadband (dBA)	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
			31.5	63	125	250	500	1k	2k	4k	8k
A	Residential	30	54	41	37	30	26	25	20	12	0
B	Residential	35	57	44	38	36	32	30	24	17	5
C	Residential	35	56	42	35	34	31	31	25	17	3
D	Residential	37	56	47	45	39	35	32	26	18	5
E	Commercial	35	60	46	39	36	32	31	25	17	7
City of Boston Limits	**Residential/Institutional**	**50**	**68**	**67**	**61**	**52**	**46**	**40**	**33**	**28**	**26**
	Business	**65**	**79**	**78**	**73**	**68**	**62**	**56**	**51**	**47**	**44**



The Parkway Apartments West Roxbury, Massachusetts

Epsilon ASSOCIATES INC.

Figure 3.10-2
Sound Modeling Locations

3.10.12 Conclusions

Baseline noise levels were measured in the vicinity of the Project during the day and at night. At these and additional locations, future Project-only sound levels were calculated based on information provided on the expected mechanical equipment. Project-only sound levels were compared to applicable limits.

Predicted mechanical equipment noise levels from the proposed Project at each receptor location, taking into account attenuation due to distance, structures, and noise-control measures, will be at or below the octave-band requirements of the City Noise Standards. The predicted sound levels from Project-related equipment, as modeled, are expected to remain below 50 dBA at residences; therefore, within the nighttime residential zoning limits for the City of Boston at the nearest residential receptors. The results indicate that the Project can operate without substantial impact on the existing acoustical environment.

At this time, while the mechanical equipment has been refined, they are still conceptual in nature. During the final design phase of the Project, mechanical equipment will be specified and designed to meet the applicable broadband limit and the corresponding octave-band limits of the City Noise Standards.

3.11 Construction Impacts

3.11.1 Introduction

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

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies, which ensure public safety and protect nearby residences and businesses, will be employed. Techniques such as barricades, walkways and signage will be used. The CMP will include routing plans for trucking and deliveries, plans for the protection of existing utilities, and control of noise and dust.

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

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

3.11.2 Construction Methodology/Public Safety

Construction methodologies that ensure public safety and protect nearby tenants will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

As the design of the Project progresses, the Proponent will meet with BTD to discuss the specific location of barricades, the need for lane closures, pedestrian walkways, and truck queuing areas. Secure fencing, signage, and covered walkways may be employed to ensure the safety and efficiency of all pedestrian and vehicular traffic flows. In addition, sidewalk areas and walkways near construction activities will be well marked and lighted to protect pedestrians and ensure their safety. Public safety for pedestrians on abutting sidewalks will also include covered pedestrian walkways when appropriate. If required by BTD and the Boston Police Department, police details will be provided to facilitate traffic flow. These measures will be incorporated into the CMP which will be submitted to BTD for approval prior to the commencement of construction work.

3.11.3 Construction Schedule

The Proponent anticipates that the Project will commence construction in the second quarter of 2019 and last for approximately 22 months.

Typical construction hours will be from 7:00 am to 6:00 pm, Monday through Friday, with most shifts ordinarily ending at 5:00 pm. No substantial sound-generating activity will occur before 7:00 am. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. Notification should occur during normal business hours, Monday through Friday. It is noted that some activities such as finishing activities could run beyond 6:00 pm to ensure the structural integrity of the finished product; certain components must be completed in a single pour, and placement of concrete cannot be interrupted.

3.11.4 Construction Staging/Access

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

Although specific construction and staging details have not been finalized, the Proponent and its construction management consultant will work to ensure that staging areas will be located to minimize impacts to pedestrian and vehicular flow. Secure fencing and barricades will be used to isolate construction areas from pedestrian traffic adjacent to the site. Construction procedures will be designed to meet all Occupational Safety and Health Administration (OSHA) safety standards for specific site construction activities.

3.11.5 Construction Mitigation

The Proponent will follow City and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts. As part of this process, the Proponent and construction team will evaluate the Commonwealth's Clean Air Construction Initiative.

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

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

3.11.6 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 300 construction jobs will be created over the length of construction. The Proponent will make reasonable good-faith efforts to have at least 51% of the total employee work hours be for Boston residents, at least 40% of total employee work hours be for minorities and at least 12% of the total employee work hours be for women. The Proponent will enter into jobs agreements with the City of Boston.

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

3.11.7 Construction Truck Routes and Deliveries

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

"No Idling" signs will be included at the loading, delivery, pick-up and drop-off areas.

3.11.8 Construction Air Quality

Short-term air quality impacts from fugitive dust may be expected during demolition, excavation and the early phases of construction. Plans for controlling fugitive dust during demolition, excavation and construction include mechanical street sweeping, wetting portions of the site during periods of high wind, and careful removal of debris by covered trucks. The construction contract will provide for a number of strictly enforced measures to be used by contractors to reduce potential emissions and minimize impacts, pursuant to this Article 80 approval. These measures are expected to include:

- Using wetting agents on areas of exposed soil on a scheduled basis;
- Using covered trucks;
- Minimizing spoils on the construction site;
- Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized;
- Minimizing storage of debris on the site; and
- Periodic street and sidewalk cleaning with water to minimize dust accumulations.

3.11.9 Construction Noise

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

Mitigation measures are expected to include:

- Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously running equipment, such as air compressors and welding generators;
- Replacing specific construction operations and techniques by less noisy ones where feasible;
- Selecting the quietest of alternative items of equipment where feasible;

- Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;

- Turning off idling equipment; and

- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

3.11.10 Construction Vibration

All means and methods for performing work at the site will be evaluated for potential vibration impacts on adjoining property, utilities, and adjacent existing structures. Acceptable vibration criteria will be established prior to construction, and vibration will be monitored, if required, during construction to ensure compliance with the agreed-upon standard.

3.11.11 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of construction waste. The disposal contract will include specific requirements that will ensure that construction procedures allow for the necessary segregation, reprocessing, reuse and recycling of materials when possible. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility, per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. This requirement will be specified in the disposal contract. Construction will be conducted so that materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility.

3.11.12 Protection of Utilities

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

3.11.13 Rodent Control

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

3.11.14 Wildlife Habitat

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

Chapter 4.0

Sustainable Design and Climate Change Resilience

4.0 SUSTAINABLE DESIGN AND CLIMATE CHANGE RESILIENCE

4.1 Sustainable Design

The Project's approach is rooted in sustainable development and design, and the Project team anticipates incorporating many aspects of sustainability to ensure the longevity of the Project while reducing the overall ecological footprint of the building. Emphasis has been placed on urban connectivity, reduced carbon footprint, reduction of virgin material use, overall energy and water conservation, and occupant well-being, among other considerations. The Project is located in a suburban type setting with access to public transportation. The building will feature efficient exterior wall assemblies and performant U value fenestration, as well as a variety of sustainable materials, which will serve to increase efficiency and enhance the aesthetic design quality at the interior and exterior. The fenestration, coupled with nine foot ceiling heights will provide tenants with unique opportunities for daylight harvesting and views to the exterior.

The Project will use the LEED BD+C for New Construction v4 rating system to demonstrate the Project's sustainability goals and compliance with Article 37 of the Zoning Code. The LEED rating system tracks the sustainable features of the Project by assigning points in the following categories: Location and Transportation (LT); Sustainable Sites (SS); Water Efficiency (WE); Energy & Atmosphere (EA); Materials and Resources (MR); Indoor Environmental Quality (IEQ); Innovation & Design (ID); and Regional Priority (RP). Currently, the Project's preliminary evaluation has identified 40 possible points, meeting Certified level, and will continue to evaluate these credits and the nine additional credits that are identified as maybe achievable.

Integrative Process

Beginning in pre-design and continuing throughout the design phases, the Project team will identify and use opportunities to achieve synergies across disciplines and building systems. The analyses will inform the Proponent's Project requirements, basis of design, design documents, and construction documents.

Location and Transportation

The Project team identified five points and two maybes within Location and Transportation as potentially achievable. The Project is anticipated to achieve these credits based on its location with access to transit and amenities, as well as by providing bicycle amenities on site and potentially providing preferred spaces and two electric vehicle charging stations within the proposed parking garage.

Sustainable Sites

The Project team anticipates achieving up to four points in this credit category by completing an environmental site assessment, providing significant open space and vegetation on the site, including high reflectance roofing surfaces, and reducing light pollution.

Water Efficiency

The Project team anticipates achieving up to five points for water efficiency by reducing indoor and outdoor water use as well as individual unit water meters.

Energy and Atmosphere

The Project team currently anticipates achieving up to nine points and has an additional five maybes for Energy and Atmosphere through the implementation of various energy-saving strategies such as high-efficiency building envelope systems and components, enhanced commissioning, and optimization of the energy performance and may purchase renewable energy certificates supporting the production of off-site renewable energy.

Materials and Resources

The Project team anticipates potentially achieving five points in the Materials and Resources category through the specific selection of building materials and products with a high amount of recycled content, materials that are additionally extracted/harvested and manufactured within 100 miles of the Project site, and that subject themselves to environmental impact reviews.

The Project will also have a construction waste management plan to divert materials from landfills. The construction team will work with the waste management provider for the project to collect waste on-site that will meet the program requirements.

Indoor Environmental Quality

The Project team anticipates earning seven points and is considering one maybe point related to the implementation of indoor air quality measures, including but not limited to: monitoring outdoor air delivery to interior spaces; increasing ventilation rates to spaces throughout the building; and managing indoor air quality during construction for the construction team as well as future occupants.

Residents of the building will be able to control lighting and heating and cooling. Additionally, the currently anticipated design will provide quality views throughout the occupied spaces.

Innovation and Design

The Project team anticipates earning three Innovation and Design points as the Project team includes at least one LEED AP. Additional points are anticipated to be achieved through exemplary performance for Heat Island Reduction and Construction and Demolition Waste Management.

Regional Priority Credits

The four points available in this category are contingent upon meeting certain thresholds for credits in other categories, as determined by the USGBC. The Project does not currently anticipate

4.2 Climate Change Preparedness

4.2.1 Introduction

Projects subject to Article 80B, Large Project Review, are required to complete the Climate Change Preparedness Checklist. Climate change conditions considered by the Project team include sea-level rise, higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, more severe freezing rain and heavy rainfall evets, and increased wind gusts.

A copy of the Climate Change Checklist is included in Appendix E. Given the preliminary level of design, the responses are also preliminary and may be updated as the Project design progresses.

4.2.2 Extreme Heat Events

The *Climate Ready Boston* report predicts that in Boston, there may be between 25 to 90 days with temperatures over 90 degrees by 2070, compared to an average of 11 days per year over 90 degrees between 1971 to 2000. The Project design will include measures to adapt to these conditions, including specifying low energy equipment, appliances, programmable thermostats, and low energy lighting. The Project will reduce the urban heat island effect by installing reflective roof materials, and by having over 40% of the total site area be landscaped.

4.2.3 Sea Level Rise and Future Storms

The Project site is located in close proximity to the Charles River, and a portion of the site is located within the 100-year flood zone. According to Climate Ready Boston, by 2030 sea level may be as much as eight inches higher than it was in 2000, and could be as high as seven feet higher by 2100. As described in "Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery" by MassDOT

(MassDOT Report), "one of the challenges presented by the wide range of SLR projections is the inability to assign likelihood to any particular [SLR] scenario."[1] To be conservative, in the year 2070, SLR could be as high as approximately four feet.

The Project will take measures to minimize the impact of potential flooding at the site, including the following:

- Elevating the first floor of the buildings to be approximately two feet higher than the 100-year floodplain;
- Critical systems, electric, cable, and other utility services located below design flood elevation, if any, may be dry flood proofed; and
- To the extent feasible, critical systems will be located at two feet above base flood elevation.

4.2.4 Drought Conditions

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

[1] Massachusetts Department of Transportation, et al. "MassDOT-FHWA Pilot Project Report: Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery." November 2015.

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

Project Checklist

Project Name: The Parkway Apartments 1507 VFW Parkway West Roxbury
Date:

Y	?	N			
1			Credit	Integrative Process	1

5	2	25	Location and Transportation		16
		16	Credit	LEED for Neighborhood Development Location	16
		1	Credit	Sensitive Land Protection	1
		2	Credit	High Priority Site	2
1	1	3	Credit	Surrounding Density and Diverse Uses	5
2		3	Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

5	0	5	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

5	0	6	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
1		1	Credit	Outdoor Water Use Reduction	2
3		3	Credit	Indoor Water Use Reduction	6
		2	Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

9	5	19	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
3		3	Credit	Enhanced Commissioning	6
6	3	9	Credit	Optimize Energy Performance	18
		1	Credit	Advanced Energy Metering	1
		2	Credit	Demand Response	2
		3	Credit	Renewable Energy Production	3
		1	Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2

5	0	8	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
1		1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients	2
2			Credit	Construction and Demolition Waste Management	2

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

3	0	2	Innovation		6
2		2	Credit	Innovation	5
1			Credit	LEED Accredited Professional	1

0	0	4	Regional Priority		4
		1	Credit	Regional Priority: Specific Credit	1
		1	Credit	Regional Priority: Specific Credit	1
		1	Credit	Regional Priority: Specific Credit	1
		1	Credit	Regional Priority: Specific Credit	1

40	8	77	TOTALS	Possible Points:	110

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

Chapter 5.0

Urban Design

5.0 URBAN DESIGN

The design goal is to create a sense of place and identity inspired by an urban typology while considering the Project's location in a fragmented suburban context. The site is located along a portion the VFW Parkway that is primarily lined with surface parking lots serving miscellaneous retail outlets. It is bound by Dedham Street and Second Street with both streets serving the adjacent Boston Trailer Park.

The Project is organized in two blocks (A and B) divided by an interior drive that serves as a welcoming entrance court and as the main connection to the VFW Parkway and the adjacent neighborhood (see Figure 5-1 and 5-2). Main lobbies and residential amenities are located at the ground level with residential units overlooking the court. A strong urban edge is provided along the VFW Parkway and Dedham Street while a large landscaped setback and open courtyards face Second Street and the adjacent neighbors. The block along the VFW Parkway is interrupted by anchoring the corners with distinctive buildings linked together by a series of bay projections reminiscent of smaller scale residential urban typology (see Figure 5-3). The scale sets the massing and the architectural tone for the Project. Each block is occupied by a building that distinguishes itself through the use of materials, roof profiles, proportions and colors.

Building A, located at the corner of the VFW Parkway and Dedham Street includes a sloping roof directed toward the main entrance of the Project where a similar element is repeated to provide a visual cue that ties Building A together. The two buildings are linked by a series of smaller buildings composed in a tripartite fashion. Lighter color brick, metal and cement panels and different roof heights help further articulate the façade and provide a more contemporary read. The use of large openings adds to the overall composition (see Figure 5-4).

The parking structure is provided in block A and is wrapped by the residential building and is fully obscured from the surrounding streets. Residential courtyard facades are restrained with fewer articulations and a simpler rhythm that emphasizes the pedestrian scale and experience. Large windows and selectively located balconies are used to visually link the residential units to the outdoors. Material and colors in the courtyard facades take their cues from the street facades.

Building B, although similar in the overall theme, has a more traditional approach due to the use of red brick and the repetitive bay elements that bring a more vertical language reminiscent of urban townhomes (see Figure 5-5). Similar windows, as in Building A, are used as a unifying element for the whole Project. The more active residential courtyard in Building B draws inspiration from the street facing elevations for color, rhythm and window arrangement while reducing the repetitive articulations (see Figure 5-6).

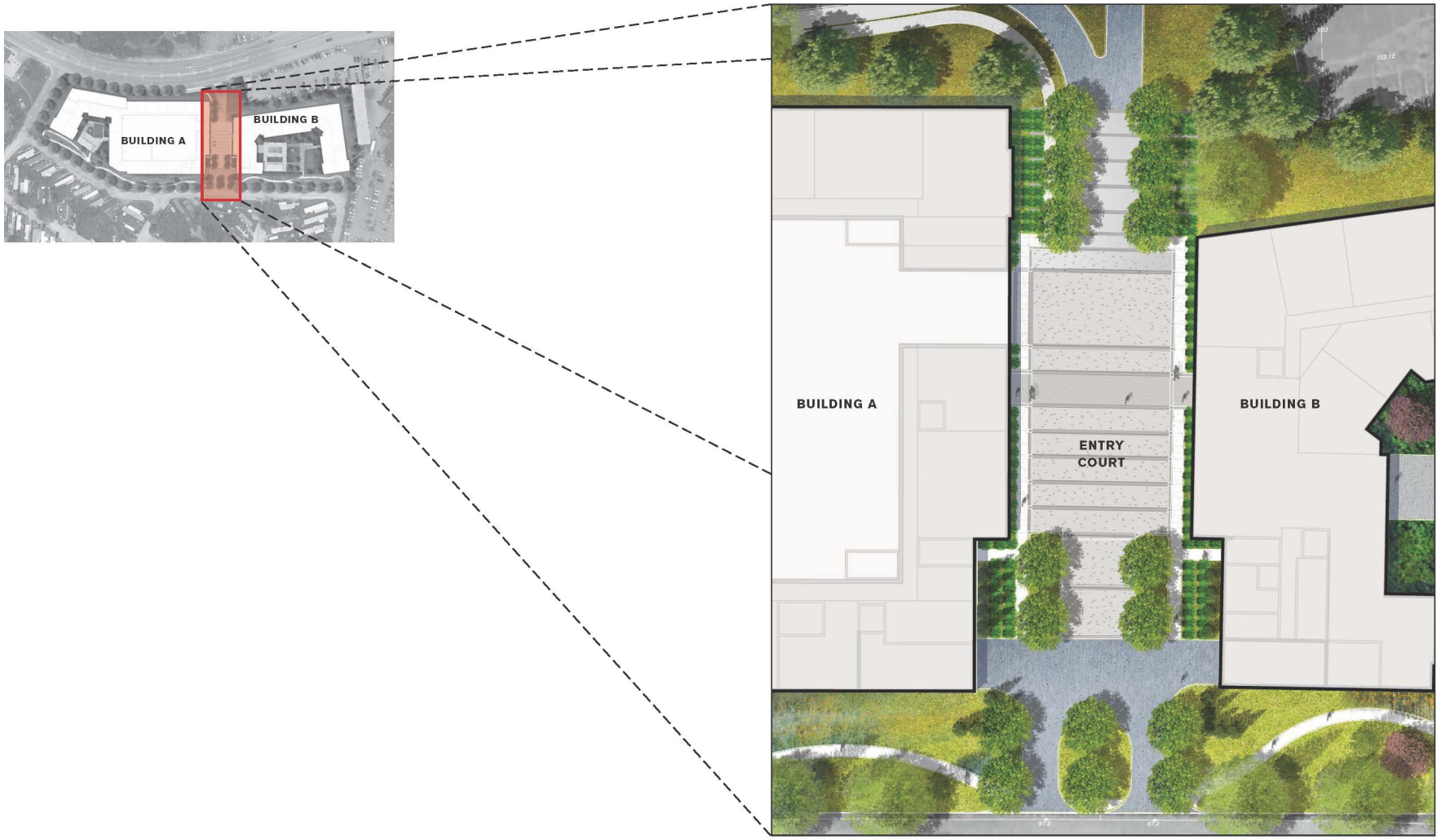
The design and the building composition ultimately, reinforce the urban design approach by developing a language that draws its inspiration from the urban landscape and provides an additional reference point to this segment of the Parkway.

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Figure 5-1

View Down A Street



The Parkway Apartments West Roxbury, Massachusetts

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Figure 5-2

Entry Court Concept Plan

The Parkway Apartments West Roxbury, Massachusetts

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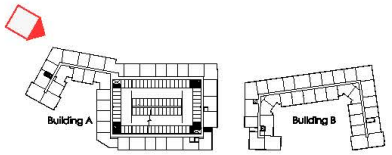
Figure 5-3

View Down A Street



The Parkway Apartments West Roxbury, Massachusetts

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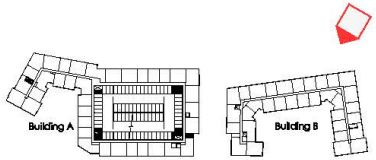
Figure 5-4

View South on VFW Parkway



The Parkway Apartments West Roxbury, Massachusetts

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Figure 5-5

View North on VFW Parkway

The Parkway Apartments West Roxbury, Massachusetts

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Figure 5-6

View West into Courtyard B

Chapter 6.0

Historic and Archaeological Resources

6.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

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

6.1 Project Site

No historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth are within the Project site.

The Project site is an approximately 4.6-acre site located in the West Roxbury neighborhood of Boston. The Project site is bounded by bound by VFW Parkway to the east, Dedham Street to the north, Second Street to the west, and Prime Honda Boston to the south. The Project site currently contains a dilapidated surface parking lot with approximately 90 parking spaces, a private road (A Street), and undeveloped land. The surface parking lot is in poor condition and does not appear to be in use. Immediately to the west of the site is the Boston Trailer Park, and the Charles River beyond that.

6.2 Historic Resources Within the Vicinity of the Project Site

The Project site is located in the vicinity of two historic resources listed in the State and National Registers of Historic Places. Table 6-1 identifies these resources within one-quarter mile of the Project site and corresponds to resources depicted in Figure 6-1.

Table 6-1 Historic Resources in the Vicinity of the Project Site

No.	Historic Resource	Address	Designation*
A	VFW Parkway	VFW Parkway between Spring and Centre Streets	NRDIS, NRMPS
B	Veterans Administration Medical Center	West Roxbury Campus – V.A.M.C. Spring and Upper Washington Streets	NRDOE

*Designation Legend
NRMPS National Register Multiple Property Submission
NRDIS National Register of Historic Places historic district
NRDOE Determined eligible for inclusion in the National Register of Historic Places

6.3 Archaeological Resources Within the Project Site

The Project site was originally part of the existing Boston Trailer Park and was extensively disturbed with infrastructure servicing this portion of the property. Although the site is now a vacant field and parking lot, it has been previously developed. A review of Massachusetts Historical Commission's online archaeological base maps was conducted on June 15, 2018. It found no known archeological sites within the Project site or the immediate vicinity.

The Parkway Apartments **West Roxbury, Massachusetts**

Epsilon ASSOCIATES INC.

Figure 6-1
Historic Resources

6.4 Potential Impacts to Historic Resources

6.4.1 Urban Design

As described previously in Chapter 5, the Project has been designed to create a sense of place and identity inspired by an urban typology while considering the Project's location in a fragmented suburban context.

The Project is organized in two blocks (Building A and Building B) divided by an interior drive that serves as a welcoming entrance court and as the main connection to the VFW Parkway and the adjacent neighborhood. Building A located at the corner of the Parkway and Dedham Street has been designed to take into consideration the characteristics of the surrounding buildings and neighborhoods, but is executed in a manner that clearly reads as new through the use of lighter color brick, metal and cement panels and different roof heights sloping in to the main entrance. Building B has a more traditional approach due to the use of red brick and the repetitive bay elements that bring a more vertical language reminiscent of urban townhomes. Similar windows, as in Building A, are used as a unifying element for the whole Project.

The proposed design provides a strong urban edge along the VFW Parkway and Dedham Street while a large landscaped setback and open courtyards face Second Street and the adjacent neighbors. The design and the building composition ultimately, reinforce the urban design approach by developing a language that draws its inspiration from the urban landscape and provides an additional reference point to this segment of the VFW Parkway.

6.4.2 Shadow Impacts to Historic Resources

A shadow impact analysis was conducted to investigate shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21), and at 6:00 p.m. during the summer solstice and autumnal equinox. The shadow analysis presents the existing shadow and net new shadow that would be created by the Project, illustrating the incremental impact of the Project. As illustrated in the shadow study diagrams (Figures 3.2-1 to 3.2-14), the Project will cast no new shadow on properties and areas within the Veterans Administration Medical Center or the portion of the VFW Parkway identified as on the Nation Register. Net new shadow created by the Project will have no impact on historic resources.

6.5 Consistency with Other Historic Reviews

6.5.1 Boston Landmarks Commission Article 80 Review

The submission of this PNF initiates review of the Project by the BLC under the City's Article 80 Review process.

6.5.2 Massachusetts Historical Commission

The MHC has review authority over projects requiring state funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. The Project will be subject to State Register Review (950 CMR 71) by the MHC because the Project requires a MassDOT Access Permit, which is considered to be a state action for purposes of State Register Review. To initiate the State Register Review process, a copy of the ENF filed with the MEPA Office will be delivered to MHC.

Chapter 7.0

Infrastructure

7.0 INFRASTRUCTURE

The existing infrastructure surrounding the Project site appears sufficient to service the needs of the Project. The following sections describe the existing sewer, water, and drainage systems surrounding the site and explain how these systems will service the Project. 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 team will coordinate with the appropriate utilities to address their capacity to provide services for the new buildings. A Boston Water and Sewer Commission (BWSC) Site Plan and General Service Application will be submitted 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 existing stormwater drainage system, wetland resources areas, and adjacent properties during construction.

7.1 Wastewater

7.1.1 Existing Sanitary Sewer System

Boston Water and Sewer Commission (BWSC) does not maintain a sanitary sewer line adjacent to the site. They maintain a sewer approximately 200 feet to the north of the site.

The Massachusetts Water Resources Authority (MWRA) owns and maintains a 42-inch fiberglass-reinforced, polymer pipe (FRPP) located in VFW Parkway. MWRA also has transferred a 20-foot wide easement across the Project site to DCAMM for surplus. The former MWRA easement contained an abandoned 34″x36″ brick sewer that has been plugged and filled with controlled density fill.

There is a 10-inch sewer located behind (west) the Project site that is part of the sanitary sewer system serving the Boston Trailer Park. This sewer connects to a pump station off of Dedham Street and from there it is pumped through a 4-inch force main to its connection to BWSC's system.

7.1.2 Project Generated Sanitary Sewer Flow

The estimated wastewater flow from the development is 39,710 gallons per day (gpd). This is based on 258 residential units (361 bedrooms) and the design flow rate of 110 gpd as provided in 310 CMR 15 (Title V). The Proponent intends to participate in BWSC's sewer inflow/infiltration program since wastewater flows are project to be above 15,000 gpd.

7.1.3 Proposed Sanitary Sewer Service

The Project proposes to tie the buildings' wastewater services into the 42-inch sewer main in VFW Parkway. The wastewater services from the proposed buildings are expected to tie into a collector pipe on-site so only one direct connection is made to the 42-inch sewer main. This connection would require a Direct Connection Permit from the MWRA, which also has to be approved by BWSC. An alternate to tying into the MWRA system is to tie into the BWSC-owned sewer system located approximately 200 feet to the north of the site. This alternate is less desirable due to the likely need for an on-site pump station and significant off-site piping. A site utility plan is presented in Figure 7-1.

The proposed garage will have floor drains. These will be routed through an oil and sand separator before connecting to the sanitary sewer service.

7.2 Water System

7.2.1 Existing Water Service

BWSC owns and maintains the water distribution system near the site. An 8-inch cast iron pipe is located in VFW Parkway and is part of BWSC's Southern High Service System. According to the existing conditions survey, there are two abandoned services within the Project site. These will be cut and capped at the main if they cannot be reused. There is also an existing fire hydrant adjacent to the site in VFW Parkway.

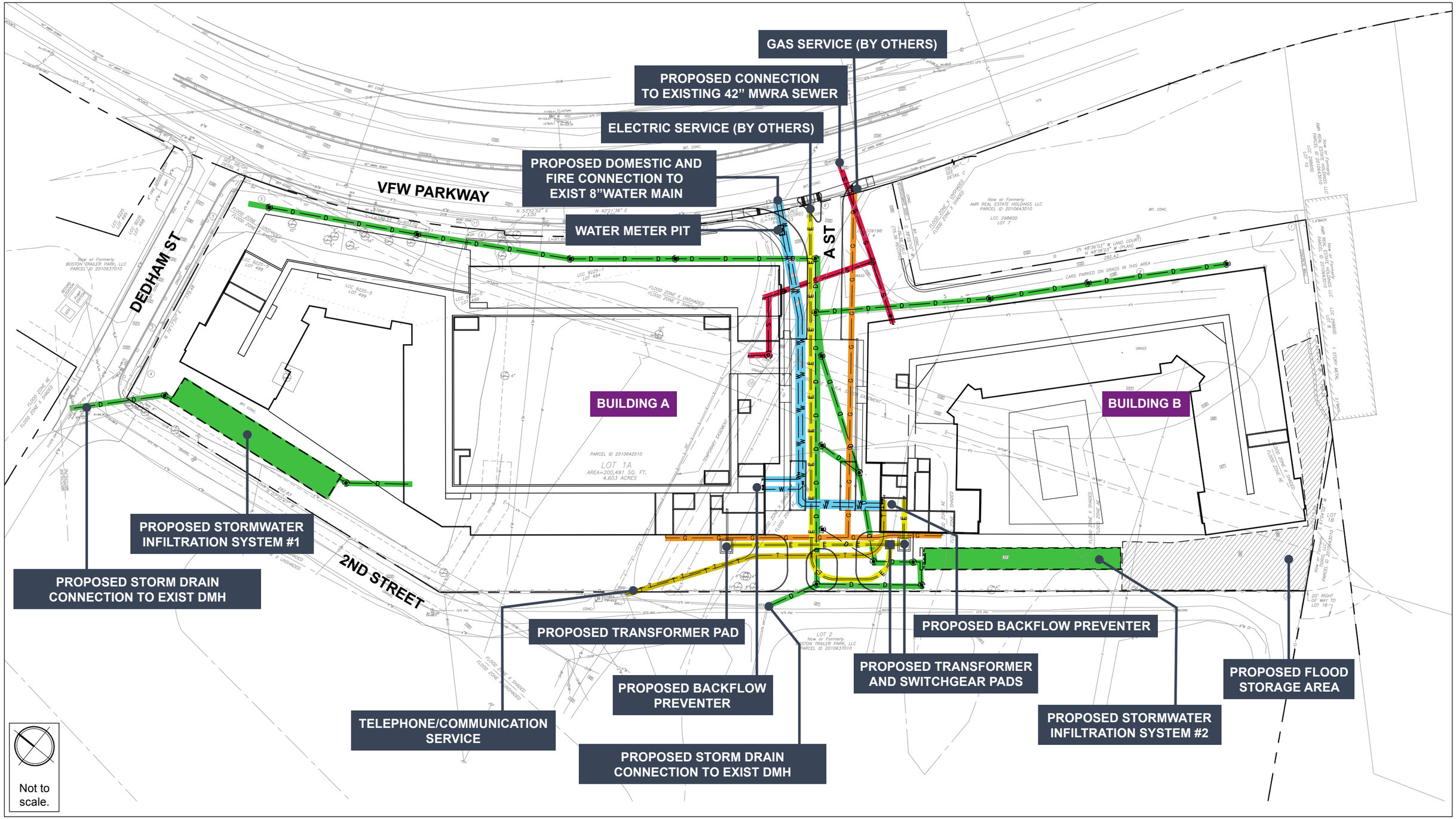
7.2.2 Anticipated Water Consumption

The anticipated water demand for the Project is estimated at approximately 43,700 gpd. The estimated water consumption is based on the Project's estimated sewage generation, plus a factor of 1.1 (10%) to account for consumption, system losses, and other usages to estimate an average water demand. A more detailed water use summary, and meter-sizing calculations will be submitted to BWSC as part of the Site Plan Review process.

Water conservation measures such as low-flow toilets and restricted-flow faucets will reduce the domestic water demand on the existing distribution system. The installation of sensor-operated sinks with water conserving aerators and sensor-operated toilets in all non-residential restrooms will be incorporated into the design plans for the Project.

7.2.3 Proposed Water Service

A dedicated domestic water service and fire protection service will be connected to the 8-inch main in VFW Parkway. The domestic water service will be brought into a water service room in the southeasterly building where it will be metered before supplying both buildings with domestic water.



The Parkway Apartments **West Roxbury, Massachusetts**

HOWARD STEIN HUDSON
Engineers + Planners

Figure 7-1
Site Utility Plan

One connection to the water main is proposed for the fire protection services. The fire protection line will be split on-site to provide a fire protection service to each building. Additional hydrants may be required to provide proper fire protection coverage for the development. Additional hydrants, if needed, will be coordinated with BWSC and the Boston Fire Department during the design development phase of the project.

7.3 Storm Drainage System

7.3.1 Existing Storm Drainage System

The existing site contains approximately an acre of impervious surfaces associated with a portion of the driveway entry and an abandoned parking area. The remainder of the site primarily contains areas of gravel and brush. Stormwater runoff from the site primarily flows overland to shallow depressions on-site. When these depressions fill up flow continues westerly towards the Boston Trailer Park. The Boston Trailer Park has a storm drain system that outlets into the Charles River.

7.3.2 Proposed Storm Drainage System

A stormwater management system will be constructed to treat, detain and infiltrate stormwater runoff to maintain the existing hydrology of the site. It is expected that subsurface, stormwater infiltration systems will be constructed that can infiltrate the first inch of runoff from the site's impervious areas. Rooftop runoff will be piped directly to the stormwater infiltration systems. Stormwater runoff from paved areas, such as the proposed driveway, will be captured by deep sump, hooded catch basins and provide treatment prior to being directed to the stormwater infiltration systems. The infiltration systems are expected to be provided with a bypass structure that allows overflows during larger storm events to be directed to an adjacent storm drain.

7.3.4 MassDEP Stormwater Management Standards

The Project will comply with the MassDEP stormwater management standards, as outlined below.

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

The Project will result in an improvement to the water quality of the stormwater reaching the existing outfall located in the Charles River through the use of deep sump hooded catch basins, water quality units or other pretreatment devices, and infiltration systems. The Project will maintain or reduce the peak flows reaching the outfall, reducing the potential for erosion caused by runoff from the Project site.

Standard 2: Post-development peak discharge rates do not exceed pre-development peak discharge rates.

The Project's stormwater management system will be designed to maintain or reduce stormwater peak discharge rates leaving the site by providing stormwater infiltration and detention BMPs.

Standard 3: Loss of annual recharge to groundwater shall be eliminated or minimized.

The Project is not expected to result in a loss of annual recharge to the groundwater. This will be accomplished by constructing stormwater infiltration systems that will infiltrate rooftop runoff and treated, parking area drainage.

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

Rooftop runoff is expected to be directed to a subsurface infiltration system for treatment and for providing groundwater recharge. Runoff from pavement areas is anticipated to be captured by deep sump catch basins, routed through a proprietary separator or other pretreatment device, and then to a subsurface infiltration system prior to connecting to the existing storm drain system. These BMPs are expected to provide full compliance with this standard.

Standard 5: Land uses with higher potential pollutant loads.

The Project does not contain a land use with higher potential pollutant loads. While the Project generates more than 1,000 unadjusted vehicle trips per day, there is no high-intensity use parking lot that will be generating stormwater runoff.

Standard 6: Stormwater discharges to critical areas.

Stormwater from the site does not discharge to a critical area.

Standard 7: Redevelopment projects.

Portions of the Project site have been previously developed. However, the Project intends to meet the standards even for the redeveloped portions of the site.

Standard 8: Control construction-related impacts.

A Storm Water Pollution Prevention Plan (SWPPP) will be developed and implemented during construction. The SWPPP will include, but not be limited to, erosion and sediment controls, good house-keeping measures, and potential pollutant source controls during construction.

Standard 9: Long-term operation and maintenance plan.

A long-term operation and maintenance plan will be developed and implemented for the stormwater management system. It will include schedules for system inspection and maintenance and will identify the responsible party for system maintenance.

Standard 10: No illicit discharges.

The Project will not result in illicit connections or discharges. An Illicit Discharge Compliance Statement will be provided as part of the Project's filing with the Boston Conservation Commission under the Wetlands Protection Act.

7.4 Electrical Service

Eversource owns and maintains the electrical transmission system in the vicinity of the Project. There is a 13.8 KV circuit on the overhead wires on VFW Parkway that can feed the load anticipated from the proposed buildings.

7.5 Telecommunication Systems

Verizon and Comcast provide cable and telephone services in the Project area. Services will be coordinated during the design phase.

7.6 Gas Systems

National Grid provides natural gas in the Project area. They own and maintain an 8-inch carbon steel main in VFW Parkway that is capable of supplying the Project.

7.7 Utility Protection During Construction

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

Chapter 8.0

Coordination with other Governmental Agencies

8.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

8.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Massachusetts Architectural Access Board and will be designated to comply with the standards of the Americans with Disabilities Act. An Accessibility Checklist is provided in Appendix F.

8.2 Massachusetts Environmental Policy Act (MEPA)

A project is subject to the Massachusetts Environmental Policy Act (MEPA) review when the following two conditions are met: (1) a project is subject to MEPA jurisdiction, and (2) a MEPA review threshold is exceeded. It is anticipated that the Project will require a MassDOT Access Permit, and will exceed a trip generation threshold. An Environmental Notification Form (ENF) will be filed with the MEPA Office of the Executive Office of Energy and Environmental Affairs to initiate MEPA review of the Project.

8.3 Massachusetts Historical Commission

The Project will be subject to State Register Review (950 CMR 71) by the Massachusetts Historical Commission (MHC) because the Project requires a MassDOT Access Permit, which is considered to be a state action for purposes of State Register Review. To initiate the State Register Review process, a copy of the ENF filed with the MEPA Office will be delivered to MHC.

8.4 Boston Civic Design Commission

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

Appendix A

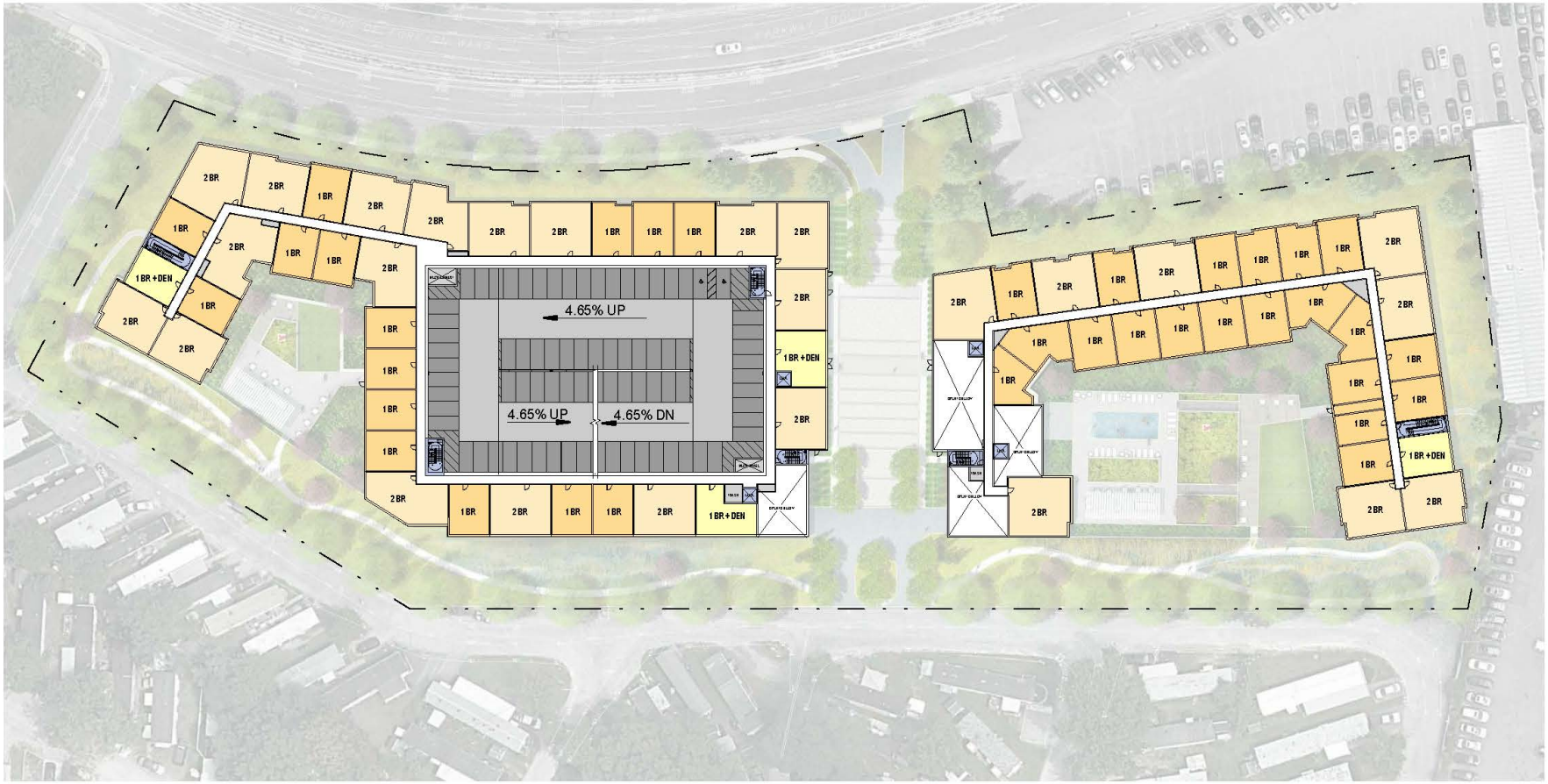
Floor Plans and Elevations

0' 30' 60' 120'

The Parkway Apartments West Roxbury, Massachusetts

SK+I

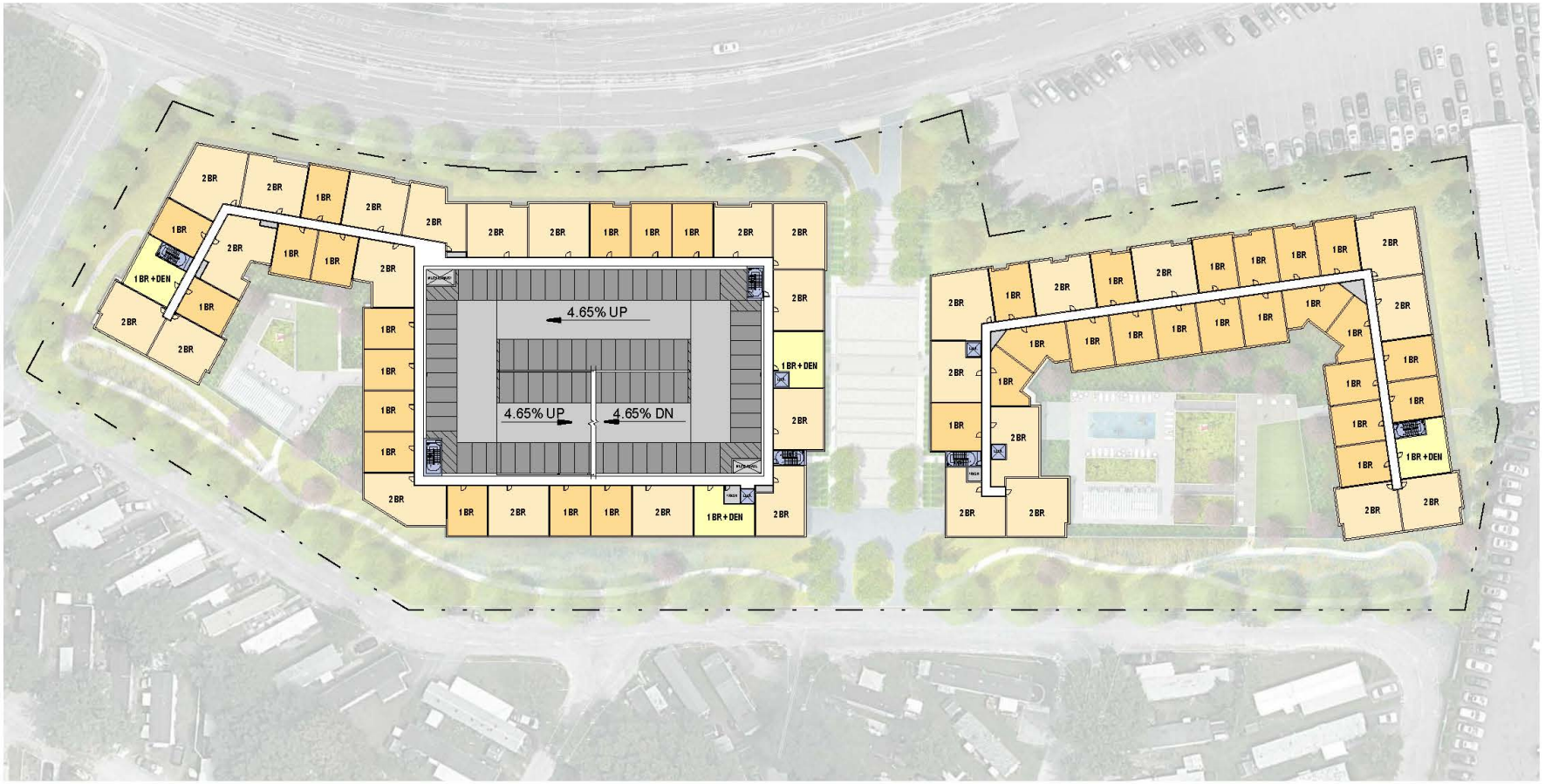
Ground Floor Plan



The Parkway Apartments West Roxbury, Massachusetts

SK+I

Second Floor Plan

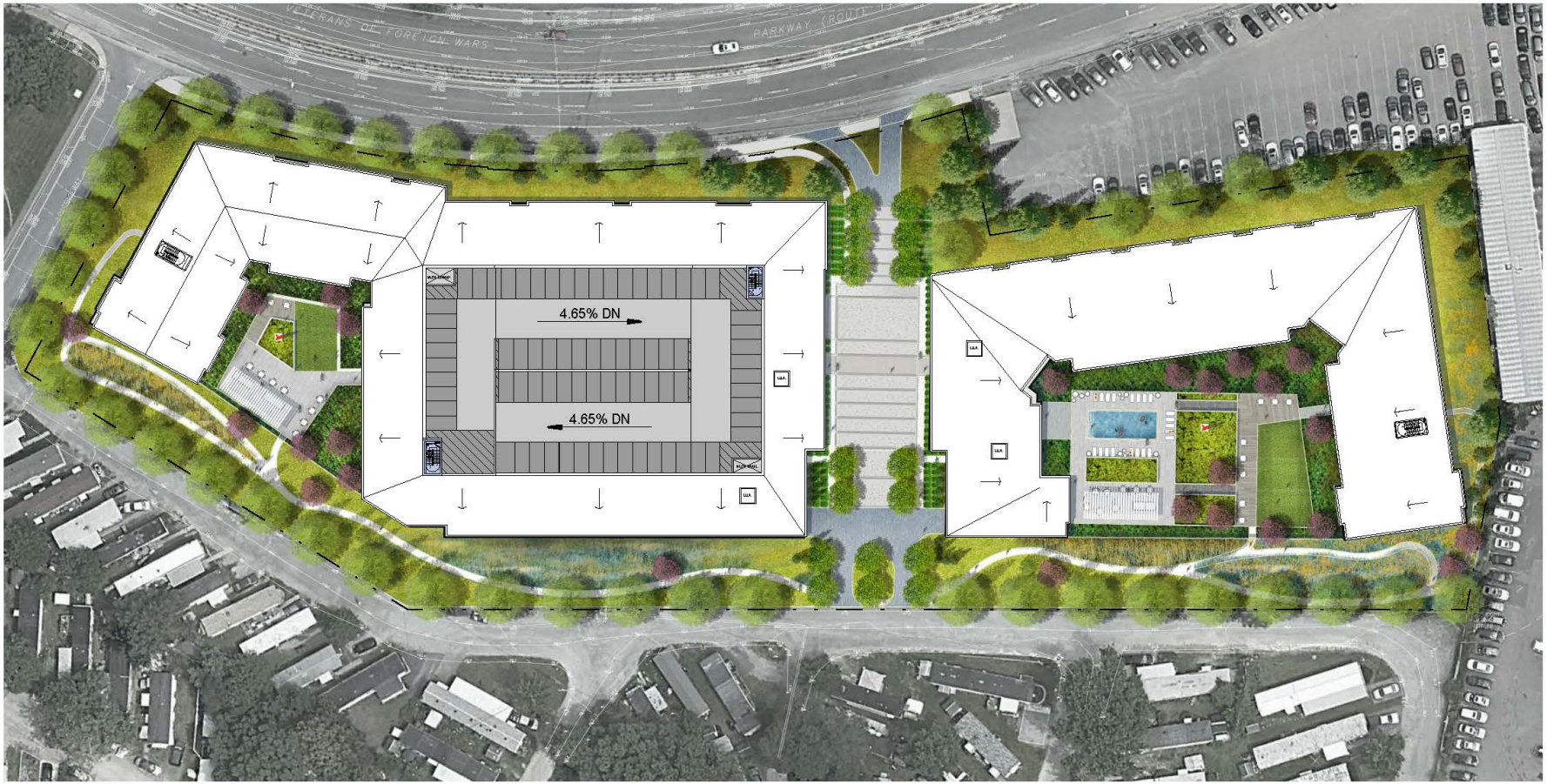


0' 30' 60' 120'

The Parkway Apartments West Roxbury, Massachusetts

SK+I

Third and Fourth Floor Plans



0' 30' 60' 120'

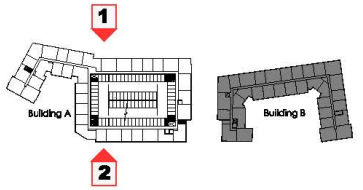
The Parkway Apartments West Roxbury, Massachusetts

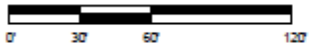
SK+I

Roof Plan

1. East Elevation - Viewed from VFW Parkway

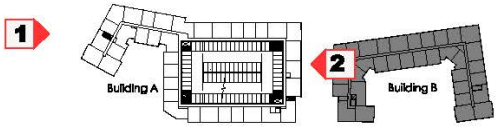
2. West Elevation - Viewed from Second St.





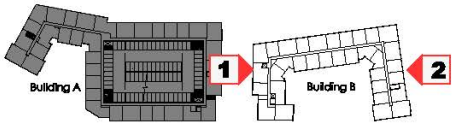
1. North Elevation - Viewed from Dedham St.

2. South Elevation - Viewed from A St.



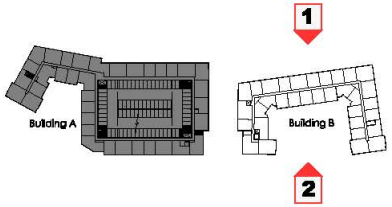
1. North Elevation - Viewed from A St.

2. South Elevation - Viewed from Prime Honda



1. East Elevation - Viewed from VFW Parkway

2. West Elevation - Viewed from Second St.

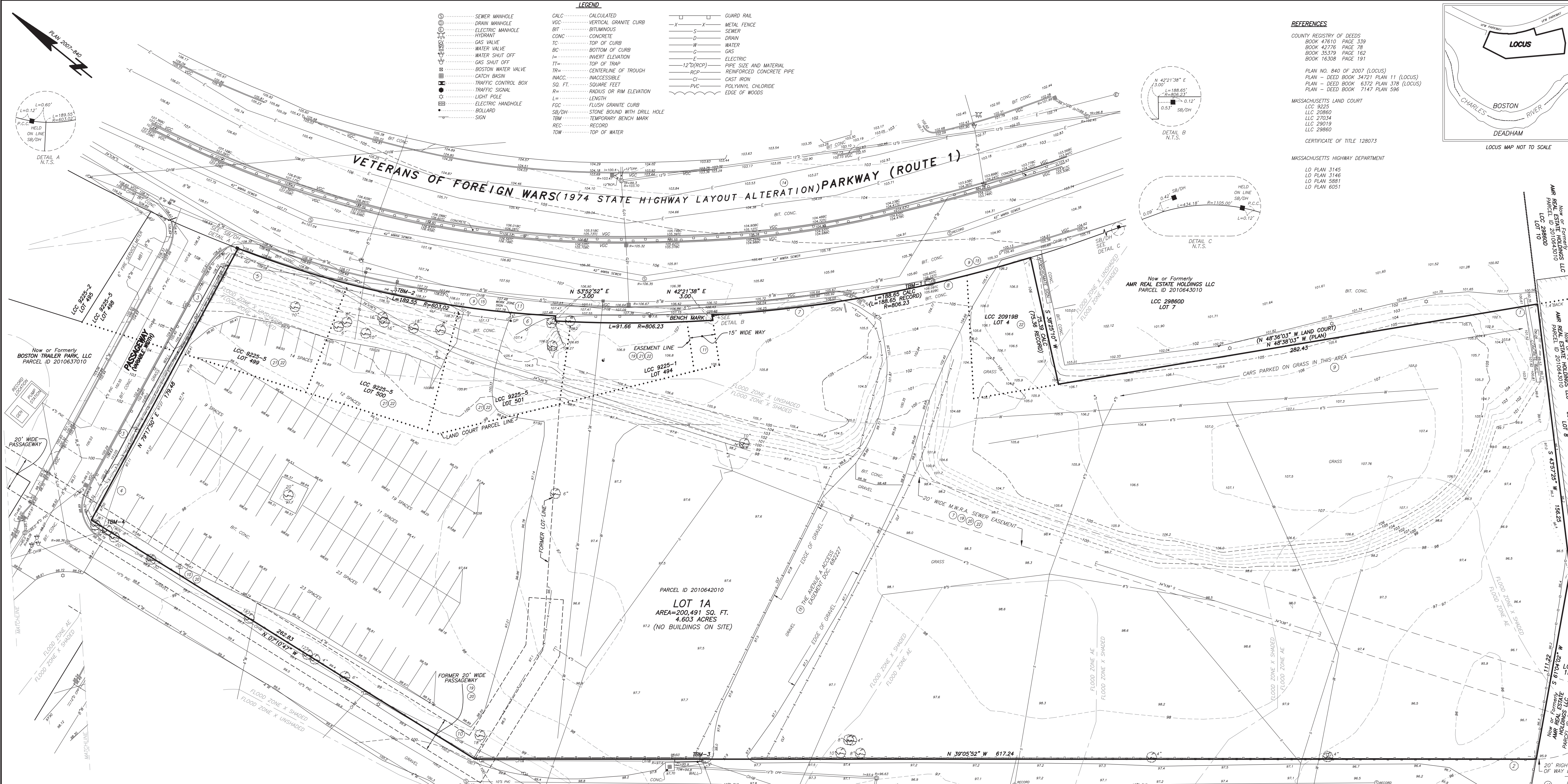


Key Plan

0' 30' 60' 120'

Appendix B

Site Survey



REFERENCES

COUNTY REGISTRY OF DEEDS
- BOOK 47610 PAGE 339
- BOOK 42776 PAGE 78
- BOOK 35379 PAGE 162
- BOOK 16308 PAGE 191

- PLAN NO. 840 OF 2007 (LOCUS)
- PLAN – DEED BOOK 34721 PLAN 11 (LOCUS)
- PLAN – DEED BOOK 6372 PLAN 378 (LOCUS)
- PLAN – DEED BOOK 7147 PLAN 596

MASSACHUSETTS LAND COURT
- LCC 9225
- LLC 20860
- LLC 27034
- LLC 29019
- LLC 29860

CERTIFICATE OF TITLE 128073

MASSACHUSETTS HIGHWAY DEPARTMENT
- LO PLAN 3145
- LO PLAN 3146
- LO PLAN 5881
- LO PLAN 6051

EXCEPTIONS FROM COVERAGE (SURVEY RELATED ONLY) SCHEDULE B, SECTION 2, LISTED IN COMMITMENT NO. NCS-894519-BOS1 ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF MARCH 5, 2018.

(7) GRANT TO THE COMMONWEALTH OF MASSACHUSETTS, THROUGH THE METROPOLITAN WATER AND SEWER BOARD, THE RIGHT AND EASEMENT TO CONSTRUCT AND UNDERGROUND MAIN SEWER, DATED NOVEMBER 18, 1901, RECORDED WITH SAID DEEDS, BOOK 2790, PAGE 538. (AS SHOWN HEREON)

(8) TERMS OF AN AGREEMENT WITH THE CITY OF BOSTON FILED WITH SAID LAND COURT ON OCTOBER 1, 1924, IN CASE NO. 9133, A COPY OF WHICH IS FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 54791. (NOT LOCUS)

(9) SO MUCH OF THE REGISTERED PREMISES AS LIES ADJACENT TO SAID VETERAN OF FOREIGN WARS PARKWAY, IS SUBJECT TO THE RIGHT TO SLOPE AND TO DRAINAGE RIGHTS SET FORTH IN A GRANT TO THE COMMONWEALTH OF MASSACHUSETTS, DATED DECEMBER 31, 1936, RECORDED WITH SAID DEEDS, BOOK 5643, PAGE 618. (AS SHOWN HEREON)

(10) NOTICE OF LEASE TO BOSTON EDISON COMPANY, DATED APRIL 11, 1955, FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 217238. (AS SHOWN HEREON)

(11) RIGHT OF WAY GRANTED BY JOHN KRUG, DATED OCTOBER 27, 1894, RECORDED WITH SAID DEEDS, BOOK 2234, PAGE 135, AFFECTING SO MUCH OF THE PREMISES AS LIES WITHIN THE BOUNDS OF LOT 307-C. (AS SHOWN HEREON)

(12) RESTRICTIONS SET FORTH IN A DEED DATED OCTOBER 9, 1947, FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 179736 AND RECORDED WITH SAID DEEDS, BOOK 6372, PAGE 378, SO FAR AS THE SAME IS NOW IN FORCE AND EFFECT. (RESTRICTION NOT PLOTTABLE)

(13) TAKING BY THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS, DATED FEBRUARY 6, 1974, FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 318239 AND RECORDED WITH SAID DEEDS, BOOK 8691, PAGE 402. (AS SHOWN HEREON)

(14) RIGHT OF WAY SET FORTH AND RESERVED IN A DEED FROM BARBARA E. THOMAS, TRUSTEE, DATED MAY 1, 1957, FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 228983. (NOT LOCUS)

(15) EASEMENT SET FORTH IN A DEED TO BRENDA T. CLAIR, DATED APRIL 28, 2004, RECORDED WITH SAID DEEDS, BOOK 34721, PAGE 11 AND FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 682227. (UTILITY EASEMENTS ARE BLANKET EASEMENTS) (ACCESS EASEMENT SHOWN HEREON) 9ACCESS EASEMENTS SHOWN HEREON]

(16) EASEMENT TO COMMUNITY BUILDERS, INC., FILED WITH SAID REGISTRY DISTRICT AS DOCUMENT NO. 682230. THE BENEFITED PARCEL IS DESCRIBED IN EXHIBIT B OF THE EASEMENT AS LOT 2 WHICH IS NON-LOCUS. THE EASEMENT IS LOCATED OVER A PORTION OF LOT 1 WHICH IS [NOW] SHOWN AS LOT 1B ON PLAN 480 OF 2007 WHICH IS NON-LOCUS. (NOT LOCUS)

(17) NOTICE OF FEDERAL TAX LIEN ON JAMES W. JONES, RECORDED WITH SAID DEEDS, BOOK 45949, PAGE 234. THE LAST FOUR DIGITS OF THE SSN ARE 0839. (NON SURVEY RELATED)

(18) NOTICE OF FEDERAL TAX LIEN AGAINST JAMES C. JONES, RECORDED WITH SAID DEEDS, BOOK 46056, PAGE 183.THE LAST FOUR DIGITS OF THE SSN ARE 2556. (NON SURVEY RELATED)

(19) TERMS AND CONDITIONS, INCLUDING EASEMENTS AND RIGHTS SET FORTH IN THAT DEED FROM CHESTER F. ADER AND MILDRED M. ADER, DATED NOVEMBER 17, 1947 AND RECORDED WITH THE REGISTRY IN BOOK 6400, PAGE 145. (AS SHOWN HEREON)

(20) TERMS AND CONDITIONS CONTAINED IN A DEED RECORDED IN BOOK 7466, PAGE 384. (AS SHOWN HEREON)

(21) SUCH STATE OF FACTS AS SHOWN ON PLAN FILED AS PLAN NOS. 9225P, 9225-1 AND 9225-5. (AS SHOWN HEREON)

(22) TERMS AND CONDITIONS CONTAINED IN CERTIFICATES OF TITLE NO. 104695 AND NO. 104696. (AS SHOWN HEREON)

[TYPO IN COMMITMENT]

NOTES:

1) BENCH MARK INFORMATION:

BENCH MARK USED:
MASSACHUSETTS HIGHWAY DEPARTMENT GEODETIC SURVEY
BRASS RIVET SET IN TOP OF GRANITE BOUND, NO.801 E
MHID: 25209. (AS SHOWN HEREON) ELEVATION=107.08

TEMPORARY BENCH MARKS SET:

TBM-1	RAILROAD SPIKE FOUND IN UTILITY POLE. (AS SHOWN HEREON) ELEVATION=107.27
TBM-2	FRONT LEFT BONNET BOLT ON HYDRANT. (AS SHOWN HEREON) ELEVATION=111.33
TBM-3	BENCH TIE IN UTILITY POLE NO.3511/6. (AS SHOWN HEREON) ELEVATION=99.04
TBM-4	BENCH TIE IN UTILITY POLE NO.3511/2. (AS SHOWN HEREON) ELEVATION=99.92

2) ELEVATIONS REFER TO BOSTON CITY BASE

3) CONTOUR INTERVAL EQUALS ONE (1) FOOT.

4) THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "AE", AN AREA INSIDE OF THE 1.0% ANNUAL CHANCE FLOOD, AND WITHIN ZONE "X (SHADED)", AN AREA INSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, AND WITHIN ZONE "X (UNSHADED)", AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, BY GRAPHIC PLOTTING ONLY. AS SHOWN ON THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A) FLOOD INSURANCE RATE MAP (F.I.R.M.) FOR SUFFOLK COUNTY, MASSACHUSETTS, MAP NUMBER 250286G, CITY OF BOSTON COMMUNITY NUMBER 250286, PANEL NUMBER 0068G, HAVING AN EFFECTIVE DATE OF SEPTEMBER 25, 2009.

5) THE PROPERTY SHOWN HEREON IS THE SAME PROPERTY DESCRIBED IN THE TITLE COMMITMENT.

4) UTILITY INFORMATION SHOWN IS BASED ON BOTH A FIELD SURVEY AND PLANS OF RECORD. THE LOCATIONS OF UNDERGROUND PIPES AND CONDUITS HAVE BEEN DETERMINED FROM THE AFOREMENTIONED RECORD PLANS AND ARE APPROXIMATE ONLY. WE CANNOT ASSUME RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES THAT ARE OMITTED OR INACCURATELY SHOWN ON SAID RECORD PLANS, SINCE SUBSURFACE UTILITIES CANNOT BE VISIBLY VERIFIED. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED AND THE ACTUAL LOCATION OF SUBSURFACE STRUCTURES SHOULD BE DETERMINED IN THE FIELD. CALL, TOLL FREE, THE DIG SAFE CALL CENTER AT 1-888-344-7233 SEVENTY-TWO HOURS PRIOR TO EXCAVATION.

5) THIS DOCUMENT IS AN INSTRUMENT OF SERVICE OF FELDMAN LAND SURVEYORS ISSUED TO OUR CLIENT FOR PURPOSES RELATED DIRECTLY AND SOLELY TO FELDMAN LAND SURVEYORS' SCOPE OF SERVICES UNDER CONTRACT TO OUR CLIENT FOR THIS PROJECT. ANY USE OR REUSE OF THIS DOCUMENT FOR ANY REASON BY ANY PARTY FOR PURPOSES UNRELATED DIRECTLY AND SOLELY TO SAID CONTRACT SHALL BE AT THE USER'S SOLE AND EXCLUSIVE RISK AND LIABILITY, INCLUDING LIABILITY FOR VIOLATION OF COPYRIGHT LAWS, UNLESS WRITTEN CONSENT IS PROVIDED BY FELDMAN LAND SURVEYORS.

6) THERE WAS NO OBSERVED EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.

7) TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES.

PARKING SUMMARY

112 REGULAR SPACES
0 HANDICAP SPACES
112 TOTAL SPACES

LIST OF VISIBLE ENCROACHMENTS

(1) SOUTHERLY LOT LINE; RETAINING WALL EXTENDS OVER THE PROPERTY LINE 4.6'.

(2) SOUTHWESTERLY LOT LINE; STOCKADE FENCE EXTENDS OVER THE PROPERTY LINE BY 0.3' FOR 140'.

(3) NORTHERLY LOT LINE; CHAIN LINK FENCE EXTENDS OVER THE PROPERTY LINE BY 1.7' FOR 174.2'.

(4) NORTHWESTERLY CORNER; OVERHEAD WIRE EXTENDS ONTO PROPERTY

(5) NORTHEASTERLY CORNER; OVERHEAD WIRE EXTENDS ONTO PROPERTY

(6) EASTERLY LOT LINE; GUARD RAIL EXTENDS ONTO PROPERTY BY 12.6' FOR 25.3'.

(7) EASTERLY LOT LINE; GUARD RAIL EXTENDS ONTO PROPERTY BY 0.6' FOR 56.2'.

(8) SOUTHEASTERLY LOT LINE; CURB EXTENDS ONTO PROPERTY BY 1.0' FOR 5.6'.

(9) SOUTHEASTERLY PORTION OF LOT; CARS PARKED ON GRASS.

(10) OVERHEAD LINE CROSSES SOUTHWESTERLY PROPERTY LINE

(11) WORK ZONE SIGN EXTENDS ONTO PROPERTY BY 4.5'

BOUNDARY DESCRIPTION PER COMMITMENT NO. NCS-894519-BOS1 ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY HAVING AN EFFECTIVE DATE OF MARCH 5, 2018.

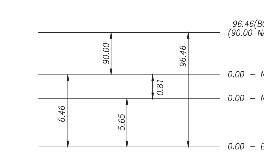
REAL PROPERTY LOCATED AT 1515 VFW PARKWAY IN THE CITY OF BOSTON (WEST ROXBURY DISTRICT), COUNTY OF SUFFOLK, COMMONWEALTH OF MASSACHUSETTS, DESCRIBED AS FOLLOWS:

ALL THAT CERTAIN PARCEL OF LAND WITH THE BUILDINGS THEREON SITUATED ON VETERANS OF FOREIGN WARS (VFW) PARKWAY, BOSTON (WEST ROXBURY DISTRICT), SUFFOLK COUNTY, MASSACHUSETTS, AND SHOWN AS LOT 1A ON A PLAN ENTITLED "SUBDIVISION PLAN, #1515 VFW PARKWAY, BOSTON, MASSACHUSETTS," DATED DECEMBER 3, 2002, RECORDED WITH THE SUFFOLK COUNTY REGISTRY OF DEEDS AS PLAN NO. 840 OF 2007.

INCLUDED WITHIN LOT 1A ARE THE FOLLOWING PARCELS OF REGISTERED LAND:

LOT 304E, LOT 305C, LOT 306C AND LOT 307C ON LAND COURT PLAN 9225P, FILED WITH CERTIFICATE OF TITLE NO. 34768, AND

LOT 1 ON LAND COURT PLAN 29019A, FILED WITH CERTIFICATE OF TITLE NO. 70574.



RELATIONSHIP OF DATUM PLANES
NOT TO SCALE

PREPARED FOR; LINCOLN PARKWAY, LLC
221 CRESCENT STREET, SUITE 102A
WALTHAM, MA 02453

TO: FIRST AMERICAN TITLE INSURANCE COMPANY AND LINCOLN PARKWAY LLC

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(A), 7(C), 8, 9, 11, 13, 16, 17, 19, AND 20 OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON AUGUST 14 2017, FIELD INSPECTION PERFORMED 5-15-18.

FELDMAN LAND SURVEYORS

KARL A. MCCARTHY, PLS (MA# 38714)
kam@feldmansurveyors.com

DATE

EXHIBIT PLAN
1515 AKA 1507 VETERANS OF FOREIGN WARS PARKWAY
BOSTON (WEST ROXBURY DISTRICT) MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02119

JULY 31, 2017
PHONE: (617)357-9740
www.feldmansurveyors.com

FELDMAN LAND SURVEYORS

SCALE: 1"=20'

RESEARCH EAC	FIELD CHIEF	PROJ MGR SMD	APPROVED	SHEET NO. 1 OF 1
CALC EAC	CADD EAC\TMT	FIELD CHECKED	CRD FILE 15757	JOB NO. 16110

FILENAME: S:\PROJECTS\16100s\16110\DWG\16110 Exhibit.dwg

Appendix C

Transportation

Transportation Appendix is Available Upon Request

Appendix D

Air Quality

AIR QUALITY APPENDIX

Introduction

This Air Quality Appendix provides modeling assumptions and backup for results presented in Section 3.5 of the report. Included within this documentation is a brief description of the methodology employed along with pertinent calculations and data used in the emissions and dispersion calculations supporting the microscale air quality analysis.

Motor Vehicle Emissions

The EPA MOVES computer program generated motor vehicle emissions used in the garage stationary source analysis along with the mobile source CAL3QHC modeling and mesoscale analysis. The model input parameters were provided by MassDEP. Emission rates were derived for 2018 and 2025 for speed limits of idle, 10, 15, and 25 mph for use in the microscale analyses.

MOVES CO Emission Factor Summary

Carbon Monoxide Only

		2018	2025
Free Flow	25 mph	2.448	1.658
Right Turns	10 mph	3.788	2.541
Left Turns	15 mph	3.288	2.237
Queues	Idle	6.673	3.039

Notes: Winter CO emission factors are higher than Summer and are conservatively used
Urban Unrestricted Roadway type used

CAL3QHC

For the intersection studied, the CAL3QHC model was applied to calculate CO concentrations at sensitive receptor locations using emission rates derived in MOVES. The intersection's queue links and free flow links were input to the model along with sensitive receptors at all locations nearby each intersection. The meteorological assumptions input into the model were a 1.0 meter per second wind speed, Pasquill-Gifford Class D stability combined with a mixing height of 1000 meters. For each direction, the full range of wind directions at 10 degree intervals was examined. In addition, a surface roughness (z_0) of 321 cm was used for the intersection. Idle emission rates for queue links were based on 0 mph emission rates derived in MOVES. Emission rates for speeds of 10, 15, and 25 mph were used for right turn, left turn, and free flow links, respectively.

Background Concentrations

POLLUTANT	AVERAGING TIME	Form	2014	2015	2016	Units	ppm/ppb to $\mu g/m^3$ Conversion Factor	2014-2016 Background Concentration ($\mu g/m^3$)	Location
SO_2 [1][6]	1-Hour [5]	99th %	12.3	9.4	4.7	ppb	2.62	23.1	Harrison Ave., Boston
	3-Hour	H2H	21.5	8.7	5.1	ppb	2.62	56.3	Harrison Ave., Boston
	24-Hour	H2H	5.1	4.3	1.9	ppb	2.62	13.4	Harrison Ave., Boston
	Annual	H	1.1	0.8	0.5	ppb	2.62	2.8	Harrison Ave., Boston
PM-10	24-Hour	H2H	61	28	29	$\mu g/m^3$	1	61	Harrison Ave., Boston
	Annual	H	13.9	12.4	11.8	$\mu g/m^3$	1	13.9	Harrison Ave., Boston
PM-2.5	24-Hour [5]	98th %	12.7	19.0	16.3	$\mu g/m^3$	1	16.0	Harrison Ave., Boston
	Annual [5]	H	6.0	8.8	6.2	$\mu g/m^3$	1	7.0	Harrison Ave., Boston
NO_2 [3]	1-Hour [5]	98th %	51	53	49	ppb	1.88	95.9	Harrison Ave., Boston
	Annual	H	15.8	15.0	13.2	ppb	1.88	29.6	Harrison Ave., Boston
CO [2]	1-Hour	H2H	1.7	1.4	2.4	ppm	1146	2750.4	Harrison Ave., Boston
	8-Hour	H2H	1.3	0.9	1.8	ppm	1146	2062.8	Harrison Ave., Boston
Ozone [4]	8-Hour	H4H	0.054	0.056	0.058	ppm	1963	113.9	Harrison Ave., Boston
Lead	Rolling 3-Month	H	0.014	0.016	0.017	$\mu g/m^3$	1	0.017	Harrison Ave., Boston

Notes:
From 2014-2016 EPA's AirData Website
[1] SO_2 reported ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 2.62 $\mu g/m^3$.
[2] CO reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1146 $\mu g/m^3$.
[3] NO_2 reported in ppb. Converted to $\mu g/m^3$ using factor of 1 ppm = 1.88 $\mu g/m^3$.
[4] O_3 reported in ppm. Converted to $\mu g/m^3$ using factor of 1 ppm = 1963 $\mu g/m^3$.
[5] Background level is the average concentration of the three years.
[6] The 24-hour and Annual standards were revoked by EPA on June 22, 2010, Federal Register 75-119, p. 35520.

Due to excessive size CAL3QHC, and MOVES input and output files are available on digital media upon request.

Appendix E

Climate Resiliency Checklist

Boston Planning & Development Agency
Climate Resiliency Report Summary

Submitted: 08/29/2018 12:06:19

A.1 - Project Information

Project Name:	The Parkway Apartments			
Project Address:	1507 VFW Parkway			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Talya Moked	Epsilon Associates	tmoked@epsilonassociates.com	9784616223
Is MEPA approval required?	Yes	MEPA date:	08/31/2018	

A.2 - Project Team

Owner / Developer:	Lincoln Parkway, LLC
Architect:	SK&I Architecture
Engineer:	R. W. Sullivan Engineering
Sustainability / LEED:	SK&I Architecture/R. W. Sullivan Engineering
Permitting:	Epsilon Associates, Inc.
Construction Management:	LPC Contractors of Northeast, Inc.

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Residential
List the First Floor Uses:	Residential, residential lobby, parking, amenity spaces
List any Critical Site Infrastructure and or Building Uses:	

Site and Building:

Site Area (SF):	200376	Building Area (SF):	351000
Building Height (Ft):	45	Building Height (Stories):	4
Existing Site Elevation – Low (Ft BCB):	95.9	Existing Site Elevation – High (Ft BCB):	109.0
Proposed Site Elevation – Low (Ft BCB):	95.9	Proposed Site Elevation – High (Ft BCB):	109.0
Proposed First Floor Elevation (Ft BCB):	98.5	Below grade spaces/levels (#):	0

Article 37 Green Building:

LEED Version - Rating System:	LEED v4 New Construction	LEED Certification:	

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Proposed LEED rating:	Certified	Proposed LEED point score (Pts.):	40

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:	49	Exposed Floor :	30
Foundation Wall:	7.5ci	Slab Edge (at or below grade):	10 for 24" below

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

Area of Opaque Curtain Wall & Spandrel Assembly:	0	Wall & Spandrel Assembly Value:	0.64
Area of Framed & Insulated / Standard Wall:	60	Wall Value:	21
Area of Vision Window:	39	Window Glazing Assembly Value:	0.45
		Window Glazing SHGC:	0.40
Area of Doors:	1	Door Assembly Value :	0.37

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	Electrical energy usage loads were determined using calculations as required by the National Electric Code (2017 Version) for a multi-family dwelling unit.		
Annual Electric (kWh):	18336	Peak Electric (kW):	1300
Annual Heating (MMbtu/hr):	7500	Peak Heating (MMbtu):	8000
Annual Cooling (Tons/hr):	575	Peak Cooling (Tons):	620
Energy Use - Below ASHRAE 90.1 - 2013 (%):	15	Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):	12	Energy Use Intensity (kBtu/SF):	6500

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 greenhouse gas emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon-neutrality by 2050 the performance of new buildings will need to progressively improve to carbon net zero and net 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, building envelop, and systems:

The Project includes natural ventilation and light in all bedrooms and living rooms in excess of code requirements, as well as increased insulation in the roof cavity, and a high reflectance roof.

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

The Project will include high efficiency gas water heaters and air conditioning units.

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

The Project team has reached out to MASSAVE to discuss potential energy efficiency incentives.

B.2 - GHG Reduction - Adaptation Strategies

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

The Project is specifying low energy equipment, appliances, programmable thermostats, and low energy lighting. The Project will continue to adapt as the performances of these items improve.

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.):	8	Temperature Range - High (Deg.):	91
Annual Heating Degree Days:		Annual Cooling Degree Days	

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

Days - Above 90° (#):	60	Days - Above 100° (#):	30
Number of Heatwaves / Year (#):	6	Average Duration of Heatwave (Days):	5

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

Two new landscaped courtyards will be provided and building roofing material will have a higher Solar Reflectance Index. The site will provide over 76,000 sf of landscaped area which is approximately 40% of the total site 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:

The Project will use low energy equipment, appliances, and low energy lighting to lessen internal heat gains from sources. Use of reflective glazing and light blocking internal shades to prevent SHG.

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:

The Project will use high performance equipment, operable windows, and light blocking internal shades.

D - Extreme Precipitation Events

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Climate Resiliency Report Summary

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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

What is the project design precipitation level? (In. / 24 Hours)	6

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

There will be a stormwater management system on site to infiltrate the first inch of runoff from impervious areas. The project is looking into feasibility of two sub-surface infiltration systems and additional rain gardens.

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):

The Project team is studying the feasibility of additional stormwater retention, infiltration, and storage, including rain gardens, storage basins, and other infrastructure.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, the sea level 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 Special Flood Hazard Area?	Yes	What Zone:	AE
What is the current FEMA SFHA Zone Base Flood Elevation for the site (Ft BCB)?			96.45
Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	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 by the Sea Level Rise Flood Hazard Area (SLR-FHA), which includes 3.2' of sea level rise above 2013 tide levels, an additional 2.5" to account for subsidence, and the 1% Annual Chance Flood. After using the SLR-FHA to identify a project's Sea Level Rise Base Flood Elevation, proponents should calculate the Sea Level Rise Design Flood Elevation by adding 12" of freeboard for buildings, and 24" of freeboard for critical facilities and infrastructure and any ground floor residential units.

What is the Sea Level Rise - Base Flood Elevation for the site (Ft BCB)?	96.46		
What is the Sea Level Rise - Design Flood Elevation for the site (Ft BCB)?	98.5	First Floor Elevation (Ft BCB):	98.5
What are the Site Elevations at Building (Ft BCB)?	95.9-109.0	What is the Accessible Route Elevation (Ft BCB)?	

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

The first floor elevation of the buildings will be approximately 2 feet higher than the 100 year flood plain. Critical systems, electric, cable, and other utility services located below design flood elevation, if any, may be dry flood proofed. To the extent feasible, critical systems will be located at 2 feet above base flood elevation.

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.:

The Project will be looking into backflow preventers at stormwater outfalls and compensatory storage to maintain flood storage levels in project area.

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

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

The Proponent has an on-call response team for each property that responds as soon as an event occurs. They also have two disaster recovery contractors who handle all emergency situations in the Northeast.

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

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

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

Boston Planning & Development Agency

Climate Resiliency Report Summary

Thank you for completing the Boston Climate Change Checklist!

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

Appendix F

Accessibility Checklist

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   www.boston.gov/disability
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/pic
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

1. Project Information:

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

Project Name:	**The Parkway Apartments**
Primary Project Address:	**1507 VFW Parkway**
Total Number of Phases/Buildings:	**2 Buildings**
Primary Contact (Name / Title / Company / Email / Phone):	**John J. Noone** **Executive Vice President** **Lincoln Parkway, LLC** **c/o Lincoln Property Company** **JNoone@LPSI.com** **781-398-2223**
Owner / Developer:	**Lincoln Parkway, LLC**
Architect:	**SK&I Architecture**
Civil Engineer:	**Howard Stein Hudson**
Landscape Architect:	**LandDesign**
Permitting:	**Epsilon Associates**
Construction Management:	**LPC Contractors of Northeast, Inc.**

At what stage is the project at time of this questionnaire? Select below:

	☑PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BPDA Board Approved
	BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	No

2. Building Classification and Description:

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

What are the dimensions of the project?

Site Area:	*200,491 SF*	Building Area:	*351,000 GSF*
Building Height:	*45 FT.*	Number of Stories:	*4 Flrs.*
First Floor Elevation:	98.5 ft BCB	Is there below grade space:	*No*

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

	☑Wood Frame – residential frame	Masonry	Steel Frame	☑Concrete – parking structure

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:	*Residential amenities and residential units.*			

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 Project site is situated nearby the banks of the Charles River and the VFW Parkway near neighborhood commercial establishments, scattered residences, parks, and an abundance of retail.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	MBTA Commuter Rail: West Roxbury Commuter Rail Station at Centre Street – 1 mile from the Project site. MBTA Bus: 36 Bus and 52 Bus at Charles River Loop – 0.25 miles from the Project site.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Schools: West Roxbury Academy, Roxbury Latin School, Noble and Greenough School, Northeastern University Dedham Campus Hospitals: West Roxbury VA Boston Healthcare, Faulkner Hospital Assisted Living: Edelweiss Village, Deutsches Altenheim, Boston Housing Authority, Dedham Housing Authority
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	Public Library: West Roxbury Branch of BPL on Centre Street Recreation: 100-acre Millennium Park, Charles River, Jim Roche Community Arena, Stony Brook Reservation, Turtle Pond Community Centers: West Roxbury Community Center, BCYF Roche Community Center, Ohrenberger Community Center, Parkway Community YMCA

4. Surrounding Site Conditions – Existing:

This section identifies current condition of the sidewalks and pedestrian ramps at the development site.

Is the development site within a historic district? ***If yes,*** identify which district:	No
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and	Yes, there is an existing sidewalk along the VFW Parkway, width varies from approximately 4.5' to 5.5'. Material is asphalt. Physical condition of asphalt appears to vary, ranging from fair to poor with vegetation

pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	encroaching in certain areas.
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:	The Project is proposing to reconstruct ramps at the Dedham Street crossing with yellow tactile warning strips and install new ramps at the A Street driveway. Existing Hot Mix Asphalt (HMA) sidewalk along the length of the Project site on VFW Parkway will be reconstructed with new HMA
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.	Parkway. Sidewalks will be consistent with the Boston Complete Streets Guidelines, as existing Parkways are in the city under the jurisdiction of the state.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	Parkway reconstructed sidewalks will maintain existing widths which appears to vary between 4' to 5'. Sidewalk cross slopes will meet ADA requirements and longitudinal slopes will follow existing conditions.
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?	Pedestrian zone will be concrete tying into existing HMA sidewalks.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	VFW Parkway pedestrian sidewalk is not on private property. VFW Parkway is under MassDOT jurisdiction and so Public Improvement Commission (PIC) will not be required.

Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	No.
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?	The Project will include 387 spaces within a parking garage.
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	8 accessible spaces including 1 van space.
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?	In the parking garage.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	Yes, it will be accessible.
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.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no***, what is the reason?	Yes, all the standard entrances to the buildings and to the units will be accessible through the use of a flush threshold condition.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	This will be developed as design progresses.
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?	258 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?	All units will be for rent. 224 market rate / 34 affordable
If a residential development, how many accessible Group 2 units are being proposed?	13 units will be Group 2 units (5%)
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	This will be determined in collaboration with the BPDA, the Disability Advisory Board, and the Boston Fair Housing Commission.
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes***, provide reason.	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 there are elevators to provide access to upper floors.
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	This will be determined through the Large Project Review process.

street trees, building or refurbishing a local park, or supporting other community-based initiatives?	
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 residential amenities and courtyards provide accessibility.
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	Yes there are restrooms provided at the residential amenity area. No "Family"/Companion" restrooms will be provided as code does not require for multifamily use and residents have access to bathroom facilities in their respective units.
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?	This will be scheduled.
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?	This will be scheduled.

10. Attachments

Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.

Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

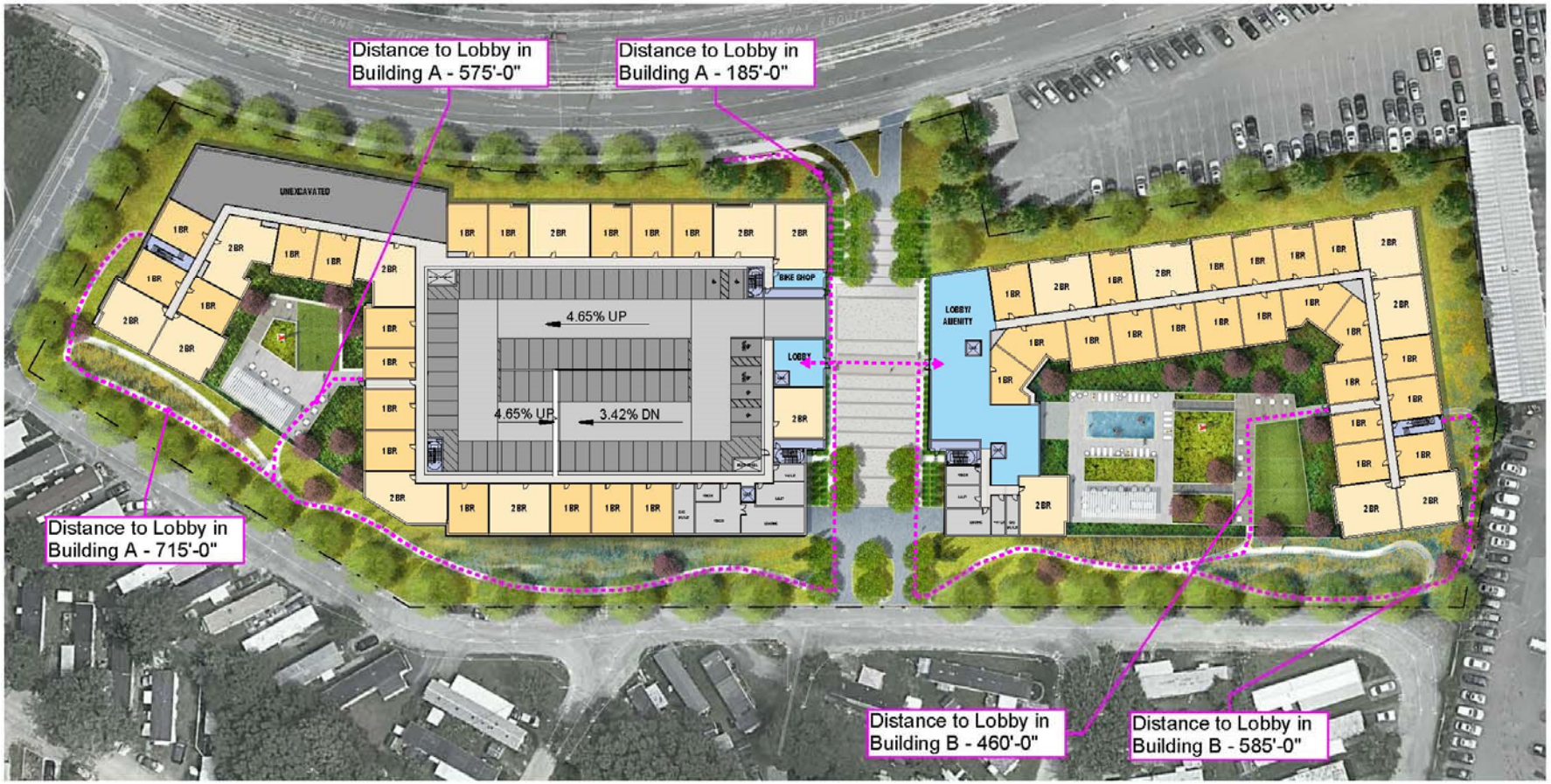
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability, or our office:

The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02201.

Architectural Access staff can be reached at:

accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682



The Parkway Apartments West Roxbury, Massachusetts

SK+I

Accessible Route from Accessible Parking

The Parkway Apartments West Roxbury, Massachusetts

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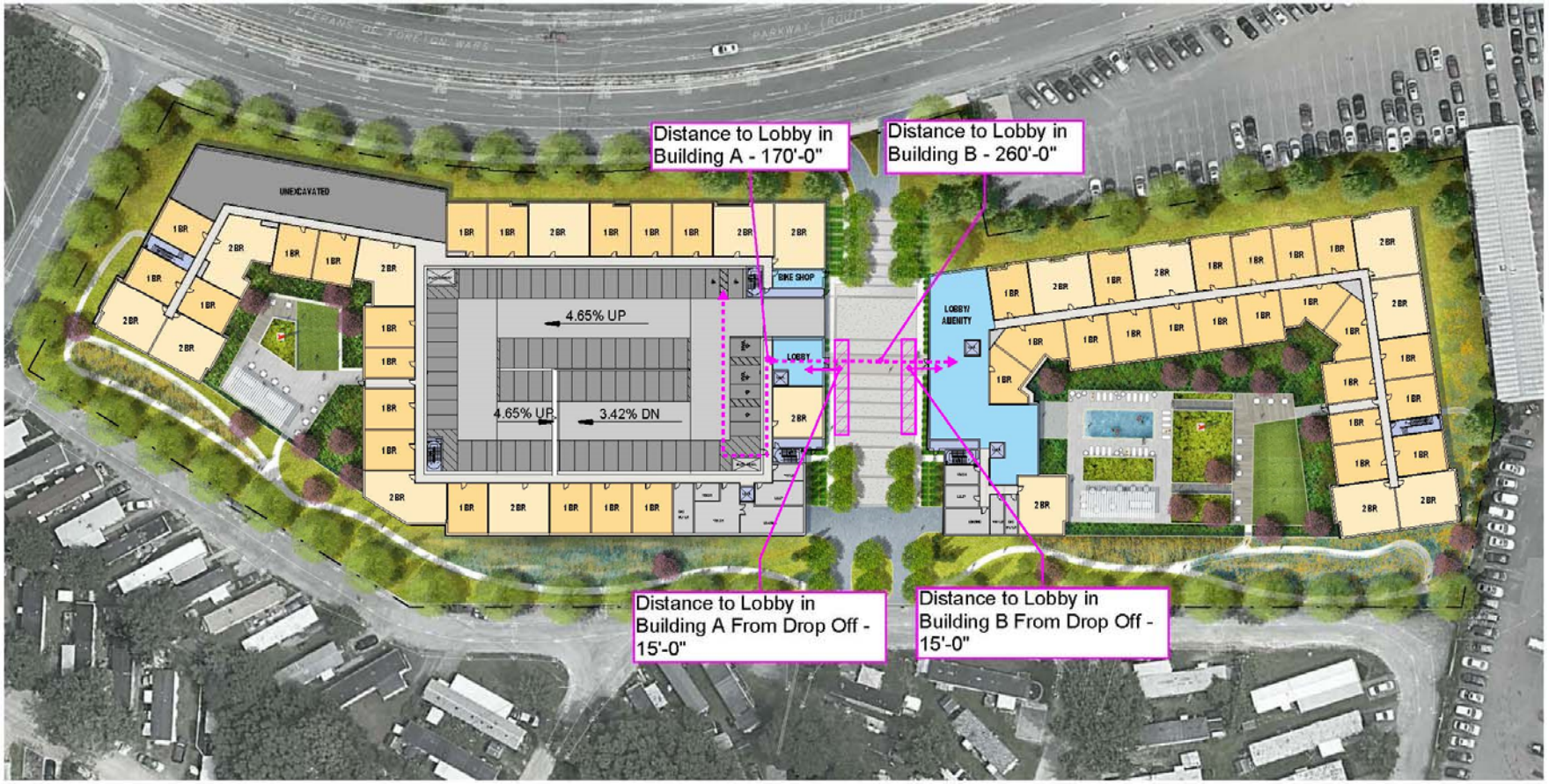
Accessible Route to Courtyards



The Parkway Apartments West Roxbury, Massachusetts

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Accessible Route from Accessible Parking

The Parkway Apartments West Roxbury, Massachusetts

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First Floor Plan – Group 2 Units

The Parkway Apartments West Roxbury, Massachusetts

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Second Floor Plan – Group 2 Units

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Third Floor Plan – Group 2 Units

The Parkway Apartments West Roxbury, Massachusetts

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Fourth Floor Plan – Group 2 Units