Expanded Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

135 MORRISSEY

Boston, Massachusetts

Submitted to:

Boston Planning and Development Agency

One City Hall Square
Boston, Massachusetts 02201

Submitted by:

Nordblom Development Company ,Inc.

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

In Association with:
AHA Consulting Engineers
Copley Wolff Design Group
Haley & Aldrich, Inc.
Howard Stein Hudson
John Moriarty & Associates
Rubin and Rudman, LLP
Stantec Architecture and Engineering P.C.

January 29, 2018

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BOSTON, MASSACHUSETTS

Submitted to:
Boston Planning and Development Agency
One City Hall Square
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Submitted by:
Nordblom Development Company, Inc.
71 Third Avenue
Burlington, MA 01803

On Behalf of:
135 Morrissey Owner LLC

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Section 1.0

Introduction and Project Description

1.0 INTRODUCTION AND PROJECT DESCRIPTION

Nordblom Development Company, Inc., on behalf of 135 Morrissey Owner LLC (the Proponent), is proposing a comprehensive revitalization and re-tenanting of the former Boston Globe building at 135 Morrissey Boulevard, in Boston (Dorchester), Massachusetts. This Project, hereafter referred to as the 135 Morrissey Project, entails a core and shell renovation within the existing massing of the building designed to attract creative office, technology, light manufacturing, warehouse and life science tenants, with ancillary retail, as well as landscaping improvements to enhance the visual character of the site.

This Expanded Project Notification Form (PNF) is being submitted to the Boston Planning & Development Agency (BPDA) to initiate review of the 135 Morrissey Project under Article 80B, Large Project Review, of the Boston Zoning Code.

1.1 Project Identification and Team

The Proponent has enlisted a team of Boston-based planners, engineers, attorneys, architects and consultants to assist them with the development of the 135 Morrissey Project. The Project team is listed below:

Project Name /Location:	135 Morrissey Project at 135 William T. Morrissey Boulevard, Boston
Proponent:	135 Morrissey Owner LLC Nordblom Development Company, Inc. 71 Third Avenue Burlington, Massachusetts 01803 781-272-4000 Ogden Hunnewell Todd Fremont-Smith
Architect:	Stantec Architecture and Engineering P.C. 311 Summer Street Boston, Massachusetts 02210-1723 (617) 234-3100 Larry Grossman, AIA Thomas Urtz, AIA, LEED AP
Landscape Architect:	Copley Wolff Design Group 10 Post Office Square, Suite 1315 Boston, MA 02109 617-654-9000 John Copley, PLA, ASLA, AIA

Legal Counsel:	Rubin and Rudman, LLP 53 State Street Boston, Massachusetts 02190 (617) 330-7000 Paula M. Devereaux, Esq.
Permitting Consultant:	Epsilon Associates, Inc. 3 Mill & Main, Suite 250 Maynard, MA 01754 (978) 897-7100 Andrew Magee Erik Rexford
Noise and Air Quality Analysis	Epsilon Associates, Inc. 3 Mill & Main, Suite 250 Maynard, MA 01754 (978) 897-7100 Ryan Callahan Vincent Tino
Civil Engineer:	Howard Stein Hudson 11 Beacon Street, Suite 1010 Boston, MA 02108 (617) 482-7080 Richard E. Latini, P.E., LEED Green Associate
Transportation and Parking Consultant:	Howard Stein Hudson 11 Beacon Street, Suite 1010 Boston, MA 02108 (617) 482-7080 Brian J. Beisel, PTP Guy P. Busa, Jr.
Geotechnical Engineer:	Haley & Aldrich, Inc. 465 Medford Street, Suite 2200 Boston, MA 02129 (617) 886-7400 Mark Haley, P.E.
Mechanical, Electrical, Plumbing, and Sustainability	AHA Consulting Engineers, Inc. 24 Hartwell Avenue, Third Floor Lexington, MA 02421 (781) 372-3000 Robert Andrews, Jr, PE, CEA, LEED AP, BD+C Bruce Swanton, P.E.

Structural Engineer	McNamara Salvia 101 Federal Street, 11th Floor Boston, MA 02110 (617) 737-0040 John S. Matuszewski, P.E.

1.2 Existing Building, Site, and Area Context

The former Boston Globe building is located at 135 Morrissey Boulevard in the Dorchester neighborhood of Boston, and is bounded by Morrissey Boulevard and the Southeast Expressway (Interstate I-93) on the east and west, Patten's Cove and Savin Hill on the south, and a vacant building and site to the north. The location of the site is shown on Figure 1-1, *Project Locus – USGS Map*, and on Figure 1-2, *Project Site Locus – Vertical Aerial Photograph*.

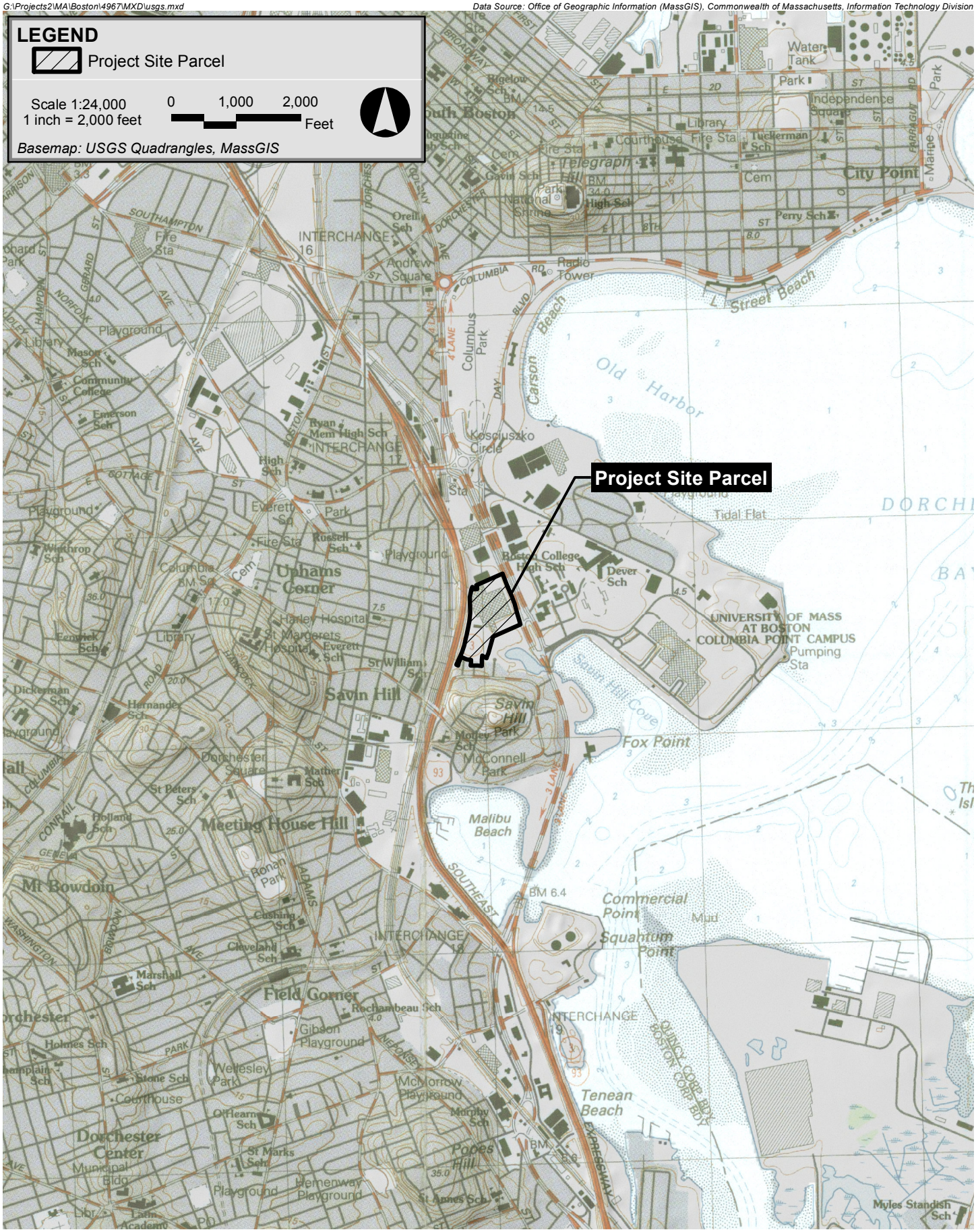
1.2.1 Existing Building

The building at 135 Morrissey Boulevard was first constructed by the Boston Globe Company in 1958, with multiple additions being constructed through 2004. The building as it currently exists is three floors in height, including a partial mezzanine level between the first and second floors, and has an uppermost roof elevation at 57.5 feet above average grade. It has multiple areas with high floor to floor heights, which were previously used for the storage and manufacturing parts of the newspaper printing operations, while much of the other areas were designated for office and other uses.

The 135 Morrissey building has expanded considerably over time. The first major building expansion was in 1968 and included an expanded production area, additional production support and storage spaces, offices, and a large interior loading area. This addition encompassed approximately 125,000 square feet. The Boston Globe added a second-floor mailroom of 27,000 square feet in 1973 and, in 1974, further expanded the northern main ground floor warehouse spaces with an additional 34,000 square feet of storage.

In the late 1970's roof top parking was added over the warehouse spaces on the west side of the building, with access to the rooftop parking via a ramp located on the western side of the building and paralleling the Southeast Expressway. Ground access to this ramp was, and is, via the driveway entrance on Morrissey Boulevard at the southeast corner of the site. At the same time, a portion of the second floor space was removed to expand the printing production area.

In 1982 a new building was constructed on the north side of the site, creating covered parking at the ground level, a new entry, and two new floors of offices connected with a multi-level atrium. This addition encompassed approximately 84,700 square feet.



135 Morrissey Boston, Massachusetts

Epsilon ASSOCIATES INC.

Figure 1-1

Project Locus - USGS Map

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

135 Morrissey Boulevard, Boston, Massachusetts

Epsilon Associates Inc.

Figure 1-2

Project Locus - Vertical Aerial Photograph

In 1986 the Boston Globe expanded the office space on the west side of the building, adding another 20,000 square feet and, in 1995, a 28,000 square foot executive wing was added to the north office building.

The final significant addition was the construction of a second floor warehouse over expanded loading docks on the southern end of the building in 2004. This addition, which totaled approximately 67,600 gross square feet, created a large covered exterior loading dock facing south, and large warehouse spaces on the second floor.

Most of the older building sections were constructed of cast-in-place concrete waffle or rib-slab construction, while the newer additions tend to be fireproofed steel and concrete-filled metal deck construction. Figure 1-3, *Existing Conditions - Exterior*, shows the current building as observed looking northwest from Morrissey Boulevard and as looking northeast from the Southeast Expressway. Meanwhile, Figure 1-4, *Existing Conditions - Interior*, presents views typical of the print areas and office areas of the building as they appeared when last in use.

The list of the prior uses within the building reflect the scale of the former newsprint operations, and included factory/industrial for the main printing production operation, storage for newspaper sorting and warehouse spaces, loading and parking areas, business office spaces, large meeting rooms, and a full-service cafeteria. In addition to various mechanical and machine support spaces, the building also included a library, a post office, a credit union, a fitness room, a dry cleaner, and carpentry, plumbing, and electrical service rooms.

1.2.2 Existing Building Site

As shown on Figures 1-1 and 1-2, the property is located between Morrissey Boulevard to the east and the Southeast Expressway to the west, and is bound to the north by an industrial lot and to the south by Patten's Cove and the north side of the Savin Hill residential neighborhood. The site is approximately 16.6 acres in area, with the lands of surrounding the building almost entirely occupied by impervious surfaces, including driveways, surface parking lots, and loading docks. There is currently open-air covered parking at the ground floor under the office space at the north end of the building, and open roof top parking on the second floor of the western side of the building, accessed by a ramp running parallel to the Southeast Expressway. This parking area, combined with the large parking lot at the south end of the site, currently contains approximately 868 parking spaces. A large covered loading dock serving 18 tractor-trailer trucks is located along the site driveway at the south edge of the site building (see "View Northwest from Morrissey Boulevard" in Figure 1-3). A large water storage tank and various support buildings are located at the south end of the building, facing the Expressway. The tank served as back-up fire protection for the building and is located immediately adjacent to a large mechanical chiller unit. The other support buildings include a maintenance garage and fuel filling area previously used for the Boston Globe's fleet of delivery trucks.

View Northwest From Morrissey Boulevard

View Northeast From Southeast Expressway (I-93)

135 Morrissey Boston, Massachusetts

Epsilon ASSOCIATES INC.

Figure 1-3
Existing Conditions - Exterior

Print Production Areas (typ)

Office Areas (typ)

135 Morrissey Boston, Massachusetts

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Figure 1-4
Existing Conditions - Interior

1.2.3 Area Context

While the site structures, the buildings to the north, and the position of the site adjacent to the Southeast Expressway lend an industrial/commercial atmsphere to the site, the surrounding lands also include parkland, a residential neighborhood, and an institutional campus (see Figure 1-2).

The bordering Southeast Expressway and Morrissey Boulevard are the prime arterials serving the southern Boston neighborhoods and suburbs. Automobile access to the site is from Morrissey Boulevard, but access points connecting Morrissey Boulevard and the Expressway are located within a half mile north of the site and a mile south of the site. Meanwhile, the combined Massachusetts Bay Transit Authority (MBTA) JFK/UMass Red Line/South Shore Commuter Rail Station is located 2,000 feet north of the site and accessed by a continuous sidewalk system located along Morrissey Boulevard.

The southeast portion of the site abuts Patten's Cove park, an approximately 9.6-acre park bordering a tidal creek associated with Savin Hill Cove. The park is maintained by the Massachusetts Department of Conservation and Recreation (DCR), and includes open, mowed lawns and treed areas, with bluestone and paved pathways running through and along the borders of the Park and connecting directly to the Savin Hill neighborhood via Davitt Street. The southwest corner of the site abuts the termini of three cul-de-sacs of the Savin Hill neighborhood, the middle of which, Wave Avenue, includes a gated emergency entrance to the Project site. The roads to the east and west, Sea View Terrace and Savin Hill Court, end at fences and vegetated rows.

Finally, the campus of Boston College High School is located directly opposite the site on Morrissey Boulevard. The high school building is fronted by a 230-foot lawn, and includes extensive playing fields on the south side, abutting the waters of Savin Hill Cove. These green spaces compliment those of the Patten's Cove park opposite Morrissey Boulevard and abutting the site, and together offer a green landscape balance to the more developed land of the site and its northern abutter.

1.3 Project Description

The 135 Morrissey Project building was originally constructed by the Boston Globe Company in 1958, with multiple additions being added over the years. The building's uses were wide-ranging in support of the newsprint operations and included factory/industrial for the main printing production operation, storage uses for newspaper sorting and warehouse spaces, loading and parking areas, business use for the office spaces, assembly uses serving large meeting rooms, employee amenity services such as fitness room and credit union, and a full-service cafeteria. The building also included various mechanical and machine support spaces, and has a licensed helipad on the roof of the building.

With the goal of revitalizing this now vacant building, the Proponent is proposing a comprehensive core and shell renovation within the existing massing of the building, and the landscaping of the building grounds. The renovation will be designed to attract creative office, technology, light manufacturing, warehouse, and life science tenants.

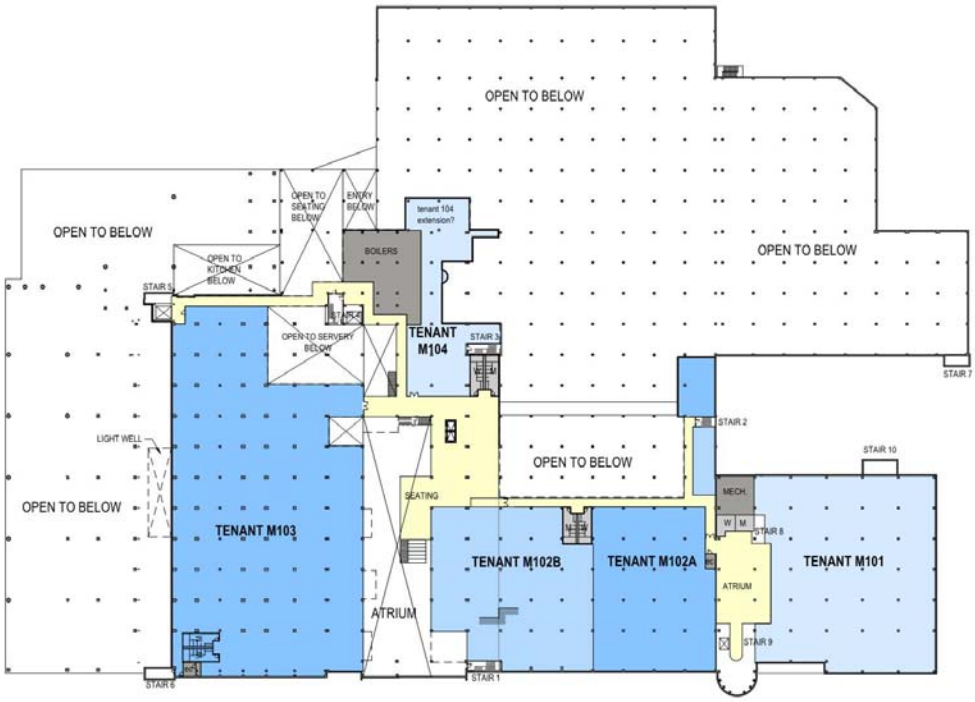
1.3.1 Building Improvements

The 135 Morrissey Project is designed so as to take advantage of, and to enhance, the physical and dimensional characteristics of the three floors and mezzanine space. The building has a mix of very high ceiling height areas associated with the former warehouse and manufacturing spaces, and lower floor to floor areas associated with the former office and service areas. The 135 Morrissey building renovation and redesign will cater to an assumed mix of users with an occupancy assumed to be approximately 50 percent office (business) use and 50 percent light industrial (factory) or warehouse (storage) uses. These will be supported with a range of public assembly spaces, including a food hall and related seating areas, larger meeting rooms, and coffee vendors. The currently envisioned building program breakout is presented in Table 1-1, *135 Morrissey Project Development Program*, and includes an estimate of these support uses and amenities. As suggested therein, the Proponent hopes to attract a brew pub or restaurant tenant and a fitness center, which would serve the building tenants and the neighborhood. The proposed reconfigurations of the floor by floor layouts are presented in Figure 1-5, *First and Mezzanine Floor Plans – Proposed*, and Figure 1-6, *Second and Third Floor Plans – Proposed*.

Table 1-1 135 Morrissey Project Development Program

Use	Area – FAR (square feet)
Office / Business	360,000
Tech Flex / Light Industrial	300,000
Retail / Restaurant	10,000
Food Service	15,000
Fitness	10,000
Area Total	**695,000**
Parking / Loading	Total Spaces: 868 Accessible Spaces (Required Van): 18 (3) [EV Stations 43.4 (5%) increasing to 130.2 (15%)] Loading Bays: 8 Bicycle Spaces: 208.5 (0.3/1000)

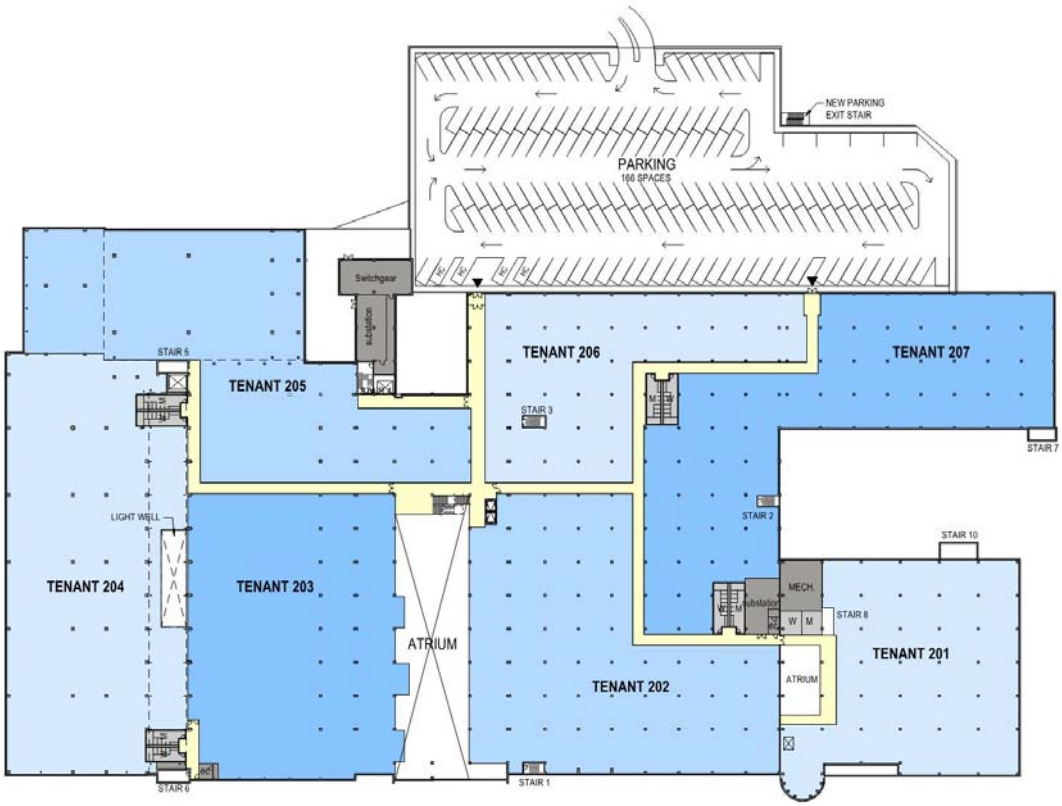
First Floor



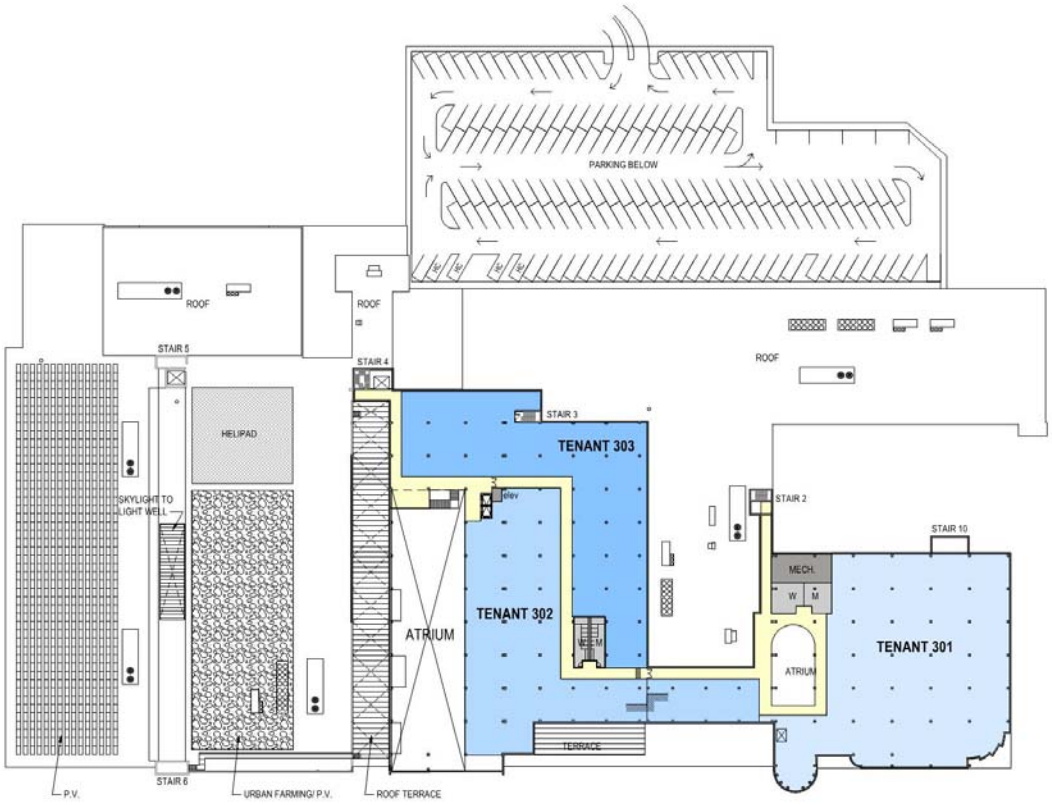
Mezzanine

135 Morrissey Boston, Massachusetts

Figure 1-5
First and Mezzanine Floor Plans - Proposed



Second Floor



Third Floor

135 Morrissey Boston, Massachusetts

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Figure 1-6
Second and Third Floor Plans - Proposed

Renderings of the exterior building improvements are presented in Figure 1-7, *Morrissey Boulevard Perspective – View Northwest*, and Figure 1-8, *Southwest Entry Perspective – View Northeast*. At the heart of the renovated building, in place of the existing multi-level printing presses, will be a new entrance and multi-story atrium space, serving as a central gathering and circulation area. The atrium will provide natural light deep into the building, with adjacent office spaces taking advantage of views into the atrium through new interior windows. Located at the intersection of all the entries, the atrium space will provide circulation running across the new floor plans, and will contain the stairs and elevators to allow movement vertically throughout the building. The atrium space is intended to be the active hub of the building, containing a food hall and seating, and collaborative meeting and gathering spaces for the building's users. A rendering of the new atrium entry as seen from Morrissey Boulevard is presented in Figure 1-9, *Morrissey Boulevard Atrium Entrance*.

In addition to the new main entry on Morrissey Boulevard, there will be a new west entry to the main parking area, a new connection to the north courtyard, and smaller tenant access entries from additional parking lots on the ground floor and second floor roof. The location of these entrances are shown on the "First Floor" plan of Figure 1-5, while a perspective of the new, western entrance is shown in Figure 1-8.

The physical characteristics of the 135 Morrissey building vary greatly from point to point due to the multiple and varied additions and changes that have been implemented over the past 70 years. There is a mix of brick, limestone, metal, and cement board exterior wall panels, and the curtainwall, storefront or strip windows styles vary across each addition. The current design proposal intends to replace the older windows with new efficient ones, and to enlarge existing windows with new curtainwall, with the goal of providing additional natural light into the tenant spaces, and to also unify the appearance of the existing building. Some areas of the building which currently have multiple wall finishes will be unified to limit the amount of currently apparent building style variations. Elevations of the existing and proposed building exteriors illustrating these improvements are presented in Figure 1-10, *East Elevations – Existing and Proposed*, Figure 1-11, *West Elevations – Existing and Proposed*, Figure 1-12, *South Elevations – Existing and Proposed*, and Figure 1-13, *North Elevations – Existing and Proposed*

The current mechanical and communication systems of the 135 Morrissey building are varied and archaic, and are located on the multiple roof levels. The Project will include a comprehensive replacement of the entire mechanical systems with new, quieter, and more efficient equipment, and generally reduce the variability of the roof top equipment. The Proponent will continue to evaluate the potential for roof-mounted solar (PV) systems, and the availability of grants and renewables funding. The feasibility of installing PV systems will depend on the incentives at the time of construction, as well as the amount of space available on the rooftops once mechanical equipment is sized and located. Given the large expanses of open roof, consideration is also being given to the potential for urban farming on a portion of the roof.

135 Morrissey **Boston, Massachusetts**

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Figure 1-7
Morrissey Boulevard Perspective - View Northwest

135 Morrissey **Boston, Massachusetts**

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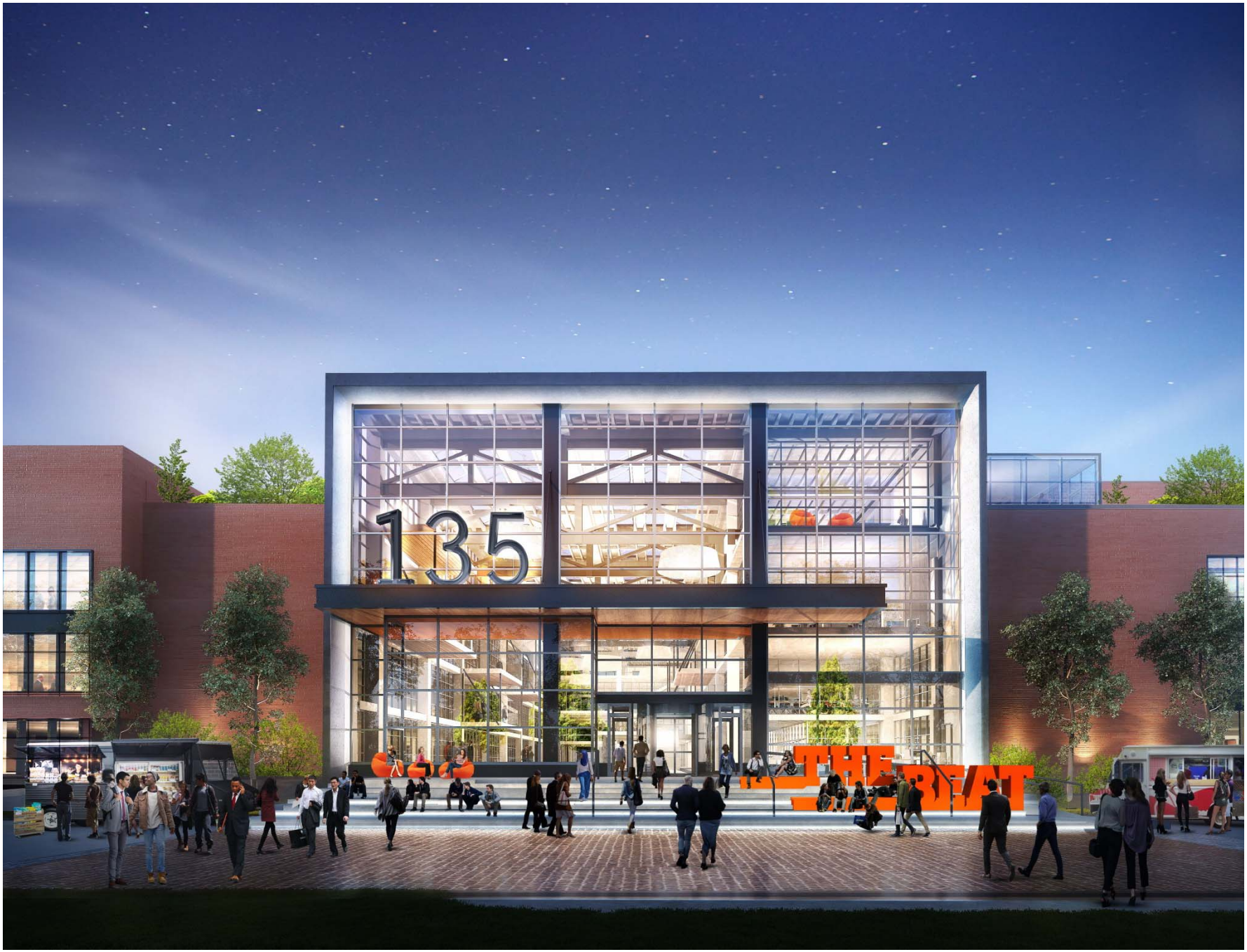
Figure 1-8
Southwest Entry Perspective – View Northeast



135 Morrissey **Boston, Massachusetts**

Stantec

Figure 1-9
Morrissey Boulevard Atrium Entrance

View from Morrissey Boulevard

135 Morrissey Boston, Massachusetts

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Figure 1-10
East Elevations – Existing and Proposed

View from Southeast Expressway

135 Morrissey Boston, Massachusetts

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Figure 1-11
West Elevations – Existing and Proposed

View from Savin Hill

135 Morrissey Boston, Massachusetts

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Figure 1-12
South Elevations – Existing and Proposed

View from North

135 Morrissey Boston, Massachusetts

Stantec

Figure 1-13
North Elevations – Existing and Proposed

As a result of the above improvements, the original building 741,250 gross square-footage (GSF) (680,400 gross FAR SF) will be increased to 750,000 GSF (695,000 gross FAR SF). However, as noted elsewhere the footprint and massing of the building will not be increased. Rather, the Project will enclose space on the ground floor at the southeast corner of the building previously used as both interior and exterior covered loading areas, all of which is located under the building's existing second floor overhangs. This will result in increased usable floor space, but will not increase the footprint or massing of the building. Furthermore, the Project intends to remove both a mechanical and a garage outbuilding structure from the site, therefore actually reducing the overall building footprint on the site.

1.3.2 Site Improvements – Landscape Plan

The property stretches along Morrissey Boulevard on the east and the Southeast Expressway on the west, is bounded by Patten's Cove and the Savin Hill neighborhood on the south, and an existing industrial building directly to the north. As noted above, the 16.6-acre site is almost entirely covered with impervious areas comprised of the building footprint, site drives, parking areas, and loading docks.

The proposed Project site landscape design will create a new main entry and drop off zone located at the new atrium on Morrissey Boulevard, with reconfigured parking along the main driveway. Most of the existing mature trees will be retained. Renderings of the existing and proposed site landscape are presented in Figure 1-14, *Existing and Proposed Site Landscape*.

As shown in Figure 1-14, the middle of the site's three existing curb cuts will be eliminated, and the Project building will have a new west entry facing the Expressway. This will result in a reconfigured and reduced parking area to the south. The existing water tank will remain as an artifact of the former use, and as an art feature that also acts as an identifier for the building. The open space adjacent to this western building entry will be developed as a pedestrian zone, with an entry plaza, outdoor seating for the brewery/restaurant, a public lawn area for both passive and active recreational activities, and multiple seating areas around the terrace and water tank. Meanwhile, new improved and accessible site connections will be provided to the adjacent Patten's Cove park at the southern end of the property, and a new multi-use pathway will be created so as to connect to the Savin Hill neighborhood. A green buffer is being proposed for the site edge at Savin Hill, with extensive new trees and plantings throughout the parking area.

Finally, a landscaped courtyard and building entry located at the northern end of the building will serve as both an outdoor amenity for the tenants and a future connection to MBTA JFK/UMass Red Line/South Shore Commuter Rail Station to the north, while still providing loading access to the adjacent building space.

135 Morrissey Boston, Massachusetts

Stantec

Figure 1-14
Existing and Proposed Site Landscape

In addition to the above Project site improvement, the Proponent is in discussions with the DCR regarding the potential for an ongoing stewardship role for maintenance and oversight of the Patten's Cove park. This would include an initial cleanup of the park, and removal of the chain link fences that currently separate the park and property. The goal will be to make the park more accessible for the neighbors of Savin Hill and the community, as well as for the new building tenants.

1.3.3 Site Access and Neighborhood Connectivity

Pedestrian access to the site will be improved. As described above, the Project landscaping is being designed to re-integrate the site into the surrounding community. Pedestrian paths, lighting, benches, and trash receptacles will be installed throughout the site, and maintenance of the adjacent Patten's Cove park will be funded by the repositioned facility. An existing security fence along the southern site boundary will be removed to allow pedestrian access to the site from Patten's Cove park and the Savin Hill neighborhood, including a multi-use path adjacent to the site and integrated into the Morrissey Boulevard sidewalk system, thereby considerably improving neighborhood access to the combined MBTA JFK/UMass Red Line/South Shore Commuter Rail Station north of the site. Meanwhile, portions of the existing parking lot at the southerly edge of the site, adjacent to Savin Hill Court, Wave Avenue, and Sea View Terrace will be replaced by landscaped open space.

While the existing middle of three vehicle driveway entrances on Morrissey Boulevard will be eliminated, the other two entrances at the north and south ends of the property will remain unchanged. Additional vehicle access locations are not planned.

1.3.4 Summary of Sustainability and Resiliency

The Project achieves a high level of sustainability through the redevelopment of an underutilized institutional site in a manner that addresses anticipated climate change impacts. The Project provides improved public access and engagement, encourages the use of alternative modes of transportation, and is located in close proximity to public transportation infrastructure that is easily accessible to pedestrians. In addition, the Project creates a high-quality indoor environment for the building occupants.

The Project's efforts toward meeting sustainability and resiliency goals are detailed in Section 4.0, *Sustainable Design and Climate Change Adaptation*. As described therein, site and building improvements have been developed so as to address higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, increased wind gusts, more severe rainfall events, and flooding potential. To do so, the Project is planning for climate-related conditions projected 50 years into the future. Meanwhile, the Proponent intends to register and certify the Project under the Leadership in Energy and Environmental Design (LEED) rating system. The Project will be designed and constructed in a manner that significantly improves energy efficiency over

existing conditions so as to reduce the Project's impacts on the environment. The efficiency and insulation of the building's envelope will be improved and high-efficiency mechanical equipment will be employed to meet the energy requirements of the State Building Code and Stretch (Energy) Code, where applicable.

1.3.5 Anticipated Project Schedule

The filing of this Expanded PNF initiates the formal public review process for the Project. The Proponent anticipates completing the permitting of the Project in the third quarter of 2018, with construction following shortly thereafter. It is anticipated that the Project will be completed within twelve to fourteen months of the initiation of construction.

1.4 Project Alternatives

This section summarizes site planning alternatives, including a No-Build alternative, with reference to how site planning has been influenced by City master planning proposals.

1.4.1 No Build Alternative

The No Build Alternative would retain the existing site conditions, which consist of an underutilized light industrial development with a fully-paved accessory surface parking lot. The No-Build Alternative would require some modifications, but generally envisions the reuse of the existing building as a warehouse/distribution building with a secondary office component. This option would not meet the Proponent's redevelopment objectives and is inconsistent with the City's economic and redevelopment goals for the area as expressed in the *Columbia Point Mast Plan* of June 2011, as discussed below.

Although the No-Build Alternative would not result in any new environmental and community impacts, it would preclude the Project's ability to provide community benefits and to improve the environmental condition of the Project site, particularly with respect to the creation of new, active uses, and enhanced water quality through the incorporation of pervious landscaped spaces and proprietary infiltration-based stormwater management features.

While the No-Build Alternative is not considered a viable option for the site based on inability to benefit the local neighborhood and the City of Boston with respect to job creation, generation of tax revenue, and provision of open spaces for place-making and cultural exchange, it can be used as a baseline from which to evaluate and compare the other build alternatives considered during the planning of this Project.

1.4.2 Total Redevelopment – Mixed-Use Alternative

The *Columbia Point Master Plan* issued by the BPDA (then Boston Redevelopment Authority) in June of 2011 included options for redevelopment of the site that took advantage of the proposed FAR and height allowances. Multiple schemes were studied that

assumed the total demolition of all existing structures on the site and the development of a new street grid that maximized the site for a total buildout of +/-1,447,388 square feet. Envisioned uses included 100,000 square feet of retail, with 40,000 square feet assumed for restaurants, 80,000 square feet of office, 1,067,000 square feet of housing (+/-1,300 units), and 200,000 square feet of parking garage. The scheme followed many of the goals established in the *Columbia Point Master Plan*, but the economics of a total redevelopment have not been determined to be viable. Additionally, the impacts of this scheme (including significant increases in traffic) were considerable, and certainly greater than the preferred alternative presented herein.

1.4.3 Preferred Alternative (the 135 Morrissey Project)

The 135 Morrissey Project presented herein envisions the renovation and reuse of the majority of the existing building located at 135 William T. Morrissey Boulevard. It is anticipated that the building can be renovated and repaired for use for light industrial, creative office, technology, life sciences, small retail, food and beverage, and other commercial uses. The Project will include significant site and pedestrian realm improvements, landscaping, and other measures to improve the connectivity of the Savin Hill neighborhood to Patten's Cove, the Project site, and the MBTA JFK/UMass Red Line/South Shore Commuter Rail Station.

The evolution of the Project is a result of community input, and responds to the key components of the BPDA's planning initiative for the area. The Project aims to provide a vibrant development that will enhance the surrounding neighborhood by creating new office, light industrial, and restaurant and retail activity, and provide public realm improvements, including improvements to the adjacent Patten's Cove park.

The Preferred Alternative will be built-out in a single phase, and include approximately 695,000 square feet of mixed-use space on three floors and a mezzanine level, as described above, and all within the current building envelope. Meanwhile, the site improvements include the creation of a landscape buffer between the residential neighborhood and the parking area, better connections to access Patten's Cove park, and a multi-use path from the adjacent Savin Hill neighborhood and along the site edge of Morrissey Boulevard. In addition, outdoor lawn adjacent to the west entry will provide for various outdoor activities.

The preferred alternative will improve upon the existing storm water management system by utilizing stormwater best management practices to meet current storm water quality standards, increase groundwater recharge, and control the quantity of stormwater runoff over existing conditions. Additionally, the Project will incorporate sustainable green building and design features aimed at mitigating the environmental impact of the Project.

1.5 Summary of Public Benefits

The Project will generate numerous 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. The renovation and re-vitalization of the existing site structure, combined with the proposed streetscape and landscape improvements, will complement the significant improvements that have already occurred and that are anticipated for the Morrissey Boulevard corridor. Specific public benefits associated with the Project are reviewed below, and include, but are not limited to;

- Building preservation and design enhancements through a comprehensive core and shell renovation;
- Building landscape improvements designed to increase greenspace and accessibility;
- Leadership in Energy and Environmental Design (LEED) certifiabilty;
- Public pedestrian accessway and open space improvements;
- Consistency with smart growth goals of building reuse and transit oriented development;
- Approximately 650 construction jobs and space for approximately 3,120 permanent jobs in the creative office, light industrial, life science, restaurant, and retail components;
- New tax payments to the City of Boston in the form of enhanced Property Tax, Sales Tax, and Meals Tax, and;
- Payments, or equivalent in-kind contributions, to create affordable housing and job-training programs in accordance with Section 80B-7 of the Code.

1.5.1 Building Design and Enhancements

The Proponent is proposing a comprehensive core and shell renovation of the entire former Boston Globe building and a re-landscaping of the building grounds designed with the goal of revitalizing this now vacant, landmark building and attracting creative office, technology, light manufacturing, warehouse, and life science tenants. While the massing of the building will remain essentially unchanged, the exterior presence will be coordinated to project a unified building. A new entrance atrium will act as the interior and exterior hub of the building's Morrissey Boulevard face, while a new west entry area will include an open, multi-purpose green space. Meanwhile, the current design proposal includes the replacement of the older windows with new efficient ones, and the enlargement of the existing windows with new curtainwall, with the goal of providing additional natural light

into the tenant spaces, while also unifying the appearance of the existing building. Some areas of the building which currently have multiple wall finishes may be unified to a single metal panel style to limit the amount of currently apparent building style variations.

The Project will include a comprehensive replacement of the entire mechanical system with new, quieter, and more efficient systems, and generally reduce the variability of the roof top equipment. Both a mechanical and a garage outbuilding structure will be removed, therefore reducing the overall building footprint on the site and allowing for the creation of the western entry plaza. On the ground floor at the southeast corner of the building, the Project will enclose space previously used as both interior and exterior covered loading areas, both of which are located under the building's existing second floor overhang. This will result in increased usable floor space, but will not increase the footprint or massing of the building.

1.5.2 Sustainable Design/Green Building

The 135 Morrissey Project is committed to the advancement of sustainable and environmentally conscious design and construction. To that end, the Project is being designed so as to meet the requirements of Article 37 of the Boston Zoning Code and to achieve certifiability under the USGBC LEED v4 rating system. In addition, the Project is taking a multi-disciplinary and pro-active approach to designing the buildings and site infrastructure for flood resilience, and is embracing the recommendations outlined in the City of Boston *Climate Ready Boston* report.

The Project design will incorporate a number of measures to minimize the impact of high temperature events, including the planting of additional shade trees and reduction of impervious surfaces, improvements to the building envelope, the installation of higher performance lighting and controls, including automatic LED lighting control, the incorporation of energy recovery ventilation, and the specifying of high albedo roof tops and green roofs to minimize the heat island effect.

Similarly, the Project design will incorporate measures to minimize the effects of extreme precipitation events and droughts. The Project's stormwater management system will be designed in compliance with the MassDEP Stormwater Management Policy guidelines to reduce the existing peak rates and volumes of stormwater runoff from the site, and promote runoff recharge to the greatest extent practicable. The Project will increase the pervious area on the site from the existing condition, thereby creating additional infiltration capacity on the site. At the same time, the Project will approach potential drought impacts by reducing the amount of water used both within the buildings and across the site for irrigation. 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. Meanwhile, the Project will include low-flow fixtures and water conserving appliances to the extent feasible to minimize the amount of water used by the building's occupants.

Additional detail on the development's sustainable features and climate preparedness is presented in Section 4.0, *Sustainable Design and Climate Change Adaptation*.

1.5.3 Improved Street, Pedestrian, and Landscape Environment

The Project will activate an underutilized, formerly institutional site with enhanced streetscapes that include landscaped sidewalks and new, publicly accessible open spaces located throughout the Project site. In addition, maintenance of the adjacent DCR Patten's Cove park is being proposed.

As described above, the site landscaping improvements include the elimination of one of the site's three existing curb cuts, which will lead to a reconfigured and reduced parking area to the south. The existing water tank will remain as an artifact of the former use, and as an art feature that also acts as an identifier for the building. The open space adjacent to this western building entry will be developed as a pedestrian zone, with an entry plaza, outdoor seating for the brewery/restaurant, a public lawn area for both passive and active recreational activities, and multiple seating areas around the terrace and water tank. Meanwhile, new improved and accessible site connections will be provided to the adjacent Patten's Cove park at the southern end of the property, and a new multi-use pathway will be created connecting the Savin Hill neighborhood to the site and to the Morrissey Boulevard sidewalk system. A green buffer is being proposed for the site edge at Savin Hill, with extensive new trees and plantings throughout the parking area and along the streetscape of Morrissey Boulevard. Finally, at the north end of the building there will be a smaller courtyard and building entry which could provide a future connection to the MBTA JFK/UMass Red Line/South Shore Commuter Rail Station to the north.

1.5.4 Smart Growth/Transit-Oriented Development

The Project is consistent with smart-growth and transit-oriented development principles. The Project site is well served by existing public transportation, including major regional rapid transit, commuter rail, and bus lines that provide easy access to the Project site from the Greater Boston region. The MBTA JFK/UMass Red Line/Commuter Rail Station is located directly north of the site. The site landscape and pedestrian accessway improvements include a pedestrian pathway from the Savin Hill neighborhood through the site and integrated with the Morrissey Boulevard sidewalk system that will considerably improve both site and neighborhood access to the station. Meanwhile, the Project will include electric vehicle (EV) charging stations for 5% of the parking spaces with the infrastructure in place to increase the EV stations up to 15% of the spaces. The Project will introduce bicycle storage spaces and short term bicycle racks at the Project site.

1.5.5 Increased Employment

The Project will create both construction and permanent jobs at the site, offsetting the closure of the very active Boston Globe operations. The Project is estimated to generate 650 construction jobs associated with core and shell work, tenant improvements, landscaping and site work. The Project is expected to generate approximately 3,120 permanent jobs in the creative office, tech/flex, life science, restaurant, and retail spaces.

1.5.6 Interior Public Amenities

In addition to the overall benefit of the building exterior and site open space improvements, the renovation has the potential to introduce a number of interior public amenities. The Project anticipates the inclusion of a restaurant and/or brew pub, and is also considering a fitness club and retail space. More specifically, the current building design program calls for a 100-seat restaurant, a 10,000 square-foot fitness facility, and 8,000 square feet of retail space. The new atrium core of the building will be open to the public during working hours, and available for respite and gathering prior to utilizing the building's interior public amenities.

1.5.7 New Tax Revenue

The 135 Morrissey Project is projected to generate a substantial increase in tax revenue for the City as a result of converting a currently under-utilized building and parcel into an office/light industrial facility. These uses will significantly contribute to the City of Boston's tax bases. Ancillary support businesses associated with the re-vitalization of the building, including restaurant, retail and fitness centers will create additional opportunities for tax revenues.

1.5.8 Affordable Housing and Job Training

The Project will include payments, or equivalent in-kind contributions, to create affordable housing and job-training programs for City residents in accordance with Section 80B-7 of the Code.

1.6 Consistency with Zoning

The Site is located within the Dorchester Neighborhood District in the Morrissey Boulevard Community Commercial (CC) Subdistrict and is governed by Article 65 of the Boston Zoning Code (Code). The portion of the Site directly abutting Morrissey Boulevard is also within a Greenbelt Protection Overlay District (GPOD). Office use is allowed, but other uses for the proposed Project, such as research and development and light manufacturing uses, are either conditional or forbidden uses in this District. It is contemplated that relief from the provisions of the Code as well as GPOD approval (if required) will be sought from

the Boston Zoning Board of Appeals. The Proponent will work with the BPDA and the Parks Commission (if required) on landscaping and design treatments. As the proposed Project proceeds with Article 80 Review, the exact nature and form of the relief that will be sought by the Proponent from the Zoning Board of Appeals will be finalized.

The Project is subject to Large Project Review pursuant to Article 80 of the Boston Zoning Code. The Proponent filed a Letter of Intent (LOI) with the BPDA in December of 2017. A copy of the LOI is included in Appendix A: *Letter of Intent to File Project Notification Form*.

This PNF is being submitted to the BPDA to initiate review of the Project under Article 80B, Large Project Review, of the Boston Zoning Code.

1.7 Community Engagement

The Proponent is committed to a comprehensive, inclusive and effective community outreach program and will continue to engage community leaders, stakeholders, and all other interested parties to ensure public input on the Project. The Proponent has already begun the process of meeting with community groups, community representatives, and other interested parties, including those listed below, to review and discuss the Project. The Proponent is committed to continuing this comprehensive outreach throughout the approval process, and looks forward to working with the appointed Independent Advisory Group (IAG) during the Article 80 review process.

- Massachusetts Department of Conservation and Recreation
- Massachusetts Department of Environmental Protection – Waterways Program.
- Massachusetts Executive Office of Energy and Environmental Affairs – MEPA Office
- Massachusetts Executive Office of Housing & Economic Development
- City of Boston, Office of the Mayor
- City of Boston, Boston Planning and Development Agency (BPDA)
- City of Boston, Boston City Council Representatives
- Columbia-Savin Hill Civic Association (CSHCA)
- College Bound Dorchester
- Boston Collegiate Charter School

1.8 Legal Information

1.8.1 Site Control and Easements

The site is owned by 135 Morrissey Owner LLC pursuant to the Quitclaim Deed dated December 20, 2017 recorded with the Suffolk Registry of Deeds in Book 58967, Page 93. The site is subject to certain easements for sewers held by the Boston Water and Sewer Commission. An existing conditions survey of the site can be found in Appendix B, *Existing Conditions Plan* (Sheets 1 and 2 of 2).

1.8.2 Legal Judgements Adverse to the Proposed Project

There are no legal judgments affecting the Site.

1.8.3 History of Tax Arrears on Property

Property taxes are paid when due and there are no outstanding unpaid taxes or other fees owed by the Proponent.

1.9 Anticipated Permits and Approvals

Table 1-2, *Anticipated Permits and Approvals,* sets forth a preliminary list of permits and approvals from governmental agencies and authorities that the Proponent anticipates may be required for the Project. It is possible that only some of these permits and approvals will be required, or that additional permits or approvals will be required.

Table 1-2 Anticipated Permits and Approvals

Agency Name	Permit / Approval
STATE	
Massachusetts Department of Environmental Protection	Plan Approval (if required); Fossil Fuel Utilization permit (as required); Notice of Demolition/Construction; Chapter 91, License or Amendment
Massachusetts Historical Commission	State Register Review
Massachusetts Water Resources Authority	Temporary Construction Dewatering Permit (if required); Sewer Use Discharge Permit (if required)
Executive Office of Energy and Environmental Affairs (MEPA Office)	Review under the Massachusetts Environmental Policy Act (MEPA)
Massachusetts Department of Conservation & Recreation	Construction Access Permit (if required)
Massachusetts Department of Transportation	Non-Vehicular Access Permit (if required)
LOCAL	
Boston Civic Design Commission	Review and approval pursuant to Article 28 of the Boston Zoning Code
Boston Fire Department	Fuel Storage Permit; Fire Alarm Permit
Boston Inspectional Service Department	Building Permit (Long Form); Demolition Permit; Certificate of Occupancy
Boston Public Improvement Commission/ Department of Public Works	Specific Repair Approvals (if required)
Boston Public Safety Commission, Committee on Licenses	Parking Garage Permit; License for Storage of Inflammables
Boston Conservation Commission	MA Wetlands Protection Act Notice of Intent
Boston Planning and Development Agency	Review under Article 80, including Large Project Review pursuant to Article 80B of the Zoning Code
Boston Transportation Department	Transportation Access Plan Agreement; Review and Approval of Construction Management Plan
Boston Water and Sewer Commission	Sewer Use Discharge Permit (if required); Site Plan Approval; Temporary Construction Dewatering Permit (if required); Cross Connection/Backflow Prevention Approval
Boston Zoning Board of Appeal	Zoning use and dimensional approvals and Building Code variance(s) (if required)

Section 2.0

Transportation

2.0 TRANSPORTATION

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the Project in the Dorchester 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.

2.1 Project Description

The Project site is located at 135 Morrissey Boulevard at the former site of the Boston Globe. The site is approximately 16.61 acres is bounded by Interstate 93 to the west, the Savin Hill residential neighborhood and Patten's Cove to the south, commercial uses to the north, and William T. Morrissey Boulevard (Morrissey Boulevard) to the east. The MBTA Red Line Savin Hill Station is located approximately one-quarter of a mile from the Project site, to the south across I-93 and the MBTA Red Line JFK/UMass Station is located approximately 2,000 feet to the north.

The site currently contains a vacant two to three story brick building, and surface parking for approximately 864 vehicles. The existing building consists of approximately 695,000 sf. The Project includes the full rehabilitation of the existing site to consist of 342,500 sf of office space, 342,500 sf of light industrial space, and 10,000 sf of retail/restaurant space. The proposed Project will also include approximately 868 parking spaces and 209 secure and covered bicycle storage spaces as well as publicly accessible bike racks.

Vehicular access to the site will be provided by two of the three existing curb cuts along the Morrissey Boulevard Service Road (the middle curb cut will be eliminated). The Project also includes a shared-use path around the site, and future pedestrian and bicycle connections to the Savin Hill neighborhood and the Savin Hill MBTA station to highlight the transit-oriented nature of the site. Loading, deliveries, and trash pick-up will take place on the Project site in the dedicated loading area on the north side of the building.

2.1.1 Study Area

The transportation study area runs along the Morrissey Boulevard corridor, including the intersection with Bianculli Boulevard to the south of the Project site. The study area consists of the following intersections and roadway segments in the vicinity of the Project site, also shown on Figure 2-1:

- Morrissey Boulevard/Bianculli Boulevard (signalized intersection);
- Southbound Morrissey Boulevard/Southbound ramp to Morrissey Boulevard Service Road;

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Figure 2-1
Study Area Intersections

- Southbound ramp from Morrissey Boulevard/ Southbound Morrissey Boulevard Service Road; and
- Southbound Morrissey Boulevard/Northbound Morrissey Boulevard U-Turn.

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, 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.

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:

Morrissey Boulevard is a two-way, six lane roadway located south of the Project Site. It is classified as an urban principal arterial roadway under the Department of Conservation and Recreation (DCR) and runs in a predominately north-south direction between Kosciuszko Circle in South Boston to the North and Gallivan Boulevard in Dorchester to the south. Within proximity of the Project site, Morrissey Boulevard has frontage roadways along the outside of the mainline. These frontage roadways allow for local access to businesses without impeding the throughput of the mainline. The Southbound Service Road consists of three lanes and the Northbound Service Road consists of two lanes. Sidewalks are provided along both sides of Morrissey Boulevard within the study area.

Bianculli Boulevard is a two-way, four lane roadway located to the south of the Project Site. It is classified as a local roadway and owned by the University of Massachusetts. Currently the roadway is under construction with one lane in each direction available for vehicle traffic. The roadway runs in a predominately east-west direction between University Drive to the east and Morrissey Boulevard to the west. The Harborwalk is provided along the south side of the roadway for pedestrian and bicycle use.

2.2.2 Existing Intersection Conditions

Existing conditions at the study area intersections are described below.

Morrissey Boulevard/Bianculli Boulevard is a signalized 4-legged intersection. The Bianculli Boulevard westbound approach consists of four lanes, two left-turn only lanes and two channelized right-turn only lanes under signalized control. The Morrissey Boulevard northbound approach consists of four lanes, three through lanes and one channelized right-turn only lane under signalized control. The Morrissey Boulevard southbound approach consists of three through only lanes. The Morrissey Boulevard Service Road south-eastbound approach consists of four lanes, two left-turn only lanes, one shared left-turn/through lane, one through lane. To the north of the intersection, there is one u-turn allowing northbound vehicles to change direction to southbound. This movement is under stop control. Crosswalks are provided across the south and east side of the intersection. All crosswalks have pedestrian signal equipment, wheel chair ramps, and tactile warning pads.

2.2.3 Existing Parking

On-street parking around the Project site is generally not permitted. All parcels have designated off-street parking.

2.2.3.1 Car Sharing Services

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

Zipcar is the primary company in the Boston car sharing market. There are currently six Zipcar locations within a mile walk of the Project site. The nearby car sharing locations are shown in Figure 2-2.

2.2.4 Existing Traffic Data

Traffic volume data was collected at the study area intersections on December 5, 2017 and previously collected data from October 7, 2015 was also used. Automatic Traffic Recorders (ATRs) collected traffic volume and speed data for a 24 hour period and Turning Movement Counts (TMCs) and vehicle classification counts were conducted during the weekday a.m. peak period (7:00 – 9:00 a.m.) and the weekday p.m. peak period (4:00 – 6:00 p.m.) at the study area intersections. The traffic classification counts included car, heavy vehicle, pedestrian, and bicycle movements.

2.2.5 Existing Vehicular Traffic Volumes

The existing traffic volumes that were collected in October 2015 and December 2017 were used to develop the Existing (2018) Condition traffic volumes. The 2015 traffic volumes were balanced to the 2017 traffic count s to reflect existing conditions. The Existing (2018) weekday a.m. and p.m. peak hour traffic volumes are shown in Figure 2-3 and Figure 2-4, respectively.

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 to the October 2015 TMCs and the December 2017 ATRs. The seasonal adjustment factor for roadways similar to the study area (Group 6) is 0.92 in October and 0.97 in December. This indicates that average month traffic volumes are approximately three to eight 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, *Transportation Analysis Data*.

2.2.6 Existing Pedestrian Volumes and Accommodations

Sidewalks are typically provided along all roadways and are generally in good or fair condition near the Project site. Along Morrissey Boulevard the sidewalks are typically asphalt measuring four to five feet wide. To the north near the Star Market and the JFK/UMass Station, the sidewalks are wider and constructed out of concrete. At the signalized intersection, crosswalks, pedestrian curb ramps, and pedestrian signal equipment

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Figure 2-2
Car Sharing Services

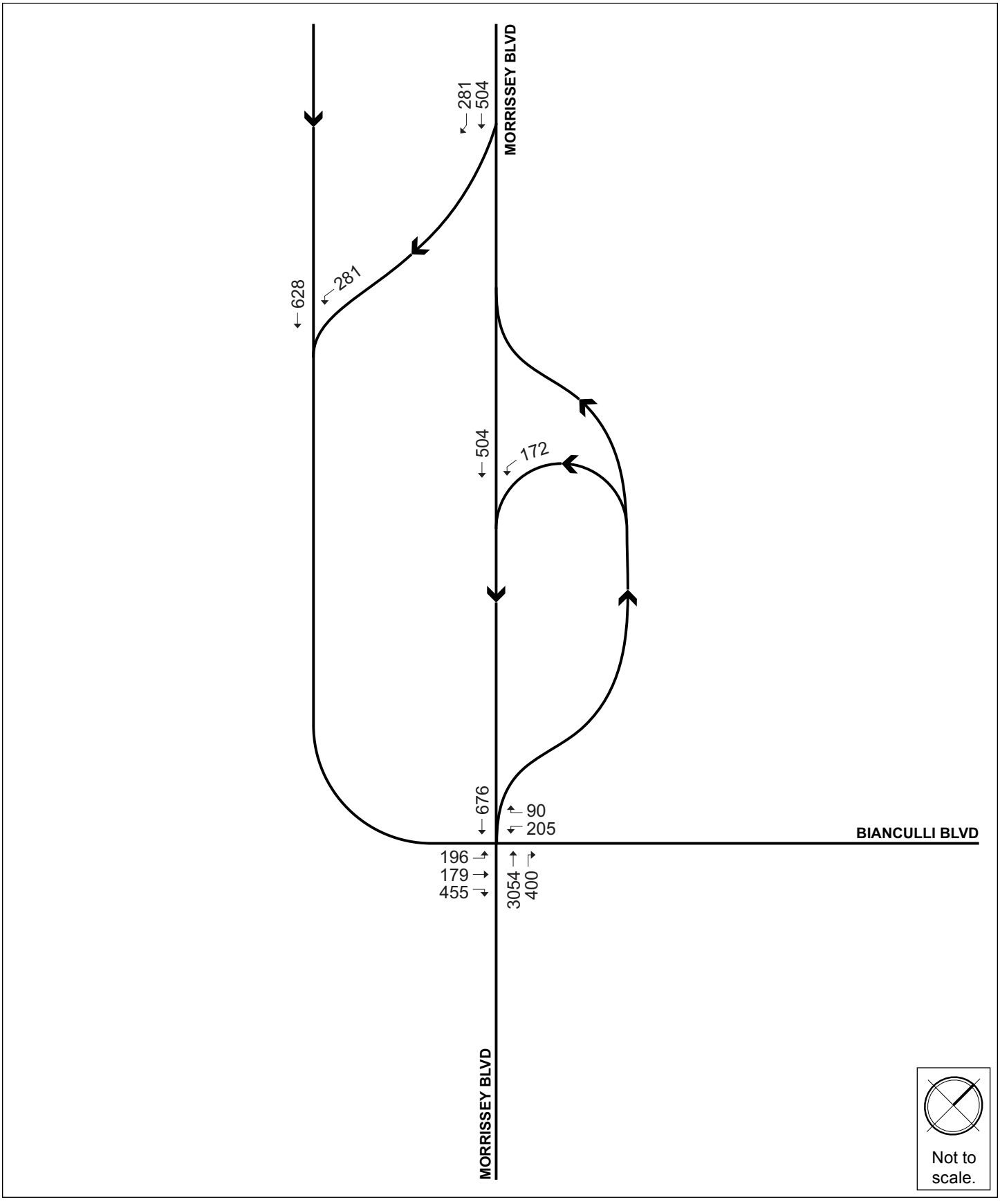

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Figure 2-3
Existing (2018) Condition Traffic Volumes, Weekday a.m. Peak Hour

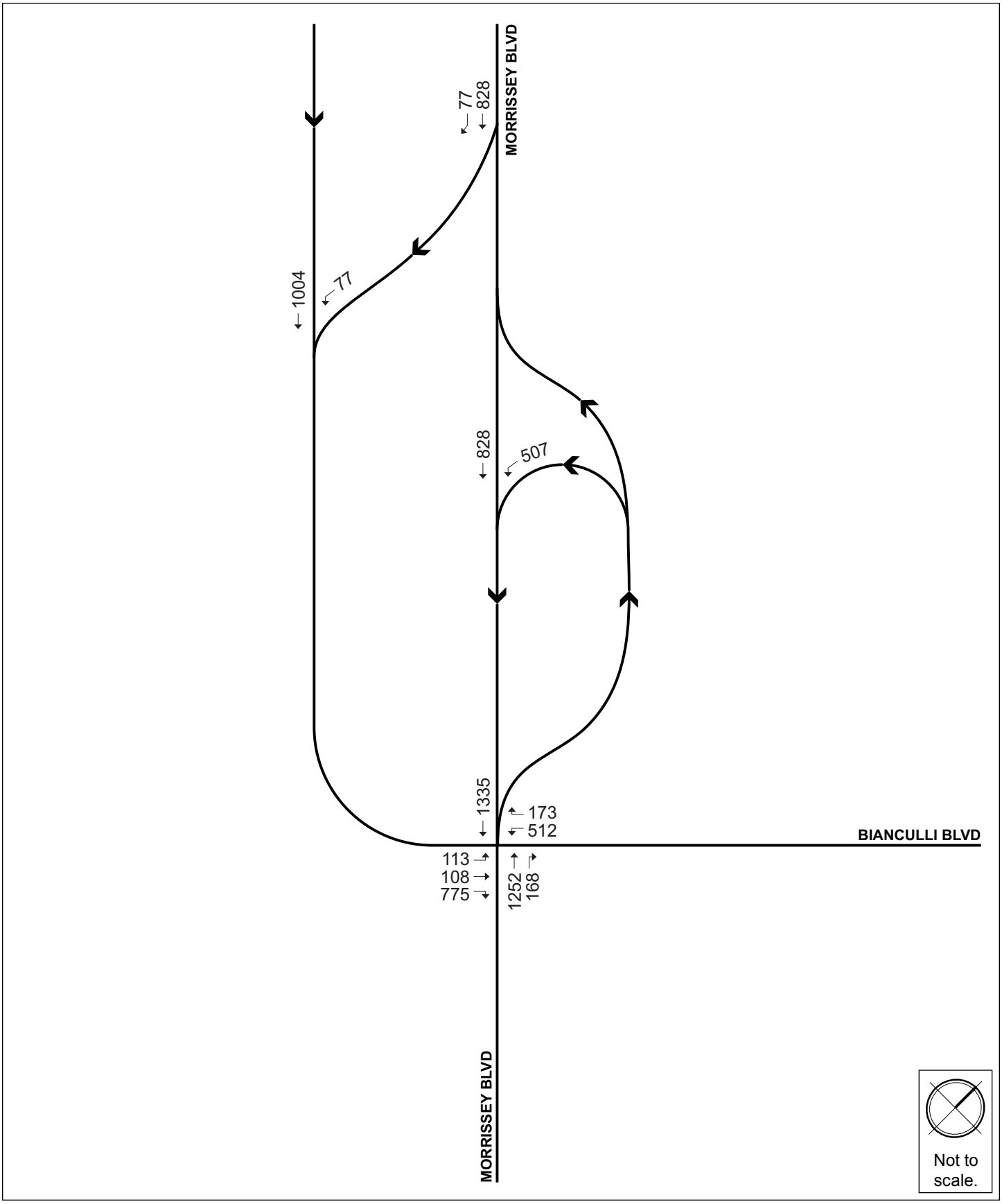

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Figure 2-4
Existing (2018) Condition Traffic Volumes, Weekday p.m. Peak Hour

are provided across the south and east approaches. Additionally a pedestrian bridge is provided to cross Morrissey Boulevard near the Start Market. Along the Morrissey Boulevard CD Road, some driveways are marked with a crosswalk while others have long unmarked crossings. The Harborwalk Park is located across Morrissey Boulevard around the UMass campus.

To estimate the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs on October 7, 2015 at the study area intersections and are presented in Figure 2-5.

2.2.7 Existing Bicycle Volumes and Accommodations

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is conveniently located in close proximity to several bicycle facilities. The City of Boston's "Bike Routes of Boston" map shows Morrissey Boulevard as an advanced route, suitable for experienced and traffic-confident cyclists. The streets in the Savin Hill neighborhood are designated as an intermediate route, suitable for riders with some on-road experience. The Harborwalk is a car-free trail that goes around the UMASS Boston Campus.

Bicycle counts were conducted concurrent with the vehicular TMCs on October 7 2015, and are presented in Figure 2-6.

2.2.7.1 Bicycle Sharing Services

The Project site is also located in proximity to bicycle sharing stations provided by Hubway. Hubway is the bicycle sharing system in the Boston area, which was launched in 2011 and consists of over 185 stations and 1,800 bicycles in four municipalities. There are three Hubway stations located near the Project site, as shown in Figure 2-7.

2.2.8 Existing Public Transportation Services

The Project is located in Boston's Dorchester neighborhood with several public transportation opportunities. The Project is close to several MBTA stations including JFK/UMass and Savin Hill Station. JFK/UMass station is a commuter hub providing connection between three commuter rail lines, the MBTA Red Line and four MBTA bus routes. Although three commuter rail lines go past JFK/UMass, not all trains serve the station. The following describes each public transportation route located in the vicinity of the Project site. The nearby public transit services are shown in Figure 2-8 and summarized in Table 2-1.

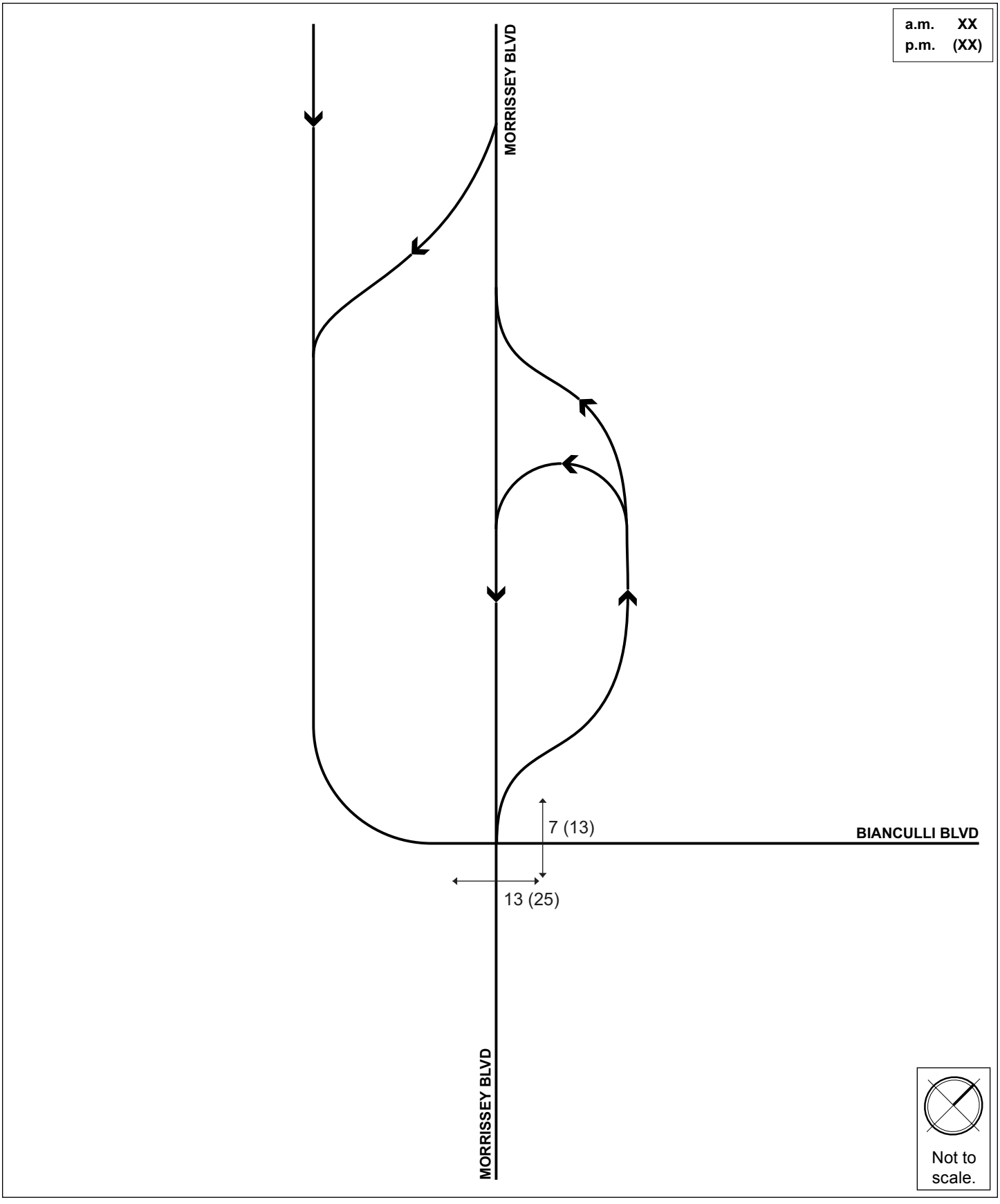

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Figure 2-5
Existing (2018) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

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Figure 2-7
Bicycle Sharing Services

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Figure 2-8
Public Transportation

Table 2-1 Existing Public Transportation Service Summary

Route	Description	Peak-hour Headway (minutes)*	Weekday Service Duration
Commuter Rail Route			
Greenbush	South Station—Greenbush	25	5:40 a.m.-10:57
Kingston/Plymouth	South Station – Kingston/Plymouth	25	5:32 a.m.-11:36
Middleborough/Lakevill	South Station – Middleborough/Lakeville	23	5:20 a.m.-11:27
Rapid Transit Routes			
Red Line	Alewife – Ashmont or Braintree	5-7	5:15 a.m.-1:05 a.m.
Local Bus Routes			
5	City Point-McCormack Housing	60	9:05 a.m.-3:24 p.m.
8	Harbor Point/UMass-Kenmore Station	15	5:15 a.m.-12:56 a.m.
16	Forest Hills Station-Andrew Station or	15	5:00 a.m.-1:29 a.m.
18	Ashmont Station-Andrew Station	30	6:30 a.m.-6:50 p.m.
41	Centre & Eliot Streets-JFK/UMass Station	20	4:58 a.m.-9:23 p.m.

* Headway is the time between service. Headways vary.

2.2.9 Existing (2018) Condition Traffic Operations Analysis

The criterion for evaluating traffic operations is level of service (LOS), which is determined by assessing average delay experienced by vehicles at intersections and along intersection approaches. 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 2000 Highway Capacity Manual (HCM).

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. Table 2-2 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 desirable during the peak hours of traffic in urban and suburban settings.

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 ratio (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.

Table 2-2 Vehicle Level of Service Criteria

Level of Service	Average Stopped Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
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.

The 95th percentile queue, measured in feet, denotes the farthest extent of the vehicle queue (to the last stopped vehicle) upstream from the stop line. This maximum queue occurs five percent, or less, of the time during the peak hour, and typically does not develop during off-peak hours. Since volumes fluctuate throughout the hour, the 95th percentile queue represents what can be considered a "worst case" condition. Queues at an intersection are generally below the 95th percentile length throughout most of the peak hour. It is also unlikely that 95th percentile queues for each approach to an intersection occur simultaneously.

Table 2-3 and Table 2-4 summarize the Existing (2018) Condition capacity analysis for the study area intersections during the weekday a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

Table 2-3 Existing (2018) Condition, Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	**F**	**84.2**	**-**	**-**	**-**
Bianculli Boulevard WB left | left	E	62.1	0.73	65	#164
Bianculli Boulevard WB right | right	A	5.4	0.27	0	14
Morrissey Boulevard NB thru | thru | thru	F	111.7	1.19	~772	#1350
Morrissey Boulevard NB right	B	10.3	0.45	53	209
Morrissey Boulevard SB thru | thru | thru	B	15.4	0.31	79	162
Morrissey Service Road SEB left | left | left/right	F	129.1	1.17	~122	#282
Morrissey Service Road SEB right	B	18.6	0.71	0	#123

Table 2-3 Existing (2018) Condition, Capacity Analysis Summary, Weekday a.m. Peak Hour (Continued)

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.11	-	0
Northbound u-turn	B	11.0	0.24	-	23
Morrissey Boulevard to Morrissey Service Road	-	-	-	-	-
Morrissey Boulevard SB thru	A	0.0	0.22	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.30	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.21	-	0
Morrissey Boulevard SWB left	C	16.6	0.51	-	73

Grey shading indicates an 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 shown is maximum after two cycles.

Table 2-4 Existing (2018) Condition, Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	D	37.2	-	-	-
Bianculli Boulevard WB left | left	E	64.8	0.91	~242	#356
Bianculli Boulevard WB right | right	A	7.5	0.29	0	36
Morrissey Boulevard NB thru | thru | thru	D	35.1	0.75	379	421
Morrissey Boulevard NB right	A	6.5	0.27	7	54
Morrissey Boulevard SB thru | thru | thru	C	34.8	0.74	373	435
Morrissey Service Road SEB left | left | left/right	C	33.1	0.93dr	105	143
Morrissey Service Road SEB right	D	48.9	0.96	123	#344

Table 2-4 Existing (2018) Condition, Capacity Analysis Summary, Weekday p.m. Peak Hour (Continued)

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.18	-	0
Northbound u-turn	D	30.7	0.83	-	221
Morrissey Boulevard to Morrissey Service Road	-		-	-	-
Morrissey Boulevard SB thru	A	0.0	0.39	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.25	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.31	-	0
Morrissey Boulevard SWB left	B	14.4	0.21	-	19

Grey shading indicates an 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 shown is maximum after two cycles.
dr Defacto right turn lane.

As shown in Table 2-3 and Table 2-4, the majority of intersections and approaches have acceptable operations (LOS D or better) under the Existing (2018) Condition with the following exception:

The **Morrissey Boulevard/Bianculli Boulevard** intersection operates at LOS F during the a.m. peak hour and LOS D during the p.m. peak hour. During the weekday a.m. peak hour there are heavy volumes along Morrissey Boulevard. The Bianculli Boulevard westbound left turn approach operates at LOS E during both the weekday a.m. and p.m. peak hours. The longest queues occur at the Morrissey Boulevard northbound approach ranging from 772 feet (31 vehicles) to 1350 feet (54 vehicles) during the weekday a.m. peak hour and the Morrissey Boulevard southbound approach ranging from 373 (15 vehicles) feet to 435 (17 vehicles) feet during the weekday p.m. peak hour.

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.

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. Six projects have been identified and were specifically accounted for in the future traffic growth. Figure 2-9 shows the specific development projects in the vicinity of the study area, which are summarized below:

Bayside DoubleTree Hotel Expansion – The Bayside DoubleTree Hotel is hotel located at 236 Mount Vernon Street that has 197 hotel rooms. This project will add an additional 86 hotel rooms to the rear of the existing hotel and will also reconfigure the site access by providing an additional full-access curb cut along Mount Vernon Street. There are currently 115 parking spaces currently provided and the project will add an additional 25 parking spaces. 50 secure and covered bicycle parking spaces will also be provided. This project has been approved by the BPDA board.

University Place Residences – This project will consist of 184 apartments units and approximately 10,000 sf of pedestrian oriented, neighborhood commercial space. A mix of underground parking, surface parking, and green space will also be constructed. This project has been approved by the BPDA board.

Washington Village – This project calls for the construction of eight new buildings consisting of approximately 894,600 sf of development. The project will include approximately 98,600 sf of retail space anticipated to include general retail, pharmacy, and grocery store uses. In addition, it will also include 656 residential units, and 560 parking spaces on-site with approximately 440 parking spaces in two garages and approximately 120 parking spaces dispersed in surface lots and on-street spaces internal to the site. This project has been approved by the BPDA board.

Boston Teachers Union Building Replacement Project – This project calls for the replacement of the site's existing 32,500 sf building with a new 52, 469 sf building. The site currently has 135 at-grade parking spaces on site. The project plans to add an additional garage with 173 spaces, for a total of 308 parking spaces on the site. No new building uses or additional employees are anticipated. This project has been approved by the BPDA board.

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Figure 2-9
Background Projects

South Bay – This project site consists of 10.6 acres and currently occupied by several commercial, industrial, and retail uses, as well as a concrete manufacturing facility, and a single family home. There are also 600 surface parking spaces on the site. Under the proposed project, all existing uses will be razed and replaced with a range of new uses that include a 12 screen movie theater, a 130 room hotel, 475 residential apartment units, and 113,000 sf of ground level retail. Parking for 1,095 vehicles will replace the existing 600 surface parking spaces resulting in a net increase of 495 spaces for the site. A parking garage will consist of 910 parking spaces and the remaining 185 spaces will be located in surface lots and on-street parking around the site. This project is currently under construction.

UMass Boston – The UMass 25-Year Campus Master Plan was completes in 2009 includes the development of eight new buildings including two new residence halls, and two new parking garages. The campus will also include significant landscaping and roadway improvements. Phase one is almost completed and includes the construction of the Integrated Sciences Complex, University Hall, renovations to the existing academic building, utility corridor and roadway relocations, and Harborwalk improvements and shoreline stabilization. The campus will continue to be under construction for the foreseeable future.

2.3.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted. DCR has proposed modifications to Morrissey Boulevard; however, at this time the design has not proceeded far enough to know the impact on the roadway geometry in the area. The Project team expects to continue to work with DCR and its consultant through their design process.

2.3.4 No-Build (2025) Condition Traffic Volumes

The one-half percent per year annual growth rate was applied to the Existing (2018) Condition traffic volumes, then the traffic volumes associated with the background development projects listed above was added to develop the No-Build (2025) Condition traffic volumes. The No-Build (2025) Condition, weekday a.m. and p.m. peak hour traffic volumes are shown on Figure 2-10 and Figure 2-11, respectively.

2.3.5 No-Build (2025) Condition Traffic Operations Analysis

The No-Build (2025) Condition capacity analysis summary uses the same methodology as the Existing (2018) Condition operations analysis. Table 2-5 and Table 2-6 present the No-Build (2025) Condition operations analysis for the weekday a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

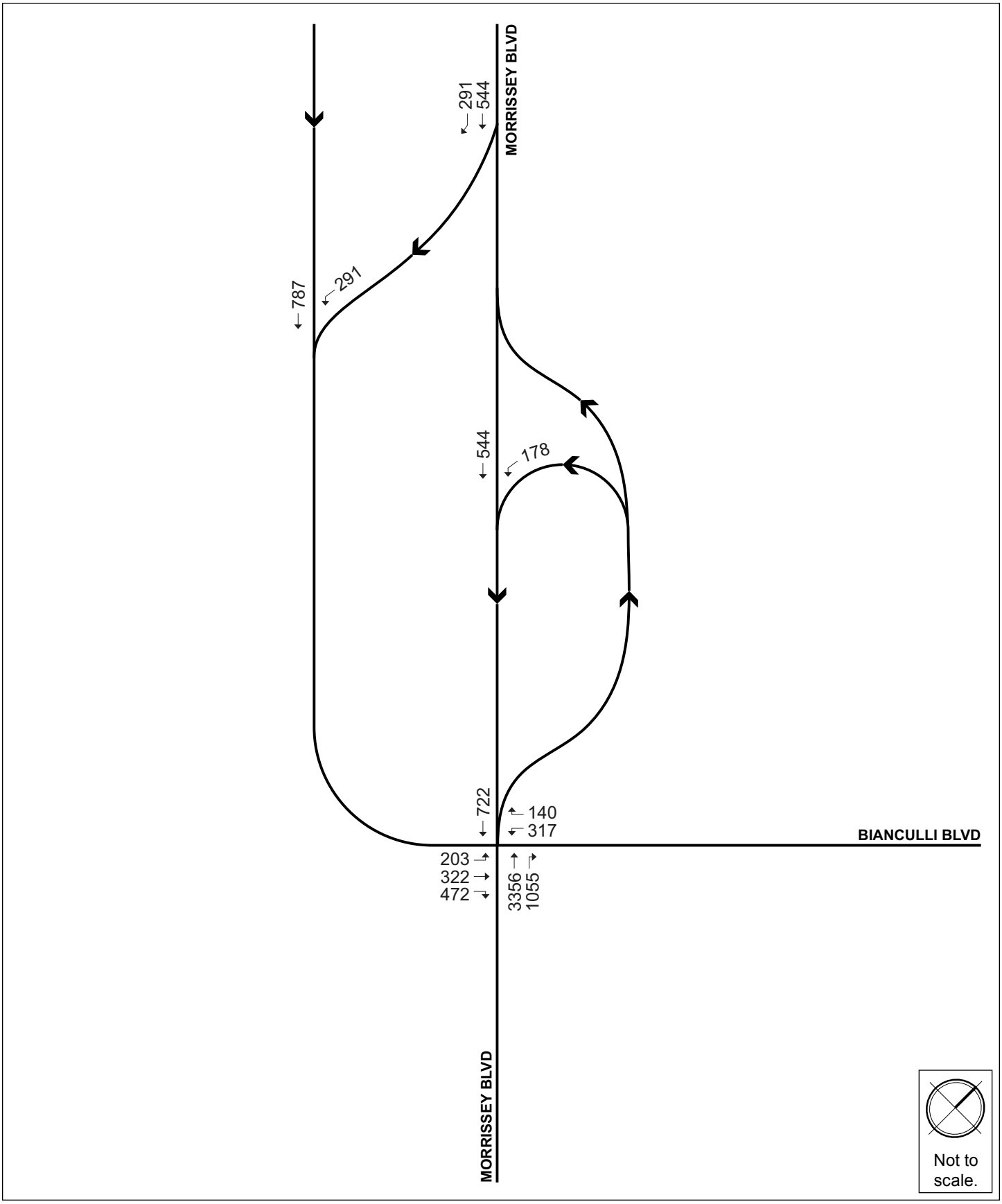

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Figure 2-10
No-build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

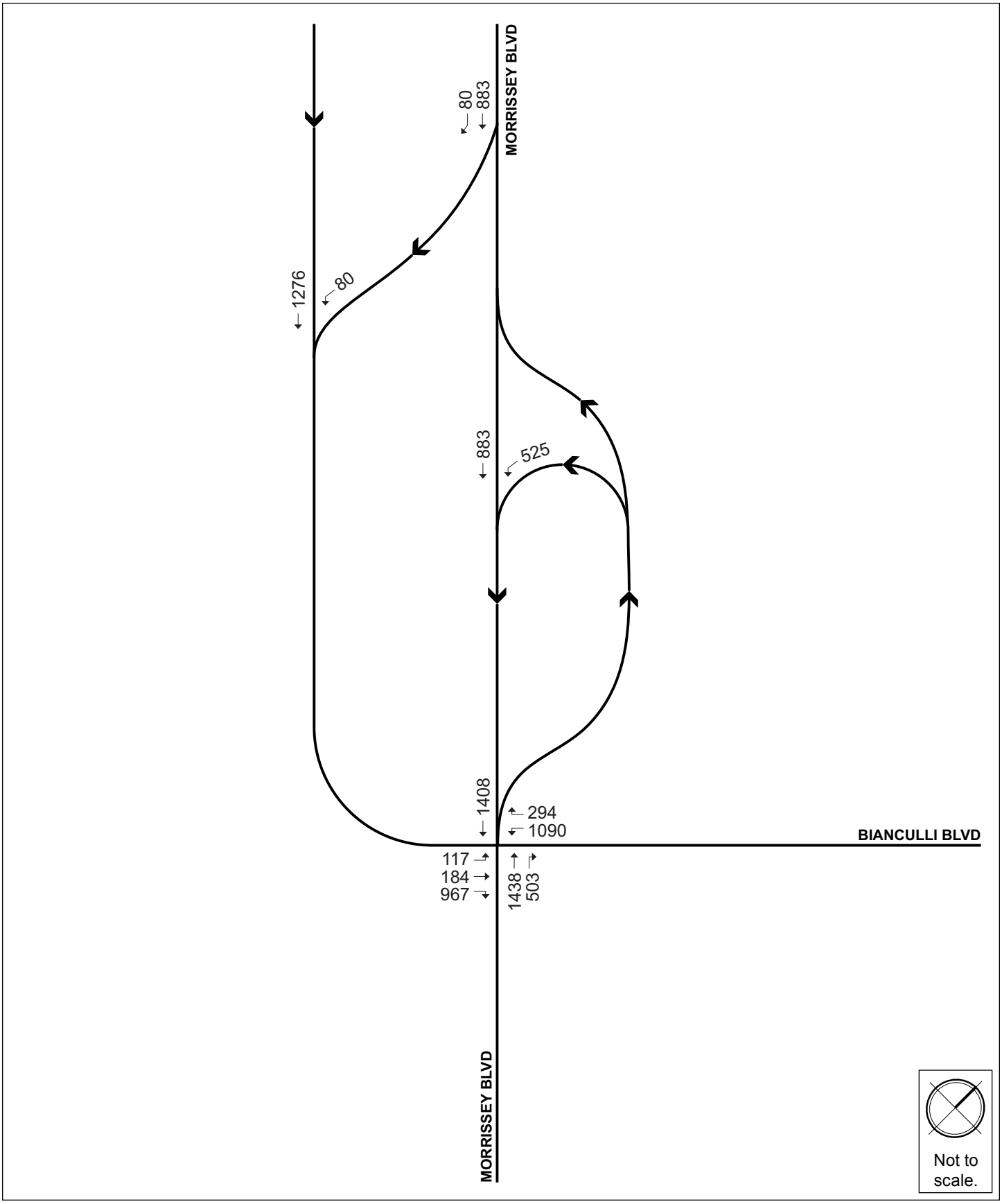

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Figure 2-11
No-build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

Table 2-5 No-Build (2025) Condition, Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	F	127.6	-	-	-
Bianculli Boulevard WB left | left	F	134.0	1.13	~107	#281
Bianculli Boulevard WB right | right	B	11.6	0.40	0	36
Morrissey Boulevard NB thru | thru | thru	F	163.0	1.30	~915	#1538
Morrissey Boulevard NB right	D	54.4	1.04	392	#1071
Morrissey Boulevard SB thru | thru | thru	B	15.6	0.33	86	174
Morrissey Service Road SEB left | left | left/right	F	251.6	1.47	~196	#386
Morrissey Service Road SEB right	B	18.7	0.72	0	#126
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.12	-	0
Northbound u-turn	B	11.2	0.25	-	25
Morrissey Boulevard to Morrissey Service Road	-	-	-	-	-
Morrissey Boulevard SB thru	A	0.0	0.24	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.32	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.26	-	0
Morrissey Boulevard SWB left	C	20.9	0.60	-	99

Grey shading indicates a decrease to LOS E or LOS F from the Existing (2018) Condition.
~ 50th percentile volume exceeds capacity. Queue shown is maximum after two cycles
# 95th percentile volume exceeds capacity. Queue shown is maximum after two cycles.

Table 2-6 No-Build (2025) Condition, Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	F	121.3	-	-	-
Bianculli Boulevard WB left | left	F	450.2	1.93	~775	#910
Bianculli Boulevard WB right | right	B	19.3	0.49	47	#99
Morrissey Boulevard NB thru | thru | thru	D	39.6	0.87	462	539
Morrissey Boulevard NB right	B	10.6	0.65	62	171
Morrissey Boulevard SB thru | thru | thru	D	36.1	0.78	401	466
Morrissey Service Road SEB left | left | left/right	E	72.9	1.21dr	~210	#279
Morrissey Service Road SEB right	F	129.6	1.20	~353	#566
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.19	-	0
Northbound u-turn	E	37.7	0.88	-	264
Morrissey Boulevard to Morrissey Service Road	-	-	-	-	-
Morrissey Boulevard SB thru	A	0.0	0.41	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.27	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.40	-	0
Morrissey Boulevard SWB left	C	17.5	0.27	-	26

Grey shading indicates a decrease to LOS E or LOS F from the Existing (2018) Condition.
95th percentile volume exceeds capacity. Queue shown is maximum after two cycles.
dr Defacto right turn lane.

As shown in Table 2-5 and Table 2-6, the majority of intersections and approaches continue to operate at acceptable levels (LOS D or better) under the No-Build (2025) Condition with the following exceptions:

- The intersection of **Morrissey Boulevard/Bianculli Boulevard** continue to operate at LOS F during the weekday a.m. peak hour and will decrease from LOS D to LOS F during the weekday p.m. peak hour under the No-Build (2025) Condition. The decrease in LOS primarily due to the impact of the UMass Boston campus expansion. The Bianculli Boulevard westbound left approach decreases from LOS E to LOS F during both the weekday a.m. and p.m. peak hours. The Morrissey Service Road south-eastbound left approach decreases from LOS C to LOS E and the Morrissey Service Road south-eastbound right approach decreases from LOS D to

LOS F during the weekday p.m. peak hour. The longest queue lengths continue to occur at the Morrissey Boulevard northbound approach during the weekday a.m. peak hour. The longest queue lengths during the weekday p.m. peak hour occur at Bianculli Boulevard also due to the UMass Boston expansion.

- At the intersection of Morrissey Boulevard/Northbound U-Turn, the northbound u-turn approach decreases from an LOS D to LOS E during the weekday p.m. peak hour under the No-Build (2025) Condition.

2.4 Build (2025) Condition

As previously summarized, the Project will consist of the rehabilitation of the former Boston Globe site. The future site will continue to consist of a 695,000 square foot building with the interior redevelopment consisting of 342,500 sf of office space, 342,500 sf of light industrial space, and 10,000 sf of retail/restaurant space.

Vehicular access to the site will be provided via two of the existing three curb cuts along Morrissey Boulevard Service Road (the middle of the three existing curb cuts will be eliminated). The Project also includes a shared-use path around the site, and future pedestrian and bicycle connections to the Savin Hill neighborhood and the Savin Hill MBTA station to highlight the transit-oriented nature of the site.

2.4.1 Site Access and Vehicle Circulation

Vehicular access to the Project site will be from two of the three existing curb cuts along the Morrissey Boulevard Service Road. The middle of the three curb cuts will be closed as part of the proposed Project. Pedestrian and bicycle access to the site will be enhanced by providing a multi-use path to the south connecting the Savin Hill neighborhood to the Project site. New pedestrian and bicycle connections will be made at the end of Savin Hill Court, Wave Avenue, and Sea View Terrace. The park at Patten's Cove will be enhanced with walking paths as well as an improved connection to Davitt Street. The primary entry to the building will be located at the southwest corner of the building. The site access plan is shown in Figure 2-12.

2.4.2 Project Parking

The Project is proposing to provide a total of 868 parking spaces. The parking goals developed by the BTD for this section of Dorchester (within a ten minute walk of an MBTA station) are a maximum of 0.75 to 1.25 parking spaces per 1,000 sf. The Project is providing a parking ratio of 1.25 parking spaces per 1,000 sf, which is within the allowable maximum. The Project includes electric vehicle charging station for 5% of the spaces with the infrastructure in place to increase the EV stations up to 15% of the spaces. Additionally the Proponent will engage in talks with vehicle sharing companies such as Zipcar to be able to accommodate car sharing services on-site.

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Figure 2-12
Site Plan

2.4.3 Loading and Service Accommodations

The Project will maintain the designated loading area along the north and west sides of the building. This loading area will be able to accommodate eight loading bays providing vehicles ranging from smaller box trucks (SU-36) to semi-tractor trailers (WB-50), access to the building.

Commercial land uses primarily generate frequent delivery trips related to small packages and less often larger deliveries in medium/heavy trucks. It is anticipated that the majority of the deliveries will occur between 7:00 a.m. and 1:00 p.m. Since the service area is located off the street, the truck activity will have minimal impact on the vehicular operations in the study area. It is expected that the proposed uses will generate approximately 80 vehicle trips per day. The deliveries will occur during normal business hours, while also limiting and scheduling deliveries to occur during non-commuter peak periods to minimize traffic and pedestrian conflicts and is expected.

The former Boston Globe building generated significant truck activity due to the wide variety of job types in producing and distributing the paper. It was estimated that the Globe site generated over 500 truck trips per day including several tractor trailers. Truck activity also occurred seven days a week and 24 hours a day.

2.4.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for employees and short-term bicycle racks for visitors. Based on BTD guidelines, the Project will supply 0.3 indoor secure bicycle parking/storage spaces for every 1,000 sf, as well as an appropriate number of outdoor public bicycle racks for visitors. In total the project will supply 209 indoor secured bicycle parking spaces for employees. Outdoor public bicycle racks throughout the Project site will also be provided for visitors.

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 110 – General Light Industrial. The General Light Industrial LUC is a free-standing facility devoted to a single use. The facility has an emphasis on activities other than manufacturing and typically has minimal office space. Typical light industrial activities include printing, material testing, and assembly of data processing equipment. Calculations of the number of trips use ITE's average rate per 1,000 square feet.

Land Use Code 710 – General Office Building. The Office Building LUC is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services, insurance companies, investment brokers, and tenant services, such as a bank or savings and loan institution, a restaurant, or cafeteria and service retail facilities. Calculations of the number of trips use ITE's average rate per 1,000 square feet.

Land Use Code 820 – Shopping Center. The Shopping Center LUC is defined as an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Calculations of the number of trips use ITE's average rate per 1,000 square feet.

2.4.6 Mode Share

BTD provides vehicle, transit, and walking mode split rates for different areas of Boston. The Project is located in Area 8 – Inner Red Line. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[2]. The person trips were then distributed to different modes according to the mode shares shown in Table 2-7.

1 Trip Generation Manual, 10th Edition; Institute of Transportation Engineers; Washington, D.C.; 2017.
2 Summary of Travel Trends: 2009 National Household Travel Survey; FHWA; Washington, D.C.; June 2011.

Table 2-7 Travel Mode Share

Land Use	Direction	Walk/ Bicycle Share	Transit Share	Auto Share	Vehicle Occupancy Rate
Daily					
Office Building/ Light Industrial	In	18%	12%	70%	1.13
	Out	18%	12%	70%	1.13
Shopping Center	In	29%	11%	61%	1.78
	Out	29%	11%	61%	1.78
a.m. Peak Hour					
Office Building/ Light Industrial	In	16%	15%	68%	1.13
	Out	23%	14%	63%	1.13
Shopping Center	In	27%	14%	59%	1.78
	Out	36%	12%	52%	1.78
p.m. Peak Hour					
Office Building/ Light Industrial	In	23%	14%	63%	1.13
	Out	16%	15%	68%	1.13
Shopping Center	In	36%	12%	52%	1.78
	Out	27%	14%	59%	1.78

2.4.7 Project Trip Generation

The mode share percentages shown in Table 2-7 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 2-8. The detailed trip generation information is provided in Appendix C.

Table 2-8 Project Trip Generation

Land Use		Walk/Bicycle Trips	Transit Trips	Vehicle Trips
Daily				
Light Industrial[1]	In	173	115	594
	Out	173	115	594
Office[2]	In	339	226	1,168
	Out	339	226	1,168
Shopping Center[3]	In	97	37	113
	Out	97	37	113
Total	**In**	**609**	**378**	**1,875**
	Out	**609**	**378**	**1,875**
	Total	**1,218**	**756**	**3,750**

Table 2-8 Project Trip Generation (Continued)

Land Use		Walk/Bicycle Trips	Transit Trips	Vehicle Trips
a.m. Peak Hour				
Light Industrial[1]	In	38	36	145
	Out	5	5	20
Office[2]	In	62	58	335
	Out	10	9	39
Shopping Center[3]	In	3	2	3
	Out	2	1	2
Total	**In**	**103**	**96**	**383**
	Out	**17**	**15**	**61**
	Total	**120**	**111**	**444**
p.m. Peak Hour				
Light Industrial[1]	In	7	4	19
	Out	49	30	118
Office[2]	In	16	10	40
	Out	86	52	209
Shopping Center[3]	In	12	4	9
	Out	13	4	11
Total	**In**	**35**	**18**	**68**
	Out	**148**	**86**	**338**
	Total	**183**	**104**	**406**

1 ITE Trip Generation Rate, 10th Edition, LUC 110 (Light Industrial), 342,500 sf.
2 ITE Trip Generation Rate, 10th Edition, LUC 710 (General Office Building), 342,500 sf.
3 ITE Trip Generation Rate, 10th Edition, LUC 820 (Shopping Center), 10,000 sf.

2.4.8 Trip Generation Comparison

The trip generation of the Boston Globe and the trip generation of the proposed Project were estimated based on ITE. Essentially, according to ITE, the only difference in the previous use and the Proposed Project is the introduction of a restaurant on the site.

However, based on anecdotal information, it is expected that the Globe generated a fundamentally larger volume of traffic than what is expected with the proposed Project. Unfortunately, the Project team was not able to obtain historical traffic data for the Boston Globe driveways when it was fully operational. According to the Due Diligence Report prepared in December 2014, the transportation impact of the Boston Globe was significant. It is likely that the ITE trip generation estimates due not accurately reflect the amount of activity that was being generated. However, without the benefit of actual traffic data, we are unable to quantify an accurate depiction of the traffic volume that was being generated by the previous use on site.

Not only was the traffic volume higher, the nature of the vehicles was also much more of a nuisance. As outlined in Section 2.4.3 the site had a large number of deliveries through the course of the day.

Based on ITE estimates, the vehicular trip generation associated with the Project is compared to the likely under estimated trip of the previous use on site in Table 2-9.

Table 2-9 Net New Project Vehicle Trip Generation

Direction	Existing[1]	Proposed[2]	Net New Trips[3]
Daily			
In	1,789	1,875	+86
Out	1,789	1,875	+86
Total	**3,578**	**3,750**	**+172**
a.m. Peak Hour			
In	387	383	-4
Out	59	61	+2
Total	**446**	**444**	**-2**
p.m. Peak Hour			
In	59	68	+9
Out	332	338	+6
Total	**391**	**406**	**+15**

1 ITE Trip Generation Rate, 10th Edition, LUC 110 (Light industrial) and 347,500 sf LUC 710 (General Office Building), 347,500 sf.
2 ITE Trip Generation Rate, 10th Edition, LUC 110 (Light Industrial), 342,500 sf, LUC 710 (General Office Building), 342,500 sf, and LUC 820 (Shopping Center), 10,000 sf.
3 Proposed trips minus existing trips.

2.4.9 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 8 – Inner Red Line, and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in Figure 2-13.

2.4.10 Build (2025) Condition Traffic Volumes

The vehicle trips were distributed through the study area. The Project-generated trips for the a.m. and p.m. peak hours are shown in Figure 2-14 and Figure 2-15, 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 2-16 and Figure 2-17, respectively.

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Figure 2-13
Trip Distributions

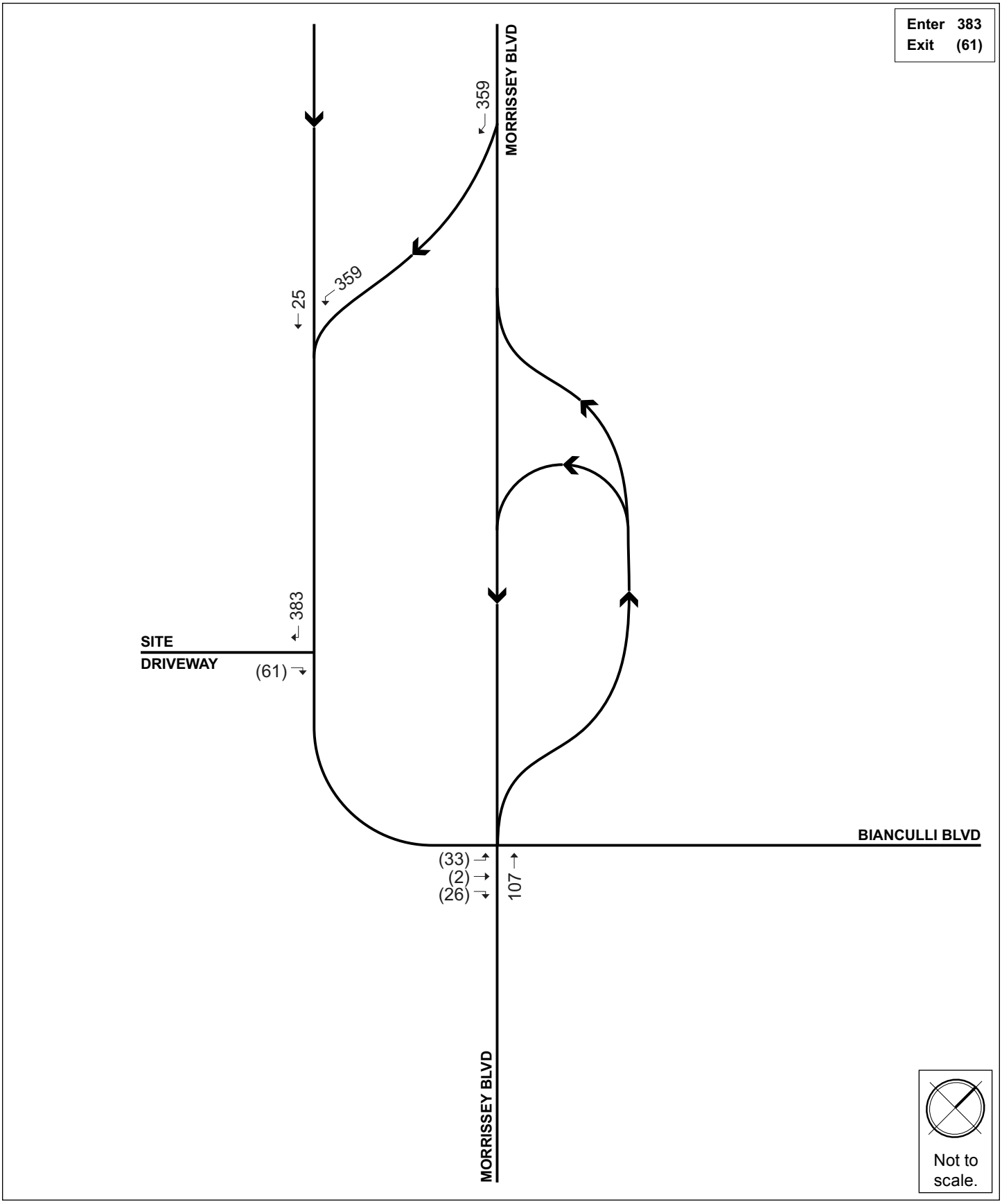

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Figure 2-14
Project-generated Vehicle Trips, Weekday a.m. Peak Hour

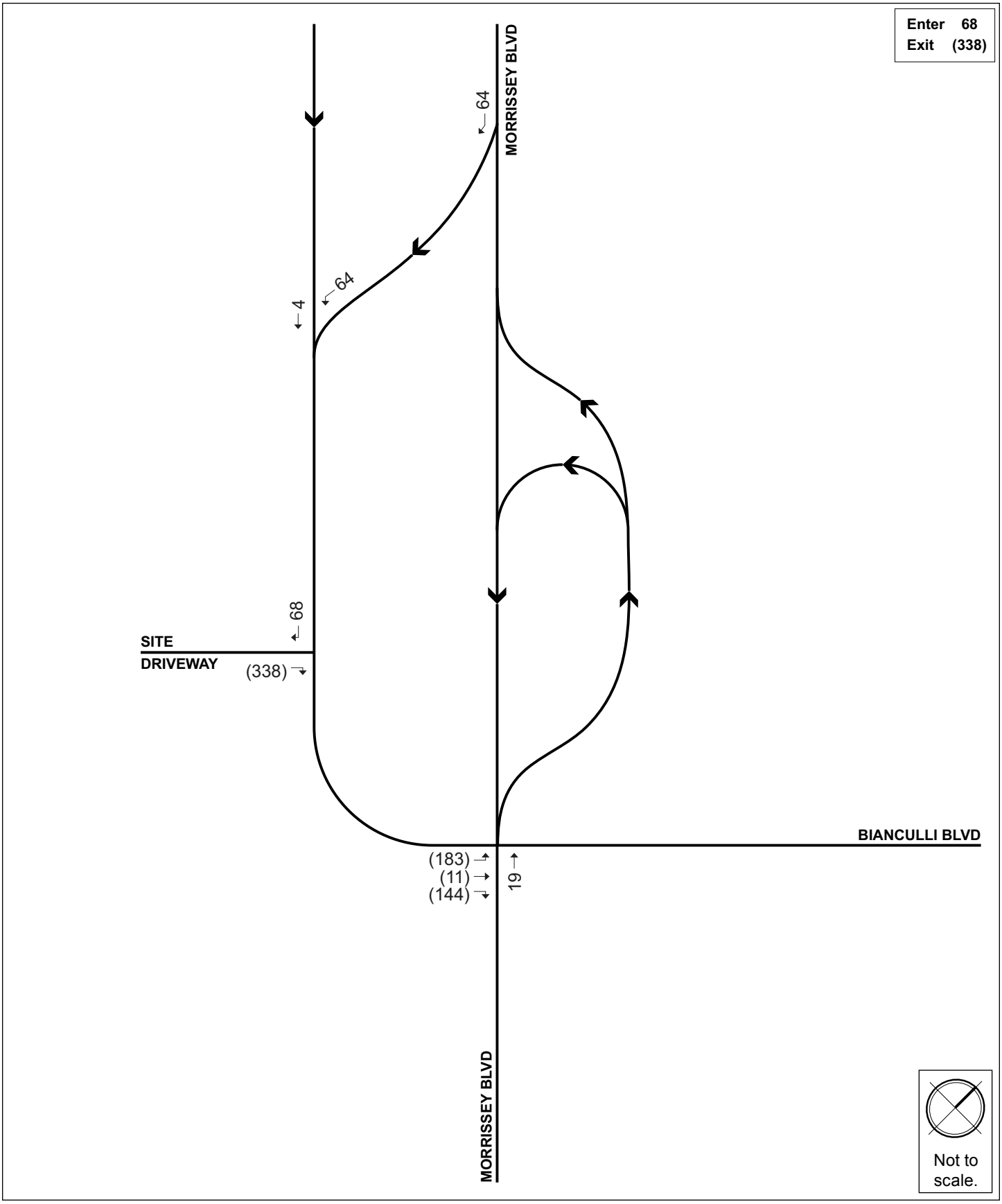

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Figure 2-15
Project-generated Vehicle Trips, Weekday p.m. Peak Hour

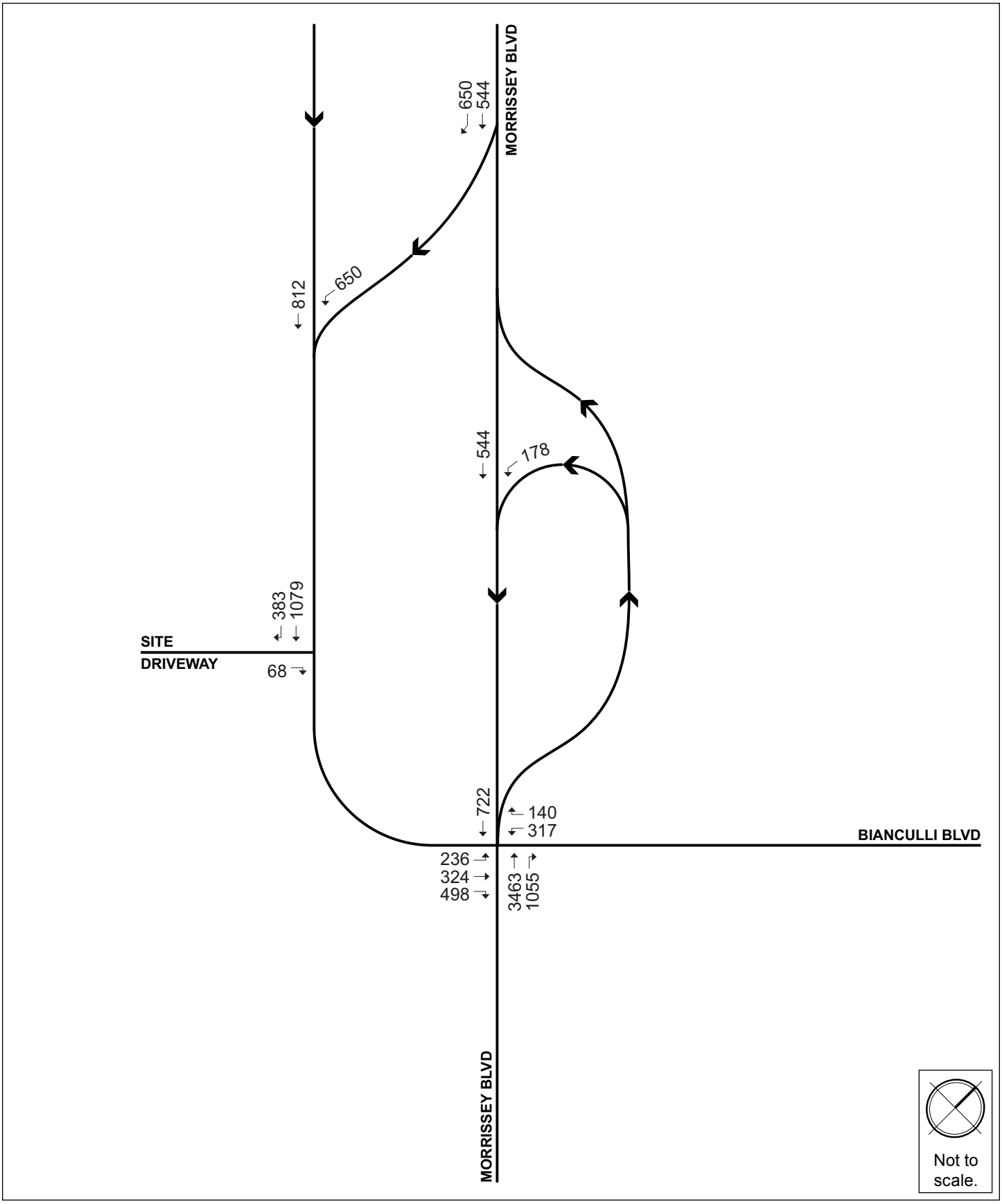

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Figure 2-16
Build (2025) Condition Traffic Volumes, Weekday a.m. Peak Hour

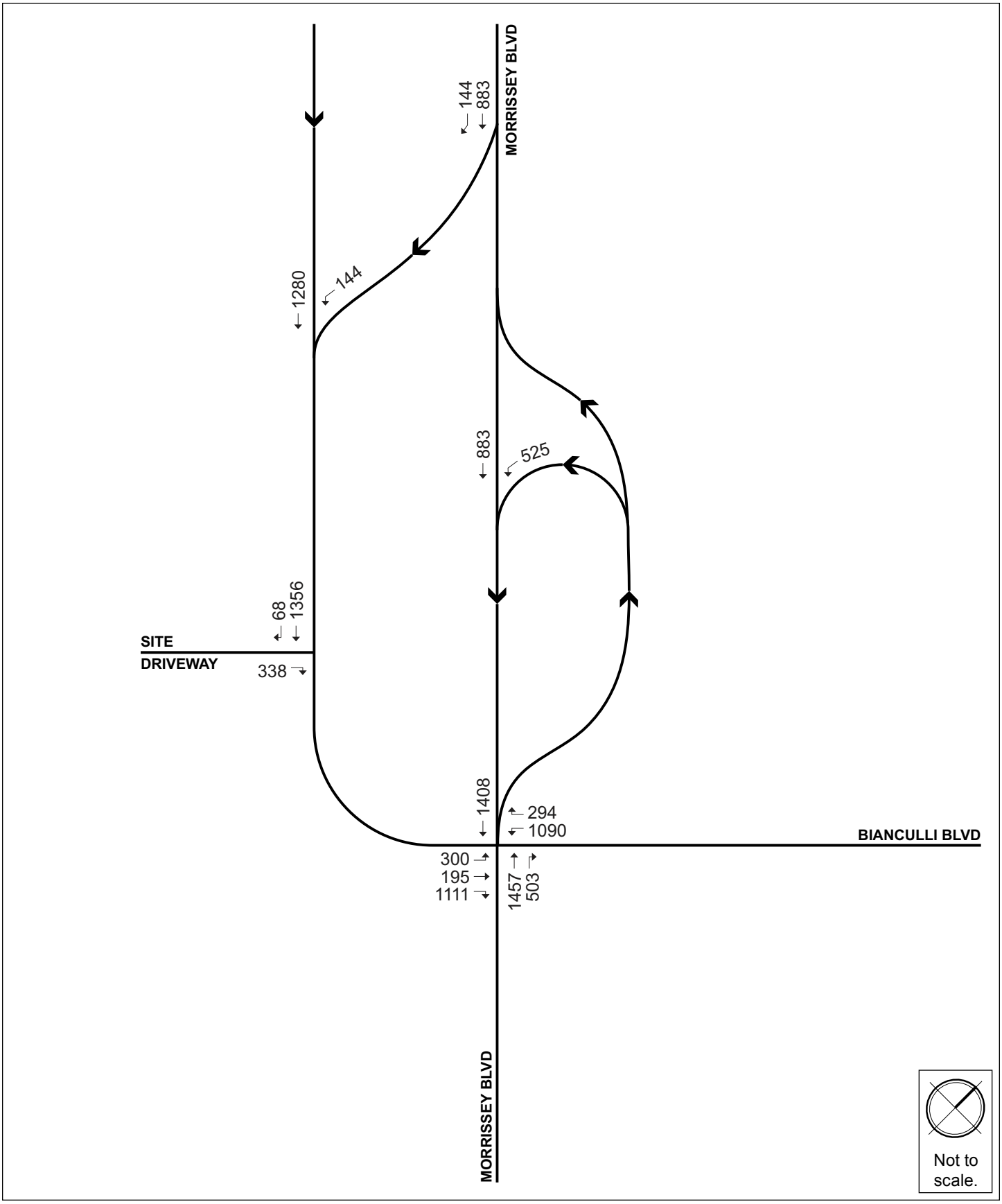

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Figure 2-17
Build (2025) Condition Traffic Volumes, Weekday p.m. Peak Hour

2.4.11 Build (2025) Condition Traffic Operations Analysis

The Build (2025) Condition analysis uses the same methodology as the Existing (2018) Condition analysis and No-Build (2025) Condition analysis. Table 2-10 and Table 2-11 present the Build (2025) Condition capacity analysis for the a.m. and p.m. peak hours, respectively. The detailed analysis sheets are provided in Appendix C.

Table 2-10 Build (2025) Condition, Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	F	143.1	-	-	-
Bianculli Boulevard WB left | left	F	134.0	1.13	~107	#281
Bianculli Boulevard WB right | right	B	11.6	0.40	0	36
Morrissey Boulevard NB thru | thru | thru	F	181.3	1.34	~966	#1604
Morrissey Boulevard NB right	E	56.9	1.05	406	#1085
Morrissey Boulevard SB thru | thru | thru	B	15.6	0.33	86	174
Morrissey Service Road SEB left | left | left/right	F	291.2	1.57	~219	#417
Morrissey Service Road SEB right	B	18.8	0.73	0	#131
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.12	-	0
Northbound u-turn	B	11.2	0.25	-	25
Morrissey Boulevard to Morrissey Service Road	-	-	-	-	-
Morrissey Boulevard SB thru	A	0.0	0.24	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.56	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.27	-	0
Morrissey Boulevard SWB left	F	200.0	1.37	-	832
Morrissey Boulevard Service Road/Site Driveway	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.28	-	0
Site Driveway EB right	B	14.5	0.15	-	13

Grey shading indicates a decrease to LOS E or LOS F from the No-Build (2025) Condition.
~ 50th percentile volume exceeds capacity. Queue shown is maximum after two cycles
# 95th percentile volume exceeds capacity. Queue shown is maximum after two cycles.

Table 2-11 Build (2025) Condition, Capacity Analysis Summary, Weekday p.m. Peak Hour

Intersection	LOS	Delay (seconds)	V/C Ratio	50th Percentile Queue Length (ft)	95th Percentile Queue Length (ft)
Signalized					
Morrissey Boulevard/Bianculli Boulevard	F	156.8	-	-	-
Bianculli Boulevard WB left | left	F	450.2	1.93	~775	#910
Bianculli Boulevard WB right | right	B	19.3	0.49	47	#99
Morrissey Boulevard NB thru | thru | thru	D	40.3	0.88	471	552
Morrissey Boulevard NB right	B	11.0	0.65	66	178
Morrissey Boulevard SB thru | thru | thru	D	36.1	0.78	401	466
Morrissey Service Road SEB left | left | left/right	F	256.8	1.66dr	~424	#492
Morrissey Service Road SEB right	F	205.4	1.38	~511	#730
Unsignalized					
Morrissey Boulevard/Northbound U-Turn	-	-	-	-	-
Morrissey Boulevard SB thru | thru | thru	A	0.0	0.19	-	0
Northbound u-turn	E	37.7	0.88	-	264
Morrissey Boulevard to Morrissey Service Road	-	-	-	-	-
Morrissey Boulevard SB thru	A	0.0	0.41	-	0
Morrissey Boulevard SB thru/right	A	0.0	0.32	-	0
Morrissey Service Road from Morrissey Boulevard	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.40	-	0
Morrissey Boulevard SWB left	C	22.4	0.48	-	63
Morrissey Boulevard Service Road/Site Driveway	-	-	-	-	-
Morrissey Service Road SB thru | thru	A	0.0	0.35	-	0
Site Driveway EB right	D	30.4	0.74	-	155

Grey shading indicates a decrease to LOS E or LOS F from the No-Build (2025) Condition.
~ 50th percentile volume exceeds capacity. Queue shown is maximum after two cycles
# 95th percentile volume exceeds capacity. Queue shown is maximum after two cycles.
dr Defacto Right Lane.

As shown in Table 2-10 and Table 2-11, all of the intersections and approaches are expected to continue to operate at acceptable levels (LOS D or better) or remain at the same level of service as the No-Build (2025) Condition, under the Build (2025) Condition with the following exceptions:

- The intersection of **Morrissey Boulevard/Bianculli Boulevard** continues to operate at LOS F during both the weekday a.m. and p.m. peak hour under the Build (2025) Condition. The Morrissey Boulevard northbound right approach decreases from

LOS D to LOS E during the weekday a.m. peak hour and the Morrissey Service Road south-eastbound shared left/right approach decreases from LOS E to LOS F during the weekday p.m. peak hour under the Build (2025) Condition.

- At the intersection of **Morrissey Service Road from Morrissey Boulevard,** the Morrissey Boulevard south-westbound approach decreases from an LOS C to LOS F during the weekday a.m. peak hour under the Build (2025) Condition.

2.5 Transportation Demand Management

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

On-site management will keep a supply of transit information (schedules, maps, and fare information) to be made available to the residents 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:

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

- **Orientation Packets**: The Proponent will provide orientation packets to new tenants containing information on available transportation choices, including transit routes/schedules and nearby vehicle sharing and bicycle sharing locations.

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

- **Subsidized Transit Passes**: Encourage employers to subsidize on-site full-time employees' purchase of monthly transit passes;

- **Guaranteed Ride Home**: Encourage employers to arrange to provide Guaranteed Ride Home during hours in which public transit service is no longer available to employee's home;

- **TMA Membership**: Provide access to information on area carpool and vanpool participants through the local TMA membership;
- **Real-Time Transit Board**: Provide information in real-time on travel alternatives for employees and visitors via the Internet and in the building lobby; and
- **Electric Vehicle Charging**: The Proponent will provide electric vehicle charging stations for 38 vehicles (5%) on site with the potential to expand to 113 vehicles (15%) should the need arise.
- **Vehicle Sharing Program**: The Proponent is actively working with Zipcar to provide car-sharing spaces on the site.
- **Bicycle Sharing Program**: The Proponent is actively working with Hubway to provide a bike-sharing dock on the site.
- **Bicycle Accommodation**: The Proponent will provide bicycle storage in secure, sheltered areas for employees as well as outdoor public use bicycle racks for visitors near building entrances.

2.6 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. Additionally the Proponent is committed to providing a new multi-use path throughout the site with enhanced and formalized connections to the Savin Hill neighborhood to the south. The park at Patten's Cove will also be enhanced with walking paths and landscaping.

The Proponent is responsible for preparation of the Transportation Access Plan Agreement (TAPA), a formal legal agreement between the Proponent and the BTD. The TAPA formalizes the findings of the transportation study, mitigation commitments, elements of access and physical design, travel demand management measures, and any other responsibilities that are agreed to by both the Proponent and the BTD. Because the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed measures listed above and any additional transportation improvements to be undertaken as part of this Project will be defined and documented in the TAPA.

The Proponent will also produce a Construction Management Plan (CMP) for review and approval by BTD. The CMP will detail the schedule, staging, parking, delivery, and other associated impacts of the construction of the Project. See Section 2.7 for additional information related to the CMP.

2.7 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.

Section 3.0

Environmental Protection Component

3.0 ENVIRONMENTAL PROTECTION COMPONENT

The Article 80 Development Review and Approval Process requires the Proponent to conduct those studies necessary to determine the potential for direct or indirect impact to the environment as a result of Project implementation. The following sections review the Project in light of the potential for environmental impact and include a number of in-depth studies focused upon those resources most likely to be present at or near the Project site.

3.1 Wind Analysis

The Project does not propose additional massing beyond the existing building footprint and outline. The proposed changes are not anticipated to have any effect on wind conditions in either the immediate or extended surroundings.

3.2 Shadow Analysis

The Project does not propose additional massing beyond the existing building footprint and outline. The proposed changes are not anticipated to create any net new shadow. The Project will have no net new shadow effect on open spaces, sidewalks, or other public areas adjacent to and in the vicinity of the Project site.

3.3 Daylight Analysis

The Project does not propose additional massing beyond the existing building footprint and outline. The proposed changes are not anticipated to affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of the Project site.

3.4 Solar Glare

It is not anticipated that the Project will include reflective glass or other reflective materials on the building facades that would result in adverse impacts from reflected solar glare from the Project. To the degree glass is incorporated into the existing building, the Project will incorporate low-E, high performance, non-reflective glass which reduces heat loads in warm weather and lowers heat loss during cool weather. The Proponent does not anticipate adverse solar glare impacts or any solar heat buildup in nearby buildings caused by window reflection.

The façade materials for the proposed buildings have not yet been finalized. The Proponent will, however, demonstrate during further design review that the materials selected will not create a visual nuisance and/or a hazard to motorists, boaters, or pilots (as it interferes with vision and concentration), and will employ mitigation measures to eliminate any adverse reflective glare should it be necessary.

3.5 Air Quality

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 doesn't 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.

3.5.1 National Ambient Air Quality Standards and Background Concentrations

Background air quality concentrations and federal air quality standards were utilized to conduct the above air quality impact analyses. 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.

3.5.1.1 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, the 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 3-1. Massachusetts Ambient Air Quality Standards (MAAQS) are typically identical to NAAQS (differences are highlighted in **bold** in Table 3.1).

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

Table 3-1 National (NAAQS) and Massachusetts (MAAQS) Ambient Air Quality Standards

Pollutant	Averaging Period	NAAQS ($\mu g/m^3$)		MAAQS ($\mu g/m^3$)	
		Primary	Secondary	Primary	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

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.

3.5.1.2 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 SO_2 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 $\mu g/m^3$. For annual PM-2.5 averages, the average of the highest yearly observations was used as the background concentration. To attain the one-hour NO_2 standard, the three-year average of the 98th percentile of the maximum daily one-hour concentrations must not exceed 188 $\mu g/m^3$.

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 1.9 miles northwest of the Project. A summary of the background air quality concentrations are presented in Table 3-2. Air quality in the vicinity of the site is generally good, with all local background concentrations found to be well below the NAAQS.

Table 3-2 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]	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]	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]	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.

3.5.2 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.

3.5.2.1 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 9 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, *Air Quality*.

Intersection Selection

One signalized intersection included in the traffic study meets the conditions described at the beginning of this section (see Section 2.0). The traffic volumes and LOS calculations provided in Section 2.0 form the basis of evaluating the traffic data versus the microscale thresholds. The intersection found to meet the criteria is the intersection of Morrissey Boulevard and Bianculli Boulevard.

Microscale modeling was performed for the intersections 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.[3]

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

[3] U.S. EPA, 2010. Using MOVES in Project-Level Carbon Monoxide Analyses. EPA-420-B-10-041

Receptors & Meteorology Inputs

A set of 122 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 intersection are presented in Figure 3-1, *Intersection of Morrissey Boulevard and Bianculli Boulevard.*

For the CAL3QHC model, limited meteorological inputs are required. Following EPA guidance[4], 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°, at every 10° were selected. A surface roughness length of 127 centimeters was selected due to the water and park areas located adjacent to the intersection.[5]

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.[6] 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.

3.5.2.2 Air Quality Results

The results of the maximum one-hour predicted CO concentrations from CAL3QHC are provided in Tables 3-3 through 3-5 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.[7]

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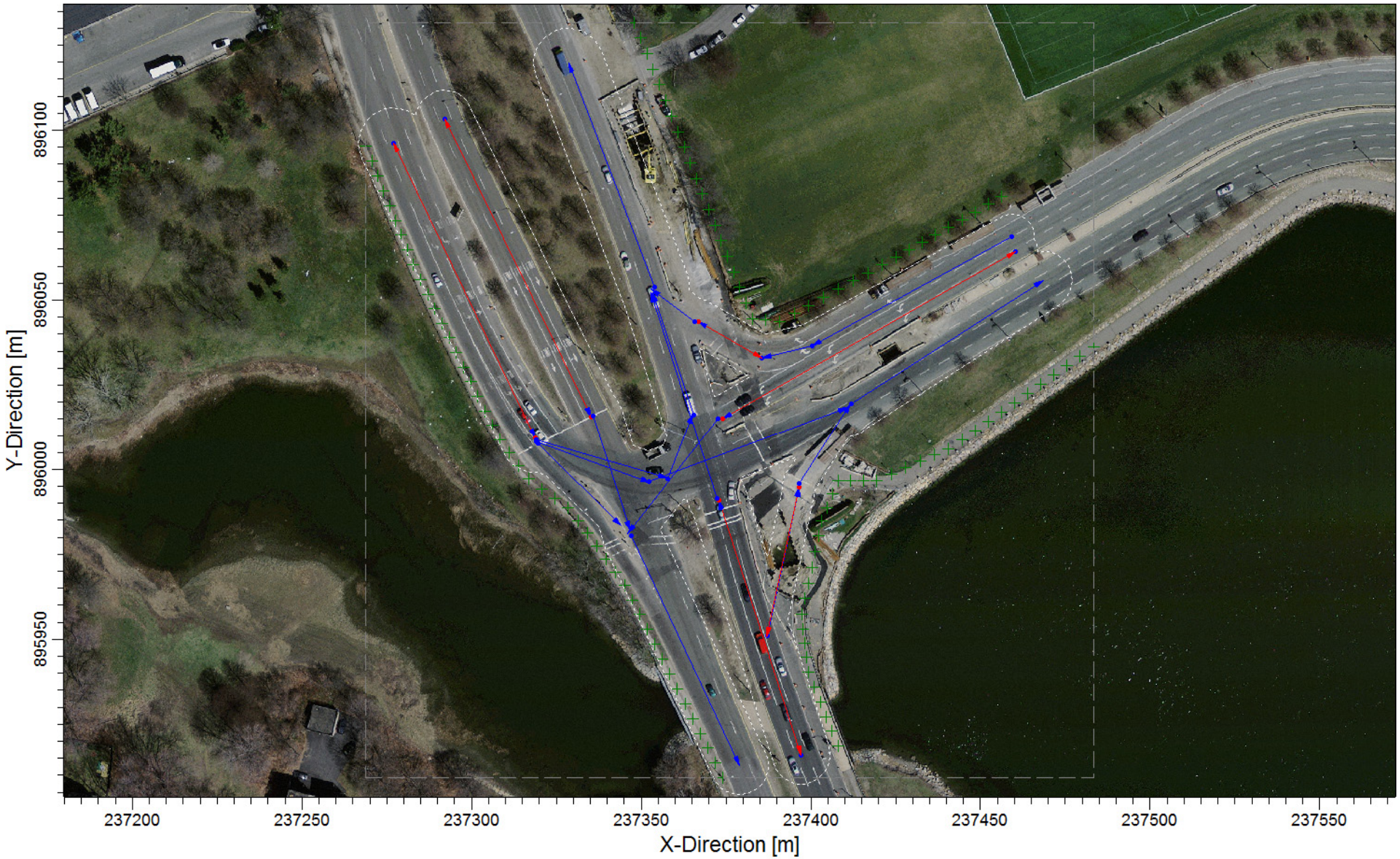
4 U.S. EPA, Guideline for Modeling Carbon Monoxide from Roadway Intersections. EPA-454/R-92-005, November 1992.

5 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.

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

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



Nordblum 135 Morrissey Boulevard, Boston, MA

Epsilon ASSOCIATES INC.

Figure 3-1

Intersection of Morrissey Boulevard and Bianculli Boulevard

Table 3-3 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					
Morrissey Boulevard and Bianculli Boulevard	AM	0.6	2.4	3.0	35
	PM	0.6	2.4	3.0	35
8-Hour					
Morrissey Boulevard and Bianculli Boulevard	AM	0.5	1.8	2.3	9
	PM	0.5	1.8	2.3	9
Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening factor of 0.9.					

Table 3-4 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					
Morrissey Boulevard and Bianculli Boulevard	AM	0.4	2.4	2.8	35
	PM	0.4	2.4	2.8	35
8-Hour					
Morrissey Boulevard and Bianculli Boulevard	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 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					
Morrissey Boulevard and Bianculli Boulevard	AM	0.4	2.4	2.8	35
	PM	0.5	2.4	2.9	35
8-Hour					
Morrissey Boulevard and Bianculli Boulevard	AM	0.4	1.8	2.2	9
	PM	0.5	1.8	2.3	9

Notes: CAL3QHC eight-hour impacts were conservatively obtained by multiplying one-hour impacts by a screening 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" worst case meteorology. The highest one-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.6 ppm) plus background (2.4 ppm) is 3.0 ppm. The highest eight-hour traffic-related concentration predicted in the area of the Project for the modeled conditions (0.5 ppm) plus background (1.8 ppm) is 2.3 ppm. All concentrations are well below the one-hour NAAQS of 35 ppm and the eight-hour NAAQS of 9 ppm.

3.5.2.3 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 Water Quality and Stormwater Management

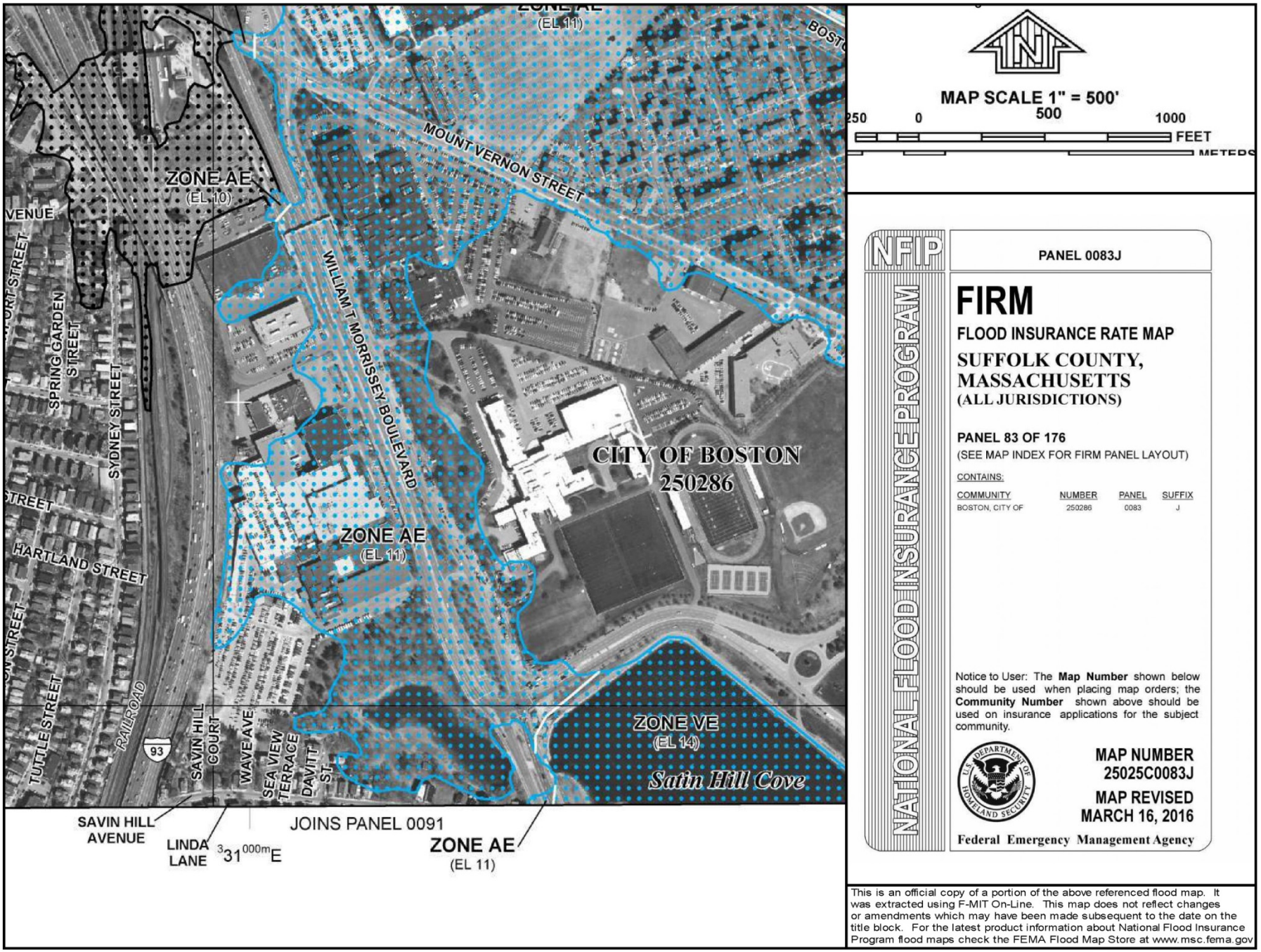
The protection of site groundwater and nearby surface waters is discussed in Section 3.7, *Flood Hazard Districts / Wetlands*, and Section 3.8, *Geotechnical and Groundwater Conditions*, below. Site stormwater management is detailed in Section 7.3. *Stormwater Management System*.

3.7 Flood Hazard Districts / Wetlands

The existing Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Project site indicates that much of it is located within a designated 100-year flood zone (FIRM, City of Boston, Community-Panel Number 25025C0083J, Effective Date March 16, 2016). The extent of the flood zone on the site is shown in Figure 3-2, *Project Site – FEMA Flood Insurance Rate Map*. As discussed in Section 4.0 *Sustainable Design and Climate Change Adaptation*, the re-development and repair of the site and buildings will recognize and account for the site's location proximate to the Patten's Cove and within a designated flood zone, as well as the potential impacts of sea level rise.

The existing building and its associated driveways and parking areas occupy nearly the entire site, the exception being narrow landscaped areas at the front of the building along Morrissey Boulevard. There are no wetland resource areas on the site other than the land subject to flooding referenced above. The closest wetland resource areas are the coastal bank and vegetated wetlands located along the tidal creek of Patten's Cove, which are located 230 to 270 feet south and east of the site. Under the Massachusetts Wetlands Protection Act (WPA), lands identified as coastal floodplains are regulated as Land Subject to Coastal Storm Flowage (LSCSF). The WPA regulations do not identify specific performance standards for work within LSCFS, but it is assumed that any such work should recognize and account for the potential for flooding, and should not exacerbate any flood condition. As noted above, the Project will account for this potential, as well as those associated with sea level rise. A Notice of Intent will be filed with the Boston Conservation Commission for all work within the LSCFS of the site.

Meanwhile, the re-development of the site will have the benefits of an increase in the pervious area of the site, resulting in additional stormwater recharge, and the introduction of stormwater controls compliant with the MassDEP Stormwater Management Policy. These improvements should result in an improvement in the quality of runoff from the site and a net benefit to the quality of the waters of Boston Harbor.



135 Morrissey Boston, Massachusetts

Epsilon ASSOCIATES INC.

Figure 3-2

Project Site – FEMA Flood Insurance Rate Map

3.8 Geotechnical / Groundwater Conditions

The following sections summarize the subsurface soil and groundwater conditions at the Project site, the planned sub-grade construction activities, and mitigation measures designed to protect adjacent lands and structures during any foundation and below-grade construction activities.

3.8.1 Subsurface Soil and Bedrock Conditions

A limited subsurface exploration program comprised of three test borings was conducted at the site by Haley & Aldrich, Inc. in connection with a preliminary evaluation of the site. The borings ranged in depth from 42 to 129 feet below the ground surface. In addition, a review was conducted of borings conducted historically at the site and surrounding area. The results of these investigations are summarized below.

Prior to construction of the original Boston Globe facility in the 1950s, the property consisted of a mix of upland and marshy, low-lying land crossed by stream channels and gullies. The site was filled and graded in several stages in the 1930s, with the final grading performed as part of site preparation activities for the construction of the Boston Globe buildings.

In general, the site is underlain by undocumented, miscellaneous fill and soft organic soils which, in turn, overlie a thick, complex sequence of naturally-deposited inorganic sediments and then bedrock. Similar to other nearby sites, explorations on the site have encountered the following generalized strata, progressing downward from ground surface. Some strata may not occur at all locations.

Miscellaneous Fill. Beneath pavements or landscaping materials, the site is generally underlain by miscellaneous Fill, typically consisting of sandy sediment with varying amounts of silt, gravel, bricks, concrete, ash, coal, cinders, glass and other rubble. The Fill is anticipated to range in thickness from approximately 8 to 15 feet.

Organic Deposits. The miscellaneous Fill is directly underlain by soft to stiff organic sediment consisting of varying amounts of organic silt, peat, and root fibers. The Organic Deposits were encountered in each of the recent test borings, but were not encountered in all historic explorations. Where present, the Organic Deposits are anticipated to range in thicknesses of up to approximately 14 feet.

Marine Deposits. Below the Fill and/or Organic Deposits, Marine Deposits typically consist of soft to very stiff, yellow-brown to olive-brown silty clay and sandy clay with frequent fine sand partings. The Marine Deposits range in thickness from approximately 40 to 100 feet.

Glacial Deposits. Complex and variable Glacial Deposits are typically present beneath the Marine Deposits, and consist of dense to very dense sandy sediments with varying amounts of gravel, cobbles and boulders, as well as medium dense brown clayey sand to very stiff

gray brown clay, with varying amounts of silt and gravel and frequent interbedded layers of fine sand and silt (Glaciofluvial Deposits, Glacial Till, and Glaciomarine Deposits). The combined thickness of the Glacial Deposits in test borings has ranged from approximately 5 to 35 feet, locally thicker in the southeast portion of the site. Cobbles and boulders should be anticipated within the Glacial Deposits.

Bedrock. The underlying Bedrock has typically been identified as an argillite, a moderately metamorphosed shale (the Cambridge Argillite formation). In general, Bedrock has been encountered beneath the overburden at depths ranging from about 90 to 150 feet below ground surface. One of the three most recent borings encountered a "refusal" at a depth of approximately 62 feet below ground surface; possibly indicative of a boulder within the Glacial Deposits, rather than bedrock.

3.8.2 Groundwater Conditions

Based upon observations made during the conduct of the above test borings, groundwater levels are generally believed to have average depth of seven to nine feet below grade, and to slope toward the waters of Patten's Cove. This would be consistent with other findings in the area, and with the hydrologic setting of the site. Groundwater levels can be expected to fluctuate several feet in response to seasonal meteorological conditions.

The site is not within a City of Boston Groundwater Conservation Overlay District.

3.8.3 Construction and Foundation Methodology and Considerations

The Project entails the renovation and re-vitalization of an existing building. The existing foundation consists of building piles with grade beams and structural floor slabs. New foundation work will be limited to the southeast corner of the building, where the existing covered loading dock will be enclosed. The work will entail the installation of a new grade beam along the perimeter between the existing pile caps. Approximately 25 new 60- to 80-ton mini piles will be installed between each of the exterior columns, between the exterior and first interior columns, and at mid bay. A new, ten inch structural slab will then be installed so as to be supported by the new exterior grade beam, piles, and pile caps.

3.9 Solid and Hazardous Waste

Waste generated by the built Project will be significantly reduced by the implementation of recycling and other waste management programs instituted throughout the Project and tailored to the specifics of the various Project components. The following sections include an estimation of the solid waste volumes to be associated with the Project and the status of the Project site under the Massachusetts Contingency Plan (MCP).

3.9.1 Operation Solid and Hazardous Waste

The Project will generate solid waste typical of a mixed use, office and light industrial developments. Table 3-6, *Solid Waste Generation*, includes a break-out of the anticipated waste volumes by program use. Based on the waste generation rates identified therein, the Project could be anticipated to generate approximately 1,441 tons of waste per year. However, as also noted below, all aspects of the Project program will include pro-active recycling components designed to dramatically lower these waste generation rates.

Table 3-6 Solid Waste Generation

Use	Program	Generation Rate	Solid Waste (tons per year)
Office / Business	360,000 sf	1.3 tons/1,000 sf/year	468
Light Industrial/Warehouse	300,000 sf	2.6 tons/1,000 sf/year	780
Restaurant/Retail/Food Service/Fitness	35,000	5.5 tons/1,000 sf/year	193
Total Solid Waste Generation			**1,441**

Solid waste generated by the Project is expected to be typical of a mixed-use project. Office waste is likely to include wastepaper, cardboard, glass, and bottles, while the waste stream of the light industrial and warehouse tenants will vary by type. Portions of the waste will be recycled as described below. The remainder of the waste will be compacted and removed by a waste hauler contracted by building management. With the exception of "household hazardous wastes" typical of an office development (for example, cleaning fluids and paint), the Project will not generate hazardous waste.

Additional waste will potentially be generated by the general public utilizing the public sidewalk at the Project perimeter. Trash receptacles will be provided in these public areas in locations that will not impede pedestrian circulation. Building management will ensure that these receptacles are emptied daily and will inspect the site for strewn trash daily.

3.9.2 Recycling During Operation

Recycling by commercial, industrial, and office tenants will be required, coordinated, and comprehensive. To encourage recycling, the Proponent will implement a recycling program throughout the Project that includes single-stream recycling collection for standard recycling items such as beverage containers, bottles, jars, plastic, paper and cardboard. This will include space for recycling on each floor, while the loading/receiving area will include space for the storage and pick-up of recyclable materials. Recyclable materials will

include newspaper, cardboard, glass, cans, and plastics. Building management will also provide tenants with the facilities and services necessary to recycle nonstandard recyclable materials such as light bulbs, batteries, paint cans, and clothing.

Finally, in compliance with the Massachusetts Food Waste Ban regulations (310 CMR 19.000) promulgated by MassDEP, restaurant and food service operators will be required to implement waste food reduction and food waste segregation programs.

To the degree the Project includes tenants whose light industrial activities generate other nonstandard or hazardous waste, such tenants will be required by lease to demonstrate both a high commitment to recycling as appropriate to the industry in question, as well as compliance with the Massachusetts Contingency Plan (MCP) as regards shipping, handling and disposal of any regulated materials.

3.9.3 Hazardous Materials – Compliance with the Massachusetts Contingency Plan

Currently, there are five underground storage tanks (USTs) located on-site, each of which passed tightness testing in May 2017. It is anticipated that these USTs will be removed from the site in accordance with state and local regulations.

A MCP Phase 1 site evaluation was performed at the site in 2017, prior to the Proponent's acquisition of the site. The Phase 1 evaluation identified an Activity and Use Limitation (AUL) implemented to address releases from Underground Storage Tanks (USTs) that were removed from the Project site between 1988 and 1993. The Phase 1 also identified historic on-site releases of fuel oil and hydraulic fluid. Each of these releases has reportedly achieved MCP regulatory closure with MassDEP.

Additional characterization of the site's soil and groundwater will be conducted and, if necessary, soil and groundwater will be managed in accordance with applicable local, state, and federal laws and regulations. During any excavation activities, soils exported from the site will be managed for off-site disposal in accordance with the current regulations and policies of MassDEP. Asbestos and hazardous materials evaluations will be conducted prior to commencing demolition activities, and asbestos containing materials (ACM) or other hazardous materials will be removed in accordance with local, state, and federal regulations by a Massachusetts-licensed abatement contractor.

3.10 Noise Impacts

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, predicted Project sound levels to applicable City of Boston Zoning District Noise Standards.

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

3.10.1 Noise Terminology

There are several ways in which sound (noise) levels are measured and quantified, all of which use the logarithmic decibel (dB) scale. The following section defines the noise terminology used in this analysis.

The decibel scale is logarithmic to accommodate the wide range of sound intensities observed in the environment. A property of the decibel scale is that the sound pressure levels of two distinct sounds are not purely additive. For example, if a sound of 50 dB is added to another sound of 50 dB, the total is only a three-decibel increase (53 dB), not a doubling (100 dB). Thus, every three-decibel change in sound level represents a doubling or halving of sound energy. A change in sound level of less than three dB is generally imperceptible to the human ear.

Another property of the decibel scale is that if one source of noise is 10 dB (or more) louder than another source, then the total combined sound level is simply that of the louder source (i.e., the quieter source contributes negligibly to the overall sound level). For example, a source of sound at 60 dB plus another source at 47 dB is 60 dB.

The sound level meter used to measure noise is a standardized instrument.[8] 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 because it most closely approximates how the human ear responds to sound at various frequencies, described in Hertz (Hz). A-weighted sound levels, reported in "dBA", emphasize middle frequencies (i.e., middle pitched—around 1,000 Hertz sounds), and de-emphasize lower and higher frequencies and are broadly accepted for sound level measurements and permitting efforts.

Because sounds in the environment vary with time, they are usually described with more than simply a single number. Two methods are used for describing variable sounds, exceedance levels and the equivalent level, both of which are derived from a large number of moment-to-moment, A-weighted sound 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. Several sound level metrics that are commonly reported in community noise studies are described below.

[8] *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.

- L_{90} is the sound level in dBA exceeded 90 percent of the time during the 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}, the equivalent level, is the level of a hypothetical steady sound that would have the same energy (i.e., the same time-averaged mean square sound pressure) as the actual fluctuating sound observed. 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 linear mean square sound pressure values, the L_{eq} is mostly determined by occasional loud, intrusive noises.

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 sound level modeling is used in assessing compliance with the City of Boston noise regulations.

3.10.2 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 considered unreasonable or excessive; specifically, louder than 50 decibels between the hours of 11:00 p.m. and 7:00 a.m., or louder than 70 decibels at all other hours. The Boston Air Pollution Control Commission (APCC) has adopted regulations based on the City's ordinance - "*Regulations for the Control of Noise in the City of Boston*", which distinguish among residential, business, and industrial districts in the City. In particular, APCC Regulation 2 is applicable to the sounds from the proposed Project and is considered in this noise study.

Table 3-7*, City Noise Standards, Maximum Allowable Sound Pressure Levels*, presents the "Zoning District Noise Standards" contained in Regulation 2.5 of the APCC "*Regulations for the Control of Noise in the City of Boston*," adopted December 17, 1976. Table 3-7 identifies the maximum allowable sound pressure levels when measured 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 3-7 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.

3.10.3 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 in the vicinity of the Project site include: vehicular traffic along local roadways (Morrissey Boulevard, Sydney Street, Sudan Street, Davitt Street); birds; MBTA trains; insects; wind; overhead planes; occasional sirens; pedestrian traffic; mechanical noise from the existing structures on the Project parcel; and the general city soundscape.

3.10.3.1 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 a "quiet period" for the area. Daytime measurements were scheduled to avoid peak traffic conditions. Sound level measurements were made on: Wednesday January 3, 2018 and Thursday January 4, 2018.

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.

3.10.3.2 Noise Monitoring Locations

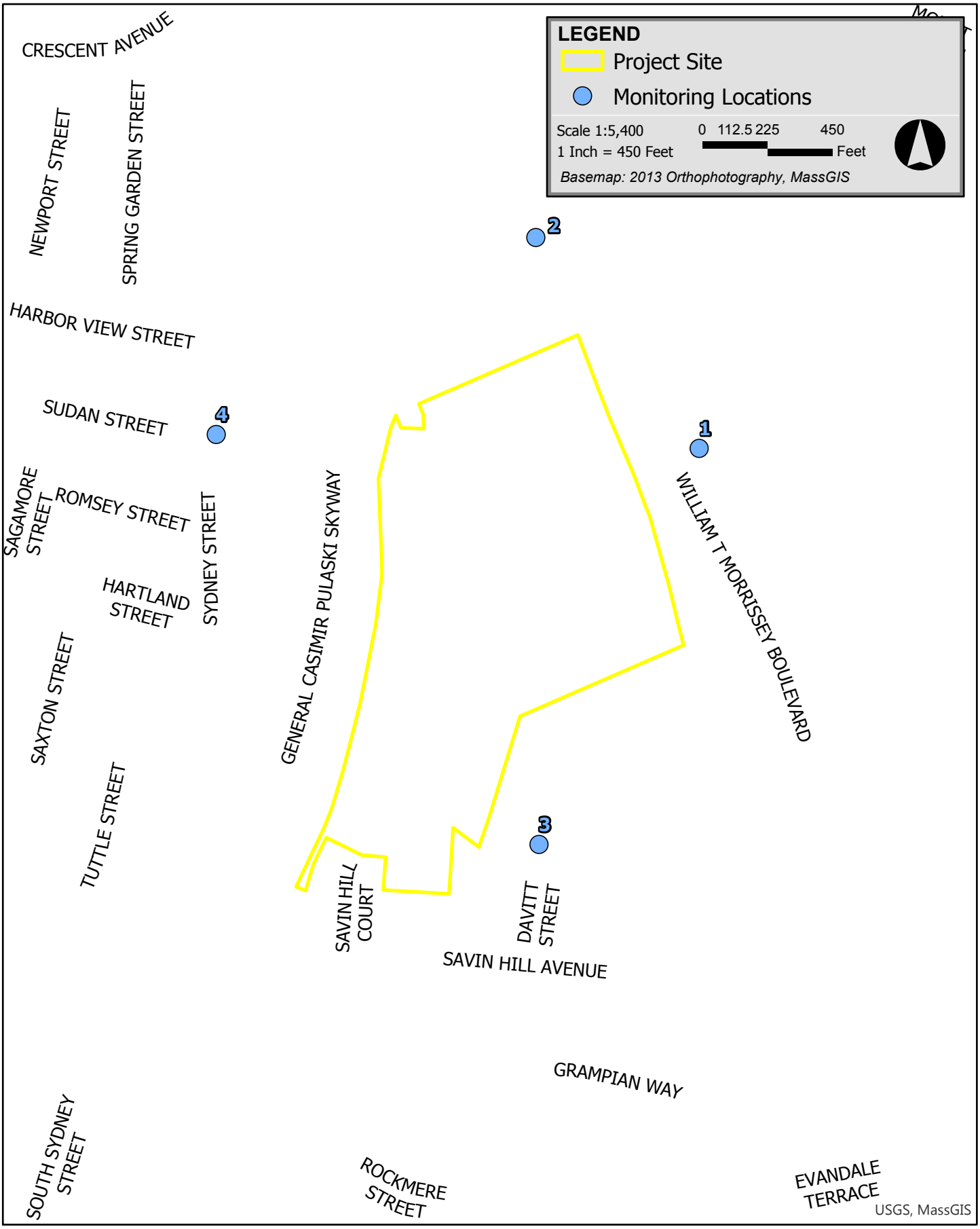
The selection of the noise monitoring locations was based upon a review of zoning and land use in the Project area. Four noise monitoring locations were selected as representative sites to obtain a sampling of the ambient baseline noise environment. These measurement locations are depicted on Figure 3-3, *Sound Monitoring Locations*, and described below.

- **Location 1** – Location 1 was situated on the eastern sidewalk of Morrissey Boulevard outside of Boston College High School and across from the main entrance of the Boston Globe building. This location is representative of the closest sensitive receptors to the east of the Project.

- **Location 2 –** Location 2 was situated outside of #55 Morrissey Boulevard, on the western sidewalk. This location is representative of receptors north of the Project site.

- **Location 3 –** Location 3 was located in the Patten's Cove park at the northern end of Davitt Street. This location is representative of residential receptors to the south of the Project site.

- **Location 4** – Location 4 was located on the eastern sidewalk of Sydney Street, between numbers 143 and 141. This location is representative of the closest residential receptors to the west of the Project.



135 Morrissey Blvd Boston, Massachusetts

Figure 3- 3

Sound Monitoring Locations

3.10.3.3 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 (L_{eq}, L_{90}, etc.) were calculated for each 20-minute sampling period, with octave-band sound levels corresponding to the same data set processed for the broadband levels.

3.10.3.4 Measured Background Noise Levels

Baseline noise monitoring results are presented in Table 3-8, and summarized below:

- The daytime residual background (L_{90}) measurements ranged from 51 to 61 dBA
- The nighttime residual background (L_{90}) measurements ranged from 49 to 55 dBA
- The daytime equivalent level (L_{eq}) measurements ranged from 57 to 70 dBA
- The nighttime equivalent level (L_{eq}) measurements ranged from 55 to 65 dBA

3.10.4 Future Conditions

The following sections describe the analysis of anticipated noise conditions at the completion of the Project.

3.10.4.1 Overview of Potential Project Noise Sources

The primary sources of continuous sound exterior to the Project will consist of ventilation, heating, cooling, and emergency power noise sources. All noise sources will be located on the rooftop, including a 600 kW emergency generator.

Table 3-8, *Modeled Noise Sources*, 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 3-9, *Modeled Sound Power Levels per Noise Source*. Sound power level data were provided by the respective manufacturer of each piece of equipment, or by calculations based on equipment size and capacity.

The Project includes select noise-control measures that are necessary to achieve compliance with the applicable noise regulations. As the design progresses, specifications for mechanical equipment may change; however, appropriate measures will be taken to ensure compliance with the City Noise Standards. The RTUs and Chillers have been mitigated

Table 3.8 Modeled Noise Sources

Noise Source	Quantity	Approximate Location	Size/Capacity
Air Cooled Chiller 225	2	Upper roof areas	225 tons
Air Cooled Chiller 300	3	Upper roof areas	300 tons
Energy Recovery Unit	5	Upper roof areas	12,500 CFM
Packaged Roof Top Unit (RTU) A	7	Upper roof areas	35,00 CFM
Packaged Roof Top Unit (RTU) B	2	Upper roof areas	50,00 CFM
General Exhaust Fans (EF1)	2	Upper roof areas	60,000 CFM
General Exhaust Fans (EF2)	1	Upper roof areas	40,000 CFM
General Exhaust Fans (EF3)	5	Upper roof areas	40,000 CFM
General Exhaust Fans (EF4)	1	Upper roof areas	6,000 CFM
General Exhaust Fans (EF5)	2	Upper roof areas	40,000 CFM
General Exhaust Fans (EF6)	1	Upper roof areas	3,500 CFM
Emergency Generator	1	Upper central roof area	600 kW

Table 3.9 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
Air Cooled Chiller 225	103	99	94	106	101	99	97	96	93	86
Air Cooled Chiller 300	104	100	95	107	102	100	98	97	94	87
Energy Recovery Unit	92	89	84	96	91	89	87	82	83	76
Packaged Roof Top Unit (RTU) A	106	103[1]	103	102	103	101	98	102	93	86
Packaged Roof Top Unit (RTU) B	106	104[1]	104	102	103	101	99	102	94	87
General Exhaust Fans (EF1)	89	108[1]	108	94	89	87	83	75	69	65
General Exhaust Fans (EF2)	84	102[1]	102	89	84	82	77	69	64	59
General Exhaust Fans (EF3)	79	77[1]	77	79	84	75	72	68	65	60
General Exhaust Fans (EF4)	77	81[1]	81	84	80	75	70	66	60	54
General Exhaust Fans (EF5)	79	95[1]	95	86	80	77	71	63	57	51
General Exhaust Fans (EF6)	87	81	81	87	89	86	79	76	72	68
Emergency Generator (Package)[2]	96	107[1]	107	98	97	94	89	87	83	83
Emergency Generator (Exhaust)	130	128[1]	128	136	129	123	124	122	12	112

Notes: Sound power levels do not include mitigation identified in Table 3.7-5.

1. No data provided by manufacturer. Octave-band sound level assumed to be equal to the 63 Hz band level.
2. Assumes genset is in standard Level 1 Canopy enclosure

through use of a Hushcore Treatment system, including sound blankets covering the compressors, louvers over the air intakes, and acoustical stacks on the exhaust sections. As the design progresses, other options may be utilized instead of these treatment kits, such as low noise chiller and RTUs. The emergency generator sound levels will be controlled using an enclosure, and an exhaust silencer. To further limit impacts from the standby generator, required periodic, routine testing will be conducted during daytime hours, when background sound levels are highest. A summary of the noise mitigation proposed for the Project is presented in Table 3-10, *Attenuation Values Applied to Mitigate Each Noise Source*.

Table 3-10 Attenuation Values Applied to Mitigate Each Noise Source

Noise Source	Form of Mitigation	Sound Level (dB) per Octave-Band Center Frequency (Hz)								
		31.5	63	125	250	500	1k	2k	4k	8k
Generator Exhaust	Silencer[1]	12	23	28	32	34	32	30	28	26
Chillers, ERV and RTUs[2]	Louvers & Blankets	7	9	9	10	10	13	24	24	21

Notes:

1. JC Critical Grade Silencer (Miratech).
2. HUSHCORE Treatment Assumes three source treatments (blanket, intake, exhaust) will achieve these minimum octave band reductions

3.10.4.2 Noise Modeling Methodology

The noise impacts associated with the Project were predicted at the nearest noise-sensitive receptors using the Cadna/A 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 Cadna/A software allows for octave band calculation of noise from multiple noise sources, as well as computation of diffraction around building edges.

Breakout noise through exterior Project walls was not included in the noise model, whereas it is assumed that building wall construction will provide sufficient noise reduction for sources within the Project buildings. Therefore, breakout noise is assumed insignificant comparatively to externally-ventilated noise sources.

3.10.4.3 Future Sound Levels – Nighttime

The analysis of sound levels at night included all the mechanical equipment operating at max loads except the emergency generator to simulate worst-case nighttime operation conditions at nearby receptors. Eight modeling locations were included in the analysis. Modeling receptors A, B, C, and D are residential locations abutting the southern portion of the Project property, and are near monitoring location 3. Modeling location E is an institutional property to the east of the Project, and is near monitoring location 1. Modeling

location F is north of the Project, and is near monitoring location 2. Modeling receptors G and H represent residential properties on Sydney Street to the west of the Project, and are near monitoring location 4. The modeling receptors, which correspond to institutional, commercial and residential uses in the community, are depicted in Figure 3-4, *Noise Modelling Locations*. The predicted exterior Project-only sound levels range from 40 to 53 dBA at nearby receptors.

The City of Boston Residential and Business limits have been applied to the appropriate locations. Institutional locations are subject to the same limits as residential areas. 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 3-11, *Comparison of Future Predicted Project-Only Nighttime Sound Levels to the City of Boston Limits*.

Table 3-11 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	45	56	55	49	47	45	39	29	16	0
B	Residential	45	56	55	49	47	45	39	29	16	0
C	Residential	45	54	53	48	47	44	39	29	16	0
D	Residential	40	48	47	43	42	40	34	24	10	0
E	Institutional	45	57	57	50	47	44	39	31	19	0
F	Commercial	53	57	55	57	54	53	48	39	29	19
G	Residential	46	54	52	52	48	46	40	30	19	0
H	Residential	46	57	57	52	48	46	40	30	19	0
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**

3.10.4.4 Future Sound Levels – Daytime

As previously noted, the emergency generator will only operate during the day for brief, routine testing when the background sound levels are high, or during an interruption of power from the electrical grid. A second analysis combined noise from the Project's mechanical equipment and its emergency generator to reflect worst-case conditions during a period of equipment testing. The sound levels were calculated at the same receptors as in the nighttime analysis and then evaluated against daytime limits. The predicted exterior, Project-only, daytime sound levels range from 41 to 53 dBA at nearby receptors.

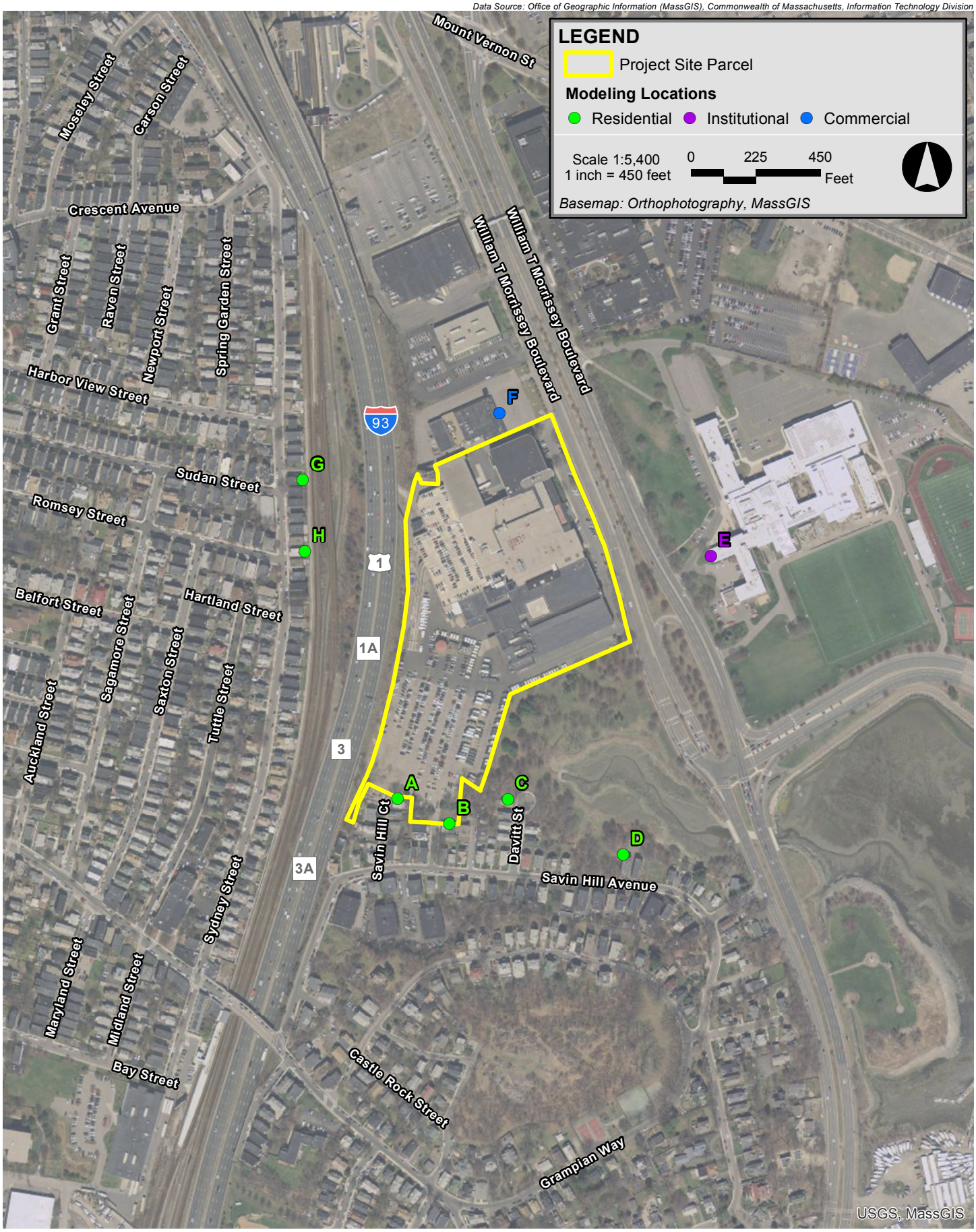


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Figure 3-4
Sound Modeling Locations

Predicted sound levels from Project-related equipment are within the daytime broadband and octave-band limits under the City Noise Standards at each of the modeled locations. This evaluation is presented in Table 3-12, *Comparison of Future Predicted Project-Only Daytime Sound Levels to City Noise Standards*.

Table 3-12 Comparison of Future Predicted Project-Only Daytime Sound Levels to City Noise Standards

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	48	63	57	57	49	45	42	38	33	4
B	Residential	48	63	58	55	49	46	42	37	31	3
C	Residential	48	63	56	56	49	45	41	38	33	5
D	Residential	41	53	49	46	42	40	34	27	18	0
E	Institutional	45	58	57	50	47	44	39	31	19	0
F	Commercial	53	60	56	57	54	53	48	39	30	19
G	Residential	47	58	53	54	49	46	41	34	28	3
H	Residential	48	60	58	54	49	46	41	35	29	5
City of Boston Limits	**Residential/Institutional**	**60**	**76**	**75**	**69**	**62**	**56**	**50**	**45**	**40**	**38**
	Business	**65**	**79**	**78**	**73**	**68**	**62**	**56**	**51**	**47**	**44**

3.10.5 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 and noise controls have been refined, they are still conceptual in nature. During the final design phase of the Project, mechanical equipment and noise controls 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 Period Impacts

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

Adequate pre-planning with the City and the 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 plans for routing trucking and deliveries, systems for the protection of existing utilities, and plans for the control of noise and dust.

During the construction phase of the Project, the Proponent will provide the name, telephone number, and address of a communication representative to contact with issues related to the construction. The communications contact will be responsible for responding to the questions/comments/complaints of the residents and businesses in the neighborhood.

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

3.11.1 Construction Methodology/Public Safety

As noted above, construction methodologies that ensure public safety and protect the immediately surrounding area will be employed. 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 if and 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.

3.11.2 Construction Schedule

Construction of the Project is estimated to commence during 2018 with completion approximately 12 to 14 months after commencement.

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

3.11.3 Construction Staging/Access

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

Although specific construction and staging details have not been finalized, the Proponent and its construction manager 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.

3.11.4 Construction Mitigation

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

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

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

3.11.5 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.

Wheel wash stations will be installed at construction site exit areas and maintained by the contractor as needed. All trucks leaving the site must have all dirt/mud removed from the wheels and undercarriage of the truck prior to leaving the site. In addition, any loads containing soil for off-site disposal will be covered. Construction vehicles and equipment will not be permitted to be washed in the streets outside of the Project site. Excess water from the wheel wash stations will be managed, and catch basins in the surrounding street will be protected from potential runoff from the cleaning operations.

Air quality impacts during construction may also include diesel exhaust emissions from heavy construction equipment. Massachusetts law (MGL Chapter 90, Section 16A and 310 CMR 7.11 requires that vehicles idle for no more than five minutes. There are a number of exceptions for "necessary" idling (e.g., repairs, deliveries, refrigeration). "Necessary idling" also includes idling to assure that the vehicle is safe to drive (e.g., defrosting a windshield). To reduce engine idling, the selected contractor(s) will be notified of the Massachusetts anti-idling regulations. Any excessive idling will be done at the contractor's own risk.

In addition to emitting smog-forming pollutants, construction equipment engines produce more than 25 percent of all diesel fine particulate matter (PM) pollution in Massachusetts. Fine PM contributes to the state's already high rate of asthma and is also a probable carcinogen. In response to these health and environmental impacts, MassDEP requires contractors working on projects financed by the State Revolving Fund (SRF) to install retrofit pollution controls in their construction equipment engines.

Due to this requirement, many large construction firms in Massachusetts have installed pollution controls on their fleet of heavy construction equipment. Firms who can show that their fleet consists of retrofitted equipment will be given preference in the selection process.

Construction will not proceed until the contractor has submitted a certified list of the non-road diesel-powered construction equipment that will be retrofitted with emission control devices to the Proponent. The list of equipment is not available given the early phase of the Project. The list will include the following information:

- Contractor/Sub-Contractor name;
- Equipment number, type, make, model, and engine rating;
- Start and end date of equipment use; and
- Emission control device make, model and EPA verification number.

Contractors will also submit fuel slips to the Proponent demonstrating that ultra-low sulfur diesel is being used.

3.11.6 Construction Noise

The Proponent is committed to mitigating noise impacts from the construction of the Project. Temporarily 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 and 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.

3.11.7 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.

3.11.8 Construction Truck Routes and Deliveries

Truck traffic will vary throughout the construction period and will depend on the construction activity being performed. The construction management 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.

3.11.9 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 650 construction jobs will be created over the length of construction. The developer of each Project component will make reasonable good-faith efforts to have at least 51% of the total employee work hours available for Boston residents. The Proponent is committed to maximizing opportunities for minority subcontractors who have expertise in a particular trade to get contractual opportunities during the construction phase of the project. To that end, at least 40% of total employee work hours available for minorities and at least 12% of the total employee work hours available for women.

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.

3.11.10 Construction Waste

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

3.11.11 Protection of Utilities

Existing public and private infrastructure located within the public right-of-way will be protected during construction. The installation of proposed utilities within the public way will be in accordance with the Massachusetts Water Resources Authority (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.

3.12 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 City of Boston requirements.

3.13 Wildlife Habitat

The site is currently developed and, as such, the redevelopment will not impact wildlife or wildlife habitats. The Massachusetts Natural Heritage and Endangered Species Program Natural Heritage Atlas (13th Edition, Effective October 1, 2008) indicates that the site does not lie within a Priority Habitat of Rare Species or within an Estimated Habitat of Rare Wildlife.

Section 4.0

Sustainable Design and Climate Change Adaptation

4.0 SUSTAINABLE DESIGN AND CLIMATE CHANGE ADAPTATION

The following section describes how the Project has been designed to meet the requirements of Article 37 of the City of Boston Zoning Code and how it will achieve certifiability with the US Green Building Council's (USGBC) Leadership for Energy and Environmental Design (LEED) v4 for BD+C rating system. The Project is targeting certifiability at the "Silver" level with an anticipated 56 points, as detailed in Section 4.4 and on the LEED Scorecard, a copy of which is included at the end of this section. Potential on-site energy generation and storage technologies are also being evaluated, as well as measures to improve the Project resiliency under future climate conditions.

The Project achieves a high level of sustainability through the redevelopment of an underutilized institutional site in a manner that addresses anticipated climate change impacts. The Project provides improved public access and engagement with the surrounding neighborhood, encourages the use of alternative modes of transportation, and is located in close proximity to public transportation infrastructure that is easily accessible to pedestrians. In addition, the Project creates a high-quality indoor environment for the building occupants.

4.1 Regulatory Context – Article 37 and the BPDA Climate Resiliency Checklist

Article 37 of the Boston Zoning Code established an Interagency Green Building Committee (IGBC) to advise the BPDA and the Inspectional Services Department (ISD) on project compliance with the City's green building and climate-change policies and requirements. A project's climate change preparedness and resiliency documentation is reviewed by the IGBC to determine whether a proposed project is consistent with Article 37 and related climate, sustainability, and resilience policies.

Article 37 requires project proponents to complete a LEED scorecard to demonstrate that a project meets the minimum requirements to achieve a LEED Certified level, although the proponent is not required to register or certify the project with the USGBC. Appendix A of Article 37 delineates Boston Green Building Credits, which are as Boston-specific credits that can contribute a point towards a project's LEED "Certifiable" point total.

Projects subject to Article 80 review are required to complete the BPDA Climate Resiliency Checklist. The Checklist is a critical component of a project's sustainable design and climate change resiliency evaluation and aids in the assessment of potential impacts that might arise under future climate conditions. The Checklist further helps to identify project resiliency, preparedness, and/or mitigation measures early in the design stage. The Checklist is also reviewed by the IGBC. A copy of the Checklist completed for the Project is included as Appendix E, *Climate Resiliency Checklist*.

4.2 Climate Change Resilience

Climate change conditions considered by the Project team and reviewed below include higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts, more severe rainfall events, and increased wind gusts. The site's location within a Federal Emergency Management Agency (FEMA) designated Flood Hazard Area has also been considered.

The expected life of the Project is anticipated to be approximately 50 years. Therefore, the Proponent is planning for climate-related conditions projected 50 years into the future.

4.2.1 Extreme Heat Events

According to "Climate Ready Boston," the City of Boston can expect that the number of days with temperatures greater than 90°F will increase. Between 1971 and 2000, Boston experienced an average of eleven days per year over 90 degrees and may experience between 25 and 90 days annually by 2070, depending on the extent of greenhouse gas emissions over the next several decades.[1] The Project design will incorporate a number of measures to minimize the impact of high temperature events, including:

- Planting additional shade trees and reduction of impervious surfaces;
- Improvements to the building envelope;
- Installing higher performance lighting and controls, including automatic LED lighting control;
- Incorporating energy recovery ventilation; and
- Specifying high albedo roof tops and green roofs to minimize the heat island effect.

4.2.2 Extreme Precipitation Events

As a result of climate change, New England is expected to experience an increased frequency of intense storms that generate significant volumes of precipitation. Such precipitation events have the potential to overwhelm existing stormwater infrastructure capacity and may result in inland flooding with the potential to damage buildings. Improper conveyance of stormwater during precipitation events may also cause overflows of combined sewer systems that allow wastewater from buildings connected to the combined sewer to discharge to local waterways, or that surcharge the system and cause overflow at other locations.

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

To mitigate the effects of extreme precipitation events, the Project's stormwater management system will be designed to reduce the existing peak rates and volumes of stormwater runoff from the site, and promote groundwater recharge to the greatest extent practicable. The Project will increase the pervious area on the site from the existing condition, thereby creating additional infiltration capacity on the site.

4.2.3 Drought Conditions

Under the high emissions scenario evaluated by Climate Ready Boston, the occurrence of droughts lasting one to three months could increase by as much as 75% over existing conditions by the end of the century. The Project will approach potential drought impacts by reducing the amount of water used both within the buildings and across the site for irrigation. 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. The Project will include low-flow fixtures and water conserving appliances to the extent feasible to minimize the amount of water used by the building's occupants.

4.3 Site-Generated Energy

Several site-generated energy options are being assessed as part of the Project design. These include the use of photovoltaics and combined heat and power systems.

4.3.1 Photovoltaics

The Proponent will continue to evaluate the potential for roof-mounted solar (PV) systems, and the availability of grants and renewables funding. The feasibility of installing PV systems will depend on the incentives at the time of construction, as well as the amount of space available on the rooftops once mechanical equipment is sized and located. Based on current design information, the building has a total estimated capacity of 374 KW, which accounts for approximately 5.8% of the total estimated electric demand for the building.

4.3.2 Energy Storage

Energy storage systems for grid support and peak shaving are a potential benefit to the Project. The Proponent will continue to evaluate the feasibility once the building's load profile is further defined and potential utility incentives are explored.

4.3.3 Combined Heat and Power

The Proponent intends to evaluate the potential for combined heat and power generation once the tenant matrix is clarified. CHP plants require a heat load host in order to be cost effective and, thus, the viability of the plant is dependent upon the tenant mix.

4.4 Green Building

In order to measure the results of their sustainability initiatives, and in compliance with Article 37, the Proponent intends to apply the framework of the Leadership in Energy and Environmental Design (LEED) rating system to the building re-design. The Project will use LEED v4 for BD+C as the rating system to demonstrate compliance with Article 37. The LEED rating system tracks the sustainable features of a project by achieving points in the following categories: Location and Transportation, Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, Innovation and Design Process and Regional Priority Credits.

The Proponent intends to register and certify the Project under LEED. The proposed Project will be designed and constructed in a manner that significantly improves energy efficiency over existing conditions and, to the extent economically feasible, limit the Project's impacts on the environment. The efficiency of the building's envelope will be improved and high-efficiency mechanical equipment will be employed to meet the energy requirements of the State Building Code and Stretch (Energy) Code, where applicable. These energy efficiency requirements (based on ASHRAE 90.1-2013) are more efficient than requirements under the Leadership in Energy and Environmental Design (LEED) v4 rating system, which uses ASHRAE 90.1-2010. The buildings will also be designed to provide a healthy indoor environment through the use of low-emitting materials, systems to effectively control lighting and thermal conditions, and natural lighting and views.

The LEED scorecard, provided at the end of this section, will be updated regularly as the design develops and engineering assumptions are substantiated. Presently, 56 points have been targeted, not including any of the potential points available through Boston Zoning Code Article 37. Additional credits, identified as "Maybe" on the scorecard, will be evaluated as the design progresses.

4.4.1 Analysis of LEED Credits

The following is a description of the potential credits that the Project team is targeting to show that the Project will be LEED certifiable, as required by Article 37 of the Code.

4.4.1.1 Integrative Process

The Integrative Process (IP) credit encourages early project "discovery" by exploring, among key stakeholders, strategies that support high-performance, cost-effective project outcomes through an early analysis of the interrelationships among systems.

Beginning in pre-design and continuing throughout the design phases, the Project team will identify and use opportunities to achieve synergies across the disciplines and among the building's energy-related and water-related systems, as described below.

Energy-related Systems:

Site: The Project will enhance the exterior environment of the site through new vegetation cover, a raingarden feature, and linkages to the neighborhood, which had previously been severed. Additionally, the Project is incorporating the Patten's Cove park into the site's green space and hydrology plan. Lastly, the building roof offers major potential for green space, and potentially farming and/or a solar PV array, all of which are being explored.

Massing and Orientation: The Project is somewhat limited in its development of massing and orientation as it entails the adaptive reuse of an existing building. However, the new atrium will be oriented to allow natural light deep into the space, as well as to create greater connectivity between parking areas and the main entrance. The site will be enhanced by new, more vibrant green spaces.

Envelope: While limited by the existing envelope, the Project will include upgrades to envelope efficiency where feasible to improve performance, add insulation, and repair structural damage.

Lighting: The Project will utilize LED lights and will seek to maximize utility rebates associated with lighting and controls.

Thermal Comfort: The Project will be designed to meet performance requirements of ASHRAE 55 for mechanically ventilated spaces.

Plug and Process Loads: Plug load control will be implemented per ASHRAE 90.1 2010 in accordance with LEED v.4 requirements.

Programmatic and Operational Parameters: The Proponent will continue to assess multifunctioning spaces, operating schedules, space allotment per person, teleworking, reduction of building area, and anticipated building operations and maintenance programs.

Energy modeling – envelope: While the thermal envelope is set, there are opportunities to improve efficiencies through new glazing and added insulation/sealant. The Project will iterate various options for insulation, considering cost and flexibility within the plan.

Energy modeling – lighting levels: Lighting iterations will be compared per code compliance, 25% Lighting Power Density (LPD) reduction, and 30% LPD reduction, to evaluate the impact on achieving the overall Project efficiency goals.

Water-related Systems:

Indoor Water Demand: As required by LEED, all indoor fixtures will be WaterSense labeled products. The Project will also meet a minimum potable water use reduction of 20% and aim to exceed this through the use of low/ultra-low flow fixtures strategies, where appropriate. The potential for rainwater reuse as a means of reducing potable water consumption is also being evaluated.

Outdoor Water Demand: The Project proposes to reduce outdoor potable water demand by 100% through use of rainwater harvesting. Rooftop leaders will channel water into below-grade cisterns (sizing to be determined) for collection and reuse.

Process Water Demand: No potable water will be used for once-through cooling for heat rejection and cooling equipment. Cooling towers and evaporative condensers will be equipped with makeup water meters, conductivity controllers, overflow alarms, and efficient drift eliminators that reduce drift to a maximum of 0.002% of recirculated water volume for counterflow towers and 0.005% of recirculated water flow for cross-flow towers. Discharge water will be cooled via a thermal recovery heat exchanger to cool it to code-compliant temperatures while simultaneously preheating inlet makeup water. Steam condensate will be returned to boilers. Venturi-type flow-through vacuum generators or aspirators shall be forbidden.

Supply Sources: Potable water will be supplied via the existing municipal supply system. As noted above, the Project is considering utilizing rainwater harvesting from rooftops for collection in below grade cisterns, sized to meet irrigation demand. Condensate water may also be reused onsite.

4.4.1.2 Location and Transportation

The Location and Transportation (LT) section focusing on access, transit, reduced parking, reduced commuter emissions, and encouraging smart growth principles.

Sensitive Land Protection: The Project is located on previously developed land; an extensive greyfield development with an existing gasoline service island, office building, and grade parking (low porosity).

High Priority Site***: The Project site is likely located within a Federal Empowerment Zone (Option 2). Additionally, the site could qualify as a brownfield site (TBD).

Surrounding Density and Diverse Uses: LEED awards points to projects which develop within dense urban environments to promote walkability, health, and smart land use.

The site is within 1/2 mile of at least 8 basic services, including:

Category		Walkable Amenity	Distance from Site (mi.)
1.	Community Anchor	Hub25	0.30
2.	Civic/Community	Boston College High School	0.50
3.	Services	Santander Bank	0.41
4.	Civic/Community	Patten's Cove (Park)	0.12
5.	Community Anchor	Office	0.35
6.	Community Retail	Harbor Liquor	0.22
7.	Food Retail	Star Market	0.21
8.	Community Retail	Starbucks	1.21

Access to Quality Transit: LEED awards points based on the number of daily trips offered as a metric for "quality" – increased likelihood of use through greater convenience/coverage. Within the 0.5-mile walkable limit of the site, the following buses (daily and weekend trips) currently accrue:

	Line	Weekday Daily Trips	Weekend Daily Trips	Distance(mi)
•	Red Line	100	80	0.32
•	Greenbush	12	8	0.32
•	Kingston	12	8	0.32
•	Middleboro	12	8	0.32
•	LMA Shuttle	26	26	0.32
•	UMass Shuttle	144	-	0.32
•	Clarke Shuttle	29	31	0.32
•	Bus 5	42	30	0.32
•	Bus 8	41	24	0.32
•	Bus 16	57	31	0.32
•	Bus 41	32	14	0.32
		507 (5 of 5 points)	260 (5 of 5 points)	

Bicycle Facilities: This credit awards one point for projects locating a functional entry within allowable distances of a bike network connecting ten diverse uses, and/or a school/employment center, and/or a multi-modal transit station. In the case of the Project site, all three are connected by/in proximity to the Harborwalk. The Project will work with BTD to determine the appropriate number of bicycle storage spaces and short term bicycle racks at the Project site.

Reduced Parking Footprint**:** Vehicle parking is located in three areas of the site: at grade fronting the building, at grade on the south side of the site, and on the rooftop. The Project team is evaluating the preferred parking count. However, based on the ITE Transportation

Planning Handbook calculations, the Project will reduce parking footprint by approximately 60% from code requirements and preferred parking for carpools will meet the required 5% threshold.

Green Vehicles: 5% of the parking will be designated as preferred for vehicles achieving a minimum green score of 45 on the ACEEE annual vehicle rating guide. BTD also requires the Project provide electric vehicle supply equipment (EVSE) for 5% of parking with capacity to expand to 15% at a later date. The Proponent is also evaluating the feasibility of EVSE in an additional 2% of the parking spaces. The feasibility of an EVSE interconnection with on-site renewables is being evaluated.

4.4.1.3 Sustainable Sites

Construction Activity Pollution Prevention: (REQUIRED): An Erosion and Sedimentation Control Plan will be established to control erosion, waterway sedimentation and airborne dust generation during construction.

Environmental Site Assessment: The purpose of this credit is to assess site conditions prior to design to inform related issues about the site design. Such an assessment must include the following:

1. Contour map denoting unique features and risks.
2. Hydrology map denoting bodies of water and storage/reuse opportunities.
3. Climate analysis including wind, precipitation, temperature ranges, sun angles, etc.
4. Vegetation analysis illustrating types, species, habitat, etc.
5. Soils report illustrating previous development, disturbed soils, etc.
6. Access map showing views, transit, adjacent properties, and materials reuse options.
7. Health map showing proximity of vulnerable populations, physical activity opportunities, and proximity to major sources of air pollution.

The following assessment addresses each of the above parameters, according to number:

1. The current site is previously developed and will adaptively reuse the existing facility while making facility and site improvements.
2. The City of Boston Climate Ready Map Explorer (www.boston.maps.arcgis.com/), indicates that the site is vulnerable to the following risks:

    - 10% annual coastal flood risk: 2050's – onward
    - 1% annual coastal flood risk: 2050's – onward

- Stormwater flooding: near-term, medium-term, and long-term
- Heat: daytime land surface temperature

3. Although the Project is making use of the existing building shell, it is adapting it to increase daylight and views, as well as to provide additional and /enhanced outdoor amenities. The building's new atrium will bring light deep into the space, while creating better site connectivity from the front entrance. A roof terrace amenity is also being planned to overlook Patten's Cove and Savin Hill Cove to the east. The roof terrace amenity will get ample sun and is protected from winter winds. Boston has steady monthly precipitation, varying from just above three inches in July to approximately four inches in November; thus, the Project is evaluating the use of harvesting rainwater to reduce potable water use within the building and grounds via harvesting. The Proponent is also working with DCR to provide additional maintenance and improvements to Patten's Cove park.

4. Currently, there is very little planting on the site. The Project will provide additional green space to increase porosity and albedo onsite. Sidewalk improvements are also planned. The Project will increase the porosity of the site, as well as the amount of greenery to aid onsite biodiversity.

5. Soils reports will be concluded at a later date.

6. An access map will be created to illustrate transit options, vehicular traffic, pedestrian access, and adjacent neighborhoods (scale, character, connectivity, etc.). The Project will avoid landfilling by implementing construction and demolition best practices. The vast majority of the existing facility will be salvaged.

7. The site is accessible to vulnerable populations via nearby transit and walkable amenities. The building will comply with the requirements of the Americans with Disabilities Act (ADA).

Site Development – Protect or Restore Habitat: The Project will conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

Rainwater Management***: The Project will use Option 1; Path 1: In a manner best replicating natural site hydrology, runoff quotas shall meet/exceed the 95th percentile of regional/local (most stringent) rainfall events using LID and green infrastructure. Open space and green roofs play a critical role in this, as well as site porosity and rainwater harvesting to replace potable demand.

Light Pollution Reduction: The Project will use the backlight-uplight-glare (BUG) method (Option1) for all exterior luminaires within the LEED Boundary (minus "exemptions") based on photometric characteristics when mounted and the property's IES/IDA Model Lighting

Ordinance User Guide lighting zone. Additionally, internally illuminated signage requirements will be met. Lighting may be extinguished and/or dimmed as activity levels decline.

All luminaries will be oriented less than two mounting heights from the lighting boundary such that the backlight points toward the nearest lighting boundary. Internally illuminated exterior signage will not exceed a luminance of 200 cd/m² (nits) during nighttime hours and 2000 cd/m² (nits) during daytime hours.

4.4.1.4 Water Efficiency

Outdoor Water Use Reduction: The Project does not require a permanent irrigation system beyond a maximum two-year establishment period.

Indoor Water Use Reduction***: The Project intends to reduce all potable water use in the buildings, at minimum 40% (to achieve a regional priority), through efficient fixtures/flow rates. All water use appliances will be Energy Star rated, and all fixtures within the scope of LEED will be EPA WaterSense labeled, including toilets, urinals, faucets, showers, clothes washers, dishwashers, pre-rinse spray valves, ice machines, heat rejection and cooling, cooling tower evaporative sensors, food steamers, and combination ovens.

Additionally, for process water, venture-type flow-through vacuum generators/aspirators will not be used, and discharge water will be tempered by a means deemed appropriate by the mechanical, electrical, and plumbing (MEP) Engineer prior to being released to drain.

Building Level Water Metering: The City of Boston Building Energy Use Disclosure Ordinance (BERDO) requires properties >50,000 square feet to share annual energy and water use data. LEED requires this data for 5 years. At minimum, the Project will collect and share this data via Energy Star Portfolio Manager.

Cooling Tower Water Use: LEED requires a one-time potable water analysis to measure five control parameters for cooling towers and evaporative condenser units. The Project will achieve the required minimum number of cycles and at least 20% of make-up water will be sourced from non-potable sources.

4.4.1.5 Energy and Atmosphere

Fundamental/Enhanced Commissioning &Verification: The integrative Project team will develop Owner's Project Requirements (OPR) and Basis of Design (BOD) documents to be delivered to a LEED-compliant Commissioning Authority (CxA) who will oversee commissioning.

The Project will also evaluate Enhanced & Monitoring-based Commissioning (Path 1) and the feasibility of Envelope Commissioning.

Minimum + Optimize Energy Performance***: The Project is required to demonstrate a minimum of 5% better cost performance than an ASHRAE 90.1-2010, Appendix G (with errata) compliant baseline through energy modeling. Additionally, aspects of the Project will need to meet Massachusetts Stretch Energy Code, performing 10% better, by earning a minimum of four LEED points (Major Renovation).

Energy conservation measures will be determined via an integrative approach investigating the overlapping of architectural and engineering systems to reduce energy cost. Energy conservation measures may include efficient lighting and HVAC systems, heat recovery systems, and enhanced glazing/envelope upgrades. Ideally, while limited by the existing building, the Project will target 18% better cost performance for a RP credit.

Building Level + Advanced Energy Metering: BERDO requires that properties greater than 50,000 square feet share their annual energy and water use data. LEED certification requires this data for 5 years. At minimum, the Project will collect and share this data via Energy Star Portfolio Manager.

Fundamental + Enhanced Refrigerant Management: It is the Project's intent to only use refrigerants with an ozone depletion potential (ODP) equal to "0" and a global warming potential (GWP) < 50 (Option 1).

Demand Response: The Project may be demand response (DR) ready (Case1), and capable of load shedding (10% min.) via provider initiation.

Renewable Energy Production***: The Proponent is currently exploring options to achieve this credit for 1% of the total anticipated load.

Green Power & Carbon Offsets: Renewable energy credits (REC's) will be evaluated to maintain points targets, as necessary.

4.4.1.6 Materials and Resources

Storage and Collection of Recyclables: (REQUIRED): The building will have a centralized space for handling and storage of recycling streams. Waste will be comingled and the following streams shall be collected: paper, cardboard, metals, glass, plastics, e-waste, batteries, and mercury-containing lamps. Additionally, the Proponent will evaluate the feasibility of a composting program.

Construction and Demolition Waste Management Planning: (REQUIRED): The construction team will institute a Construction Waste Management Plan, including investigation of local options for waste diversion and documentation of diversion rate for construction waste.

Building Life-cycle Impact Reduction: The majority of the existing structure will be salvaged (Option3); thus, the Project anticipates four points for salvage of 75% or more of the completed project surface area.

Building Product Disclosure and Optimization – EPD's: Option 1 awards points for specifying 20 products from 5 manufacturers who promote Environmental Product Declarations (EPD's). The Proponent is exploring options for achieving two points in this category.

Building Product Disclosure and Optimization – Sourcing: Option 2 awards products for meeting responsible extraction practices equivalent to 25% of the project cost, including manufacturer take-back programs, bio-based materials, FSC-wood products, reused and recycled content materials. Additionally, Option 1 will be explored.

Building Product Disclosure and Optimization – Ingredients: Option 1 awards points for specifying 20 products from 5 manufacturers promoting Health Product Declarations (HPD's) and/or UL Product Lens products and/or Cradle-to-Cradle (v2 Basic/v3 Bronze and up) products, and/or Declare labelled products. Options 2 and 3 will be explored.

Construction and Demolition Waste Management: The Project shall endeavor to divert a minimum of 75% of total construction and demolition waste from landfill (at minimum 4 materials streams) as per the Waste Management Plan (Path 1 or 2 to be determined by contractor).

4.4.1.7 Indoor Environmental Quality

Minimum Air Quality Performance (REQUIRED): The Project will determine the minimum outdoor air intake flow rates for ventilation systems utilizing ASHRAE 62.1-2010, Sections 4-7 (with errata).

Environmental Tobacco Smoke (ETS) Control (REQUIRED): Smoking will be banned on-campus (indoors and on grounds within 25 feet of building perimeters). Signage reinforcing such policies will be posted within ten feet of all main entries.

Enhanced Indoor Air Quality Strategies: The Project will mechanically ventilate entry vestibules to limit cross-contamination, as well as install permanent entry systems at least ten feet in the path of travel to remove particulate matter from feet. These grates, mats, or combination shall be maintained weekly basis (max.). Additionally, spaces where air quality hazards might be stored (janitor's closets, print rooms, etc.) shall have separate exhaust, negative pressurization, provide self-closing doors, and either floor-to-deck partitions or a hard-lid ceiling (open print stations will use WELL-compliant models). Outdoor air ventilation systems shall use MERV 13 or higher filtration media. All filters shall be replaced after construction completion and prior to occupancy. While not receiving LEED points, CO2 monitoring of densely occupied spaces three to six feet above finished floor and with an audible and/or visible indicator when thresholds exceed 10% outside acceptable set points shall be employed as a best practice. Additionally, ventilation rates may be exceeded by 30% to complete this credit.

Low-emitting Materials: The Project will specify low-emitting materials for assembly groups, the "Option" to be deemed appropriate by the Contractor.

Construction Indoor Air Quality Management Plan**:** The Indoor air quality (IAQ) management plan is designated for construction and pre-occupancy phases, meeting all SMACNA IAQ Guidelines for Occupied Buildings under Construction (2nd Ed., 2007 Chapter 3) by protecting absorptive materials absorbed onsite. It shall also require MERV 8 filtration media installed in all ductwork operated during construction, which must be changed prior to occupancy. Onsite smoking will be prohibited during construction.

Indoor Air Quality Assessment: The Project will perform building flush-outs per LEED (Option 1), either prior to occupancy or during occupancy, totaling an end rate of 14,000 cubic feet of outdoor air of gross floor area (60-80˚F, max. 60% RH). After the flush, the Project will test indoor air quality (Option 2) for an additional LEED point per ASTM or ISO protocols as deemed appropriate. Corrective actions will be taken where each sampling point does not pass.

Thermal Comfort: All HVAC systems will be designed in compliance with ASHRAE 55-2010 (with errata). Thermal comfort controls will be provided for a minimum of 50% of individual occupant spaces with group thermal comfort controls for all shared multi-occupant spaces. All controls must adjust at least one of the following: air temperature, radiant temperature, air speed, and/or humidity.

Interior Lighting: The Project will provide lighting controls (Option 1) for at least 90% of individual occupant spaces, allowing adjustment at three levels (on, 30-70% illumination, off). All shared spaces must place multi-zone controls with three-level adjustability and must be controlled separately from presentation/projection systems. Switching must be located in the same space as the controlled luminaires with a direct line of sight. Additionally, the Project shall apply quality aspects (Option 2), which includes the following:

- Regularly occupied space fixture luminance $<$2,500 cd/m² between 45-90˚ nadir (with exceptions).
- All fixture min. CRI 80 (with exceptions).
- 75% of connected load sources rated life/L70 min. 24,000 hours (at 3-hour/start, if applicable).
- 25% max. direct-only overhead lighting for total connected lighting load of regularly occupied spaces.
- Area weighted average reflectance for 90% regularly occupied spaces: 85% for ceilings, 60% for walls, 25% for floors, 45% for work surfaces, and 50% for moveable partitions.
- Min. 75% regularly occupied spaces wall surface-to-work plane illuminance max. 1:10 and ceiling-to work plane illuminance max. 1:10.

Acoustic Performance: Acoustic performance will be assessed for HVAC noise, sound isolation, and reverberation time, and masking. HVAC background noise and Sound Transmission Class (STC) ratings must not exceed levels published within 2011 ASHRAE Handbook, HVAC Applications, Ch. 48, Table 1, while meeting maximum reverberation times from Table 2. Where gathered seating exceeds 50 persons, sound masking will be considered per LEED criteria.

4.4.1.8 Innovation & Design Processes

Innovation: All five innovation points will be assessed. The Project will use a combination of Campus and individual credits to achieve compliance. Options for these also include LEED Pilot Credits (PC's), exemplary performance, and Article 37 Boston-specific LEED credits, as well as unique ideas which emerge not covered within the LEED rating system. The four potential innovations may include:

- Exemplary performance for MRc5: Construction & Demolition Waste Management
- EQpc57: Enhanced Acoustical Performance – Exterior Noise Control
- SSpc75: Clean Construction
- SSpc121: Solar Access to Green Space

LEED Accredited Professional: Blake Jackson of Stantec is serving as the LEED consultant for the Project. Mr. Jackson has over twelve years of experience with multiple versions of LEED rating systems, as well as is a WELL AP and a LEED and WELL Faculty member. As a Faculty member, his good-standing and contributions to the Project from permitting onward serves to demonstrate compliance for this credit.

4.4.1.9 Regional Priority Credits

To encourage teams to focus on strategies which are most regionally-pertinent, LEED offers 6 existing credits which are regionally critical, offering up to 4 points for pursuing these strategies (based on the project location). Note: RP credits are designated in the list above by a triple asterisk (***).

- RPc1.1: High Priority Site (Brownfield remediation option only) N/A
- RPc1.2: Rainwater management (2-point threshold)
- RPc1.3: Indoor water use reduction (40% minimum)
- RPc1.4: Optimize Energy Reduction (18% minimum)
- RPc1.5: Renewable Energy Production (3% minimum)

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

Project Checklist

135 Morrissey Blvd. - Project# 218421012
Date: 01/22/2018

Y	?	N			
1			Credit	Integrative Process	1

12	3	1	Location and Transportation		16
		n/a	Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1		1	Credit	High Priority Site	2
2	3		Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

5	2	3	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

9	2	0	Water Efficiency		11
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
2			Credit	Outdoor Water Use Reduction	2
4	2		Credit	Indoor Water Use Reduction	6
2			Credit	Cooling Tower Water Use	2
1			Credit	Water Metering	1

11	21	1	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
4	2		Credit	Enhanced Commissioning	6
4	14		Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
1		1	Credit	Demand Response	2
1	2		Credit	Renewable Energy Production	3
1			Credit	Enhanced Refrigerant Management	1
	2		Credit	Green Power and Carbon Offsets	2

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

9	3	4	Indoor Environmental Quality		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
2			Credit	Enhanced Indoor Air Quality Strategies	2
3			Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
	2		Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
2			Credit	Interior Lighting	2
		3	Credit	Daylight	3
		1	Credit	Quality Views	1
	1		Credit	Acoustic Performance	1

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

2	2	0	Regional Priority		4
1			Credit	Rainwater Management (2pts)	1
1			Credit	Indoor Water Use Reduction (4pts)	1
	1		Credit	Optimize Energy (8pts)	1
	1		Credit	Renewables (3pts) OR High Priority Site (2pts)	1

56	44	10	TOTALS	Possible Points:	110

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

Section 5.0

Urban Design

5.0 URBAN DESIGN

The 135 Morrissey Project envisions the renovation and updating of the former Boston Globe Company newsprint production facility into an innovation campus composed of creative office, technology, light manufacturing, warehouse and life science tenants, as well as landscaping improvements to enhance the visual character of the site. In doing so, it responds to both sustainability of the prior structure and the need for identifying new uses, moderizing the infrastructure, renovating the interior, and reinvigorating the exterior façade and grounds.

5.1 Relationship to the 2011 Columbia Point Master Plan

In June of 2011, the Boston Planning & Development Agency (then the Boston Redevelopment Authority) issued the *Columbia Point Master Plan*, which envisioned a new mixed use community along the west side of Morrissey Boulevard, including the re-platting of the Boston Globe facility into 10 blocks of housing, parking, and street level retail. The *Plan's* urban design principles centered on creating a walkable neighborhood that was sustainable, conserved resources, provided new housing and jobs, and added tax revenue.

Since then, the need for flexible, large scale office and manufacturing space has asserted itself in Boston, and refurbishing rather than demolishing the former Boston Globe facility has become an equally, if not more, sustainable option for this site. Given these conditions, the new owners propose to update the Boston Globe production facility into an innovation office campus.

As part of the new proposal, many of the fundamental values of the original Master Plan will remain, including its focus on increasing transit ridership for many of its employee trips and improving pedestrian connections to the existing neighborhoods of Dorchester. For example, the new plan includes providing an enhanced multi-use trail along Morrissey Boulevard for walkers, joggers, and bicyclists, as well as building new pedestrian paths along the north side of the Patten's Cove park.

However, where the previous plan introduced a parallel street network to Morrissey Boulevard that connected through the site to Savin Hill, bringing more vehicles onto the streets of these quiet residential neighborhoods, the new plan provides a landscaped buffer for the houses to the south. The area of the current asphalt parking lot in the rear of the facility will be reduced, and pathways through the parking lot and around the Park will make it more pleasant, and more direct, for neighbors to walk to the MBTA JFK/UMASS Red Line/South Shore Commuter Rail Station.

5.2 Exterior Building Improvements

As a new multi-tenant office campus, 135 Morrissey Boulevard will be a positive jobs generator for diverse companies who want to build and expand their businesses in Boston. To attract those enterprises, it is critical to enlarge the strip windows to let light into the interior, and to design a new entrance and common lobby with visual impact on the street.

The old Press Room, a three-story high space that is seen framed in limestone along Morrissey Boulevard, will be repurposed as the entrance and lobby atrium. Centered on the elevation between two other vertical elements (the white curved glass portion and a brick stair enclosure), its presence will be enhanced by inserting a new glass and steel façade within the limestone, suspending a large canopy, and creating a wide stepped and ramped plaza that extends toward Morrissey Boulevard. There will be new paving, a vehicular drop off, green landscape, seating, lighting, and the provisions for the 'docking' of food trucks.

Inside the building, the columns of two bays of the press room will be removed to create a soaring open space with a café, seating platforms, stairs, and elevators that connect all the floors surrounding the atrium. Glass walls will allow views into the companies clustered around this space, and new skylights will permit sunlight to penetrate the building. The atrium will be open to the public during regular office hours so the community can access and enjoy the buildings improvements and amenities.

5.3 Western Façade and Water Tank

The atrium that fronts the eastern side of the building on Morrissey Boulevard also connects to the rear parking lot on the western side of the building, where a multi-purpose landscape is proposed. Elements such as a game lawn, plaza, outdoor restaurant seating, and a rain garden to collect storm water runoff will activate this south-facing outdoor space. It is envisioned that the companies located here could have events and activities that change depending on the season.

The existing water tank, a large cylinder on a concrete base, is an industrial remnant that is not functional or necessary for the proposed office use. Visible from I-93, the Proponent envisions transforming the tank into an art piece that speaks to the high tech work being conducted within the renovated and reactivated building.

Section 6.0

Historic and Archaeological Resources Component

6.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES COMPONENT

The following sections identify and describe the historic and/or archaeological resources on or proximate to the 135 Morrissey Project site, and review the potential Project related impacts to those identified resources.

6.1 Buildings on the Project Site

The 16.6-acre Project site is located at 135 Morrissey Boulevard in the Dorchester section of Boston. The site is currently occupied by the former Boston Globe Company building, initially completed in 1958, but expanded upon over the years with numerous additions, the last dating from 2004. With a footprint of 770 feet by 525 feet, the building encompasses some 695,000 square feet on its three floors and mezzanine level, with a maximum height above grade of 57.5 feet.

6.2 Historic Resources in the Vicinity of the Project Site

As shown on Figure 6-1, *Historic Resources*, the Project site is located within a quarter-mile radius of the National Registered Savin Hill Historic District.

Roughly bounded by Savin Hill Avenue to the north, Morrissey Boulevard to the east, Dorchester Bay to the south and I-93 to the west, the Savin Hill Historic District comprises approximately 350, two- to three-story buildings. Set on narrow lots along winding streets, these are almost exclusively residential in nature, including both single- and multi-family dwellings dating from the mid-19th to mid-20th centuries. Although more than half its buildings reflect the Queen Anne and Colonial Revival styles, the district also includes well-preserved examples of the Greek Revival, Carpenter Gothic, Italianate, Second Empire, Stick, and Shingle styles; modestly detailed Craftsman- and Modern-style designs are also present, if less numerous.

6.3 Archaeological Resources

The Project site consists of previously filled and disturbed land. Due to its previous development activities and disturbances, it is unlikely that the site contains significant archaeological resources. A review of Massachusetts Historical Commission (MHC) online archaeological base maps conducted on January 22, 2018, found that no significant archaeological resources have been identified within the Project site or its vicinity.

6.4 Potential Impacts to Historic Resources

The Project proposes core-and-shell renovations to the existing building, whose footprint and massing are to remain essentially unchanged. Thus, no visual, shadow or wind impacts to nearby historic resources are anticipated.

6.5 Status of Project Reviews with Historical Agencies

Although the Project involves neither the demolition nor alteration of any historic resources, it will potentially be subject to State Register Review (950 CMR 71.00 et seq.) as a result of the need for one or more state permits, or other state actions. The Proponent will initiate Massachusetts Historical Commission review by providing MHC a copy of the ENF that will be filed pursuant to MEPA, as described above.

135 Morrissey Boulevard, Boston, Massachusetts

Epsilon Associates Inc.

Figure 6-1

Historic Resources

Section 7.0

Infrastructure

7.0 INFRASTRUCTURE

The existing infrastructure surrounding the 135 Morrissey 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 area 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 the capacity of the area utilities to provide services for the new building. A Boston Water and Sewer Commission (BWSC) Site Plan and General Service Application 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.

A Drainage Discharge Permit Application will be required from BWSC for any construction dewatering. The appropriate approvals from the MassDEP and the US Environmental Protection Agency (EPA) will also be sought.

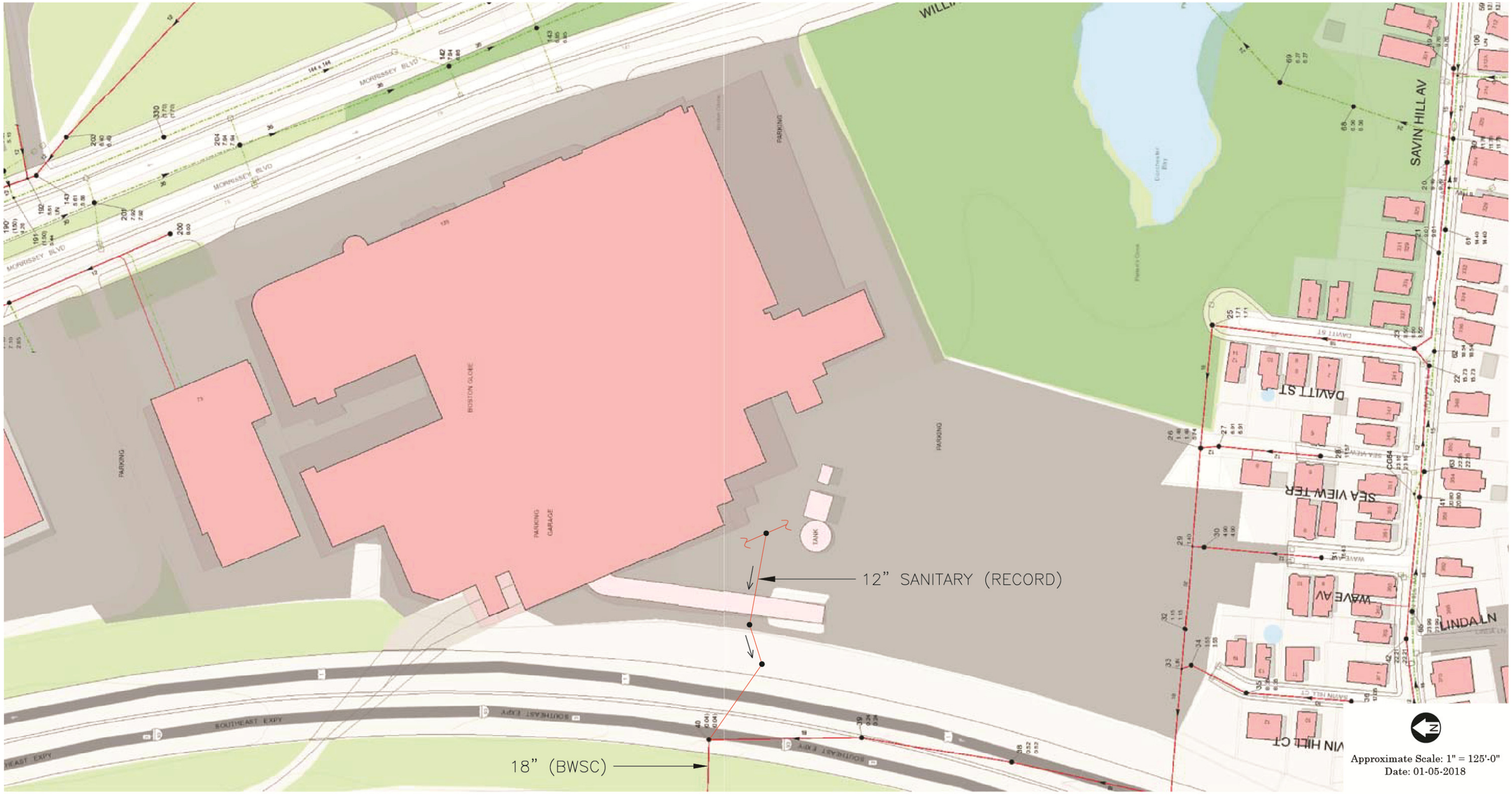
7.1 Sanitary Wastewater System

The following sections describe the existing sanitary wastewater system and the proposed improvements to the system in association with the Project.

7.1.1 Existing Sanitary Wastewater System

The building has several sanitary wastewater services, which are connected to a 12-inch sewer pipe located on the westerly side of the site. This pipe connects to an 18-inch sewer pipe owned and maintained by BWSC. The 18-inch pipe crosses beneath the Southeast Expressway and then ties into the Dorchester Interceptor located in Sydney Street (see Figure 7-1, *Sanitary Sewer System*).

The buildings on-site historically contained a mix of commercial and industrial uses. The total sewer flow from the existing site is estimated to have been 39,969 gallons per day (gpd) based on the building uses and design sewer flows provided in 310 CMR 15.000, the State Environmental Code, Title 5: *Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage* ("Title V"). The breakdown of these uses is summarized in Table 7-1.



Approximate Scale: 1" = 125'-0"
Date: 01-05-2018

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135 Morrissey Boston, Massachusetts

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Figure 7-1
Sanitary Sewer System

Table 7-1 Project Site Existing (Former) Wastewater Generation

Use	Number	Sewer Generation Rate	Total GPD
Light Industrial / Warehouse	881 Occupants[1]	20 gpd per person[2]	17,620
Office	352,500 sf	75 gpd per 1,000 sf	26,440
Total Estimated Existing Sewage Generation from Project Site			**44,060**

1. The average occupant load for light industrial/warehouse mix is assumed at 1 occupant per 400 square feet (sf). The gross floor area is approximately 352,500 sf (352,500/400 = 881 occupants).
1. Existing building has a cafeteria. Use 20 gpd/person per 310 CMR 15.416(3) for industrial and warehouse with cafeteria.

7.1.2 Project Sanitary Wastewater System

Sanitary wastewater from the buildings on-site will continue to be directed to the 12-inch pipe on the westerly side of the site. It is anticipated that the existing service will be inspected by an inline televised feed to confirm that the line is in good condition.

As the design progresses, the Project team will confirm that the floor drains within the covered parking areas are routed to an appropriately-sized oil and grease separator, and are dye tested to confirm they are routed to the sanitary sewer.

BWSC owns an 18-inch sanitary sewer that crosses the main parking area, and is located within an easement on the southerly end of the site. The Proponent will coordinate any proposed work within the easement with BWSC.

7.1.3 Estimated Sanitary Wastewater Flows

The Project as described in the PNF will generate an estimated 73,400 gpd based on design sewer flows provided in Title V, as summarized in Table 7-2. This is a net increase of 29,340 gpd over the estimated flows of the existing building.

Table 7-2 Project Site Proposed Wastewater Generation

Use	Number	Sewer Generation Rate	Total GPD
Office/Business	360,000 sf	75 gpd per 1,000 sf	27,000
Tech Flex/Light Industrial	1,500 Occupants[1]	15 gpd/person[2]	22,500
Warehouse	100 Occupants[3]	15 gpd/person[2]	1,500
Retail	8,000 sf	50 gpd/1,000 sf	400
Restaurant	100 seats[3]	35 gpd/seat	3,500
Food Service	750 seats	20 gpd/seat	15,000
Fitness	10,000 sf	50 gpd/100 sf	5,000
Total Estimated Proposed Sewage Generation			**73,400**

1. Assume 1 occupant per 200 sf. The gross floor area is 300,000 sf (300,000/200 = 1,500 occupants).
2. Use 15 gpd/person per 310 CMR 15.416(3) for industrial and warehouse without cafeteria (food service is calculated separately in above table).
3. Assume 20 sf per seat. Assume 2,000 sf restaurant (2,000/20 = 100 seats).

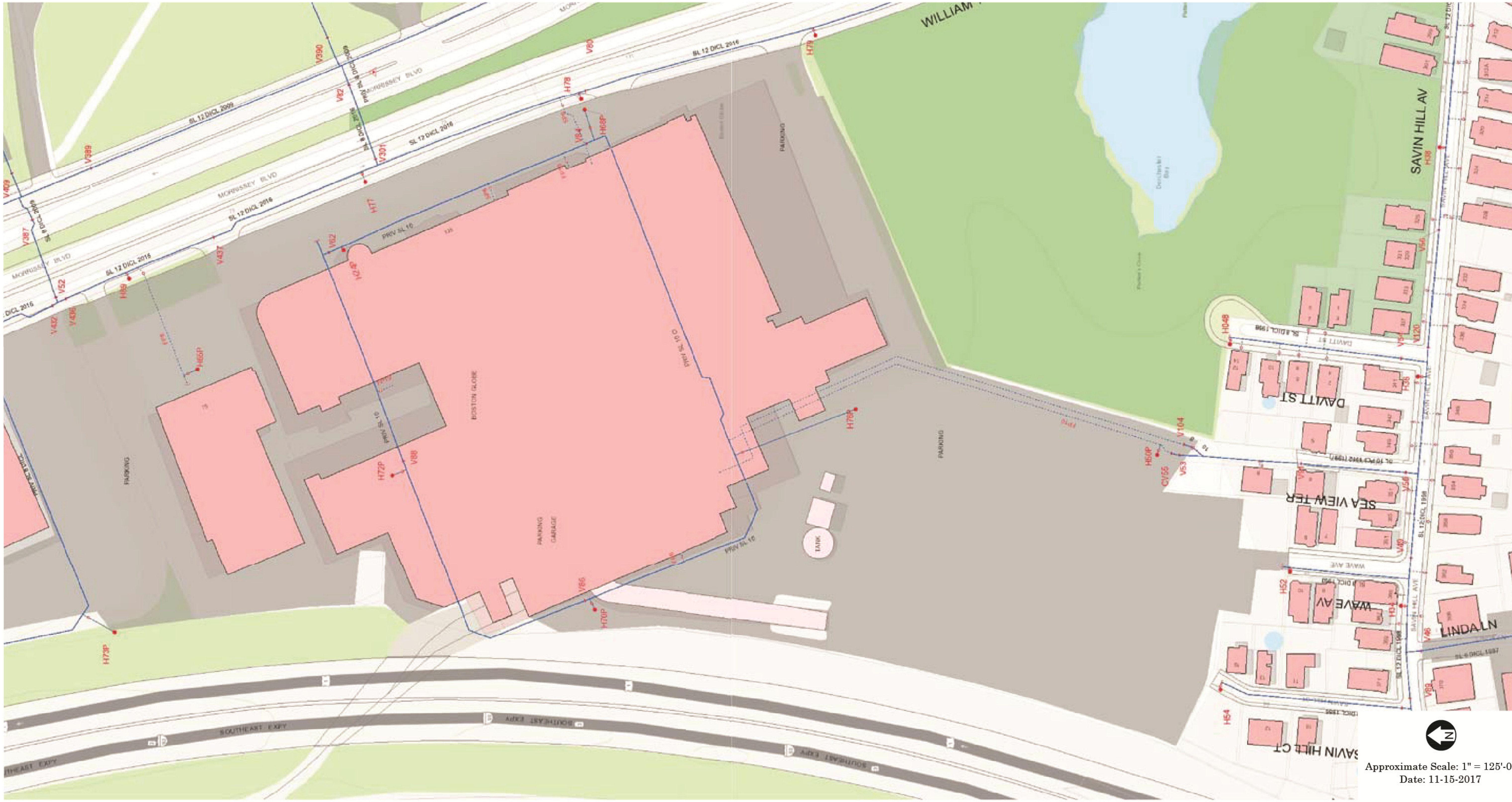
7.2 Water Supply System

The following sections describe the existing water system and the proposed improvements to the system in association with the Project.

7.2.1 Existing Water Service

The water distribution system adjacent to the Project site is owned and maintained by BWSC. BWSC record drawings indicate there is a new (2016) 12-inch cement-lined, ductile iron (CLDI) main in Morrissey Boulevard, and a 10-inch pit cast iron (PCI) main in Sea View Terrace that was installed in 1912 and cement-lined in 1997. Both mains are part of the Southern Low service network (see Figure 7-2, *Water System*).

The existing buildings are serviced by a 10-inch fire protection service line that loops around the buildings. The fire protection loops appear to be fed from both the 12-inch CLDI main and 10-inch PCI main.



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135 Morrissey Boston, Massachusetts

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Figure 7-2

Water System

On-site hydrants are connected to the 10-inch loop. There are three hydrants adjacent to the site on Morrissey Boulevard owned by BWSC. It appears that these hydrants provide sufficient coverage for the Project. The Proponent will confirm the fire hydrant coverage for the Project in consultation with BWSC and the Boston Fire Department (BFD) during the detailed design phase of the Project.

The building's domestic water service is provided from an 8-inch line that connects to the 10-inch water main in Sea View Terrace, and from a 6-inch line connected to the 12-inch main in Morrissey Boulevard.

7.2.2 Proposed Water Service

The Project proposes to reuse the existing water connections for both domestic water and fire protection. The Proponent will work with BWSC during the detailed design phase to determine if the meter and/or meter reading systems need to be upgraded. The Proponent will perform a hydrant flow test to determine the available flow and pressure of the water systems. A Site Plan will be submitted to BWSC if new water equipment (e.g. meters, backflow preventers) is required, or if hydrants need to be relocated.

7.2.3 Anticipated Water Consumption

The total water supply demand for the Project is estimated at approximately 80,700 gpd. The estimated water consumption is based on the Project's estimated sewage generation, plus a factor to account for consumption, system losses, and other usages to estimate an average water demand. The water for the Project will be supplied by BWSC. More detailed water use and meter sizing calculations will be submitted to BWSC as part of the Site Plan Review process.

7.2.4 Water Supply Conservation and Mitigation

To aid in the conservation of water used by the Project, the Proponent will investigate the use of water conservation devices such as low-flow toilets and urinals, flow-restricting faucets, and sensor operated sinks and toilets consistent with the Proponent's compliance at the LEED Certifiable threshold, and in compliance with all pertinent Code requirements.

7.3 Stormwater Management System

The following sections describe the existing and proposed stormwater management system, and detail the Project's proposed compliance with the MassDEP stormwater management guidance.

7.3.1 Existing Storm Drainage System

Stormwater runoff from a majority of the site is captured by catch basins and appears to be directed to a 60-inch storm drain that crosses the southerly end of the site. There appears to be little or no treatment of the runoff collected in the catch basins and storm drain. The roof drainage also appears to be directed to the 60-inch pipe. Stormwater directed to the 60-inch pipe most likely discharges via an outfall located in Patten's Cove.

The front parking area is sloped towards Morrissey Boulevard. There are notches in the curbing to allow runoff into a gravel strip. The gravel strip allows some stormwater infiltration, but appears undersized based on the observed erosion channels within the planted islands. The majority of the runoff appears to continue past the gravel strip and planted islands out into Morrissey Boulevard.

7.3.2 Proposed Storm Drainage System

The Project will result in a decrease in impervious areas, which alone will decrease peak runoff flows off-site and provide additional stormwater infiltration opportunities. The Project will also construct stormwater best management practices (BMPs), including deep sump catch basins, water quality units, and subsurface infiltration systems, to further reduce peak flows and pollutants discharging to Patten's Cove and provide additional groundwater recharge on-site (see Figure 7-3, *Proposed Stormwater Management System*).

7.3.3 MassDEP Stormwater Management Standards

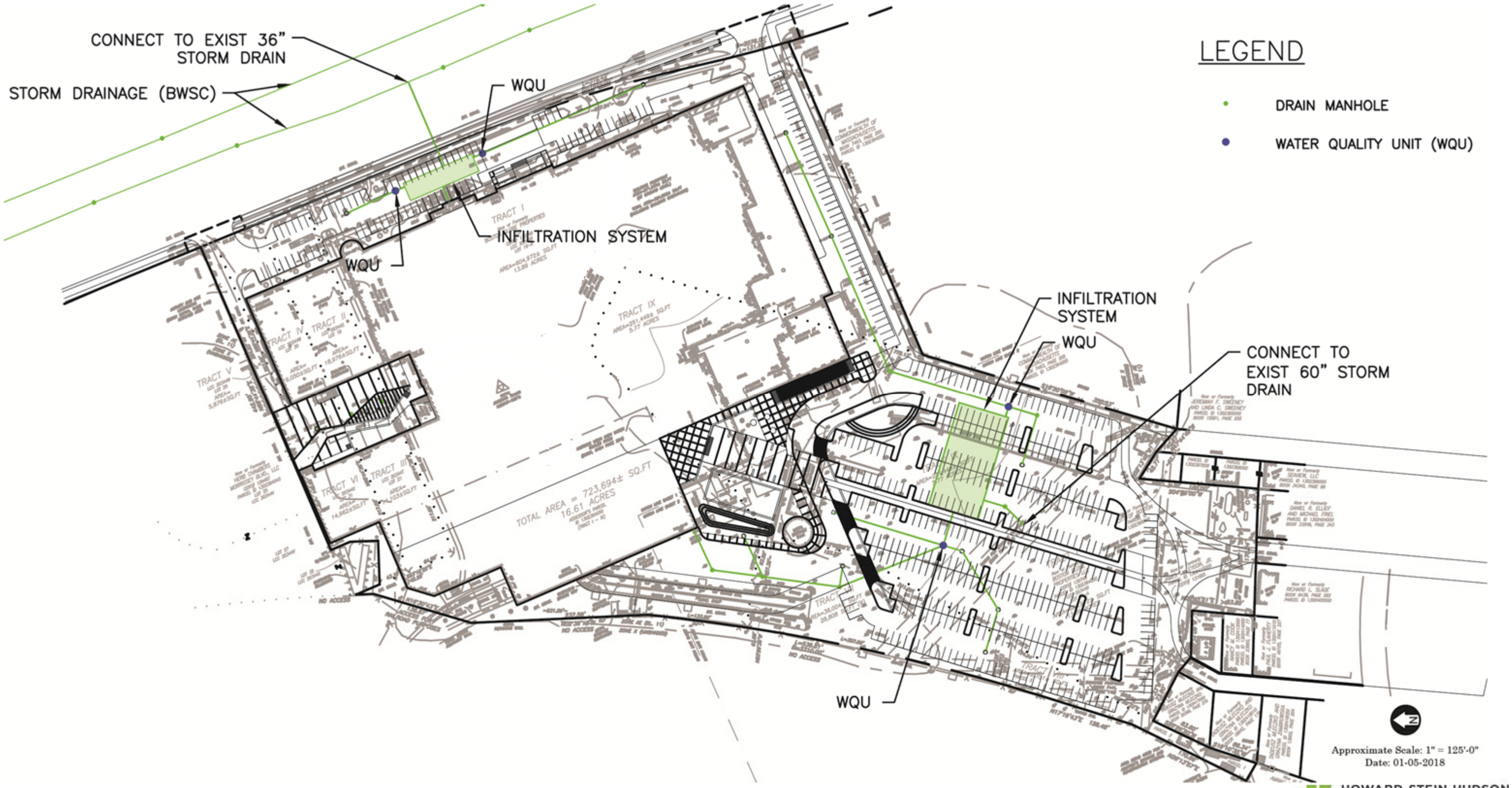
The Project will comply with the MassDEP stormwater management standards, as outlines below.

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 does not propose a new outfall. The Project will result in an improvement to the water quality of the stormwater reaching the existing outfall located in Patten's Cove. The Project will result in less stormwater reaching the outfall, reducing the potential for erosion caused by Project site runoff.

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

The Project will reduce stormwater peak discharge rates leaving the site by reducing the imperviousness of the site and providing stormwater infiltration BMPs.



135 Morrissey Boston, Massachusetts

Epsilon ASSOCIATES INC.

Figure 7-3

Proposed Stormwater Management System

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

The stormwater management system will increase the annual recharge to groundwater over existing conditions. This will be accomplished by reducing the impervious areas on the site, and 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).

If feasible, 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 and, in most cases, to a subsurface infiltration system prior to connecting to the existing storm drain system on-site. Full compliance is required for any component of the Project that is not a redevelopment, although the intent is to comply for the entire site.

Standard 5: Land uses with higher potential pollutant loads.

The Project will result in a land use with higher potential pollutant loads as it will generate more than 1,000 vehicle trips per day. The Project stormwater management system will be designed so as to be able to treat the first inch of stormwater runoff volume from the total impervious area of the main parking area located on the southerly end of the lot. Runoff from the main parking area will have at least 44% TSS removal before discharging to an infiltration system. If infiltration is not feasible, it is anticipated that a proprietary media filter will be used to treat the stormwater runoff from the main parking area.

Standard 6: Stormwater discharges to critical areas.

Portions of the stormwater discharges from the site will discharge to Patten's Cove. The waters and lands of Patten's Cove are not identified as a critical area. However, the waters of Patten's Cove flow into Savin Hill Cove opposite Morrissey Boulevard, which is identified as an area of "shellfish suitability." In response, and as noted above, the Project's stormwater management system will be designed to treat the one-inch water quality volume and provide 44% TSS removal prior to discharge to an infiltration BMP to the extent practicable. Where infiltration is not feasible, proprietary media filters will be considered.

Standard 7: Redevelopment projects.

The Project site has been previously developed. The redevelopment will reduce the impervious area on-site and implement stormwater BMPs that will further improve existing conditions.

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.

7.3.4 Water Quality and Construction Period Stormwater Management

The Project will not impact the water quality of nearby water bodies. The Project proposes a stormwater management program designed in compliance with MassDEP Stormwater Management Standards for redevelopment. This program will provide pretreatment and infiltration, if feasible, prior to the discharge of stormwater to the drainage system. An operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management system.

A pollution prevention plan will be prepared for use during construction, including during demolition activity. Stormwater pollution prevention measures will include good housekeeping practices, such as properly storing materials, spill prevention and response plans, and proper storage and disposal of solid wastes. Erosion and sediment controls will be used during construction to protect adjacent properties, the storm drain system, and the nearby surface waters. The Project's construction contractor will be responsible for controlling dust using street sweeping and watering, if necessary.

7.4 Electrical Service

Eversource owns and maintains the electrical transmission system in the vicinity of the Project. The electrical power supply design and loads for the building will be coordinated with Eversource during the design phase. The Proponent is investigating energy conservation measures, including energy efficient lighting and heating and cooling systems for the Project.

7.5 Telephone and Cable Systems

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

7.6 Natural Gas Systems

National Grid provides natural gas in the Project area. The actual size and location of the building services will be coordinated with National Grid.

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.

Section 8.0

Tidelands Component

8.0 TIDELANDS COMPONENT

Portions of the existing 135 Morrissey building and associated parking lot are located over filled former tidelands. In that these tidelands are not separated from the nearest flowed tidelands by a public right-of-way, activities within the footprint of these former tidelands are subject to MGL Chapter 91 and its implementing regulations at 310 CMR 9.00 et. seq. The following sections review the Project and Project site in relation to the applicability of Chapter 91 to the proposed site activities.

8.1 Introduction

Approximately 125,171 square feet of the Project site is deemed to be filled tidelands. Of this area, approximately 75,666 square feet is occupied by the existing building. The remaining 49,505 square feet are occupied by parking and driveway areas, or by small island-area landscaping. Figure 8-1, *Chapter 91 Program Presumptive Jurisdictional Boundaries*, shows the extent of the filled tidelands on the Project site, as well as the relationship of the site to the flowed tidelands of Patten's Cove. Table 8-1, *Summary of Site Dimensions*, provides site and Chapter 91 jurisdictional dimensions.

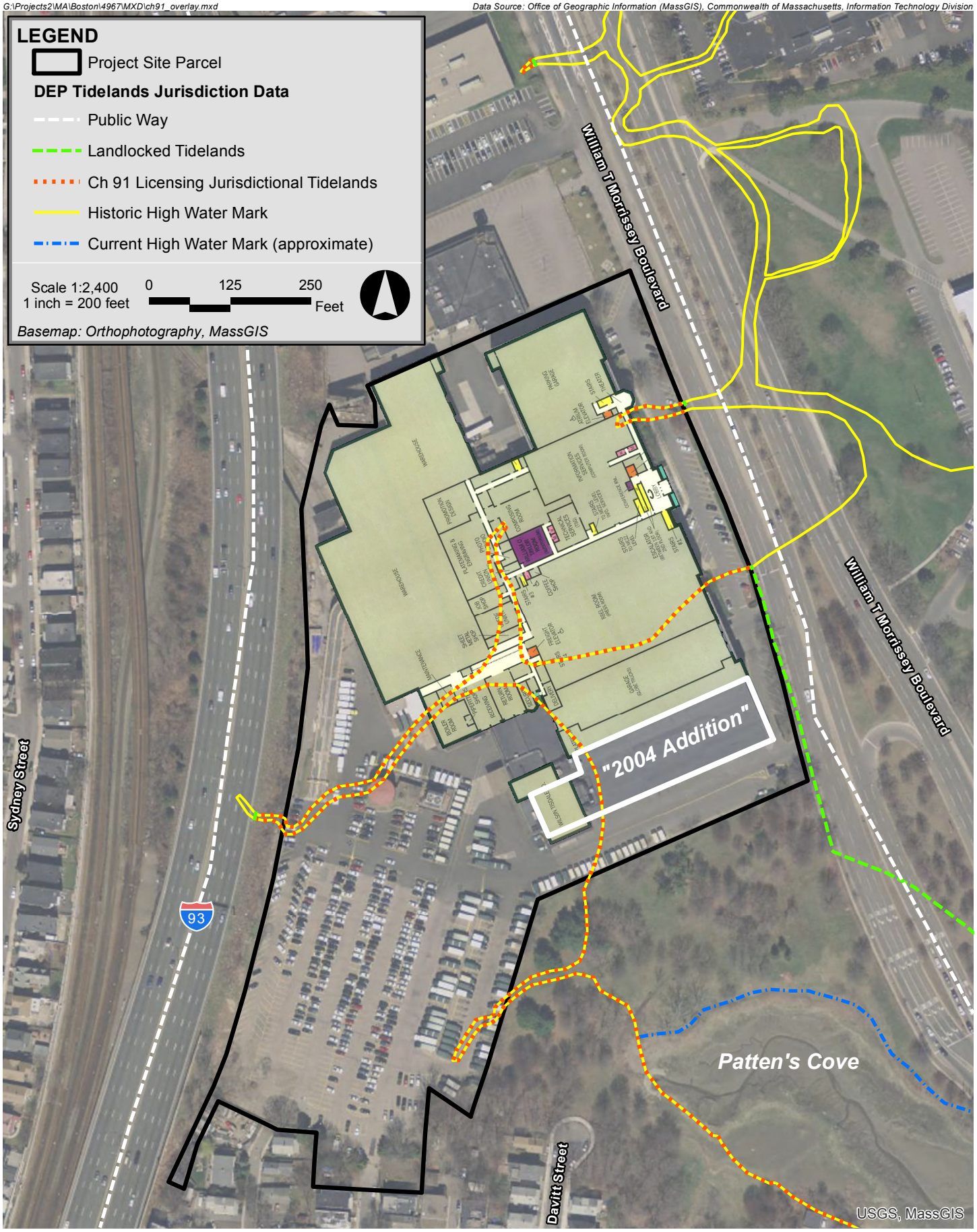
Table 8-1 Summary of Site Dimensions (approx.)

Project Site Area (total)	723,694 square feet
Chapter 91 Jurisdictional Area	125,171 square feet
Building Footprint within Chapter 91 Jurisdiction (total)	75,666 square feet
Pre-1984 Building Footprint within Chapter 91 Jurisdiction	48,993 square feet
Post-1984 Building Footprint within Chapter 91 Jurisdiction ("2004 Addition")	26,673 square feet

As described in Section 1.3, *Project Description*, the Proponent intends to renovate the interior of the building so as to continue the existing uses with updated mixed-use, light industrial, research, and office space, and to renovate and repair the building façade. The initial phases of this effort will include the removal of outdated industrial equipment and selective demolition of portions of the interior, and remediation of asbestos containing material.

8.2 Tidelands History

Portions of the existing 135 Morrissey structure and associated parking lot are located over filled former tidelands representing the northwestern extent of Patten's Cove and associated former tidal creeks. The extent and nature of these filled tidelands is shown on Figure 8-1.



135 Morrissey Boulevard, Boston, Massachusetts

Epsilon Associates Inc.

Figure 8-1

Chapter 91 Program Presumptive Jurisdictional Boundaries

Meanwhile, the currently flowed tidelands of Patten's Cove are located approximately 230 to 270 feet east and south of the Project site, entirely within the adjacent DCR Patten's Cove park.

The filling of tidelands at the Project site was authorized by two Chapter 91 Waterways Licenses: Department of Public Work License Number 1801, issued in 1936, and Port of Boston Authority License Number 83, issued in 1948. The former license was issued to authorize and maintain new and previously filled tidelands in and around Patten's Cove. The latter license authorized previously filled tidelands on either side of Morrissey Boulevard, then known as Old Colony Parkway. License 83 was made irrevocable by Chapters 773 and 775 of the Acts of 1957.

The existing building was constructed circa 1958. In 2004, approximately 26,673 square feet of building footprint was added in the air space above the loading docks at the southeast corner of the building (the "2004 Addition"). The lateral extent of the 2004 Addition located within filled tidelands is shown on Figure 8-1. No Chapter 91 license or amendment was found for the 2004 Addition.

8.3 Chapter 91 Jurisdiction

The provisions of MGL Chapter 91 are implemented through regulations promulgated and administered by the MassDEP Waterways Regulation Program. The regulations define the geographic limitation of Chapter 91 and identify the licensing and/or permitting requirements for activities within those geographical boundaries.

8.3.1 Chapter 91 Geographical Jurisdiction

A shown on Figure 8-1, portions of the Project site and the 135 Morrissey building structure are located on filled tidelands not separated from the flowed tidelands of Patten's Cove by a public right-of-way. As such, the filled tidelands of the site are not deemed "landlocked." Meanwhile, a review of historic maps of Savin Hill Cove indicate that these filled tidelands were located entirely between the historic high water mark (HHWM) and the historic low water mark (HLWM) and are therefore Private Tidelands. Finally, there are no flowed tidelands on or proximate to the site; hence, there is no water-dependent use zone on the site.

8.3.2 Chapter 91 Licensing Jurisdiction

The Proponent has submitted written notice to MassDEP to undertake minor modifications to the pre-1984 portions of the structure. These minor modifications include interior and exterior renovations to replace mechanicals and materials with high performance products, to alter the interior layout, to repair and/or replace the building façade and window treatments, and to remove asbestos containing material. Structural and other repairs will also be made as necessary.

None of the proposed Project activities result in a substantial change in the structure's existing relationship with the underlying filled tidelands. Similarly, the proposed building uses do not deviate substantially from the wide range of industrial, commercial, and support services that formerly occurred within the building confines. As noted in Section 1.2.1, *Existing Building*, these uses included factory/industrial for the main printing production operation, storage for newspaper sorting and warehouse spaces, loading and parking areas, office spaces, large meeting rooms, a full-service cafeteria, various mechanical and machine support spaces, a library, a post office, a credit union, a fitness room, a dry cleaner, and carpentry, plumbing, and electrical service rooms. Pursuant to the Chapter 91 regulations at 310 CMR 9.22, the proposed improvements to the pre-1984 sections of the building do not require licensing.

The Proponent will submit a Chapter 91 License application seeking approval for the 2004 Addition, and for the proposed renovations and uses of that area as described in Section 1.3, *Project Description*. The following sections describe Project's compliance with the applicable Chapter 91 regulatory standards.

8.4 Chapter 91 Regulatory Standards Review

The following sections review the proposed improvements and reuse of the post-1984 portion of the Project building (i.e. the 2004 Addition) with the applicable Chapter 91 regulatory standards.

8.4.1 §9.32 Categorical Restrictions on Fill and Structures

None of the proposed site uses or improvements is categorically restricted in previously filled tidelands.

8.4.2 §9.33 Environmental Protection Standards

The Chapter 91 regulations at 310 CMR 9.33 state that all projects must comply with the applicable environmental regulatory programs of the Commonwealth. As indicated in Section 1.9, *Anticipated Permits and Approvals*, and as further set forth in this PNF, the Project will comply with the regulatory programs specifically applicable to this Project, including without limitation, the *Massachusetts Environmental Policy Act (MEPA),* the *Massachusetts Wetlands Protection Act (WPA),* the *Massachusetts Clean Water Act,* the *Massachusetts Historical Commission Act,* and the *Massachusetts Coastal Zone Management Act.* A final *Coastal Zone Management Consistency Statement* will be included with the Chapter 91 license application to be submitted by the Proponent.

8.4.3 §9.34 Conformance with Municipal Zoning and Harbor Plans

The proposed Project is being reviewed by the BPDA pursuant to Article 80, Section 80B, Large Project Review. The Project's consistency with zoning is reviewed in Section 1.6, *Consistency with Zoning*. The site does not lie with the bounds of an existing Municipal Harbor Plan.

8.4.4 §9.35 Standards to Preserve Water-Related Public Rights

The Chapter 91 Waterways regulations at §9.35 are designed to preserve the public's rights to navigation along, and free passage over and through, the water, and access to town landings, and are also designed to ensure that jurisdictional public waterfront open spaces are properly managed and maintained.

The Project site is not located on the waterfront and the improvements proposed do not include any development directly on the water. However, the Project will create new public open spaces that will be integrated into the existing public realm. These improvements will include the removal of the chain link fence separating the Project site from Patten's Cove park, and the creation of a graduated green buffer along the site's periphery with the park and with the Savin Hill neighborhood. Pedestrian walkways will be established across the site, linking the park and the Savin Hill neighborhood to the sidewalks of Morrissey Boulevard, and thereby considerably shortening the connection between the neighborhood and the MBTA JFK/UMass Red Line/South Shore Commuter Rail Station to the north.

In addition to the above Project site improvements, the Proponent is in discussions with the DCR regarding the potential for an ongoing stewardship role for maintenance and oversight of the Patten's Cove park. The goal would be to make the park more accessible for the neighbors of Savin Hill and the public at large, including building tenants.

8.4.5 §9.36 Standards to Protect Water-Dependent Uses

There are currently no water-dependent uses within the Project site and no water dependent uses have existed on the site since 1958. It is unknown whether prior to 1958 the site had ever included water-dependent uses.

8.4.6 §9.37 Engineering Construction Standards

All Project structures will be designed and constructed in a manner that is structurally sound and will be certified by a Registered Professional Engineer. The Federal Emergency Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Project site, City of Boston-Community Panel Number 25025C0083J, Revised March 16, 2016, indicates a "Zone AE- Area of 100 – Year Flood" with a base flood elevation of 11 feet (NGVD88) associated with the Savin Hill Cove and Boston Inner Harbor. The AE Zone encompasses the post-1984 building

footprint, as well as other portions of the site. Improvements to the building and the site will incorporate those measures necessary to insure resiliency to any future flooding event, as well as measures to prevent the Project from exacerbating the effects of any flood event.

8.4.7 §9.51 Conservation of Capacity for Water-Dependent Use

Improvements associated with the Project site will enhance and promote pedestrian access to the filled tidelands within the Project site boundaries, as well as along the flowed waters of the nearby Patten's Cove park. The Project will meet or exceed the Chapter 91 regulatory standards by complying with the applicable standards found in 310 CMR 9.51. Because the Project does not have a project shoreline or a water-dependent use zone, many of these standards do not apply to the Project. A more detailed analysis of the regulatory requirements and the compliance of the Project with these requirements will be set forth in the MEPA and Chapter 91 filings for the Project.

8.4.8 §9.52 Utilization of Shoreline for Water-Dependent Purposes

The Project site does not contain a water-dependent use zone, but the Project will comply with the requirements of 310 CMR 9.52 by providing connecting walkways or other public pedestrian facilities. As noted above, the Project proposes to remove the chain link fence separating the site from Patten's Cove park and to create a graduated green buffer along the site's periphery with the park and with the Savin Hill neighborhood. In addition, pedestrian walkways will be established across the site, linking the Savin Hill neighborhood to the sidewalks of Morrissey Boulevard, and thereby considerably shortening the connection between the neighborhood and the MBTA JFK/UMass Red Line/South Shore Commuter Rail Station to the north. Finally, as also noted above, the Proponent is in discussions with DCR regarding the potential for an ongoing stewardship role for maintenance and oversight of the Patten's Cove park.

8.4.9 §9.54 Consistency with Coastal Zone Management Policies

The proposed Project is located within the boundaries of the coastal zone as determined by the regulations of the Massachusetts Coastal Zone Management (MCZM) Program. Per the Chapter 91 regulations, nonwater-dependent use projects located in the coastal zone must be consistent with all policies of the MCZM Program.

The Project complies with the applicable policies of the MCZM Program and will be constructed and operated in a manner consistent with the MCZM Program. A more detailed analysis of the MCZM policies and the compliance of the Project with these requirements will be set forth in the MEPA and Chapter 91 filings for the Project.

Section 9.0

Coordination with other Governmental Agencies

9.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

9.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act. The Accessibility Checklist and a plan of the accessibility routes for the Project are included in Appendix F, *Accessibility Checklist and Accessibility Routes Plan*.

9.2 Massachusetts Environmental Policy Act (MEPA)

The Project exceeds the mandatory MEPA review threshold at 301 CMR 11.03 (3)(b)(5) for the filing of an Environmental Notification Form (ENF) because a portion of the existing building includes the unlicensed non-water dependent use of waterways or tidelands, and thereby requires a license under the Public Waterfront Act, M.G.L. Chapter 91. However, because the footprint of that portion of the building subject to Chapter 91 licensing is less than one acre, the Project does not exceed the mandatory threshold for the filing of an Environmental Impact Report (EIR).

The Proponent will file an ENF with the MEPA Office to initiate MEPA review.

9.3 Massachusetts Department of Environmental Protection (MassDEP)

A portion of the Project site is subject to review under the Public Waterfront Act, M.G.L. Chapter 91 and 310 CMR 9.00 et seq, as administered by MassDEP. The Proponent has initiated coordination with the MassDEP Waterways Regulation Program, including filing a notice of Minor Project Modification for those portions of the building constructed prior to 1984, and anticipates filing a Chapter 91 Waterways license application near the conclusion of the Project's MEPA review process.

9.4 Massachusetts Historical Commission State Register Review

As described in Section 6.0, the Project will potentially be subject to State Register Review (950 CMR 71.00 et seq.) as a result of the need for one or more state permits, or other state actions. The Proponent will initiate Massachusetts Historical Commission review by providing MHC a copy of the ENF that will be filed pursuant to MEPA as described in the previous section.

9.5 Boston Civic Design Commission

Because the Project is subject to Large Project Review under Boston Zoning Code Section 80B, it will also be subject to review by the Boston Civic Design Commission (BCDC) under the provisions of Article 28 of that code. A copy of this PNF will be submitted to the BCDC by the BPDA to initiate such review.

9.6 Boston Conservation Commission

Certain Project activities will take place in areas subject to the Massachusetts Wetlands Protection Act, M.G.L c. 131 § 40 and 310 CMR 10.00 et seq. More specifically, portions of the site are located in mapped floodplain identified under the WPA as Land Subject to Coastal Storm Flowage (LSCSF). As such, an Order of Conditions will be required from the Boston Conservation Commission. The Project will prepare and submit to the Boston Conservation Commission a Notice of Intent describing the activities proposed within LSCSF, and demonstrating that the resource area and, more specifically, the interests of the resource area, are fully protected.

9.7 Other Permits and Approvals

Section 1.9, *Anticipated Permits and Approvals,* provides a list of agencies from which it is anticipated that permits and approvals for the Project will be sought.

Appendix A

Letter of Intent to File Project Notification Form

Nordblom

November 1, 2017

Brian Golden, Director
Boston Planning & Development Agency
Boston City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: Letter of Intent to file Project Notification Form
135 William T. Morrissey Boulevard, Boston (Dorchester) MA

Dear Director Golden:

Please accept this letter as a Letter of Intent submitted to the Boston Redevelopment Authority d/b/a the Boston Planning & Development Agency ("BPDA") pursuant to the Executive Order entitled "*An Order Relative to the Provision of Mitigation by Development Projects in Boston*" by Nordblom Development Company, Inc., on behalf of 135 Morrissey Owner LLC, regarding a proposed project to be submitted to the BPDA for review under Article 80 of the Boston Zoning Code by the filing of an Expanded Project Notification Form ("PNF").

The proposed project (the "Project") involves the renovation and reuse of the approximately 690,000 sf building located at 135 William T. Morrissey Boulevard (Dorchester), the site of the former headquarters for the Boston Globe. The Project Site comprises approximately 16.61 acres (± 723,694 S.F.) It is expected that the building will be used for light industrial, creative office, technology, life sciences, small retail, food and beverage, and other commercial uses. The Project will include significant site and pedestrian realm improvements, landscaping, and other measures to improve the connectivity of the Savin Hill neighborhood to the JFK/UMASS MBTA station, Patten's Cove, and the Project Site.

We believe that the Project will have a positive impact on the neighborhood and furthers the goals of the City of Boston, Savin Hill, and Dorchester neighborhood residents. Our intent is to identify potential impacts of the Proposed Project in consultation with the BPDA and other city agencies and to file a PNF which studies and addresses all such impacts. We have taken and will continue to undertake outreach to the surrounding neighborhood to understand any potential impacts of the Project on the neighborhood.

1961479_2

We look forward to working with the BPDA on this important Project.

Very truly yours,

NORDBLOM DEVELOPMENT COMPANY, INC.

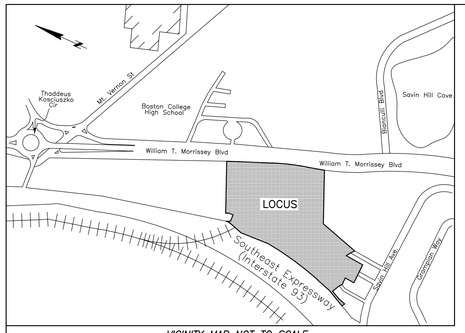
Ogden Hunnewell

Name: Ogden Hunnewell
Title: EVP

cc: Raul Duverge, Boston Planning & Development Agency

Appendix B

Existing Conditions Plan (Sheets 1 and 2 of 2)



VICINITY MAP NOT TO SCALE

GENERAL NOTES:

1) BY GRAPHIC PLOTTING ONLY, THE PARCEL SHOWN HEREON LIES WITHIN A ZONE "AE" (BASE FLOOD ELEVATION 11), AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD EVENT, AND A ZONE "X" (UNSHADED), AN AREA OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOOD, 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 25025C0083J, CITY OF BOSTON COMMUNITY NUMBER 250286, PANEL NUMBER 0083J, HAVING AN EFFECTIVE DATE OF MARCH 16, 2016.

2) BUILDING HEIGHTS SHOWN HEREON WERE CALCULATED FROM THE AVERAGE GRADE PLANE TO THE TOP OF ROOF. BY CITY OF BOSTON ZONING CODE, THE DEFINITION OF BUILDING HEIGHT IS TO THE TOP OF THE HIGHEST ROOF BEAM; THIS WAS INACCESSIBLE AT TIME OF SURVEY. THEREFORE THE BUILDING HEIGHT BY DEFINITION WOULD BE LESS THAN THE HEIGHT SHOWN HEREON.

3) BENCH MARKS USED:
BM–C: NORTH CORNER OF 3.5 FOOT HIGH CONCRETE WALL AS SHOWN ON EXISTING CONDITIONS PLAN BY FLS #13360.
ELEVATION=20.48

BM–D: RIGHT OUTER CORNER LOWER STONE STEP (R.O.C.L.S.S.) AT THE ENTRANCE TO THE JFK LIBRARY AND MUSEUM AS SHOWN HEREON ON EXISTING CONDITIONS PLAN BY FLS #13360.

ELEVATION=18.87

TEMPORARY BENCH MARKS USED:
TBM–B: CHISEL SQUARE ON SOUTH SIDE OF LIGHT POLE BASE AS SHOWN ON EXISTING CONDITIONS PLAN BY FLS #15296.
ELEVATION=20.15

TBM–C: FLANGE BOLT NEXT TO THE "O" IN "OPEN" ON A HYDRANT AS SHOWN ON EXISTING CONDITIONS PLAN BY FLS #15296.
ELEVATION=22.22

TEMPORARY BENCH MARKS SET: TBM–DS2: WESTERLY HYDRANT BONNET BOLT SOUTH OF THE BUILDING AT THE FUELING STATION AREA. (SHOWN ON PLAN)
ELEVATION = 19.28

TBM–DS3: LEFT FRONT EASTERLY HYDRANT BONNET BOLT UNDER "Y" IN KENNEDY IN THE FAR SOUTHERLY CORNER OF THE PARKING LOT. (SHOWN ON PLAN)
ELEVATION = 19.64

TBM–DS4: WESTERLY HYDRANT BONNET BOLT AT THE NORTHEASTERLY END OF BUILDING. (SHOWN ON PLAN)
ELEVATION = 18.10

TBM–SH1: CHISELED SQUARE ON OUTER EDGE OF FLAG POLE BASE APPROXIMATELY 2' FROM FLAG POLE IN FRONT OF BUILDING. (SHOWN ON PLAN)
ELEVATION = 17.13

TBM–SH2: MARK ON BACK RIGHT CORNER OF OF CONCRETE BASE OF TRAFFIC SIGNAL BOX BY ENTRANCE TO 135 MORRISSEY BOULEVARD. (SHOWN ON PLAN)
ELEVATION = 16.71

4) ELEVATIONS REFER TO BOSTON CITY BASE, PER ABOVE REFERENCED PLAN.

WILLIAM T. MORRISSEY (PUBLIC – VARIABLE WIDTH) BOULEVARD
(DEPARTMENT OF CONSERVATION AND RECREATION)

P.O.B. (ALTERNATE DESCRIPTION)

TRACT I
Now or Formerly
BOSTON GLOBE PROPERTIES LLC
CERT# 130749
LCC 20344R
LOT 16–A
AREA=604,972± SQ.FT
13.89 ACRES

TRACT II
LCC 20344S
LOT 19
AREA=18,976±SQ.FT

TRACT III
LCC 20344T
LOT 21
AREA=14,103±SQ.FT

TRACT IV
LCC 20344W
LOT 30
AREA=19,050±SQ.FT

TRACT V
LCC 20344W
LOT 29
AREA=5,876±SQ.FT

TRACT VI
LCC 20344X
LOT 31
AREA=14,962±SQ.FT

TRACT VII
AREA=251,449± SQ.FT
5.77 ACRES

TRACT IX
AREA=271,930± SQ.FT
(AT GROUND LEVEL)
TOTAL AREA=324,886± SQ.FT
(INCLUDING BUILDING OVERHANGS)

TOTAL AREA = 723,694± SQ.FT
16.61 ACRES
ASSESSOR'S PARCEL
ID 1302364050
(TRACT I – IX)

Now or Formerly
HERB CHAMBERS MORRISSEY BLVD., LLC
CERT# 129487
PARCEL ID 1302364045
LOT 25
LCC 20344V

Now or Formerly
COMMONWEALTH OF MASSACHUSETTS
BOOK 7463, PAGE 205
PARCEL ID 1302364055

LOT 27 LCC 20344V
LOT 32 LCC 20344X

NO. 135

ACTIVITY AND USE LIMITATIONS (BOOK 20764, PAGE 148) HATCHED AREA

EASEMENT FOR TELEPHONE PURPOSES SCALED FROM (BOOK 7299, PAGE 172)

HISTORIC MEAN HIGH WATER SCALED FROM (LCC 20344E)

HISTORIC MEAN HIGH WATER SCALED FROM (BOOK 6454, PAGE 224)

LIMITS OF ROOF DECK PARKING

153 REGULAR SPACES
5 HANDICAP SPACES
ON ROOF DECK PARKING

METAL ANTENNA TOWER HEIGHT=155'±

PARCEL 5–D–10 DRAINAGE EASEMENT DOC.224875

PARCEL 5–D–11 DRAINAGE EASEMENT DOC.224875

ACCESS FOR RAILROAD PURPOSES

NO ACCESS

SOUTHEAST (INTERSTATE 93) EXPRESSWAY
(PUBLIC – VARIABLE WIDTH)
(M.H.D LAYOUT 4405)

DETAIL "A" NOT TO SCALE

PROGRESS PRINT 1/24/2018

EXISTING CONDITIONS PLAN
135 WILLIAM T. MORRISSEY BOULEVARD
BOSTON, MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02119
JANUARY 8, 2018
PHONE: (617)357–9740
www.feldmansurveyors.com

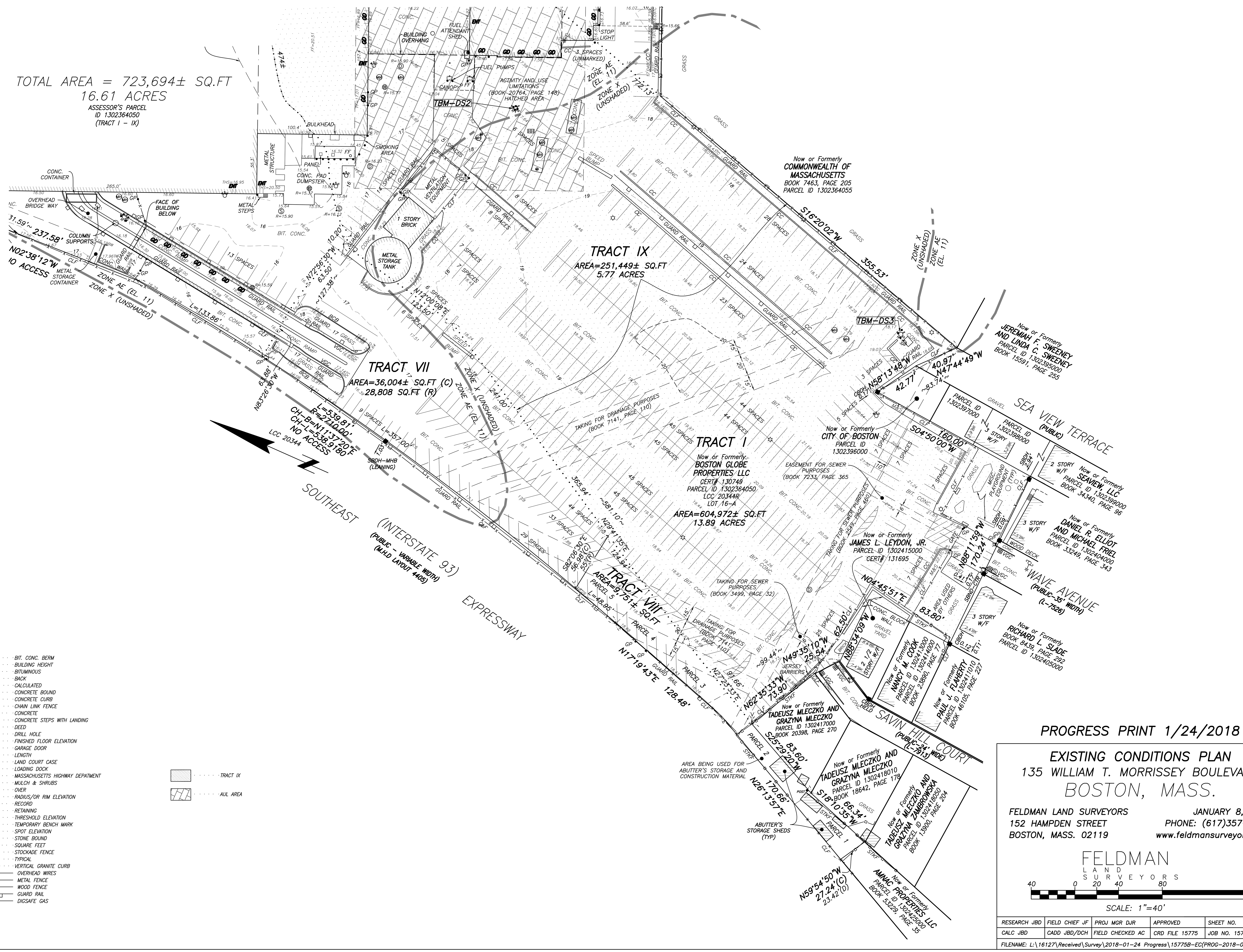
FELDMAN LAND SURVEYORS

40 0 20 40 80 160
SCALE: 1"=40'

RESEARCH JBD	FIELD CHIEF JF	PROJ MGR DJR	APPROVED	SHEET NO. 1 OF 2
CALC JBD	CADD JBD/DCH	FIELD CHECKED AC	CRD FILE 15775	JOB NO. 15775B

FILENAME: L:\16127\Received\Survey\2018–01–24 Progress\15775B–EC(PROG–2018–01–24).dwg

TOTAL AREA = 723,694± SQ.FT
16.61 ACRES
ASSESSOR'S PARCEL
ID 1302364050
(TRACT I - IX)



TRACT IX
AREA=251,449± SQ.FT
5.77 ACRES
TRACT VII
AREA=36,004± SQ.FT (C)
28,808 SQ.FT (R)
TRACT I
Now or Formerly
BOSTON GLOBE
PROPERTIES LLC
CERT# 130749
PARCEL ID 1302364050
LCC 20344R
LOT 16-A
AREA=604,972± SQ.FT
13.89 ACRES
TRACT VIII
Now or Formerly
COMMONWEALTH OF
MASSACHUSETTS
BOOK 7463, PAGE 205
PARCEL ID 1302364055
Now or Formerly
CITY OF BOSTON
PARCEL ID
1302396000
Now or Formerly
JAMES L. LEYDON, JR.
PARCEL ID 1302415000
CERT# 131695
SOUTHEAST (INTERSTATE 93) EXPRESSWAY
(PUBLIC - VARIABLE WIDTH)
(M.H.D LAYOUT 4405)
SEA VIEW TERRACE
(PUBLIC)
WAVE AVENUE
(PUBLIC-35' WIDTH)
(L-7526)
SAVIN HILL COURT
(PUBLIC-24' WIDE)
(L-7913)
Now or Formerly
JEREMIAH F. SWEENEY
AND LINDA C. SWEENEY
PARCEL ID 1302395000
BOOK 1591, PAGE 255
Now or Formerly
SEAVIEW, LLC
PARCEL ID 1302399000
BOOK 34340, PAGE 96
Now or Formerly
DANIEL R. ELLIOT
AND MICHAEL FRIEL
PARCEL ID 1302404000
BOOK 33249, PAGE 343
Now or Formerly
RICHARD L. SLADE
BOOK 8439, PAGE 292
PARCEL ID 1302405000
Now or Formerly
NANCY M. COOK
PARCEL ID 1302413000
BOOK 23890, PAGE 77
Now or Formerly
PAUL J. FLAHERTY
PARCEL ID 1302410010
BOOK 46105, PAGE 227
Now or Formerly
TADEUSZ MLECZKO AND
GRAZYNA MLECZKO
PARCEL ID 1302417000
BOOK 20398, PAGE 270
Now or Formerly
TADEUSZ MLECZKO AND
GRAZYNA MLECZKO
PARCEL ID 1302418010
BOOK 18642, PAGE 178
Now or Formerly
TADEUSZ MLECZKO AND
GRAZYNA ZAMBROWSKA
PARCEL ID 1302418050
BOOK 13800, PAGE 204
Now or Formerly
AMNAC PROPERTIES LLC
PARCEL ID 1302420000
BOOK 53229, PAGE 35
TAKING FOR DRAINAGE PURPOSES
(BOOK 7141, PAGE 110)
TAKING FOR SEWER PURPOSES
(BOOK 3499, PAGE 32)
EASEMENT FOR SEWER PURPOSES
(BOOK 7233, PAGE 365)
ACTIVITY AND USE LIMITATIONS
(BOOK 20764, PAGE 148)
HATCHED AREA
AREA BEING USED FOR ABUTTER'S STORAGE AND CONSTRUCTION MATERIAL
ABUTTER'S STORAGE SHEDS (TYP)
TBM-DS2
TBM-DS3

PLAN REFERENCES

COUNTY REGISTRY OF DEEDS
PLAN BOOK 1865, PAGE 605
PLAN BOOK 2385, PAGE 96
PLAN BOOK 2398, PAGE 11
PLAN BOOK 7039, PAGE 179
PLAN BOOK 10145, PAGE 1
PLAN BOOK 14932, PAGE 49

MASSACHUSETTS LAND COURT
LCC 20344
LCC 21884

CITY OF BOSTON ENGINEERING DEPARTMENT
PLAN NO. L-7526
PLAN NO. L-8033
PLAN NO. L-7913

FIELD BOOK B-836, PAGE 143-144
FIELD BOOK B-836, PAGE 146
FIELD BOOK B-1254, PAGE 29

MASSACHUSETTS HIGHWAY DEPARTMENT
PLAN NO. 4405

MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION
PLAN NO. 38010-VT

LEGEND

S	SEWER MANHOLE	BCB	BIT. CONC. BERM
D	DRAIN MANHOLE	BH	BUILDING HEIGHT
E	ELECTRIC MANHOLE	BIT	BITUMINOUS
W	WATER MANHOLE	BK	BACK
T	TELEPHONE MANHOLE	(C)	CALCULATED
C	CABLE TV MANHOLE	CB	CONCRETE BOUND
	MANHOLE	CC	CONCRETE CURB
	BOSTON WATER VALVE	CLF	CHAIN LINK FENCE
	WATER SHUT OFF/WATER GATE	CONC	CONCRETE
	GAS SHUT OFF/GAS GATE	CSL	CONCRETE STEPS WITH LANDING
	HYDRANT	(D)	DEED
	CATCH BASIN	DH	DRILL HOLE
	ROUND CATCH BASIN	FF=	FINISHED FLOOR ELEVATION
	D-FRAME CATCH BASIN	GD	GARAGE DOOR
	GUY WIRE	L=	LENGTH
	TRAFFIC CONTROL BOX	LCC	LAND COURT CASE
	TRAFFIC SIGNAL	LD	LOADING DOCK
	GUY POLE	M.H.D.	MASSACHUSETTS HIGHWAY DEPATMENT
	UTILITY POLE	M&S	MULCH & SHRUBS
	LIGHT POLE	OV	OVER
	WALK LIGHT	R=	RADIUS/OR RIM ELEVATION
	ELECTRIC HANDHOLE	(R)	RECORD
	BOLLARD	RET	RETAINING
	SIGN	THS	THRESHOLD ELEVATION
AD	AREA DRAIN	TBM	TEMPORARY BENCH MARK
FF	FUEL FILL	XX.XX	SPOT ELEVATION
FP	FLAG POLE	SB	STONE BOUND
FA	FIRE ALARM	SQ. FT.	SQUARE FEET
	BOUND FOUND	STKF	STOCKADE FENCE
	OBSERVATION WELL	TYP	TYPICAL
	STAND PIPE/SIAMESE CONNECTION	VGC	VERTICAL GRANITE CURB
	FLOOD LIGHT	OHW	OVERHEAD WIRES
	UTILITY POLE W/ LIGHT	X	METAL FENCE
GP	GATE POST		WOOD FENCE
	IRRIGATION CONTROL VALVE		GUARD RAIL
	INDICATES COMMON OWNERSHIP	DSG	DIGSAFE GAS
X	EXCEPTION NUMBER LISTED IN TITLE COMMITMENT		TRACT IX
	ENCROACHMENT		AUL AREA
	HANDICAP RAMP		

PROGRESS PRINT 1/24/2018

EXISTING CONDITIONS PLAN
135 WILLIAM T. MORRISSEY BOULEVARD
BOSTON, MASS.

FELDMAN LAND SURVEYORS
152 HAMPDEN STREET
BOSTON, MASS. 02119

JANUARY 8, 2018

PHONE: (617)357-9740
www.feldmansurveyors.com

FELDMAN LAND SURVEYORS

SCALE: 1"=40'

RESEARCH JBD	FIELD CHIEF JF	PROJ MGR DJR	APPROVED	SHEET NO. 2 OF 2
CALC JBD	CADD JBD/DCH	FIELD CHECKED AC	CRD FILE 15775	JOB NO. 15775B

FILENAME: L:\16127\Received\Survey\2018-01-24 Progress\15775B-EC(PROG-2018-01-24).dwg

Appendix C

Transportation Analysis Data

Transportation Data Corporation

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

N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624A
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

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

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	87	1	0	16	0	29	0	88	716	0	2	65	66	41	0	1111
07:15 AM	0	99	0	0	12	0	59	2	92	725	0	1	96	49	51	0	1186
07:30 AM	0	113	0	0	21	0	61	2	124	823	0	4	127	56	54	0	1385
07:45 AM	0	136	1	0	24	0	44	2	91	706	0	5	130	51	51	0	1241
Total	0	435	2	0	73	0	193	6	395	2970	0	12	418	222	197	0	4923
08:00 AM	0	161	1	0	33	0	41	1	102	809	0	3	124	32	50	3	1360
08:15 AM	0	133	0	0	14	0	31	1	79	725	0	3	94	37	26	0	1143
08:30 AM	0	124	1	0	9	0	19	1	78	655	0	9	104	40	15	0	1055
08:45 AM	0	118	0	0	14	0	23	2	77	689	0	4	103	44	14	0	1088
Total	0	536	2	0	70	0	114	5	336	2878	0	19	425	153	105	3	4646
Grand Total	0	971	4	0	143	0	307	11	731	5848	0	31	843	375	302	3	9569
Apprch %	0	99.6	0.4	0	31	0	66.6	2.4	11.1	88.5	0	0.5	55.4	24.6	19.8	0.2	
Total %	0	10.1	0	0	1.5	0	3.2	0.1	7.6	61.1	0	0.3	8.8	3.9	3.2	0	
Cars & Peds	0	967	0	0	138	0	306	11	712	5821	0	31	839	363	289	3	9480
% Cars & Peds	0	99.6	0	0	96.5	0	99.7	100	97.4	99.5	0	100	99.5	96.8	95.7	100	99.1
Trucks & Buses	0	3	0	0	5	0	1	0	2	12	0	0	3	12	13	0	51
% Trucks & Buses	0	0.3	0	0	3.5	0	0.3	0	0.3	0.2	0	0	0.4	3.2	4.3	0	0.5
Bikes by Direction	0	1	4	0	0	0	0	0	17	15	0	0	1	0	0	0	38
% Bikes by Direction	0	0.1	100	0	0	0	0	0	2.3	0.3	0	0	0.1	0	0	0	0.4

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	99	0	0	99	12	0	59	**2**	73	92	725	0	1	818	96	49	51	0	196	1186
07:30 AM	0	113	0	0	113	21	0	**61**	2	**84**	**124**	**823**	0	4	**951**	127	**56**	**54**	0	**237**	**1385**
07:45 AM	0	136	**1**	0	137	24	0	44	2	70	91	706	0	**5**	802	**130**	51	51	0	232	1241
08:00 AM	0	**161**	1	0	**162**	**33**	0	41	1	75	102	809	0	3	914	124	32	50	**3**	209	1360
Total Volume	0	509	2	0	511	90	0	205	7	302	409	3063	0	13	3485	477	188	206	3	874	5172
% App. Total	0	99.6	0.4	0		29.8	0	67.9	2.3		11.7	87.9	0	0.4		54.6	21.5	23.6	0.3		
PHF	.000	.790	.500	.000	.789	.682	.000	.840	.875	.899	.825	.930	.000	.650	.916	.917	.839	.954	.250	.922	.934
Cars & Peds	0	507	0	0	507	88	0	204	7	299	398	3047	0	13	3458	475	185	203	3	866	5130
% Cars & Peds	0	99.6	0	0	99.2	97.8	0	99.5	100	99.0	97.3	99.5	0	100	99.2	99.6	98.4	98.5	100	99.1	99.2
Trucks & Buses	0	2	0	0	2	2	0	1	0	3	2	7	0	0	9	2	3	3	0	8	22
% Trucks & Buses	0	0.4	0	0	0.4	2.2	0	0.5	0	1.0	0.5	0.2	0	0	0.3	0.4	1.6	1.5	0	0.9	0.4
Bikes by Direction	0	0	2	0	2	0	0	0	0	0	9	9	0	0	18	0	0	0	0	0	20
% Bikes by Direction	0	0	100	0	0.4	0	0	0	0	0	2.2	0.3	0	0	0.5	0	0	0	0	0	0.4

Transportation Data Corporation

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

N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624A
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Cars & Peds

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	86	0	0	15	0	29	0	88	713	0	2	63	66	40	0	1102
07:15 AM	0	99	0	0	11	0	58	2	90	725	0	1	96	48	49	0	1179
07:30 AM	0	112	0	0	21	0	61	2	123	819	0	4	127	55	53	0	1377
07:45 AM	0	135	0	0	23	0	44	2	85	704	0	5	129	50	51	0	1228
Total	0	432	0	0	70	0	192	6	386	2961	0	12	415	219	193	0	4886
08:00 AM	0	161	0	0	33	0	41	1	100	799	0	3	123	32	50	3	1346
08:15 AM	0	133	0	0	14	0	31	1	78	724	0	3	94	34	24	0	1136
08:30 AM	0	123	0	0	8	0	19	1	74	652	0	9	104	38	12	0	1040
08:45 AM	0	118	0	0	13	0	23	2	74	685	0	4	103	40	10	0	1072
Total	0	535	0	0	68	0	114	5	326	2860	0	19	424	144	96	3	4594
Grand Total	0	967	0	0	138	0	306	11	712	5821	0	31	839	363	289	3	9480
Apprch %	0	100	0	0	30.3	0	67.3	2.4	10.8	88.7	0	0.5	56.2	24.3	19.3	0.2	
Total %	0	10.2	0	0	1.5	0	3.2	0.1	7.5	61.4	0	0.3	8.9	3.8	3	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	99	0	0	99	11	0	58	**2**	71	90	725	0	1	816	96	48	49	0	193	1179
07:30 AM	0	112	0	0	112	21	0	**61**	2	**84**	**123**	**819**	0	4	**946**	127	**55**	**53**	0	**235**	**1377**
07:45 AM	0	135	0	0	135	23	0	44	2	69	85	704	0	**5**	794	**129**	50	51	0	230	1228
08:00 AM	0	**161**	0	0	**161**	**33**	0	41	1	75	100	799	0	3	902	123	32	50	**3**	208	1346
Total Volume	0	507	0	0	507	88	0	204	7	299	398	3047	0	13	3458	475	185	203	3	866	5130
% App. Total	0	100	0	0		29.4	0	68.2	2.3		11.5	88.1	0	0.4		54.8	21.4	23.4	0.3		
PHF	.000	.787	.000	.000	.787	.667	.000	.836	.875	.890	.809	.930	.000	.650	.914	.921	.841	.958	.250	.921	.931

Transportation Data Corporation

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

N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624A
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Trucks & Buses

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	1	0	0	0	0	1	0	0	1	0	1	0	4
07:15 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	1	2	0	5
07:30 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	1	1	0	5
07:45 AM	0	1	0	0	1	0	0	0	2	1	0	0	1	1	0	0	7
Total	0	2	0	0	3	0	1	0	2	4	0	0	2	3	4	0	21
08:00 AM	0	0	0	0	0	0	0	0	0	4	0	0	1	0	0	0	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5
08:30 AM	0	1	0	0	1	0	0	0	0	2	0	0	0	2	3	0	9
08:45 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	4	4	0	11
Total	0	1	0	0	2	0	0	0	0	8	0	0	1	9	9	0	30
Grand Total	0	3	0	0	5	0	1	0	2	12	0	0	3	12	13	0	51
Apprch %	0	100	0	0	83.3	0	16.7	0	14.3	85.7	0	0	10.7	42.9	46.4	0	
Total %	0	5.9	0	0	9.8	0	2	0	3.9	23.5	0	0	5.9	23.5	25.5	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	**4**	0	0	**4**	**1**	0	0	0	1	5
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	0	5	5
08:30 AM	0	**1**	0	0	**1**	**1**	0	0	0	**1**	0	2	0	0	2	0	2	3	0	5	9
08:45 AM	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	**4**	**4**	0	**8**	**11**
Total Volume	0	1	0	0	1	2	0	0	0	2	0	8	0	0	8	1	9	9	0	19	30
% App. Total	0	100	0	0		100	0	0	0		0	100	0	0		5.3	47.4	47.4	0		
PHF	.000	.250	.000	.000	.250	.500	.000	.000	.000	.500	.000	.500	.000	.000	.500	.250	.563	.563	.000	.594	.682

Transportation Data Corporation

Mario Perone, mperone1@verizon.net
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N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624A
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Bikes by Direction

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	1	1	0	0	0	0	0	0	2	0	0	1	0	0	0	5
07:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
07:45 AM	0	0	1	0	0	0	0	0	4	1	0	0	0	0	0	0	6
Total	0	1	2	0	0	0	0	0	7	5	0	0	1	0	0	0	16
08:00 AM	0	0	1	0	0	0	0	0	2	6	0	0	0	0	0	0	9
08:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2
08:30 AM	0	0	1	0	0	0	0	0	4	1	0	0	0	0	0	0	6
08:45 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	5
Total	0	0	2	0	0	0	0	0	10	10	0	0	0	0	0	0	22
Grand Total	0	1	4	0	0	0	0	0	17	15	0	0	1	0	0	0	38
Apprch %	0	20	80	0	0	0	0	0	53.1	46.9	0	0	100	0	0	0	
Total %	0	2.6	10.5	0	0	0	0	0	44.7	39.5	0	0	2.6	0	0	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	**1**	0	**1**	0	0	0	0	0	**4**	1	0	0	5	0	0	0	0	0	6
08:00 AM	0	0	1	0	1	0	0	0	0	0	2	**6**	0	0	**8**	0	0	0	0	0	**9**
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
08:30 AM	0	0	1	0	1	0	0	0	0	0	4	1	0	0	5	0	0	0	0	0	6
Total Volume	0	0	3	0	3	0	0	0	0	0	11	9	0	0	20	0	0	0	0	0	23
% App. Total	0	0	100	0		0	0	0	0		55	45	0	0		0	0	0	0		
PHF	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.688	.375	.000	.000	.625	.000	.000	.000	.000	.000	.639

Transportation Data Corporation

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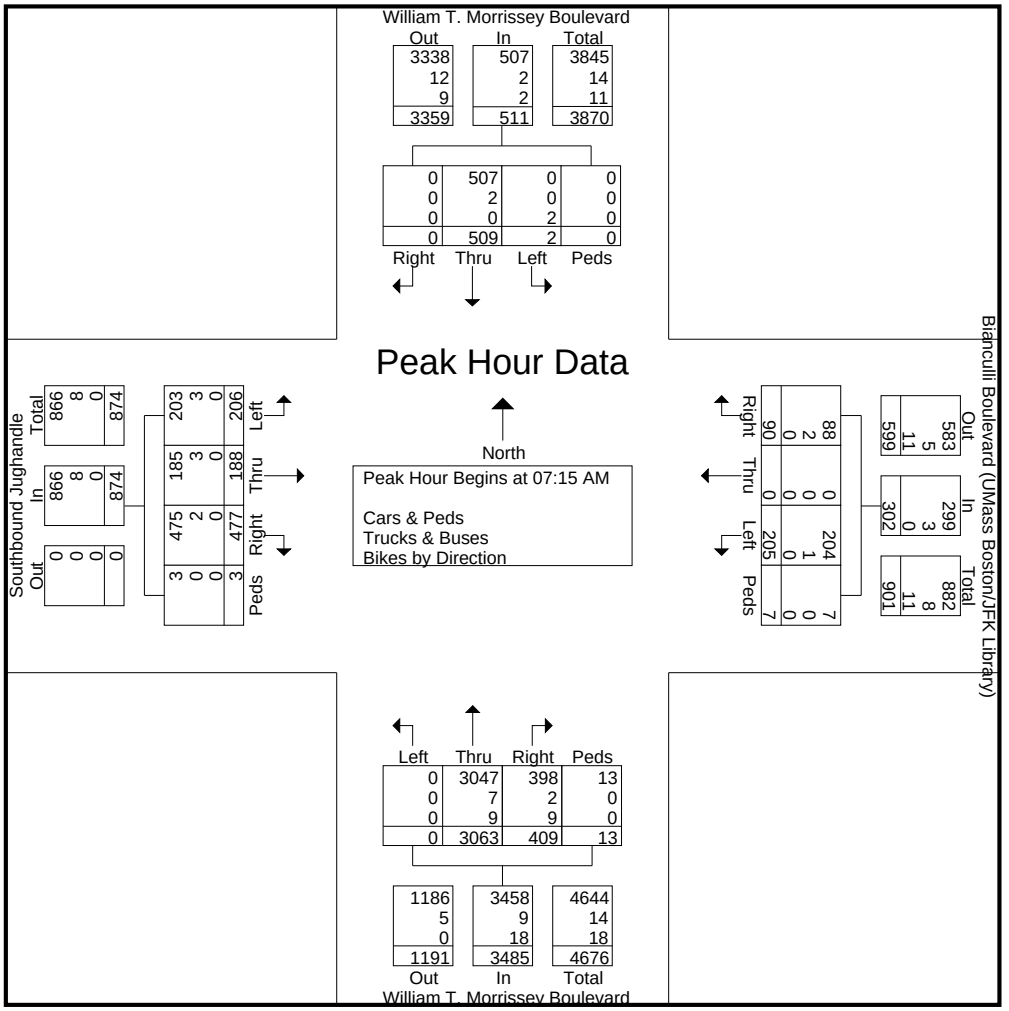
N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624A
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	99	0	0	99	12	0	59	**2**	73	92	725	0	1	818	96	49	51	0	196	1186
07:30 AM	0	113	0	0	113	21	0	**61**	2	**84**	**124**	**823**	0	4	**951**	127	**56**	**54**	0	**237**	**1385**
07:45 AM	0	136	**1**	0	137	24	0	44	2	70	91	706	0	**5**	802	**130**	51	51	0	232	1241
08:00 AM	0	**161**	1	0	**162**	**33**	0	41	1	75	102	809	0	3	914	124	32	50	**3**	209	1360
Total Volume	0	509	2	0	511	90	0	205	7	302	409	3063	0	13	3485	477	188	206	3	874	5172
% App. Total	0	99.6	0.4	0		29.8	0	67.9	2.3		11.7	87.9	0	0.4		54.6	21.5	23.6	0.3		
PHF	.000	.790	.500	.000	.789	.682	.000	.840	.875	.899	.825	.930	.000	.650	.916	.917	.839	.954	.250	.922	.934
Cars & Peds	0	507	0	0	507	88	0	204	7	299	398	3047	0	13	3458	475	185	203	3	866	5130
% Cars & Peds	0	99.6	0	0	99.2	97.8	0	99.5	100	99.0	97.3	99.5	0	100	99.2	99.6	98.4	98.5	100	99.1	99.2
Trucks & Buses	0	2	0	0	2	2	0	1	0	3	2	7	0	0	9	2	3	3	0	8	22
% Trucks & Buses	0	0.4	0	0	0.4	2.2	0	0.5	0	1.0	0.5	0.2	0	0	0.3	0.4	1.6	1.5	0	0.9	0.4
Bikes by Direction	0	0	2	0	2	0	0	0	0	0	9	9	0	0	18	0	0	0	0	0	20
% Bikes by Direction	0	0	100	0	0.4	0	0	0	0	0	2.2	0.3	0	0	0.5	0	0	0	0	0	0.4



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N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624AA
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

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

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	243	0	0	48	0	145	1	35	295	0	1	245	31	34	0	1078
04:15 PM	0	224	0	0	26	0	161	2	32	332	0	2	240	23	31	0	1073
04:30 PM	0	238	1	0	30	0	98	0	27	335	0	9	224	20	28	0	1010
04:45 PM	0	247	0	0	47	0	100	1	35	292	0	2	218	26	23	0	991
Total	0	952	1	0	151	0	504	4	129	1254	0	14	927	100	116	0	4152
05:00 PM	0	255	0	0	53	0	142	1	51	247	0	8	196	37	40	0	1030
05:15 PM	0	272	0	0	40	0	139	4	48	359	0	8	245	34	34	0	1183
05:30 PM	0	250	0	0	34	0	138	7	40	354	0	7	188	21	27	0	1066
05:45 PM	0	268	0	0	23	0	124	5	19	288	0	5	197	24	38	0	991
Total	0	1045	0	0	150	0	543	17	158	1248	0	28	826	116	139	0	4270
Grand Total	0	1997	1	0	301	0	1047	21	287	2502	0	42	1753	216	255	0	8422
Apprch %	0	99.9	0.1	0	22	0	76.5	1.5	10.1	88.4	0	1.5	78.8	9.7	11.5	0	
Total %	0	23.7	0	0	3.6	0	12.4	0.2	3.4	29.7	0	0.5	20.8	2.6	3	0	
Cars & Peds	0	1984	0	0	287	0	1026	21	279	2495	0	42	1746	200	254	0	8334
% Cars & Peds	0	99.3	0	0	95.3	0	98	100	97.2	99.7	0	100	99.6	92.6	99.6	0	99
Trucks & Buses	0	1	0	0	10	0	2	0	0	6	0	0	7	16	1	0	43
% Trucks & Buses	0	0.1	0	0	3.3	0	0.2	0	0	0.2	0	0	0.4	7.4	0.4	0	0.5
Bikes by Direction	0	12	1	0	4	0	19	0	8	1	0	0	0	0	0	0	45
% Bikes by Direction	0	0.6	100	0	1.3	0	1.8	0	2.8	0	0	0	0	0	0	0	0.5

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	247	0	0	247	47	0	100	1	148	35	292	0	2	329	218	26	23	0	267	991
05:00 PM	0	255	0	0	255	**53**	0	**142**	1	**196**	**51**	247	0	**8**	306	196	**37**	**40**	0	273	1030
05:15 PM	0	**272**	0	0	**272**	40	0	139	4	183	48	**359**	0	8	**415**	**245**	34	34	0	**313**	**1183**
05:30 PM	0	250	0	0	250	34	0	138	**7**	179	40	354	0	7	401	188	21	27	0	236	1066
Total Volume	0	1024	0	0	1024	174	0	519	13	706	174	1252	0	25	1451	847	118	124	0	1089	4270
% App. Total	0	100	0	0		24.6	0	73.5	1.8		12	86.3	0	1.7		77.8	10.8	11.4	0		
PHF	.000	.941	.000	.000	.941	.821	.000	.914	.464	.901	.853	.872	.000	.781	.874	.864	.797	.775	.000	.870	.902
Cars & Peds	0	1017	0	0	1017	169	0	512	13	694	168	1250	0	25	1443	846	108	124	0	1078	4232
% Cars & Peds	0	99.3	0	0	99.3	97.1	0	98.7	100	98.3	96.6	99.8	0	100	99.4	99.9	91.5	100	0	99.0	99.1
Trucks & Buses	0	0	0	0	0	4	0	0	0	4	0	2	0	0	2	1	10	0	0	11	17
% Trucks & Buses	0	0	0	0	0	2.3	0	0	0	0.6	0	0.2	0	0	0.1	0.1	8.5	0	0	1.0	0.4
Bikes by Direction	0	7	0	0	7	1	0	7	0	8	6	0	0	0	6	0	0	0	0	0	21
% Bikes by Direction	0	0.7	0	0	0.7	0.6	0	1.3	0	1.1	3.4	0	0	0	0.4	0	0	0	0	0	0.5

Transportation Data Corporation

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N/S: William T. Morrissey Boulevard
E/W: Bianculli Boulevard/SB Jughandle
City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624AA
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Cars & Peds

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	241	0	0	43	0	140	1	35	293	0	1	243	31	34	0	1062
04:15 PM	0	223	0	0	25	0	158	2	32	332	0	2	239	20	31	0	1064
04:30 PM	0	237	0	0	28	0	95	0	27	333	0	9	223	18	28	0	998
04:45 PM	0	245	0	0	45	0	98	1	35	292	0	2	218	23	23	0	982
Total	0	946	0	0	141	0	491	4	129	1250	0	14	923	92	116	0	4106
05:00 PM	0	254	0	0	52	0	141	1	50	246	0	8	196	35	40	0	1023
05:15 PM	0	270	0	0	38	0	138	4	44	359	0	8	245	33	34	0	1173
05:30 PM	0	248	0	0	34	0	135	7	39	353	0	7	187	17	27	0	1054
05:45 PM	0	266	0	0	22	0	121	5	17	287	0	5	195	23	37	0	978
Total	0	1038	0	0	146	0	535	17	150	1245	0	28	823	108	138	0	4228
Grand Total	0	1984	0	0	287	0	1026	21	279	2495	0	42	1746	200	254	0	8334
Apprch %	0	100	0	0	21.5	0	76.9	1.6	9.9	88.6	0	1.5	79.4	9.1	11.5	0	
Total %	0	23.8	0	0	3.4	0	12.3	0.3	3.3	29.9	0	0.5	21	2.4	3	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	245	0	0	245	45	0	98	1	144	35	292	0	2	329	218	23	23	0	264	982
05:00 PM	0	254	0	0	254	**52**	0	**141**	1	**194**	**50**	246	0	**8**	304	196	**35**	**40**	0	271	1023
05:15 PM	0	**270**	0	0	**270**	38	0	138	4	180	44	**359**	0	8	**411**	**245**	33	34	0	**312**	**1173**
05:30 PM	0	248	0	0	248	34	0	135	**7**	176	39	353	0	7	399	187	17	27	0	231	1054
Total Volume	0	1017	0	0	1017	169	0	512	13	694	168	1250	0	25	1443	846	108	124	0	1078	4232
% App. Total	0	100	0	0		24.4	0	73.8	1.9		11.6	86.6	0	1.7		78.5	10	11.5	0		
PHF	.000	.942	.000	.000	.942	.813	.000	.908	.464	.894	.840	.870	.000	.781	.878	.863	.771	.775	.000	.864	.902

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N/S: William T. Morrissey Boulevard
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City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624AA
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Trucks & Buses

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	1	0	0	4	0	1	0	0	2	0	0	2	0	0	0	10
04:15 PM	0	0	0	0	1	0	1	0	0	0	0	0	1	3	0	0	6
04:30 PM	0	0	0	0	1	0	0	0	0	1	0	0	1	2	0	0	5
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	3	0	0	4
Total	0	1	0	0	7	0	2	0	0	3	0	0	4	8	0	0	25
05:00 PM	0	0	0	0	1	0	0	0	0	1	0	0	0	2	0	0	4
05:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	4	0	0	6
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	2	1	1	0	5
Total	0	0	0	0	3	0	0	0	0	3	0	0	3	8	1	0	18
Grand Total	0	1	0	0	10	0	2	0	0	6	0	0	7	16	1	0	43
Apprch %	0	100	0	0	83.3	0	16.7	0	0	100	0	0	29.2	66.7	4.2	0	
Total %	0	2.3	0	0	23.3	0	4.7	0	0	14	0	0	16.3	37.2	2.3	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	**1**	0	0	**1**	**4**	0	**1**	0	**5**	0	**2**	0	0	**2**	**2**	0	0	0	2	**10**
04:15 PM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	1	**3**	0	0	**4**	6
04:30 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	1	2	0	0	3	5
04:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	4
Total Volume	0	1	0	0	1	7	0	2	0	9	0	3	0	0	3	4	8	0	0	12	25
% App. Total	0	100	0	0		77.8	0	22.2	0		0	100	0	0		33.3	66.7	0	0		
PHF	.000	.250	.000	.000	.250	.438	.000	.500	.000	.450	.000	.375	.000	.000	.375	.500	.667	.000	.000	.750	.625

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City, State: Dorchester, MA
Client: McM/M. Starkey

File Name : 04624AA
Site Code : Y1502021
Start Date : 10/7/2015
Page No : 1

Groups Printed- Bikes by Direction

	William T. Morrissey Boulevard From North				Bianculli Boulevard (UMass Boston/JFK Library) From East				William T. Morrissey Boulevard From South				Southbound Jughandle From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	1	0	0	1	0	4	0	0	0	0	0	0	0	0	0	6
04:15 PM	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	1	1	0	1	0	3	0	0	1	0	0	0	0	0	0	7
04:45 PM	0	2	0	0	1	0	2	0	0	0	0	0	0	0	0	0	5
Total	0	5	1	0	3	0	11	0	0	1	0	0	0	0	0	0	21
05:00 PM	0	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	3
05:15 PM	0	2	0	0	0	0	1	0	4	0	0	0	0	0	0	0	7
05:30 PM	0	2	0	0	0	0	3	0	1	0	0	0	0	0	0	0	6
05:45 PM	0	2	0	0	1	0	3	0	2	0	0	0	0	0	0	0	8
Total	0	7	0	0	1	0	8	0	8	0	0	0	0	0	0	0	24
Grand Total	0	12	1	0	4	0	19	0	8	1	0	0	0	0	0	0	45
Apprch %	0	92.3	7.7	0	17.4	0	82.6	0	88.9	11.1	0	0	0	0	0	0	
Total %	0	26.7	2.2	0	8.9	0	42.2	0	17.8	2.2	0	0	0	0	0	0	

	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	1	0	0	1	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	3
05:15 PM	0	**2**	0	0	**2**	0	0	1	0	1	**4**	0	0	0	**4**	0	0	0	0	0	7
05:30 PM	0	2	0	0	2	0	0	**3**	0	3	1	0	0	0	1	0	0	0	0	0	6
05:45 PM	0	2	0	0	2	**1**	0	3	0	**4**	2	0	0	0	2	0	0	0	0	0	**8**
Total Volume	0	7	0	0	7	1	0	8	0	9	8	0	0	0	8	0	0	0	0	0	24
% App. Total	0	100	0	0		11.1	0	88.9	0		100	0	0	0		0	0	0	0		
PHF	.000	.875	.000	.000	.875	.250	.000	.667	.000	.563	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.750

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File Name : 04624AA
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Start Date : 10/7/2015
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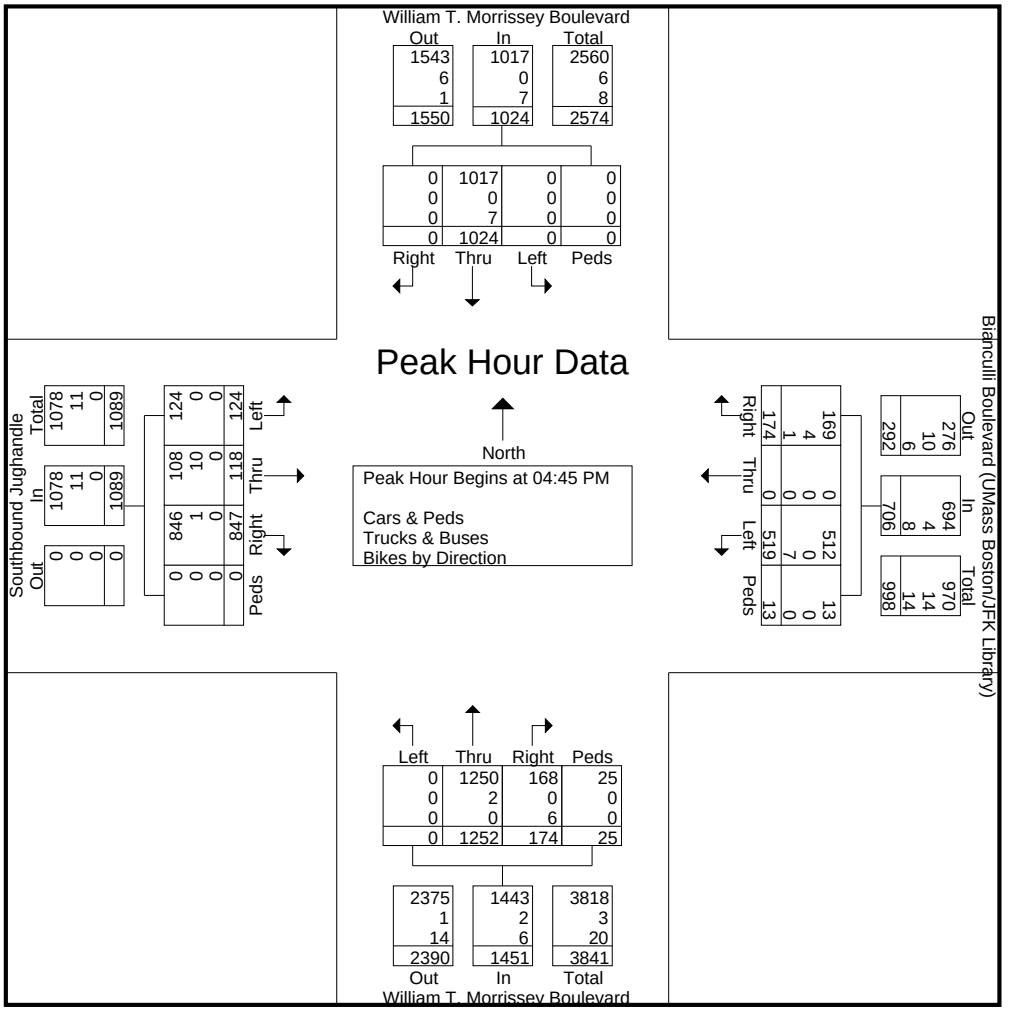
	William T. Morrissey Boulevard From North					Bianculli Boulevard (UMass Boston/JFK Library) From East					William T. Morrissey Boulevard From South					Southbound Jughandle From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	247	0	0	247	47	0	100	1	148	35	292	0	2	329	218	26	23	0	267	991
05:00 PM	0	255	0	0	255	**53**	0	**142**	1	**196**	**51**	247	0	**8**	306	196	**37**	**40**	0	273	1030
05:15 PM	0	**272**	0	0	**272**	40	0	139	4	183	48	**359**	0	8	**415**	**245**	34	34	0	**313**	**1183**
05:30 PM	0	250	0	0	250	34	0	138	**7**	179	40	354	0	7	401	188	21	27	0	236	1066
Total Volume	0	1024	0	0	1024	174	0	519	13	706	174	1252	0	25	1451	847	118	124	0	1089	4270
% App. Total	0	100	0	0		24.6	0	73.5	1.8		12	86.3	0	1.7		77.8	10.8	11.4	0		
PHF	.000	.941	.000	.000	.941	.821	.000	.914	.464	.901	.853	.872	.000	.781	.874	.864	.797	.775	.000	.870	.902
Cars & Peds	0	1017	0	0	1017	169	0	512	13	694	168	1250	0	25	1443	846	108	124	0	1078	4232
% Cars & Peds	0	99.3	0	0	99.3	97.1	0	98.7	100	98.3	96.6	99.8	0	100	99.4	99.9	91.5	100	0	99.0	99.1
Trucks & Buses	0	0	0	0	0	4	0	0	0	4	0	2	0	0	2	1	10	0	0	11	17
% Trucks & Buses	0	0	0	0	0	2.3	0	0	0	0.6	0	0.2	0	0	0.1	0.1	8.5	0	0	1.0	0.4
Bikes by Direction	0	7	0	0	7	1	0	7	0	8	6	0	0	0	6	0	0	0	0	0	21
% Bikes by Direction	0	0.7	0	0	0.7	0.6	0	1.3	0	1.1	3.4	0	0	0	0.4	0	0	0	0	0	0.5



Volume Report

Job 152_047_HSH_ATR 1
Area Dorchester, MA
Location Southbound CD Road (near Star Market)

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

Tuesday, December 5, 2017

Time	Total		NB		SB		Time	Total		NB		SB	
0000	6		6		0		1200	83		83		0	
0015	6		6		0		1215	98		98		0	
0030	9		9		0		1230	111		111		0	
0045	11	32	11	32	0	0	1245	93	385	93	385	0	0
0100	7		7		0		1300	91		91		0	
0115	3		3		0		1315	112		112		0	
0130	7		7		0		1330	113		113		0	
0145	0	17	0	17	0	0	1345	128	444	128	444	0	0
0200	2		2		0		1400	189		189		0	
0215	0		0		0		1415	210		210		0	
0230	2		2		0		1430	192		192		0	
0245	1	5	1	5	0	0	1445	238	829	238	829	0	0
0300	3		3		0		1500	296		296		0	
0315	3		3		0		1515	247		247		0	
0330	3		3		0		1530	242		242		0	
0345	5	14	5	14	0	0	1545	270	1055	270	1055	0	0
0400	2		2		0		1600	226		226		0	
0415	3		3		0		1615	242		242		0	
0430	6		6		0		1630	239		239		0	
0445	9	20	9	20	0	0	1645	258	965	258	965	0	0
0500	14		14		0		1700	265		265		0	
0515	20		20		0		1715	229		229		0	
0530	21		21		0		1730	251		251		0	
0545	19	74	19	74	0	0	1745	203	948	203	948	0	0
0600	37		37		0		1800	249		249		0	
0615	51		51		0		1815	211		211		0	
0630	83		83		0		1830	172		172		0	
0645	100	271	100	271	0	0	1845	153	785	153	785	0	0
0700	117		117		0		1900	153		153		0	
0715	141		141		0		1915	125		125		0	
0730	173		173		0		1930	134		134		0	
0745	158	589	158	589	0	0	1945	102	514	102	514	0	0
0800	154		154		0		2000	103		103		0	
0815	137		137		0		2015	86		86		0	
0830	141		141		0		2030	61		61		0	
0845	122	554	122	554	0	0	2045	74	324	74	324	0	0
0900	98		98		0		2100	48		48		0	
0915	90		90		0		2115	35		35		0	
0930	99		99		0		2130	39		39		0	
0945	85	372	85	372	0	0	2145	50	172	50	172	0	0
1000	66		66		0		2200	38		38		0	
1015	77		77		0		2215	30		30		0	
1030	88		88		0		2230	23		23		0	
1045	109	340	109	340	0	0	2245	32	123	32	123	0	0
1100	119		119		0		2300	30		30		0	
1115	100		100		0		2315	16		16		0	
1130	110		110		0		2330	10		10		0	
1145	106	435	106	435	0	0	2345	19	75	19	75	0	0
							Total	**9342**		**9342**		**0**	

Speed Report

Job 152_047_HSH_ATR 1
Area Dorchester, MA
Location Southbound CD Road (near Star Market)
Dir Southbound
Tuesday, December 5, 2017

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

Time	Total	Speed Bins(mph)														
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	32	0	1	0	5	5	12	7	2	0	0	0	0	0	0	0
0100	17	0	0	0	0	6	8	3	0	0	0	0	0	0	0	0
0200	5	0	0	0	0	2	1	2	0	0	0	0	0	0	0	0
0300	14	0	0	0	2	5	1	4	2	0	0	0	0	0	0	0
0400	20	0	0	4	2	2	4	6	2	0	0	0	0	0	0	0
0500	74	0	0	7	3	23	21	10	9	1	0	0	0	0	0	0
0600	271	0	1	4	18	75	95	58	18	2	0	0	0	0	0	0
0700	589	0	1	13	70	206	195	78	24	2	0	0	0	0	0	0
0800	554	0	0	28	92	186	170	60	15	2	1	0	0	0	0	0
0900	372	0	0	24	49	113	137	35	14	0	0	0	0	0	0	0
1000	340	0	1	14	43	115	124	40	3	0	0	0	0	0	0	0
1100	435	0	4	18	28	176	159	36	13	1	0	0	0	0	0	0
1200	385	0	0	10	42	159	127	38	9	0	0	0	0	0	0	0
1300	444	0	3	25	76	140	141	49	10	0	0	0	0	0	0	0
1400	829	7	8	55	131	236	283	91	16	2	0	0	0	0	0	0
1500	1055	1	19	74	268	383	236	57	17	0	0	0	0	0	0	0
1600	965	0	7	73	311	314	189	58	8	5	0	0	0	0	0	0
1700	948	0	3	84	271	308	189	82	9	1	1	0	0	0	0	0
1800	785	0	2	34	179	255	207	91	16	0	0	0	1	0	0	0
1900	514	0	1	51	148	149	111	41	12	1	0	0	0	0	0	0
2000	324	1	0	21	75	119	79	25	2	1	1	0	0	0	0	0
2100	172	0	2	5	18	60	64	20	3	0	0	0	0	0	0	0
2200	123	0	1	2	17	41	31	25	6	0	0	0	0	0	0	0
2300	75	0	0	0	5	25	32	13	0	0	0	0	0	0	0	0
00-00	**9342**	**9**	**54**	**546**	**1853**	**3103**	**2616**	**929**	**210**	**18**	**3**	**0**	**1**	**0**	**0**	**0**
	100.00%	**0.10%**	**0.58%**	**5.84%**	**19.84%**	**33.22%**	**28.00%**	**9.94%**	**2.25%**	**0.19%**	**0.03%**	**0.00%**	**0.01%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 60.6 mph, Minimum = 8.6 mph, Mean = 28.6 mph
85% Speed = 34.34 mph, 95% Speed = 37.86 mph, Median = 28.63 mph
10 mph Pace = 24 - 34, Number in Pace = 5910 (63.26%)
Variance = 32.23, Standard Deviation = 5.68 mph

Classification Report

Job # 152_047_HSH_ATR 1
Area Dorchester, MA
Location Southbound CD Road (near Star Market)
Direction Southbound
Tuesday, December 5, 2017

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

Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer		Total All Vehicles	Total Heavy Vehicles	Heavy Vehicle %	
0000	32	1	31	0	0	0	0	0	0	0	0	0	0	0		32	0		
0100	17	0	16	0	1	0	0	0	0	0	0	0	0	0		17	1		
0200	5	0	2	3	0	0	0	0	0	0	0	0	0	0		5	0		
0300	14	0	10	4	0	0	0	0	0	0	0	0	0	0		14	0		
0400	20	0	13	3	1	2	1	0	0	0	0	0	0	0		20	4		
0500	74	0	59	9	0	1	3	0	0	2	0	0	0	0		74	6		
0600	271	0	219	40	2	6	1	1	1	1	0	0	0	0		271	12		
0700	589	1	504	50	12	8	4	7	0	2	0	0	0	1		589	34	**6%** amph	
0800	554	0	454	61	17	11	2	2	2	5	0	0	0	0		554	39		
0900	372	2	289	48	14	11	3	1	1	1	0	0	0	2		372	33		
1000	340	0	281	33	8	3	5	0	1	3	6	0	0	0		340	26		
1100	435	1	378	40	11	4	1	0	0	0	0	0	0	0		435	16		
1200	385	0	337	36	5	2	2	0	0	3	0	0	0	0		385	12		
1300	444	4	367	55	6	4	6	1	0	1	0	0	0	0		444	18		
1400	829	1	677	120	7	10	2	5	5	1	0	0	0	1		829	31		
1500	1055	0	864	148	7	16	4	7	7	0	0	0	0	2		1055	43		
1600	965	0	814	109	6	10	6	10	8	0	0	0	0	2		965	42	**4%** pmph	
1700	948	1	837	74	5	9	2	6	8	0	1	0	0	5		948	36		
1800	785	1	695	62	4	11	1	4	3	0	2	0	0	2		785	27		
1900	514	0	456	42	4	3	1	3	3	0	0	1	0	1		514	16		
2000	324	1	291	21	3	2	0	6	0	0	0	0	0	0		324	11		
2100	172	0	161	7	3	1	0	0	0	0	0	0	0	0		172	4		
2200	123	0	113	7	2	1	0	0	0	0	0	0	0	0		123	3		
2300	75	0	69	5	0	0	1	0	0	0	0	0	0	0		75	1		
00-00	**9342**	**13**	**7937**	**977**	**118**	**115**	**45**	**53**	**39**	**19**	**9**	**1**	**0**	**16**					
	100.00%	**0.14%**	**84.96%**	**10.46%**	**1.26%**	**1.23%**	**0.48%**	**0.57%**	**0.42%**	**0.20%**	**0.10%**	**0.01%**	**0.00%**	**0.17%**					

Volume Report

Job 152_047_HSH_ATR 2
Area Dorchester, MA
Location Southbound Morrissey Boulevard to CD Road (near Star Market)

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

Tuesday, December 5, 2017

Time	Total		NB		SB		Time	Total		NB		SB	
0000	4		4		0		1200	38		38		0	
0015	3		3		0		1215	41		41		0	
0030	2		2		0		1230	42		42		0	
0045	2	11	2	11	0	0	1245	19	140	19	140	0	0
0100	4		4		0		1300	13		13		0	
0115	1		1		0		1315	28		28		0	
0130	1		1		0		1330	34		34		0	
0145	2	8	2	8	0	0	1345	42	117	42	117	0	0
0200	4		4		0		1400	26		26		0	
0215	1		1		0		1415	20		20		0	
0230	1		1		0		1430	26		26		0	
0245	1	7	1	7	0	0	1445	24	96	24	96	0	0
0300	1		1		0		1500	23		23		0	
0315	0		0		0		1515	13		13		0	
0330	0		0		0		1530	19		19		0	
0345	0	1	0	1	0	0	1545	32	87	32	87	0	0
0400	1		1		0		1600	19		19		0	
0415	4		4		0		1615	16		16		0	
0430	7		7		0		1630	19		19		0	
0445	6	18	6	18	0	0	1645	15	69	15	69	0	0
0500	21		21		0		1700	25		25		0	
0515	38		38		0		1715	18		18		0	
0530	34		34		0		1730	16		16		0	
0545	38	131	38	131	0	0	1745	21	80	21	80	0	0
0600	28		28		0		1800	16		16		0	
0615	35		35		0		1815	21		21		0	
0630	31		31		0		1830	17		17		0	
0645	52	146	52	146	0	0	1845	24	78	24	78	0	0
0700	61		61		0		1900	22		22		0	
0715	80		80		0		1915	13		13		0	
0730	79		79		0		1930	16		16		0	
0745	58	278	58	278	0	0	1945	21	72	21	72	0	0
0800	64		64		0		2000	13		13		0	
0815	33		33		0		2015	9		9		0	
0830	31		31		0		2030	14		14		0	
0845	31	159	31	159	0	0	2045	8	44	8	44	0	0
0900	46		46		0		2100	11		11		0	
0915	39		39		0		2115	12		12		0	
0930	44		44		0		2130	7		7		0	
0945	47	176	47	176	0	0	2145	8	38	8	38	0	0
1000	28		28		0		2200	7		7		0	
1015	45		45		0		2215	6		6		0	
1030	50		50		0		2230	7		7		0	
1045	50	173	50	173	0	0	2245	8	28	8	28	0	0
1100	28		28		0		2300	6		6		0	
1115	33		33		0		2315	3		3		0	
1130	38		38		0		2330	3		3		0	
1145	40	139	40	139	0	0	2345	4	16	4	16	0	0
							Total	**2112**		**2112**		**0**	

Speed Report

Job 152_047_HSH_ATR 2
Area Dorchester, MA
Location Southbound Morrissey Boulevard to CD Road (near Star Market)
Dir Southbound
Tuesday, December 5, 2017

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

Time	Total	Speed Bins(mph)														
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	11	0	0	0	0	2	5	2	2	0	0	0	0	0	0	0
0100	8	0	0	0	0	2	1	3	2	0	0	0	0	0	0	0
0200	7	0	0	1	0	0	1	2	3	0	0	0	0	0	0	0
0300	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
0400	18	0	0	0	0	1	4	4	6	3	0	0	0	0	0	0
0500	131	0	0	0	0	4	22	55	40	8	2	0	0	0	0	0
0600	146	0	0	0	1	12	40	42	33	13	5	0	0	0	0	0
0700	278	0	0	0	2	11	56	95	92	15	4	2	1	0	0	0
0800	159	0	0	2	3	7	34	57	39	12	4	1	0	0	0	0
0900	176	0	0	2	2	8	47	72	31	14	0	0	0	0	0	0
1000	173	0	0	2	4	24	51	58	27	5	1	1	0	0	0	0
1100	139	1	0	0	5	25	43	46	15	2	1	1	0	0	0	0
1200	140	0	0	1	3	6	46	50	28	6	0	0	0	0	0	0
1300	117	0	0	1	7	17	33	37	18	4	0	0	0	0	0	0
1400	96	0	0	0	3	14	19	34	14	9	2	0	1	0	0	0
1500	87	0	0	1	1	16	30	22	15	2	0	0	0	0	0	0
1600	69	0	0	0	3	8	22	29	5	1	1	0	0	0	0	0
1700	80	0	0	1	2	15	28	23	10	1	0	0	0	0	0	0
1800	78	0	0	1	3	11	31	21	6	5	0	0	0	0	0	0
1900	72	0	0	0	2	14	24	21	10	0	1	0	0	0	0	0
2000	44	0	1	0	4	11	11	10	6	1	0	0	0	0	0	0
2100	38	0	0	2	5	7	15	9	0	0	0	0	0	0	0	0
2200	28	1	0	0	1	7	6	9	4	0	0	0	0	0	0	0
2300	16	0	0	0	1	4	5	1	3	2	0	0	0	0	0	0
00-00	**2112**	**2**	**1**	**14**	**52**	**226**	**574**	**702**	**410**	**103**	**21**	**5**	**2**	**0**	**0**	**0**
	100.00%	**0.09%**	**0.05%**	**0.66%**	**2.46%**	**10.70%**	**27.18%**	**33.24%**	**19.41%**	**4.88%**	**0.99%**	**0.24%**	**0.09%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 64.3 mph, Minimum = 8.4 mph, Mean = 36.2 mph
85% Speed = 42.11 mph, 95% Speed = 45.69 mph, Median = 36.35 mph
10 mph Pace = 31 - 41, Number in Pace = 1332 (63.07%)
Variance = 36.37, Standard Deviation = 6.03 mph

Classification Report

Job # 152_047_HSH_ATR 2
Area Dorchester, MA
Location Southbound Morrissey Boulevard to CD Road (near Star Market)
Direction Southbound
Tuesday, December 5, 2017

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

Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer		Total All Vehicles	Total Heavy Vehicles	Heavy Vehicle %	
0000	11	0	11	0	0	0	0	0	0	0	0	0	0	0		11	0		
0100	8	0	8	0	0	0	0	0	0	0	0	0	0	0		8	0		
0200	7	0	5	2	0	0	0	0	0	0	0	0	0	0		7	0		
0300	1	0	1	0	0	0	0	0	0	0	0	0	0	0		1	0		
0400	18	0	16	2	0	0	0	0	0	0	0	0	0	0		18	0		
0500	131	0	94	32	2	2	0	0	0	1	0	0	0	0		131	5		
0600	146	0	114	28	0	3	1	0	0	0	0	0	0	0		146	4		
0700	278	0	255	20	1	2	0	0	0	0	0	0	0	0		278	3	**1%** amph	
0800	159	0	139	14	2	2	2	0	0	0	0	0	0	0		159	6		
0900	176	1	153	17	1	4	0	0	0	0	0	0	0	0		176	5		
1000	173	0	155	14	1	3	0	0	0	0	0	0	0	0		173	4		
1100	139	1	117	17	0	4	0	0	0	0	0	0	0	0		139	4		
1200	140	0	123	15	2	0	0	0	0	0	0	0	0	0		140	2		
1300	117	0	112	5	0	0	0	0	0	0	0	0	0	0		117	0		
1400	96	0	76	18	0	1	1	0	0	0	0	0	0	0		96	2		
1500	87	0	76	9	1	0	1	0	0	0	0	0	0	0		87	2		
1600	69	0	60	9	0	0	0	0	0	0	0	0	0	0		69	0		
1700	80	0	72	7	0	1	0	0	0	0	0	0	0	0		80	1	**1%** pmph	
1800	78	0	68	10	0	0	0	0	0	0	0	0	0	0		78	0		
1900	72	0	68	4	0	0	0	0	0	0	0	0	0	0		72	0		
2000	44	1	38	5	0	0	0	0	0	0	0	0	0	0		44	0		
2100	38	0	36	2	0	0	0	0	0	0	0	0	0	0		38	0		
2200	28	0	24	3	1	0	0	0	0	0	0	0	0	0		28	1		
2300	16	0	14	2	0	0	0	0	0	0	0	0	0	0		16	0		
00-00	**2112**	**3**	**1835**	**235**	**11**	**22**	**5**	**0**	**0**	**1**	**0**	**0**	**0**	**0**					
	100.00%	**0.14%**	**86.88%**	**11.13%**	**0.52%**	**1.04%**	**0.24%**	**0.00%**	**0.00%**	**0.05%**	**0.00%**	**0.00%**	**0.00%**	**0.00%**					

Volume Report

Job 152_047_HSH_ATR 3
Area Dorchester, MA
Location Southbound Morrissey Boulevard (near Star Market)

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

Tuesday, December 5, 2017

Time	Total		NB		SB		Time	Total		NB		SB	
0000	26		26		0		1200	114		114		0	
0015	21		21		0		1215	102		102		0	
0030	20		20		0		1230	102		102		0	
0045	20	87	20	87	0	0	1245	126	444	126	444	0	0
0100	12		12		0		1300	119		119		0	
0115	16		16		0		1315	110		110		0	
0130	10		10		0		1330	128		128		0	
0145	10	48	10	48	0	0	1345	143	500	143	500	0	0
0200	8		8		0		1400	175		175		0	
0215	19		19		0		1415	237		237		0	
0230	13		13		0		1430	254		254		0	
0245	8	48	8	48	0	0	1445	217	883	217	883	0	0
0300	2		2		0		1500	235		235		0	
0315	10		10		0		1515	138		138		0	
0330	12		12		0		1530	139		139		0	
0345	10	34	10	34	0	0	1545	150	662	150	662	0	0
0400	7		7		0		1600	154		154		0	
0415	7		7		0		1615	179		179		0	
0430	8		8		0		1630	178		178		0	
0445	14	36	14	36	0	0	1645	165	676	165	676	0	0
0500	16		16		0		1700	245		245		0	
0515	25		25		0		1715	240		240		0	
0530	21		21		0		1730	177		177		0	
0545	41	103	41	103	0	0	1745	146	808	146	808	0	0
0600	48		48		0		1800	226		226		0	
0615	62		62		0		1815	224		224		0	
0630	68		68		0		1830	234		234		0	
0645	86	264	86	264	0	0	1845	220	904	220	904	0	0
0700	75		75		0		1900	181		181		0	
0715	95		95		0		1915	150		150		0	
0730	87		87		0		1930	170		170		0	
0745	133	390	133	390	0	0	1945	161	662	161	662	0	0
0800	144		144		0		2000	141		141		0	
0815	123		123		0		2015	128		128		0	
0830	104		104		0		2030	116		116		0	
0845	115	486	115	486	0	0	2045	84	469	84	469	0	0
0900	110		110		0		2100	80		80		0	
0915	112		112		0		2115	83		83		0	
0930	89		89		0		2130	90		90		0	
0945	114	425	114	425	0	0	2145	74	327	74	327	0	0
1000	109		109		0		2200	75		75		0	
1015	116		116		0		2215	65		65		0	
1030	140		140		0		2230	57		57		0	
1045	132	497	132	497	0	0	2245	49	246	49	246	0	0
1100	130		130		0		2300	46		46		0	
1115	87		87		0		2315	44		44		0	
1130	119		119		0		2330	49		49		0	
1145	115	451	115	451	0	0	2345	40	179	40	179	0	0
							Total	**9629**		**9629**		**0**	

Speed Report

Job 152_047_HSH_ATR 3
Area Dorchester, MA
Location Southbound Morrissey Boulevard (near Star Market)
Dir Southbound
Tuesday, December 5, 2017

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

Time	Total	Speed Bins(mph)														
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	87	0	0	0	0	3	6	26	39	9	2	2	0	0	0	0
0100	48	0	0	0	0	0	5	10	24	7	2	0	0	0	0	0
0200	48	0	0	0	0	0	2	14	14	13	3	0	1	1	0	0
0300	34	0	0	0	0	0	1	7	8	11	6	1	0	0	0	0
0400	36	0	0	0	0	0	0	2	4	11	10	7	2	0	0	0
0500	103	0	0	0	1	0	0	6	31	37	18	6	1	1	1	0
0600	264	0	0	0	1	1	2	18	71	95	53	16	0	2	2	0
0700	390	0	0	0	0	0	16	41	98	140	64	24	4	0	1	1
0800	486	0	0	0	0	0	15	53	121	190	88	15	2	1	0	1
0900	425	0	0	0	1	3	10	77	144	118	50	12	8	1	0	1
1000	497	0	0	0	0	1	15	93	211	136	33	5	2	1	0	0
1100	451	0	0	0	0	4	14	64	166	141	51	9	1	1	0	0
1200	444	0	0	0	0	3	12	64	177	133	50	4	1	0	0	0
1300	500	0	0	1	0	2	11	81	158	172	59	10	2	0	2	1
1400	883	0	0	0	1	6	26	122	336	251	114	20	2	1	4	0
1500	662	0	0	0	1	3	20	115	209	221	70	15	3	5	0	0
1600	676	0	0	1	1	1	31	94	275	194	61	16	2	0	0	0
1700	808	0	0	1	3	8	25	101	263	309	85	11	1	0	0	1
1800	904	0	0	0	0	4	39	148	320	264	113	13	3	0	0	0
1900	662	0	0	0	2	9	35	132	299	122	48	6	5	2	0	1
2000	469	0	0	0	0	1	32	87	168	110	54	14	2	1	0	0
2100	327	0	0	0	0	1	15	50	122	108	22	8	1	0	0	0
2200	246	0	0	0	0	3	13	36	91	63	24	13	3	0	0	0
2300	179	0	0	0	0	1	7	26	68	49	24	3	1	0	0	0
00-00	**9629**	**0**	**0**	**3**	**11**	**54**	**352**	**1467**	**3417**	**2904**	**1104**	**230**	**47**	**17**	**10**	**6**
	100.00%	**0.00%**	**0.00%**	**0.03%**	**0.11%**	**0.56%**	**3.66%**	**15.24%**	**35.49%**	**30.16%**	**11.47%**	**2.39%**	**0.49%**	**0.18%**	**0.10%**	**0.06%**

Maximum = 93.5 mph, Minimum = 17.2 mph, Mean = 44.5 mph
85% Speed = 49.94 mph, 95% Speed = 53.66 mph, Median = 44.35 mph
10 mph Pace = 39 - 49, Number in Pace = 6412 (66.59%)
Variance = 33.87, Standard Deviation = 5.82 mph

Classification Report

Job # 152_047_HSH_ATR 3
Area Dorchester, MA
Location Southbound Morrissey Boulevard (near Star Market)
Direction Southbound
Tuesday, December 5, 2017

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

Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer		Total All Vehicles	Total Heavy Vehicles	Heavy Vehicle %	
0000	87	0	62	2	0	1	1	20	0	1	0	0	0	0		87	23		
0100	48	0	37	3	0	0	2	6	0	0	0	0	0	0		48	8		
0200	48	2	35	0	0	0	0	11	0	0	0	0	0	0		48	11		
0300	34	0	30	0	0	0	1	3	0	0	0	0	0	0		34	4		
0400	36	0	25	0	0	0	2	9	0	0	0	0	0	0		36	11		
0500	103	0	68	7	0	2	2	24	0	0	0	0	0	0		103	28		
0600	264	1	190	21	1	0	1	49	0	0	0	0	0	1		264	52		
0700	390	1	299	22	0	5	2	58	0	1	0	0	0	2		390	68		
0800	486	2	405	17	0	2	2	58	0	0	0	0	0	0		486	62	**13%** amph	
0900	425	3	316	27	0	6	6	65	1	1	0	0	0	0		425	79		
1000	497	0	372	36	1	6	8	71	0	1	1	0	0	1		497	89		
1100	451	1	323	27	0	5	4	88	0	0	1	0	0	2		451	100		
1200	444	0	323	37	0	3	7	72	0	2	0	0	0	0		444	84		
1300	500	6	347	46	1	3	4	89	0	1	0	0	0	3		500	101		
1400	883	11	639	44	0	10	10	163	0	4	0	0	0	2		883	189		
1500	662	1	469	35	0	8	11	136	0	0	0	0	0	2		662	157		
1600	676	4	467	35	0	7	7	153	0	1	0	0	0	2		676	170		
1700	808	17	521	28	2	2	10	218	0	5	1	0	0	4		808	242	**30%** pmph	
1800	904	9	639	28	1	5	9	204	0	3	1	0	0	5		904	228		
1900	662	6	464	28	0	5	6	149	0	3	0	0	0	1		662	164		
2000	469	3	321	22	0	2	7	110	1	3	0	0	0	0		469	123		
2100	327	1	248	10	0	0	2	66	0	0	0	0	0	0		327	68		
2200	246	0	187	9	0	1	2	45	0	2	0	0	0	0		246	50		
2300	179	0	123	9	0	0	3	44	0	0	0	0	0	0		179	47		
00-00	**9629**	**68**	**6910**	**493**	**6**	**73**	**109**	**1911**	**2**	**28**	**4**	**0**	**0**	**25**					
	100.00%	**0.71%**	**71.76%**	**5.12%**	**0.06%**	**0.76%**	**1.13%**	**19.85%**	**0.02%**	**0.29%**	**0.04%**	**0.00%**	**0.00%**	**0.26%**					

Volume Report

Job 152_047_HSH_ATR 4
Area Dorchester, MA
Location Southbound CD Road (just north of Bianculli Blvd)

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

Tuesday, December 5, 2017

Time	Total		NB		SB		Time	Total		NB		SB	
0000	10		10		0		1200	121		121		0	
0015	8		8		0		1215	128		128		0	
0030	11		11		0		1230	144		144		0	
0045	10	39	10	39	0	0	1245	114	507	114	507	0	0
0100	10		10		0		1300	104		104		0	
0115	4		4		0		1315	143		143		0	
0130	8		8		0		1330	146		146		0	
0145	3	25	3	25	0	0	1345	190	583	190	583	0	0
0200	5		5		0		1400	244		244		0	
0215	1		1		0		1415	222		222		0	
0230	3		3		0		1430	192		192		0	
0245	2	11	2	11	0	0	1445	232	890	232	890	0	0
0300	4		4		0		1500	263		263		0	
0315	3		3		0		1515	189		189		0	
0330	3		3		0		1530	229		229		0	
0345	4	14	4	14	0	0	1545	231	912	231	912	0	0
0400	1		1		0		1600	211		211		0	
0415	5		5		0		1615	243		243		0	
0430	11		11		0		1630	246		246		0	
0445	8	25	8	25	0	0	1645	250	950	250	950	0	0
0500	26		26		0		1700	257		257		0	
0515	27		27		0		1715	237		237		0	
0530	33		33		0		1730	215		215		0	
0545	37	123	37	123	0	0	1745	206	915	206	915	0	0
0600	51		51		0		1800	248		248		0	
0615	68		68		0		1815	232		232		0	
0630	92		92		0		1830	193		193		0	
0645	144	355	144	355	0	0	1845	180	853	180	853	0	0
0700	166		166		0		1900	167		167		0	
0715	204		204		0		1915	148		148		0	
0730	213		213		0		1930	159		159		0	
0745	205	788	205	788	0	0	1945	124	598	124	598	0	0
0800	208		208		0		2000	107		107		0	
0815	185		185		0		2015	114		114		0	
0830	155		155		0		2030	67		67		0	
0845	127	675	127	675	0	0	2045	81	369	81	369	0	0
0900	123		123		0		2100	58		58		0	
0915	129		129		0		2115	51		51		0	
0930	127		127		0		2130	47		47		0	
0945	119	498	119	498	0	0	2145	58	214	58	214	0	0
1000	81		81		0		2200	52		52		0	
1015	85		85		0		2215	38		38		0	
1030	108		108		0		2230	31		31		0	
1045	141	415	141	415	0	0	2245	37	158	37	158	0	0
1100	132		132		0		2300	33		33		0	
1115	113		113		0		2315	22		22		0	
1130	137		137		0		2330	12		12		0	
1145	135	517	135	517	0	0	2345	24	91	24	91	0	0
							Total	**10525**		**10525**		**0**	

Speed Report

Job 152_047_HSH_ATR 4
Area Dorchester, MA
Location Southbound CD Road (just north of Bianculli Blvd)
Dir Southbound
Tuesday, December 5, 2017

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

Time	Total	Speed Bins(mph)														
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	39	0	0	2	1	10	16	7	3	0	0	0	0	0	0	0
0100	25	0	1	1	1	5	12	5	0	0	0	0	0	0	0	0
0200	11	0	0	0	1	1	1	7	1	0	0	0	0	0	0	0
0300	14	1	0	0	0	4	4	1	3	0	1	0	0	0	0	0
0400	25	0	0	0	0	3	6	9	4	3	0	0	0	0	0	0
0500	123	0	1	9	3	7	35	44	17	6	1	0	0	0	0	0
0600	355	0	1	8	27	50	125	106	29	8	1	0	0	0	0	0
0700	788	2	24	48	114	181	231	126	42	14	4	1	1	0	0	0
0800	675	0	22	47	63	145	193	141	50	12	1	1	0	0	0	0
0900	498	0	3	21	33	116	164	109	38	11	2	1	0	0	0	0
1000	415	4	6	13	29	82	147	97	27	6	3	0	1	0	0	0
1100	517	4	8	25	71	134	152	88	24	9	1	1	0	0	0	0
1200	507	0	0	23	49	100	170	117	39	7	0	2	0	0	0	0
1300	583	1	12	39	87	137	169	101	32	3	1	1	0	0	0	0
1400	890	10	56	138	183	185	185	87	32	12	1	1	0	0	0	0
1500	912	23	130	258	239	145	87	23	6	1	0	0	0	0	0	0
1600	950	13	123	197	219	187	128	50	22	9	2	0	0	0	0	0
1700	915	10	128	246	275	175	56	17	6	2	0	0	0	0	0	0
1800	853	4	57	157	219	196	153	45	16	5	1	0	0	0	0	0
1900	598	4	20	96	130	158	112	58	15	5	0	0	0	0	0	0
2000	369	2	3	17	65	103	87	74	16	2	0	0	0	0	0	0
2100	214	0	2	4	18	60	70	51	4	5	0	0	0	0	0	0
2200	158	0	2	5	8	33	57	34	12	5	1	1	0	0	0	0
2300	91	0	0	2	0	14	35	27	9	3	1	0	0	0	0	0
00-00	**10525**	**78**	**599**	**1356**	**1835**	**2231**	**2395**	**1424**	**447**	**128**	**21**	**9**	**2**	**0**	**0**	**0**
	100.00%	**0.74%**	**5.69%**	**12.88%**	**17.43%**	**21.20%**	**22.76%**	**13.53%**	**4.25%**	**1.22%**	**0.20%**	**0.09%**	**0.02%**	**0.00%**	**0.00%**	**0.00%**

Maximum = 63.4 mph, Minimum = 6.3 mph, Mean = 27.8 mph
85% Speed = 36.18 mph, 95% Speed = 40.54 mph, Median = 28.35 mph
10 mph Pace = 26 - 36, Number in Pace = 4668 (44.35%)
Variance = 66.78, Standard Deviation = 8.17 mph

Classification Report

Job # 152_047_HSH_ATR 4
Area Dorchester, MA
Location Southbound CD Road (just north of Bianculli Blvd)
Direction Southbound
Tuesday, December 5, 2017

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

Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer		Total All Vehicles	Total Heavy Vehicles	Heavy Vehicle %	
0000	39	0	36	3	0	0	0	0	0	0	0	0	0	0		39	0		
0100	25	0	25	0	0	0	0	0	0	0	0	0	0	0		25	0		
0200	11	0	7	4	0	0	0	0	0	0	0	0	0	0		11	0		
0300	14	0	10	4	0	0	0	0	0	0	0	0	0	0		14	0		
0400	25	0	18	4	1	2	0	0	0	0	0	0	0	0		25	3		
0500	123	1	82	26	2	7	3	0	0	2	0	0	0	0		123	14		
0600	355	1	269	73	1	5	1	2	1	1	1	0	0	0		355	12		
0700	788	0	669	84	8	11	0	8	4	2	1	0	0	1		788	35	**4%** amph	
0800	675	0	546	85	17	14	2	4	3	3	0	0	0	1		675	44		
0900	498	2	381	76	13	18	4	1	1	1	0	0	0	1		498	39		
1000	415	3	316	66	11	6	4	2	2	2	3	0	0	0		415	30		
1100	517	1	432	66	7	10	1	0	0	0	0	0	0	0		517	18		
1200	507	2	427	59	4	8	3	2	1	1	0	0	0	0		507	19		
1300	583	3	474	85	3	8	6	1	2	1	0	0	0	0		583	21		
1400	890	2	722	136	7	12	1	3	5	0	1	0	0	1		890	30		
1500	912	4	768	90	6	9	3	8	5	1	5	0	0	13		912	50		
1600	950	3	811	96	4	16	3	8	2	0	4	0	0	3		950	40	**4%** pmph	
1700	915	1	839	55	4	2	1	8	2	0	1	0	0	2		915	20		
1800	853	1	776	53	4	7	2	3	6	0	0	0	0	1		853	23		
1900	598	1	423	150	5	12	1	5	1	0	0	0	0	0		598	24		
2000	369	1	197	153	1	16	0	1	0	0	0	0	0	0		369	18		
2100	214	0	163	43	3	4	0	0	1	0	0	0	0	0		214	8		
2200	158	0	129	22	4	3	0	0	0	0	0	0	0	0		158	7		
2300	91	0	66	21	0	4	0	0	0	0	0	0	0	0		91	4		
00-00	**10525**	**26**	**8586**	**1454**	**105**	**174**	**35**	**56**	**36**	**14**	**16**	**0**	**0**	**23**					
	100.00%	**0.25%**	**81.58%**	**13.81%**	**1.00%**	**1.65%**	**0.33%**	**0.53%**	**0.34%**	**0.13%**	**0.15%**	**0.00%**	**0.00%**	**0.22%**					

Volume Report

Job 152_047_HSH_ATR 5
Area Dorchester, MA
Location Southbound Morrissey Boulevard (just north of Bianculli Blvd)

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

Tuesday, December 5, 2017

Time	Total		NB		SB		Time	Total		NB		SB	
0000	34		34		0		1200	177		177		0	
0015	35		35		0		1215	177		177		0	
0030	23		23		0		1230	179		179		0	
0045	23	115	23	115	0	0	1245	203	736	203	736	0	0
0100	17		17		0		1300	209		209		0	
0115	15		15		0		1315	213		213		0	
0130	18		18		0		1330	252		252		0	
0145	17	67	17	67	0	0	1345	243	917	243	917	0	0
0200	9		9		0		1400	292		292		0	
0215	21		21		0		1415	341		341		0	
0230	12		12		0		1430	367		367		0	
0245	7	49	7	49	0	0	1445	360	1360	360	1360	0	0
0300	3		3		0		1500	342		342		0	
0315	16		16		0		1515	248		248		0	
0330	13		13		0		1530	250		250		0	
0345	14	46	14	46	0	0	1545	263	1103	263	1103	0	0
0400	5		5		0		1600	289		289		0	
0415	10		10		0		1615	283		283		0	
0430	10		10		0		1630	288		288		0	
0445	15	40	15	40	0	0	1645	305	1165	305	1165	0	0
0500	33		33		0		1700	379		379		0	
0515	43		43		0		1715	363		363		0	
0530	40		40		0		1730	232		232		0	
0545	57	173	57	173	0	0	1745	257	1231	257	1231	0	0
0600	81		81		0		1800	392		392		0	
0615	83		83		0		1815	384		384		0	
0630	97		97		0		1830	372		372		0	
0645	139	400	139	400	0	0	1845	345	1493	345	1493	0	0
0700	116		116		0		1900	305		305		0	
0715	135		135		0		1915	258		258		0	
0730	139		139		0		1930	276		276		0	
0745	181	571	181	571	0	0	1945	243	1082	243	1082	0	0
0800	191		191		0		2000	231		231		0	
0815	158		158		0		2015	259		259		0	
0830	146		146		0		2030	212		212		0	
0845	164	659	164	659	0	0	2045	147	849	147	849	0	0
0900	165		165		0		2100	163		163		0	
0915	151		151		0		2115	169		169		0	
0930	160		160		0		2130	173		173		0	
0945	179	655	179	655	0	0	2145	129	634	129	634	0	0
1000	164		164		0		2200	128		128		0	
1015	188		188		0		2215	118		118		0	
1030	219		219		0		2230	100		100		0	
1045	224	795	224	795	0	0	2245	94	440	94	440	0	0
1100	207		207		0		2300	87		87		0	
1115	143		143		0		2315	81		81		0	
1130	187		187		0		2330	85		85		0	
1145	205	742	205	742	0	0	2345	65	318	65	318	0	0
							Total	**15640**		**15640**		**0**	

Speed Report

Job 152_047_HSH_ATR 5
Area Dorchester, MA
Location Southbound Morrissey Boulevard (just north of Bianculli Blvd)
Dir Southbound
Tuesday, December 5, 2017

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

Time	Total	Speed Bins(mph)														
		5 10	10 15	15 20	20 25	25 30	30 35	35 40	40 45	45 50	50 55	55 60	60 65	65 70	70 75	75 80
0000	115	0	0	0	2	10	42	53	8	0	0	0	0	0	0	0
0100	67	0	0	0	1	8	40	13	5	0	0	0	0	0	0	0
0200	49	0	0	0	0	6	10	23	9	0	1	0	0	0	0	0
0300	46	0	0	0	0	1	10	17	18	0	0	0	0	0	0	0
0400	40	0	0	0	1	1	2	4	27	2	2	1	0	0	0	0
0500	173	0	0	0	1	14	44	49	58	6	1	0	0	0	0	0
0600	400	0	0	0	5	34	87	180	55	34	3	1	1	0	0	0
0700	571	1	5	18	43	60	122	163	90	48	17	3	1	0	0	0
0800	659	0	0	4	26	69	167	126	120	106	31	9	1	0	0	0
0900	655	0	2	11	50	134	209	137	61	42	6	1	2	0	0	0
1000	795	0	2	20	58	180	285	144	94	8	4	0	0	0	0	0
1100	742	0	0	1	42	163	266	182	80	5	3	0	0	0	0	0
1200	736	0	0	2	32	125	312	190	61	11	3	0	0	0	0	0
1300	917	0	0	2	36	276	314	233	46	9	1	0	0	0	0	0
1400	1360	3	55	129	160	260	312	188	195	44	11	3	0	0	0	0
1500	1103	2	56	105	99	226	284	256	36	32	3	4	0	0	0	0
1600	1165	2	29	73	140	304	319	151	74	68	3	1	1	0	0	0
1700	1231	20	101	164	169	248	212	188	85	42	1	0	1	0	0	0
1800	1493	1	93	107	225	304	368	268	99	26	0	1	1	0	0	0
1900	1082	1	30	44	133	185	348	177	122	31	7	3	0	0	1	0
2000	849	0	0	18	86	158	304	198	72	12	1	0	0	0	0	0
2100	634	0	0	1	14	178	238	149	39	15	0	0	0	0	0	0
2200	440	0	0	0	7	95	122	108	71	35	2	0	0	0	0	0
2300	318	0	0	1	1	53	95	90	55	17	5	1	0	0	0	0
00-00	**15640**	**30**	**373**	**700**	**1331**	**3092**	**4512**	**3287**	**1580**	**593**	**105**	**28**	**8**	**0**	**1**	**0**
	100.00%	**0.19%**	**2.38%**	**4.48%**	**8.51%**	**19.77%**	**28.85%**	**21.02%**	**10.10%**	**3.79%**	**0.67%**	**0.18%**	**0.05%**	**0.00%**	**0.01%**	**0.00%**

Maximum = 72.2 mph, Minimum = 6.3 mph, Mean = 32.3 mph
85% Speed = 39.99 mph, 95% Speed = 44.79 mph, Median = 32.66 mph
10 mph Pace = 28 - 38, Number in Pace = 8338 (53.31%)
Variance = 59.92, Standard Deviation = 7.74 mph

Classification Report

Job # 152_047_HSH_ATR 5
Area Dorchester, MA
Location Southbound Morrissey Boulevard (just north of Bianculli Blvd)
Direction Southbound
Tuesday, December 5, 2017

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

Time	Total	Class 1 Motorcycle	Class 2 Passenger Car	Class 3 Vans, Pick up Trucks	Class 4 Bus	Class 5 2 Axle 6 Tires	Class 6 3 Axle Unit	Class 7 4 Axles or more Unit	Class 8 3 or 4 Axle Trailer	Class 9 5 Axle Trailer	Class 10 6 Axle or more Trailer	Class 11 5 Axle or less Multi-Trailer	Class 12 6 Axle Multi-Trailer	Class 13 7 Axle or more Multi-Trailer		Total All Vehicles	Total Heavy Vehicles	Heavy Vehicle %	
0000	115	0	89	0	0	1	1	24	0	0	0	0	0	0		115	26		
0100	67	0	57	2	0	0	2	6	0	0	0	0	0	0		67	8		
0200	49	2	39	0	0	0	0	8	0	0	0	0	0	0		49	8		
0300	46	0	43	0	0	0	0	3	0	0	0	0	0	0		46	3		
0400	40	0	31	1	0	0	1	7	0	0	0	0	0	0		40	8		
0500	173	0	153	3	0	0	1	14	0	0	0	0	0	2		173	17		
0600	400	0	353	11	0	0	11	23	0	0	0	0	0	2		400	36		
0700	571	0	517	7	0	0	19	26	0	1	0	0	0	1		571	47		
0800	659	0	603	11	0	1	22	18	1	1	0	0	0	2		659	45	**7%** amph	
0900	655	2	585	11	0	2	36	17	0	0	1	0	0	1		655	57		
1000	795	0	749	11	0	2	20	11	0	0	2	0	0	0		795	35		
1100	742	0	687	17	0	0	17	19	0	1	1	0	0	0		742	38		
1200	736	0	685	16	0	1	14	17	0	0	0	0	0	3		736	35		
1300	917	1	868	13	1	1	17	15	0	0	0	0	0	1		917	35		
1400	1360	1	1274	29	0	1	36	16	0	0	1	0	0	2		1360	56		
1500	1103	3	1023	22	1	1	28	21	0	1	0	0	0	3		1103	55		
1600	1165	3	1098	16	0	2	25	16	1	1	1	0	0	2		1165	48		
1700	1231	3	1159	13	0	0	14	24	2	2	1	0	0	13		1231	56	**5%** pmph	
1800	1493	0	1418	19	0	2	28	23	0	0	1	0	0	2		1493	56		
1900	1082	0	1020	22	0	1	15	19	0	2	2	0	0	1		1082	40		
2000	849	0	803	9	0	2	17	17	0	0	1	0	0	0		849	37		
2100	634	1	598	7	0	0	10	16	0	2	0	0	0	0		634	28		
2200	440	0	418	4	0	0	9	8	0	0	1	0	0	0		440	18		
2300	318	0	302	4	0	0	9	3	0	0	0	0	0	0		318	12		
00-00	**15640**	**16**	**14572**	**248**	**2**	**17**	**352**	**371**	**4**	**11**	**12**	**0**	**0**	**35**					
	100.00%	**0.10%**	**93.17%**	**1.59%**	**0.01%**	**0.11%**	**2.25%**	**2.37%**	**0.03%**	**0.07%**	**0.08%**	**0.00%**	**0.00%**	**0.22%**					

MASSACHUSETTS HIGHWAY DEPARTMENT - STATEWIDE TRAFFIC DATA COLLECTION

2011 WEEKDAY SEASONAL FACTORS *

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

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

RECREATIONAL: (ALL YEARS)

**GROUP 3A:

1. CAPE COD (ALL TOWNS)

2.PLYMOUTH(SOUTH OF RTE.3A)

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

3.MARTHA'S VINEYARD

4.NANTUCKET

***GROUP 3B:

5.PERMANENTS 2 & 189

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

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

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

2011 AXLE CORRECTION FACTORS

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

ROUND OFF

0 - 999.....10

> 1,000.....100

Apply I-84 factor to stations:

3290, 3921, 3929

16127 - Boston Globe Site

Existing Trip Generation Assessment

HOWARD STEIN HUDSON
15-Jan-2018

xx HARD CODED TO BALANCE

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate[1]	Unadjusted Person-Trips	Transit Share[3]	Transit Person-Trips	Walk/Bike/ Other Share[3]	Walk/ Bike/ Other Trips	Auto Share[3]	Auto Person-Trips	Assumed Local Auto Occupancy Rate[4]	Total Adjusted Auto Trips
Daily Peak Hour															
Light Industrial[5]	347.5	Total		4.960	1,724	1.13	**1,948**	12%	**234**	18%	**350**	70%	**1,364**	1.13	**1,208**
	KSF	In	50%	2.480	862	1.13	**974**	12%	**117**	18%	**175**	70%	**682**	1.13	**604**
		Out	50%	2.480	862	1.13	**974**	12%	**117**	18%	**175**	70%	**682**	1.13	**604**
Office Building[6]	347.5	Total		9.740	3,384	1.13	**3,824**	12%	**458**	18%	**688**	70%	**2,678**	1.13	**2,370**
	KSF	In	50%	4.870	1,692	1.13	**1,912**	12%	**229**	18%	**344**	70%	**1,339**	1.13	**1,185**
		Out	50%	4.870	1,692	1.13	**1,912**	12%	**229**	18%	**344**	70%	**1,339**	1.13	**1,185**
Total		Total			**5,108**		**5,772**		**692**		**1,038**		**4,042**		**3,578**
		In			**2,554**		**2,886**		**346**		**519**		**2,021**		**1,789**
		Out			**2,554**		**2,886**		**346**		**519**		**2,021**		**1,789**
AM Peak Hour															
Light Industrial[5]	347.5	Total		0.70	243	1.13	**275**	15%	**41**	16%	**44**	69%	**190**	1.13	**168**
	KSF	In	88%	0.616	214	1.13	**242**	15%	**36**	16%	**39**	69%	**167**	1.13	**148**
		Out	12%	0.084	29	1.13	**33**	15%	**5**	16%	**5**	69%	**23**	1.13	**20**
Office Building[6]	347.5	Total		1.16	403	1.13	**455**	15%	**68**	16%	**73**	69%	**314**	1.13	**278**
	KSF	In	86%	0.998	347	1.13	**392**	15%	**59**	16%	**63**	69%	**270**	1.13	**239**
		Out	14%	0.162	56	1.13	**63**	15%	**9**	16%	**10**	69%	**44**	1.13	**39**
Total		Total			**646**		**730**		**109**		**117**		**504**		**446**
		In			**561**		**634**		**95**		**102**		**437**		**387**
		Out			**85**		**96**		**14**		**15**		**67**		**59**
PM Peak Hour															
Light Industrial[5]	347.5	Total		0.63	218	1.13	**247**	14%	**34**	23%	**56**	63%	**157**	1.13	**139**
	KSF	In	13%	0.082	28	1.13	**32**	14%	**4**	23%	**7**	63%	**21**	1.13	**19**
		Out	87%	0.548	190	1.13	**215**	14%	**30**	23%	**49**	63%	**136**	1.13	**120**
Office Building[6]	347.5	Total		1.15	400	1.13	**452**	14%	**63**	23%	**104**	63%	**285**	1.13	**252**
	KSF	In	16%	0.184	64	1.13	**72**	14%	**10**	23%	**17**	63%	**45**	1.13	**40**
		Out	84%	0.966	336	1.13	**380**	14%	**53**	23%	**87**	63%	**240**	1.13	**212**
Total		Total			**618**		**699**		**97**		**160**		**442**		**391**
		In			**92**		**104**		**14**		**24**		**66**		**59**
		Out			**526**		**595**		**83**		**136**		**376**		**332**

1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational
2. Based on ITE Trip Generation Handbook, 3rd Edition method
3. Mode shares based on peak-hour BTD Data for Area 8 - Inner red Line
4. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
5. ITE Trip Generation Manual, 10th Edition, LUC 110 (Light Industrial), average rate
6. ITE Trip Generation Manual, 10th Edition, LUC 710 (General Office Building), average rate

16127 - Boston Globe Site
Proposed Trip Generation Assessment

HOWARD STEIN HUDSON
15-Jan-2018

XX HARD CODED TO BALANCE

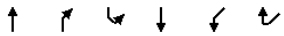
Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate[1]	Unadjusted Person-Trips	Transit Share[3]	Transit Person-Trips	Walk/Bike/ Other Share[3]	Walk/ Bike/ Other Trips	Auto Share[3]	Auto Person-Trips	Assumed Local Auto Occupancy Rate[4]	Total Adjusted Auto Trips
Daily Peak Hour															
Light Industrial[5]	342.5	Total		4.960	1,698	1.13	**1,918**	12%	**230**	18%	**346**	70%	**1,342**	1.13	**1,188**
	KSF	In	50%	2.480	849	1.13	**959**	12%	**115**	18%	**173**	70%	**671**	1.13	**594**
		Out	50%	2.480	849	1.13	**959**	12%	**115**	18%	**173**	70%	**671**	1.13	**594**
Office Building[6]	342.5	Total		9.740	3,336	1.13	**3,770**	12%	**452**	18%	**678**	70%	**2,640**	1.13	**2,336**
	KSF	In	50%	4.870	1,668	1.13	**1,885**	12%	**226**	18%	**339**	70%	**1,320**	1.13	**1,168**
		Out	50%	4.870	1,668	1.13	**1,885**	12%	**226**	18%	**339**	70%	**1320**	1.13	**1,168**
Shopping Center[7]	10	Total		37.750	378	1.78	**672**	11%	**74**	29%	**194**	60%	**404**	1.78	**226**
	KSF	In	50%	18.875	189	1.78	**336**	11%	**37**	29%	**97**	60%	**202**	1.78	**113**
		Out	50%	18.875	189	1.78	**336**	11%	**37**	29%	**97**	60%	**202**	1.78	**113**
Total		Total			**5,412**		**6,360**		**756**		**1,218**		**4,386**		**3,750**
		In			**2,706**		**3,180**		**378**		**609**		**2,193**		**1,875**
		Out			**2,706**		**3,180**		**378**		**609**		**2,193**		**1,875**
AM Peak Hour															
Light Industrial[5]	342.5	Total		0.70	240	1.13	**271**	15%	**41**	16%	**43**	69%	**187**	1.13	**165**
	KSF	In	88%	0.616	211	1.13	**238**	15%	**36**	16%	**38**	69%	**164**	1.13	**145**
		Out	12%	0.084	29	1.13	**33**	15%	**5**	16%	**5**	69%	**23**	1.13	**20**
Office Building[6]	342.5	Total		1.16	398	1.13	**449**	15%	**67**	16%	**72**	69%	**310**	1.13	**274**
	KSF	In	86%	0.998	342	1.13	**386**	15%	**58**	16%	**62**	69%	**266**	1.13	**235**
		Out	14%	0.162	56	1.13	**63**	15%	**9**	16%	**10**	69%	**44**	1.13	**39**
Shopping Center[7]	10	Total		0.94	10	1.78	**18**	14%	**3**	27%	**5**	59%	**10**	1.78	**5**
	KSF	In	62%	0.583	6	1.78	**11**	14%	**2**	27%	**3**	59%	**6**	1.78	**3**
		Out	38%	0.357	4	1.78	**7**	14%	**1**	27%	**2**	59%	**4**	1.78	**2**
Total		Total			**648**		**738**		**111**		**120**		**507**		**444**
		In			**559**		**635**		**96**		**103**		**436**		**383**
		Out			**89**		**103**		**15**		**17**		**71**		**61**
PM Peak Hour															
Light Industrial[5]	342.5	Total		0.63	216	1.13	**244**	14%	**34**	23%	**56**	63%	**154**	1.13	**137**
	KSF	In	13%	0.082	28	1.13	**32**	14%	**4**	23%	**7**	63%	**21**	1.13	**19**
		Out	87%	0.548	188	1.13	**212**	14%	**30**	23%	**49**	63%	**133**	1.13	**118**
Office Building[6]	342.5	Total		1.15	394	1.13	**445**	14%	**62**	23%	**102**	63%	**281**	1.13	**249**
	KSF	In	16%	0.184	63	1.13	**71**	14%	**10**	23%	**16**	63%	**45**	1.13	**40**
		Out	84%	0.966	331	1.13	**374**	14%	**52**	23%	**86**	63%	**236**	1.13	**209**
Shopping Center[7]	10	Total		3.81	38	1.78	**68**	12%	**8**	36%	**25**	52%	**35**	1.78	**20**
	KSF	In	48%	1.829	18	1.78	**32**	12%	**4**	36%	**12**	52%	**16**	1.78	**9**
		Out	52%	1.981	20	1.78	**36**	12%	**4**	36%	**13**	52%	**19**	1.78	**11**
Total		Total			**648**		**757**		**104**		**183**		**470**		**406**
		In			**109**		**135**		**18**		**35**		**82**		**68**
		Out			**539**		**622**		**86**		**148**		**388**		**338**

1. 2009 National vehicle occupancy rates - 1.13:home to work; 1.84: family/personal business; 1.78: shopping; 2.2 social/recreational
2. Based on ITE Trip Generation Handbook, 3rd Edition method
3. Mode shares based on peak-hour BTD Data for Area 8 - Inner red Line
4. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
5. ITE Trip Generation Manual, 10th Edition, LUC 110 (Light Industrial), average rate
6. ITE Trip Generation Manual, 10th Edition, LUC 710 (General Office Building), average rate
7. ITE Trip Generation Manual, 10th Edition, LUC 820 (Shopping Center), average rate

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	205	0	90	0	3054	400	0	676	0	196	179	455	
Future Volume (vph)	205	0	90	0	3054	400	0	676	0	196	179	455	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.943	0.850	
Flt Protected	0.950										0.970		
Satd. Flow (prot)	3467	0	2787	0	5187	1599	0	5187	0	0	4841	1389	
Flt Permitted	0.950										0.970		
Satd. Flow (perm)	3467	0	2787	0	5187	1599	0	5187	0	0	4841	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			136			215					136	247	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			378			896		
Travel Time (s)	12.6				10.4			8.6			20.4		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.92	0.78	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	2%	2%	2%	0%	1%	2%	0%	2%	2%	2%	0%	
Adj. Flow (vph)	228	0	100	0	3320	435	0	867	0	213	195	495	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	228	0	100	0	3320	435	0	867	0	0	656	247	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	15.0		15.0		60.0	60.0		60.0		15.0	15.0	15.0	30.0
Total Split (%)	12.5%		12.5%		50.0%	50.0%		50.0%		12.5%	12.5%	12.5%	25%
Maximum Green (s)	9.0		9.0		54.0	54.0		54.0		9.0	9.0	9.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													20
Act Effct Green (s)	9.2		9.2		55.1	55.1		55.1			9.2	9.2	
Actuated g/C Ratio	0.09		0.09		0.54	0.54		0.54			0.09	0.09	
v/c Ratio	0.73		0.27		1.19	0.45		0.31			1.17	0.71	
Control Delay	62.1		5.4		111.7	10.3		15.4			129.1	18.6	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	62.1		5.4		111.7	10.3		15.4			129.1	18.6	
LOS	E		A		F	B		B			F	B	
Approach Delay	44.8				100.0			15.4			98.9		
Approach LOS	D				F			B			F		
Queue Length 50th (ft)	65		0		~772	53		79			~122	0	
Queue Length 95th (ft)	#164		14		#1350	209		162			#282	#123	
Internal Link Dist (ft)	474				377			298			816		
Turn Bay Length (ft)												450	
Base Capacity (vph)	312		374		2801	962		2801			559	349	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	0.73		0.27		1.19	0.45		0.31			1.17	0.71	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.19			
Intersection Signal Delay: 84.2		Intersection LOS: F	
Intersection Capacity Utilization Err%		ICU Level of Service H	
Analysis Period (min) 15			
~ 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.			

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	504	172	0
Future Volume (Veh/h)	0	0	0	504	172	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	548	187	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	547					
pX, platoon unblocked						
vC, conflicting volume			0		183	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		183	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		76	100
cM capacity (veh/h)			1622		789	1084

Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	183	183	183	187
Volume Left	0	0	0	187
Volume Right	0	0	0	0
cSH	1700	1700	1700	789
Volume to Capacity	0.11	0.11	0.11	0.24
Queue Length 95th (ft)	0	0	0	23
Control Delay (s)	0.0	0.0	0.0	11.0
Lane LOS				B
Approach Delay (s)	0.0			11.0
Approach LOS				B

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	25.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	504	281	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	504	281	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	573	319	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	892			0			732	732	446	286	892	0
vC1, stage 1 conf vol							732	732		0	0	
vC2, stage 2 conf vol							0	0		286	892	
vCu, unblocked vol	892			0			732	732	446	286	892	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	756			1622			340	379	560	630	319	1084

Direction, Lane #	SB 1	SB 2
Volume Total	382	510
Volume Left	0	0
Volume Right	0	319
cSH	1700	1700
Volume to Capacity	0.22	0.30
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	26.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	628	281	0
Future Volume (Veh/h)	0	0	0	628	281	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.88	0.92
Hourly flow rate (vph)	0	0	0	698	319	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		349	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		349	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		49	100
cM capacity (veh/h)			1622		625	1084

Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	349	349	319
Volume Left	0	0	319
Volume Right	0	0	0
cSH	1700	1700	625
Volume to Capacity	0.21	0.21	0.51
Queue Length 95th (ft)	0	0	73
Control Delay (s)	0.0	0.0	16.6
Lane LOS			C
Approach Delay (s)	0.0		16.6
Approach LOS			C

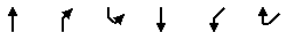
Intersection Summary				
Average Delay	5.2			
Intersection Capacity Utilization	39.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	512	0	173	0	1252	168	0	1335	0	113	108	775	
Future Volume (vph)	512	0	173	0	1252	168	0	1335	0	113	108	775	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.903	0.850	
Flt Protected	0.950										0.982		
Satd. Flow (prot)	3502	0	2787	0	5187	1615	0	5187	0	0	4684	1389	
Flt Permitted	0.950										0.982		
Satd. Flow (perm)	3502	0	2787	0	5187	1615	0	5187	0	0	4684	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			192			179					309	322	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			313			898		
Travel Time (s)	12.6				10.4			7.1			20.4		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.87	0.87	0.92	0.94	0.92	0.92	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	2%	0%	0%	2%	0%	2%	0%	8%	0%	
Adj. Flow (vph)	569	0	192	0	1439	193	0	1420	0	123	124	891	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	569	0	192	0	1439	193	0	1420	0	0	693	445	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	25.0		25.0		45.0	45.0		45.0		20.0	20.0	20.0	30.0
Total Split (%)	20.8%		20.8%		37.5%	37.5%		37.5%		16.7%	16.7%	16.7%	25%
Maximum Green (s)	19.0		19.0		39.0	39.0		39.0		14.0	14.0	14.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													38
Act Effct Green (s)	19.4		19.4		39.8	39.8		39.8			14.3	14.3	
Actuated g/C Ratio	0.18		0.18		0.37	0.37		0.37			0.13	0.13	
v/c Ratio	0.91		0.29		0.75	0.27		0.74			0.93dr	0.96	
Control Delay	64.8		7.5		35.1	6.5		34.8			33.1	48.9	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	64.8		7.5		35.1	6.5		34.8			33.1	48.9	
LOS	E		A		D	A		C			C	D	
Approach Delay	50.3				31.7			34.8			39.3		
Approach LOS	D				C			C			D		
Queue Length 50th (ft)	~242		0		379	7		373			105	123	
Queue Length 95th (ft)	#356		36		421	54		435			143	#344	
Internal Link Dist (ft)	474				377			233			818		
Turn Bay Length (ft)												450	
Base Capacity (vph)	628		657		1910	707		1910			887	462	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	0.91		0.29		0.75	0.27		0.74			0.78	0.96	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108			
Natural Cycle: 100			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 37.2		Intersection LOS: D	
Intersection Capacity Utilization Err%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	828	507	0
Future Volume (Veh/h)	0	0	0	828	507	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	900	551	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	546					
pX, platoon unblocked						
vC, conflicting volume			0		300	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		300	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		17	100
cM capacity (veh/h)			1622		667	1084

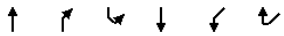
Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	300	300	300	551
Volume Left	0	0	0	551
Volume Right	0	0	0	0
cSH	1700	1700	1700	667
Volume to Capacity	0.18	0.18	0.18	0.83
Queue Length 95th (ft)	0	0	0	221
Control Delay (s)	0.0	0.0	0.0	30.7
Lane LOS				D
Approach Delay (s)	0.0			30.7
Approach LOS				D

Intersection Summary			
Average Delay	11.7		
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	828	77	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	828	77	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	986	100	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1086			0			1036	1036	543	493	1086	0
vC1, stage 1 conf vol							1036	1036		0	0	
vC2, stage 2 conf vol							0	0		493	1086	
vCu, unblocked vol	1086			0			1036	1036	543	493	1086	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	638			1622			222	273	484	474	258	1084

Direction, Lane #	SB 1	SB 2
Volume Total	657	429
Volume Left	0	0
Volume Right	0	100
cSH	1700	1700
Volume to Capacity	0.39	0.25
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	28.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1004	77	0
Future Volume (Veh/h)	0	0	0	1004	77	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.95	0.77	0.92
Hourly flow rate (vph)	0	0	0	1057	100	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		528	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		528	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		79	100
cM capacity (veh/h)			1622		482	1084

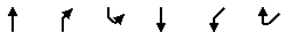
Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	528	528	100
Volume Left	0	0	100
Volume Right	0	0	0
cSH	1700	1700	482
Volume to Capacity	0.31	0.31	0.21
Queue Length 95th (ft)	0	0	19
Control Delay (s)	0.0	0.0	14.4
Lane LOS			B
Approach Delay (s)	0.0		14.4
Approach LOS			B

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	317	0	140	0	3356	1055	0	722	0	203	322	472	
Future Volume (vph)	317	0	140	0	3356	1055	0	722	0	203	322	472	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.953	0.850	
Flt Protected	0.950										0.967		
Satd. Flow (prot)	3467	0	2787	0	5187	1599	0	5187	0	0	4870	1389	
Flt Permitted	0.950										0.967		
Satd. Flow (perm)	3467	0	2787	0	5187	1599	0	5187	0	0	4870	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			156			515					136	256	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			378			896		
Travel Time (s)	12.6				10.4			8.6			20.4		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.92	0.78	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	2%	2%	2%	0%	1%	2%	0%	2%	2%	2%	0%	
Adj. Flow (vph)	352	0	156	0	3648	1147	0	926	0	221	350	513	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	352	0	156	0	3648	1147	0	926	0	0	828	256	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	15.0		15.0		60.0	60.0		60.0		15.0	15.0	15.0	30.0
Total Split (%)	12.5%		12.5%		50.0%	50.0%		50.0%		12.5%	12.5%	12.5%	25%
Maximum Green (s)	9.0		9.0		54.0	54.0		54.0		9.0	9.0	9.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													20
Act Effct Green (s)	9.2		9.2		55.1	55.1		55.1			9.2	9.2	
Actuated g/C Ratio	0.09		0.09		0.54	0.54		0.54			0.09	0.09	
v/c Ratio	1.13		0.40		1.30	1.04		0.33			1.47	0.72	
Control Delay	134.0		11.6		163.0	54.4		15.6			251.6	18.7	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	134.0		11.6		163.0	54.4		15.6			251.6	18.7	
LOS	F		B		F	D		B			F	B	
Approach Delay	96.4				137.0			15.6			196.6		
Approach LOS	F				F			B			F		
Queue Length 50th (ft)	~107		0		~915	392		86			~196	0	
Queue Length 95th (ft)	#281		36		#1538	#1071		174			#386	#126	
Internal Link Dist (ft)	474				377			298			816		
Turn Bay Length (ft)												450	
Base Capacity (vph)	312		393		2801	1100		2801			562	357	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	1.13		0.40		1.30	1.04		0.33			1.47	0.72	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.47			
Intersection Signal Delay: 127.6		Intersection LOS: F	
Intersection Capacity Utilization Err%		ICU Level of Service H	
Analysis Period (min) 15			
~ 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.			

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	544	178	0
Future Volume (Veh/h)	0	0	0	544	178	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	591	193	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	547					
pX, platoon unblocked						
vC, conflicting volume			0		197	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		197	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		75	100
cM capacity (veh/h)			1622		773	1084

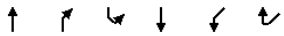
Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	197	197	197	193
Volume Left	0	0	0	193
Volume Right	0	0	0	0
cSH	1700	1700	1700	773
Volume to Capacity	0.12	0.12	0.12	0.25
Queue Length 95th (ft)	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	11.2
Lane LOS				B
Approach Delay (s)	0.0			11.2
Approach LOS				B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	544	291	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	544	291	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	618	331	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	949			0			784	784	474	309	949	0
vC1, stage 1 conf vol							784	784		0	0	
vC2, stage 2 conf vol							0	0		309	949	
vCu, unblocked vol	949			0			784	784	474	309	949	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	719			1622			317	359	536	611	300	1084

Direction, Lane #	SB 1	SB 2
Volume Total	412	537
Volume Left	0	0
Volume Right	0	331
cSH	1700	1700
Volume to Capacity	0.24	0.32
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	27.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	787	291	0
Future Volume (Veh/h)	0	0	0	787	291	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.88	0.92
Hourly flow rate (vph)	0	0	0	874	331	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		437	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		437	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		40	100
cM capacity (veh/h)			1622		550	1084

Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	437	437	331
Volume Left	0	0	331
Volume Right	0	0	0
cSH	1700	1700	550
Volume to Capacity	0.26	0.26	0.60
Queue Length 95th (ft)	0	0	99
Control Delay (s)	0.0	0.0	20.9
Lane LOS			C
Approach Delay (s)	0.0		20.9
Approach LOS			C

Intersection Summary					
Average Delay	5.7				
Intersection Capacity Utilization	44.5%	ICU Level of Service	A		
Analysis Period (min)	15				

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	1090	0	294	0	1438	503	0	1408	0	117	184	967	
Future Volume (vph)	1090	0	294	0	1438	503	0	1408	0	117	184	967	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.907	0.850	
Flt Protected	0.950										0.981		
Satd. Flow (prot)	3502	0	2787	0	5187	1615	0	5187	0	0	4679	1389	
Flt Permitted	0.950										0.981		
Satd. Flow (perm)	3502	0	2787	0	5187	1615	0	5187	0	0	4679	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			205			467					282	320	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			378			896		
Travel Time (s)	12.6				10.4			8.6			20.4		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.87	0.87	0.92	0.94	0.92	0.92	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	2%	0%	0%	2%	0%	2%	0%	8%	0%	
Adj. Flow (vph)	1211	0	327	0	1653	578	0	1498	0	127	211	1111	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	1211	0	327	0	1653	578	0	1498	0	0	894	555	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	25.0		25.0		45.0	45.0		45.0		20.0	20.0	20.0	30.0
Total Split (%)	20.8%		20.8%		37.5%	37.5%		37.5%		16.7%	16.7%	16.7%	25%
Maximum Green (s)	19.0		19.0		39.0	39.0		39.0		14.0	14.0	14.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													38
Act Effct Green (s)	19.4		19.4		39.8	39.8		39.8			14.3	14.3	
Actuated g/C Ratio	0.18		0.18		0.37	0.37		0.37			0.13	0.13	
v/c Ratio	1.93		0.49		0.87	0.65		0.78			1.21dr	1.20	
Control Delay	450.2		19.3		39.6	10.6		36.1			72.9	129.6	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	450.2		19.3		39.6	10.6		36.1			72.9	129.6	
LOS	F		B		D	B		D			E	F	
Approach Delay	358.6				32.1			36.1			94.6		
Approach LOS	F				C			D			F		
Queue Length 50th (ft)	~775		47		462	62		401			~210	~353	
Queue Length 95th (ft)	#910		99		#539	171		466			#279	#566	
Internal Link Dist (ft)	474				377			298			816		
Turn Bay Length (ft)												450	
Base Capacity (vph)	628		668		1910	890		1910			862	461	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	1.93		0.49		0.87	0.65		0.78			1.04	1.20	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 108			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.93			
Intersection Signal Delay: 121.3		Intersection LOS: F	
Intersection Capacity Utilization Err%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	883	525	0
Future Volume (Veh/h)	0	0	0	883	525	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	960	571	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	547					
pX, platoon unblocked						
vC, conflicting volume			0		320	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		320	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		12	100
cM capacity (veh/h)			1622		648	1084

Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	320	320	320	571
Volume Left	0	0	0	571
Volume Right	0	0	0	0
cSH	1700	1700	1700	648
Volume to Capacity	0.19	0.19	0.19	0.88
Queue Length 95th (ft)	0	0	0	264
Control Delay (s)	0.0	0.0	0.0	37.7
Lane LOS				E
Approach Delay (s)	0.0			37.7
Approach LOS				E

Intersection Summary			
Average Delay	14.1		
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	883	80	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	883	80	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	1051	104	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1155			0			1103	1103	578	526	1155	0
vC1, stage 1 conf vol							1103	1103		0	0	
vC2, stage 2 conf vol							0	0		526	1155	
vCu, unblocked vol	1155			0			1103	1103	578	526	1155	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	601			1622			202	254	459	453	240	1084

Direction, Lane #	SB 1	SB 2
Volume Total	701	454
Volume Left	0	0
Volume Right	0	104
cSH	1700	1700
Volume to Capacity	0.41	0.27
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	30.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1276	80	0
Future Volume (Veh/h)	0	0	0	1276	80	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.95	0.77	0.92
Hourly flow rate (vph)	0	0	0	1343	104	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		672	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		672	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		73	100
cM capacity (veh/h)			1622		392	1084

Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	672	672	104
Volume Left	0	0	104
Volume Right	0	0	0
cSH	1700	1700	392
Volume to Capacity	0.40	0.40	0.27
Queue Length 95th (ft)	0	0	26
Control Delay (s)	0.0	0.0	17.5
Lane LOS			C
Approach Delay (s)	0.0		17.5
Approach LOS			C

Intersection Summary				
Average Delay	1.3			
Intersection Capacity Utilization	46.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	317	0	140	0	3463	1055	0	722	0	236	324	498	
Future Volume (vph)	317	0	140	0	3463	1055	0	722	0	236	324	498	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.954	0.850	
Flt Protected	0.950										0.967		
Satd. Flow (prot)	3467	0	2787	0	5187	1599	0	5187	0	0	4875	1389	
Flt Permitted	0.950										0.967		
Satd. Flow (perm)	3467	0	2787	0	5187	1599	0	5187	0	0	4875	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			156			499					136	270	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			378			896		
Travel Time (s)	12.6				10.4			8.6			20.4		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.92	0.92	0.92	0.78	0.92	0.92	0.92	0.92	
Heavy Vehicles (%)	1%	2%	2%	2%	0%	1%	2%	0%	2%	2%	2%	0%	
Adj. Flow (vph)	352	0	156	0	3764	1147	0	926	0	257	352	541	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	352	0	156	0	3764	1147	0	926	0	0	880	270	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	15.0		15.0		60.0	60.0		60.0		15.0	15.0	15.0	30.0
Total Split (%)	12.5%		12.5%		50.0%	50.0%		50.0%		12.5%	12.5%	12.5%	25%
Maximum Green (s)	9.0		9.0		54.0	54.0		54.0		9.0	9.0	9.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													20
Act Effct Green (s)	9.2		9.2		55.1	55.1		55.1			9.2	9.2	
Actuated g/C Ratio	0.09		0.09		0.54	0.54		0.54			0.09	0.09	
v/c Ratio	1.13		0.40		1.34	1.05		0.33			1.57	0.73	
Control Delay	134.0		11.6		181.3	56.9		15.6			291.2	18.8	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	134.0		11.6		181.3	56.9		15.6			291.2	18.8	
LOS	F		B		F	E		B			F	B	
Approach Delay	96.4				152.2			15.6			227.3		
Approach LOS	F				F			B			F		
Queue Length 50th (ft)	~107		0		~966	406		86			~219	0	
Queue Length 95th (ft)	#281		36		#1604	#1085		174			#417	#131	
Internal Link Dist (ft)	474				377			298			816		
Turn Bay Length (ft)												450	
Base Capacity (vph)	312		393		2801	1093		2801			562	370	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	1.13		0.40		1.34	1.05		0.33			1.57	0.73	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 102			
Natural Cycle: 150			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.57			
Intersection Signal Delay: 143.1		Intersection LOS: F	
Intersection Capacity Utilization Err%		ICU Level of Service H	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	544	178	0
Future Volume (Veh/h)	0	0	0	544	178	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	591	193	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	547					
pX, platoon unblocked						
vC, conflicting volume			0		197	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		197	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		75	100
cM capacity (veh/h)			1622		773	1084

Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	197	197	197	193
Volume Left	0	0	0	193
Volume Right	0	0	0	0
cSH	1700	1700	1700	773
Volume to Capacity	0.12	0.12	0.12	0.25
Queue Length 95th (ft)	0	0	0	25
Control Delay (s)	0.0	0.0	0.0	11.2
Lane LOS				B
Approach Delay (s)	0.0			11.2
Approach LOS				B

Intersection Summary				
Average Delay	2.8			
Intersection Capacity Utilization	27.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	544	650	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	544	650	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.88	0.88	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	618	739	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1357			0			988	988	678	309	1357	0
vC1, stage 1 conf vol							988	988		0	0	
vC2, stage 2 conf vol							0	0		309	1357	
vCu, unblocked vol	1357			0			988	988	678	309	1357	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	503			1622			238	288	394	611	192	1084

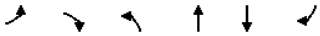
Direction, Lane #	SB 1	SB 2
Volume Total	412	945
Volume Left	0	0
Volume Right	0	739
cSH	1700	1700
Volume to Capacity	0.24	0.56
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	39.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	812	650	0
Future Volume (Veh/h)	0	0	0	812	650	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.90	0.88	0.92
Hourly flow rate (vph)	0	0	0	902	739	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		451	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		451	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		0	100
cM capacity (veh/h)			1622		539	1084

Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	451	451	739
Volume Left	0	0	739
Volume Right	0	0	0
cSH	1700	1700	539
Volume to Capacity	0.27	0.27	1.37
Queue Length 95th (ft)	0	0	832
Control Delay (s)	0.0	0.0	200.0
Lane LOS			F
Approach Delay (s)	0.0		200.0
Approach LOS			F

Intersection Summary			
Average Delay		90.1	
Intersection Capacity Utilization		65.1%	ICU Level of Service C
Analysis Period (min)		15	



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	61	0	0	1079	383
Future Volume (Veh/h)	0	61	0	0	1079	383
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	66	0	0	1173	416
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				723		
pX, platoon unblocked						
vC, conflicting volume	1381	599	1589			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1381	599	1589			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	85	100			
cM capacity (veh/h)	135	445	409			

Direction, Lane #	EB 1	SB 1	SB 2	SB 3
Volume Total	66	469	469	651
Volume Left	0	0	0	0
Volume Right	66	0	0	416
cSH	445	1700	1700	1700
Volume to Capacity	0.15	0.28	0.28	0.38
Queue Length 95th (ft)	13	0	0	0
Control Delay (s)	14.5	0.0	0.0	0.0
Lane LOS	B			
Approach Delay (s)	14.5	0.0		
Approach LOS	B			

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	39.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	WBR2	NBL	NBT	NBR	SBL	SBT	SBR	SEL2	SEL	SER	Ø3
Lane Configurations													
Traffic Volume (vph)	1090	0	294	0	1457	503	0	1408	0	300	195	1111	
Future Volume (vph)	1090	0	294	0	1457	503	0	1408	0	300	195	1111	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0		0		0	0		0		0	450	
Storage Lanes	2	2		0		1	0		0		3	1	
Taper Length (ft)	25			25			25				25		
Lane Util. Factor	0.97	1.00	0.88	1.00	0.91	1.00	1.00	0.91	1.00	0.91	0.94	0.86	
Frt			0.850			0.850					0.919	0.850	
Flt Protected	0.950										0.977		
Satd. Flow (prot)	3502	0	2787	0	5187	1615	0	5187	0	0	4739	1389	
Flt Permitted	0.950										0.977		
Satd. Flow (perm)	3502	0	2787	0	5187	1615	0	5187	0	0	4739	1389	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			205			460					197	320	
Link Speed (mph)	30				30			30			30		
Link Distance (ft)	554				457			378			797		
Travel Time (s)	12.6				10.4			8.6			18.1		
Peak Hour Factor	0.90	0.92	0.90	0.92	0.87	0.87	0.92	0.94	0.92	0.92	0.87	0.87	
Heavy Vehicles (%)	0%	2%	2%	2%	0%	0%	2%	0%	2%	0%	8%	0%	
Adj. Flow (vph)	1211	0	327	0	1675	578	0	1498	0	326	224	1277	
Shared Lane Traffic (%)												50%	
Lane Group Flow (vph)	1211	0	327	0	1675	578	0	1498	0	0	1189	638	
Turn Type	Prot		Prot		NA	Prot		NA		Prot	Prot	Prot	
Protected Phases	4		4		2	2		2		1	1	1	3
Permitted Phases													
Detector Phase	4		4		2	2		2		1	1	1	
Switch Phase													
Minimum Initial (s)	8.0		8.0		8.0	8.0		8.0		8.0	8.0	8.0	1.0
Minimum Split (s)	14.0		14.0		14.0	14.0		14.0		14.0	14.0	14.0	30.0
Total Split (s)	25.0		25.0		45.0	45.0		45.0		20.0	20.0	20.0	30.0
Total Split (%)	20.8%		20.8%		37.5%	37.5%		37.5%		16.7%	16.7%	16.7%	25%
Maximum Green (s)	19.0		19.0		39.0	39.0		39.0		14.0	14.0	14.0	24.0
Yellow Time (s)	4.0		4.0		4.0	4.0		4.0		4.0	4.0	4.0	2.0
All-Red Time (s)	2.0		2.0		2.0	2.0		2.0		2.0	2.0	2.0	4.0
Lost Time Adjust (s)	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Lost Time (s)	6.0		6.0		6.0	6.0		6.0			6.0	6.0	
Lead/Lag	Lag		Lag		Lag	Lag		Lag		Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes		Yes		Yes	Yes		Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0		3.0	3.0		3.0		3.0	3.0	3.0	3.0
Recall Mode	None		None		Max	Max		Max		None	None	None	None
Walk Time (s)													7.0
Flash Dont Walk (s)													17.0
Pedestrian Calls (#/hr)													38
Act Effct Green (s)	19.4		19.4		39.8	39.8		39.8			14.3	14.3	
Actuated g/C Ratio	0.18		0.18		0.37	0.37		0.37			0.13	0.13	
v/c Ratio	1.93		0.49		0.88	0.65		0.78			1.66dr	1.38	
Control Delay	450.2		19.3		40.3	11.0		36.1			256.8	205.4	
Queue Delay	0.0		0.0		0.0	0.0		0.0			0.0	0.0	
Total Delay	450.2		19.3		40.3	11.0		36.1			256.8	205.4	
LOS	F		B		D	B		D			F	F	
Approach Delay	358.6				32.8			36.1			238.9		
Approach LOS	F				C			D			F		
Queue Length 50th (ft)	~775		47		471	66		401			~424	~511	
Queue Length 95th (ft)	#910		99		#552	178		466			#492	#730	
Internal Link Dist (ft)	474				377			298			717		
Turn Bay Length (ft)												450	
Base Capacity (vph)	628		668		1910	885		1910			797	461	
Starvation Cap Reductn	0		0		0	0		0			0	0	
Spillback Cap Reductn	0		0		0	0		0			0	0	
Storage Cap Reductn	0		0		0	0		0			0	0	
Reduced v/c Ratio	1.93		0.49		0.88	0.65		0.78			1.49	1.38	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 108
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.93
Intersection Signal Delay: 156.8 Intersection LOS: F
Intersection Capacity Utilization Err% ICU Level of Service H
Analysis Period (min) 15

~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 1: Morrissey Boulevard & Bianculli Boulevard & Morrissey Service Road

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	883	525	0
Future Volume (Veh/h)	0	0	0	883	525	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	960	571	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	547					
pX, platoon unblocked						
vC, conflicting volume			0		320	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		320	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		12	100
cM capacity (veh/h)			1622		648	1084

Direction, Lane #	SB 1	SB 2	SB 3	SW 1
Volume Total	320	320	320	571
Volume Left	0	0	0	571
Volume Right	0	0	0	0
cSH	1700	1700	1700	648
Volume to Capacity	0.19	0.19	0.19	0.88
Queue Length 95th (ft)	0	0	0	264
Control Delay (s)	0.0	0.0	0.0	37.7
Lane LOS				E
Approach Delay (s)	0.0			37.7
Approach LOS				E

Intersection Summary			
Average Delay	14.1		
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	0	883	144	0	0	0	0	0	0
Future Volume (Veh/h)	0	0	0	0	883	144	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.84	0.77	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	1051	187	0	0	0	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		Raised			Raised							
Median storage veh)		1			1							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1238			0			1144	1144	619	526	1238	0
vC1, stage 1 conf vol							1144	1144		0	0	
vC2, stage 2 conf vol							0	0		526	1238	
vCu, unblocked vol	1238			0			1144	1144	619	526	1238	0
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	558			1622			191	242	432	453	219	1084

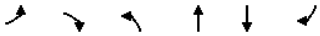
Direction, Lane #	SB 1	SB 2
Volume Total	701	537
Volume Left	0	0
Volume Right	0	187
cSH	1700	1700
Volume to Capacity	0.41	0.32
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.0
Lane LOS		
Approach Delay (s)	0.0	
Approach LOS		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	32.3%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	1280	144	0
Future Volume (Veh/h)	0	0	0	1280	144	0
Sign Control	Free			Free	Yield	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.95	0.77	0.92
Hourly flow rate (vph)	0	0	0	1347	187	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			0		674	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			0		674	0
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		52	100
cM capacity (veh/h)			1622		391	1084

Direction, Lane #	SB 1	SB 2	SW 1
Volume Total	674	674	187
Volume Left	0	0	187
Volume Right	0	0	0
cSH	1700	1700	391
Volume to Capacity	0.40	0.40	0.48
Queue Length 95th (ft)	0	0	63
Control Delay (s)	0.0	0.0	22.4
Lane LOS			C
Approach Delay (s)	0.0		22.4
Approach LOS			C

Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	50.0%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	338	0	0	1356	68
Future Volume (Veh/h)	0	338	0	0	1356	68
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	367	0	0	1474	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)				797		
pX, platoon unblocked						
vC, conflicting volume	1511	528	1548			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1511	528	1548			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	26	100			
cM capacity (veh/h)	111	495	424			

Direction, Lane #	EB 1	SB 1	SB 2	SB 3
Volume Total	367	590	590	369
Volume Left	0	0	0	0
Volume Right	367	0	0	74
cSH	495	1700	1700	1700
Volume to Capacity	0.74	0.35	0.35	0.22
Queue Length 95th (ft)	155	0	0	0
Control Delay (s)	30.4	0.0	0.0	0.0
Lane LOS	D			
Approach Delay (s)	30.4	0.0		
Approach LOS	D			

Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	55.3%	ICU Level of Service	B	
Analysis Period (min)	15			

Appendix D

Air Quality

APPENDIX D - AIR QUALITY

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 127 cm was used for the intersection due to the presence of water and fields near 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 not included herein, but are available on digital media upon request.

Appendix E

Climate Resiliency Checklist

Boston Planning & Development Agency
Climate Resiliency Report Summary

Submitted: 01/26/2018 15:02:23

A.1 - Project Information

Project Name:	135 Morrissey			
Project Address:	135 William T Morrissey Blvd Boston, MA 02125			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Erik Rexford	Epsilon Associates	erexford@epsilonassociates.com	978-897-7100
Is MEPA approval required?	Yes	MEPA date:	02/15/2018	

A.2 - Project Team

Owner / Developer:	Nordblom Company
Architect:	Stantec
Engineer:	Howard Stein Hudson / Stantec / AHA Consulting Engineers, Inc.
Sustainability / LEED:	Stantec
Permitting:	Epsilon Associates, Inc.
Construction Management:	John Moriarty & Associates

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Mixed-use; light industrial, manufacturing, office
List the First Floor Uses:	Same as above
List any Critical Site Infrastructure and or Building Uses:	None

Site and Building:

Site Area (SF):	723697	Building Area (SF):	324866
Building Height (Ft):	57.5	Building Height (Stories):	4
Existing Site Elevation – Low (Ft BCB):	14.8	Existing Site Elevation – High (Ft BCB):	22.5
Proposed Site Elevation – Low (Ft BCB):	14.8	Proposed Site Elevation – High (Ft BCB):	22.5
Proposed First Floor Elevation (Ft BCB):	18.0	Below grade spaces/levels (#):	0

Article 37 Green Building:

LEED Version - Rating System:	V4	LEED Certification:	No
Proposed LEED rating:	Silver	Proposed LEED point score (Pts.):	56

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	Loads and energy performance are based on the anticipated areas and uses of the spaces, and CBECS annual average energy usage data per use type		
Annual Electric (kWh):	8311800	Peak Electric (kW):	6170.5
Annual Heating (MMbtu/hr):	23167.7	Peak Heating (MMbtu):	9.458
Annual Cooling (Tons/hr):	1754800	Peak Cooling (Tons):	2050
Energy Use - Below ASHRAE 90.1 - 2013 (%):	10	Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):	10	Energy Use Intensity (kBtu/SF):	72.322

Back-up / Emergency Power System

Electrical Generation Output (kW):	600	Number of Power Units:	1
System Type (kW):	600	Fuel Source:	Diesel

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

Electric (kW):	500	Heating (MMbtu/hr):	0
		Cooling (Tons/hr):	0

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): 6309.0

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

Energy performance is a focus of the project team for this renovation project; new HVAC systems and equipment are planned, new lighting will be installed in all areas, and new controls will be used for the systems. Energy modeling has been started and will be updated as the project design evolves and the project progresses.

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

The building exists; orientation and massing will be reused. Envelope improvements will be made to walls, windows, and roof, and new HVAC systems will be installed.

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

High-efficiency water chillers, condensing hot water boilers, variable flow pumping systems, exhaust air heat recovery, and LED lighting with controls systems will all be used.

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

On-site PV is being investigated. Depending on final economics and space available, it may be possible to install a PV array with a total capacity of 374 KW. This is estimated by PV Watts to produce 481,000 kW-hr per year, or approx.. 5.8% of the estimated annual electric usage.

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

Central cooling and heating plant will be used. Roof mounted PV is discussed above.

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

None anticipated at this time.

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):

Additional strategies to reduce GHG may include enhanced tenant metering, tenant operation guidelines, tenant fit-out requirements, addition energy conservation measures, expansion of on-site renewables and energy storage options, and deployment of new sustainability and adaptation strategies as they become feasible at the Project site. The Proponent will continue to evaluate energy conservation strategies during the design phase of the project.

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.): 0

Temperature Range - High (Deg.): 95

Annual Heating Degree Days:	5498.7	Annual Cooling Degree Days	889.2

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

Days - Above 90° (#):	25	Days - Above 100° (#):	5
Number of Heatwaves / Year (#):	2	Average Duration of Heatwave (Days):	3

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

Reduction of impervious surface, additional shade trees and shrubs, high-albedo roofing materials, high reflectivity paving materials.

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:

Ongoing vulnerability assessment of risks to building/systems from extreme heat events. Feasibility of green roofs, walls, structures, and additional landscape elements are being evaluated. Use of high-efficiency HVAC systems that are appropriately sized for cooling load during design life of system.

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:

Operable windows, natural ventilation, external shading devices, feasibility of a “cool room” will be evaluated. On-site backup generation capacity in excess of critical systems demand and feasibility of on-site renewable generation and storage is being evaluated.

D - Extreme Precipitation Events

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

D.1 – Extreme Precipitation - Design Conditions

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

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

Reduction of impervious surface, improvements to stormwater management system, installation of bioswales.

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):

Feasibility of additional stormwater retention, infiltration, and storage, including bioswales, green roofs, blue roofs, storage basins or tanks, 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)?			17.5
Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	Yes		

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)?	19.5		
What is the Sea Level Rise - Design Flood Elevation for the site (Ft BCB)?	20.5	First Floor Elevation (Ft BCB):	18.0
What are the Site Elevations at Building (Ft BCB)?	~16.5	What is the Accessible Route Elevation (Ft BCB)?	~17.0-20.0'

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.:

Backflow prevention at stormwater outfalls.

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.:

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 above SLR-BFE. Temporary flood barriers may be deployed at building openings to below-grade (non-habitable/equipment) spaces.

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:

Emergency power will be supplied on site to maintain life safety systems.

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

Flood damage-resistant structural and finish materials will be selected for appropriate locations.

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.:

Expansion of stormwater management systems, including additional storage or infiltration capacity is being evaluated. Hard/landscaped features that serve as flooding barriers, additional site fill, and deployable flood barriers.

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

Expansion of deployable protective barrier system, as necessary.

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 and Accessibility Routes Plan

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 BEAT**
Primary Project Address:	**135 William T Morrissey Boulevard, Boston, MA**
Total Number of Phases/Buildings:	**1**
Primary Contact (Name / Title / Company / Email / Phone):	**Todd Fremont-Smith** **Vice President** **Nordblom** tfremont-smith@nordblom.com **781-272-4000**
Owner / Developer:	**Nordblom**
Architect:	**Stantec**
Civil Engineer:	**Howard Stein Hudson**
Landscape Architect:	**Copley Wolff**
Permitting:	**Epsilon Associates**
Construction Management:	**John Moriarty & Associates**

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:	*723,697 SF*	Building Area:	*715,500 GSF*

Building Height:	*57'-6" FT.*	Number of Stories:		*Varies 2-4 Flrs.*
First Floor Elevation:	20'-6"	Is there below grade space:		*No*
What is the Construction Type? (Select most appropriate type)				
	Concrete			
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Business	Factory	Storage, Utility and Other	Mercantile
List street-level uses of the building:				
	Business	Factory	Storage, Utility and Other	Mercantile

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 BEAT is located at 135 Morrissey Blvd., in Dorchester near Columbia Point. Morrissey Blvd. is a multi-lane, divided roadway leading to and from Boston. On the opposite side is interstate 93. The site is generally flat, with building entries raised up from the surrounding grade.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	The JFK/UMass MBTA station is located about .5 mile north on Morrissey Blvd., and it is approximately a 10 minute walk to the site. This station provides accessible access to the Redline, Commuter Rail and various MBTA bus and shuttle stops.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Boston College High School is located across Morrissey Blvd. from this site. UMass Boston is also located nearby, on Columbia Point.
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	This site abuts Patten's Cove, a Massachusetts Department of Conservation and Recreation (DCR) park located south of the Project site.

4. Surrounding Site Conditions – Existing:

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

Is the development site within a historic district? ***If yes,*** identify which district:	No
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	There is a sidewalk running along the full length of Morrissey Blvd, which is proposed to be redone in the future. As part of the redevelopment, all entries to the building will be rebuilt and provide handicap accessible ramps.
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	No, all entrances are being replaced, and all will be accessible.
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	Yes, all new sidewalks will be created consistent to the guideline requirements. Sidewalk type to be selected.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	Pending final design details.
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?	Pending final design details.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed	No

dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	No
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?	There are currently about 52 spaces in an existing covered garage below the building, and another 165 at the 2nd floor roof deck parking. The remainder will be surface parking around the building, with about 750 total spaces proposed.
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?	Accessible parking will be provided at 2% of the total (15 spaces). We will locate the accessible spaces to be near each of the accessible entries, proportional to the size of the lot at each area. 2 spaces total will be required to be van accessible.
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	No
Where is the accessible visitor parking located?	The accessible spaces will generally be located as close to the accessible entries as is possible. As this is a large building, visitor parking may be located in multiple areas around the building.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	An accessible drop-off area has been identified.
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:	Morrissey Blvd. (east) entry: Ramp from new sidewalk up to new entry. West parking lot entry: Ramp up from parking area up to new entry plaza. North entry courtyard entry: Ramp up from courtyard to new entry. North underbuilding parking lot: Curb cut up from parking lot to entry. West second floor roof parking: Curb cut up from parking lot to sidewalk at entry.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes. All entries and paths throughout the building will be accessible.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	The Project is subject to Article 80, Large Project Review. Wayfinding/signage will be selected pending final design details.
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?	NA
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?	NA
If a residential development, how many accessible Group 2 units are being proposed?	NA
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	NA
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.	NA

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.	NA
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes***, describe:	NA
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community*.	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	The Proponent is working DCR to address maintenance and management of Patten's Cove park.
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?	The extent of the building renovation proposed for this project will require that this project fully accessible. All entries, accessible paths, and public areas will be created to meet MAAB and ADA requirements and have accessible seating, etc.
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. No. Since this will be more of an office building setting it is not anticipated that family type restrooms will be needed. All public restrooms will have accessible stalls and components as required. Individual tenant fit-out requirements may include Family/Companion restrooms.
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?	No – review pending.

Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	No – presentation pending.

10. Attachments

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

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances. See attached.
Provide a diagram of the accessible route connections through the site, including distances. See attached.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable) See attached.
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry. See attached.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

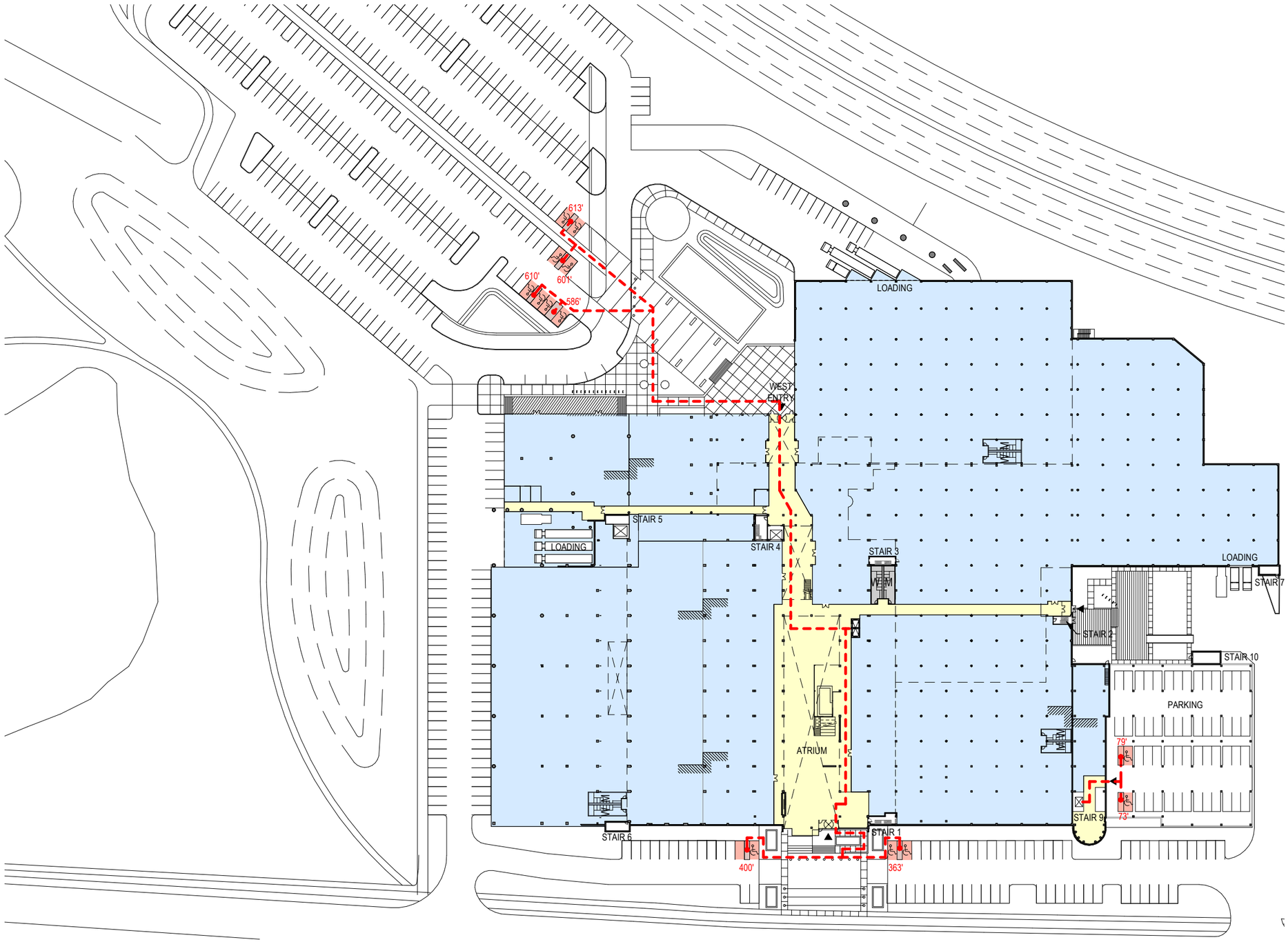
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open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



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SITE & GROUND FLOOR ACCESSIBLE ROUTES

135 MORRISSEY BLVD.

01/25/18