282-308 Bremen Street, East Boston

Mixed-Use Residential /Commercial Development

Draft Project Impact Report October 10, 2019

Submitted Pursuant to Article 80B-5 of the Boston Zoning Code

SUBMITTED BY:

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c/o Transom Real Estate, LLC
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SUBMITTED TO:

boston planning & development agency

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Sherwood Consulting & Design, LLC
Tech Environmental, Inc.
Soden Sustainability Consulting
Northeast Geotechnical, Inc.
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28 STATE STREET, SUITE 802
BOSTON, MA 02109

October 10, 2019

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

RE: Draft Project Impact Report ("DPIR")
Proposed Mixed-Use Multi-Family Residential / Commercial Development
282 - 308 Bremen Street, East Boston

Dear Director Golden:

As counsel to 282 Bremen Development, LLC (the "Proponent"), and in accordance with Article 80B-2 of the Boston Zoning Code, I am pleased to submit the enclosed Draft Project Impact Report ("DPIR") for the Proponent's contemplated mixed-use residential / commercial redevelopment of the above-referenced premises (the "Proposed Project" and "Project Site", respectively). Enclosed please find ten (10) copies of the DPIR plus a CD with the electronic version of the DPIR to be uploaded on the Agency's web portal (for available public review).

As detailed in the enclosed DPIR, and in response to Agency input and public comments provided as to the Proponent's initial Project Notification Form of May 8, 2019 ("PNF"), the Proposed Project has been reduced in size and scale, with less residential units, reduced floor area and a lower building height than originally proposed in the Proponent's PNF. Specifically, the Proponent has reduced its total number of residential units from 165 to 145 apartments (with a mix of apartments and artist units on the upper levels); lowered its building height from six (6) to four-five (4-5) stories; added 2,075 gsf of artist/workspace with gallery programming; and provided up to 3,200 square feet of new retail space. The DPIR proposal also eliminated approximately 15,000 gross square feet of floor area from its originally-proposed building scale.

Further design and program advancements have also been included in the revised Proposed Project with Agency input, resulting in greater activation of the streetscape and much-needed neighborhood retail and innovative artist live-work spaces. On-site garage parking (with stacker capabilities) will provide the potential for up to 61 parking spaces in the

reduced-sized 4-5 story building of varying heights along Bremen Street, with related public realm, pedestrian and vehicular access improvements.

As revised, the residential program at the Proposed Project will continue to advance the policy and planning goals of Mayor Walsh's 2030 Housing Plan, in a manner which is consistent with the character and context of the surrounding area and its nearby residents.

In accordance with the Agency's requirements, the public notice for the DPIR submission appears in the October 10, 2019, edition of the *Boston Herald*.

The BPDA Scoping Determination requiring this filing of the DPIR was issued by the Agency on August 21, 2019, and a copy is attached hereto as **Appendix "A"**.

As part of the Article 80 Large Project Review process and in connection with the enclosed DPIR for the Proposed Project, the Proponent has conducted and continues to engage in extensive community outreach with its abutting and nearby property owners, area residents, local businesses and the applicable neighborhood interest groups for the Project Site. To-date, these activities have included community meetings with the Maverick Central Neighborhood Association and Eagle Hill Civic Association, numerous individual meetings with abutters, local residents and business owners, and the Agency's Impact Advisory Group ("IAG") and public project meetings, as required by Article 80B-2 of the Code.

On behalf of the entire project team, we would like to thank you and your staff assigned to the Proposed Project. In particular, we greatly appreciate the time, input and leadership of Project Manager, Raul Duverge, and BPDA Urban Designer, Matthew Martin, who provided guidance and assistance to help to shape the Proposed Project throughout this comprehensive DPIR filing. We look forward to continued cooperation with the BPDA, other City officials, members of the IAG, and the East Boston community in the public review process to follow.

Thank you, as always, for your time and leadership.

Very truly yours,

Joseph P. Hanley, Esq., Partner
McDermott Quilty & Miller, LLP

PUBLIC NOTICE

The Boston Redevelopment Authority d/b/a the Boston Planning & Development Agency ("BPDA"), pursuant to Article 80 of the City of Boston Zoning Code ("Code"), hereby gives notice that a Draft Project Impact Report ("DPIR") for Large Project Review has been received from 282 Bremen Development, LLC (the "Proponent") on October 10, 2019, for the redevelopment of approximately 34,160 square feet (0.8 acres) of land located at 282-308 Bremen Street in the East Boston neighborhood of Boston. The project consists of a new 4-5-story building of approximately 110,000 gross square feet, with 145 residential units, including a mix of apartments and artist units, up to approximately 3,200 square feet of retail space, workshare and artist programming space on the ground floor, and up to 61 off-street vehicle parking spaces (the "Proposed Project"). The Proponent is seeking the issuance of a Preliminary Adequacy Determination by the Director of the BPDA pursuant to Section 80B-5 of the Code. The BPDA, in the Preliminary Adequacy Determination regarding the DPIR, may waive further review requirements pursuant to Section 80B-5.4(c)(iv) of the Code, if after reviewing public comments, the BPDA finds that such DPIR adequately described the Proposed Project's impacts. The DPIR may be reviewed on the BPDA website - www.bostonplans.org or at the Office of the Secretary of the BPDA, Room 910, Boston City Hall, 9th Floor, 1 City Hall Square, Boston, MA 02201, between 9:00 AM and 5:00 PM, Monday through Friday except legal holidays. A copy of the DPIR is on reserve and available for review at the East Boston Public Library, 365 Bremen Street, East Boston, MA 02128 during scheduled business hours. Public comments on the DPIR, including the comments of public agencies, should be submitted in writing to: Mr. Raul Duverge, Senior Project Manager, BPDA, at the address above or via email to: Raul.Duverge@Boston.gov**,** within forty five (45) days of this notice or by November 27, 2019.

BOSTON REDEVELOPMENT AUTHORITY
d/b/a BOSTON PLANNING & DEVELOPMENT AGENCY

Teresa Polhemus
Executive Director/Secretary
October 10, 2019

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1.0 EXECUTIVE SUMMARY

1.1 Introduction

Transom Real Estate, LLC on behalf of its affiliate, 282 Bremen Development, LLC (the "Proponent") developer of the real property situated at 282-308 Bremen Street in East Boston is submitting this Draft Project Impact Report ("DPIR"), in accordance with the Article 80 requirements of the Boston Zoning Code ("Code"), for a mixed-use development of approximately 110,000 gross square feet ("gsf") of floor area, including 145 residential units, with a mix of apartments and artist units (on the upper levels); 2,075 gsf of artist/workspace with gallery programming and up to 3,200 square feet of retail space, lobby and storage on the ground floor, and garage parking spaces for up to 61 vehicles in a new 4-5-story building with varying heights up to 62 feet (the "Proposed Project").

The site comprises 34,160 square feet of land and is bounded to the northwest by the rear property lines of multi-family residential properties along Chelsea Street, to the northeast by multi-family residences along Bremen Street, to the south by Bremen Street, and to the southwest by Brooks Street. The site, shown on **Figure 1-1**, is currently occupied by two automobile repair establishments and a 4-unit multifamily residential structure. Please also see **Figures 1-2** thru **1-6** for the USGS map and photographs of existing onsite uses and properties in the project vicinity.

The surrounding area is a mix of residential, light industrial, wholesale, and office uses. The site is within the 3F-2000 (three-family residential) Subdistrict of the East Boston Neighborhood District (Article 53).

As detailed in this DPIR, and in response to Agency input and public comments provided as to the Proponent's initial Project Notification Form of May 8, 2019 ("PNF"), the Proposed Project has been reduced in size and scale, with less residential units, reduced floor area and a lower building height than originally proposed in the Proponent's PNF; with a correlated increase in on-site parking ratio and expanded ground floor retail space. Specifically, the Proponent has reduced its total number of residential units from 165 to 145 (for a mix of apartments and artist units); lowered its building height from six (6) to four to five (4-5) stories, eliminated approximately 15,000 gross square feet of floor area from its originally-proposed building scale, and expanded the size of its ground floor retail space from 2,000 gsf to up to 3,200 gsf. Its on-site garage parking facility has also been redesigned to accommodate up to 61 parking spaces (via a stacker program), with a correlated increase in the resulting parking ratio based on the reduced unit count.

Further design and program advancements have also been included in the DPIR Proposed Project with Agency input, resulting in greater activation of the streetscape and much-needed neighborhood retail and innovative artist/maker spaces. On-site garage parking (with stacker capabilities) provides up to 61 parking spaces in the reduced sized 4-5 story building of varying heights along Bremen Street, with related public realm, pedestrian and vehicular access improvements.

As revised, the residential program at the Proposed Project will continue to advance the policy and planning goals of Mayor Walsh's 2030 Housing Plan in a manner which is consistent with the character and context of the surrounding area and its nearby residents.

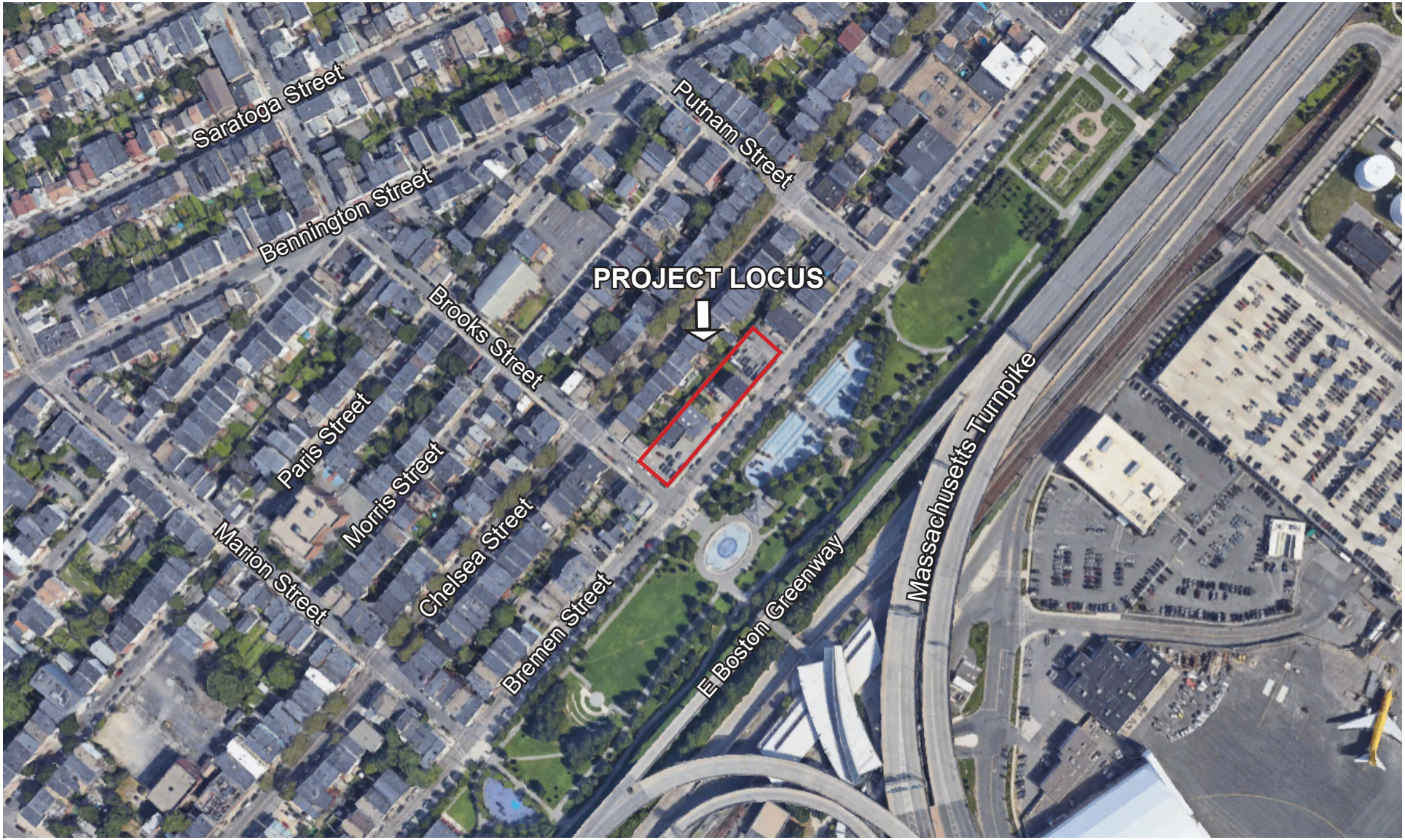
The Scoping Determination for preparation of a Draft Project Impact Report (DPIR) was issued by the Boston Planning and Development Agency on August 21, 2019 (See **Appendix A**).

The PNF Project was initially presented to the Boston Civic Design Commission (BCDC) on June 4, 2019, and the design team is expecting to return to review by the BCDC Design Committee in October, 2019.

The Project is uniquely situated across from the Bremen Street Community Park and to take advantage of the numerous public transportation opportunities in the area including Airport Station, which serves the MBTA's Blue Line subway and No. 3 Silver Line bus route. It is expected that due to the availability of public transportation and the walkability of the surrounding neighborhood, the Project will rely on alternative non-vehicular modes of transportation to access the site.

1.2 Existing Conditions

The site comprises 34,160 square feet of land and is bounded to the northwest by the rear property lines of multi-family residential properties along Chelsea Street, to the northeast by multi-family residences along Bremen Street, to the south by Bremen Street, and to the southwest by Brooks Street. The site is currently occupied by two automobile repair establishments and a 4-unit multifamily residential structure, which will be demolished to allow for the new construction to commence.



282-308 Bremen Street

Figure 1-1. Project Locus
282-308 Bremen Street

Figure 1-2. USGS Map
282-308 Bremen Street

Figure 1-3. Existing Site Photos

Existing Site Building – Auto Body Company

Adjacent Building Along Bremen St

Figure 1-4. Existing Site Photos

Existing Site Building – Braz Motor Repair and Sales

Side of Existing Building Along Bremen St

Figure 1-5. Existing Site Photos

Corner of Chelsea and Brook Streets

Existing Residences Along Chelsea St

Figure 1-6. Existing Site Photos

Massport's Bremen Street Park on the Opposite Side of Bremen St

Nearby East Boston BPL Branch Library on Bremen St

1.3 Metes and Bounds of Parcels and Assessing Department ID Number

The site consists of three parcels including the addresses 294, 296, 298, 300, and 308 Bremen Street in East Boston. The Boston Assessing Department's ID Number for all of the addresses is No. 0106882000. The descriptions of the metes and bounds of each of the site parcels are as follows:

Parcel I - 294 Bremen Street, East Boston

A certain parcel of land with the buildings thereon situated in that part of Boston called East Boston and being part of Lot 68 on a plan of Section 5, East Boston, bounded and described as follows:

- *SOUTHWESTERLY* on Lot 67 on said plan, eighty (80) feet;
- *NORTHWESTERLY* on Lot 30 on said plan, fifty (50) feet;
- *NORTHEASTERLY* on the remaining part of Lot 68, eighty (80) feet; and
- *SOUTHEASTERLY* on Bremen Street, fifty (50) feet.

Parcel II - 296, 298 and 300 Bremen Street, East Boston

A certain parcel of land with the buildings thereon situated in that part of Boston called East Boston in the County of Suffolk and Commonwealth of Massachusetts, bounded and described as follows:

> The land, with the buildings thereon, on the Northwesterly side of Bremen Street, numbered 296, 298, and 300 Bremen Street, between another estate now or formerly of Emanuel Carco, and another (numbered 294) and supposed to contain about 4000 square feet.
>
> Said land is situated in Block 5 Sec. 5, in the East Boston District shown on the Boston Assessors' Plans.

Parcel III- 308 Bremen Street, East Boston

A certain parcel of land with the buildings thereon, situated in that part of Boston, County of Suffolk, Commonwealth of Massachusetts, called East Boston and bounded as follows:

- *SOUTHEASTERLY* on Bremen Street, twenty-seven (27) feet;
- S*OUTHWESTERLY* on Lot 69, on plan hereinafter referred to, eighty (80) feet;
- *NORTHWESTERLY* on Lot 32, on said plan, twenty-seven (27) feet; and
- *NORTHEASTERLY* on the remaining part of Lot 70, on said plan, eighty (80) feet.

Said premises is numbered 308 Bremen Street, in East Boston, and shown as part of Lot 70, on Section 5 of R.H. Eddy's plan, dated November 23, 1842, and recorded with Suffolk Registry of Deeds in Book 492.

See also **Figure 1-7. Existing Conditions (**ALTA/NSPS Land Title Survey Plan for 282-308 Bremen Street, prepared by WSP USA Inc., revised November 7, 2018).

1.4 Changes to the Project Program - PNF vs. DPIR

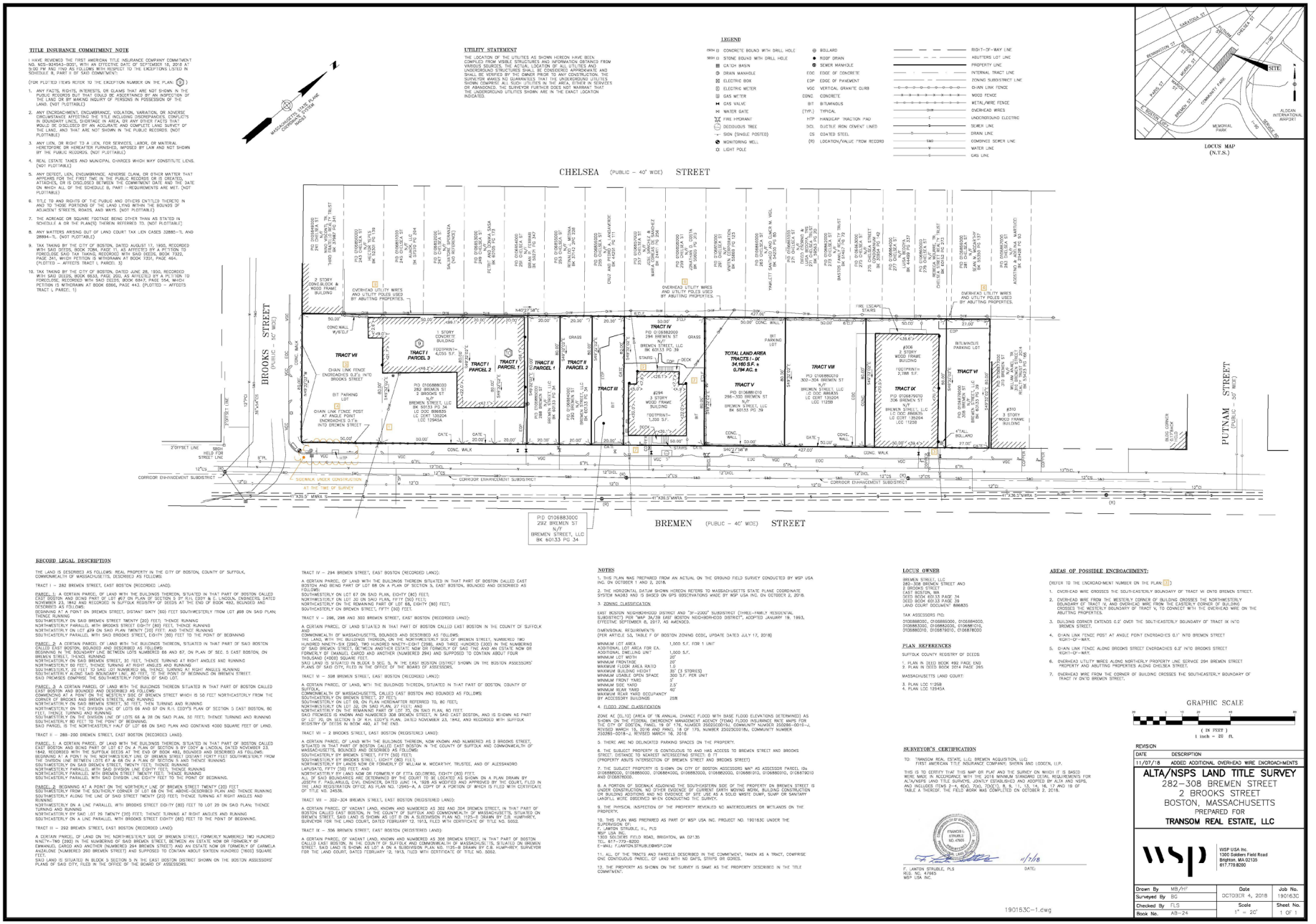
1.4.1 Project Notification Form

The PNF Project proposed construction of a new residential apartment development of approximately 125,000 gross square feet, containing 165 multi-family apartment units, three live/work units with 2,000 gsf of space, and 2,000 gross square feet of ground floor retail spaces plus amenity, lobby, circulation, BOH space, served by 68 garage parking spaces in a new 5-6 story building approximately 58-68 feet to the top of the roof, with the 5-story portion at 58 feet and the 6-story portion at 68 feet (the "Proposed PNF Project"). One-hundred and sixty-five (165) residential units were proposed in the PNF, including approximately 25 two- bedroom, 82 one-bedroom, and 58 studio units.

1.4.2 Draft Project Impact Report

As a result of further review by the BPDA, and in responding to public and additional agency comments during the PNF review, the project has now been revised as follows:

a) Reduction to the building's size and scale, from 125,000 gsf to 110,000 gsf.
b) Less residential units: from 165 to 145.
c) Revised on-site Inclusionary Development Policy ("IDP") program: from 21 IDP units to a mix of 19 income restricted artist units (with dedicated workspace) and residential apartments.
d) Lowered building height: from 68 feet to 62 feet to the top of level 5, and from 58 feet to 47 feet to the top of Level 4.
e) Expanded the size of ground floor retail space: from 2,000 gsf to 3,200 gsf.
f) Redesigned on-site garage parking of 39 spaces to now accommodate up to 61 vehicles (by automated stackers): with an increased and improved parking ratio of 0.42 (from 0.40 in the PNF).


TITLE INSURANCE COMMITMENT NOTE
UTILITY STATEMENT
LEGEND
LOCUS MAP (N.T.S.)
CHELSEA (PUBLIC – 40' WIDE) STREET
BROOKS STREET (PUBLIC – 50' WIDE)
PUTNAM STREET (PUBLIC – 50' WIDE)
BREMEN (PUBLIC – 40' WIDE) STREET
TRACT I PARCEL 1
TRACT I PARCEL 2
TRACT I PARCEL 3
TRACT II PARCEL 1
TRACT II PARCEL 2
TRACT III
TRACT IV
TRACT V
TRACT VI
TRACT VII
TRACT VIII
TRACT IX
TOTAL LAND AREA TRACTS I - IX 34,160 S.F. ± 0.784 AC. ±
P.O. 010688300C 292 BREMEN ST N/F BREMEN STREET, LLC BK 60133 PG 34
CORRIDOR ENHANCEMENT SUBDISTRICT
SIDEWALK UNDER CONSTRUCTION AT THE TIME OF SURVEY
OVERHEAD UTILITY WIRES AND UTILITY POLES USED BY ABUTTING PROPERTIES
FIRE ESCAPE STAIRS
RECORD LEGAL DESCRIPTION
NOTES
LOCUS OWNER
AREAS OF POSSIBLE ENCROACHMENT:
PLAN REFERENCES
SURVEYOR'S CERTIFICATION
GRAPHIC SCALE
REVISION
ALTA/NSPS LAND TITLE SURVEY
282–308 BREMEN STREET
2 BROOKS STREET
BOSTON, MASSACHUSETTS
PREPARED FOR
TRANSOM REAL ESTATE, LLC
WSP USA Inc.
1300 Soldiers Field Road
Brighton, MA 02135
617.779.8200
Drawn By MB/MF
Surveyed By BC
Checked By FLS
Book No. AB–24
Date OCTOBER 4, 2018
Scale 1" = 20'
Job No. 190163C
Sheet No. 1 OF 1
190153C–1.cwg

See Project Dimensions in **Table 1-1** below for comparisons of the PNF and DPIR Programs.

Table 1-1. Approximate Dimensions of Proposed Project – PNF vs DPIR

Dimensions	PNF	DPIR
Lot Area	34,160 sf	34,160 sf
Gross Building Area	125,000 GSF	110,000 GSF
Floor Area Ratio (F.A.R.)	3.7	3.2
No. of Floors	5 - 6 Floors	4 - 5 Floors
Height	58 - 68 Feet	47 - 62 Feet
No. of Residential Units	165-Units	145-Units (with mix of apartments and artist units)
Live - Work Units	2,000 GSF in Three Live - Work Units	11,600 GSF of income restricted units including a mix of artist and residential units, and 2,075 GSF of Artist/Maker Workspace at Level 1
Amount of Neighborhood Retail Space	2,000 GSF	3,200 GSF
No. of Garage Parking Spaces	42 Spaces with ability to install stacker system for up to 68-Spaces	39 Spaces with ability to install stacker system for up to 61-Spaces

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project from Bremen Street with a front door vehicle drop off from Bremen Street. The 1st floor garage will be accessed from Bremen Street. Service vehicle access and loading will be provided from Brooks Street.

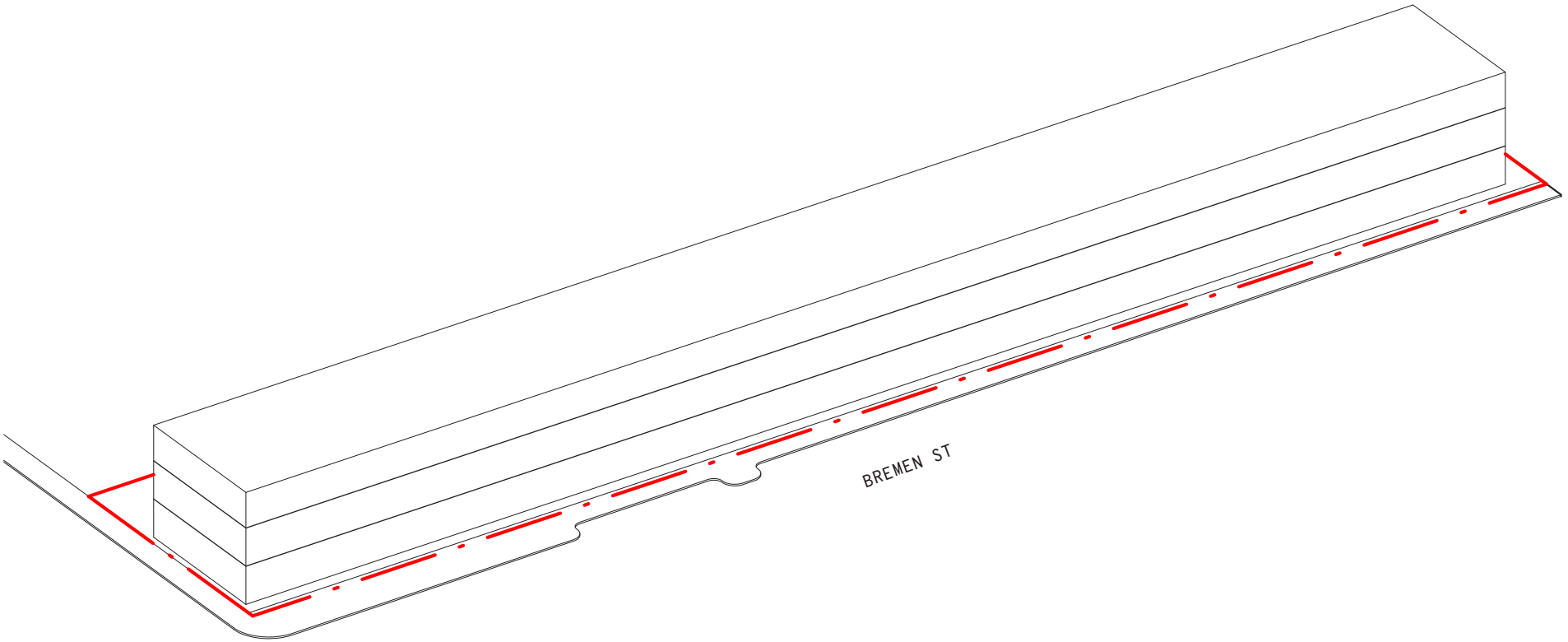
1.5 Alternatives to the Proposed Project

Massing approaches to the site ranged from looking at townhouse style units, single loaded corridor and double loaded corridor development options. The development team also studied a potential Zoning-compliant project option, which necessitates the full width of this elongated and non-conforming property site and fails to address the unique property constraints and resulting hardship presented. As the first floor of development is also at or near the FEMA floor elevation, all living units would be limited to the second and third levels (only), resulting in an excessive level of site work and limited housing creation.

While the combined property site is situated in a 3-Family/2000 Residential Sub-District, its long-existing property conditions, use and structures are non-conforming with the underlying residential Zoning Code allowances at this location. The overall land area is also much larger in total square footage, with certain unique land constraints, and not readily adaptive into 3-Family, 2,000 square feet lots. Rather, the unique aspects of the property site present a significant hardship to the Proponent, which necessitates the contemplated development program in order to adequately respond to the same. In this regard, the incorporation of townhouse units or single loaded corridor program was unfeasible under the circumstances, which resulted in severe limits on building efficiency and site development. A variety of options for a double-loaded corridor scheme were also investigated at building heights of 4, 5 and 6 stories; but due to the narrow and long shape of the property site (427 feet wide by 80 feet deep), the development team concluded that breaking up its new building massing was a more feasible and preferred approach to a four-story building which necessitated solid massing. Options were then investigated to create breaks between multiple buildings, which created detrimental efficiency challenges and the need for excessive building heights in order create a feasible residential housing program. In the end, an alternative design approach was selected by the development team, which creates visual breaks by physically shifting the new building's massing and materiality along Bremen street, while maintaining a lower height (now revised to 4-5 stories) through the creation of an efficient building footprint at this unique property site.

Finally, while the Proponent also studied a potential (as-of-right) Zoning Code compliant option, such an approach fails to address the resulting hardship imposed by the unique property conditions and related constraints. As shown in **Figure 1-8 hereto,** the building program would encompass the entire width of the property site and, due to its first-floor level at/near the FEMA floor elevation, all living units would be limited to the second and third levels (only). This approach also requires a similar amount of site work as the modified DPIR option herein, thereby depriving the Proponent's reasonable use of the land, under the circumstances.

The Site circulation plan is designed to create a safe and pleasant entry to the Proposed Project from Bremen Street with a front door vehicle drop off from Bremen Street. The 1st floor garage will be accessed from Bremen Street. Service vehicle access and loading will be provided from Brooks Street.



- 35′ BUILDING HEIGHT
- 1.0 FAR
- 5′ FRONT YARD SETBACK
- 30′ REAR YARD SETBACK
- 2.5′ SIDE YARD SETBACK

FIGURE 1-8 / **AS OF RIGHT DIAGRAM**

RODE

1.6 Summary of Project Impacts and Mitigation

1.6.1 Urban Design Principles

Located on an edge condition, between sprawling greenspace and a dense, urban, fabric, 282-308 Bremen Street poses unique urban design opportunities and challenges. The site is currently comprised of three structures, two of which are non-conforming automobile related uses, one related small residential rental building, and significant areas of mixed asphalt and earth. Surrounding the parcels are over 185-feet of curb-cuts, almost all of which will be removed for additional street parking. The Bremen Street Community Park, to the east of the site, runs almost the entire length of Bremen Street and contains a variety of programmed and open greenspace. The neighborhood lying to the west, is made up of a majority of three-family residences interspersed with a variety of building types including single-family homes, multi-family residences and commercial space. Conceptually, the architecture of the proposed project attempts to weave the two opposing conditions together by responding to its adjacent context.

The scale of the building is horizontally broken down based on a familiar East Boston residential width, each piece is then pushed, pulled, or angled to add pedestrian relief along Bremen and Brooks and the adjacent buildings relief to the west and north.

An additional major urban element of the project is the activation of the ground floor along Bremen Street. The Bremen and Brooks Streets' intersection will be anchored with a small commercial space, ideal for a café, providing a much-needed public amenity for the surrounding neighborhood. Further along Bremen Street, a large makerspace will support the artist units above and enliven the street. The remaining Bremen Street frontage is programmed with various building elements; lobby, leasing, and a small entry for the parking garage. With building and public program utilizing the majority of the street facing ground floor, a single-story parking garage has been pushed to the rear of the site. Loading is located along Brooks Street, an intentional move to remove additional stoppages and delays from Bremen Street.

Architecturally, the edge condition of the site is also enhanced by varying roof treatments. The park side of the project integrates a series of pitched roofs. By employing a familiar residential roof typology in an unfamiliar environment, the Bremen Street side of the project attempts to provide a strong edge to the park. The roofs along the opposite side of the building, facing the rear yards of adjacent properties, mirrors the flat roofs typically seen in East Boston. In addition to the varied roof scape, the building steps down as full floor on both edges, helping to better transition it back into its surrounding context.

1.6.2 Materials and Finishes

The building will be built utilizing a combination of vertical plank material with a natural texture and color, referencing the verticality of the building design and offsets as well as a textured, linear brick. The design team is looking into wood plank cladding materials and other plank options which provide a natural texture and color – grounding the built form and connecting it to the natural

landscape and materials in the park across the street, as more fully described below. The linear brick will be used on the entry volumes to contrast the vertical plank and ground the building. The cladding will be further complemented by bent metal window frames and spandrel panel.

1.6.3 Landscape Design

The landscape design integrates the project into the existing context through strong physical and visual connections to activate the streetscape. A strong pedestrian connection to the Bremen Street Community Park will play a vital role in the activation of Bremen Street. Clearly designated crosswalks will serve as a direct connection between the park and project site. The project will implement street trees that align with the architecture, linking with the street trees along the park to create a beautiful treelined street and a cohesive streetscape experience between the park and project site. In addition, landscaping at rear of the site will provide a buffer to the abutting parcels.

The landscape design integrates the project into the existing context through strong physical and visual connections to activate the streetscape. A strong pedestrian connection to the Bremen Street Community Park will play a vital role in the activation of Bremen Street. Clearly designated crosswalks will serve as a direct connection between the park and project site. The project will implement street trees that align with the architecture, bridging the architecture with the street trees along the park to create a beautiful treelined street and a cohesive streetscape experience between the park and project site. In addition, landscaping at rear of the site will provide a buffer.

The streetscape will follow the Boston Complete Streets guidelines. The streetscape will provide a substantial clear pedestrian zone, a furnishing zone containing a corner transit micro-hub for multi-modal information and transit opportunities, seating, bicycle racks, street lights, street trees and on street parking. All pedestrian areas will be accessible and comply with ADA standards. The number of existing curb cuts will be greatly reduced, and a designated drop-off area will be implemented to increase the safety of pedestrians. Portions of the pedestrian zone will increase in size to provide opportunities for active outdoor retail space further activating the streetscape. The sidewalk widens at the transit micro-hub, bridging the community and small scale of the residential neighborhood with the more urban context of the street connection and connection to the park.

The landscape design will utilize the generous setbacks at the rear of the building to implement a lush garden of plants and trees. This landscape area will act as a natural buffer between the building and abutting parcels.

1.6.4 Sustainable Design

To meet the City of Boston Requirements the project is demonstrating the compliance with the LEED BD&C v4 criteria. The Proposed Project is currently tracking 53 points in the YES column with 15 in the study column, and intend to meet certification as presented in **Figure 3-22** in **Section 3.0.** Further study over the coming weeks and months will determine final credit achievement. We

have outlined in the narrative below, how the Proposed Project intends to achieve the prerequisites and credits for the LEED BD&C v4 certification.

1.6.5 Pedestrian Level Wind Conditions

The overall wind environment is not expected to change as a result of the Proposed Project. Overall wind conditions are expected to be similar to those that currently prevail on and around the site. A Pedestrian Wind Assessment was completed by RWDI, Wind Engineers, and that assessment is contained in **Appendix I.**

1.6.6 Shadow Impact Analysis

Section 4.1 provides a shadow analysis describing and graphically depicting the anticipated shadow impacts from the Proposed Project for the No Build and Build condition. New shadows created by the project are limited in their impacts to surrounding buildings and to the nearby park.

1.6.7 Daylight Analysis

Daylight Analysis - Existing / No-Build Conditions

Under the Existing/No-Build Condition, the Project Site contains a mix of multi-family residential and commercial buildings up to three stories in height. As a result of the relatively low height and density of these structures, only three to four percent of daylight is obstructed when viewed from the adjacent public ways.

Daylight Analysis - Build Conditions

Under the Build Condition, there will be some increase in obstruction of the skydome along Bremen and Brooks Street.

See **Section 4.2** for a more complete discussion of the daylight analysis.

1.6.8 Solar Glare

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

1.6.9 Air Quality Analysis

Tech Environmental, Inc., the Project's air quality consultant, conducted analyses to evaluate the existing air quality in the Project area, predict the worst-case air quality impacts from the Project, and evaluate the potential impacts of Project-generated traffic on the air quality at the most congested local intersections (See **Section 4.3**).

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

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

1.6.10 Noise Analysis

Tech Environmental, Inc., the Project's noise consultant, conducted a noise study to determine whether the operation of the proposed Project will comply with the Massachusetts DEP Noise Policy and City of Boston Noise Regulations, and the Housing Urban Development (HUD) noise guideline (See **Section 4.4**).

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

Nighttime ambient baseline sound level (L_{90}) monitoring was conducted at four locations deemed to be representative of the nearby residential areas, during the time period when human activity is at a minimum and any future noise would be most noticeable. The lowest nighttime L_{90} measured in the Project area was 41.6 dBA.

The Proposed Project will not create a noise nuisance condition and will fully comply with the most stringent sound level limits set by the Massachusetts DEP Noise Policy, City of Boston Noise Regulations and the HUD Noise Guideline.

1.6.11 Stormwater Management and Water Quality

The Proposed Project is expected to substantially improve the water quality and will meet the MassDEP and Boston Water and Sewer Commission (BWSC) Site Plan requirements. (See **Section 4.5** for a more complete analysis). The Project will improve the quality and reduce the quantity of stormwater runoff being discharged to the City's storm drain system through the installation of an on-site infiltration system. The Project site is not within the Boston Groundwater Conservation Overlay District. It is anticipated that the equivalent of 1.25-inch of rainfall over the sites' impervious areas will be stored and recharged to the groundwater.

In addition to the installation of on-site infiltration systems, stormwater runoff will be treated for reduction of total suspended solids, and oil & water separation. A stormwater operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management systems.

1.6.12 Solid and Hazardous Waste

Solid Waste

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

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

Hazardous Waste

Based on the Phase I Environmental Site Assessment (ESA) completed by Boston Environmental Corporation on October 30, 2018, there is no evidence of any recognized environmental conditions (RECs), historical recognized environmental conditions (HRECs) or controlled recognized environmental conditions (CRECs) in association with the Site.

1.6.13 Geotechnical/Groundwater Impacts Analysis

Northeast Geotechnical, Inc., the Project's geotechnical engineer, completed a preliminary geotechnical analysis of the Site. Northeast's preliminary opinion is that existing fill materials and buried organic soils are not suitable to support a new building structure at the site, with a suitable option suggested instead including constructing a rammed aggregate piers and replacement of suitable structural fill material. The installation of rammed aggregate piers would typically allow for conventional shallow spread footings and slab on grade construction. As an alternative, it is also suggested to support conventional spread footings and a slab on grade with rigid inclusions. Off-site structural fill will likely be required for backfilling because of the need to replace existing fill materials.

In addition, groundwater was encountered in both of the borings in the fill deposits at depths of approximately 3+/- feet to 5+/- feet below the existing ground surface.

Please see **Section 4.7** for a more complete discussion of the geotechnical consultant's preliminary findings and recommendations.

1.6.14 Construction Impacts Analysis

Section 4.8 provides more details of the impacts likely to result from the Proposed Project's construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager that will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will provide more detailed consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

Construction is expected to commence in the 3rd quarter 2020 and will require approximately 20-months to complete.

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

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

1.6.15 Wetlands/Flood Hazard Zone

The existing Project Site is a part of a wetland resource area regulated by the Massachusetts Wetland Protection Act, as described below, and may require review by the Boston Conservation Commission. According to the USGS topographic quadrangle, the Site is approximately 5 to 8 feet above mean sea level. The nearest surface waters to the Site are Chelsea Creek, located approximately 0.5 miles north, and Boston Harbor, located approximately 0.5 miles west, 0.8 miles south, and 0.7 miles east.

Based on the FEMA Flood Insurance Rate Maps (FIRM) for Suffolk County (Panel No. 250286 and 25025C0081J, eff. 03/16/16), the Project site is located in an AE 100-year base flood zone (i.e.

a flood has a 1% annual chance of occurring in any given year). The base flood elevation indicated on the FEMA FIRM for this AE zone is 10 feet.

1.6.16 Historic Resources Component

According to files at the Massachusetts Historical Commission, there are no structures listed in the National or State Register of Historic Places, or the Inventory of Historical and Archaeological Assets of the Commonwealth on-site. It is not expected that the Project will cause adverse impacts on the historic or architectural elements of nearby historic resources outside the Project Site. (Please see **Section 5.0** for a description of historic resources within ¼ mile of the Site.)

1.6.17 Infrastructure Systems Component

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

1.6.18 Transportation Component

Section 7.0 presents a transportation study completed by Howard Stein Hudson that addresses the changes in the Project since the filing of the PNF. The section also addresses the comments received from the City and BPDA as part of the review of the PNF.

1.6.19 Response to Climate Change Questionnaire

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

1.6.20 Response to City of Boston Accessibility Guidelines

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

1.6.21 Response to BPDA Broadband Questionnaire

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

1.6.22 Response to Boston Smart Utilities Checklist

The proposed project is required to file information under "Green Infrastructure" for projects greater than 100,000 SF. Information is provided in **Appendix H** "Proponent's Response to the

Boston Smart Utilities Checklist", and includes a graphic figure that shows the extent of pervious and impervious areas based on the architect's conceptual design plans contained in the DPIR. Please also note that cross-sections and profiles for all utility infrastructure in the proposed development area will be developed in the design development phase.

With regard to "Adoption of signal technology", based on expected low vehicle project traffic impact, we are not at this time expecting that new traffic signals will be stipulated as mitigation in the Transportation Access Plan Agreement (TAPA) by BTD. If so, the Proponent will detail its response to BTD in the TAPA.

With regard to "Smart Street Lights", the Project has as yet to retain a MEP to outline specifics requested by the guidelines.

1.6.23 Conformance with the City's Inclusionary Development Policy (IDP)

The proposal is for nineteen (19) income restricted units including a mix of artist and residential apartments with 2,075 SF dedicated work space, and access through the artist entry lobby that connects to the L2 (Artist Units) level with a total of 13% (11,600 GSF) of the total residential GSF, which conforms with the City's IDP requirements.

2.0 GENERAL INFORMATION

2.1 Applicant Information

2.1.1 Project Proponent

The Project Proponent is 282 Bremen Development, LLC, a limited liability company, with a principal office at 527 Albany Street, Suite 100, Boston, MA 02118 (the "Proponent"). The Proponent is an affiliate of Transom Real Estate, LLC.

2.1.2 Project Team

Project Name	282-308 Bremen Street, East Boston
Proponent/ Property Developer	**282 Bremen Development, LLC** c/o Transom Real Estate, LLC 527 Albany Street, Suite 100 Boston, MA 02118 Tel: 617-307-6533 Peter Spellios pspellios@transomrealestate.com Bryan Lee Blee@transomrealestate.com Neal Howard nhoward@transomrealestate.com
Article 80 Permitting Consultant	**Mitchell L. Fischman Consulting ("MLF Consulting") LLC** 41 Brush Hill Road Newton, MA 02461 Mitchell Fischman, Principal mitchfischman@gmail.com Tel: 781-760-1726 Yvette Niwa yvetteniwa.mlfconsulting@gmail.com Tel : 818-426-8157

Legal Counsel	**McDermott Quilty & Miller LLP** 28 State Street, Suite 802 Boston, MA 02109 Joseph Hanley, Esq. - Partner jhanley@mqmllp.com Tel: 617-946-4600, Ext. 4438 Nicholas Zozula, Esq. nzozula@mqmllp.com Tel: 617-946-4600, Ext. 4440
Public/Neighborhood Outreach	**Waterville Consulting** 84 State Street, Suite 900 Boston, MA 02109 Kate Kelly, Vice-President kkelly@watervilleconsulting.com Tel: 508-479-7884
Architect	**RODE ARCHITECTS Inc.** 535 Albany Street #405 Boston, MA 02118 Rodearchitects.com Tel: 617-422-0090 Eric Robinson eric@rodearchitects.com Ruthie Kuhlman ruthie@rodearchitects.com Zack Kutchin zack@rodearchitects.com
Landscape Architect	**OJB Landscape Architecture** 150 Stanford Street, Suite #5 Boston, MA 02114 Drew Stangel dstangel@ojb.com Andrew Cridlin acridlin@ojb.com

Transportation Planner / Engineer	**Howard Stein Hudson** 11 Beacon Street, Suite 1010 Boston, MA 02108 Tel: 617-482-7080 Thomas Tinlin ttinlin@hshassoc.com Brian Beisel, P.E. bbeisel@hshassoc.com Andrew Fabiszewski afabiszewski@hshassoc.com
Civil Engineer/ Infrastructure	**Sherwood Consulting & Design, LLC** 26 Smith Place, Suite 2 Cambridge, MA 02138 Tel: 617-680-9250 Arthur A. Spruch, PE aspruch@sherwoodcd.com
Sustainability Consultant	**Soden Sustainability Consulting** 19 Richardson Street Winchester, MA 01890 Tel: 617-372-7857 Colleen Ryan Soden, LEED AP BD+C colleen@sodensustainability.com
Noise and Air Consultant	**Tech Environmental, Inc.** Hobbs Brook Office Park 303 Wyman Street, Suite 295 Waltham, MA 02451 Marc C. Wallace mwallace@techenv.com Tel: 781-890-2220 x30
Geotechnical	**Northeast Geotechnical, Inc.** 166 Raymond Hall Drive North Attleboro, MA 02760 Tel: 508-588-3510 Antony E. Sousa, EIT James M. Handanyan, P.E.

Environmental / 21E	**Boston Environmental Corporation** 338 Howard Street Brockton, MA 02302 Tel: 508-427-6529 www.Bostonenvcorp.com Andrew Eckhardt, L.S.P.
Wind Engineer	**RWDI** 600 Southgate Drive Guelph, Canada N1G4P6 Tel: 519-823-1311 Peter Soligo peter.soligo@rwdi.com
Surveyor	**WSP USA, INC** 1300 Soldiers Field Road Brighton, MA 02135 Tel: 617-779-8200
Construction Commencement	3rd Quarter 2020
Construction Completion	2nd Quarter 2022
Status of Project Design	Schematic

2.1.3 Legal Information

Legal Judgments or Actions Pending Concerning the Proposed Project:

None.

History of Tax Arrears on Property Owned in Boston by the Applicant:

There is no current or past history of tax arrears on property owned by the Applicant.

Evidence of Site Control

Property is under binding contract with the Proponent to acquire in fee simple deed upon closing, contingent upon permitting.

Nature and Extent of Any and All Public Easements:

The Site is bounded by utility easements for sewer, electric, telephone and gas. Additionally, there are utilities that cross the Site.

2.1.4 Public Benefits

The Proposed Project will provide substantial public benefits to the City of Boston and the East Boston neighborhood. The Proposed Project provides for:

- Providing an innovative mix of income-restricted residential apartments and artist units, with 2,075 SF dedicated work space accessed through an artist gallery lobby entry;
- Responding to community input, with an expanded ground floor retail space for neighborhood-serving retail opportunities (at an area with limited existing outlets);
- Introducing community-based workspace and artist/gallery programming to activate the streetscape, along with the project's new and expanded retail on the ground level of the new building;
- Promoting transit-based housing for new residents to support the local community, its economy and businesses;
- Furthering the housing policy goals of Boston Mayor Martin J. Walsh's 2030 Housing Plan;
- Encouraging the use of alternative modes of transportation, such as mass transit, ride sharing services, and bicycle use due to the Site's close proximity to the MBTA Blue Line Airport Station and the Bremen Street Community Park;
- Activating an underutilized site at the crossroads of numerous modes of public transit with ready access to Logan Airport and the state highway system;
- Upgrading the public safety and visual appearance of the site and immediate area by removing large curb cuts along both Bremen Street and Brooks Street and reintroducing approximately 135 feet of new on-street parking spaces along the same;
- Improving environmental conditions at the site, which is the longtime site of auto-body repair sites surround by unimproved parking lots with no open or pervious space;
- Planting of new street trees, widened sidewalks and other streetscape amenities to improve and enhance the pedestrian landscape and public realm experience;

- Establishing a premier example of sustainable construction and development;
- Providing 225 new construction jobs and 18 full-time permanent jobs; and
- Substantially adding to real property taxes for the City of Boston.

2.2 Regulatory Controls and Permits

2.2.1 Zoning Overview

The Project Site is located within a 3F-2000 (Three-Family Residential) sub-district of the East Boston Neighborhood District, and is therefore subject to Article 53 of the Zoning Code. The Site is also located within the East Boston Interim Planning Overlay District and is subject to Article 27T of the Zoning Code. Additionally, the Site is subject to City Ordinance 7.4-11 and the Proposed Project requires Parks Design Review by the Boston Parks and Recreation Department due to the Site's proximity to the Bremen Street Community Park across Bremen Street. Certain dimensional characteristics of the Proposed Project will require relief from the terms of the Zoning Code.

It should also be noted that the BPDA, City officials and neighborhood participants are in the process of updating the zoning for East Boston with the PLAN: East Boston community driven, neighborhood-wide planning initiative. The Proposed Project has been thoughtfully designed to take into consideration potential anticipated new building height and massing limitations on Bremen Street.

While the garage has been redesigned to accommodate 61 off-street garage spaces using stackers in response to community feedback, the final amount of off-street parking and loading will be reviewed and determined by the BPDA pursuant to the provisions of the Article 80 Large Project review process.

2.2.2 Boston Zoning Code – Use Requirements

The Proposed Project will include residential space and accessory uses thereto. Multifamily Residential Use is a Forbidden Use within the relevant zoning sub-district, as are most commercial uses that are envisioned for inclusion in the new development. Therefore, the Proposed Project will require Use Variances for both the proposed Multifamily Residential Use and the proposed Retail Use on the ground floor of approximately 2,000 square feet. The surrounding neighborhood is a mix of primarily residential uses with scattered commercial/retail/office uses.

2.2.3 Boston Zoning Code – Dimensional Requirements

The Proposed Project will include approximately 110,000 square feet of gross floor area on a site that consists of approximately 34,160 square feet of land, for a resulting projected Floor Area Ratio (F.A.R.) of approximately 3.2. **Table 2-1** that follows, sets forth the applicable dimensional

regulations under existing zoning and the zoning relief, if any, required for the Proposed Project. The development team continues to discuss required zoning relief requirements with the local Bremen Street neighborhood.

For a project that is subject to Large Project Review, required off-street parking spaces and off-street loading facilities are expected to be determined as a part of the Large Project Review process in accordance with the provisions of Article 80 of the Boston Zoning Code. Design elements of the Proposed Project will also be reviewed pursuant to Large Project Review.

Please see **Table 2-1** that follows for further presentation of existing and proposed zoning dimensional requirements.

Table 2-1. 3F-2000 3 - Family Residential Subdistrict – Use / Dimensional Requirements

Dimensional Element	Existing 3F-2000 Subdistrict Requirements	Proposed Project (1)	Zoning Relief
Use	Three-Family	Multifamily, Artist Live-Work and Commercial	Yes
Minimum Lot Size	2,000 SF	34,160 SF	No
Lot Area for Additional Units	1,000 sf per unit (143,000 SF Required)	34,160 SF	Yes
Max. Floor Area Ratio	1.0	3.2	Yes
Max. Building Height	35 feet /3-Stories	Range 4-5 stories (47-62 feet)	Yes
Useable Open Space	300 SF Per Dwelling Unit (49,500 SF Required)	83 SF per Dwelling Unit (12,000 SF)	Yes
Minimum Lot Width	20 feet	427 feet	No
Minimum Lot Frontage	20 feet	427 feet	No
Minimum Front Yard	5 feet (2)	2 – 10 feet	Yes
Minimum Side Yard	2-1/2 feet	2-1/2- 10 feet	No
Minimum Rear Yard	30 feet	10 feet	Yes
Minimum Number of Parking Spaces	(3)	39 spaces with ability to install up to 61 spaces (stackers)	(3)
Minimum Number of Loading Spaces	(3)	1 space	(3)

1. The dimensions described in this above table may change as the Proposed Project undergoes BPDA design review.
2. See Section 53-57.2 (Conformity with Existing Building Alignment). A bay window may protrude into a Front Yard.
3. Required off-street parking and loading spaces shall be determined through BRA's Large Project Review in accordance with Article 80 of the Code.

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

Table 2-2. Preliminary List of Permits or Other Approvals Which May be Sought

Agency Name	Permit or Action*	Expected Application Date/ Anticipated Approval
Federal or State Agencies		
Federal Emergency Management Agency (FEMA)	FEMA Flood Zone Application and Approval	2nd Qtr- 2020
Local Agencies		
Boston Planning and Development Agency	Article 80 Review, Design Review and Execution of Related Agreements; Article 37 Approval; Section 80B-6 Certificate of Compliance	PNF (05/08/19); Final Plan Review (2nd Qtr - 2020)
Boston Civic Design Commission	Schematic Design Review	4th Qtr - 2019
Boston Parks Commission	Proposed Project within 100 feet of park subject to City Ordinance 7.4-11	1st Qtr - 2020
Boston Public Safety Commission Committee on Licenses	Garage License, Flammable Fuels	2nd Qtr- 2020
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan	2nd Qtr - 2020
Boston Department of Public Works Public Improvements Commission	Possible Sidewalk Repair Plan; Curb-Cut Permit; Street/Sidewalk Occupancy Permit; Permit for Street Opening	2nd Qtr - 2020
Boston Fire Department	Permits for Demolition, Approval of Fire Safety Equipment	3rd Qtr - 2020

Boston Water and Sewer Commission	Approval for Sewer and Water and Connections; Construction Site Dewatering; and Storm Drainage	2nd Qtr - 2020
Boston Department of Inspectional Services	Demolition Permit; Building Permits; Certificates of Occupancy; Other Construction-Related Permits	3rd Qtr - 2020
Boston Zoning Board of Appeal	Variances, IPOD Permit, Conditional Use Permit(s), Zoning Relief, as required	1st Qtr - 2020
Boston Landmarks Commission	Article 85 Demolition Delay Application for demolition of existing on-site buildings	4th Qtr - 2019
Boston Conservation Commission	Flood Plain Wetlands Permit	1st Qtr - 2020

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

2.4 MEPA Applicability

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

2.5 Public Review Process and Agency Coordination

As revised by this DPIR, the Proponent will deliver a transformative mixed-use development project that enhances the quality of life in the neighborhood; including 145 apartments, up to 3,200 of expanded retail space, additional artist space and significant landscape and public realm improvements. The project is also unique, in that it will provide much-needed a much-needed upgrade to a non-conforming property site. Furthermore, as it has consistently displayed throughout the extensive public review process on the PNF, the Proponent remains committed to proactively engaging with its abutters, residents, and various neighborhood stakeholders to help shape and advance this innovative and community-based development; and it also looks forward to continuing to work closely with the BPDA, City agencies, members of the Impact Advisory Group (IAG) and the overall East Boston community.

In addition to abutters and local residents, the Proponent has engaged with following parties:

- Mayor's Office of Neighborhood Services
- Boston Planning & Development Agency
- Boston Transportation Department
- State Senator Joseph Boncore
- State Representative Adrian Madaro

- City Councilor Lydia Edwards
- Maverick Central Neighborhood Association
- Eagle Hill Civic Association
- East Boston Main Streets
- Friends of East Boston Greenway
- YMCA of East Boston
- East Boston Neighborhood Health Center
- East Boston Social Center

Again, the Proponent will continue to meet and discuss the project with public agencies, neighborhood interest groups and their leadership, local businesses, abutting and nearby property owners and other interested parties, as part of the ongoing Article 80Large Project Review process.

Relevant Community Members Contact Information

The list of 282-302 Bremen Street Impact Advisory Group ("IAG") members are included on the following page. Additionally, contact information for the IAG members and a separate abutters list can be provided upon request.

282 – 302 Bremen Street Impact Advisory Group – Names and Addresses

Jesse Schomer (Councilor Edwards)
245 Saratoga Street
East Boston, MA 02128

Carol Ann Aloisi (Councilor Edwards)
227 Chelsea Street
East Boston, MA. 02128

David Sampson (Rep. Madaro)
139 Paris Street
East Boston, MA. 02128

Kyla McCartney (Rep. Madaro)
310 Bremen Street #1
East Boston, MA. 02128

Nina Gaeta (Senator Boncore)
27 Monmouth Street
East Boston, MA 02128

Mariellen Dalton (Senator Boncore)
165 Trenton Street
East Boston, MA. 02128

Margaret Kelly (MONS)
365 Bremen Street
East Boston, MA. 02128

Tony Portillo (MONS)
175 McClellan Highway, Stars Branding
East Boston, MA. 02128

Joseph Gaeta (BPDA)
215 Bremen Street
East Boston, MA. 02128

James Kros (BPDA)
203 Falcon Street
East Boston, MA. 02128

Elena Bertkau (BPDA)
309 Chelsea Street #3
East Boston, MA. 02128

Thompson Vou (BPDA)
181 London Street #3
East Boston, MA. 02128

David Shulman (Councilor Essaibi-George)
150 Liverpool Street, Apt.7
East Boston, MA. 02128

2.6 DIP Status

Based on current schematic design plans, it is not anticipated that Development Impact Payments ("DIP"), in accordance with Article 80B-7 of the Code, will be required as the Proposed Project is expected to be below the 100,000 gsf threshold for non-residential uses where DIP is required.

3.0 URBAN DESIGN AND SUSTAINABILITY COMPONENT

3.1 Site and Surroundings

The project site, comprised of three parcels, is located in East Boston and is bounded on the southeast by Bremen Street and the southwest by Brooks Street. The northwest boundary is a series of rear yards from adjacent parcels while the northeast is bounded by both a zero-setback condition with a 3-family residence and a rear yard. Currently, there are three, free-standing structures located on the site. The southernmost building on the site, an autobody shop, is a single-story masonry structure comprising roughly 4,100 gsf. Located approximately 62-feet to the north of the Autobody shop is a three-story, four-unit apartment building totaling 4,000 gsf, leased for short-term, 6-month rentals. The northernmost building on the site is a two-story, 5,500 gsf autobody shop and offices. The remaining open space on the site is almost entirely covered in mixed pavements and used as car storage for the associated autobody shops.

The surrounding neighborhood to the southwest, northwest, and northeast is a mix of three-story residences with an occasional 4-5 story apartment building. The Bremen Street Community Park, runs the entirety of the site to the Southeast, connecting East Boston to the Airport MBTA station.

3.2 Project Description

The Proposed Project consists of construction of a new building of 4-5 stories with approximately 110,000 gsf, and containing 145 residential apartment units and up to 61-parking spaces using stackers within an at-grade, single-story garage. The ground floor along Brooks Street and a portion of Bremen Street will be comprised of up to 3,200 gsf of retail space, accompanied by artist/ workspace, artist gallery and related artist space at its opposite side (towards Putnam Street), thereby helping to activate the streetscape and add much-needed vibrancy at this location.

Table 3-1. 282-308 Bremen Street - Summary of Proposed Project Dimensions

Lot Area	34,160 Sq. Ft.
Gross Floor Area (*Per Boston Zoning Code)*	110,000 Gross SF
Number of Residential Units	145 Units (Including 19 income restricted units)
Floor Area Ratio	3.2

Height of Tallest Portion of Building (*Per Zoning Code*)	47 feet - 62 feet
Number of Stories	4-5 Residential Floors
Parking Spaces: **Surface – On-Grade Garage**	39 spaces with ability to install up to 61 Stacker Spaces

3.3 Urban Design Principles

Located on an edge condition, between sprawling greenspace and a dense, urban, fabric, 282-308 Bremen Street poses unique urban design opportunities and challenges. The site is currently comprised of three structures, two of which are non-conforming automobile related uses, one related small residential rental building, and significant areas of mixed asphalt and earth. Surrounding the parcels are over 185-feet of curb-cuts, almost all of which will be removed for additional street parking. The Bremen Street Community Park, to the east of the site, runs almost the entire length of Bremen Street and contains a variety of programmed and open greenspace. The neighborhood lying to the west, is made up of a majority of three-family residences interspersed with a variety of building types including single-family homes, multi-family residences and commercial space. Conceptually, the architecture of the proposed project attempts to weave the two opposing conditions together by responding to its adjacent context.

The scale of the building is horizontally broken down based on a familiar East Boston residential width, each piece is then pushed, pulled, or angled to add pedestrian relief along Bremen and Brooks and the adjacent buildings relief to the west and north.

An additional major urban element of the project is the activation of the ground floor along Bremen Street. The Bremen and Brooks Streets' intersection will be anchored with a small commercial space, ideal for a café, providing a much-needed public amenity for the surrounding neighborhood. Further along Bremen Street, a large makerspace will support the artist units above and enliven the street. The remaining Bremen Street frontage is programmed with various building elements; lobby, leasing, and a small entry for the parking garage. With building and public program utilizing the majority of the street facing ground floor, a single-story parking garage has been pushed to the rear of the site. Loading is located along Brooks Street, an intentional move to remove additional stoppages and delays from Bremen Street.

Architecturally, the edge condition of the site is also enhanced by varying roof treatments. The park side of the project integrates a series of pitched roofs. By employing a familiar residential roof typology in an unfamiliar environment, the Bremen Street side of the project attempts to provide a strong edge to the park. The roofs along the opposite side of the building, facing the rear yards of adjacent properties, mirrors the flat roofs typically seen in East Boston. In addition to the varied roof scape, the building steps down as full

floor on both edges, helping to better transition it back into its surrounding context (see **Figures 3-19** and **3-21).**

3.4 Materials and Finishes

The building will be built utilizing a combination of vertical plank material with a natural texture and color, referencing the verticality of the building design and offsets as well as a textured, linear brick. The design team is looking into wood plank cladding materials and other plank options which provide a natural texture and color – grounding the built form and connecting it to the natural landscape and materials in the park across the street, as more fully described below. The linear brick will be used on the entry volumes to contrast the vertical plank and ground the building. The cladding will be further complemented by bent metal window frames and spandrel panel.

3.5 Landscape Design

The landscape design integrates the project into the existing context through strong physical and visual connections to activate the streetscape. A strong pedestrian connection to the Bremen Street Community Park will play a vital role in the activation of Bremen Street. Clearly designated crosswalks will serve as a direct connection between the park and project site. The Project will implement street trees that align with the architecture, bridging the architecture with the street trees along the park to create a beautiful treelined street and a cohesive streetscape experience between the park and project site. In addition, landscaping at rear of the site will provide a buffer to abutting parcels.

The streetscape will follow the Boston Complete Streets guidelines. The streetscape will provide a substantial clear pedestrian zone, a furnishing zone containing a corner transit micro-hub for multi-modal information and transit opportunities, seating, bicycle racks, street lights, street trees and on street parking. All pedestrian areas will be accessible and comply with ADA standards. The number of existing curb cuts will be greatly reduced, and a designated drop-off area will be implemented to increase the safety of pedestrians. Portions of the pedestrian zone will increase in size to provide opportunities for active outdoor retail space further activating the streetscape. The sidewalk widens at the transit micro-hub, bridging the community and small scale of the residential neighborhood with the more urban context of the street connection and connection to the park.

The landscape design will utilize the generous setbacks at the rear of the building to implement a lush garden of plants and trees. This landscape area will act as a natural buffer between the building and abutting parcels.

3.6 Response to BPDA Urban Design Comments

3.6.1 Massing and Height

Comment: Request to see greater variation in height and /or setbacks on Bremen Street.

Response: The overall building height was lowered by a full level in response to feedback from the community and city (see Figure 3.17). The design has also been adjusted to provide programmatic variation in both height and setbacks along Bremen St. The volumes containing public entrances at Level 1 are characterized by a different overall height, geometry, and material palette than the rest of the building (see **Figures 3-9, 3-14,** and **3-16**). These entrance volumes form hierarchical dividers for the remainder of the program, dividing the building into three taller residential portions with sloping roofs. The building setbacks along Bremen St. were increased, as well as modified, to better align with the changing interior/exterior conditions (see **Figures 3-9** and **3-16**). At Level 1, the entrances are the most prominent facades along the public way. At Levels 2-5, the residential volumes cantilever outwards to create larger setbacks to highlight the main entrances.

Comment: Request to see more specific setbacks on Bremen Street, such as at the main entrance.

Response: The Bremen St. building setbacks have been modified to correlate with specific needs along the street edge. The western Bremen setback has been increased to allow for exterior café seating, main entry distinction, and the integration of a multimodal hub and landscape buffer with integrated seating. Moving further east, the setback of the makerspace varies between 2 feet to 8 feet to provide opportunities for landscape zones, interspersed with the activity of the makerspace. The eastern edge of the building is setback similar to the western side, allowing for a significant landscape buffer and seating areas around the garage entry and secondary lobby (see **Figures 3-9** and **3-16**).

Comment: Request for shadow analysis to be completed on June 6th at 6 PM.

Response: The shadow study included in the PNF contained a typo with regard to the altitude and azimuth of the shadows shown on June 21st at 6 PM. The shadow graphic was taken at the correct altitude and azimuth requirements per Article 80. An updated shadow analysis for the new massing has been included with the correctly labeled altitude and azimuth.

3.6.2 Elevations

Comment: Request to make façade elevations consistent with elevation hierarchy inside the building.

Response: The building has been modified to reflect the hierarchy of the interior program. Entrance modules are now distinguished with the addition of setbacks and height reductions as well as changes in material palette, roof geometry, and window patterning (see **Figure 3-14**).

Comment: Request to incorporate glazing or other materials, in addition to setbacks, to break up Bremen Street massing.

Response: The building massing along Bremen St. has been broken up into three main volumes by increasing the distinction of the building entrances through use of a material palette change, window pattern shift, change from sloping to flat roof, and use of differing setbacks. The composition of the volumes and the integration of the varied landscape add hierarchy and relief to the Bremen St. streetscape (see **Figures 3-8** and **3-14**).

Comment: Request to match design with surrounding East Boston context.

Response: East Boston has a distinct neighborhood fabric made up of mostly single bay 25 feet or double-bay 50 feet multifamily dwellings. This project utilizes the traditional East Boston proportions by either stepping or folding the building façade in a similar rhythm to the rest of Bremen St and the surrounding blocks. The unique roofline of 282 Bremen Street is both a nod to a more sculptural backdrop to the park inspired by the East Boston Public Library as well as a means to further highlight the building module through a conceptual reference to the residential program. The sloping roofs also work to conceal rooftop mechanical equipment.

3.6.3 Streetscape Activation

Comment: Request to create a hierarchy of entries at the ground level, with the residential entry taking precedence.

Response: A clear hierarchy was incorporated into the design to reflect the interior program. The entry volumes utilize a change in material palette, height, setback and window pattern to distinguish them along the ground floor street scape. In addition, the residential entry volume is the widest bay, giving it further prominence along the street (see **Figures 3-8** and **3-14**).

Comment: Request to address other entrances onto Bremen Street sidewalk.

Response: Similar to the main residential entry, each entry volume has been treated slightly differently to reflect the internal program. The entry volumes have a wider setback, window pattern shift, flat roofs, and a material palette change. The widths of the entry volumes differ depending on their use (see **Figures 3-8** and **3-14**).

Comment: Request to connect retail space to the public realm through measures such as outdoor furnishings and landscape features.

Response: The retail space features seating areas and planters along the sidewalk, connecting it to the public realm (see **Figure 3-8**).

Comment: Request to enlarge retail space to allow for either 1) a larger retail use, such as a market, or 2) 2-3 smaller retail uses to be clustered together.

Response: Based on public input and as part of the BPDA's Article 80 review process, the retail component for the project has been expanded from 2,000 gsf to 3,200 gsf. In addition to this now expanded retail space, the project will also include approximately 2,075 gsf of makerspace and artist gallery programming on the ground floor of the new building (see **Figure 3-9**).

Comment: Request to eliminate the loading dock on Brooks Street and reduce curb cuts by moving loading inside the garage.

Response: The project team studied the possibility of alternate locations for loading, but feels that the Brooks street location, per BTD recommendation, is the best suited for loading. The proposed location of the loading dock is close to the both retail and the residential elevators. The proximity of the loading dock to these elements will make deliveries and move-in/move-out most efficient (see **Figure 3-9**).

Routing delivery drivers through parking level is problematic as it requires 14-ft clear through entirety of drive aisle (not achievable with current first floor height) and difficulty with maneuvering and backing up within 300 ft long single loaded garage may result in deliveries parked on street.

With only one curb-cut for the project, another option the project team investigated was locating the loading dock at the northeast end of the site, adjacent to the parking driveway. This location is not convenient for retail deliveries (which would now be about 400 ft away). Same for the residential move-in/move-out. The project team is concerned that with this distance drivers would park along Bremen Street to conduct deliveries and loading.

Truck activity will be very minor at this location, and will consist of minor retail deliveries and occasional residential move in/out. Conflicts between vehicles and pedestrians at this curb cut will not occur on a daily basis. To further alleviate potential for conflict – the Site's Transportation Coordinator will oversee the loading operations and schedule move-in/move-out activity to ensure safe and efficient operations

The project is eliminating seven (7) curb-cuts along Brooks and Bremen Street (adding approximately 153 feet of sidewalk segments), while requiring only 20 feet for a new project driveway on Bremen and about 12ft for the loading dock on Brooks.

3.6.4 Flood-Resilient Design

Comment: Request to address potential flood risk in the design of the entries, retail space, and live-work units.

Response: The project will address the potential flood risk through a series of flood resilient design strategies. These strategies include raising the entire first floor elevation above the FEMA recommended base flood elevation, locating all living units at level 2 and above, raising all mechanical equipment above the BFE, locating key building equipment above the projected design flood elevation, and the incorporation of dry flood proofing strategies around all entrances. Other resilient design measures will continue to be explored as the project progresses,

Comment: Request to incorporate flood proofing and resilient design measures.

Response: The project will address the potential flood risk through a series of flood resilient design strategies. These strategies include raising the entire first floor elevation above the FEMA recommended base flood elevation, locating all living units at or above level 2, raising all mechanical equipment above the BFE, locating key building equipment above the projected design flood elevation, and the incorporating dry flood proofing strategies around all entrances. Other resilient design measures will continue to be explored as the project progresses.

3.7 Sustainable Design/Energy Conservation

The proposed project involves developing a new 110,000 gsf mixed-use, multifamily residential/commercial complex with approximately 145 multi-family units including 19 income restricted units and 3,200 gsf of commercial space on a site located at 282-308 Bremen Street, East Boston.

To meet the City of Boston Requirements the project is demonstrating the compliance with the LEED BD&C v4 criteria. The project is currently tracking 53 points in the YES column with 15 in the study column. Further study over the coming weeks and months will determine final credit achievement. We have outlined in the narrative below, how the project intends to achieve the prerequisites and credits for the LEED BD&C v4 certification. Please see **Figure 3-22** at end of this section for checklist.

3.7.1 Introduction

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

The Proponent and the Project design team are committed to an integrated design approach and are using the LEED Building Design and Construction v4 rating system and intend to meet certification as presented above. This rating will meet or exceed Boston's Green Building standard. The LEED

rating system tracks the sustainable features of the project by achieving points in following categories: Location & Transportation; Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation and Design Process.

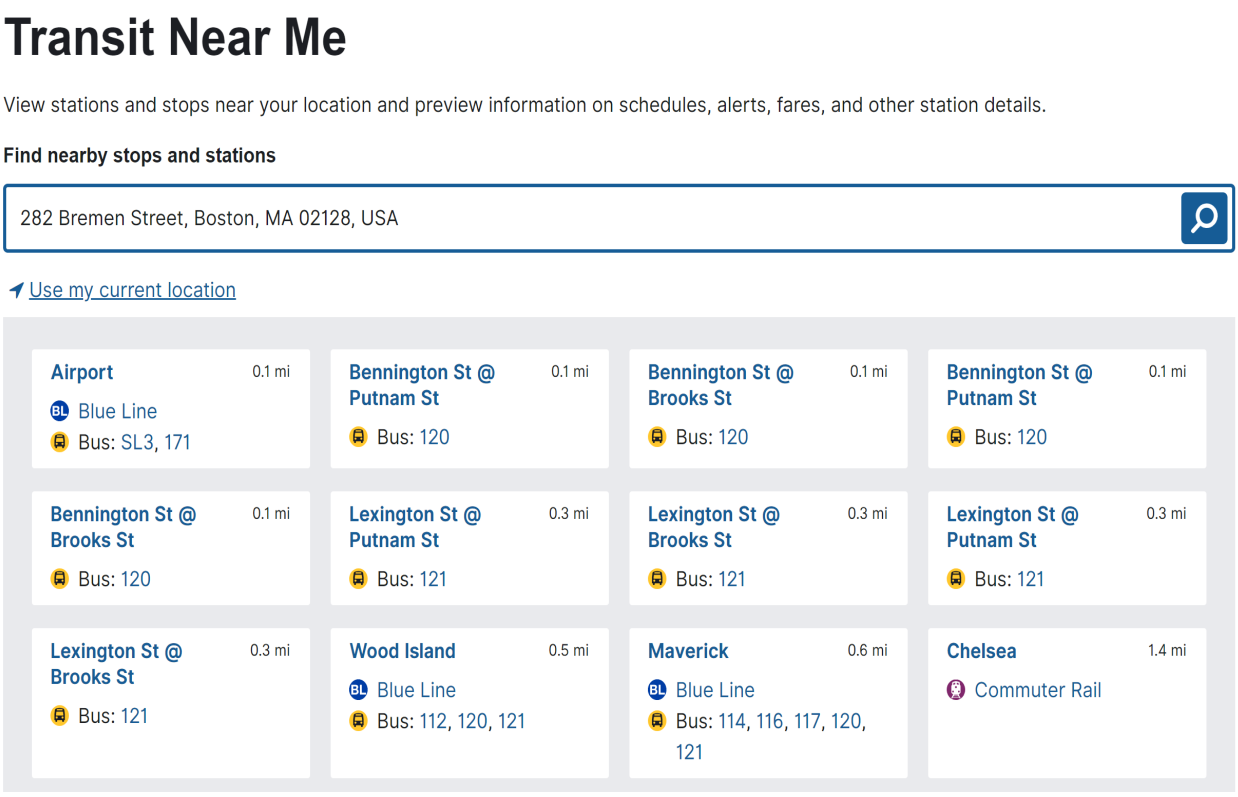
3.7.2 Location and Transportation

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

The Site is located on a site that has been previously developed earning sensitive land protection. The Site is also located on a site with some soil contamination may be present. The Project is undergoing Phase II assessment. If contamination is found, we will perform remediation to the meet the requirements.

The Site is located on a site whose surrounding existing density within a ¼-mile [400-meter] radius of the project boundary and provided dozens of amenities within 0.5 mile of the project site.

The Project provides access to quality transit as the project is located within 0.1 of the Airport stop.



on the Blue line and 0.5 of Wood Island Blue Line and 0.1 miles of the SL3, 171, and 120 bus. The site has access to 365 weekday, and 234 weekend trips.

Blue Line	225 Trips weekday, 126 weekend
SL3	75 trips weekday, 75 weekend
171	25 weekday, 0 weekend
120	40 weekday, 33 weekend

The Project is providing bicycle facilities and showers for the occupants of the building along with bicycle parking spots for visitors, far exceeding the LEED requirement. The Project also achieves a 62% parking reduction from the LEED baseline, achieving exemplary performance.

3.7.3 Sustainable Sites

The development of sustainable sites is at the core of sustainable design, stormwater runoff management, and reduction of erosion, light pollution, heat island effect, and pollution related to construction and site maintenance are critical to lessening the impact of development.

The Project will create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan will conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent. Careful assessment of the site and location selection is part of our site assessment analysis for LEED.

In order to reduce the impact of urban heat island effect all the roofing and hardscape material will be low SRI or vegetated. The project is also pursuing Light Pollution Reduction and reviewing the Open Space credit compliance.

3.7.4 Water Efficiency

Buildings are major users of our potable water supply and conservation of water preserves a natural resource while reducing the amount of energy and chemicals used for sewage treatment. The goal of the Water Efficiency credit category is to encourage smarter use of water, inside and out. Water reduction is typically achieved through more efficient appliances, fixtures and fittings inside and water-wise landscaping outside. To satisfy the requirements of the Water Use Reduction Prerequisite and credit, the Project will incorporate water conservation strategies that include low flow plumbing fixtures for water closets and faucets. The landscape will be designed so it will reduce the need for potable water for irrigation and select plant material that is native and adaptive.

The Project is targeting a minimum 45% indoor water use reduction from the baseline. All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling will have the Water Sense label. We anticipate needing irrigation for foundation plantings, if required this will be a highly efficient drip system achieving greater than a 50% reduction in potable water use.

The Project will install permanent water meters that measure the total potable water use for the building and associated grounds in addition to water meters for two or more of the following water subsystems, as applicable to the project: Irrigation, Indoor plumbing fixtures and fittings, Domestic hot water, Boiler. Metering data will be compiled into monthly and annual summaries; and will be shared with USGBC the resulting whole-project water usage data.

3.7.5 Energy & Atmosphere

According to the U.S. Department of Energy, buildings use 39% of the energy and 74% of the electricity produced each year in the United States. The Energy and Atmosphere credit category encourages a wide variety of energy strategies: commissioning; energy use monitoring; efficient design and construction; efficient appliances, systems and lighting; the use of renewable and clean sources of energy, generated on-site or off-site; and other innovative practices.

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

A preliminary whole-building energy simulation was performed for the project demonstrating a minimum improvement of 20% energy cost savings according to ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with errata. The team will continue to analyze efficiency measures during the design process and account for the results in design decision making.

The Project will install new or use existing building-level energy meters, or submeters that can be aggregated to provide building-level data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc). Prereq 4-Fundamental refrigerant management. The project will not use chlorofluorocarbon (CFC)-based refrigerants in new heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems.

The Project will evaluate renewable energy production if it is not possible the building will be solar ready. The project is also evaluating the Advanced Energy Metering.

The Project will select refrigerants that are used in heating, ventilating, air-conditioning, and refrigeration (HVAC&R) equipment to minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change. Project will perform the calculations once systems are selected.

The Project will also consider engaging in a contract for 50% or 100% of the project's energy from green power, carbon offsets, or renewable energy certificates (RECs).

Energy Modelling Summary

For the 282 Bremen Street Project PNF application, an energy analysis was performed based on the geometry and orientation described in the March 22, 2019 schematic building drawings.

Analysis was performed by Allison Gaiko, PE, LEED AP for Soden Sustainability Consulting using eQuest3.65 to compare the proposed design case to two baseline scenarios:

- Energy cost comparison to ASHRAE 90.1-2010 Appendix G in accordance with LEED v4 requirements
- Energy use comparison to ASHRAE 90.1-2013 in accordance with MA Energy Code requirements

Minimum Energy Performance Calculators are contained in **Appendix E1.**

3.7.6 Materials & Resources

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

The Project will provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable materials for the entire building. Collection and storage areas may be separate locations. Recyclable materials will include mixed paper, corrugated cardboard, glass, plastics, and metals. The Project will also take appropriate measures for the safe collection, storage, and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.

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

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

3.7.7 Indoor Environmental Quality

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

The Project will meet the minimum requirements of ASHRAE Standard 62.1–2010, Sections 4–7, Ventilation for Acceptable Indoor Air Quality (with errata), or a local equivalent, whichever is more stringent.

The Project will provide enhanced indoor air quality strategies. The project will provide entryway systems design systems, interior cross-contamination prevention and filtration. The Project is also targeting increased ventilation.

The project will target low emitting materials for all materials within the building interior is defined as everything within the waterproofing membrane. This includes requirements for product manufacturing volatile organic compound (VOC) emissions in the indoor air and the VOC content of materials.

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

The Project prohibits the use of all tobacco products inside the building and within 25 feet (8 meters) of the building entrance during construction. Daylight will be evaluated for energy efficiency opportunities and benefits for the occupants.

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

3.7.8 Innovation and Design Process

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

- Innovation in Design: EP Reduced Parking Footprint
- Innovation in Design: Green Housekeeping
- Innovation in Design: Walkable Sites
- Innovation in Design: Integrated Pest Management
- Innovation in Design: Education

Regional Priority

- Regional Priority: High Priority Site (yes)
- Regional Priority: Indoor water use reduction (yes)
- Regional Priority: Optimize Energy (maybe)
- Regional Priority: Renewable Energy (maybe)

3.8 Response to Greenhouse Gas Emissions Comments (Appendix A)

Comment: In support of the City of Boston's Resiliency and GHG emissions reduction goals including Carbon Neutral Boston 2050, the IGBC requested the project team prepare a project specific Zero Carbon Building Assessment by modeling a Low Carbon Building with an enhanced envelope and optimized systems strategies, Maximized Solar Energy Systems, and determine any amount of off-site renewable energy required for zero carbon performance including:

Enhanced Building Envelope — reduced air infiltration (ACH below 0.6), increased opaque curtain wall insulation (below U-0.05), improved vision curtain wall performance (below U-0.20), improved window performance (below U-0.20), tuned glazing with Solar Heat Gain Coefficient (below SGHC 0.30), and increased insulation levels for roof (R-60 c.i.), wall (R-30+ with ci.), and slab (R-7.5 c.i.) conditions.

Optimized Building Systems — smaller, more efficient and alternative heating, cooling, dedicated fresh air with ERV (better 80% with MERV 8 filter), and hot water systems that fully consider the improved envelope performance.

Including an all electrical building and campus solution(s).

Maximized Solar Energy System — optimize roof design and install Solar PV systems.

Renewable Energy Procurement- green energy, credits, and carbon offsets.

Response: The team is working through a variety of energy conservation measures as we move into the design development stage. This will include the evaluation of the above-mentioned recommendations and further study of our preliminary solar analysis, see below. The team will provide an update as the design develops for the prescriptive criteria you suggest above.

3.9 Response to Article 37 Comments (Appendix A)

Comment: Request that the project team attempt to receive LEED Gold rating.

Response: The project team is still working through the design and will be confirming many of the maybe credits that we outlined in the checklist. At this point, we can confirm we are now tracking

56 credits with 15 maybe credits. We have added Rainwater Management as we are meeting a minimum of the 85th percentile storm (2-points) and we will evaluate the ability to earn the additional Rainwater point as we enter design development.

Comment: Request to contact utility and state DOE representatives to maximize opportunities for state funding.

Response: We have also reached out to the utility contact for ICF and will be pursuing incentives for this project.

3.10 Urban Design Drawings and LEED Checklist

Urban design drawings and renderings depicting the Proposed Project and the LEED BD&C v4 Checklist include:

N

FIGURE 3-1 / PROJECT LOCUS

RODE

A

B

FIGURE 3-2 / ADDITIONAL EXISTING SITE PHOTOS

RODE

A

B

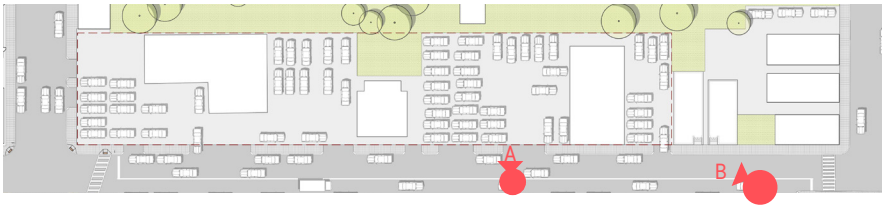


FIGURE 3-3 / ADDITIONAL EXISTING SITE PHOTOS

RODE

ALTA/NSPS LAND TITLE SURVEY

LOCATED AT

278-306 BREMEN STREET
EAST BOSTON, MA

DATE: MAY 9, 2018 SCALE: 1.0 INCH = 20.0 FEET

BOSTON SURVEY, INC.
UNIT C-4 SHIPWAY PLACE
CHARLESTOWN, MA 02129
(617) 242-1313

FOR REGISTRY USE ONLY

RECORD OWNER:
EUGENE A. DEACETIS
282 BREMEN STREET
EAST BOSTON, MA

REFERENCES:
DEED: BK 25719; PG 52 (308 BREMEN STREET)
BK 578; PG 154 (306 BREMEN STREET)
BK 25719; PG 54 (296 & 302-304 BREMEN STREET)
BK 17391; PG 99 (294 BREMEN STREET)
BK 13758; PG 216 (292 BREMEN STREET)
BK 13758; PG 218 (290-288 BREMEN STREET)
BK 13758; PG 214 (286-282 BREMEN STREET)
BK 494; PG 163 (278 BREMEN STREET)

PLAN: PL BK 492; PG END
LCC: 12945-A
LCC: 1125-B

LEGEND

GAS VALVE
HYDRANT
WATER SHUTOFF
WATER METER
CATCH BASIN
SIGN
LIGHT POLE
UTILITY POLE
VINYL FENCE
CHAINLINK FENCE

LOCUS MAP: NOT TO SCALE

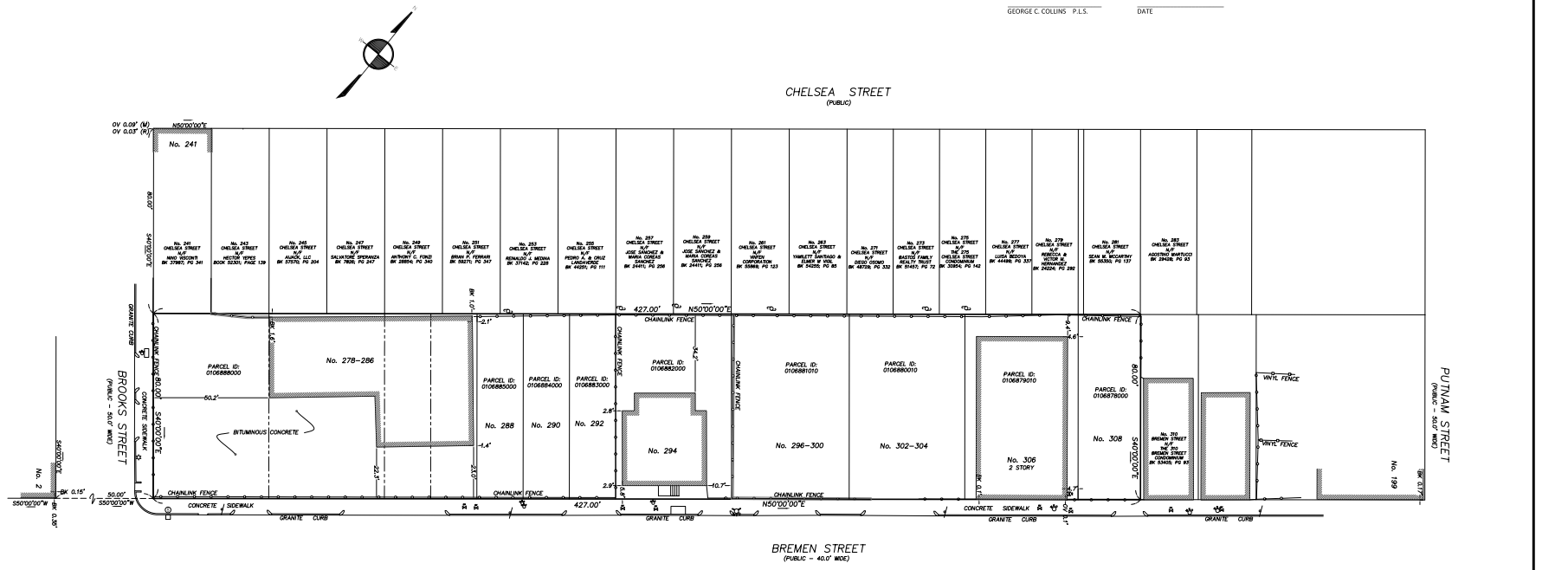
I HEREBY CERTIFY THAT ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) MAPS, THE MAJOR IMPROVEMENTS ON THIS PROPERTY FALL IN AN AREA DESIGNATED AS:
ZONE: AE
COMMUNITY PANEL: 25025C0019J
EFFECTIVE DATE: MARCH 16, 2016

I HEREBY CERTIFY THAT THE PROPERTY LINES SHOWN ARE LINES DIVIDING EXISTING OWNERSHIP AND THE LINES OF STREETS AND WAYS ALREADY ESTABLISHED AND THAT NO NEW LINES FOR THE DIVISION OF EXISTING OWNERSHIP OR FOR NEW WAYS ARE SHOWN.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

TO _____, THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS _____ OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON _____.

_____ _____
GEORGE C. COLLINS P.L.S. DATE



SCALE: 1.0 INCH = 20.0 FEET
0 20 40 60

FIELD:	JJH
DRAFT:	SAP
CHECK:	GCC
DATE:	04/19/18
JOB #	18-00347

FIGURE 3-4 / SITE SURVEY

RODE

LEGEND

- SITE
- EXG. BUILDINGS
- GREENSPACE
- T STOP
- BUS STOP
- BLUE BIKE
- ZIPCAR LOCATION
- MAJOR ROADS
- INTERSTATE

FIGURE 3-5 / MOBILITY DIAGRAM

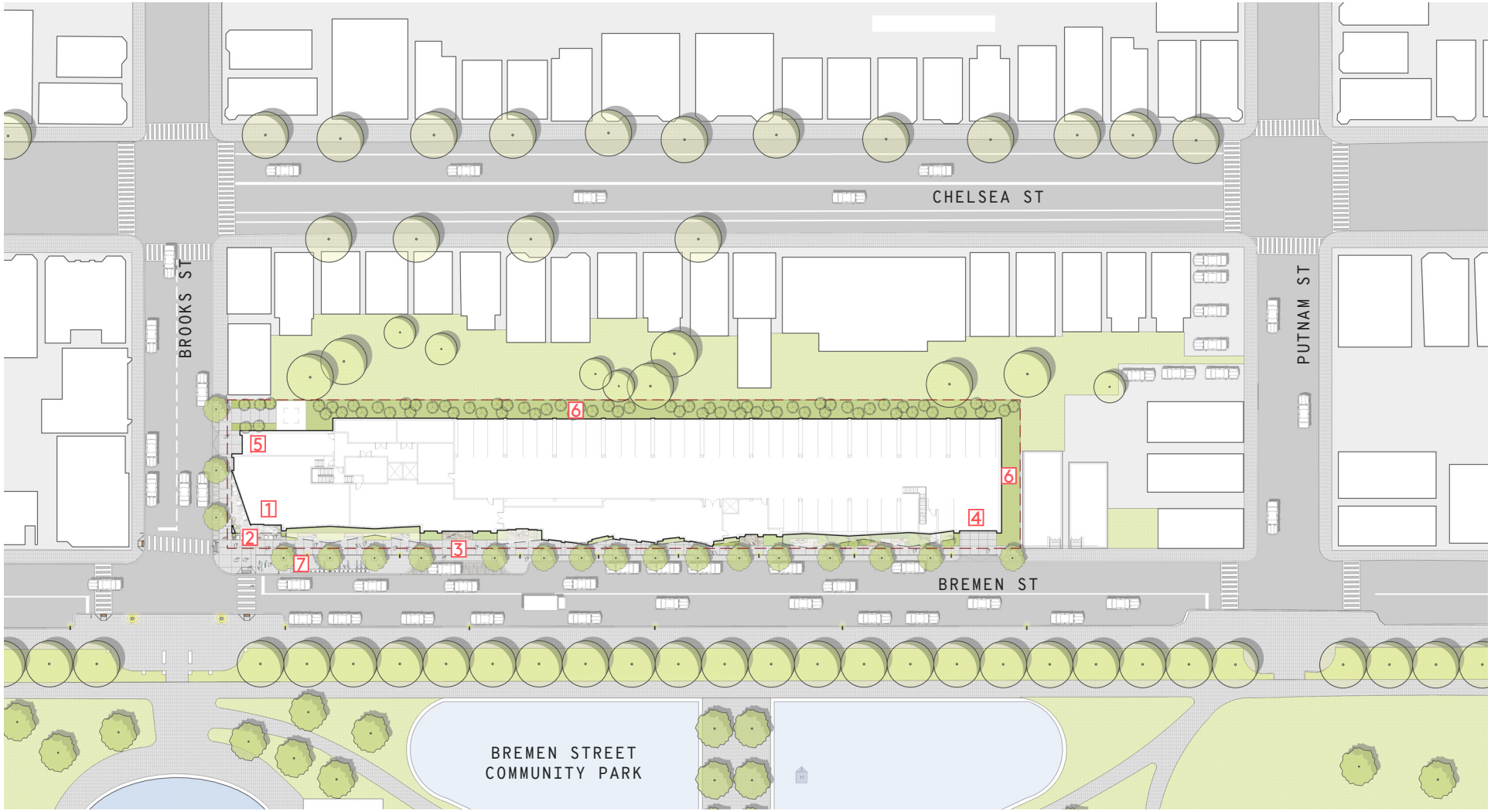
RODE

FIGURE 3-6 / **EXISTING PERSPECTIVE:** VIEW FROM BREMEN & BROOKS

RODE

FIGURE 3–7 / **PR0POSED PERSPECTIVE:** VIEW FROM BREMEN & BROOKS

RODE



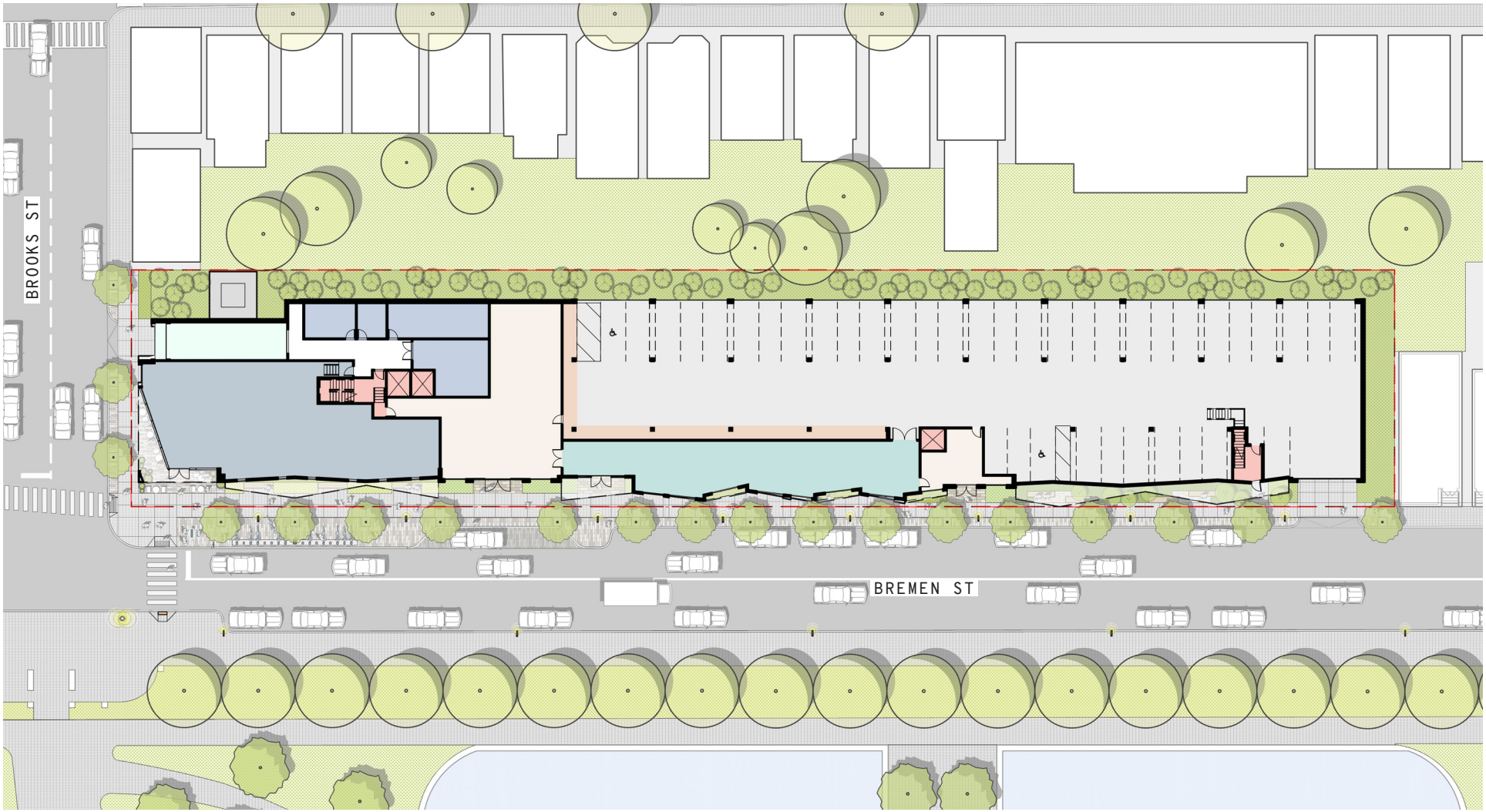
LEGEND

1. RETAIL
2. RETAIL ENTRY
3. ARRIVAL/DROPOFF
4. GARAGE ENTRY
5. LOADING
6. LANDSCAPE BUFFER
7. BLUE BIKE STATION

N

FIGURE 3-8 / **SITE PLAN**

RODE



LEGEND

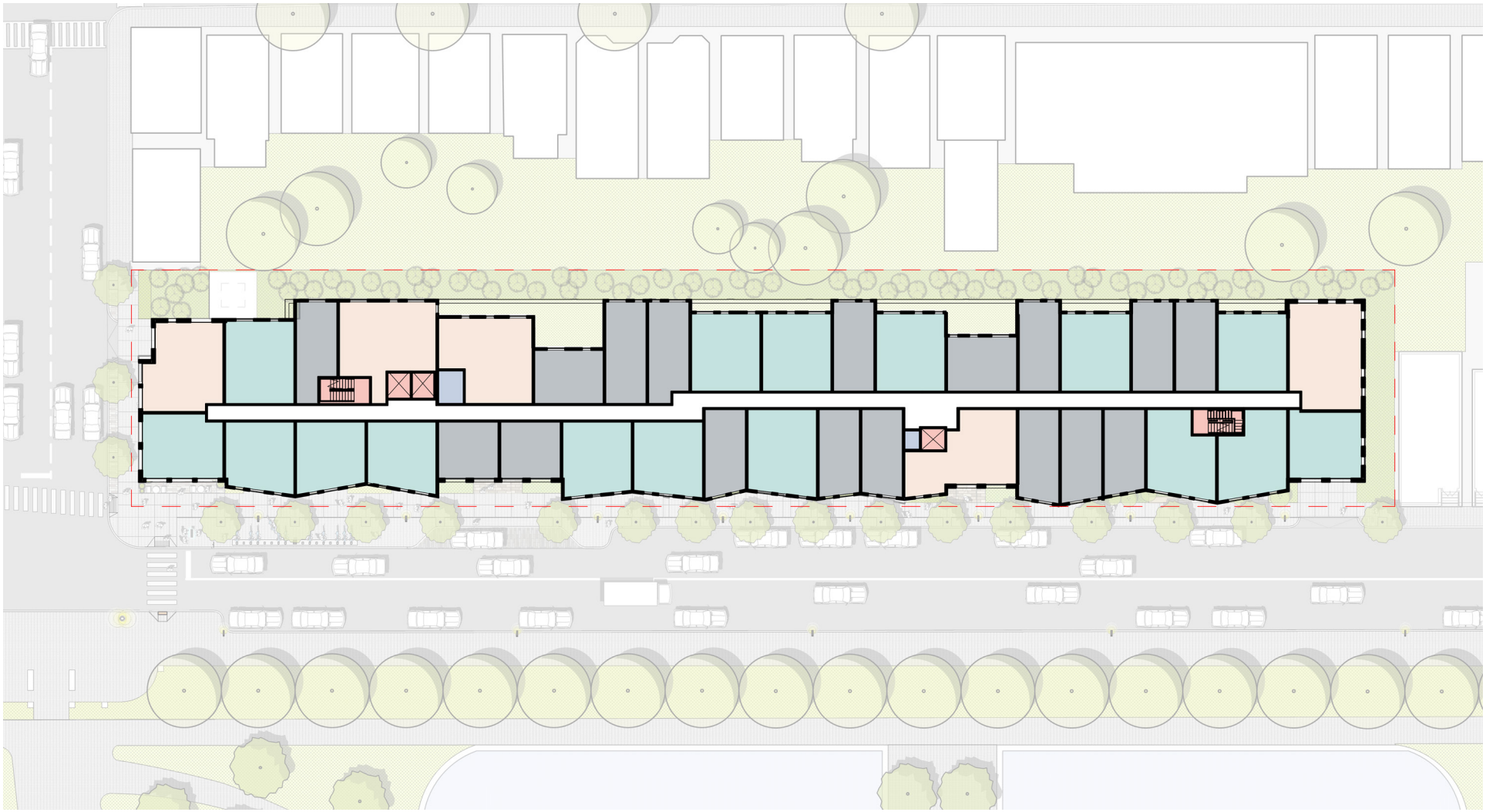
RETAIL	SERVICE	LOADING
CIRCULATION	ARTIST/MAKERSPACE	BIKES
LOBBY	PARKING	

N

1" = 50'-0"

FIGURE 3-9 / **LEVEL 1 FLOOR PLAN**

RODE



LEGEND

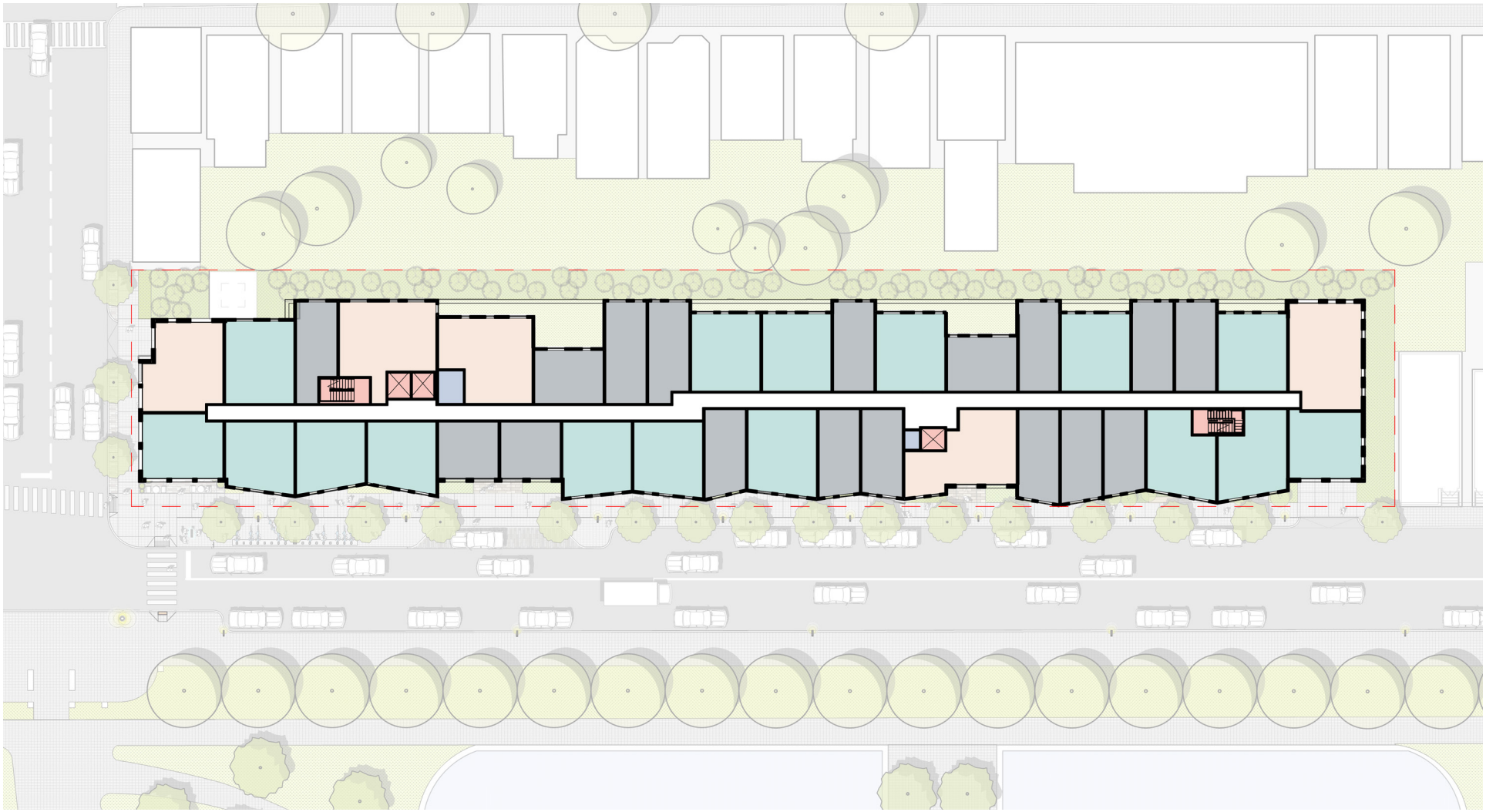
- STUDIO
- 1–BED
- 2–BED
- SERVICE
- CIRCULATION

N

1” = 50’–0”

FIGURE 3-10 / **LEVEL 2 FLOOR PLAN**

RODE



LEGEND

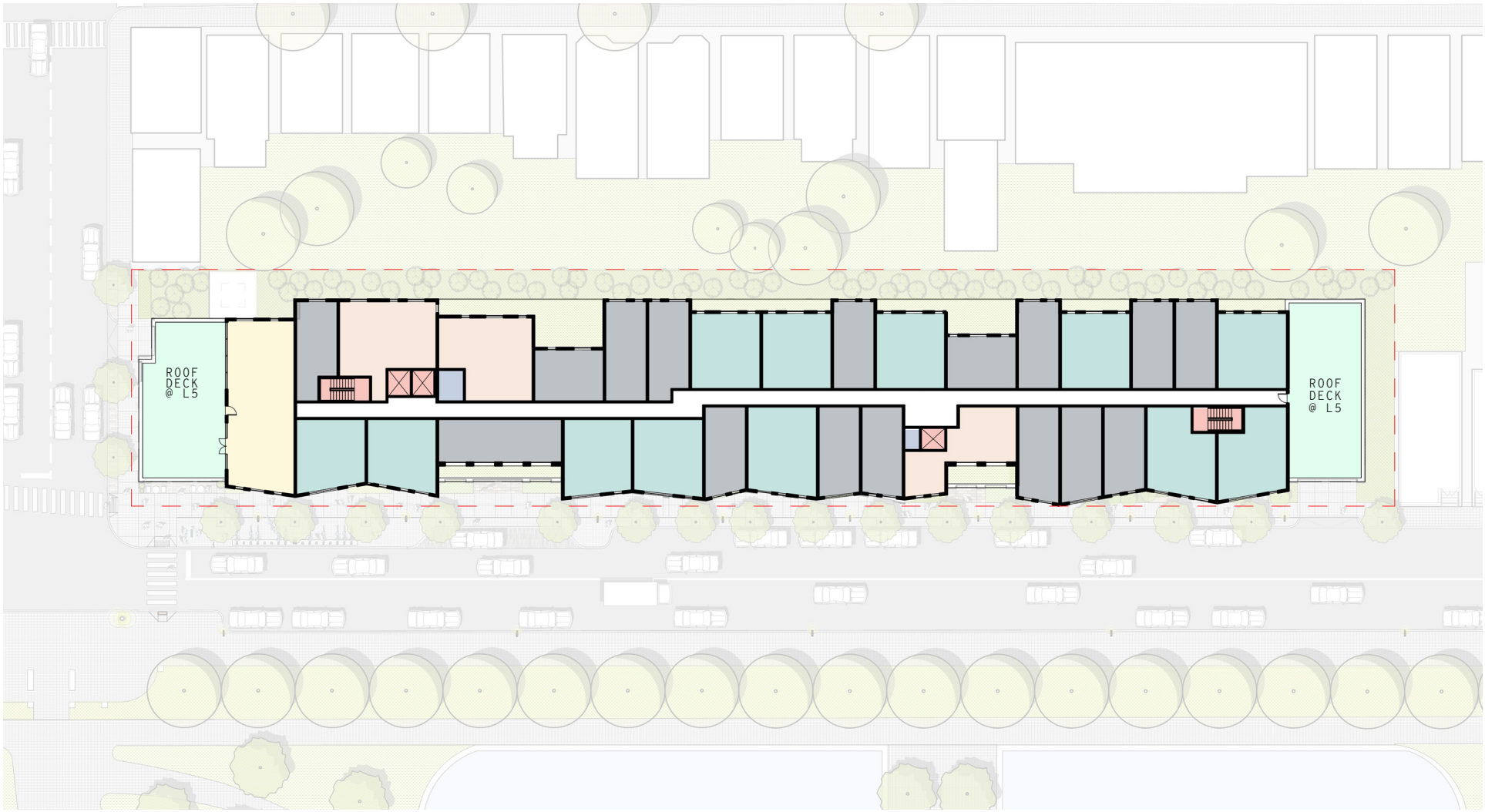
- STUDIO
- 1–BED
- 2–BED
- SERVICE
- CIRCULATION

N

1” = 50’–0”

FIGURE 3-11 / LEVEL 3–4 FLOOR PLAN

RODE



LEGEND

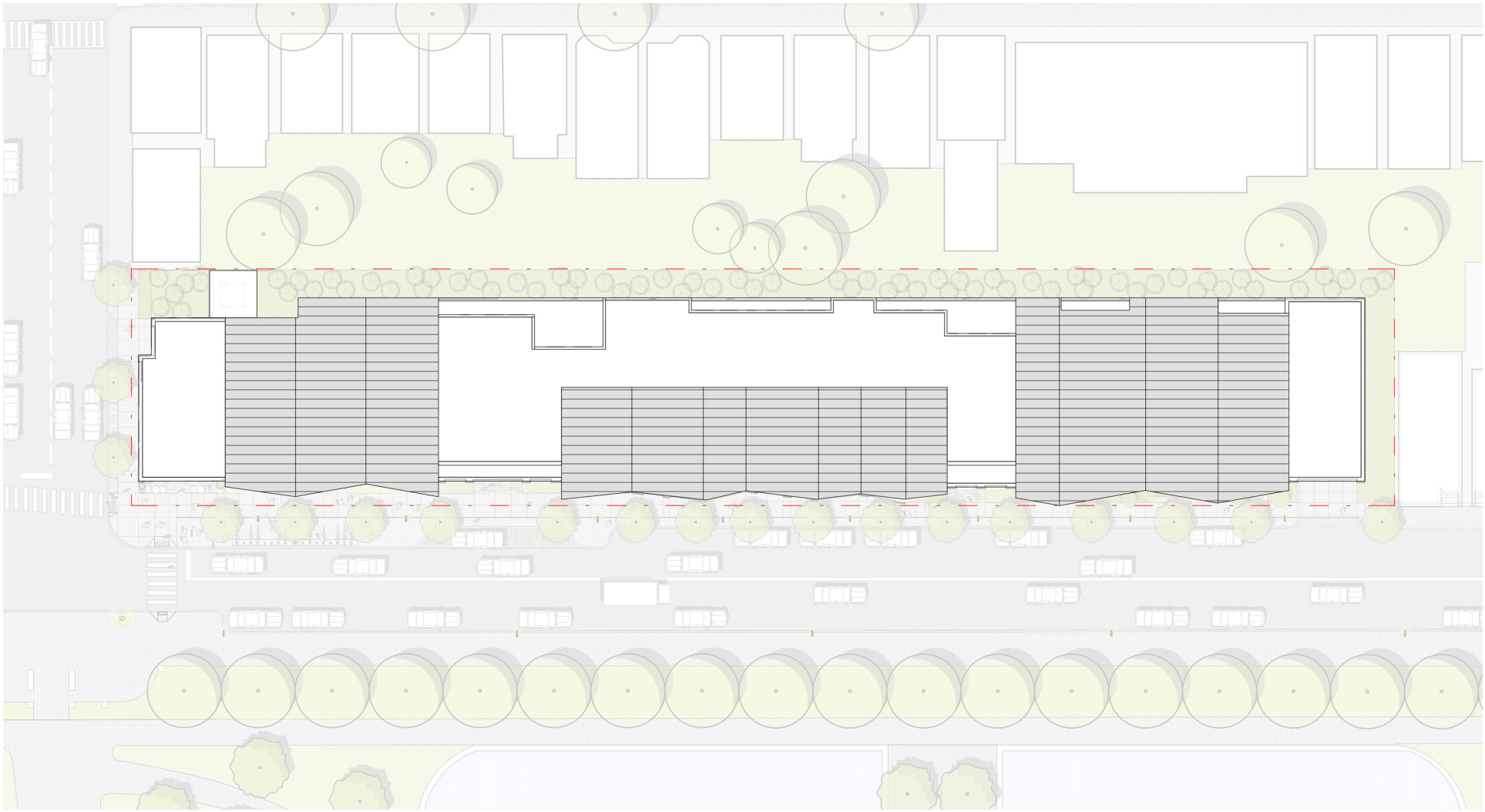
- STUDIO
- 1–BED
- 2–BED
- SERVICE
- CIRCULATION
- ROOF DECK
- AMENITY

N

1” = 50’–0”

FIGURE 3-12 / **LEVEL 5 FLOOR PLAN**

RODE



N

1” = 50’–0”

FIGURE 3-13 / ROOF PLAN

RODE

EAST ELEVATION: FROM BREMEN ST.

WEST ELEVATION: FROM REAR OF PROPERTIES ALONG CHELSEA ST.

1” = 50’–0”

FIGURE 3-14 / **EAST & WEST ELEVATIONS**

RODE

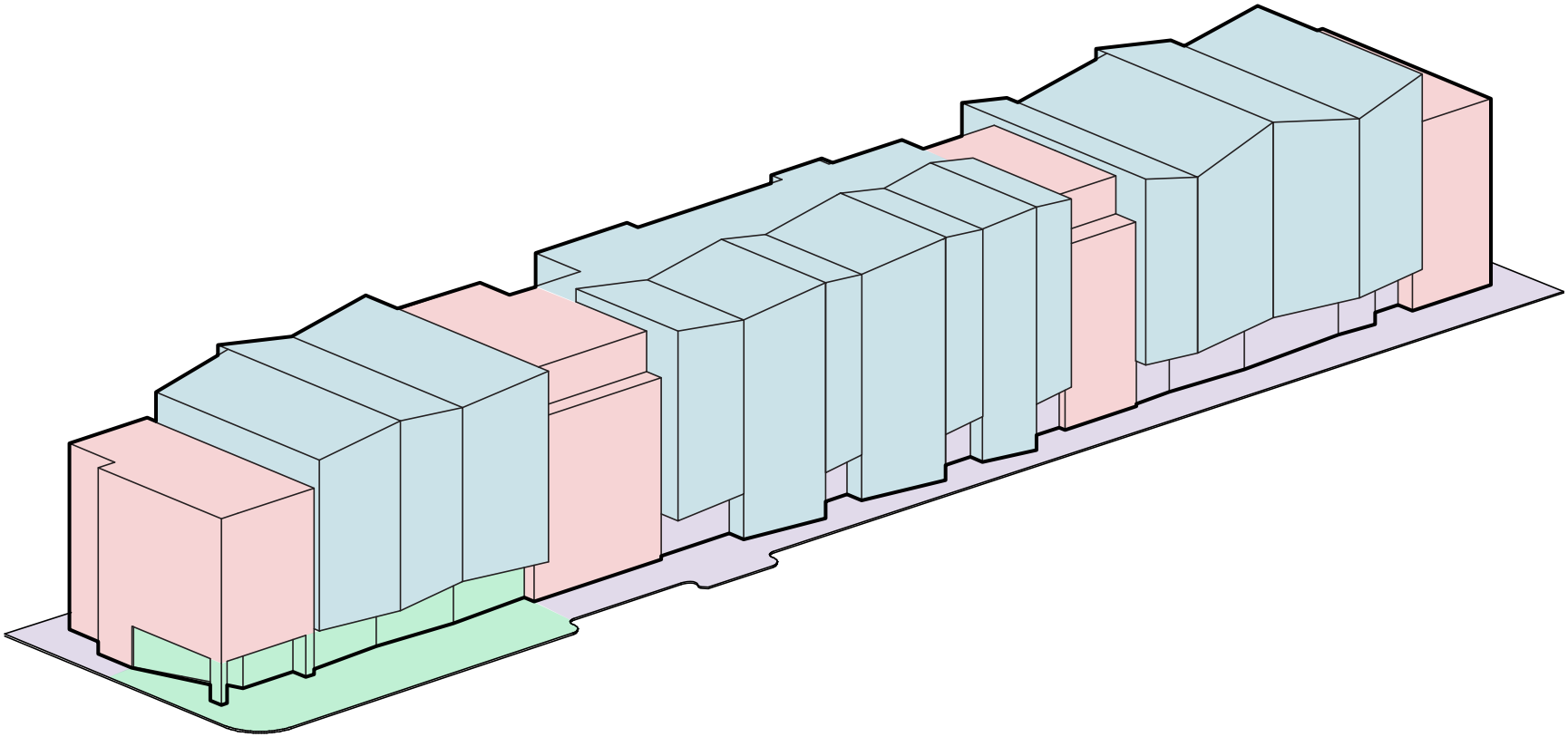
NORTH ELEVATION: FROM SIDE LOT LINE

SOUTH ELEVATION: FROM BROOKS ST.

1” = 50’–0”

FIGURE 3–15 / **NORTH & SOUTH ELEVATIONS**

RODE



LEGEND

- PROVIDE GREATER SIDEWALK CLEARANCE – CHANGE OF DESIGNATION FROM NEIGHBORHOOD RESIDENTIAL TO NEIGHBORHOOD CONNECTOR
- ADD MULTIMODAL TRANPORTATION HUB
- PROVIDE GREATER CLARITY ON BUILDING HIERARCHY FROM STREET
- MAKE ENTRIES MORE MEANINGFUL, AND ENHANCE DISTINCTION BETWEEN THE THREE VOLUMES

FIGURE 3-16 / REVISION DIAGRAM

RODE

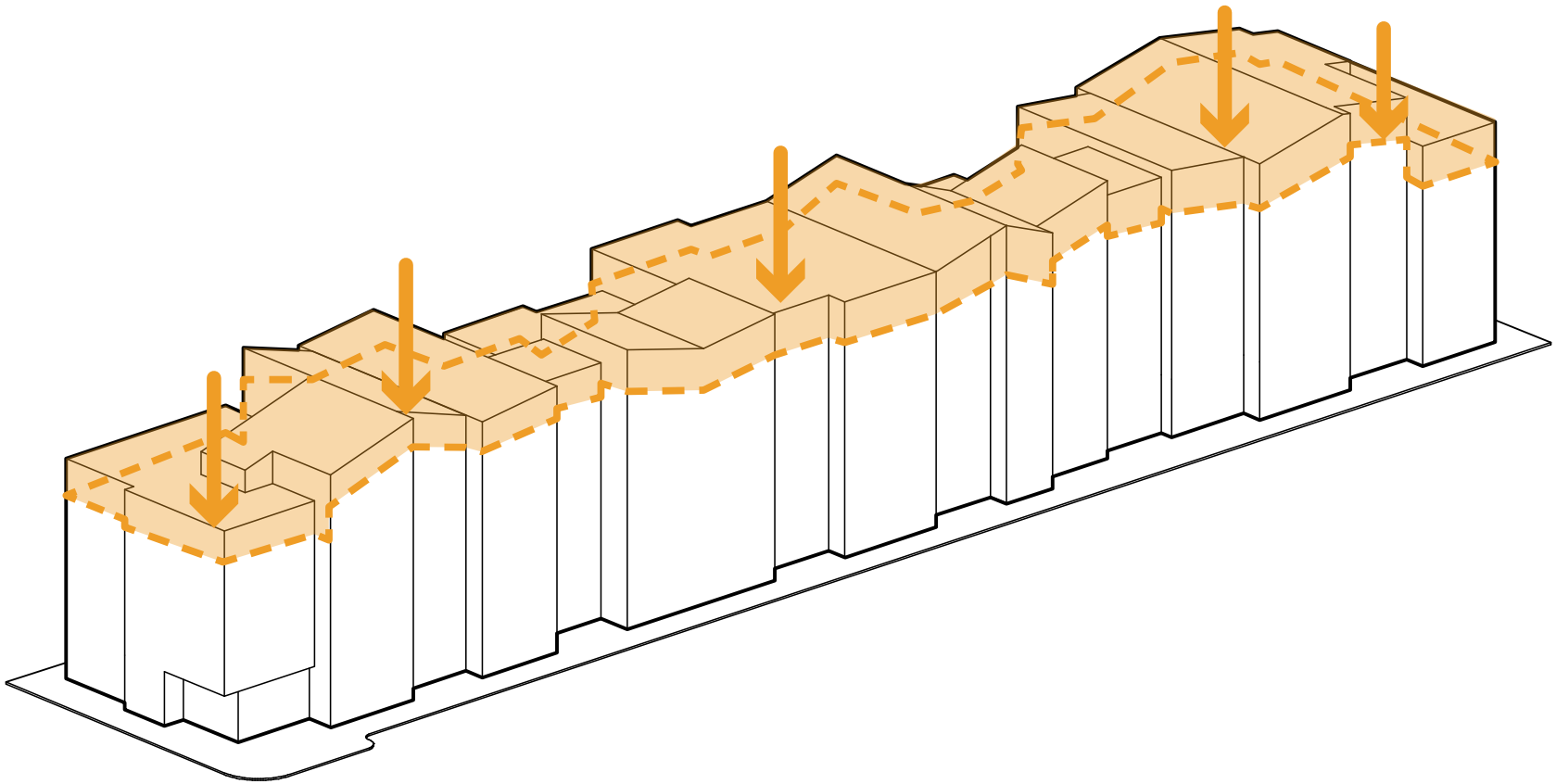


FIGURE 3-17 / HEIGHT REDUCTION DIAGRAM

FIGURE 3-18 / **EXISTING PERSPECTIVE:** VIEW FROM PARK

RODE

FIGURE 3-19 / **PROPOSED PERSPECTIVE:** VIEW FROM PARK

RODE

FIGURE 3-20 / **EXISTING PERSPECTIVE:** VIEW FROM ACROSS BREMEN

RODE

FIGURE 3-21 / **PROPOSED PERSPECTIVE:** VIEW FROM ACROSS BREMEN

RODE

Figure 3-22

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

Project Checklist

Project Name: 285 Bremen Street
Date: 16-Apr-19

Y	?	N			
1			Credit	Integrative Process	1

15	1	0	Location and Transportation		16
			Credit	LEED for Neighborhood Development Location	16
1			Credit	Sensitive Land Protection	1
1	1		Credit	High Priority Site	2
5			Credit	Surrounding Density and Diverse Uses	5
5			Credit	Access to Quality Transit	5
1			Credit	Bicycle Facilities	1
1			Credit	Reduced Parking Footprint	1
1			Credit	Green Vehicles	1

2	3	5	Sustainable Sites		10
Y			Prereq	Construction Activity Pollution Prevention	Required
	1		Credit	Site Assessment	1
		2	Credit	Site Development - Protect or Restore Habitat	2
	1		Credit	Open Space	1
		3	Credit	Rainwater Management	3
2			Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1

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

13	4	16	Energy and Atmosphere		33
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
3	1	2	Credit	Enhanced Commissioing	6
8	1	9	Credit	Optimize Energy Performance	18
		1	Credit	Advanced Energy Metering	1
		2	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

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

5	1	10	Indoor Environmental Quality		16
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
1	1		Credit	Enhanced Indoor Air Quality Strategies	2
		3	Credit	Low-Emitting Materials	3
1			Credit	Construction Indoor Air Quality Management Plan	1
1		1	Credit	Indoor Air Quality Assessment	2
1			Credit	Thermal Comfort	1
1		1	Credit	Interior Lighting	2
		3	Credit	Daylight	3
		1	Credit	Quality Views	1
		1	Credit	Acoustic Performance	1

6	0	0	Innovation		6
5			Credit	Innovation - EP Reduced Parking, Green Housekeeping, Education, IPM Thermal C	5
1			Credit	LEED Accredited Professional	1

2	2	0	Regional Priority		4
1			Credit	Regional Priority: Indoor Water Use	1
	1		Credit	Regional Priority: High Priority Site	1
1			Credit	Regional Priority: Optimize Energy	1
	1		Credit	Regional Priority: Renewable	1

53	15	42	TOTALS	Possible Points:	110

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

4.0 ENVIRONMENTAL PROTECTION COMPONENT

4.1 Shadow Impacts Analysis

4.1.1 Introduction

The following shadow study describes and graphically depicts anticipated new shadow impacts from the proposed project compared to shadows from existing buildings. The study presents the existing and built conditions for the proposed project for the hours 9:00 AM, 12:00 Noon, and 3:00 PM for the vernal equinox, summer solstice, autumnal equinox, and winter solstice, as required. In addition, shadows are depicted for 6:00 PM during the summer solstice and autumnal equinox.

The shadow study was originally presented in the PNF and has been updated based on the design changes presented for this DPIR.

4.1.2 Vernal Equinox (March 21)

Figures 4.1-1 through **4.1-3** depict shadows on March 21.

At 9:00 AM shadows are cast towards the northwest into the rear yards and first floors of the adjacent properties.

At 12:00 PM shadows are cast toward the north impacting half of the depth of the rear yards adjacent to the property.

At 3:00 PM shadows are cast toward the east onto portions of Bremen Street and only the most northernly abutter.

4.1.3 Summer Solstice (June 21)

Figures 4.1-4 through **4.1-7** depict shadows on June 21.

At 9:00 AM shadows are cast towards the northwest into the rear yards and first floors of the adjacent properties. A portion of Brooks Street is also impacted.

At 12:00 PM shadows are cast toward the north impacting the first few feet of the rear yards directly adjacent to the property line.

At 3:00 PM shadows are cast toward the east onto the sidewalk and a very small portion of Bremen Street.

At 6:00 PM shadows are cast toward the east onto Bremen Street and the first 50’ of the Bremen Street Community Park.

4.1.4 Autumnal Equinox (September 21)

Figures 4.1-8 through **4.1-11** depict shadows on September 21.

At 9:00 AM shadows are cast towards the northwest into the rear yards and the closest half of the adjacent buildings in the rear. A small portion of Brooks Street is also impacted.

At 12:00 PM shadows are cast toward the north impacting the rear yards directly adjacent to the property line.

At 3:00 PM shadows are cast toward the northeast onto the sidewalk and the most northernly neighbor.

At 6:00 PM shadows are cast toward the east onto Bremen Street and the Bremen Street Community Park.

4.1.5 Winter Solstice (December 21)

Figures 4.1-12 through **4.1-14** depict shadows on December 21.

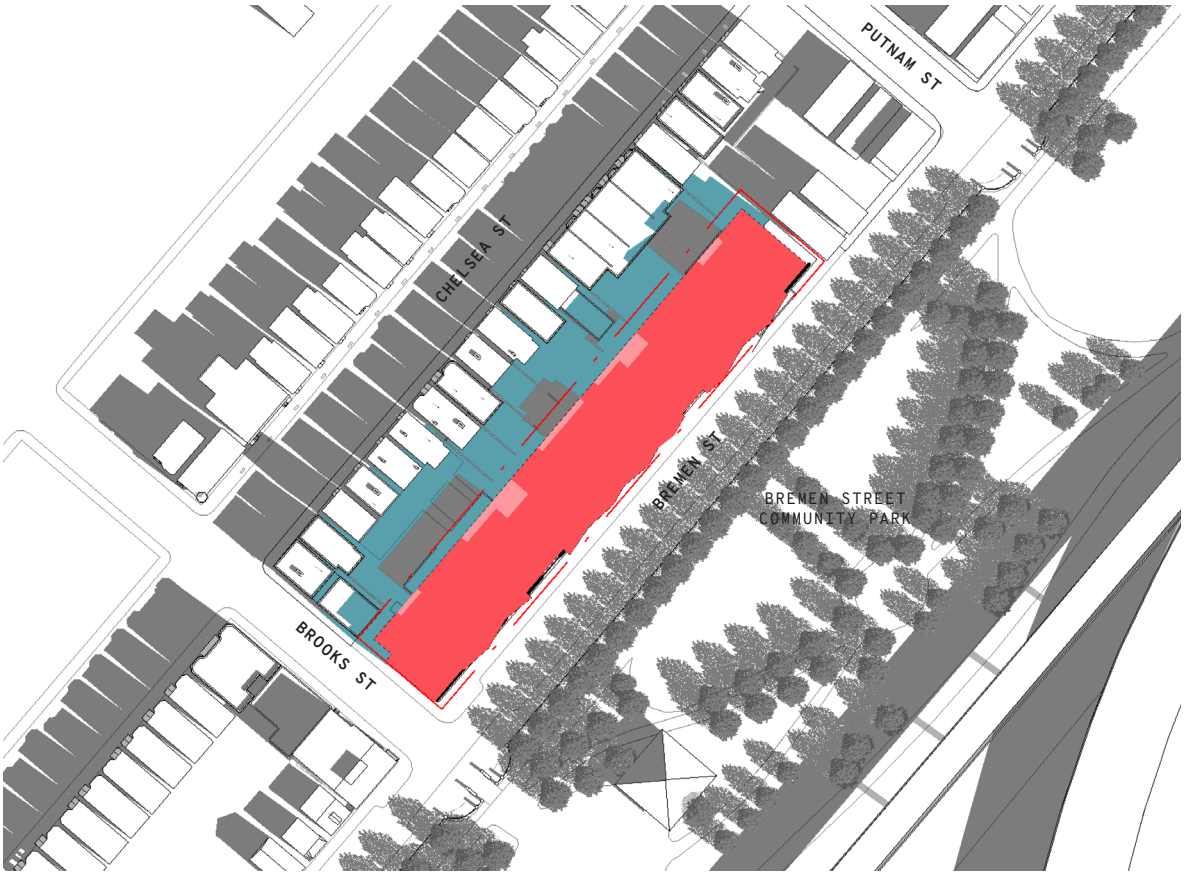
At 9:00 AM shadows are cast towards the northwest into the rear yards and the adjacent properties to the rear.

At 12:00 PM shadows are cast toward the north impacting the rear yards adjacent to the property and a portion of the most northernly neighbor.

At 3:00 PM shadows are cast toward the north onto the northern neighbors.

4.1.6 Summary

New shadows created by the Project are limited in their impacts to surrounding buildings and to the nearby park. The rear yards to the northwest of the site receive the greatest amount of impact in the morning and early afternoon, but the buildings themselves have almost no shadow impact on them. The park only receives limited shadows during summer and fall evenings which is consistent with the shadow patterns created by existing buildings on the site and further north and south along Bremen Street.



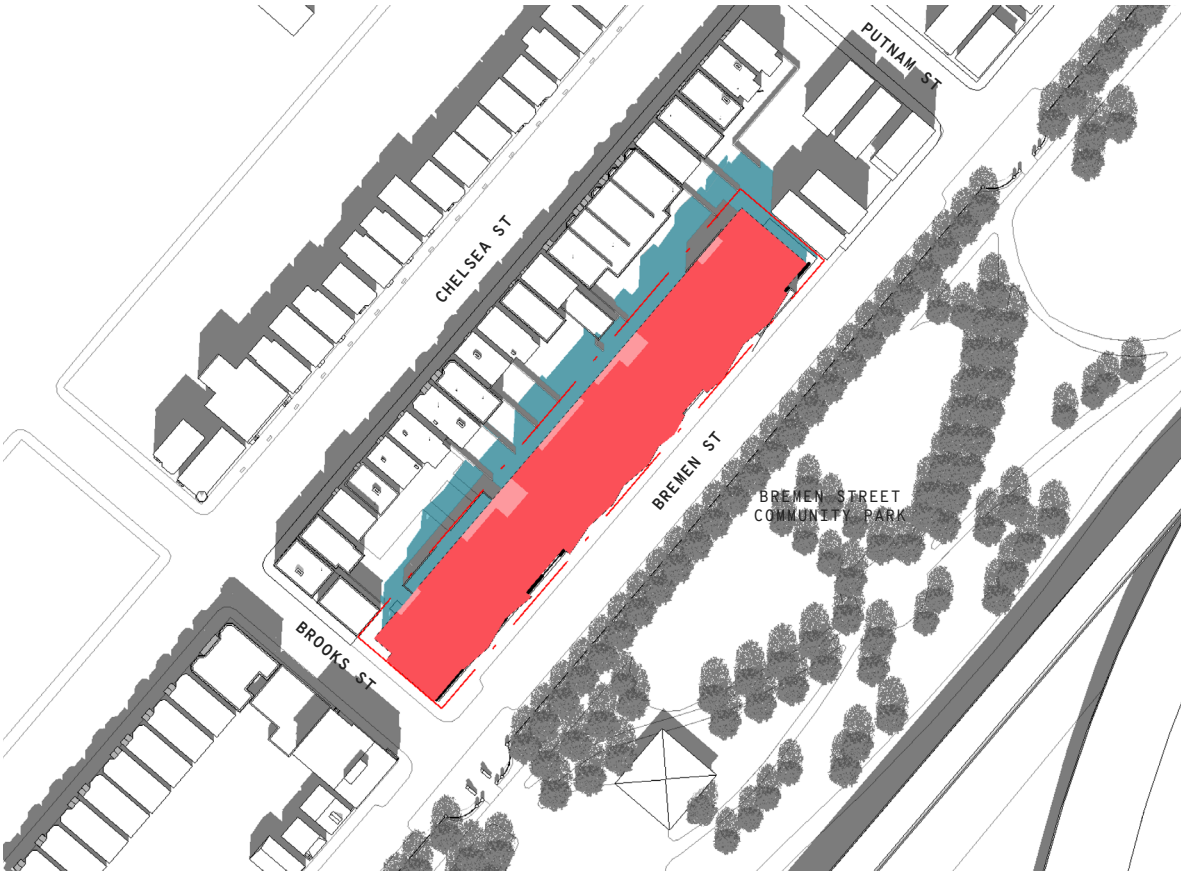
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

9:00 AM
MARCH 21
ALTITUDE: 33.0
AZIMUTH: 125.7
N42.36, W71.06

N

FIGURE 4.1–1 / SHADOW STUDY: VERNAL EQUINOX

RODE



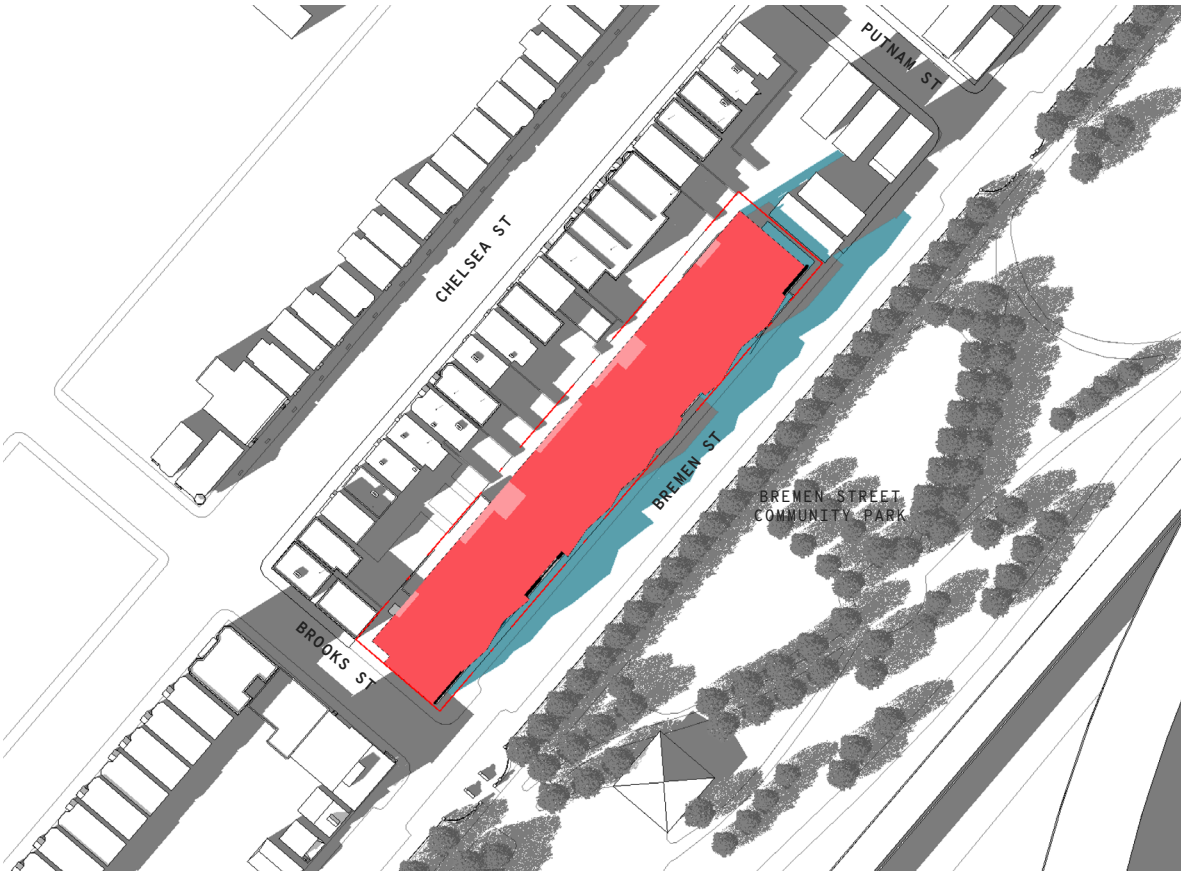
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

12:00 PM
MARCH 21
ALTITUDE: 48.0
AZIMUTH: -176.9
N42.36, W71.06

N

FIGURE 4.1-2 / SHADOW STUDY: VERNAL EQUINOX

RODE



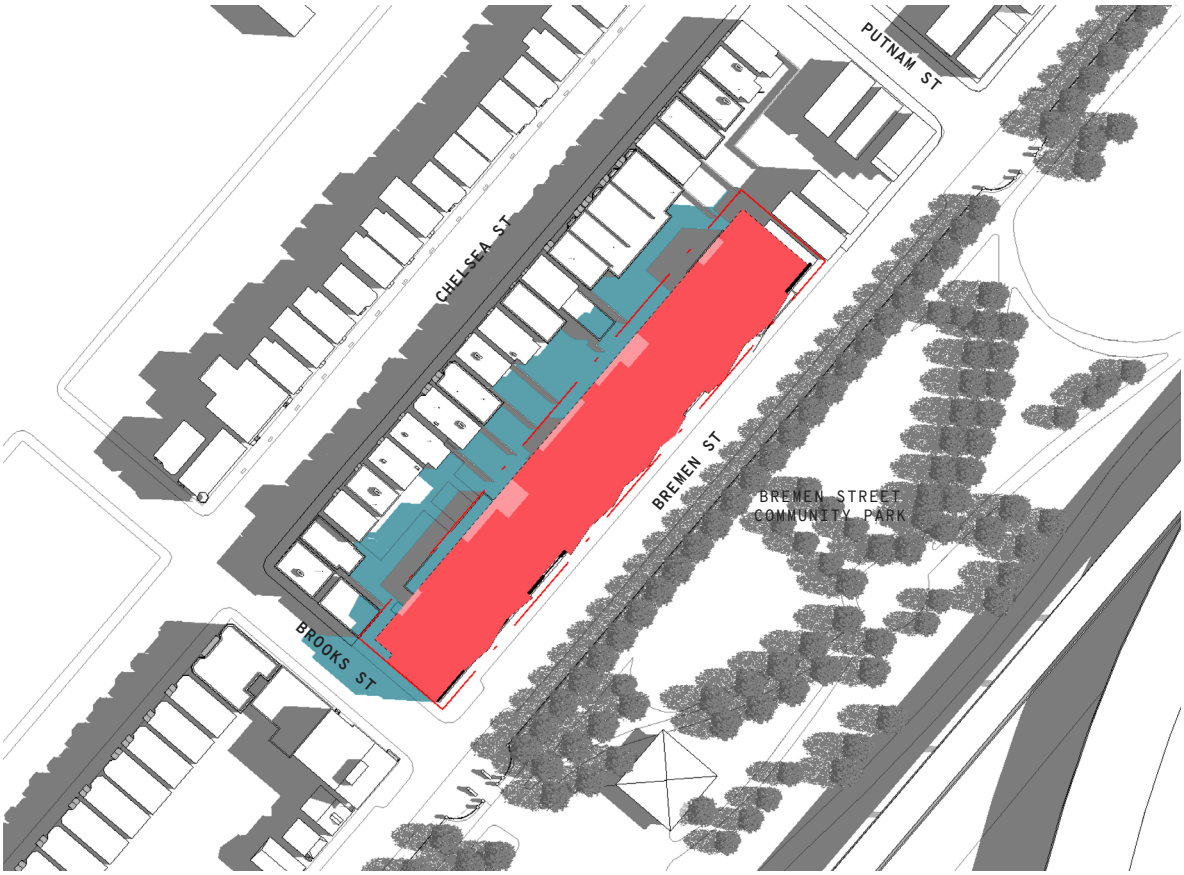
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

3:00 PM
MARCH 21
ALTITUDE: 30.5
AZIMUTH: -121.8
N42.36, W71.06

N

FIGURE 4.1-3 / SHADOW STUDY: VERNAL EQUINOX

RODE



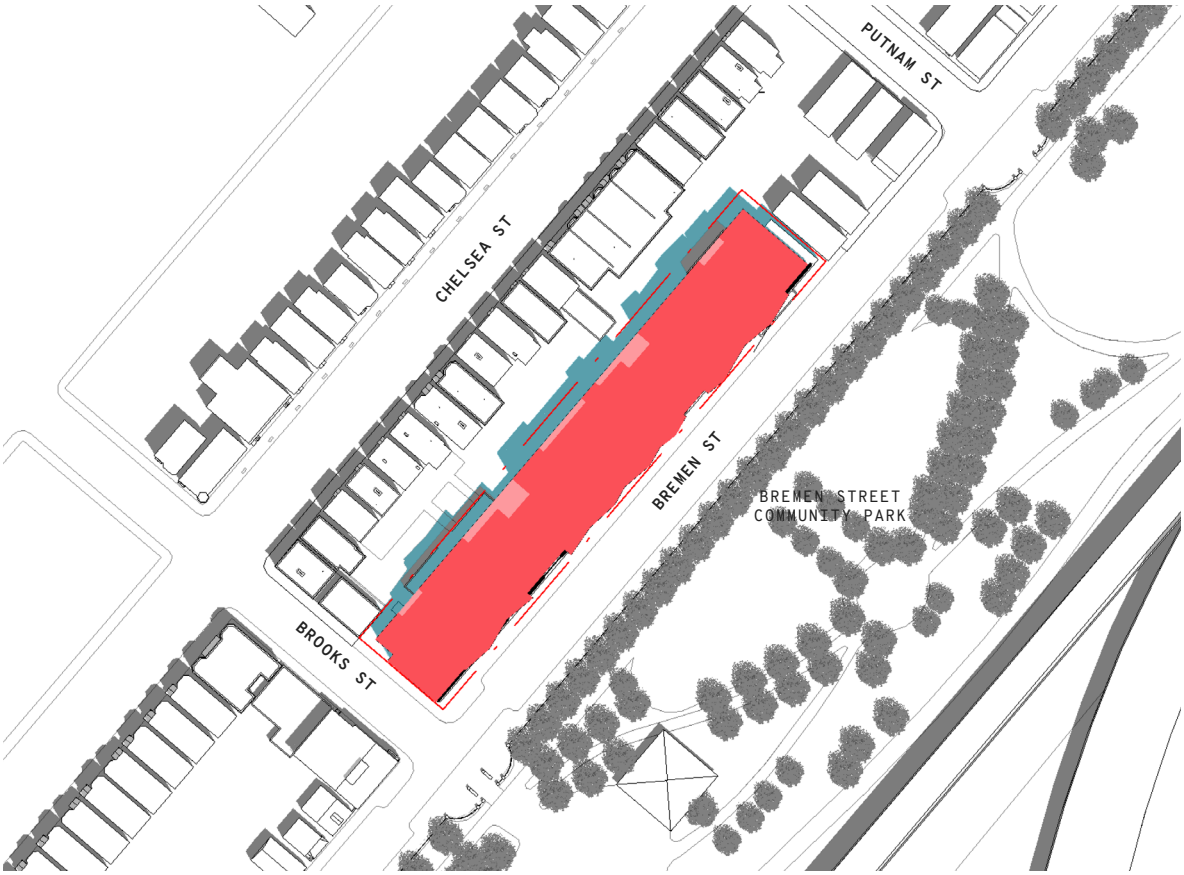
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

9:00 AM
JUNE 21
ALTITUDE: 39.9
AZIMUTH: 93.5
N42.36, W71.06

N

FIGURE 4.1–4 / SHADOW STUDY: SUMMER SOLSTICE

RODE



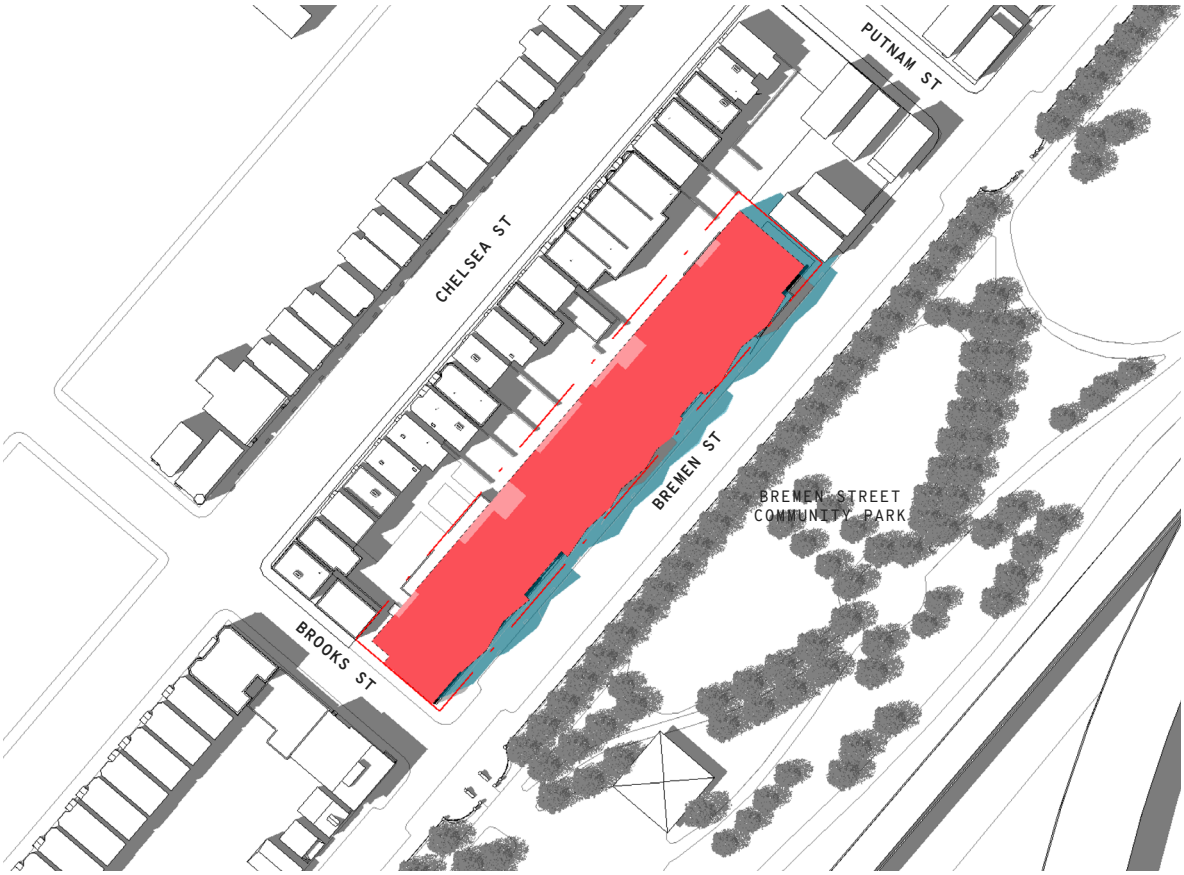
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

12:00 PM
JUNE 21
ALTITUDE: 68.8
AZIMUTH: 149.4
N42.36, W71.06

N

FIGURE 4.1–5 / SHADOW STUDY: SUMMER SOLSTICE

RODE



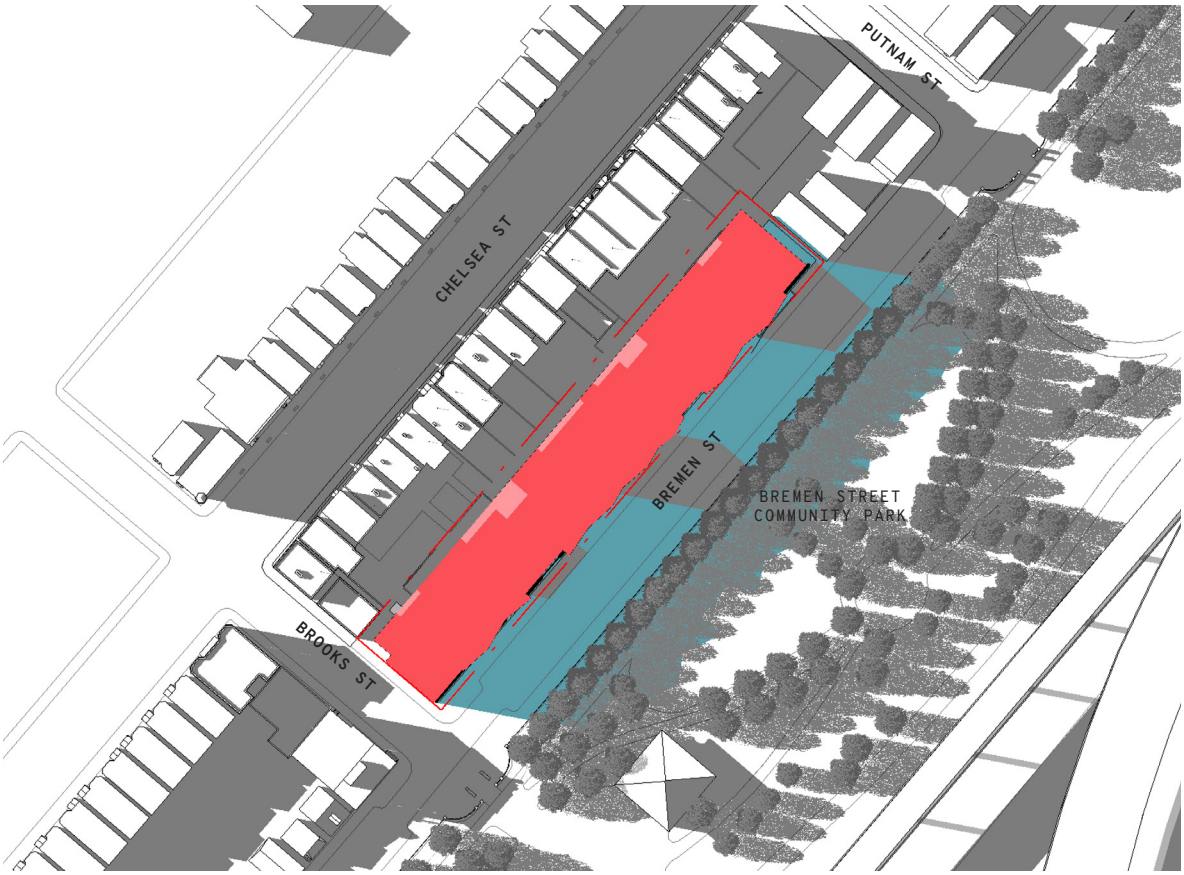
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

3:00 PM
JUNE 21
ALTITUDE: 56.5
AZIMUTH: -113.7
N42.36, W71.06

N

FIGURE 4.1–6 / SHADOW STUDY: SUMMER SOLSTICE

RODE



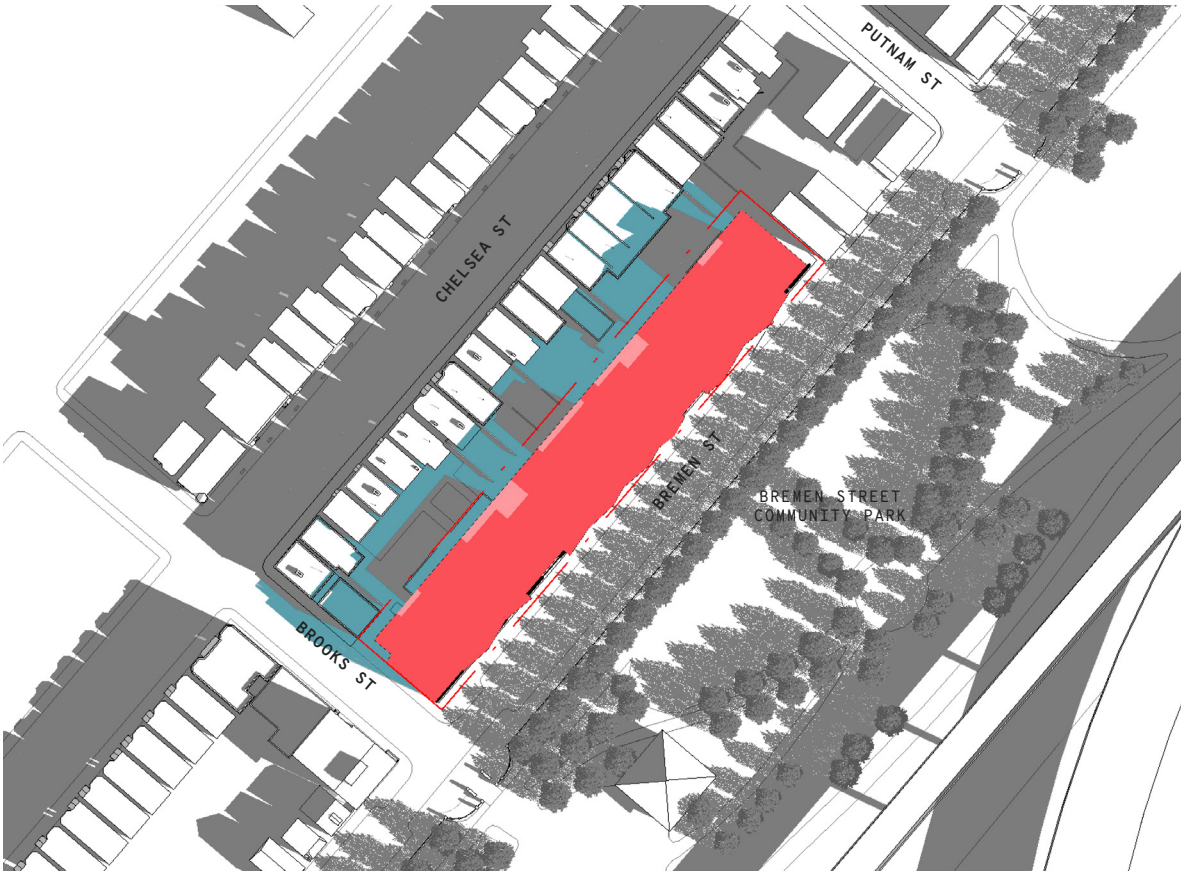
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

6:00 PM
JUNE 21
ALTITUDE: 23.9
AZIMUTH: -79.3
N42.36, W71.06

N

FIGURE 4.1-7 / SHADOW STUDY: SUMMER SOLSTICE

RODE



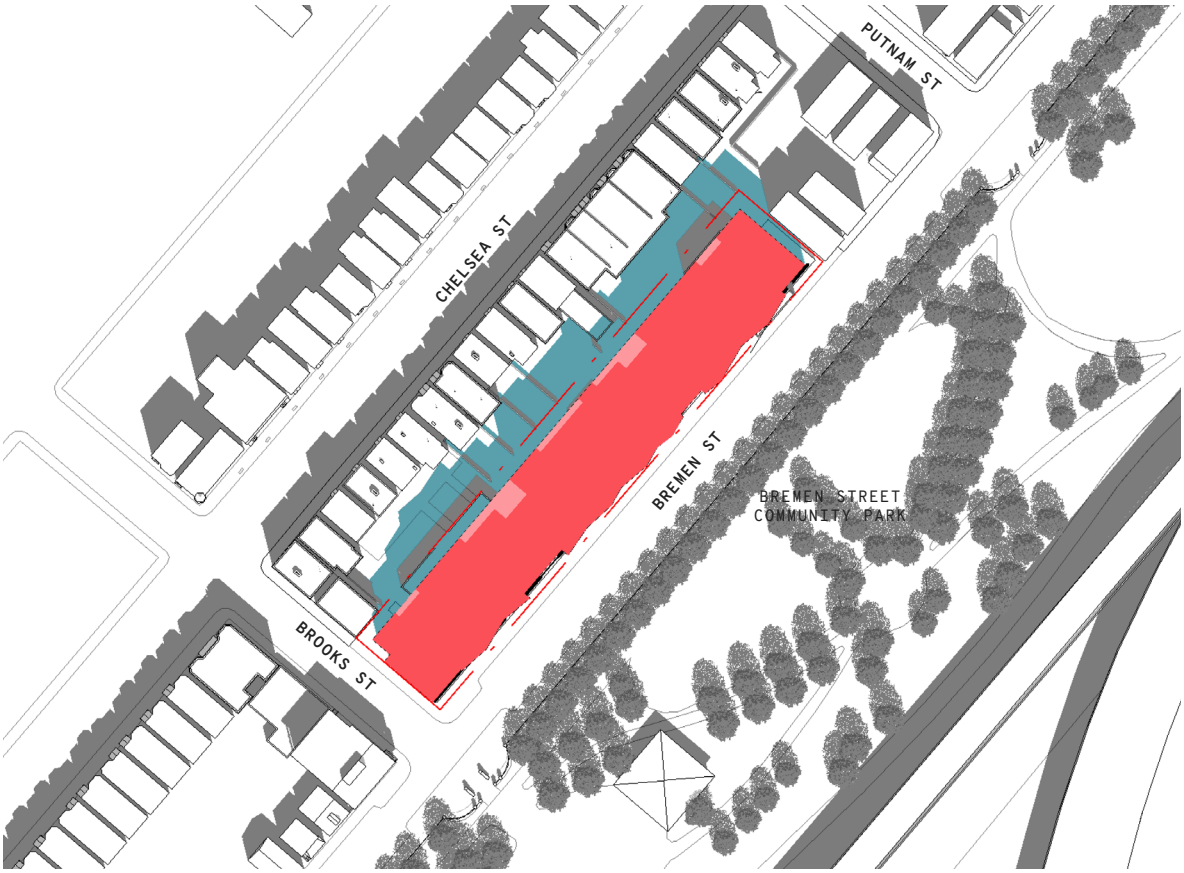
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

9:00 AM
SEPTEMBER 21
ALTITUDE: 25.9
AZIMUTH: 115.3
N42.36, W71.06

N

FIGURE 4.1–8 / SHADOW STUDY: AUTUMNAL EQUINOX

RODE



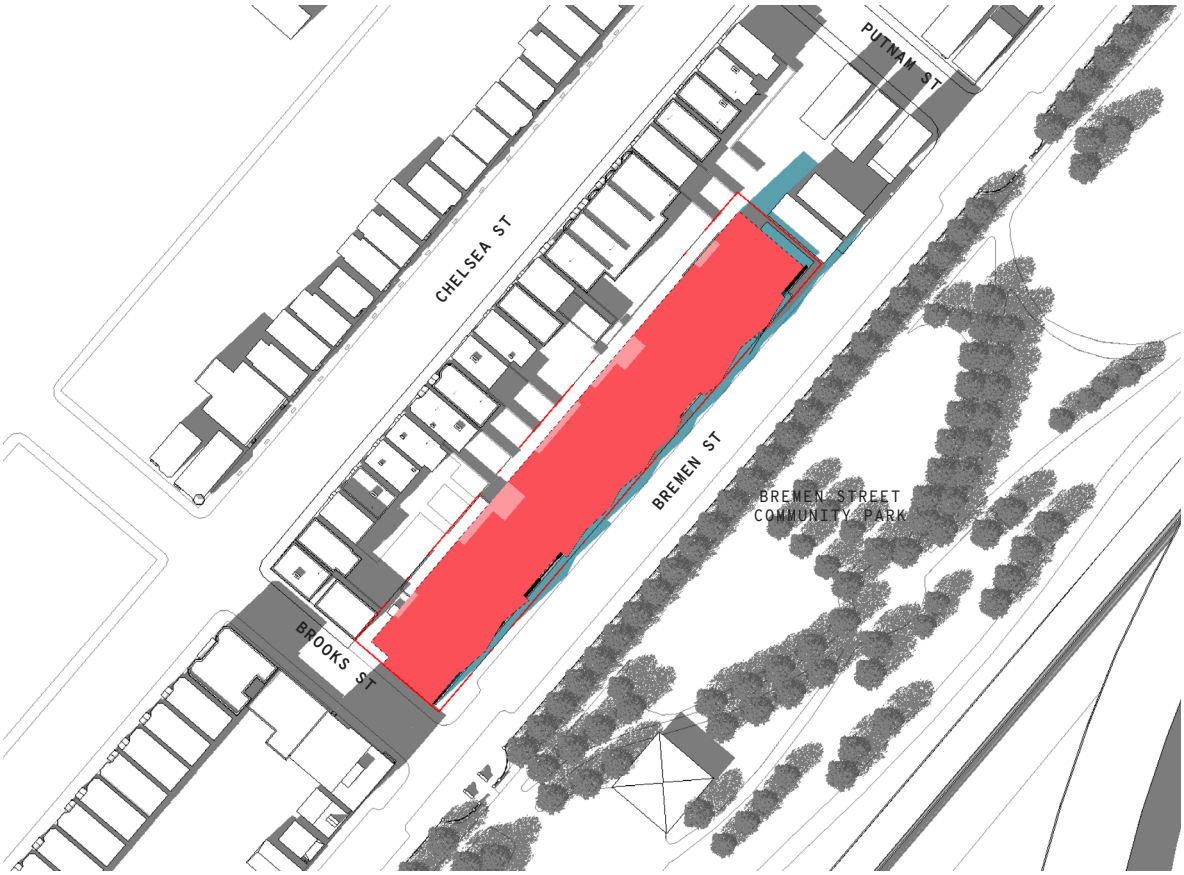
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

12:00 PM
SEPTEMBER 21
ALTITUDE: 47.4
AZIMUTH: 166.0
N42.36, W71.06

N

FIGURE 4.1–9 / SHADOW STUDY: AUTUMNAL EQUINOX

RODE



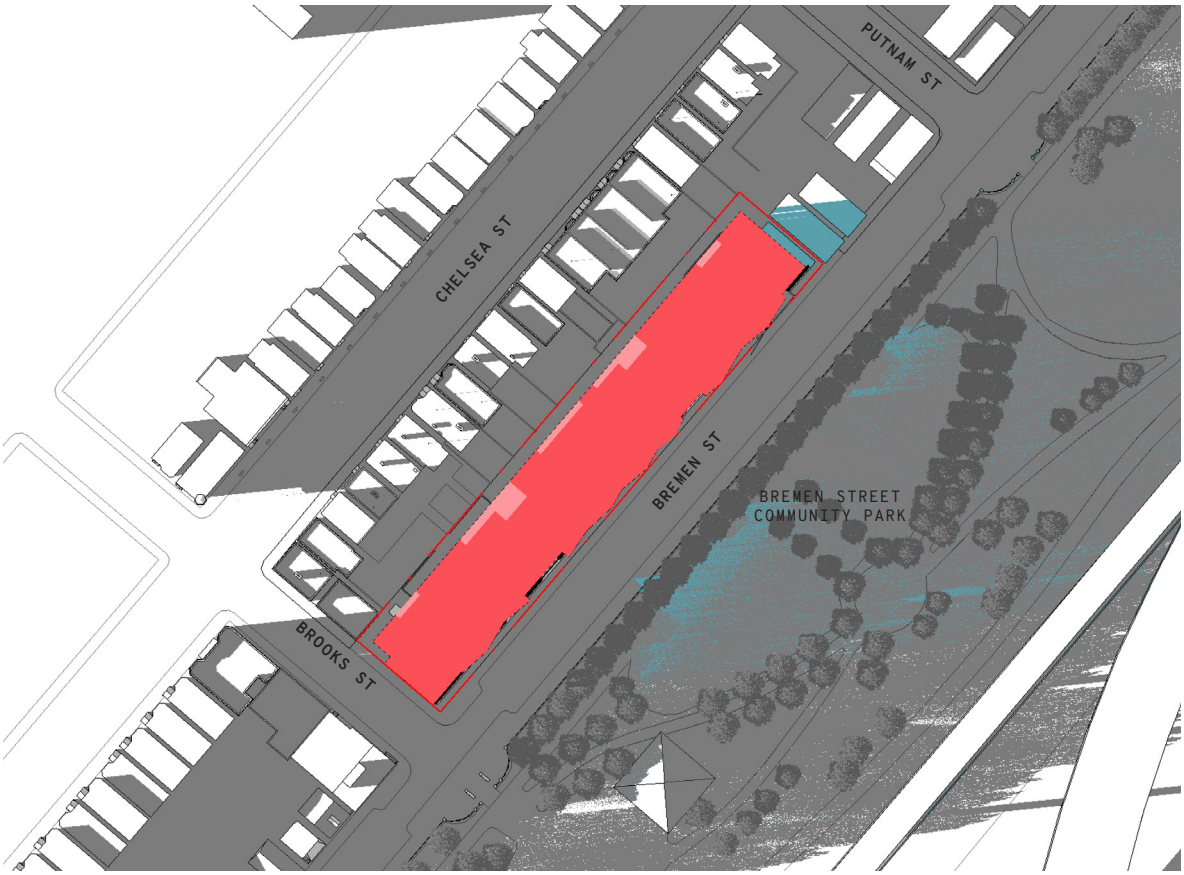
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

3:00 PM
SEPTEMBER 21
ALTITUDE: 37.4
AZIMUTH: -132.9
N42.36, W71.06

N

FIGURE 4.1-10 / SHADOW STUDY: AUTUMNAL EQUINOX

RODE



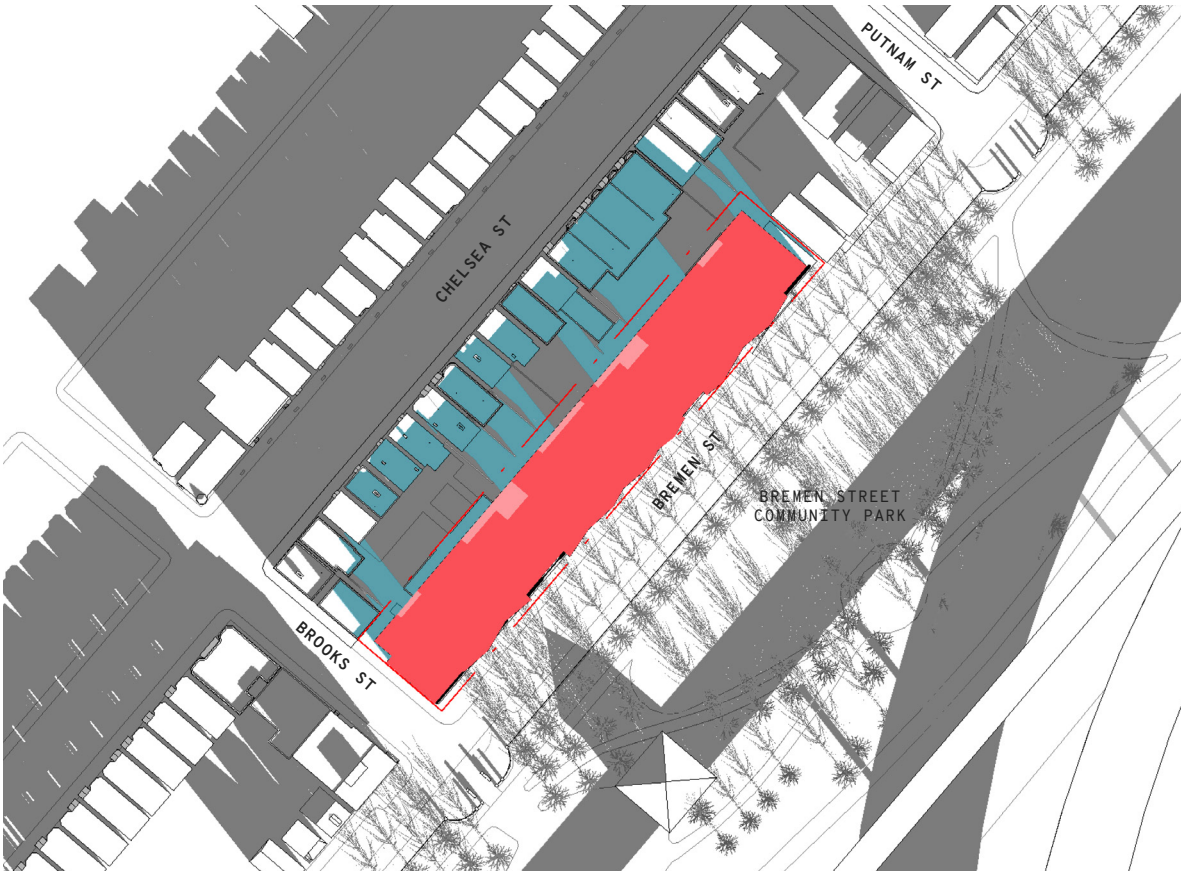
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

6:00 PM
SEPTEMBER 21
ALTITUDE: 7.3
AZIMUTH: -96.0
N42.36, W71.06

N

FIGURE 4.1-11 / SHADOW STUDY: AUTUMNAL EQUINOX

RODE



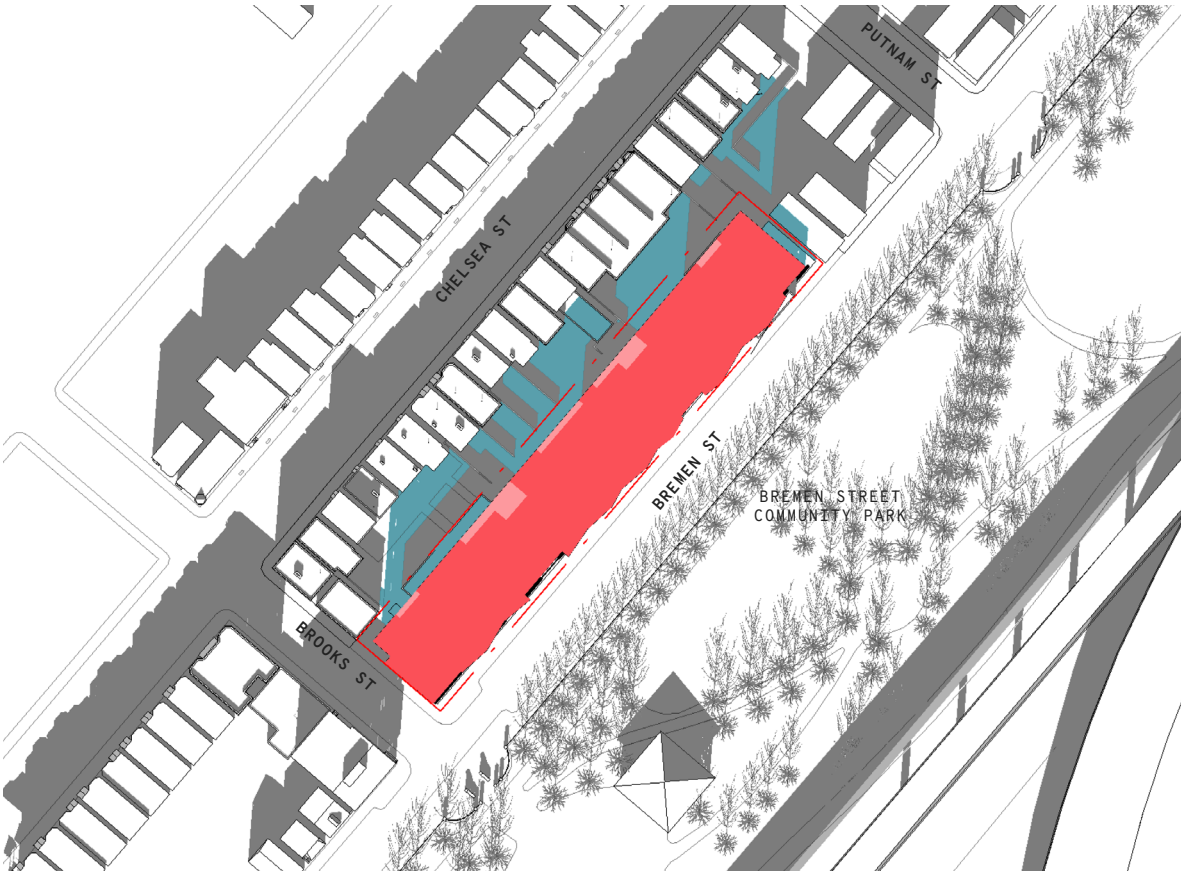
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

9:00 AM
DECEMBER 21
ALTITUDE: 14.2
AZIMUTH: 141.9
N42.36, W71.06

N

FIGURE 4.1–12 / SHADOW STUDY: WINTER SOLSTICE

RODE



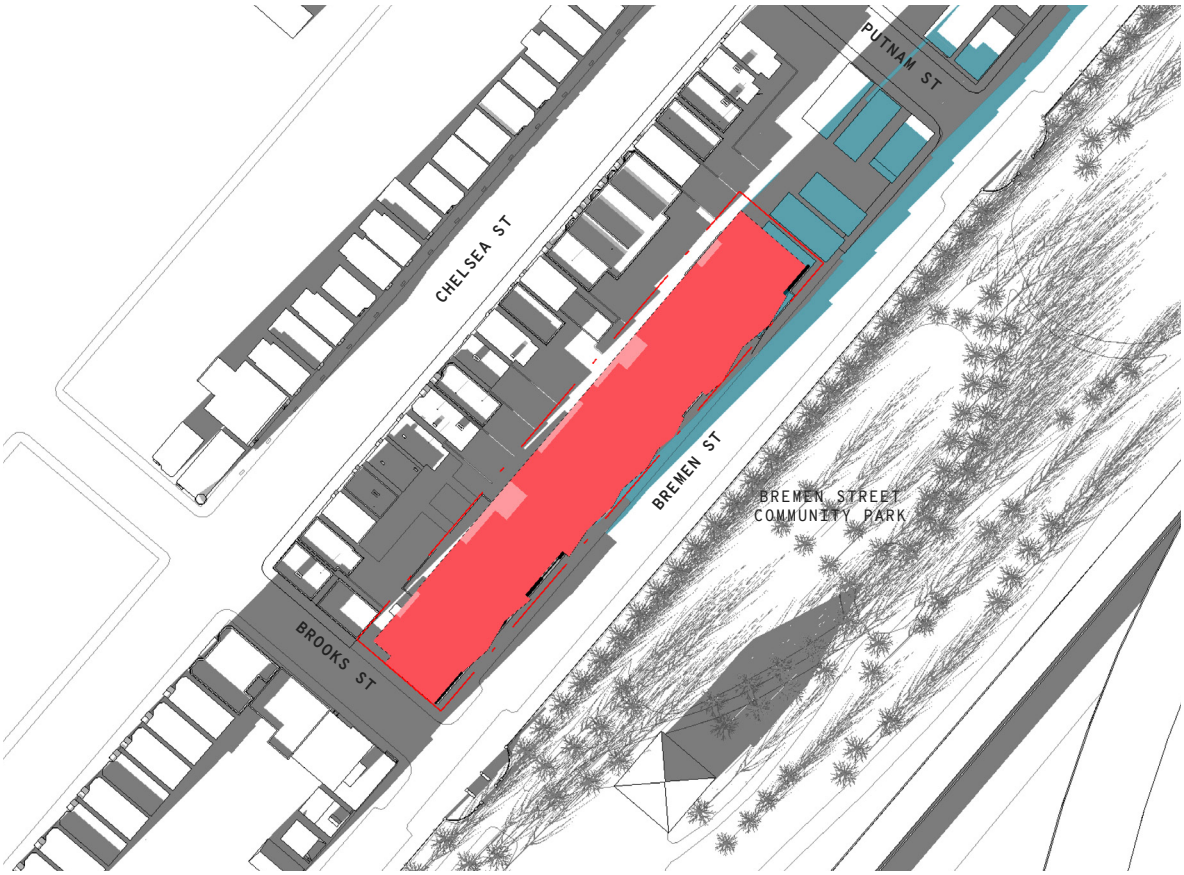
EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

12:00 PM
DECEMBER 21
ALTITUDE: 24.1
AZIMUTH: -175.6
N42.36, W71.06

N

FIGURE 4.1–13 / SHADOW STUDY: WINTER SOLSTICE

RODE



EXISTING SHADOWS
PROPOSED SHADOWS
PROPOSED BUILDING

3:00 PM
DECEMBER 21
ALTITUDE: 10.0
AZIMUTH: -135.1
N42.36, W71.06

N

FIGURE 4.1-14 / SHADOW STUDY: WINTER SOLSTICE

RODE

4.2 Daylight Analysis

The following section describes the anticipated effect on daylight coverage at the Project Site as a result of the Proposed Project. An analysis of the percentage of skydome obstructed under the No-Build and Build Conditions is a requirement of Article 80 (Section 80B-2(c)). The daylight analysis was originally presented in the PNF, and is consistent with the design changes presented for this DPIR.

The results of the analysis are presented in attached **Figures 4.2-1** and **4.2-2.**

4.2.1 Methodology

The daylight analysis was conducted by VHB for the Proposed Project using the BRADA program developed in 1985 by the Massachusetts Institute of Technology to estimate the pedestrian's view of the skydome, taking into account building massing and building materials used. The software approximates a pedestrian's view of a given site based on input parameters such as: location of viewpoint; length and height of buildings and the relative reflectivity of the building façades. The model typically uses the midpoint of an adjacent right-of-way or sidewalk as the analysis viewpoint. Based on these data, the model calculates the perceived skydome obstruction, and provides a graphic depicting the analysis conditions.

The model inputs used for the study presented herein were taken from a combination of the BPDA's City of Boston model data, an existing conditions survey, and schematic design plans prepared by the Project's architects. As described above, the BRADA software considers the relative reflectivity of building façades when calculating perceived daylight obstruction. Highly reflective materials are thought to reduce the perceived skydome obstruction when compared to non-reflective materials. For the purposes of this daylight analysis, the building façades are considered to be non-reflective, resulting in a conservative estimate of daylight obstruction.

4.2.2 Viewpoints

The following viewpoints were used for this daylight analysis:

- **Bremen Street**– This viewpoint is located on the centerline of the Project Site along Bremen Street.
- **Brooks Street** – This viewpoint is located on the centerline of the Project Site along Brooks Street.

These points represent existing and proposed building façades when viewed from the adjacent public way.

4.2.3 Daylight Analysis Results

Daylight Analysis - Existing / No-Build Conditions

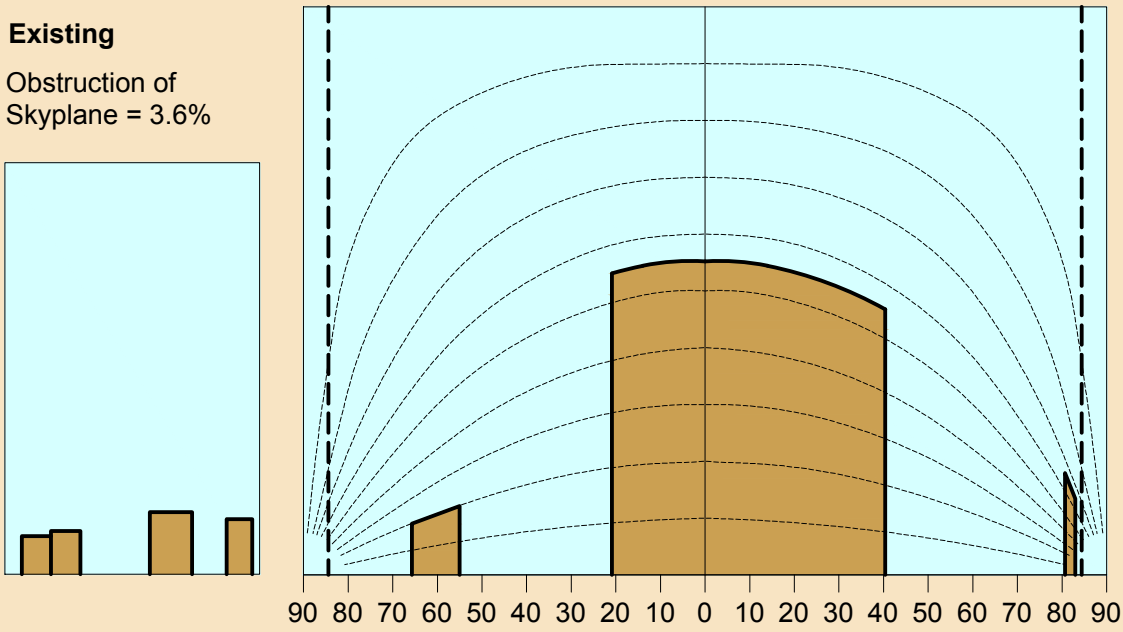
Under the Existing/No-Build Condition, the Project Site contains a mix of multi-family residential and commercial buildings up to three stories in height. As a result of the relatively low height and density of these structures, only three to four percent of daylight is obstructed when viewed from the adjacent public ways.

Daylight Analysis - Build Conditions

Under the Build Condition, there would be an increase in obstruction of the skydome to *66.2 percent* along Bremen Street, and *58.5 percent* along Brooks Street. This effect is to be expected when replacing the existing one to three story buildings with a new development of 5-6 stories.

Existing

Obstruction of
Skyplane = 3.6%



Proposed

Obstruction of
Skyplane = 66.2%

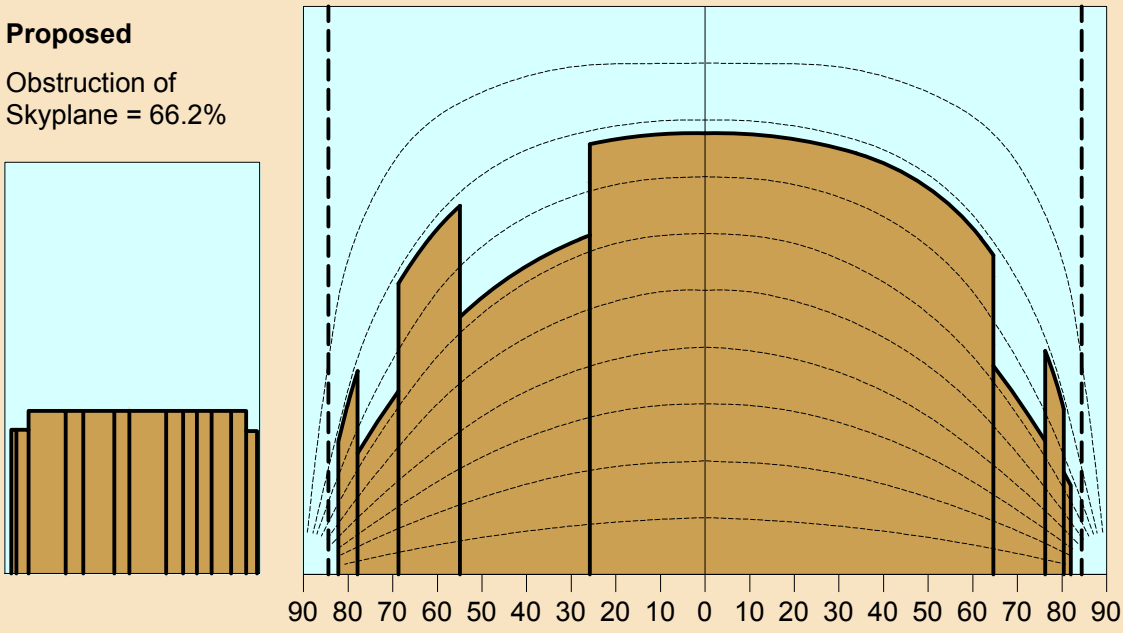


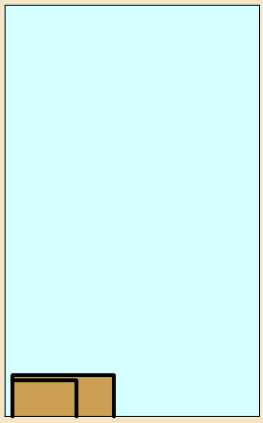
Figure 4.2-1

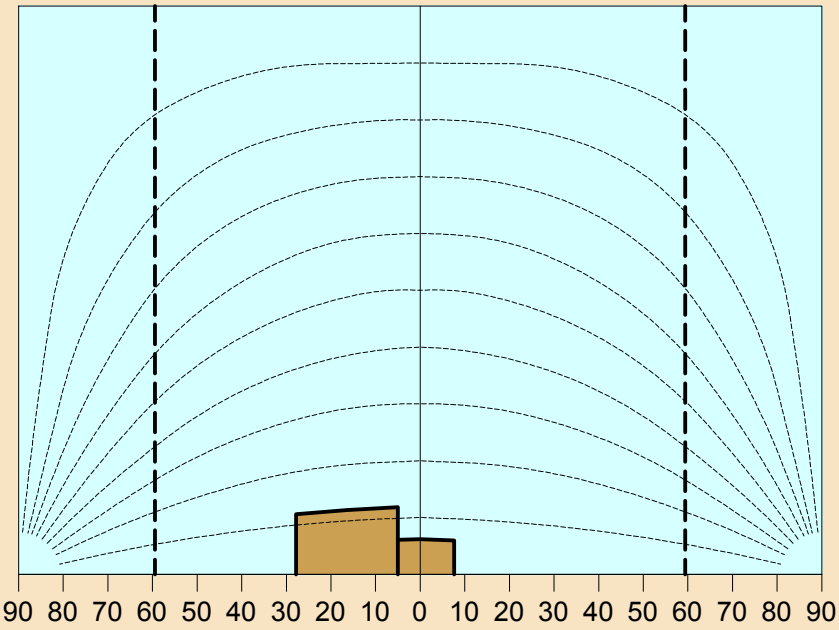
Daylight Analysis
Center of bremen Street

308 Bremen Street
East Boston, Massachusetts

Existing

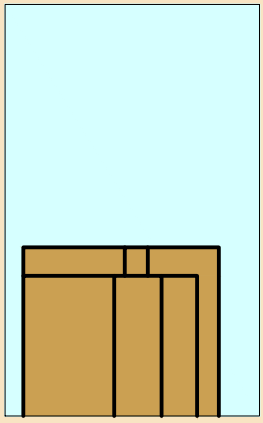
Obstruction of
Skyplane =3.0%





Proposed

Obstruction of
Skyplane = 58.5%



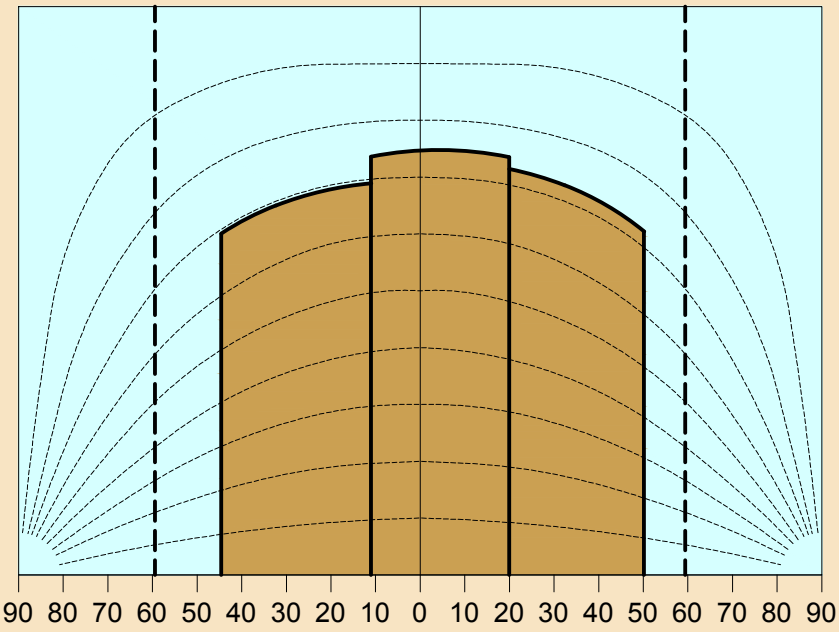


Figure 4.2-2

Centerline of Brooks Street
Daylight Analysis

308 Bremen Street
East Boston, Massachusetts

4.3 Air Quality

Tech Environmental, Inc. performed air quality analyses for the Proposed Project (the "Project") to be located at 282-308 Bremen Street, East Boston, MA. These analyses consisted of: 1) an evaluation of existing air quality; 2) an evaluation of potential carbon monoxide (CO) impacts from the operation of the Project's partially-enclosed parking garage, and 3) a microscale CO analysis for intersections in the Project area that meet the BPDA criteria for requiring such an analysis. The air quality analysis was originally presented in the PNF and is consistent with the design changes presented for this DPIR.

4.3.1 Existing Air Quality

The City of Boston is currently classified as being in attainment of the Massachusetts and National Ambient Air Quality Standards ("NAAQS") for all of the criteria air pollutants except ozone (see **Table 4.3-1**). These air quality standards have been established to protect the public health and welfare in ambient air, with a margin for safety.

The Massachusetts Department of Environmental Protection ("DEP") currently operates air monitors in various locations throughout the city. The closest, most representative, DEP monitors for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), coarse particulate matter (PM_{10}), lead, and ozone (O_3) are located at Harrison Avenue (Dudley Square). The closest, most representative, DEP monitor for fine particulate matter ($PM_{2.5}$) is located at North Street (North End).

Table 4.3-2 summarizes the DEP air monitoring data, for the most recent available, complete, three-year period (2015-2017), that are considered to be representative of the project area. **Table 4.3-2** shows that the existing air quality in the Project area is generally much better than the NAAQS. The highest impacts relative to a NAAQS are for ozone and $PM_{2.5}$. Ozone is a regional air pollutant on which the small amount of additional traffic generated by this Project will have an insignificant impact. The Project's operations will not have a significant impact on local $PM_{2.5}$ concentrations.

Table 4.3-1. Massachusetts and National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	NAAQS (µg/m^3)
SO_2	1-hour^P 24-hour^P Annual^P (Arithmetic Mean)	196[a] 365[b] 80
CO	1-hour^P 8-hour^P	40,000[b] 10,000[b]
NO_2	1-hour^P Annual$^{P/S}$ (Arithmetic Mean)	188[c] 100
PM_{10}	24-hour$^{P/S}$	150
$PM_{2.5}$	24-hour$^{P/S}$ Annual$^{P/S}$ (Arithmetic Mean)	35[d] 12[e,f]
O_3	8-hour$^{P/S}$	147[g]
Pb	Rolling 3-Month Avg.$^{P/S}$ Calendar Quarter$^{P/S}$ (Arithmetic Mean)	0.15 1.5

P = primary standard; S = secondary standard.
[a] 99th percentile 1-hour concentrations in a year (average over three years).
[b] One exceedance per year is allowed.
[c] 98th percentile 1-hour concentrations in a year (average over three years).
[d] 98th percentile 24-hour concentrations in a year (average over three years).
[e] Three-year average of annual arithmetic means.
[f] As of March 18, 2013, the U.S. EPA lowered the $PM_{2.5}$ annual standard from 15 ug/m^3 to 12 ug/m^3.
[g] Three-year average of the annual 4th-highest daily maximum 8-hour ozone concentration must not exceed 0.075 ppm (147 ug/m^3) (effective May 27, 2008) and the annual PM_{10} standard was revoked in 2006.

Table 4.3-2. Representative Existing Air Quality in the Project Area

Pollutant, Averaging Period	Monitor Location	Value ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Percent of NAAQS
CO, 1-hour	Harrison Avenue, Boston	2,758	40,000	7%
CO, 8-hour	Harrison Avenue, Boston	1,438	10,000	14%
NO_2, 1-hour	Harrison Avenue, Boston	92.8	188	49%
NO_2, Annual	Harrison Avenue, Boston	41.6	100	42%
Ozone, 8-hour	Harrison Avenue, Boston	120	137	87%
PM_{10}, 24-hour	Harrison Avenue, Boston	28	150	19%
$PM_{2.5}$, 24-hour	North Street, Boston	15.1	35	42%
$PM_{2.5}$, Annual	North Street, Boston	7.2	12	59%
Lead, Quarterly	Harrison Avenue, Boston	0.017	1.5	12%
SO_2, 1-hour	Harrison Avenue, Boston	15.8	197	8%

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

Notes:

(1) Annual averages are highest measured during the most recent three-year period for which data are available (2015 - 2017). Values for periods of 24-hours or less are highest, second-highest over the three-year period unless otherwise noted.

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

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

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

4.3.2 Impacts from Parking Garage

The Project includes a partially-enclosed parking garage designed to provide parking spaces for up to 61 stacker vehicle spaces. An analysis of the worst-case air quality impacts from the proposed parking garage was performed (see **Appendix B**). The procedures used for this analysis are consistent with U.S. EPA's Volume 9 guidance.[3] CO emissions from motor vehicles operating inside the garage were calculated and the CO concentrations surrounding the Project were determined based on morning and afternoon peak traffic periods.

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

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

Peak Garage Traffic Volumes

The peak morning and afternoon one-hour entering and exiting traffic volumes for the garage are shown in **Table 4.3-3**. The values are for vehicles entering and exiting the garage.

Table 4.3-3. Peak-Hour Garage Traffic Volumes

Period	Entering (vehicles/hour)	Exiting (vehicles/hour)	Total (vehicles/hour)
Morning Peak Hour	4	8	12
Afternoon Peak Hour	8	6	14

Source: Howard Stein Hudson

Motor Vehicle Emission Rates

The U.S. Environmental Protection Agency (EPA) MOVES2014b emission factor model was used to calculate single vehicle CO emissions rates, for a vehicle speed of 5 mph. The inputs to the MOVES2014b model followed the latest guidance from the Massachusetts Department of Environmental Protection (DEP) and were performed for the future traffic year of 2026. The CO emission rate calculated by MOVES2014b, for vehicles moving at 5 miles per hour (mph), was 3.045 grams per vehicle-mile for each entering and exiting vehicle. These emission rates apply to wintertime conditions when motor vehicle CO emissions are greatest due to cold temperatures. MOVES2014b model output is provided in the **Appendix B.**

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

Peak Ambient CO Concentration

Worst-case concentrations of CO from the parking garage were predicted for locations around the buildings using AERMOD model (Version 18081) in screening-mode. The results of the air quality analysis for locations outside and around the buildings are summarized in **Table 4.3-4**. The results in **Table 4.3-4** represent all outside locations on and near the Project Site, including nearby building air intakes and nearby residences. **Appendix B** contains the AERMOD model output.

The AERMOD model in screening-mode was used to predict the maximum concentration of CO by modeling the partially-enclosed parking garage emissions as a horizontal point source using worst-case meteorological conditions for an urban area. The screening-mode option simulates modeling results predicted by AERMOD. The predicted concentrations presented here represent the worst-case air quality impacts from the parking garage at all locations on and around the Project.

AERMOD predicted that the maximum one-hour CO concentration from the parking garage will be 0.034 ppm (39.36 $\mu g/m^3$). This concentration represents the maximum CO concentration at any location surrounding the Project. AERSCREEN guidance allows the maximum eight-hour CO impact to be conservatively estimated by multiplying the maximum one-hour impact by a factor of 0.9 (i.e. the eight-hour impact is 90% of the one-hour impact). The maximum predicted eight-hour CO concentration was determined to be approximately 0.031 ppm (0.034 ppm x 0.9).

The U.S. EPA has established National Ambient Air Quality Standards (NAAQS) to protect the public health and welfare in ambient air, with a margin for safety. The NAAQS for CO are 35 ppm for a one-hour average and 9 ppm for an eight-hour average. The Commonwealth of Massachusetts has established the same standards for CO. The CO background values of 2.4 ppm for a one-hour period and 1.3 ppm for an eight-hour period were added to the maximum predicted garage ambient impacts to represent the CO contribution from other, more distant, sources. With the background concentration added, the peak, total, one-hour and eight-hour CO impacts from the parking garage, at any location around the building, will be no larger than 2.43 ppm and 1.33 ppm, respectively. These maximum predicted total CO concentrations (garage exhaust impacts plus background) are safely in compliance with the NAAQS. This analysis demonstrates that the operation of the parking garage will not have an adverse impact on air quality.

Table 4.3-4. Peak Predicted Parking Garage Air Quality Impacts

Location	Peak Predicted One-Hour Impact (ppm)	One-Hour NAAQS (ppm)	Peak Predicted Eight-Hour Impact (ppm)	Eight-Hour NAAQS (ppm)
Outside – Surrounding the Building* (Parking Garage)	2.43**	35 (NAAQS)	1.33**	9 (NAAQS)

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

4.3.3 Microscale CO Analysis for Selected Intersections

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

A microscale air quality analysis was not performed for this Project due to three of the four intersections will not have a LOS D or lower in the Build (2026) Condition, except for the Chelsea Street/Putnam Street intersection. The No-Build 2026 Condition for this intersection was already at LOS D and the proposed project will not cause a 10% increase in traffic. Furthermore, the increase in vehicle delays is less than one second due to the proposed project. **Table 4.3-5** shows a comparison of the Existing (2019) and Build (2026) LOS at the four intersections.

Table 4.3-5. Summary of Build Case Level of Service

Intersection	Existing LOS (AM/PM)	Build LOS (AM/PM)	Requires Analysis?
Chelsea Street/Brooks Street - signalized	A/A	A/A	NO
Bremen Street/Brooks Street - unsignalized	B/B	B/B	NO
Bremen Street/Putnam Street - unsignalized	B/B	B/B	NO
Chelsea Street/Putnam Street - unsignalized	C/C	C/D	NO*

The LOS shown represents the overall delay at each intersection.
*Less than a 10% increase in traffic from the proposed project.

Source: Howard Stein Hudson

Conclusions

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

4.4 Noise Impacts

Tech Environmental, Inc., performed a noise study to determine whether the operation of the proposed Project will comply with the City of Boston Noise Regulations and the Massachusetts Department of Environmental Protection ("DEP") Noise Policy. The noise analysis was originally presented in the PNF and is consistent with the design changes presented for this DPIR.

4.4.1 Common Measures of Community Noise

The unit of sound pressure is the decibel (dB). The decibel scale is logarithmic to accommodate the wide range of sound intensities to which the human ear is subjected. A property of the decibel scale is that the sound pressure levels of two separate sounds are not directly additive. For example, if a sound of 70 dB is added to another sound of 70 dB, the total is only a 3-decibel increase (or 73 dB), not a doubling to 140 dB. Thus, every 3-dB increase represents a doubling of sound energy. For broadband sounds, a 3-dB change is the minimum change perceptible to the human ear. **Table 4.4-1** gives the perceived change in loudness of different changes in sound pressure levels.[4]

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

Table 4.4-1. Subjective Effects of Changes in Sound Pressure Levels

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

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

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

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

4.4.2 Noise Regulations

Commonwealth Noise Policy

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

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

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

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

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

Local Regulations

The City of Boston Environment Department regulates noise through the Regulations for the Control of Noise as administered by the Air Pollution Control Commission. The Project is located in an area consisting of commercial and residential uses. The Project will have low-rise residential uses to the north, east, and south. The Project must comply with Regulation 2.2 for noise levels in Residential Zoning Districts at these residential locations**. Table 4.4-3** lists the maximum allowable octave band and broadband sound pressure levels for residential and business districts. Daytime is defined by the City of Boston Noise Regulations as occurring between the hours of 7:00 a.m. and 6:00 p.m. daily except Sunday. Compliance with the most restrictive nighttime residential limits will ensure compliance for other land uses with equal or higher noise limits.

Table 4.4-2. Common Indoor and Outdoor Sound Levels

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

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

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

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

4.4.3 Pre-Construction Sound Level Measurements

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

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

Monitoring Location #1: 23 Brooks Street

Monitoring Location #2: 285 Chelsea Street

Monitoring Location #3: 294 Bremen Street

Broadband (dBA) and octave band sound level measurements were made with a Bruel and Kjaer (B&K) Model 2250 environmental sound level analyzer, at each monitoring location, for a duration of approximately thirty minutes. The full octave band frequency analysis was performed on the frequencies spanning 16 to 16,000 Hertz. A time-integrated statistical analysis of the data used to quantify the sound variation was also performed, including the calculation of the L_{90}, which is used to set the ambient background sound level.

The B&K model 2250 is equipped with a ½" precision condenser microphone and has an operating range of 5 dB to 140 dB and an overall frequency range of 3.5 Hz to 20,000 Hz. This meter meets or exceeds all requirements set forth in the ANSI S1.4-1983 Standards for Type 1 quality and accuracy and the State and City requirements for sound level instrumentation. Prior to any measurements, this sound analyzer was calibrated with an ANSI Type 1 calibrator that has an accuracy traceable to the National Institute of Standards and Technology (NIST). During all measurements, the B&K 2250 was tripod mounted at approximately five feet above the ground in open areas away from vertical reflecting surfaces.

The sound level monitoring was conducted early Friday morning, February 22, 2019. Weather conditions during the sound survey were conducive to accurate sound level monitoring: the temperature was 43ºF, the skies were partly cloudy, and the winds were 0 to 10 mph, from the northwest. The microphone of the sound level analyzer was fitted with a 7-inch windscreen to negate any effects of wind-generated noise.

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

The results of the nighttime baseline sound level measurements are presented in **Table 4.4-4**, and the complete measurement printouts are provided in **Appendix C**. The nighttime background L_{90} level was 42.5 dBA at Location #1, 49.0 dBA at Location #2, and 41.6 at Location #3. The octave band data in **Table 4.4-4** show that no pure tones were detected in the nighttime noise measurements.

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

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

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

Daytime sound level measurements were taken to help estimate the L_{dn} for the Project Site. A 30-minute sound level measurement was taken during the morning, on Wednesday, February 6, 2019

between 8:16 a.m. and 8:46 a.m. at 294 Bremen Street (the closest location to the project). The weather conditions during the sound survey were conducive to accurate sound level monitoring: the skies were clear, and the winds were approximately 0-5 mph. The microphone of the sound level analyzer was fitted with a 7-inch windscreen to negate any effects of wind-generated noise.

The daytime sound level measurements taken in the vicinity of the Project Site reveal sound levels that are typical for an urban area. The main sources of noise during the evening period sound level measurements were motor vehicle traffic on nearby local streets, public buses and pedestrians.

The L_{eq} measured during the morning period was 64.3 dBA at Bremen Street. The L_{eq} sound level measured during the nighttime at the same location was 61.8 dBA. Using both the daytime and nighttime L_{eq} sound levels, the calculated L_{dn} for the site is 68.6 dBA, which is slightly above the HUD guideline noise limit of 65 dBA primarily due to the traffic on Bremen Street and on the nearby highway.

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

Table 4.4-4. Nighttime Baseline Sound Level Measurements, February 22, 2019

Sound Level Measurement	(Location #1) 23 Brooks Street 12:00 a.m. - 12:30 a.m.	(Location #2) 285 Chelsea Street 12:35 a.m.- 1:05 a.m.	(Location #3) 294 Bremen Street 1:18 a.m. - 1:48 a.m.
Broadband (dBA)	57.7	62.2	57.9
Background (L_{90})	43.4	49.0	41.6
Octave Band L_{90} (dB)			
16 Hz	50.0	57.1	52.5
32 Hz	52.9	58.0	54.1
63 Hz	52.8	54.9	50.3
125 Hz	47.5	49.2	45.5
250 Hz	43.4	44.3	43.1
500 Hz	41.8	44.8	39.1
1000 Hz	38.6	45.8	36.6
2000 Hz	30.2	38.6	30.9
4000 Hz	19.4	24.4	23.3
8000 Hz	15.2	15.5	14.4
16000 Hz	10.8	11.4	11.0
Pure Tone?	No	No	No

4.4.4 Reference Data and Candidate Mitigation Measures

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

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

- One-Hundred and Sixty-Nine (169) Packaged HVAC Units

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

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

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

4.4.5 Calculated Future Sound Levels

Methodology

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

The Cadna-A computer program, a comprehensive 3-dimensional acoustical modeling software package was used to calculate Project generated sound propagation and attenuation.[5] The model is based on ISO 9613, an internationally recognized standard specifically developed to ensure the highly accurate calculation of environmental noise in an outdoor environment. ISO 9613 standard incorporates the propagation and attenuation of sound energy due to divergence with distance, surface and building reflections, air and ground absorption, and sound wave diffraction and shielding effects caused by barriers, buildings, and ground topography.

Receptors

The closest/worst-case sensitive (residential) location is to the west of the project area at 255 Chelsea Street. This location was selected based on the proximity of the equipment (smaller distances correspond to larger noise impacts) and the amount of shielding by the project (residences further from the project will experience less shielding from the Project's rooftop mechanical equipment, which may result in larger potential noise impacts from the Project). This location is expected to receive the largest sound level impacts from the Project's rooftop mechanical equipment. It can be classified as a residential zone.

The sound level impacts from the building's mechanical equipment were predicted at the closest residential location, as well as additional residential uses to the south (4 Brooks Street & 241 Chelsea Street), west (249 Chelsea Street, 261 Chelsea Street, 271 Chelsea Street & 277 Chelsea Street), and north (285 Chelsea Street & 310 Bremen Street), and at the Bremen Street Park to the east. Figure 2 in **Appendix C** shows the locations of the modeled noise receptors. Noise impacts at other nearby noise-sensitive locations (residences, parks, etc.) farther from the Project Site will be less than those predicted for these receptors.

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

4.4.6 Compliance with State and Local Noise Standards

The City of Boston and DEP noise standards apply to the operation of the mechanical equipment at the proposed Project. The details of the noise predictions are presented in **Tables 4.4-5** through **4.4-14**. The sound impact analysis includes the simultaneous operation of the Project's rooftop HVAC equipment. The predicted sound levels are worst-case predictions that represent all hours of the day, as the analysis assumes full operation of the mechanical equipment 24-hours a day. The typical sound level impacts from the mechanical equipment will likely be lower than what is presented here, since most of the mechanical equipment will operate at full-load only during certain times of the day and during the warmer months of the year, it is not likely that all of the mechanical equipment will operate at the same time. Sound level impacts at locations farther from the Project (e.g. other residences, etc.) will be lower than those presented in this report.

City of Boston Noise Standards

The noise impact analysis results, presented in **Tables 4.4-5** through **4.4-14**, reveal that the sound level impact at the upper floors of the closest residences will be between 37.4 and 46.1 dBA. The smallest sound level impact of 37.4 dBA is predicted to occur at 241 Chelsea Street. The largest sound level impact of 46.1 dBA is predicted to occur at 255 Chelsea Street. Noise impacts predicted at all locations are in compliance with the City of Boston's nighttime noise limit (50 dBA) for a residential area. Note that sound levels from the Project will be below the residential nighttime limits at all times. The results also demonstrate compliance with the City of Boston, residential, non-daytime, octave band noise limits at the closest locations.

The City of Boston noise limits for business areas are significantly higher than the nighttime noise limits for residential areas (see **Table 4.4-3**). The Project will also easily comply with the City of Boston business area noise limits at all surrounding commercial properties.

Massachusetts DEP Noise Regulations

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

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

As shown in **Tables 4.4-5** through **4.4-14**, the Project is predicted to produce a less than 5 dBA change in the background sound levels at all modeled locations. Therefore, the Project's worst-case

sound level impacts during the quietest nighttime periods will be in compliance with the Massachusetts DEP allowed noise increase of 10 dBA. The noise predictions for each octave band indicate that the mechanical equipment will not create a pure tone condition at any location.

Table 4.4-5. Estimated Future Sound Level Impacts – Anytime, 4 Brooks Street – Location R1

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	57
63 Hz	67	52
125 Hz	61	47
250 Hz	52	40
500 Hz	46	35
1000 Hz	40	30
2000 Hz	33	23
4000 Hz	28	15
8000 Hz	26	3
Broadband (dBA)	**50**	**38**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #3)	41.6
282-308 Bremen Street Project*	37.8
Calculated Combined Future Sound Level	43.1
Calculated Incremental Increase	+1.5
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-6. Estimated Future Sound Level Impacts – Anytime, 241 Chelsea Street – Location R2

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	58
63 Hz	67	53
125 Hz	61	47
250 Hz	52	40
500 Hz	46	34
1000 Hz	40	29
2000 Hz	33	23
4000 Hz	28	16
8000 Hz	26	5
Broadband (dBA)	**50**	**37**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	43.4
282-308 Bremen Street Project*	37.4
Calculated Combined Future Sound Level	44.4
Calculated Incremental Increase	+1.0
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-7. Estimated Future Sound Level Impacts – Anytime, 249 Chelsea Street – Location R3

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	60
63 Hz	67	57
125 Hz	61	53
250 Hz	52	47
500 Hz	46	43
1000 Hz	40	38
2000 Hz	33	30
4000 Hz	28	21
8000 Hz	26	7
Broadband (dBA)	**50**	**45**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	43.4
282-308 Bremen Street Project*	44.7
Calculated Combined Future Sound Level	47.1
Calculated Incremental Increase	+3.7
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-8. Estimated Future Sound Level Impacts – Anytime, 255 Chelsea Street (Closest/Worst Case Residence) – Location R4

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	62
63 Hz	67	58
125 Hz	61	54
250 Hz	52	48
500 Hz	46	45
1000 Hz	40	39
2000 Hz	33	32
4000 Hz	28	23
8000 Hz	26	10
Broadband (dBA)	**50**	**46**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	43.4
282-308 Bremen Street Project*	46.1
Calculated Combined Future Sound Level	48.0
Calculated Incremental Increase	+4.6
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-9. Estimated Future Sound Level Impacts – Anytime, 261 Chelsea Street – Location R5

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	61
63 Hz	67	57
125 Hz	61	53
250 Hz	52	48
500 Hz	46	44
1000 Hz	40	38
2000 Hz	33	31
4000 Hz	28	22
8000 Hz	26	9
Broadband (dBA)	**50**	**45**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #1)	43.4
282-308 Bremen Street Project*	45.3
Calculated Combined Future Sound Level	47.5
Calculated Incremental Increase	+4.1
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-10. Estimated Future Sound Level Impacts – Anytime, 271 Chelsea Street – Location R6

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	59
63 Hz	67	55
125 Hz	61	49
250 Hz	52	42
500 Hz	46	37
1000 Hz	40	32
2000 Hz	33	25
4000 Hz	28	18
8000 Hz	26	7
Broadband (dBA)	**50**	**40**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	49.0
282-308 Bremen Street Project*	39.6
Calculated Combined Future Sound Level	49.5
Calculated Incremental Increase	+0.5
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-11. Estimated Future Sound Level Impacts – Anytime, 277 Chelsea Street – Location R7

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	61
63 Hz	67	57
125 Hz	61	53
250 Hz	52	46
500 Hz	46	42
1000 Hz	40	36
2000 Hz	33	27
4000 Hz	28	19
8000 Hz	26	8
Broadband (dBA)	**50**	**44**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	49.0
282-308 Bremen Street Project*	43.7
Calculated Combined Future Sound Level	50.1
Calculated Incremental Increase	+1.1
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-12. Estimated Future Sound Level Impacts – Anytime, 285 Chelsea Street – Location R8

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	59
63 Hz	67	55
125 Hz	61	51
250 Hz	52	45
500 Hz	46	40
1000 Hz	40	35
2000 Hz	33	26
4000 Hz	28	17
8000 Hz	26	4
Broadband (dBA)	**50**	**42**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #2)	49.0
282-308 Bremen Street Project*	42.3
Calculated Combined Future Sound Level	49.8
Calculated Incremental Increase	+0.8
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-13. Estimated Future Sound Level Impacts – Anytime, 310 Bremen Street – Location R9

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	60
63 Hz	67	55
125 Hz	61	49
250 Hz	52	42
500 Hz	46	36
1000 Hz	40	30
2000 Hz	33	24
4000 Hz	28	17
8000 Hz	26	6
Broadband (dBA)	**50**	**39**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #3)	41.3
282-308 Bremen Street Project*	39.0
Calculated Combined Future Sound Level	43.5
Calculated Incremental Increase	+1.9
Compliance with DEP Noise Policy?	Yes

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

Table 4.4-14. Estimated Future Sound Level Impacts – Anytime, Bremen Street Park – Location R10

Octave Bands	Residential Nighttime Noise Standards	Maximum Predicted Sound Levels*
32 Hz	68	57
63 Hz	67	53
125 Hz	61	49
250 Hz	52	43
500 Hz	46	39
1000 Hz	40	33
2000 Hz	33	25
4000 Hz	28	15
8000 Hz	26	1
Broadband (dBA)	**50**	**40**
Compliance with the City of Boston Noise Regulation?		Yes

Sound Level Metric	Maximum Sound Levels* (dBA)
Existing Nighttime Background, L_{90} (Location #3)	41.6
282-308 Bremen Street Project*	40.4
Calculated Combined Future Sound Level	44.1
Calculated Incremental Increase	+2.5
Compliance with DEP Noise Policy?	Yes

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

4.4.7 Conclusions

Sound levels at all nearby sensitive locations and at all property lines will fully comply with the most stringent City of Boston and DEP daytime and nighttime sound level limits.

This acoustic analysis demonstrates that the Project's design will meet the applicable acoustic criteria.

4.5 Stormwater Management and Water Quality

The Proposed Project is expected to substantially improve the water quality (See **Section 6.5**) and will meet MassDEP stormwater standards and Boston Water and Sewer Commission (BWSC) Site Plan requirements. The existing combined sewer in Bremen Street appears to be of adequate capacity to service the needs of the Project. The Project will meet or reduce the existing peak rates of stormwater discharge and will improve the stormwater quality and reduce the quantity of stormwater runoff being discharged to the City storm drain system through the installation of on-site infiltration systems. Per BWSC requirements, the equivalent of 1.25-inch of rainfall over the sites' impervious areas will be stored and recharged.

In addition to the installation of on-site infiltration systems, stormwater runoff will be treated using deep sump hooded catch basins and manholes and, if necessary, stormwater quality treatment units to achieve the required pretreatment and reductions. A stormwater operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management systems.

4.6 Solid Waste

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

Upon completion of construction, the Project is estimated to generate approximately 203 tons of solid waste per year, based on the assumption that each of the 145 units will each generate approximately 1.4 tons per year. A significant portion of the waste will be recycled. The project will also include ambitious goals for construction waste management in order to meet the requirements for the LEED™ rating system. This strategy will divert demolition and construction waste by reusing and recycling materials.

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

4.7 Geotechnical/Groundwater Impacts Analysis

Northeast Geotechnical, Inc., the Project's geotechnical engineer, completed a "Preliminary Engineering Evaluation" (the "Report") for the Proposed Site on October 19, 2018. The existing site is currently occupied by existing buildings and pavement. The buildings will be raised to accommodate the project.

Based on the results of the two test borings performed at the project site, urban fill was encountered to depths of approximately 8-10 feet below grade overlaying apparent natural organic soils which were about 2-5+ feet thick. The organics were underlain by approximately 12-13 feet of natural sand with varying amounts of silt, which was then underlain by natural silty clay deposits in which the borings were terminated at a depth of about 47 +/-feet to 52 +/- feet below the ground surface. Groundwater was encountered in

both of the borings in the fill deposits at depths of approximately 3+/- feet to 5+/- feet below the existing ground surface.

The geotechnical engineer's preliminary opinion is that existing fill materials and buried organic soils are not suitable to support a new building structure at the site, with a suitable option suggested instead including constructing a rammed aggregate piers and replacement of suitable structural fill material. The installation of rammed aggregate piers would typically allow for conventional shallow spread footings and slab on grade construction. As an alternative, it is also suggested to support conventional spread footings and a slab on grade with rigid inclusions. Off-site structural fill will likely be required for backfilling because of the need to replace existing fill materials.

To the extent not provided in the DPIR an analysis of existing sub-soil conditions at the Project Site, groundwater levels, the potential for ground movement and settlement during excavation and foundation construction, and potential impact on adjacent buildings, utility lines, and the roadways shall be required. This analysis shall also include a description of the foundation construction methodology (e.g., pier pilings), the amount and method of excavation, and measures to prevent any adverse effects on adjacent buildings, utility lines, roadways, and the harbor. - Maintaining groundwater levels in the City is required. Consultation with the Boston Groundwater Trust ("BGWT") regarding potential groundwater impacts in areas influenced by tidal fluctuations is recommended. Measures to ensure that groundwater levels will be maintained and will not be lowered during, or after, construction shall be described. If on-going pumping is required, the metering of discharge must be conducted with oversight by the BWSC. Levels reported shall be based on Boston City Base ("BCB").

4.8 Construction Impact

The following section describes impacts likely to result from the 282-308 Bremen Street Proposed Project construction and the steps that will be taken to avoid or minimize environmental and transportation-related impacts. The Proponent will employ a construction manager that will be responsible for developing a construction phasing and staging plan and for coordinating construction activities with all appropriate regulatory agencies. The Project's geotechnical consultant will provide consulting services associated with foundation design recommendations, prepare geotechnical specifications, and review the construction contractor's proposed procedures.

4.8.1 Construction Management Plan

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

Proper pre-construction planning with the neighborhood will be essential to the successful construction of this Project. Construction methodologies that will ensure safety will be employed, and signage will include construction manager contact information with emergency contact numbers. The Proponent will also coordinate construction with other ongoing projects in the neighborhood.

4.8.2 Proposed Construction Program

Construction Activity Schedule

The construction period for the Proposed Project is expected to last approximately 20 months, beginning in the 3rd Quarter 2020 and reaching completion in the 2nd Quarter 2022. The City of Boston Noise and Work Ordinances will dictate the normal work hours, which will be from 7:00 AM to 6:00 PM, Monday through Friday.

Perimeter Protection/Public Safety

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

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

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

4.8.3 Construction Traffic Impacts

Construction Vehicle Routes

Estimated truck deliveries and routes are identified in at the end of this section. Specific truck routes will be established with BTD through the CMP. These established truck routes will prohibit travel on any residential side streets. Construction contracts will include clauses restricting truck travel to BTD requirements. Maps showing approved truck routes will be provided to all suppliers, contractors, and subcontractors. It is anticipated that all deliveries will be via Bremen Street directly to the site.

Construction Worker Parking

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

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

Pedestrian Traffic

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

4.8.4 Construction Environmental Impacts and Mitigation

Construction Air Quality

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

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

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

Construction Noise Impacts

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

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

4.8.5 Rodent Control

The City of Boston enforces the requirements established under Massachusetts State Sanitary Code, Chapter 11, 105 CMR 410.550. This policy establishes that the elimination of rodents is required for issuance of any building permits. During construction, rodent control service visits will be made by a certified rodent control firm to monitor the situation.

5.0 HISTORIC RESOURCES COMPONENT

5.1 Historic Resources Within the Project Site

The Proposed Project site is located in East Boston. The current site has for the most part been used for auto repair facilities and also is occupied by a multi-family building along Bremen Street.

An historical review completed in the Phase I Environmental Site Assessment, reported that as early as 1888, the southern half of the site was developed with several structures which included a carriage house and stables, with several residential buildings occupying the site by 1900. With the exception of the current remaining residential building all of the former residential buildings were razed by the early 1990's. Historical commercial use of the Site through the 1900's included junk shops, a cannery, a tin shop, burlap bag and lead warehouse, office space, a column and iron works and a carpenter. Gino's Auto Body has occupied the Site from the early 1950's, and the Site building currently occupied by Braz Motor has been used for auto repair since the early 1990's.

5.2 Historic Resources within the Vicinity of the Project Site

The historic resources within one-quarter-mile radius of the Proposed Project are summarized in **Table 5-1** below.

Table 5-1. Historic Resources in the Vicinity of the Project Site

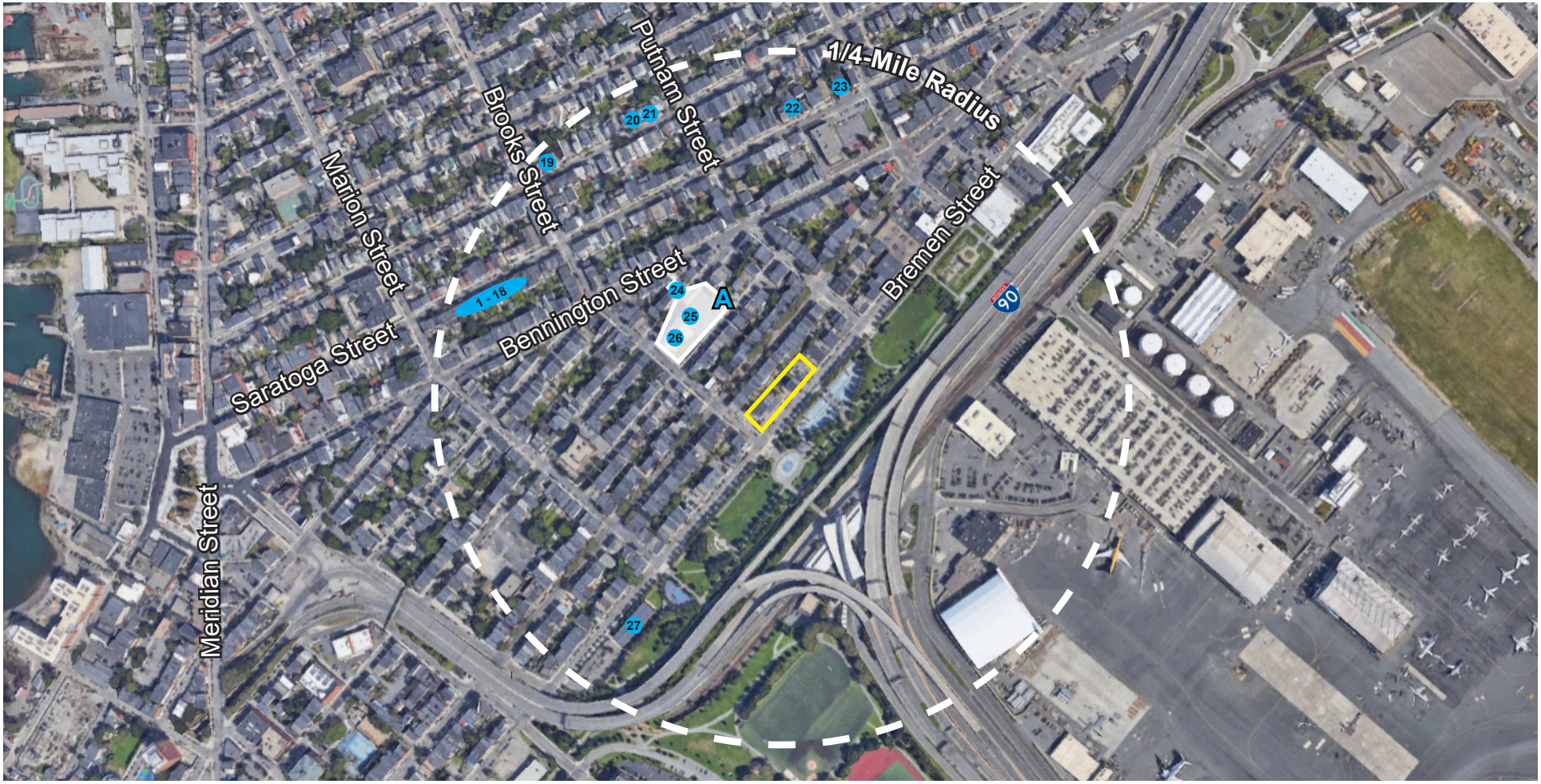
Key to Historic Resources in Figure 5-1	Historic Resource	Source of Listing
Properties Included the MA Inventory of Historical and Archaeological Assets		
1	113 Saratoga Street	MHC Inventory
2	Joseph H. Warren Row House	MHC Inventory
3	Oscar A. Gould Row House	MHC Inventory
4	Erastus O. Emery Row House	MHC Inventory
5	121 Saratoga Street	MHC Inventory
6	John Davis Row House	MHC Inventory
7	125 Saratoga Street	MHC Inventory
8	George W. Studley Row House	MHC Inventory

9	129 Saratoga Street	MHC Inventory
10	131 Saratoga Street	MHC Inventory
11	133 Saratoga Street	MHC Inventory
12	135 Saratoga Street	MHC Inventory
13	137 Saratoga Street	MHC Inventory
14	139 Saratoga Street	MHC Inventory
15	141 Saratoga Street	MHC Inventory
16	143 Saratoga Street	MHC Inventory
17	145 Saratoga Street	MHC Inventory
18	147 Saratoga Street	MHC Inventory
19	George W. Hargrave House	MHC Inventory
20	Catherine Sampson Double House	MHC Inventory
21	Benjamin Bates Double House	MHC Inventory
22	Saint John the Baptist Roman Catholic Church	MHC Inventory
23	East Boston Chemical Company #7 Fire House	MHC Inventory
24	Sacred Heart Roman Catholic Church Garage	MHC Inventory
25	Sacred Heart Roman Catholic Church Convent / Sacred Heart Roman Catholic	MHC Inventory
26	Sacred Heart Roman Catholic Church	MHC Inventory
27	Boston and Albany Railroad Engine House / Scolly Trucking and Warehouse	MHC Inventory

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

5.3 Archaeological Resources

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



282-308 Bremen Street

Inventoried Area

Inventoried Property

A- Sacred Heart Roman Catholic Church Complex
1. 113 Saratoga Street
2. Joseph H. Warren Row House
3. Oscar A. Gould Row House
4. Erastus O. Emery Row House
5. 121 Saratoga Street
6. John Davis Row House
7. 125 Saratoga Street
8. George W. Studley Row House
9. 129 Saratoga Street
10. 131 Saratoga Street
11. 133 Saratoga Street
12. 135 Saratoga Street
13. 137 Saratoga Street
14. 139 Saratoga Street
15. 141 Saratoga Street
16. 143 Saratoga Street
17. 145 Saratoga Street
18. 147 Saratoga Street
19. George W. Hargrave House
20. Catherine Sampson Double House
21. Benjamin Bates Double House
22. Saint John the Baptist Roman Catholic Church
23. East Boston Chemical Company #7 Fire House
24. Sacred Heart Roman Catholic Church Garage
25. Sacred Heart Roman Catholic Church Convent / Sacred Heart Roman Catholic Church Rectory
26. Sacred Heart Roman Catholic Church
27. Boston and Albany Railroad Engine House / Scolly Trucking and Warehouse

MLF CONSULTING LLC

Figure 5-1. 282-308 Bremen Street - Historic Resources

Historic Resources Component

6.0 INFRASTRUCTURE SYSTEMS COMPONENT

The Project includes the demolition of the existing commercial building site located at 282 Bremen Street, at the intersection of Brooks Street. The existing site includes two auto repair businesses, a small 4-unit multifamily residence, and paved parking along the side and front of the structures along Bremen Street. The Proposed Project will be comprised of the construction of a 4-5 story apartment complex with parking within the ground floor structure.

Based on an analysis completed by Sherwood Consulting & Design LLC, the Project's civil engineer, the existing infrastructure surrounding the Project Site appears sufficient to service the needs of the Proposed Project. The following sections describe the existing sanitary sewer, water, storm drainage, electrical, steam, gas, telecom, and cable systems surrounding the sites and explain how these systems will service the development. The analysis also discusses any anticipated Project-related impacts to the utilities and identifies mitigation measures to address these potential impacts.

A detailed infrastructure analysis will be performed by the civil engineer when the Project proceeds to the Design Development Phase. The Project's team will coordinate with the appropriate utilities to address the capacity of the area utilities to provide services for the new building. Outreach to the Boston Water and Sewer Commission (BWSC) will be initiated prior to requested action(s) from the Public Improvements Commission. A BWSC Site Plan Approval and General Service Application are required for the new water, sanitary sewer, and storm drain connections.

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

Please also note that the SMART Utilities Checklist has also been submitted again in **Appendix H.**

6.1 Sanitary Sewer System

6.1.1 Existing Sewer System

Existing Boston Water and Sewer Commission (BWSC) combined sewer mains are located in Brooks Street and Bremen Street adjacent to the Project site.

Bremen Street

There is a 12-inch BWSC combined sewer main in Bremen Street which flows southwesterly connecting to the 36-inch by 54-inch BWSC combined sewer main at the intersection of Brooks Street which ultimately flows to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

Brooks Street

There is a 36-inch by 54-inch BWSC combined sewer in Brooks Street which flows in a southeasterly direction and then continues in a southwesterly direction in Bremen Street which ultimately flows to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

The existing sewer system is illustrated in **Figure 6-1.**

The Proponent will work with BWSC to determine where existing building sewer connections are located at the 282, 294 and 308 Bremen Street site so they can be cut and capped at the main. Illicit roof drain connections will be removed.

6.1.2 Project-Generated Sewage Flow

The Project's sanitary flows were estimated using 310 CMR 15.203 for residential and retail uses. 310 CMR 15.203 lists typical sewage generation values by the site use and are conservative values for estimating the sewage flows from the sites. The 310 CMR 15.203 values are used to evaluate new sewage flows, or to estimate existing sewer flows to determine the approximate increase or decrease in sewer flows due to the Project.

The existing sanitary flows generated is estimated to be 1,030 gpd. The Proposed Project will generate an estimated 18,130 gallons per day (gpd) based on design sewer flows provided in 310 CMR 15.203-The State Environmental Code, Title 5 and the proposed building program**. Table 6-1** describes the increased sewage generation in gallons per day (gpd) due to the Project.

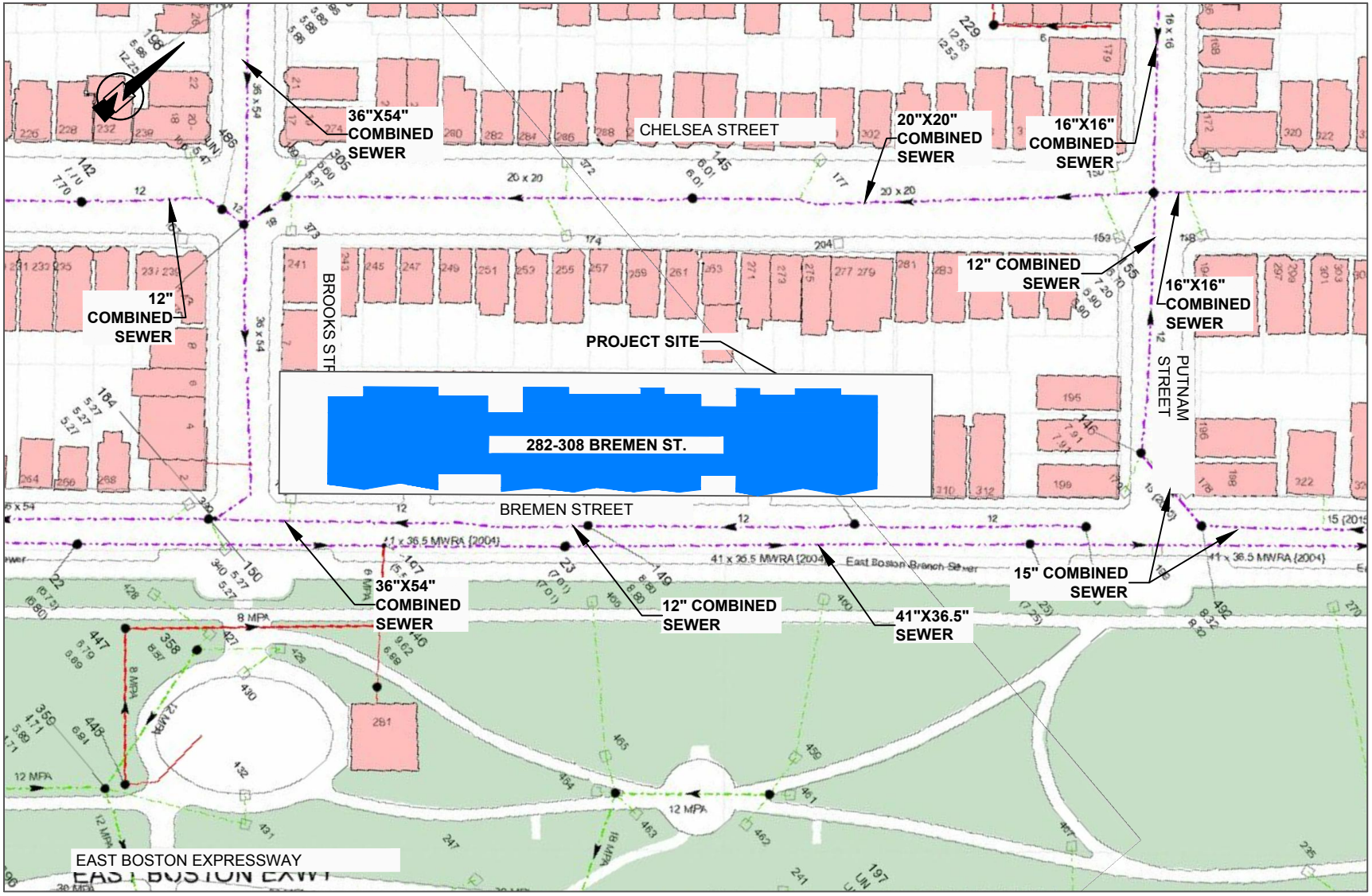


FIGURE 6-1
BWSC SEWER AND DRAIN SYSTEM MAP
SCALE: 1"=100'±

MLF CONSULTING LLC

Sherwood Consulting & Design, LLC
26 Smith Place, Suite 2
Cambridge, MA
(617) 945-0940 www.sherwoodcd.com

Table 6-1. Projected Sanitary Sewer Flows

Use	Size/Unit	310 CMR Value (gpd/unit)	Total Flow (gpd)
Existing Commercial and Residential Buildings and Parking Lot (282, 294, and 308 Bremen Street)			
Commercial Buildings (Two Auto Body/Repair Shops)	10 people	15 gpd/person	**150**
Multi-Family Residence	8 bedrooms	110/bedroom	**880**
		Total Existing Sewer Flow (gpd)	**1,030 gpd**
Proposed Residential Project (using 310 CMR values)			
Rental Housing Units	163 bedrooms	110/bedroom	**17,930 gpd**
Retail*	3,200 sq.ft.	50 gpd/1000 sq. ft.	**200**
		Total Proposed Sewer Flows (gpd)	**18,130 gpd**
		Net Increase in Sewer Flows (gpd)	**17,100 gpd**

* Minimum allowed GDP for system design for retail use is 200 gpd.

6.1.3 Sanitary Sewage Connection

The proposed building will require a new sanitary sewer connection to the BWSC sewer system. Connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process for the Project. This process will include a comprehensive design review of the proposed service connections, an assessment of Project demands and system capacity, and the establishment of service accounts. Coordination with BWSC will include review and approval of the design, capacity, connections, and flow increase resulting from the proposed discharges to the sanitary sewer system. In total, the complete Project sewer generation is expected to increase wastewater flows by approximately 17,100 gpd.

It is anticipated that the proposed building sanitary services will tie into the 12-inch combined sewer main in Bremen Street. Any required parking garage floor drains will be routed through an oil and sand trap in accordance with the BWSC's Requirements for Site Plans and plumbing code requirements, prior to discharge to the BWSC sanitary sewer system.

The Proponent will submit a Site Plan to the BWSC for review and approval, and an MWRA sewer connection permit if applicable. Based on the proposed estimated sanitary flow, which is greater

than 15,000 gpd, BWSC will require the removal of infiltration/inflow (I/I) at a minimum ratio minimum 4:1 ratio of I/I removed to wastewater generated.

6.1.4 Sewer System Mitigation

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

6.1.5 Sewage Capacity and Impacts

The adjacent existing BWSC sewer system in Brooks Street, Bremen Street, and potential building service connections to the sewer system were analyzed. The existing sewer system capacity calculations are presented in **Table 6-2**.

Table 6-2 indicates the hydraulic capacity of the existing 36-inch by 54-inch BWSC combined sewer in Brooks Street and the 12-inch BWSC combined sewer and 36-inch by 54-inch BWSC combined sewer main in Bremen Street. The minimum hydraulic capacity is 19.15 million gallons per day (MGD) or 29.65 cubic feet per second (cfs) for the 36-inch by 54-inch BWSC combined sewer main in Brooks Street and the 36-inch by 54-inch BWSC combined sewer that flows southwesterly from the site; and 1.0 million gallons per day (MGD) or 1.54 cubic feet per second (cfs) for the 12-inch BWSC combined sewer main in Bremen Street.

Based on an average daily flow estimate for the Project of 18,130 gpd or 0.02 MGD, which is an increase of 17,100 gpd or 0.02 MGD from the existing buildings; and with a factor of safety estimate of 10 (total estimate = 0.02 MGD x 10 = 0.20 MGD); pending BWSC review, no capacity issues are expected within the Project area BWSC sewer systems. The only other properties that are connected to the 12-inch combined sewer are 3 multifamily residences with a total of 20 bedrooms. These 3 residences have an average daily flow of 2,200 gpd or 0.002 MGD; and with a factor of safety estimate of 10 will generate a total estimate = 0.002 MGD x 10 = 0.02 MGD. The total average flow in the 12-inch combined sewer with a factor of safety of 10 is 0.22 MGD.

Table 6-2. Sewer Hydraulic Capacity Analysis

Manhole (BWSC Number)	Distance (feet)	Invert Elevation (up)	Invert Elevation (down)	Slope (%)	Diameter (inches)	Manning's Number	Flow Capacity (cfs)	Flow Capacity (MGD)
Brooks Street								
143 to 150	280	5.47	5.27	0.07%	36 x 54	0.013	29.65	19.15
Minimum Flow Analyzed:							29.65	19.15
Bremen Street								
147 to 149	320	10.10	9.50	0.19%	12	0.013	1.54	1.0
150 to 151	366	5.27	5.00	0.07%	36 x 54	0.013	29.65	19.15
Minimum Flow Analyzed:							1.54	1.0

Notes: 1. Manhole numbers taken from BWSC Sewer System Map
2. Flow Calculations based on Manning's Equation

6.2 Water System

6.2.1 Existing Water Service

Water for the Project will be provided by the BWSC. There are five water systems within the City, and these provide service to portions of the City based on ground surface elevation. The five systems are southern low (commonly known as low service), southern high (commonly known as high service), southern extra high, northern low, and northern high. Water mains are labeled by their pipe size, year installed, pipe material, and year cement lined (CL), if applicable. There are existing BWSC water mains in Bremen Street and Brooks Street.

The water mains in the vicinity of the Project are owned and maintained by BWSC. BWSC record drawings indicate there is a 12-inch Class 56 DICL Northern Low Main installed in 2015 in Bremen Street. There is a 12-inch PCI Northern Low Main installed in 1902 in Brooks Street.

The existing BWSC water system is shown in **Figure 6-2**.

The site is within the service radius of four (4) hydrants. There is a hydrant (H108) on the north side of Bremen Street at the intersection of Brooks Street, a second hydrant (H128) at 294 Bremen Street, a third hydrant (H130) on the north side of Bremen Street at the intersection of Putnam Street and a forth hydrant (H132) on the south side of Chelsea Street at the intersection of Brooks Street north of the project site. The Proponent will confirm that the hydrants are sufficient for the development with BWSC and the Boston Fire Department (BFD) during the detailed design phase.

6.2.2 Anticipated Water Consumption

The Project's water demand estimate for domestic services is based on the Project's estimated sewage generation, described above. A conservative factor of 1.1 (10%) is applied to the estimated

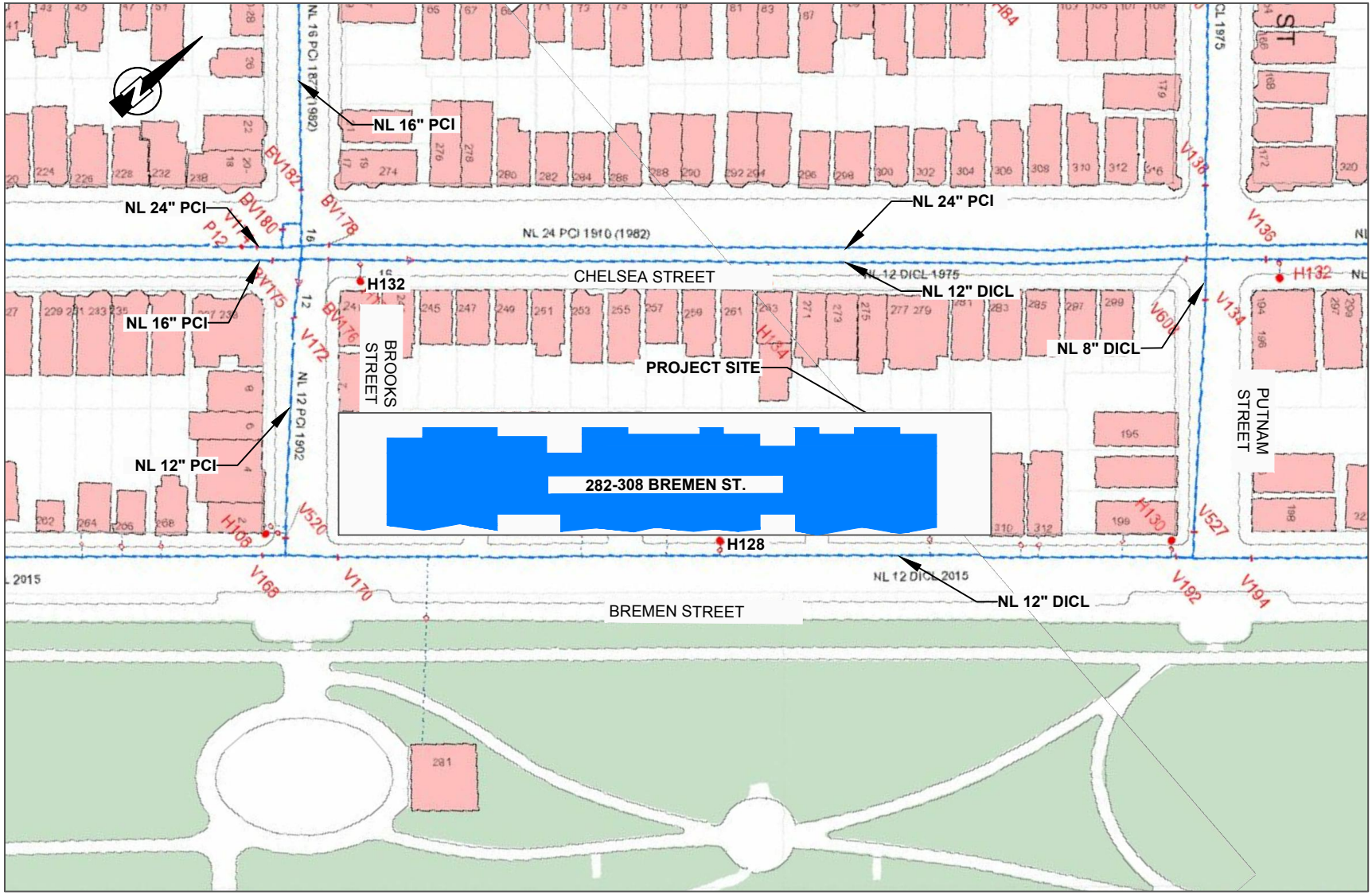


FIGURE 6-2
BWSC WATER SYSTEM MAP
SCALE: 1"=100'±

average daily wastewater flows calculated with 310 CMR 15.203 values to account for consumption, system losses and other usages to estimate an average daily water demand. The Project's estimated total domestic water demand is 19,943 gpd. Water for the Project will be supplied by the BWSC water system in Bremen or Brooks Street.

6.2.3 Proposed Water Service

Domestic water and fire protection services for the Project will be directly tapped from the 12-inch water main in Bremen Street or Brooks Street. The water supply systems servicing the building will be gated so as to minimize public hazard or inconvenience in the event of a water main break. The building will require domestic water and fire protection services. Final locations and sizes of the services will be determined during the detailed design phase and submitted to BWSC for review and approval through the Site Plan Approval process.

Water service to the building will be metered in accordance with BWSC's requirements. The property owner will provide a suitable location for a Meter Transmission Unit (MTU) as part of BWSC's Automatic Meter Reading System. A backflow preventer will be installed on the fire protection service and will be coordinated with BWSC's Cross Connection Control Department. This review will include sizing of domestic water and fire protection services, calculation of meter sizing, backflow prevention design, and location of hydrants and siamese connections that conform to BWSC and Boston Fire Department requirements.

6.3 Water Supply System Mitigation

As discussed in the Sewer System Mitigation Section, water conservation measures such as the use of water-efficient toilets, low-flow lavatory faucets, and aerated showerheads in compliance with pertinent Code requirements are being considered to reduce potable water usage. Water usage for landscape irrigation will be reduced by the selection of native and adaptive plantings and using soil moisture sensors as part of the irrigation system.

6.4 Storm Drainage System

6.4.1 Existing Drainage Conditions

There are existing BWSC combined sewer mains in Bremen Street and Brooks Street adjacent to the Project site, as previously described in **Section 6.1.1**. The existing combined sewer mains in Brooks Street and Bremen Street ultimately flows to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

Bremen Street

There is a 12-inch BWSC combined sewer main in Bremen Street which flows southwesterly connecting to the 36-inch by 54-inch BWSC combined sewer main which ultimately flows to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

Brooks Street

There is a 36-inch by 54-inch BWSC combined sewer in Brooks Street which flows in a southeasterly direction and then continues in a southwesterly direction in Bremen Street which ultimately flows to the MWRA Deer Island Waste Water Treatment Plant for treatment and disposal.

The existing site at 282 Bremen Street contains 2 commercial buildings, a multifamily residence, broken bituminous asphalt with limited planting areas and grass. Stormwater runoff from the paved area flows overland untreated to the adjacent catch basins in Bremen Street. Stormwater collected from the existing building roof flows overland to the adjacent catch basin in Bremen Street. Stormwater in the roadways is captured by existing catch basins, which flow to the existing BWSC combined sewer mains in Bremen Street.

The existing BWSC storm drain system is shown in **Figure 6-1**.

6.4.2 Proposed Drainage Systems

The Project is expected to substantially improve the stormwater quality runoff from the sites and will meet the Mass DEP and Boston Water and Sewer Commission (BWSC) Site Plan requirements. The existing combined sewer in Bremen Street and Brooks Street appears to be of adequate capacity to service the needs of the Project. The Project will meet or reduce the existing peak rates of stormwater discharge and will improve the stormwater quality and reduce the quantity of stormwater runoff being discharged to City storm drain system through the installation of on-site infiltration systems. Per BWSC requirements, the equivalent of 1.25-inch of rainfall over the sites' impervious areas will be stored and recharged. The stormwater infiltration system is shown in **Figure 6-3**. Conceptual Utility Plan, however, the exact location and methodology for infiltration will be determined during the design development phase of the project.

In addition to the installation of on-site infiltration systems, stormwater runoff will be treated using deep sump hooded catch basins and manholes and, if necessary, stormwater quality treatment units to achieve the required pretreatment and reductions. A stormwater operation and maintenance plan will be developed to support the long-term functionality of the proposed stormwater management systems.

6.5 Stormwater Quality

The Project will improve the quality of stormwater leaving the sites through the installation of onsite infiltration systems and therefore is not expected to have negative impacts on the water quality of the nearby water bodies. Erosion and sediment controls will be used during construction to protect adjacent properties and the municipal storm drain system. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

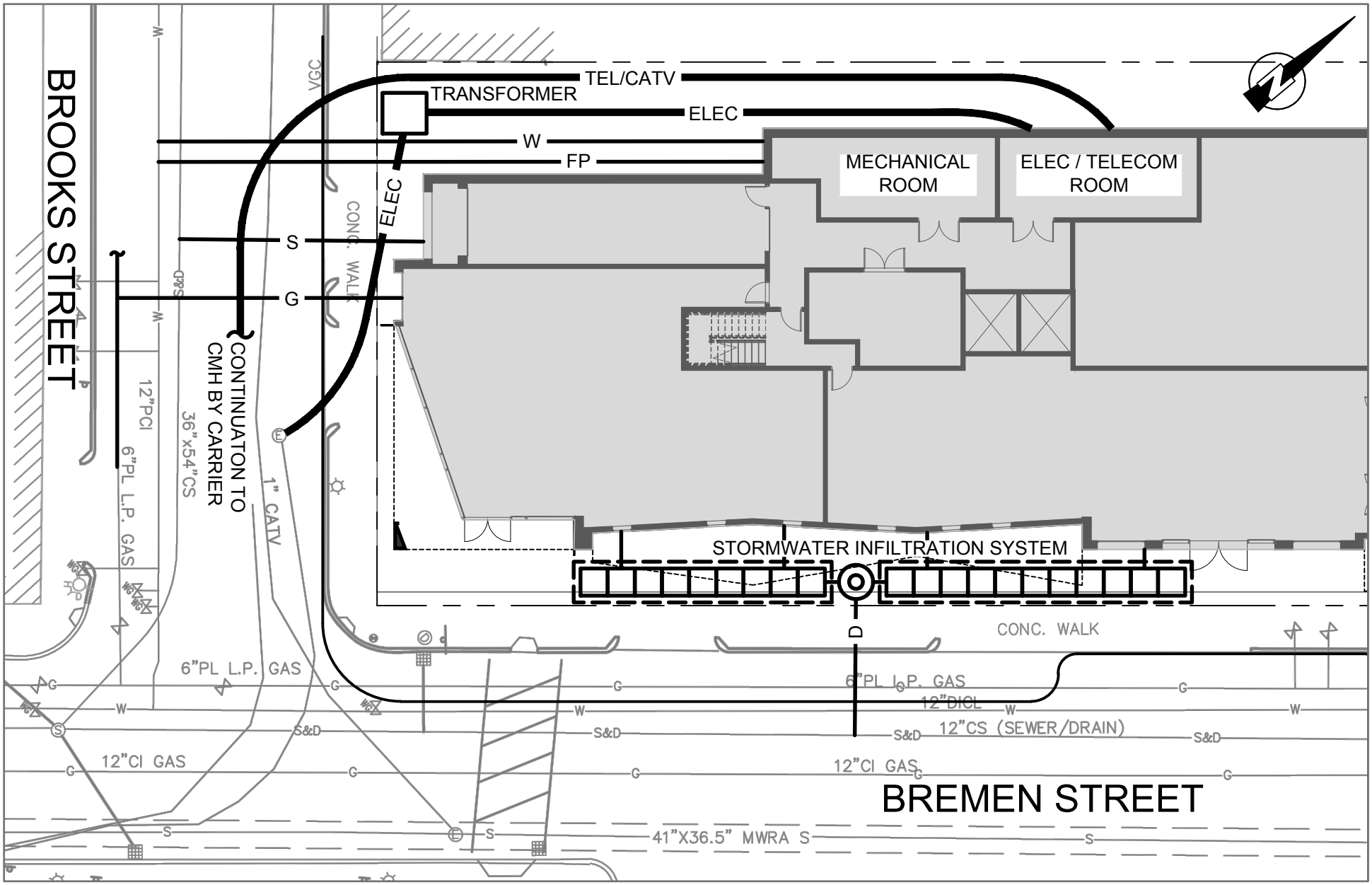


FIGURE 6-3
CONCEPTUAL UTILITY PLAN

MLF CONSULTING LLC

Sherwood Consulting & Design, LLC
26 Smith Place, Suite 2
Cambridge, MA
(617) 945-0940
www.sherwoodcd.com

Necessary dewatering will be conducted in accordance with applicable Federal, State, and BWSC discharge permits. Once construction is complete, the Proposed Project will be in compliance with BWSC Site Plan requirements.

6.5.1 MassDEP Stormwater Management Policy Standards

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

A brief explanation of each Policy Standard and the system compliance is provided below.

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

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

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

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

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

Compliance: The Project will comply with this Standard since BWSC requirements exceed this.

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

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

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

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

Compliance: The Project will comply with this Standard. Within the Project's limit of work, there will be mostly building roof, paved sidewalk, and roadway areas. Runoff from paved areas that would contribute unwanted sediments or pollutants to the existing storm drain system will be collected by deep sump hooded catch basins, and conveyed through stormwater quality units before discharging into the BWSC system.

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

Compliance: The proposed design will comply with this Standard. The Project is not associated with Higher Potential Pollutant Loads (per the Policy, Volume I, page 1-6).

Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply, and stormwater discharges near or to any other critical area, require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook. A discharge is near a critical area if there is a strong likelihood of a significant impact occurring to said area, taking into account site-specific factors. Stormwater discharges to Outstanding Resource Waters and Special Resource Waters shall be removed and set back from the receiving water or wetland and receive the highest and best practical method of treatment. A "storm water discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

Compliance: The Project will comply with this Standard. The Project will not discharge untreated stormwater to a sensitive area or any other area.

Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

Compliance: The Project will meet this Standard. The Project is a redevelopment.

Standard 8: A plan to control construction-related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

Compliance: The Project will comply with this Standard. Sedimentation and erosion controls will be incorporated as part of the design of this Project and employed during construction.

Standard 9: A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

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

Standard 10: All illicit discharges to the stormwater management system are prohibited.

Compliance: The Project will comply with this Standard. There will be no illicit connections associated with the Proposed Project.

6.6 Electric Systems

Eversource owns and maintains the electrical transmission system in the vicinity of the Proposed Project. There is existing underground service in Brooks Street and overhead service from utility poles on the south side of Bremen Street. It is expected that electrical service can be provided by Eversource. Electric power supply design and any upgrades that may be required, will be further coordinated with Eversource as the design for each phase progresses. The Proponent will investigate energy conservation measures, including high-efficiency lighting.

6.7 Telephone and Cable Systems

Verizon, Comcast, and RCN provide overhead telecommunication service in the Project area from utility poles on the south side of Bremen Street. It is anticipated that telephone service can be provided by any of

the providers. Any upgrades will be coordinated with the providers. Telephone and telecommunication systems will be reviewed with the providers as the design progresses.

6.8 Steam and Gas Systems

The Proposed Project will not require steam service and there is no steam infrastructure in the Project area.

National Grid provides natural gas in the Project area. National Grid owns and maintains a 6-inch main in Bremen Street and Brooks Street. It is expected that there is an adequate supply of natural gas in the area for the proposed building use. The actual size and location of the building services will be coordinated with National Grid.

6.9 Utility Protection During Construction

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

6.10 Response to Boston Smart Utilities Checklist

The proposed project is required to file information under "Green Infrastructure" for projects greater than 100,000 SF. Information is provided in **Appendix H** "Proponent's Response to the Boston Smart Utilities Checklist", and includes a graphic figure that shows the extent of pervious and impervious areas based on the architect's conceptual design plans contained in the DPIR. Please also note that cross-sections and profiles for all utility infrastructure in the proposed development area will be developed in the design development phase.

With regard to "Adoption of signal technology", based on expected low vehicle project traffic impact, we are not at this time expecting that new traffic signals will be stipulated as mitigation in the Transportation Access Plan Agreement (TAPA) by BTD. If so, the Proponent will detail its response to BTD in the TAPA.

With regard to "Smart Street Lights", the Project has as yet to retain a MEP to outline specifics requested by the guidelines. Please See **Figure 6-3.** Conceptual Utility Plan.

6.11 Response to Boston PWD Comments (Appendix A)

Comment: The Developer shall work with PWD and the Boston Water and Sewer Commission (BWSC) to determine appropriate methods of green infrastructure and/or stormwater management systems within the Public ROW.

Response: As part of the BWSC site plan application process, the proponent will consider appropriate methods of green infrastructure and/or stormwater management systems within the Public ROW.

6.12 Response to BWSC Comments (Appendix A)

6.12.1 General Information Responses

The Proponent will meet with the Commission's Design and Engineering Customer Services prior to detailed design to review water main, sewer and storm drainage system availability and potential upgrades that could impact the development.

The final site utility plans will show utilities to be cut and capped. The Cut and Cap General Services Application will be pursued by the utility contractor.

The Project does not anticipate the need for new or relocated utility mains. Attached is a preliminary site utility sketch with locations of service connections to the BWSC systems. The proponent will review detailed design with BWSC prior to site plan submission. The new service connections will be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use Regulations, and Requirements for Site Plans.

The Proponent will submit a Site Plan to the BWSC for review and approval, and will submit n MWRA sewer connection permit, if applicable. Based on the proposed estimated sanitary flow, which is greater than 15,000 gpd, the proponent will assist in I/I reduction efforts at a minimum ratio of 4:1 for I/I removal to new wastewater flow added.

The Project Landscape Architect and Civil Engineer will comply with the Complete Streets Initiative as it relates to stormwater management, where practicable on site.

The Project will not construct the building over any of the BWSC water or sewer facilities. The Proponent has performed a preliminary capacity analysis on the water and sewer systems as described in the DPIR submission. A detailed capacity analysis will be submitted with the site plan for water, sewer and storm drain systems serving the project site and an analysis of impacts of the proposed project on the BWSC's water, sewer and storm drainage systems.

6.12.2 Water Responses

The Proponent will work with the design team members to provide with the site plan, separate estimates of peak and continuous maximum water demand for residential, commercial, irrigation of landscaped areas and air-conditioning make-up water. Estimates will be based on full-site build-out of the proposed project. To help conserve water and reduce the amount of sewage generated by the Proposed Project, the Proponent will investigate the use of water-efficient toilets, aerated shower-heads, and low-flow lavatory faucets, in compliance with pertinent Code requirements to reduce water usage and sewage generation. The Proponent will also explore opportunities to implement water conservation measures with minimal use of water for outdoor landscaping through the use of native and drought-resistant species, timers, soil moisture indicators and rainfall sensors for installed in-ground sprinkler systems.

The Proponent will obtain a Hydrant permit for use of any hydrant during the construction phase of the project.

The Proponent will work with BWSC to install the new water meters that use a Fixed Radio Meter Reading System and meet all BWSC requirements.

6.12.3 Sewerage / Drainage Responses

The Proponent will investigate methods for retaining stormwater on-site and how storm drainage from roof drains will be handled. The site plan submission will include a phosphorous reduction plan for the proposed development. The site plan submission, as appropriate, will also include a stormwater pollution prevention plan that:

- Identifies best management practices for controlling erosion and for preventing discharge of sediment and contaminated groundwater to the BWSC drainage system when construction is underway;
- Include a site map that shows existing drainage patterns and areas used for storage and treatment of contaminated soils, groundwater or stormwater and the location of major control or treatment structures to be used during construction; and
- Provide a stormwater plan in compliance with MassDEP standards. The plan will also include a description of measures to control pollutants after construction is completed.

The Project does not propose any exterior drives or surface parking. The Proponent will explore opportunities for protecting stormwater quality on site by minimizing sanding and the use of deicing chemicals, pesticides and fertilizer.

The Project will determine if the project will apply for a Drainage Discharge Permit from BWSC for the discharge of any construction dewatering if no other alternative is available.

The Proponent will investigate methods for retaining stormwater on-site and how roof drainage will be handled. Since the Proposed Project is above 100,000 square feet, the Project will retain a

volume of run-off equal to 1.25 inches of rainfall times the impervious area. No stormwater from the project site will discharge to a sanitary sewer.

The Project will meet the MassDEP Stormwater Management Standards in addition to the Commissions standards.

The Project will provide separate stormwater and sanitary sewer service connections to the BWSC system and perform the required dye testing.

Grease traps will be installed in accordance with the Commission's Sewer Use Regulations, if a cafeteria or food service is included in the project.

The Project will install a permanent casting stating "Don't Dump: Drains to Boston Harbor" next to any catch basin created or modified as part of this project.

The enclosed floors of the parking garage will drain through a standard sand/oil/gas trap prior to discharge to the sewer system in accordance with the Commission's Sewer Use Regulations.

7.0 TRANSPORTATION COMPONENT

7.1 Introduction

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the proposed redevelopment to be located at 282-308 Bremen Street (the "Project" and/or "Site"), in the East Boston neighborhood of Boston, Massachusetts. The transportation study contained in the Project Notification Form (PNF) submitted on May 8, 2019 adhered to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and BPDA Article 80 Large Project Review process. The transportation study prepared for the PNF, is still an accurate depiction of the impact of the Project. This DPIR transportation study includes further information and analysis based on comments that have been received during the permitting process, most notably analysis of additional intersections.

7.2 Project Description

The Project site is bounded by Chelsea Street to the west, Putnam Street to the north, and Brooks Street to the south. The Bremen Street Park is across the street from the Project site which provides access to the East Boston Greenway path as well as the Blue Line Airport MBTA Station. Two auto body/auto repair shops are currently located on the Project site in addition to a small 4-unit multifamily residential building.

The Project will include the demolition of the existing structures and construction of a new residential building with approximately 145 residential units and ground floor retail space. Parking for residents will be provided for up to 61 vehicles.

7.3 Study Area

As requested, the transportation study area was revised based on comments that were received. In addition to the four intersections that were previously studied, the intersections of Bennington Street/Brooks Street and Bennington Street/Putnam Street were added. The complete study area of all six intersections are shown in **Figure 7-1.**

7.4 Existing (2019) Condition

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

7.4.1 Existing Intersection Condition

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

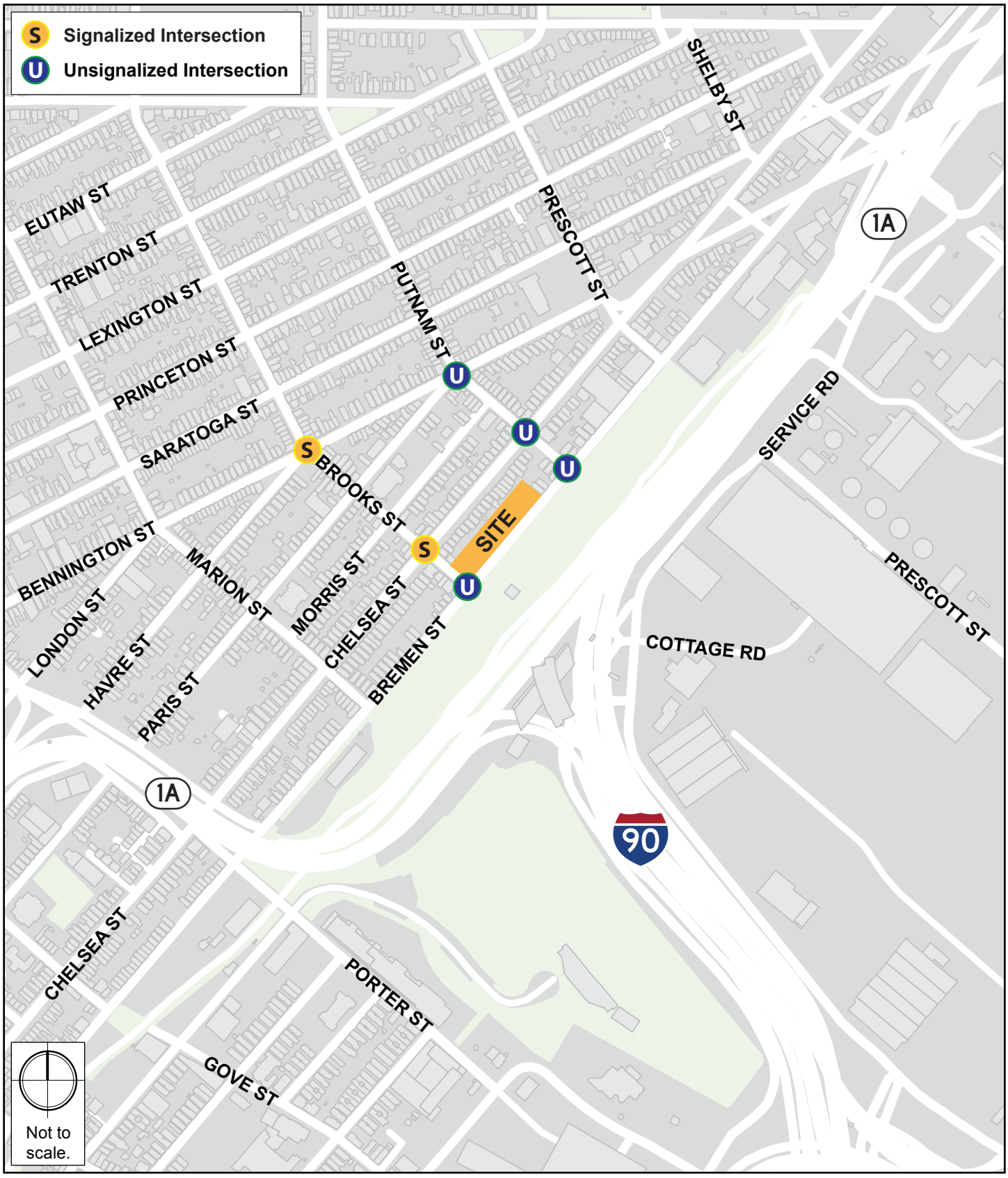


Figure 7-1.
Study Area Intersections

Bennington Street/Brooks Street is a four-legged, signalized intersection with three approaches located to northwest of the Project site. The Brooks Street westbound approach consists of one shared left-turn/through/right-turn lane. The Bennington Street northbound approach consists of one left-turn/through land. The Bennington Street southbound approaches consist of one shared through/right-turn lane. The Brooks Street western leg of the intersection is a single lane departing the intersection. On-street parking is provided along all approaches to the intersection. Crosswalks, pedestrian signal equipment, and wheelchair ramps are provided at each approach. The pedestrian phase is exclusive to pedestrians.

Bennington Street/Putnam Street is a four-legged, unsignalized intersection located to the north of the Project site. The Putnam Street eastbound approach is one-way entering the intersection and consists of a shared left-turn/through/right-turn lane. The Bennington Street northbound approach consists of a shared through/right-turn lane. The Chelsea street southbound approach consists of a shared left-turn/through. On-street parking is provided along all approaches to the intersection. Crosswalks and apex tactile wheelchair ramps are provided across all approaches to the intersection.

7.4.2 Existing Parking and Curb Use

An inventory of the on-street parking in the vicinity of the Project was collected. On-street parking generally consists of East Boston Resident Only parking and 2-hour parking except for East Boston Residents. The on-street parking regulations within the study area are shown in **Figure 7-2**.

7.4.3 Existing Traffic Data

The original traffic volume data was collected at the study area intersections on January 31, 2019 and the additional intersections of Bennington Street/Brooks Street and Bennington Street/Putnam Street were collected on September 5, 2019. Turning Movement Counts (TMCs) were conducted during the weekday a.m. and p.m. peak periods (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m., respectively) at the study area intersections. The TMCs collected vehicle classification including car, heavy vehicle, pedestrian, and bicycle movements. Based on the TMC data, the vehicular traffic peak hours for the study area intersection are generally 7:30 a.m. to 8:30 a.m. and 4:15 p.m. to 5:15 p.m. The detailed traffic counts are provided in **Appendix D.**

In order to account for variation in traffic volumes throughout the year, seasonal data provided by MassDOT were reviewed. The most recent (2016) MassDOT Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the September 2019 TMCs. The seasonal adjustment factor for roadways similar to the study area (U4-U7) during the month of September were found to be six percent higher than the average month. The MassDOT 2016 Weekday Seasonal Factors table is provided in **Appendix D**.

Figure 7-2.
On-Street Parking Regulations

7.4.4 Existing (2019) Traffic Volumes

Existing traffic volumes were balanced, where necessary, to develop the Existing (2019) Condition vehicular traffic volumes. The Existing (2019) Condition weekday a.m. and p.m. peak hour traffic volumes are shown in **Figure 7-3** and **Figure 7-4**, respectively.

7.4.5 Existing Pedestrian Condition

Sidewalks are provided along both sides of all of the roadways in the study area. In general, the sidewalks provided along nearby roadways are in good condition with level grades and few cracks. There is a crosswalk at the Site across Bremen Street that provides connections to the East Boston Greenway and the MBTA Airport Station. Wheelchair ramps are provided along the nearby crosswalks.

To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted as part of both of the TMC dates at the study area intersection. The weekday a.m. and p.m. peak hour pedestrian volumes are presented in **Figure 7-5**.

7.4.6 Existing Bicycle Condition

Bicycle counts were conducted concurrent with the vehicular TMCs and are presented in **Figure 7-6**. It is also important to note that the majority of the traffic counts were conducted in the winter months when bicycling activity is typically lower than it is during the spring and summer months.

The Site is also located close to bicycle sharing stations provided by BLUEbikes. BLUEbikes is the docked bicycle sharing system in the Boston area, which was launched in 2011, and consists of over 260 stations and maintains 2,500 bicycles in four municipalities. There are also two BLUEbike stations located in proximity to the Project site, as shown in **Figure 7-7**.

7.4.7 Safety Analysis

Crash data was collected for the 4 complete years (2015-2018) that data is available from the City of Boston's Vision Zero database. The MassDOT crash database for the corresponding years was also reviewed. Forty (40) crashes were found at the study area intersections within the 4 -year period. The crash rates for each intersection were calculated based on the number of crashes that occurred at the intersection relative to the volume of vehicles going through the intersection. The crash rates are compared to the district average crash rates by intersection type in **Table 7-1**. As shown in the table, none of the intersections exhibit a crash rate higher than the district average, indicating that intersection safety is not a major issue within the study area.

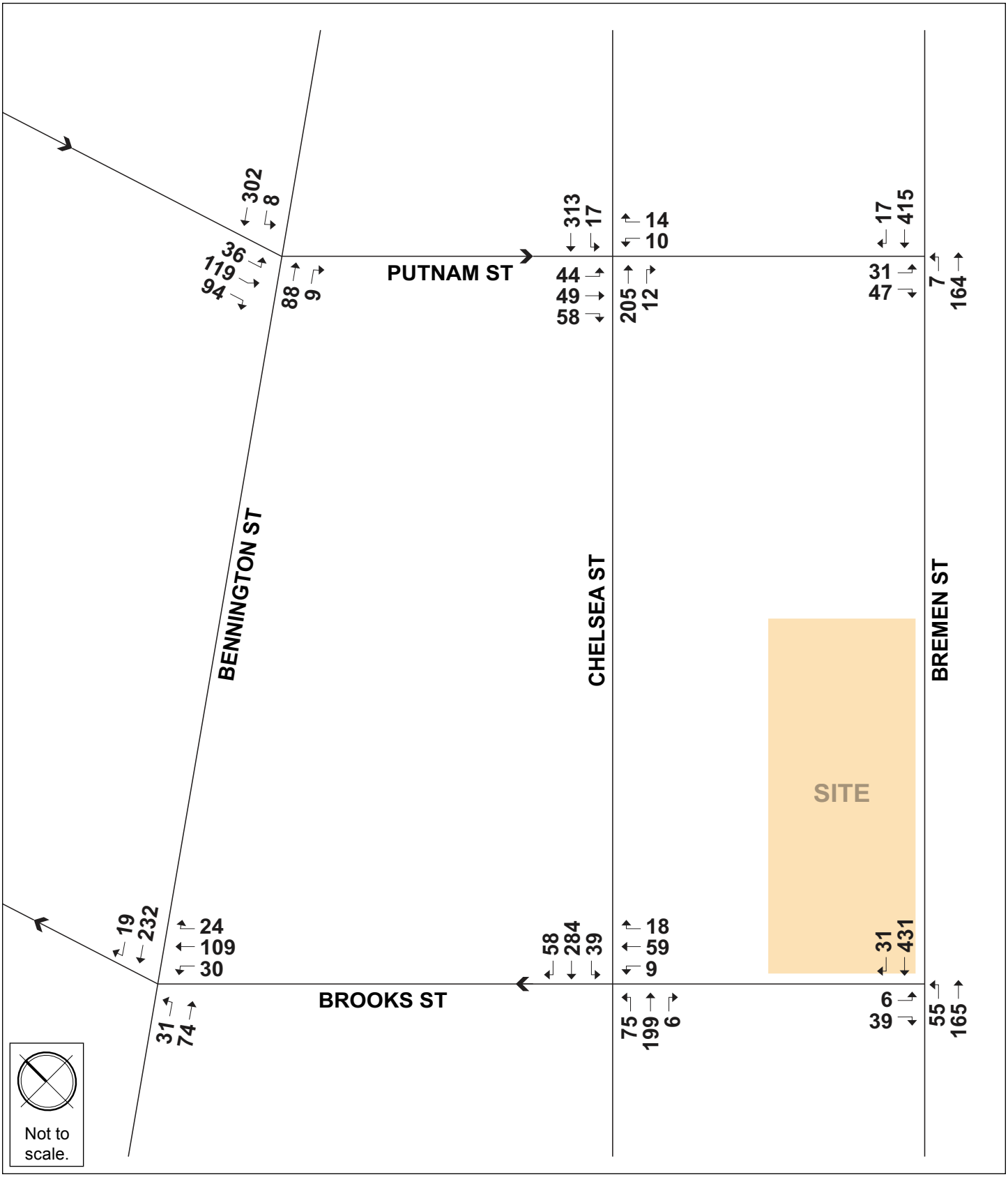


Figure 7-3.
Existing (2019) Condition Traffic Volumes, Weekday a.m. Peak Hour

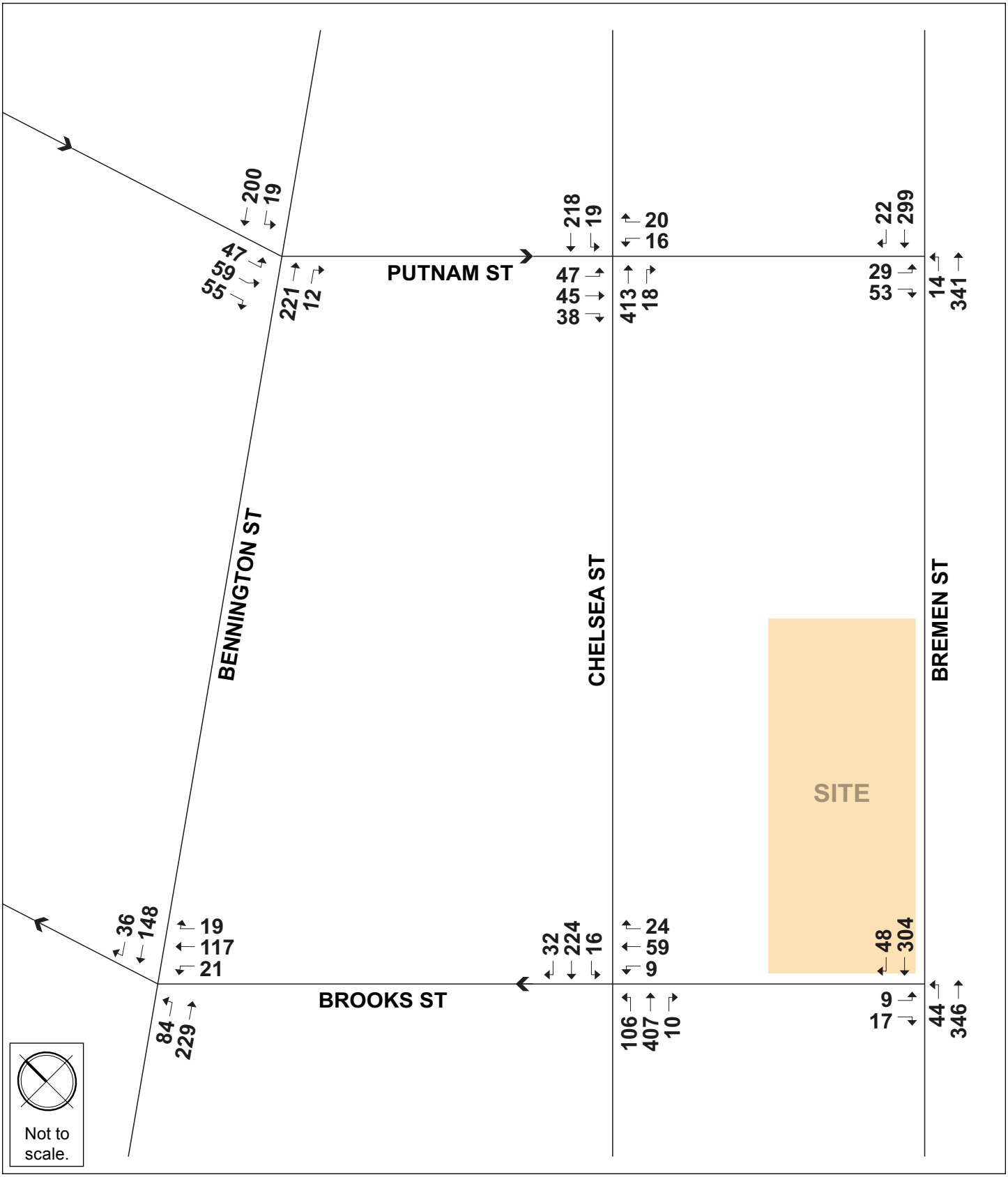


Figure 7-4.
Existing (2019) Condition Traffic Volumes, Weekday p.m. Peak Hour

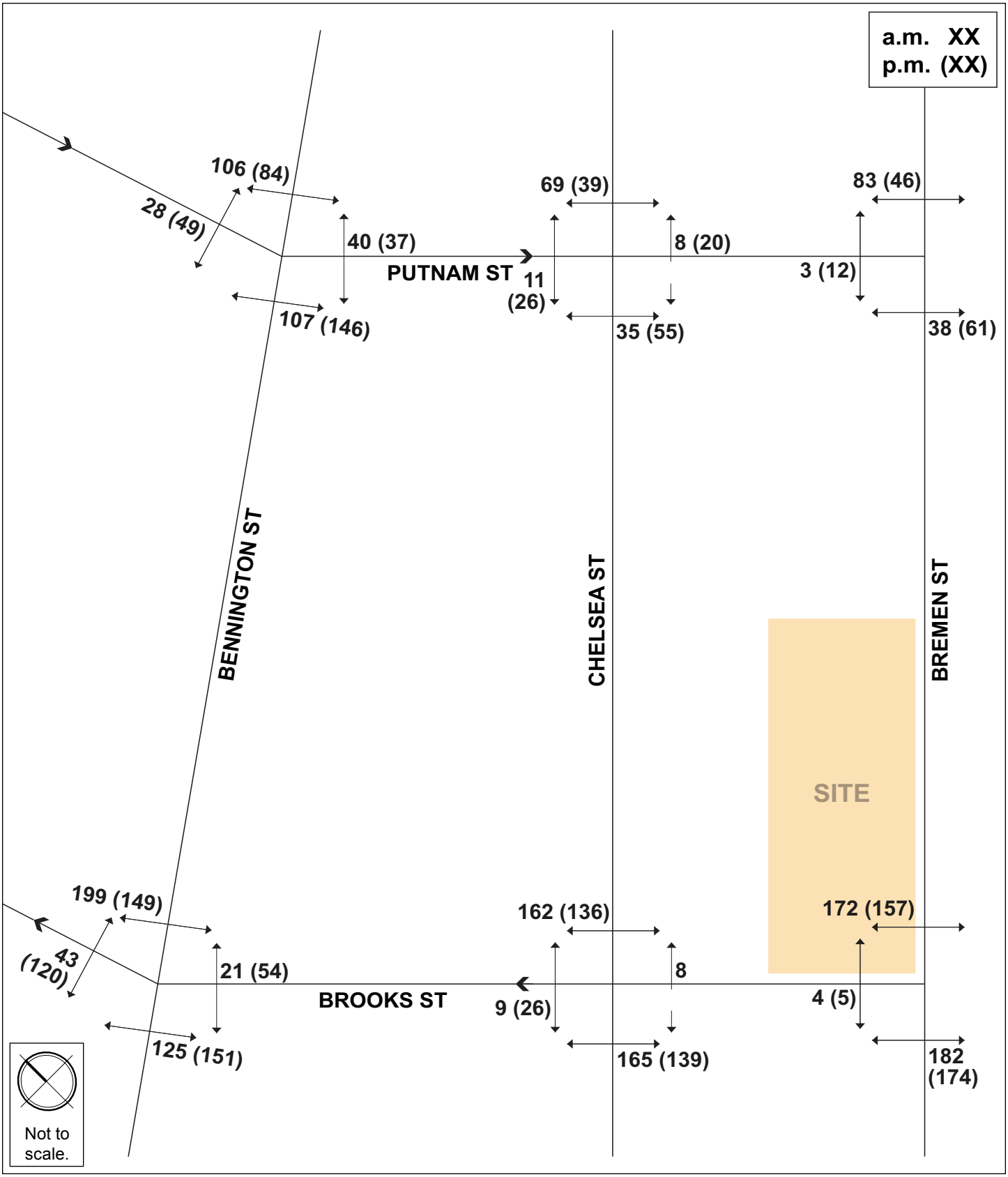


Figure 7-5.
Existing (2019) Condition Pedestrian Volumes, Weekday a.m. and p.m. Peak Hours

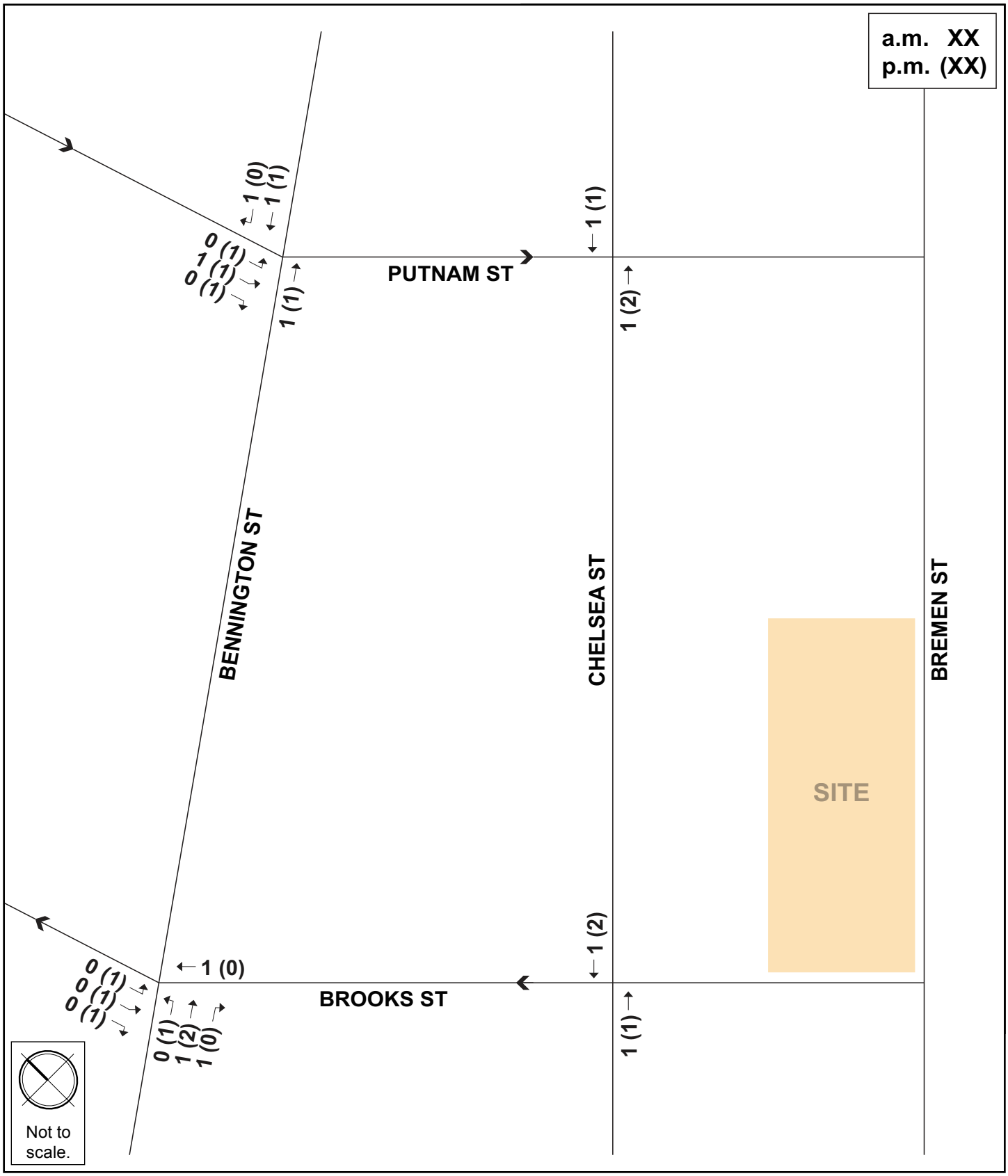


Figure 7-6.
Existing (2019) Condition Bicycle Volumes, Weekday a.m. and p.m. Peak Hours

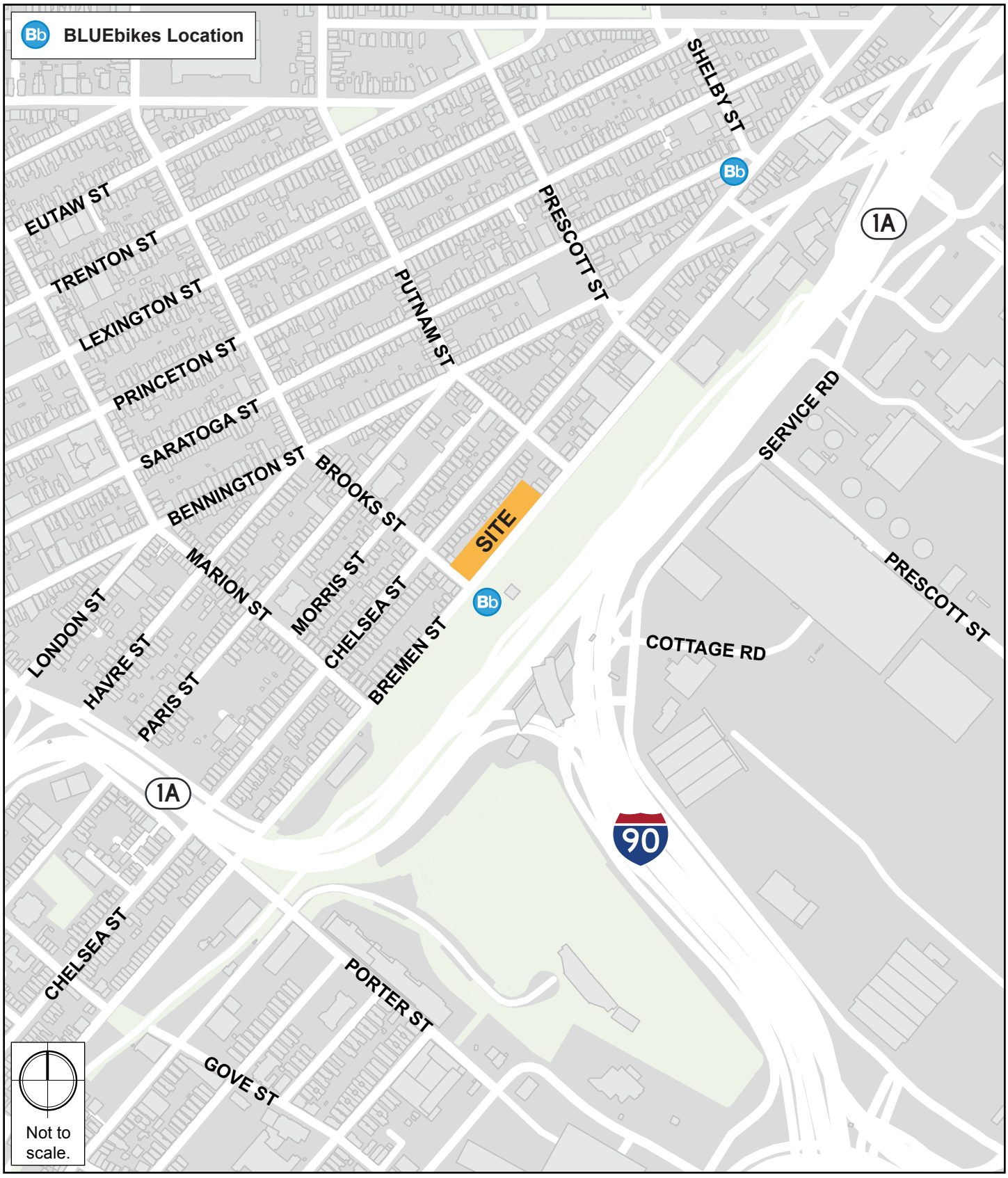


Figure 7-7.
Bike Sharing Locations

Table 7-1. Crash Rates

Control	Intersection	Crash Rate	District Average
Signalized	Chelsea Street / Brooks Street	0.43	0.71
	Bennington Street / Brooks Street	0.47	
Unsignalized	Bremen Street / Brooks Street	0.16	0.52
	Bremen Street / Putnam Street	0.17	
	Chelsea Street / Putnam Street	0.23	
	Bennington Street / Putnam Street	0.28	

7.4.8 Existing Public Transportation

The Project site is located in Boston's East Boston neighborhood close to public transportation opportunities. Airport Station is located approximately 420 feet away and within a five-minute walk of the Project site and provides access to the MBTA Blue Line, Silver Line, and shuttles to the Logan Airport terminals. **Table 7-2** describes each public transportation route located in the vicinity of the Project site, with a map of the nearby public transportation services shown in **Figure 7-8**.

Table 7-2. Existing Public Transportation

MBTA Transit Service	Description	Weekday Service Duration	Peak-Hour Headway (minutes)
Blue Line	Bowdoin – Wonderland	5:13 a.m. – 1:21 a.m.	5
SL3	South Station – Chelsea	4:25 a.m. – 1:45 a.m.	10-12
Route 120	Orient Heights - Maverick	5:25 a.m. – 1:17 a.m.	20-30
Route 121	Wood Island - Maverick	6:00 a.m. – 6:46 p.m.	25-30

Headway is the time between service, headways vary.

7.4.9 Existing Transit Ridership Data

The most recent year of available train and bus passenger data (2018) was obtained from the. The data utilized for the Blue Line is the Spring 2018 MBTA rail flow data. The data utilized for the bus routes (including the Silver Line) is the Fall 2018 MBTA APC bus data. The detailed transit data is provided in **Appendix D**.

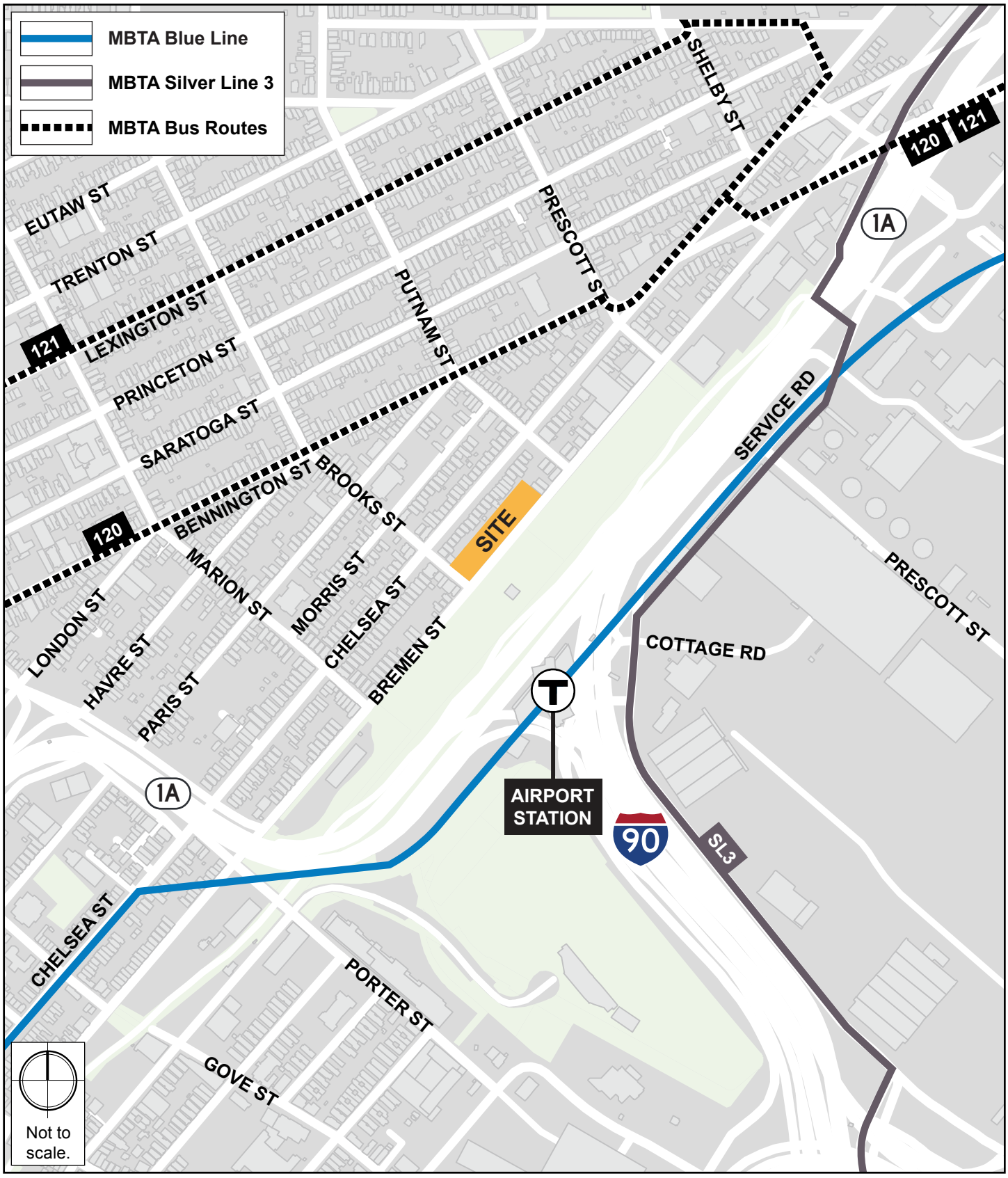


Figure 7-8.
Public Transportation

7.5 No-Build (2026) Condition

The No-Build (2026) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. Infrastructure improvements include roadway, public transportation, pedestrian, and bicycle improvements. The No-Build (2026) Condition does not include the impact of the Project.

7.5.1 Background Traffic Growth

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

7.5.2 Specific Development Traffic Growth

Traffic volumes associated with the larger or closer known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Five projects were identified in the EPNF in the proximity of the Site. **Figure 7-9** shows the specific development programs accounted for.

7.5.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby improvement projects in the vicinity of the study area. Based on this review, that are not any planned improvements that were identified.

7.5.4 No-Build (2026) Condition Traffic Volumes

The one-half percent per year annual growth rate was applied to the Existing (2019) Condition traffic volumes, then the traffic volumes associated with the background development project listed above was added to develop the No-Build (2026) Condition traffic volumes. The No-Build (2026) weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure 7-10** and **Figure 7-11**, respectively.

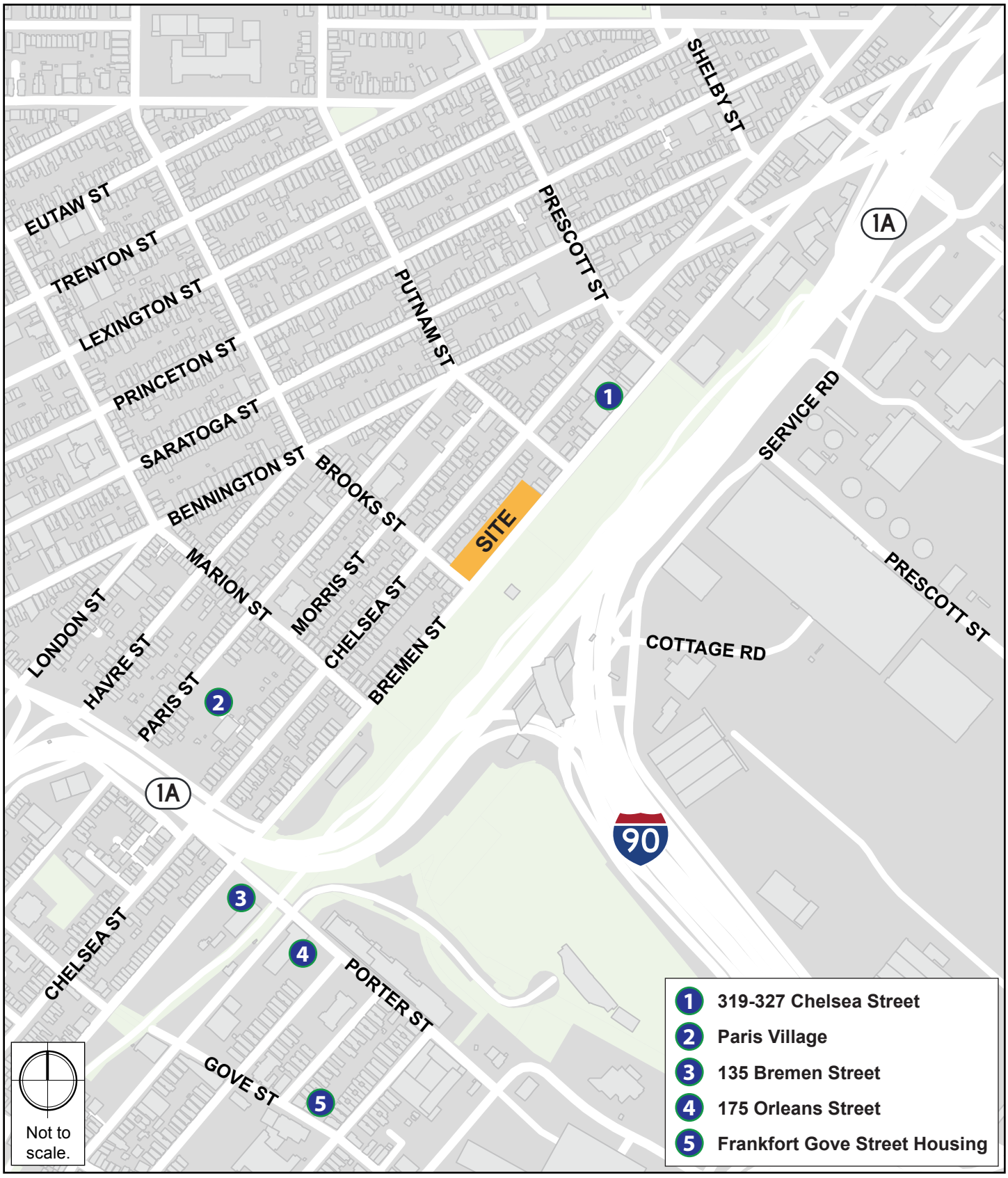


Figure 7-9.
Specific Development Projects

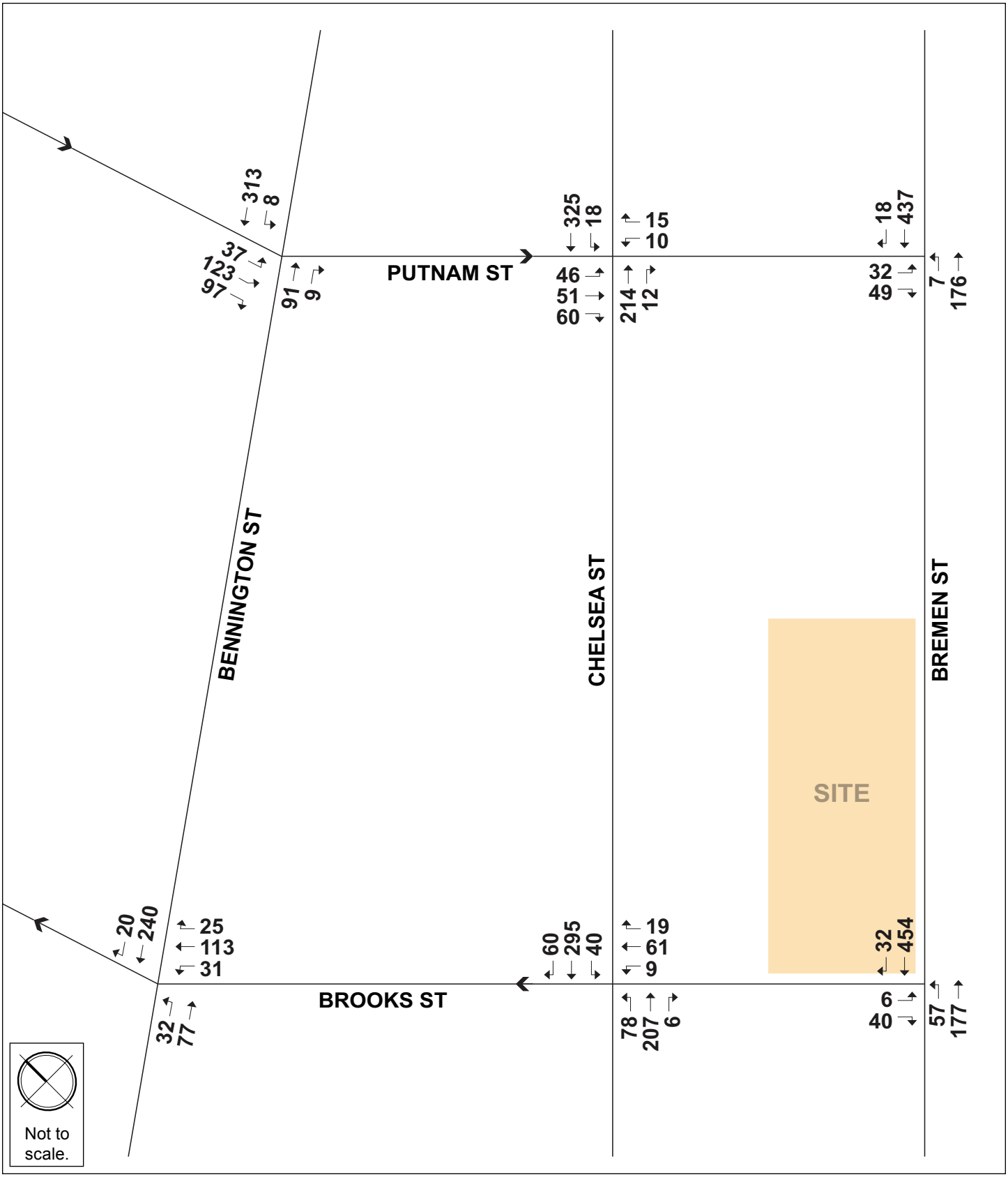


Figure 7-10.
No-build (2026) Condition Traffic Volumes, Weekday a.m. Peak Hour

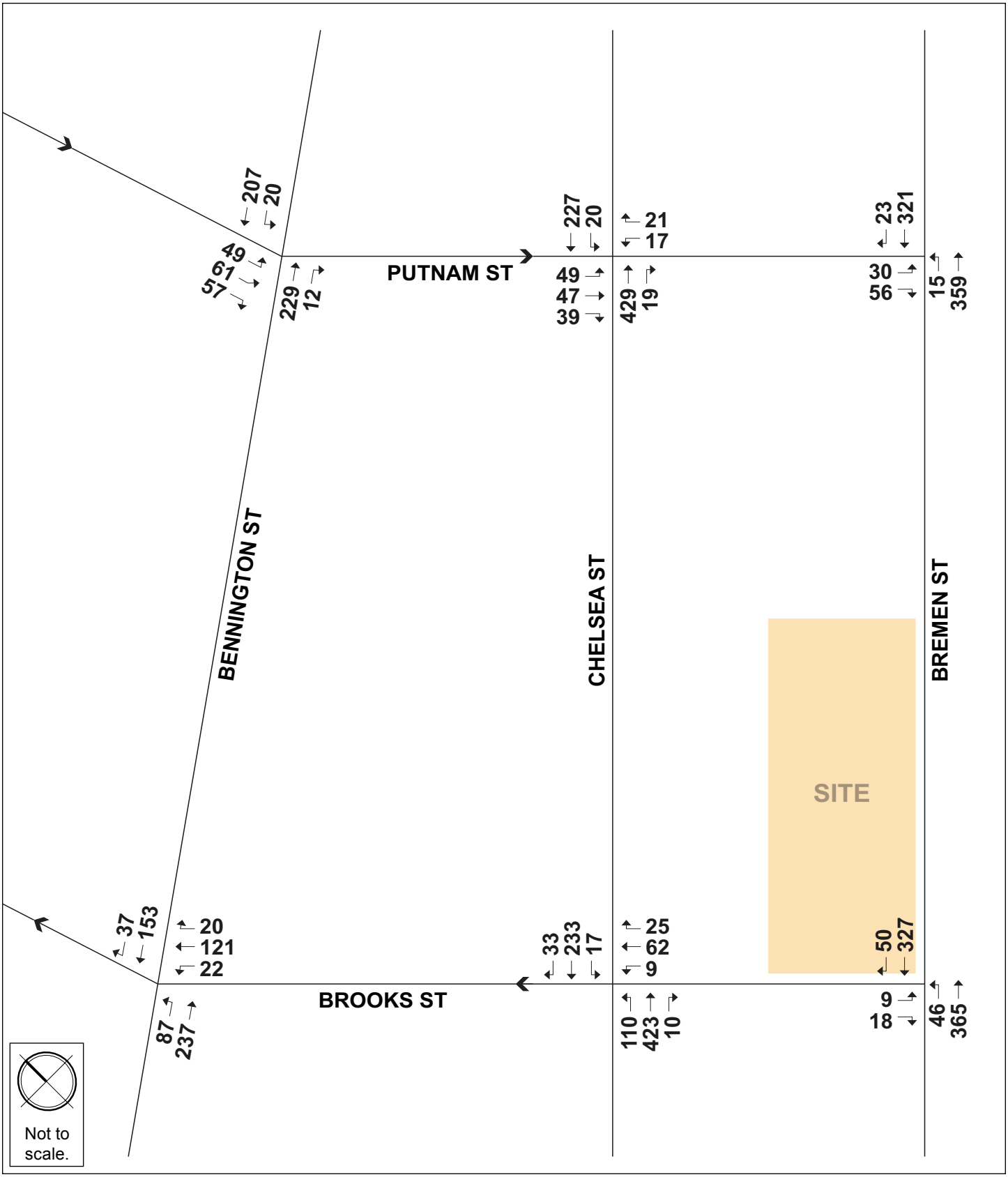


Figure 7-11.
No-build (2026) Condition Traffic Volumes, Weekday P.m. Peak Hour

7.5.5 No-Build Transit Ridership

Growth rates for transit are published in the Central Transportation Planning Staff's (CTPS) Long-range Transportation Plan (LRTP) document, *Destination 2040*. In this document, yearly growth rate of transit ridership is projected for all transit trip types including local bus, bus rapid transit, and rapid rail transit. The yearly projected growth rate for local bus is 0.24%, the yearly projected growth rate for bus rapid transit is 2.75%, and the yearly projected growth rate for rapid rail transit is 0.70%. These growth rates were applied to the existing 2018 transit data for eight years to establish a future 2026 transit ridership No-Build Condition.

7.5.6 Future Transit Infrastructure Improvements

MBTA's *Focus40* document outlines planned improvements through 2023 and beyond to 2040 for all aspects of the transit system. MBTA outlines various capacity improvements for the Blue Line including signal improvements, increased train sets, and a Red-Blue connector. Improvements for the Silver Line include additional vehicle procurement, transit priority infrastructure in the Seaport, and extending SL3 beyond Chelsea into Everett. Improvements for the regular bus routes include redesigned bus networks, bus fleet expansion, priority bus rapid transit corridors, and autonomous bus shuttles. Since the timing and effect on capacity of these improvements is not yet known at this time, the future capacities were not increased to provide a conservative estimate for transit operations.

7.6 Build (2026) Condition

As previously summarized, the Project will include the demolition of the existing buildings and the construction of a new six story building and one level of at-grade parking with 61 stacker spaces. The ground floor will contain parking, 3,200 gsf of retail use, 19 income restricted units and affordable artist /makerspace spaces to better activate the street, and the lobby/amenities for the residents. The upper floors will contain 145 new residential units.

7.6.1 Site Access and Circulation

Vehicular access will be provided on Bremen Street towards the northeast end of the site. The primary pedestrian entrance to the lobby will be located on the southeast corner of the site in the central lobby along Bremen Street. Entrances to the retail component will be located on the southeast corner of the Site on Brooks and Bremen Streets. The ground floor plan (Streetscape Dimensions) is shown in **Figure 7-12**.

7.6.2 Parking

As previously mentioned, the Project will include up to 61 parking spaces in an at-grade garage. The 61 parking spaces results in a parking ratio of approximately 0.42 parking spaces per residential

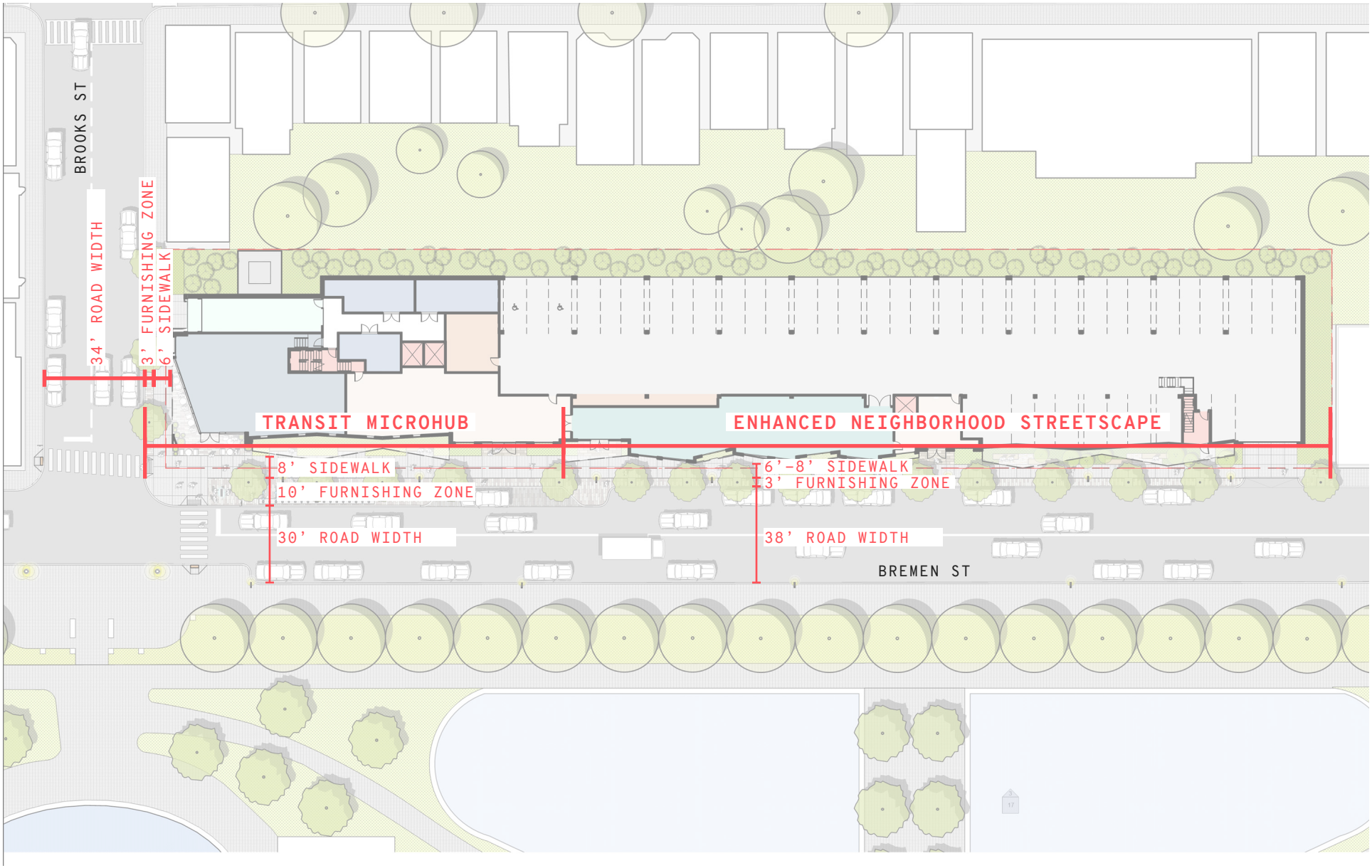


FIGURE 7-12 / STREETSCAPE DIMENSIONS

RODE

unit, consistent with the BTD parking ratio maximum for the area. Additionally, curb cuts along Bremen Street will lead to 135-feet of new parking spaces or approximately 6 spaces.

7.6.3 Loading and Service Accommodations

Loading and service operations will occur on-site, with access on the west side of the building along Brooks Street. Deliveries to the Site will be limited to large box trucks (SU-36) or smaller delivery vehicles. Residential move-in/move-out loading/unloading activity will take place within the Site. Loading associated with the retail component will also take place within the Site

7.6.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents. Based on BTD guidelines, the Project will supply a minimum of 163 secure bicycle parking/storage spaces within the parking garage, at a rate of one secure indoor bicycle parking spaces per residential unit. Additional storage will be provided by outdoor bicycle racks accessible to visitors to the site in accordance with BTD guidelines.

7.6.5 Trip Generation Methodology

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

The number of residential units and the square footage of the ground floor retail is utilized to determine the trip generation of the Project. Since the EPNF, the number of residential units has been decreased. However, to stay consistent with previous filings, the trip generation of the site was not modified for this study.

7.6.6 Trip Distribution

The trip distribution identifies the various travel paths for vehicles arriving and leaving the Project site. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 7 – East Boston and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in **Figure 7-13**.

7.6.7 Build (2026) Traffic Volumes

The vehicle trips were distributed through the study area. The project-generated trips for the weekday a.m. and p.m. peak hours are shown in **Figure 7-14 and Figure 7-15, respectively**. The trip assignments were added to the No-Build (2026) Condition vehicular traffic volumes to develop

the Build (2026) Condition vehicular traffic volumes. The Build (2026) weekday a.m. and p.m. peak hour traffic volumes are shown on **Figure 7-16 and Figure 7-17, respectively**.

7.6.8 Project-Generated Transit Trips

Transit trips to and from the Project will mainly utilize the MBTA Blue Line or the MBTA Silver Line. The Route 120/121 buses are neighborhood connection routes that travel through East Boston to connect residents to the Blue Line stations and since the Project is already close to the Blue Line, the ridership from this Project on those routes will be negligible. The transit trips were distributed across each mode according to existing ridership and are shown in **Table 7-3**.

Table 7-3. Transit Trip Distribution

MBTA Route	Distribution	Project-generated Transit Trips (Roundtrip)
Blue Line	94%	777
Silver Line 3	6%	49
Route 120/121	Negligible	-

7.7 Traffic Operation Analysis

As in the EPNF, traffic operations analysis was conducted for the new study area intersections. **Table 7-4** and **Table 7-5** summarize the Existing (2019) Condition, the No-Build (2026) Condition, and the Build (2026) Condition capacity analysis for the new study area intersections during the weekday a.m. and p.m. peak hours, respectively. The detailed analysis of the Synchro results is provided in **Appendix D.**

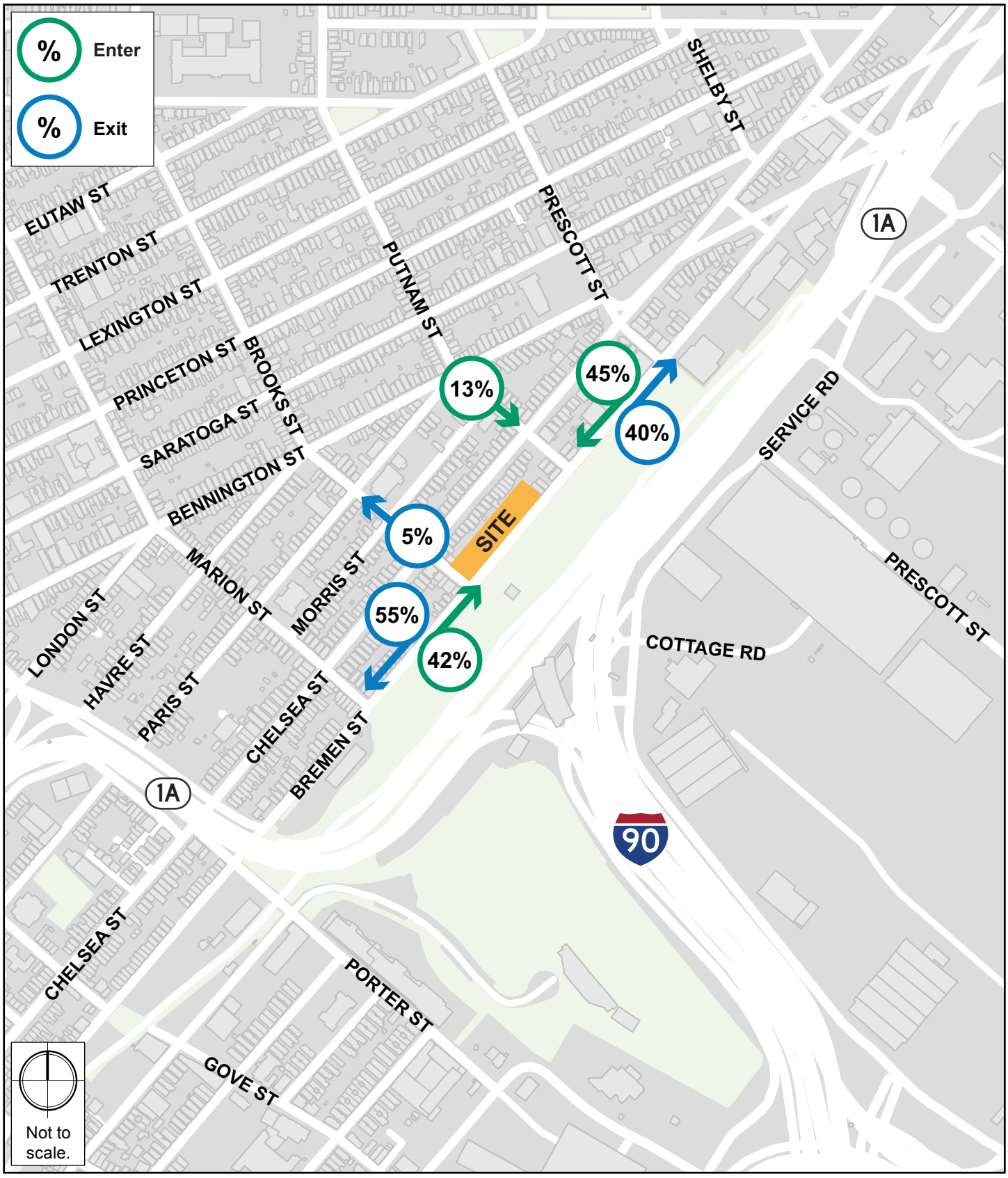


Figure 7-13.
Trip Distribution

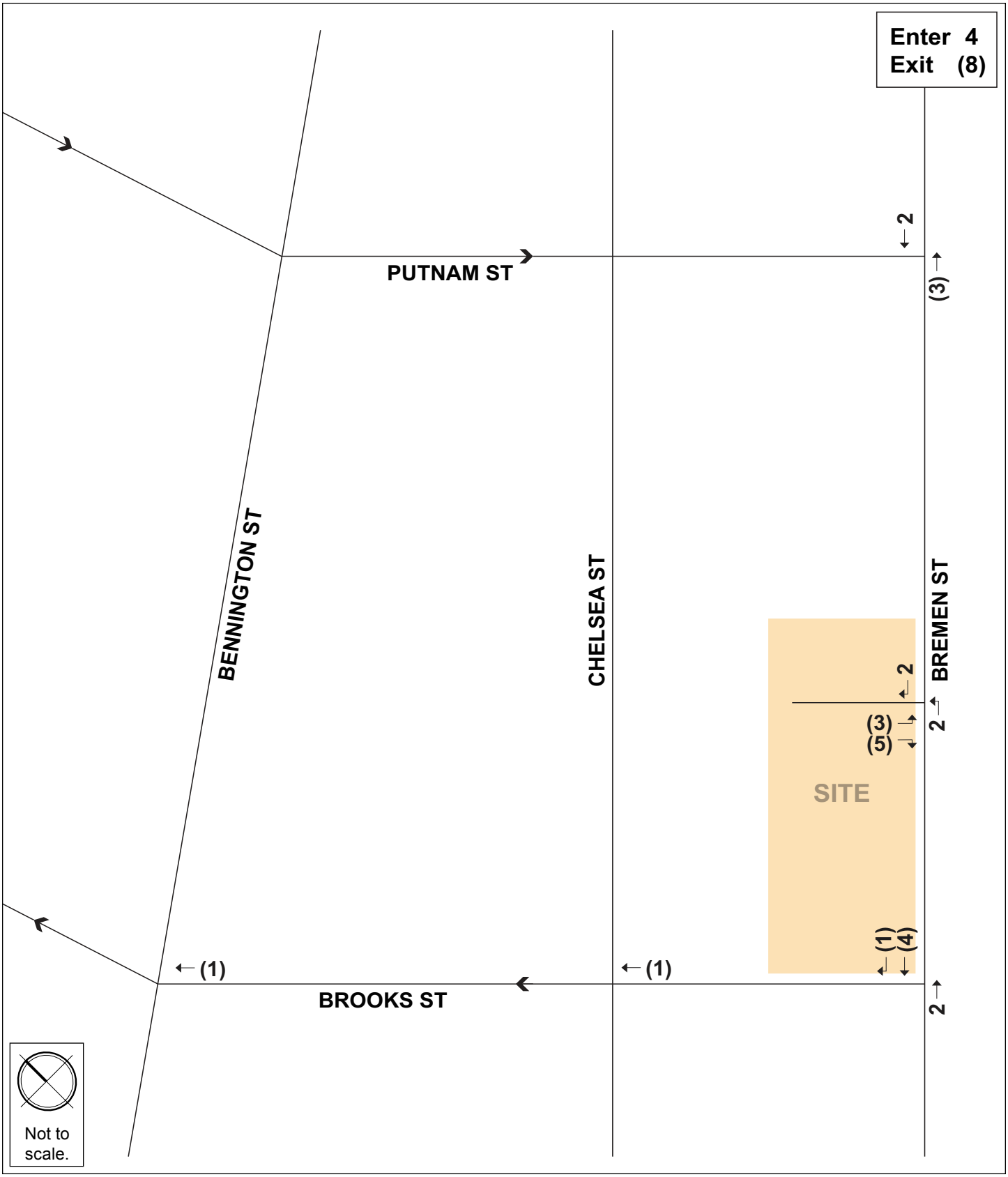


Figure 7-14.
Project Generated Vehicle Trip Assignment, Weekday a.m. Peak Hour

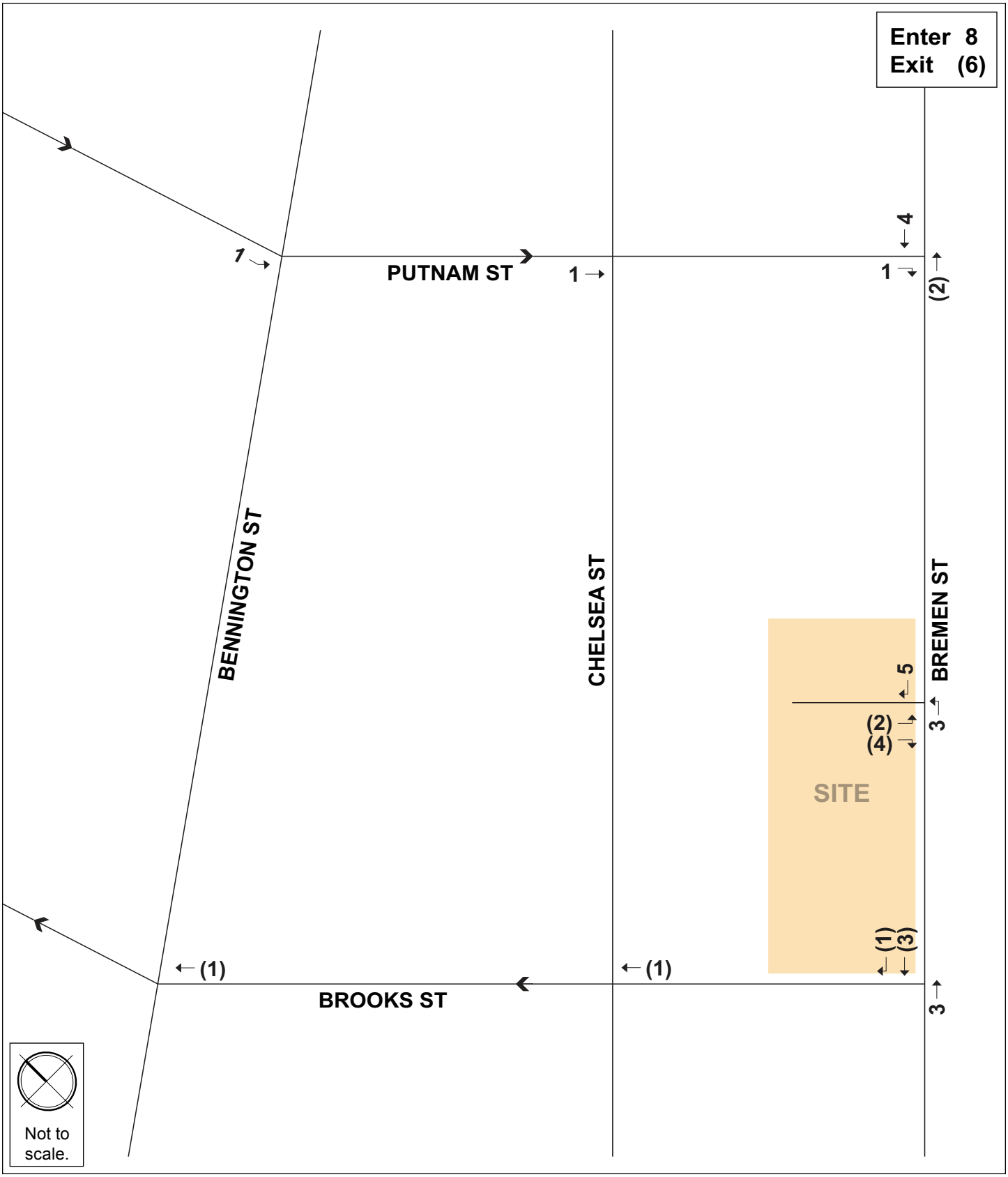


Figure 7-15.
Project Generated Vehicle Trip Assignment, Weekday p.m. Peak Hour

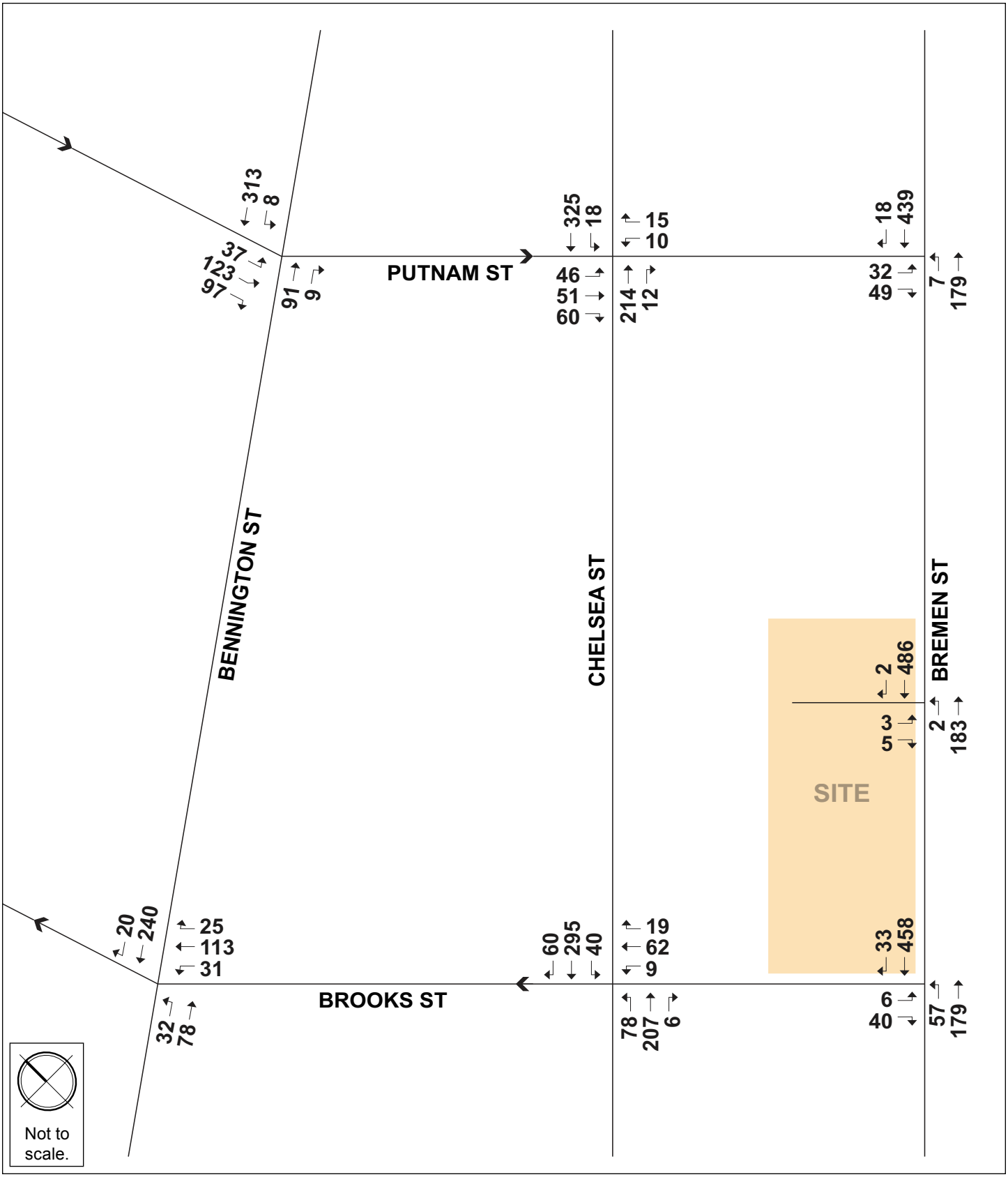


Figure 7-16.
Build (2026) Condition Traffic Volumes, Weekday a.m. Peak Hour

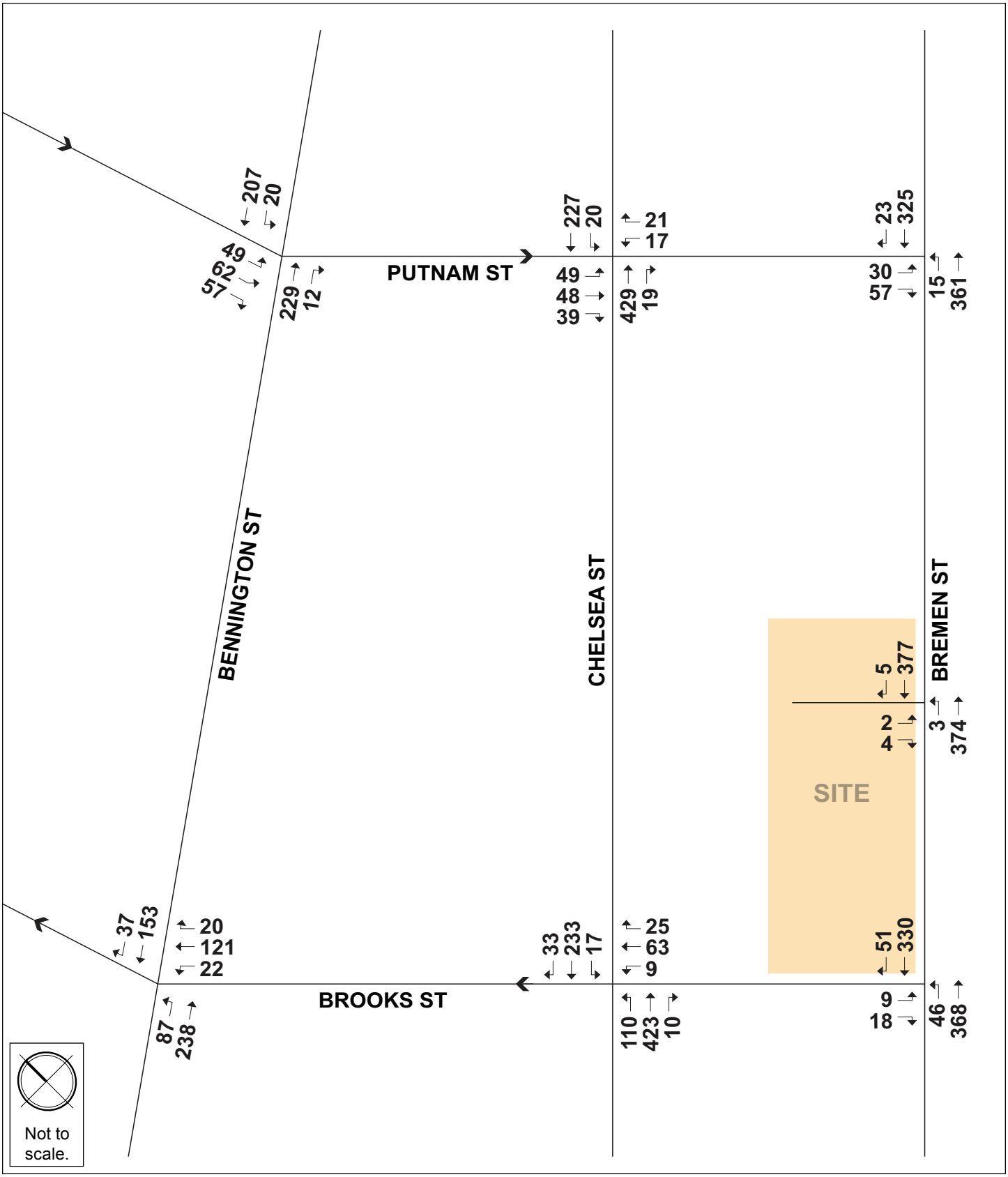


Figure 7-17.
Build (2026) Condition Traffic Volumes, Weekday p.m. Peak Hour

Table 7-4. Capacity Analysis Summary, Weekday a.m. Peak Hour

Intersection/Movement	Existing (2019) Condition				No-Build (2026) Condition				Build (2026) Condition			
	LOS	Delay (s)	V/C ratio	95th % Queue (ft)	LOS	Delay (s)	V/C ratio	95th % Queue (ft)	LOS	Delay (s)	V/C ratio	95th % Queue (ft)
Signalized Intersection												
Bennington St/Brooks St	**B**	**12.3**	-	-	**B**	**13.1**	-	-	**B**	**13.1**	-	-
Brooks St WB left/thru/right	C	20.6	0.69	#56	C	23.0	0.72	#63	C	23.0	0.72	#63
Bennington St NB left/thru	A	8.0	0.15	41	A	8.0	0.16	43	A	8.0	0.16	43
Bennington St SB thru/right	A	8.7	0.30	88	A	8.8	0.31	91	A	8.8	0.31	91
Unsignalized Intersection												
Bennington St/Putnam St	-	-	-	-	-	-	-	-	-	-	-	-
Putnam St EB left/thru/right	C	24.7	0.61	98	D	26.6	0.64	108	D	26.6	0.64	108
Bennington St NB thru/right	A	0.0	0.07	0	A	0.0	0.07	0	A	0.0	0.07	0
Bennington St SB left/thru	A	0.3	0.01	0	A	0.2	0.01	0	A	0.2	0.01	0

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

= 95th percentile queue is overcapacity; queue length represents maximum after two cycles.

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

Intersection/Movement	Existing (2019) Condition				No-Build (2026) Condition				Build (2026) Condition			
	LOS	Delay (s)	V/C ratio	95th % Queue (ft)	LOS	Delay (s)	V/C ratio	95th % Queue (ft)	LOS	Delay (s)	V/C ratio	95th % Queue (ft)
Signalized Intersection												
Bennington St/Brooks St	**B**	**13.0**	-	-	**B**	**13.9**	-	-	**B**	**13.9**	-	-
Brooks St WB left/thru/right	C	22.5	0.72	#45	C	25.1	0.75	#50	C	25.1	0.75	#50
Bennington St NB left/thru	B	11.1	0.46	119	B	11.5	0.48	125	B	11.5	0.48	125
Bennington St SB thru/right	A	7.1	0.21	57	A	7.2	0.22	59	A	7.2	0.22	59
Unsignalized Intersection												
Bennington St/Putnam St	-	-	-	-	-	-	-	-	-	-	-	-
Putnam St EB left/thru/right	D	27.5	0.57	84	D	29.9	0.60	94	D	30.0	0.61	95
Bennington St NB thru/right	A	0.0	0.16	0	A	0.0	0.16	0	A	0.0	0.16	0
Bennington St SB left/thru	A	0.8	0.02	1	A	0.8	0.02	1	A	0.8	0.02	1

As shown in **Table 7-4** and **Table 7-5**, all of the intersections and approaches have acceptable operations (LOS D or better) under the Existing (2019) Condition, the No-Build (2026) Condition, and the Build (2026) Condition.

7.8 Transit Operation Analysis

The hourly capacity of the MBTA routes is determined by multiplying the vehicle capacity by the number of trips per hour, which is derived from the scheduled headways. The vehicle load standards for each route is outlined in MBTA's *Service and Delivery Policy* where they outline the planning capacities for each train car and bus. The headways for each route were determined based on the route schedules on the MBTA's website. The planning capacities, headways, and hourly capacities are outlined in **Table 7-6** below. These capacities form the baseline that the transit analysis is compared to.

Table 7-6. MBTA Vehicle Capacities

MBTA Route	Planning Capacity (Passengers)	Peak Hour Headway (min)	Peak Hour Capacity (Passengers)
Blue Line	516	5	6,192
Silver Line 3	65	10-11	390
Route 120/121	54	20-30	108-162

7.8.1 MBTA Blue Line Operations

The Blue Line capacity, ridership, and volume to capacity by hour are displayed for the Build (2026) Condition in **Table 7-7**.

Table 7-7. Build (2026) Condition Ridership and Capacity Summary, Blue Line

Time	*Trains*	*Planning Capacity*	*Ridership NB*	*V/C*	*Ridership SB*	*V/C*
5-6 a.m.	7	3440	117	0.03	1511	0.44
6-7 a.m.	9	4816	329	0.07	2812	0.58
7-8 a.m.	12	6192	340	0.05	4148	0.67
8-9 a.m.	12	6192	263	0.04	4448	0.72
9-10 a.m.	12	6192	262	0.04	2130	0.34
10-11 a.m.	7	3440	340	0.10	1374	0.40
11 a.m. – 12 p.m.	7	3440	456	0.13	1110	0.32
12-1 p.m.	7	3440	642	0.19	1031	0.30
1-2 p.m.	7	3440	797	0.23	1101	0.32
2-3 p.m.	7	3440	1289	0.37	1257	0.37
3-4 p.m.	9	4816	2058	0.43	1418	0.29
4-5 p.m.	12	6192	2859	0.46	1290	0.21
5-6 p.m.	12	6192	3422	0.55	1095	0.18
6-7 p.m.	9	4814	1985	0.41	701	0.15
7-8 p.m.	7	3440	1279	0.37	511	0.15
8-9 p.m.	7	3440	1038	0.30	398	0.12
9-10 p.m.	7	3440	1019	0.30	361	0.10
10-11 p.m.	7	3440	1127	0.33	367	0.11
11 p.m.- 12 a.m.	7	3440	1105	0.32	248	0.07
12-1 a.m.	7	3440	453	0.13	79	0.02

As shown in **Table 7-7**, the Blue Line does not reach over capacity during any hour throughout the day. The transit volume graph is displayed in **Figure 7-18**.

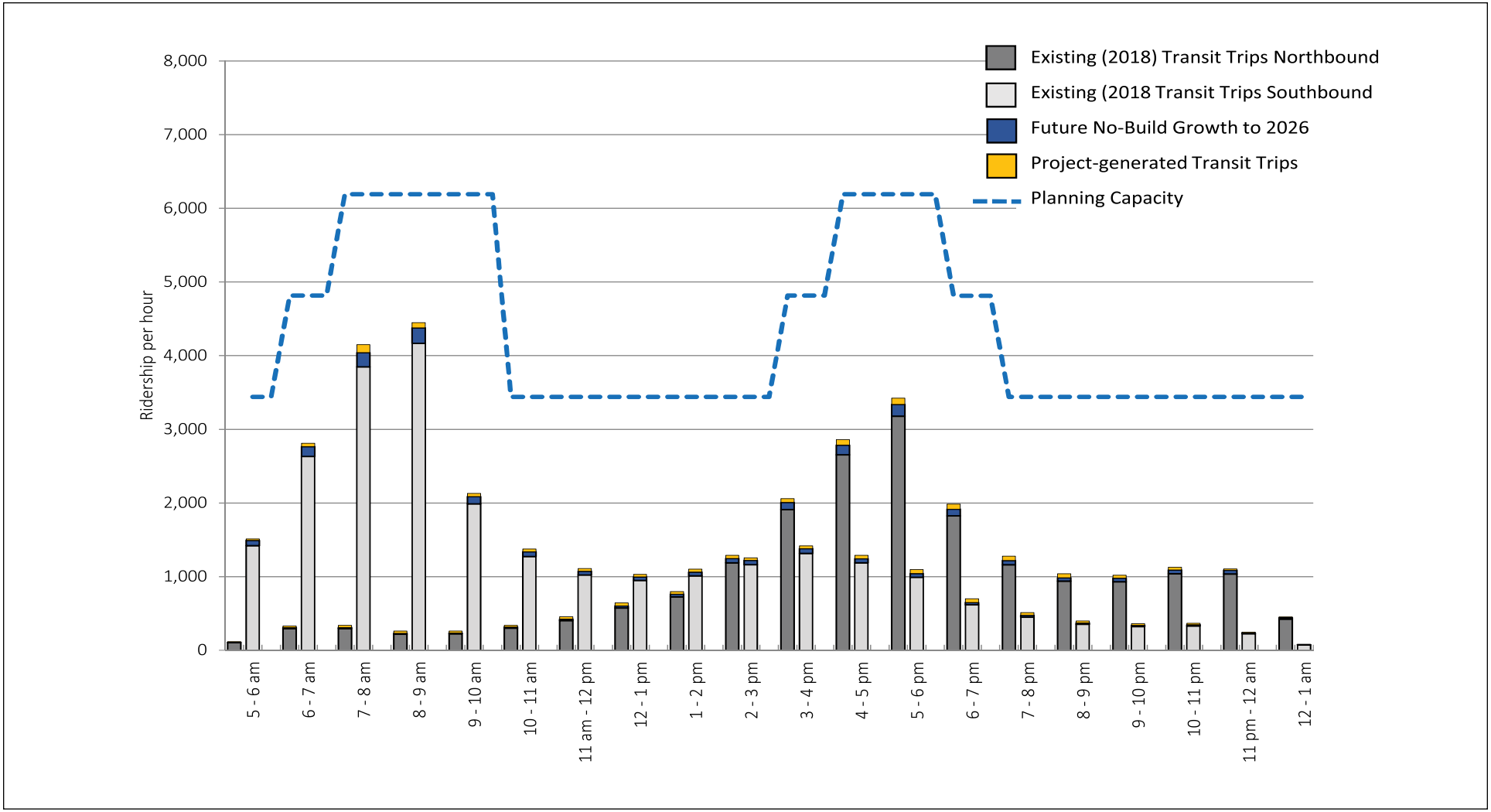


Figure 7-18.
MBTA Blue Line - Build (2026) Condition Hourly Ridership, Weekday Load Point: Airport Station

7.8.2 MBTA Silver Line 3 Operations

The Silver Line 3 capacity, ridership, and volume to capacity by hour are displayed for the Build (2026) Condition in **Table 7-8**.

Table 7-8. Build (2026) Condition Ridership and Capacity Summary, Silver Line 3

Time	Buses	Planning Capacity	Ridership IB	V/C	Ridership OB	V/C
5-6 a.m.	5	325	210	0.65	37	0.09
6-7 a.m.	4	260	173	0.67	53	0.20
7-8 a.m.	6	390	273	0.70	82	0.21
8-9 a.m.	6	390	202	0.52	71	0.18
9-10 a.m.	6	390	123	0.32	59	0.18
10-11 a.m.	4	260	71	0.27	47	0.18
11 a.m. – 12 p.m.	4	260	53	0.20	41	0.16
12-1 p.m.	4	260	58	0.22	54	0.21
1-2 p.m.	4	260	59	0.23	81	0.31
2-3 p.m.	4	260	83	0.32	114	0.44
3-4 p.m.	4	260	104	0.40	166	0.51
4-5 p.m.	6	390	99	0.25	227	0.58
5-6 p.m.	5	325	55	0.17	171	0.53
6-7 p.m.	6	390	50	0.13	133	0.41
7-8 p.m.	5	325	33	0.10	92	0.28
8-9 p.m.	5	325	36	0.11	70	0.22
9-10 p.m.	5	325	37	0.11	66	0.20
10-11 p.m.	5	325	35	0.11	75	0.23
11 p.m.- 12 a.m.	5	325	23	0.07	57	0.22
12-1 a.m.	4	260	11	0.04	28	0.11

As shown in **Table 7-8**, the Silver Line 3 does not reach over capacity during any hour throughout the day. The transit volume graph is displayed in **Figure 7-19**.

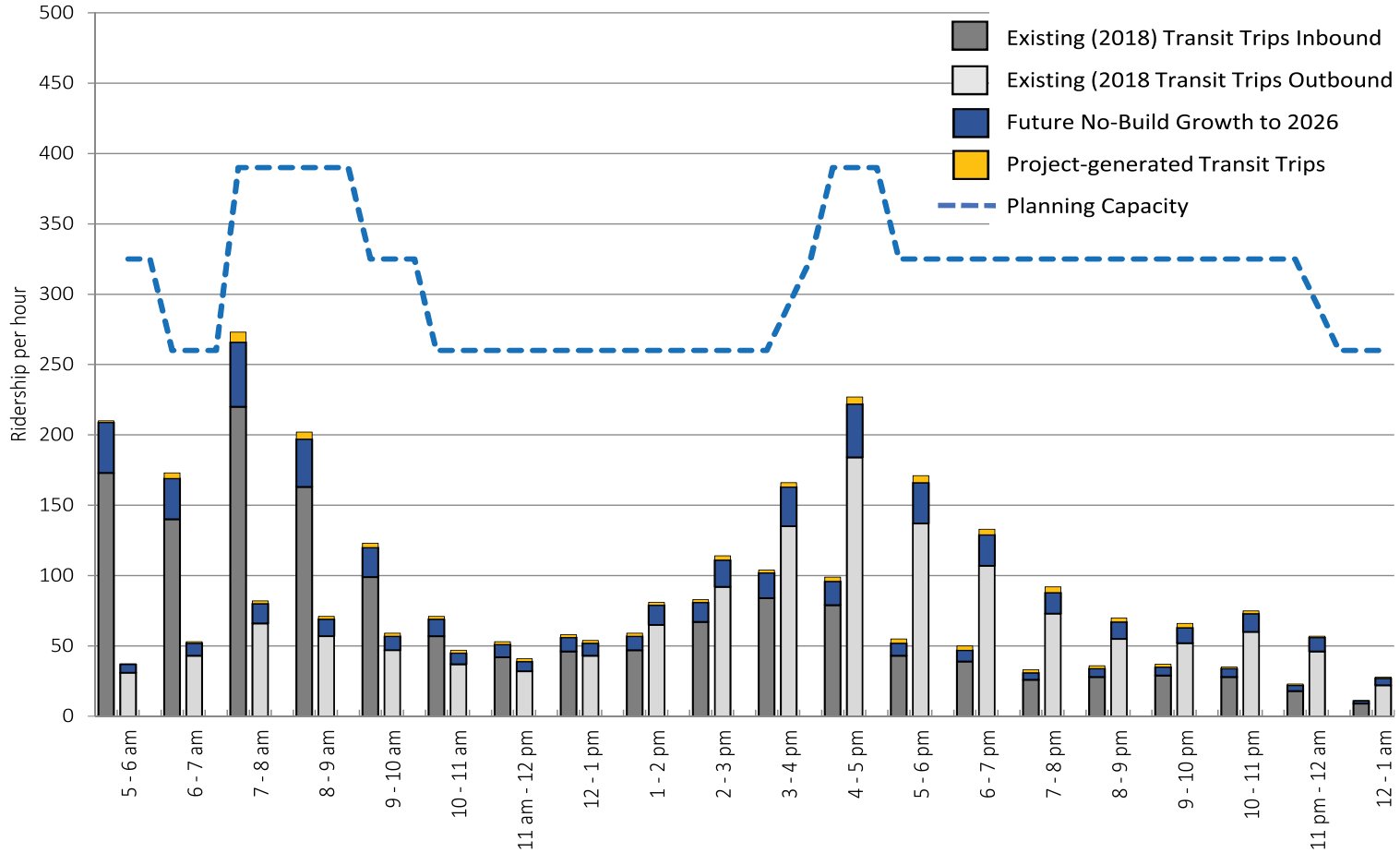


Figure 7-19.
MBTA Silver Line - Build (2026) Condition Hourly Ridership, Weekday Load Point: Airport Station

7.8.3 MBTA Local Bus Operations

The Route 120 and 121 capacity, ridership, and volume to capacity by hour are displayed for the Build (2026) Condition in **Table 7-9** and **Table 7-10**, respectively.

Table 7-9. Build (2026) Condition Ridership and Capacity Summary, Route 120

Time	Buses	Planning Capacity	Ridership IB	V/C	Ridership OB	V/C
5-6 a.m.	1	54	14	0.26	14	0.26
6-7 a.m.	2	108	83	0.51	13	0.12
7-8 a.m.	3	162	101	0.62	75	0.46
8-9 a.m.	3	162	58	0.36	64	0.40
9-10 a.m.	3	162	85	0.52	75	0.46
10-11 a.m.	3	162	66	0.41	64	0.40
11 a.m. – 12 p.m.	2	108	53	0.49	42	0.39
12-1 p.m.	2	108	44	0.41	63	0.58
1-2 p.m.	3	162	89	0.55	83	0.51
2-3 p.m.	3	162	49	0.45	127	0.78
3-4 p.m.	3	162	105	0.65	142	0.88
4-5 p.m.	2	108	107	0.99	94	0.87
5-6 p.m.	2	108	75	0.69	91	0.84
6-7 p.m.	3	162	127	0.78	136	0.84
7-8 p.m.	1	54	21	0.39	51	0.94
8-9 p.m.	2	108	21	0.39	51	0.47
9-10 p.m.	1	54	5	0.09	9	0.17
10-11 p.m.	1	54	5	0.09	11	0.20
11 p.m.- 12 a.m.	1	54	6	0.11	7	0.13
12-1 a.m.	1	54	4	0.07	5	0.09

Table 7-10. Build (2026) Condition Ridership and Capacity Summary, Route 121

Time	Buses	Planning Capacity	Ridership IB	V/C	Ridership OB	V/C
5-6 a.m.	0	0	0	-	0	-
6-7 a.m.	2	108	46	0.43	6	0.06
7-8 a.m.	2	108	36	0.33	21	0.19
8-9 a.m.	2	108	14	0.13	5	0.05
9-10 a.m.	0	0	0	-	0	-
10-11 a.m.	0	0	0	-	0	-
11 a.m. – 12 p.m.	0	0	0	-	0	-
12-1 p.m.	0	0	0	-	0	-
1-2 p.m.	0	0	0	-	0	-
2-3 p.m.	0	0	0	-	0	-
3-4 p.m.	2	108	5	0.05	13	0.12
4-5 p.m.	2	108	7	0.06	18	0.17
5-6 p.m.	3	162	7	0.06	33	0.20
6-7 p.m.	2	108	3	0.03	15	0.14
7-8 p.m.	0	0	0	-	0	-
8-9 p.m.	0	0	0	-	0	-
9-10 p.m.	0	0	0	-	0	-
10-11 p.m.	0	0	0	-	0	-
11 p.m.- 12 a.m.	0	0	0	-	0	-
12-1 a.m.	0	0	0	-	0	-

As shown in **Table 7-9 and Table 7-10**, the Route 120/121 buses do not reach over capacity during any hour throughout the day, however the 120 bus does nearly operate at capacity during the p.m. peak hour, but it is not resulting from an impact of this Project. The transit volume graphs for Route 120 and 121 are displayed in **Figure 7-20** and **Figure 7-21**, respectively.

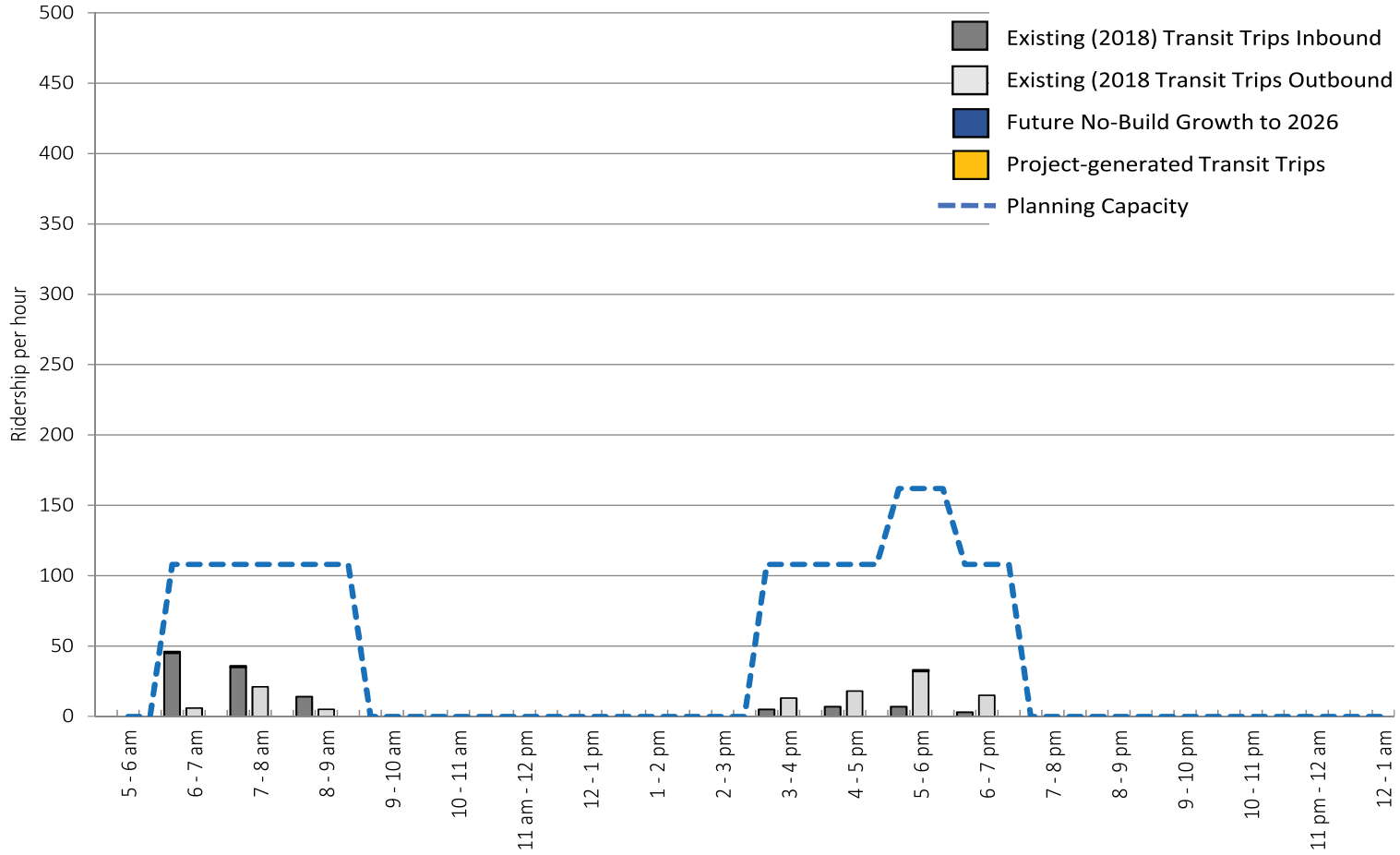


Figure 7-20.
MBTA #121 Bus - Build (2026) Condition Hourly Ridership, Weekday

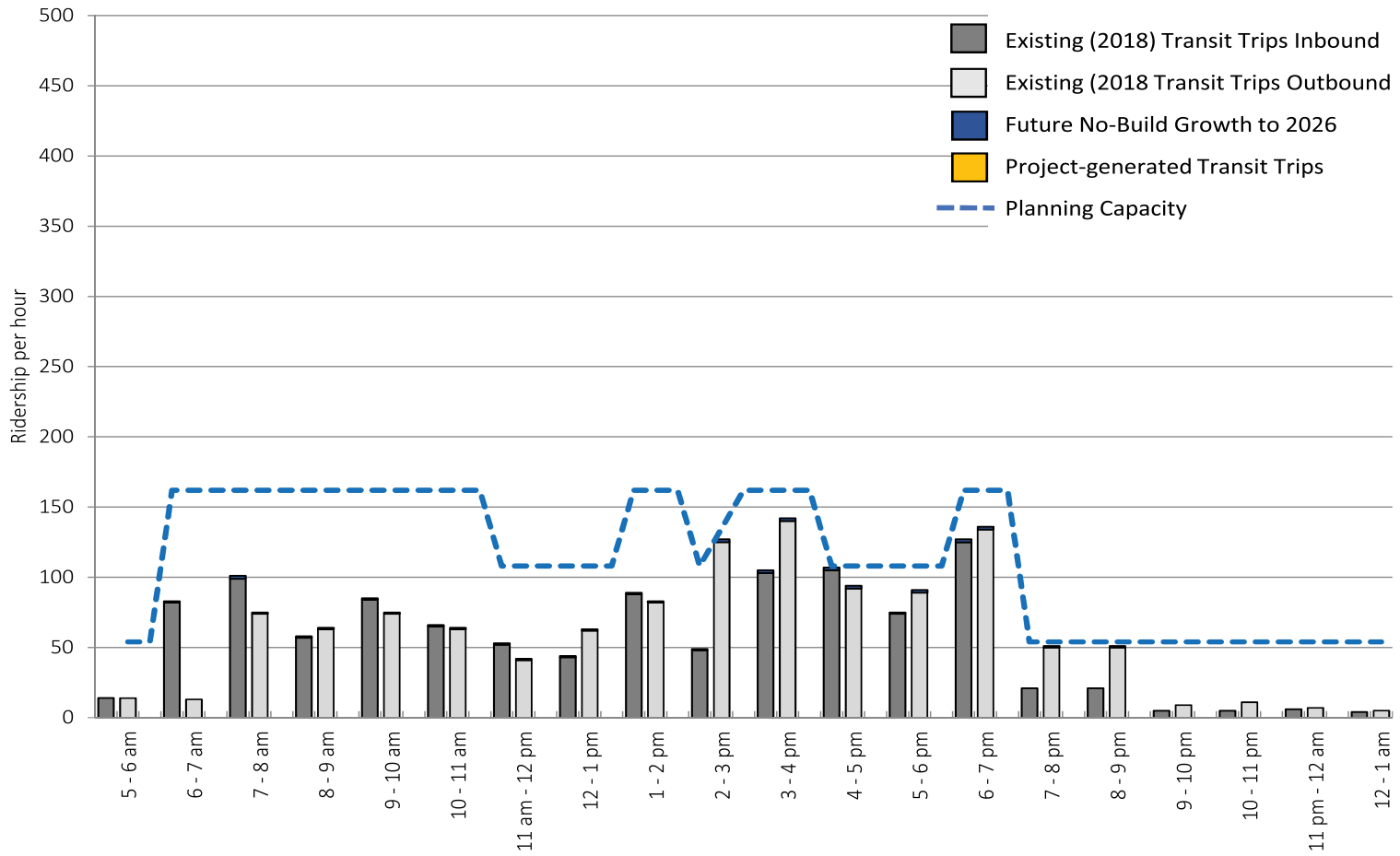


Figure 7-21.
MBTA #120 Bus - Build (2026) Condition Hourly Ridership, Weekday

7.9 Transportation Demand Management

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

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

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

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

- **Transportation Coordinator**: The Proponent will encourage building to designate a full-time, on-site employee as the transportation coordinator for the site. The transportation coordinator will oversee all transportation issues. This includes managing vehicular operations, service and loading operations, and TDM programs.
- **Information and Promotion of Travel Alternatives**: The Proponent will encourage the building to provide public transit system maps, schedules, and other information on transit services in the area;
- **Annual News Letter**: The Proponent will encourage the building to provide an annual (or more frequent) newsletter or bulletin summarizing transit, ridesharing, bicycling, alternative work schedules, and other travel options;
- **Real Time Transit Info**: The Proponent will encourage the building to provide real-time information on travel alternatives via the Internet in the building lobby.
- **Electric Vehicle Charging**: The Proponent will explore the feasibility of providing electric vehicle charging station(s) within the garage.
- **Vehicle Sharing Program**: The Proponent will explore the feasibility of providing spaces in the garage for a car sharing service. The Proponent plans to provide an innovative building-managed private car share service for residents, further enhancing the transportation offerings of this transit-oriented development and further reducing the need for cars.
- **Bicycle Accommodation**: The Proponent will provide bicycle storage in secure, sheltered areas for residents and employees to encourage bicycling as an alternative mode of transportation. Subject to necessary approvals, public use bicycle racks for visitors will be placed near building entrances.

7.10 Response to BPDA Comments (Appendix A)

7.10.1 Streetscape Comments

Comment: Request to provide cross sections with dimensions for proposed streetscape zones, including anticipated roadway widths.

Response: Please see **Figure 7-12.**

Comment: Request to meet 8' preferred pedestrian zone on Bremen Street by reducing the proposed 9' on-street parking/loading and/or increasing building setbacks. Request to maintain street trees and to keep building doors clear of the pedestrian zone.

Response: Building and sidewalk designs have been updated to allow for additional clear pedestrian zone along Bremen street. A full 8-feet clear is being proposed along the first third of the project, at the retail entry and main residential lobby and along the multimodal hub. As the sidewalk progresses along Bremen, with the inclusion of a more private program with the artist workspace, the sidewalk width varies with a minimum of 5 ft clear up to over 8-ft clear. Street trees and furnishing zone width have been maintained, and all building doors are located with additional clear space off of the pedestrian zone.

Comment: Request for clarification on whether the pick-up/drop-off zone will have flush conditions or a standard curb.

Response**:** Standard Curb with an accessible curb-cut.

Comment: Request for continued dialogue with BTD and PWD on how to support the microhub program's elements at the intersection of Bremen and Brooks Streets with site design and proposed curb extensions.

Response: The Proponent will continue to work with the City on supporting the micro mobility hub. The details of the microhub (location, program elements) will be finalized during the TAPA process.

Comment: Request to explore the possibility of integrating the existing BlueBike station into the site design to provide year-round access with BTD.

Response: The proposed location for the relocated Blue bikes station is at a curb bump-out within the furnishing zone, adjacent to the 8 ft clear pedestrian zone at the corner of Brooks and Bremen (see **Figure 3-8**). This location can be finalized during the TAPA process.

7.10.2 Access Comments

Comment: Request to consider alternative loading scenarios, such as loading from Bremen Street.

Response: The project team studied the possibility of alternate locations for loading, however due to the narrow nature of the site, this is the best suited location for loading. The comments received by BTD approved this location. The proposed location of the loading dock is close to the both retail and the residential elevators. The proximity of the loading dock to these elements will make deliveries and move-in/move-out most efficient (see **Figure 3-9**).

Routing delivery drivers through parking level is problematic as it requires 14-ft clear through entirety of drive aisle (not achievable with current first floor height) and difficulty with maneuvering and backing up within 300 ft long single loaded garage may result in deliveries parked on street.

Truck activity will be very minor at this location, and will consist of minor retail deliveries and occasional residential move in/out. Conflicts between vehicles and pedestrians at this curb cut will not occur on a daily basis. To further alleviate potential for conflict – the Site's Transportation Coordinator will oversee the loading operations and schedule move-in/move-out activity to ensure safe and efficient operations

Comment: Request to study whether the floor-to ceiling height for the garage will allow for the 14' clearance needed for truck loading.

Response: The loading area is being designed to allow the 14' clearance within the building. Structural systems will be strategically designed in this area. The vehicular garage height will not be able to accommodate a 14' loading clear height within the drive aisle.

Comment: Request to minimize garage impacts by providing a garage door and limiting access width to 20', in the case of two-way operation, and 10', in the case of one-way operation.

Response: The two-way residential vehicular garage entry is sized at 20' in width.

Comment: Request to provide additional details on bike storage room access to the building and street and type, quantity, and configuration of the racks.

Response: The bike storage is being proposed located off of the garage drive aisle to accommodate 145 bicycles. The project is looking to use an efficient vertical bike locking system, similar to Dero Bike File to create an efficiently laid out and user-friendly form of secure bike storage. The bike racks will be located in two areas, one along the side of the secured garage, adjacent to the lobby entry, and the other within a room that will be open to the garage on the other side of the lobby entry door.

Comment: Request to relocate the bike storage room directly adjacent to the lobby and elevators for improved internal access.

Response: The bike storage has been relocated within the garage adjacent to the lobby and elevators. Bike storage can be accessed directly through the garage or through the main residential entry doors through the lobby, and from the garage

7.10.3 Additional Transportation Analysis

Comment: Request to include the intersections of Bennington/Brooks and Bennington/Putnam in the transportation analyses.

Response: These intersections have been included in the revised transportation study contained in **Section 7.0**.

Comment: Request for a safety analysis of study area intersections and the Brooks Street corridor between Bennington and Bremen Streets using Vision Zero crash data and safety concerns data.

Response: See **Section 7.3.7** for safety analysis.

Comment: Request for an analysis of area transit services, including capacity and delay during peak periods and relative impacts associated with new transit trips supplied by the project. Clarify trip distribution by transit mode for the 826 new transit trips per day.

Response: See **Section 7.7** for transit analysis.

Comment: Request for an analysis of TNC trips generated by the project and their distribution in the street network, specifying whether the trips are additional or accounted for in the existing analysis.

Response: For residential land uses, TNCs are not a primary mode of transportation for daily commuting. The trip generation and traffic operations analysis are considered for these peak commuting periods, therefore TNC usage is not expected to impact the mode share during the peak hours that were analyzed. The Project intends to accommodate TNC activity at the site with a pick-up/drop-off area at the curb along Bremen Street.

7.10.4 Transportation Demand Management Comments

Comment: Recommend unbundling residential parking from the lease and charging a monthly or annual fee for onsite parking.

Response: The proponent agrees that parking costs will be unbundled from unit rent costs.

Comment: Recommend bundled subsidized transit, bike share, and car share memberships for residents and providing real time transportation displays in all lobbies.

Response: Proponent will consider.

Comment: Recommend coordinating with Zipcar to provide at least one on-street car share parking space on Bremen Street.

Response: The Proponent will continue to coordinate with the City during the TAPA process. At this time, a private shared vehicle service is planned for residents of the Project. The proponent is not in a position to negotiate a Zipcar space to be located on City property on Bremen Street.

Comment: Determine the location of the Bluebike station with BTD during the TAPA process.

Response: The proposed location for the relocated Blue bikes station is at a curb bump-out within the furnishing zone, adjacent to the 8 ft clear pedestrian zone at the corner of Brooks and Bremen (see **Figure 3-8**). This location can be finalized during the TAPA process.

7.10.5 Construction Management Plan Comment

Comment: Request to preserve accessible pedestrian paths on both sides of Brook Street throughout the project.

Response: The Proponent will continue to coordinate with the BTD during the Construction Management Plan process.

7.11 Response to BTD Comments (Appendix A)

Comment: Request to consider Zip-car or a similar usage for the build-managed private car share service.

Response: At this time, a private shared vehicle service is planned for residents of the Project.

Comment: Request to restrict future residents of the development from obtaining an East Boston Resident Sticker.

Response: The proponent will work with BTD during the TAPA process restricting residents from obtaining a residential sticker with BTD.

Comment: Request to create a transportation demand management program to reduce the dependency on the automobile by encouraging alternatives to driving alone, especially during peak travel periods.

Response: The Proponent will utilize TDM strategies (outlined in Section 7.8) to reduce the dependency on automobiles. The Site's location lends itself well to a transit-oriented development and all to the extent feasible will be done to encourage that use. The final TDM strategies will be outlined in the TAPA.

Comment: Request to provide a Transportation Access Plan Agreement (TAPA).

Response: The TAPA will be filed with the BTD after the BPDA Article 80 process has concluded.

7.12 Response to Boston Transportation Department ("BTD") Comments, (Robert D'Amico) (Appendix A)

Comments: BTD reviewed the Proposed Project and provided initial comments regarding the location of the Project Site and the transit oriented development ("TOD") programming proposed by the Proponent, as well as the addition of available on-street parking, the location and programming of loading and unloading on Brooks Street, the potential for a private car-share service and the lower parking ratio due to the proximity to the MBTA Airport Train Station. BTD is requesting limiting future resident from obtaining East Boston Resident Parking Sticker and that the Proponent provide a Transportation Access Plan Agreement ("TAPA") due to the location and size of the project.

Response: The proponent is glad that BTD accepts loading from Brooks Street which we are supporting and will make sure it works for the city and neighborhood. We will discuss restricting residents from obtaining a residential sticker with BTD. We will also review considering Zip Car spaces. Our TAPA will create a significant TDM program. A CMP will be filed with BTD.

Howard Stein Hudson (HSH) has conducted an evaluation of the transportation impacts of the proposed redevelopment to be located at 282-308 Bremen Street (the "Project" and/or "Site"), in the East Boston neighborhood of Boston, Massachusetts. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and the Boston Planning and Development Agency (BPDA) Article 80 development review process. The study includes an evaluation of existing condition, future conditions with and without the Project, projected parking demand, transit services, and pedestrian and bicycle activity. It also includes the new analysis and additional intersection counts requested by the BPDA. The project is not expected to have a significant impact on the existing neighborhood or surrounding transportation facilities.

8.0 RESPONSE TO ADDITIONAL AGENCY AND PUBLIC COMMENTS

8.1 Boston Parks and Recreation Commission (Appendix A)

Comments: *The PRC reviewed the Proposed Project and requests that the Proponent:*

- *Conduct a shadow analysis regarding the building's impact on the park until sunset year round;*
- *Provide impact mitigation to the Fund for Parks and Recreation at a level commensurate with the scale and density of the Proposed Project; and*
- *If pets are to be allowed, provide an on-site space for pet relief to minimize the impact on the park.*

Response:

- A detailed shadow analysis is included in **Section 4.1** of this DPIR, which shows limited shadow impacts on the Bremen Street Park during summer and fall evenings; consistent with patterns created by existing structures along this section of Bremen Street. The Proposed Project has also been revised with a further reduction in building heights than originally proposed and studied in the Proponent's PNF; from six (6) to five (5) and four (4) stories, and set-back with increased sidewalk width along Bremen Street. As a result, its limited shadow impacts have been further reduced and mitigated.
- The Project includes a 10-foot buffer zone of usable open space at the rear section of the property site, which could be designed and programmed to create a pet relief area. The Proponent will explore this amenity as part of the ongoing review process.
- The Proponent also acknowledges the IAG's request for "impact mitigation" at a level "commensurate with the scale and density of the Proposed Project," and it will work with the BPDA and IAG to discuss and determine an appropriate level of contribution based on the circumstances. In this regard, the Proponent would like to better understand what specific projects, maintenance and/or up-keep is planned for the Bremen Street Park; at what cost, when and how it relates to State's ownership of the same.
- The Proponent and its architectural and landscape architectural team looks forward to further discussing the IAG's input as part of its review process for the Project, including any further detailed shadow analysis (specific to the park), its potential on-site pet relief program and the requested mitigation. To further this discussion, the Proponent has requested the BPDA's Project Manager schedule an initial pre-file meeting with the IAG (in advance of its official post-approval review of the Proposed Project).

8.2 Article 37 Interagency Green Building Committee (Appendix A)

Comments: *The IGBC reviewed the Proposed Project and requested the completion of the Climate Resiliency Checklist and the preparation of a Zero Carbon Building Assessment.*

Response: The Proponent and its architectural, sustainability, and civil engineering consultant teams will review the Checklist and Assessment to work with the BPDA and the IGBC to help create a sustainable building with as little environmental impact as possible.

8.3 Boston Smart Utilities Project (Appendix A)

Comments: *The BSUP reviewed the Proposed Project and specific requirements related to the BPDA's Smart Utility Technologies and Smart Utilities Policy for Article 80 Development Review for new Article 80 developments.*

Response: The Proponent and architectural, sustainability, and civil engineering consultant teams will review the Smart Utility Standards and work with the BPDA and the BSUP to create a sustainable building with as minimal impact on the utility system infrastructure as possible.

8.4 Boston Public Works Department (Appendix A)

Comments: *PWD reviewed the Proposed Project and provided general standards and somewhat specific PWD requirements applicable to every project.*

Response: The Proponent and its civil engineering team will follow the PWD comments and looks forward to addressing more detailed comments during the Public Improvement Commission ("PIC") review process, if required.

8.5 Response to Public and IAG Comments (Appendices A & B)

8.5.1 Caroline Fromkin, 275 Chelsea Street

Comments: *In support of the Proposed Project.*

Response: We would like to thank Ms. Fromkin for her supportive comments.

8.5.2 Laila Siddiqui, Abutter

Comments: *In support of the Proposed Project.*

Response: We would like to thank Ms. Siddiqui for her supportive comments.

8.5.3 Minkoo Kang, 10 New Street

Comments: In support of the Proposed Project.

Response: We would like to thank them for their supportive comments.

8.5.4 John Walkey, Address Unknown

Comments: In opposition to the Proposed Project. Mr. Walkey commented that the size of the building is too large, taking up most of the lot area with minimal on-site greenspace, as well as design comments.

Response: We thank Mr. Walkey for his comments. In response to concerns of scale and lot coverage, the Proponent has reduced the height of the building by dropping a floor from the original proposed project, reducing the overall height of the building from six (6) stories to five (5) stories, and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space.

8.5.5 Brian Lynch, Address Unknown

Comments: In opposition to the Proposed Project. Mr. Lynch commented that while he has no issues with a residential building being built on the lot, he is concerned with the mass of the proposed building. Mr. Lynch is also concerned with the effect that the addition of the additional residents will have on the park and the shadows created by the new building. Finally, Mr. Lynch is concerned with the addition effect on the traffic and parking in the area this project will have.

Response: We thank Mr. Lynch for his comments. In response to concerns of scale and massing, the Proponent has reduced the height of the building by dropping a floor from the original proposed project, reducing the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space., as well as reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent is committed to working with the Boston Transportation Department ("BTD") in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the Proposed Project. In response to concerns of shadows on the Bremen Street Park, the Proponent provided a shadow study analysis that was included in the Project Notification Form submitted on May 8, 2019. The study showed that the park will receive limited shadows during summer and fall evenings which is consistent with the shadow patterns created by existing buildings on the site and further north and south along Bremen Street; in addition, the Proponent again notes the above detailed decrease in average height of the building as the PNF shadow analysis was reviewed with the original proposed height of the building.

8.5.6 David Cali, Address Unknown

Comments: In opposition to the Proposed Project. Mr. Cali commented that he is concerned with the effect the Proposed Project will have on the park, both in shadow and noise pollution. Mr. Cali is also concerned that the Proposed Project is not in scale with the neighborhood. Finally, Mr. Cali is concerned with the effect the additional residents will have on the traffic and parking in the area.

Response: We thank Mr. Cali for his continued engagement and comments on the Proposed Project. In response to concerns of shadows on the Bremen Street Park, the Proponent provided a shadow study analysis that was included in the Project Notification Form submitted on May 8, 2019. The study showed that the park will receive limited shadows during summer and fall evenings which is consistent with the shadow patterns created by existing buildings on the site and further north and south along Bremen Street; in addition, the Proponent again notes the above-detailed decrease in average height of the building as the PNF shadow analysis was reviewed with the original proposed height of the building.

In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space., as well as reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent has also improved on the design of the building to better align with the fabric of the neighborhood during the BPDA Design Review process.

Additionally, the Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project.

8.5.7 Andrew Zimmerman, Address Unknown

Comments: Neutral with regard to the Proposed Project. Mr. Zimmerman comments that both of the proposed Uses for the Proposed Project are desirable and compatible with the area. He comments positively on the location of the retail Use. Mr. Zimmerman did not like the architecture of the Proposed Project. While he is for a parking ratio below 1 to 1, Mr. Zimmerman feels the Proposed Project should have more on-site parking. Finally, he feels that the overall height and density are excessive.

Response: We thank Mr. Zimmerman for his comments on the Proposed Project. The Proponent has made changes to the design of the building to better align with the fabric of the neighborhood during the BPDA Design Review process and notes that the architectural design pulls from various buildings in the neighborhood, including the new public library building at the end of Bremen Street. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building

from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space, it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent also notes that with the responsive reduction and changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers).

8.5.8 Matthew Edmond, Address Unknown

Comments: *In support of the Proposed Project.*

Response: We would like to thank Mr. Edmond for his supportive comments.

8.5.9 Michael Favaloro, Address Unknown

Comments: *In support of the Proposed Project.*

Response: We would like to thank Mr. Favaloro for his supportive comments.

8.5.10 Jodi Remington, Address Unknown

Comments: *In opposition to the Proposed Project. Ms. Remington commented that the height and density will add to a neighborhood that is already too congested. She is concerned about shadows on the abutting neighbors, the effects on the community services and the already existing retail. Finally, Ms. Remington felt that the developers did not complete the required community process.*

Response: We thank Ms. Remington for her continued engagement and comments on the Proposed Project. In response to concerns of shadows on the Bremen Street Park, the Proponent provided a shadow study analysis that was included in the PNF submitted on May 8, 2019. The study showed that the park will receive limited shadows during summer and fall evenings which is consistent with the shadow patterns created by existing buildings on the site and further north and south along Bremen Street; in addition, the Proponent again notes the above-detailed decrease in average height of the building as the PNF shadow analysis was reviewed with the original proposed height of the building.

In response to concerns of scale and massing, the Proponent has reduced overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent has also improved on the design of the building to better align with the fabric of the neighborhood.

The Proponent began initial outreach on the project in late 2018 by way of a flyer introduction and initiation to meet in both English and Spanish to all abutters for an informal community meeting.

Subsequently, the Proponent presented to both the Maverick Central Neighborhood Association and Eagle Hill Civic Association, and the BPDA held a public meeting on the project on June 5, 2019. The BPDA also held an IAG meeting on the project on May 28, 2019. The Proponent is committed to a robust and transparent community process and looks forward to continued engagement from abutters, residents, and the BPDA.

8.5.11 Christina Lepre, Address Unknown

Comments: In opposition to the Proposed Project. Ms. Lapre feels that the height and density of the Proposed Project is out of character with the neighborhood even though the development team seemed thoughtful in their planning. Ms. Lepre is also concerned with the effect the shadow of the building will have on the park and has concerns about on-street parking in the area.

Response: We thank Ms. Lepre for her comments on the Proposed Project. In response to concerns of shadows on the Bremen Street Park, the Proponent provided a shadow study analysis that was included in the Project Notification Form submitted on May 8, 2019. The study showed that the park will receive limited shadows during summer and fall evenings which is consistent with the shadow patterns created by existing buildings on the site and further north and south along Bremen Street; in addition, the Proponent again notes the above-detailed decrease in average height of the building as the PNF shadow analysis was reviewed with the original proposed height of the building.

In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent has also proposed to close approximately 153 feet of curb cuts on its property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.12 Eileen White, Address Unknown

Comments: In opposition to the Proposed Project. Ms. White feels that the building height and density are excessive. Ms. White is also concerned about the possible increase in traffic and the impact on the Blue Line as well as feeling that the addition of a retail space to Bremen Street is unnecessary.

Response: We thank Ms. White for her comments on the project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories,

as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space.; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145.

The Proponent has also proposed to close approximately 153 feet of curb cuts on its property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents. The limited retail services being proposed at the corner of Bremen and Brooks should help service residents and travelers using the nearby MBTA Airport Blue Line Station.

8.5.13 Cathy Huban, Address Unknown

Comments: In Opposition to the Proposed Project. Ms. Huban commented that the height and density of the project is out of character with the neighborhood, the on-site parking is inadequate, there will be a negative impact on traffic and on-street parking, a safety issue for pedestrians crossing at or near the site to the park or the Blue Line, the effect the new retail space will have on the existing stores in the area, the impact the increase in on-street parking will have on community and emergency services and the effect the additional residents will have on the Blue Line.

Response: We thank Ms. Huban for her continued engagement and comments on the project In response to concerns of scale and massing, the Proponent has reduced the height of the building by dropping a floor from the original proposed project, reducing the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space.; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project. In response to concerns of shadows on the Bremen Street Park, the Proponent provided a shadow study analysis that was included in the Project Notification Form submitted on May 8, 2019; in addition, the Proponent again notes the above detailed decrease in average height of the building as the PNF shadow analysis was reviewed with the original proposed height of the building.

The Proponent has also proposed to close approximately 153 feet of curb cuts on its property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.14 Palma Basile, Address Unknown

Comments: In opposition to the Proposed Project. They commented that the Proposed Project will have a negative effect on the available on-street parking.

Response: The Proponent has proposed to close approximately 153 feet of curb cuts on our property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.15 Brian Ferrari (MCNA), Address Unknown

Comments: In opposition to the Proposed Project. Mr. Ferrari commented that the Proposed Project is too massive, will have a negative effect on the available on-street parking and traffic on Bremen Street, negatively impact the Blue Line and will create safety concerns for pedestrians.

Response: We thank Mr. Ferrari for his continued engagement and comments on the project. In response to concerns of scale and massing, the Proponent has reduced overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project. The Proponent has also proposed to close approximately 153 feet of curb cuts on our property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.16 Isabel Ferrari (MCNA), Address Unknown

Comments: In opposition to the Proposed Project. Ms. Ferrari commented that the Proposed Project is too massive and that the lack of on-site parking will negatively impact traffic and on-street parking in the neighborhood.

Response: We thank Ms. Ferrari for her continued engagement and comments on the project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project. The Proponent has also proposed to close approximately 153 feet of curb cuts on our property along Bremen Street and Brooks Street to

provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.17 Jarret Bencks, Address Unknown

Comments: Is neutral to the Proposed Project. Mr. Bencks comment that the location is a prime location for a car-free development and asked if the developer would consider adding more retail space to the ground level.

Response: We thank Mr. Bencks for his comments on the Proposed Project. In response to the public input and BPDA's Article 80 review process, the size of the retail component for the project has been expanded from 2,000 gsf to 3,200 gsf. We also remain committed to providing a robust and active streetscape on Bremen Street that will include a retail component on the corner of Bremen and Brooks. Additionally, we will work with the neighborhood and City to find the best tenant for the expanded retail space.

8.5.18 Adam Siegel, Address Unknown

Comments: In opposition to the Proposed Project. Mr. Siegel commented that the Proposed Project is too large for the area, there is not enough on-site parking and that it will have a negative impact on the traffic in the area.

Response: We thank Mr. Siegel for his comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the Proposed Project.

8.5.19 Eva Dimaggio, Address Unknown

Comments: In opposition to the Proposed Project. Ms. Dimaggio commented that the Proposed Project's height and scale is too large for the neighborhood, the lack of on-site parking will have a negative impact on the on-street parking and traffic in the area, the increase in traffic will create safety issues for pedestrians, and will negatively impact the Blue Line. Ms. Dimaggio also commented that the addition of the retail space will add to the parking and safety concerns.

Response: We thank Ms. Dimaggio for her comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from

six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project.

8.5.20 Susie Siegel, Address Unknown

Comments: In opposition to the Proposed Project. Ms. Siegel commented that the Proposed Project is too large for the area, there is not enough on-site parking and that it will have a negative impact on the traffic in the area.

Response: We thank Ms. Siegel for her comments on the project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project.

8.5.21 Minkoo Kang, Address Unknown

Comments: In support of the Proposed Project.

Response: We would like to thank them for their supportive comments.

8.5.22 Samantha-Rae Tuthill, Chelsea Street

Comments: In opposition to the Proposed Project. Ms. Tuthill commented that the addition of the Proposed Project will affect her commute to work, on-street parking, neighborhood retail establishments and will increase the rent in the surrounding area. Ms. Tuthill also expressed concern about the effect of the Proposed Project on the landscape, culture and atmosphere of the neighborhood.

Response: The project off-street parking is sufficient for both residents and visitors to the development. The addition of 3,200 sf of retail space will add to the services available to area-wide residences. The DPIR changes also adds more streetscape improvements, the addition of a

BlueBike location along Bremen Street and additional work-live space to provide more vibrance and more opportunities for this portion of the neighborhood population.

8.5.23 Talia Rhodes, Address Unknown, Chelsea St. Resident

Comments: In opposition to the Proposed Project. Ms. Rhodes commented that this project would put pressure on the transportation system in her home City of Chelsea.

Response: We thank Ms. Rhodes for her comments on the Proposed Project. The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the Proposed Project. The Proponent also respectfully notes that the commenter is not an East Boston resident.

8.5.24 Claudia Clarke, Address Unknown

Comments: In opposition to the Proposed Project.

Response: We thank Ms. Clarke for her comments on the Proposed Project and look forward to continuing to work with the neighborhood, abutters, elected officials and the BPDA in order to further improve the Proposed Project.

8.5.25 Lane Hook, Address Unknown

Comments: In opposition to the Proposed Project. They commented that this project will increase the homelessness population in the City of Boston.

Response: We thank Ms. Hook for her comments on the Proposed Project and look forward to continuing to work with the neighborhood, abutters, elected officials and the BPDA in order to further improve the Proposed Project. The Proponent notes that the addition of approximately 145 residential dwelling units without significant residential displacement in the neighborhood will only help increase the housing stock in the neighborhood and City of Boston thus providing more opportunities and availability of housing for residents.

8.5.26 Elana Bertkau, Address Unknown

Comments: In opposition to the Proposed Project. Ms. Bertkau commented that the height and density of the Proposed Project would have a negative effect on the traffic, parking and the transit in the neighborhood. She requests that the developer increase the number of cars in the car share program and improve the safety of the intersections. Ms. Bertkau commented that she would support the Proposed Project if the height and unit count were lowered.

Response: We thank Ms. Bertkau for her comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories

to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. Proponent With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the project.

8.5.27 Max Gruner (EB Main Streets), Address Unknown

Comments: *In support of the Proposed Project. Mr. Gruner commented that the size, scope and design of the Proposed Project will enhance life for the residents of East Boston and that the environmentally friendly design will benefit the neighborhood.*

Response: We would like to thank Mr. Gruner for his supportive comments.

8.5.28 Abby Coburn, Address Unknown

Comments: *In opposition of the Proposed Project.*

Response: We thank Ms. Coburn for her comments on the Proposed Project.

8.5.29 Jeff Thomas, Address Unknown

Comments: *In support of the Proposed Project. Mr. Thomas commented that the design complemented other buildings in the area, and that the smaller number of on-site parking will discourage residents from owning and using cars. He also commented that the design of the sidewalk improvements will add to the safety in the area and the addition of the retail space is well-designed and would like to see a larger space. Mr. Thomas did have reservations about the overall size of the building and the unit size within Proposed Project.*

Response: We would like to thank Mr. Thomas for his supportive comments. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145.

8.5.30 Lauran O'Hara, Address Unknown

Comments: In support of the Proposed Project. Ms. O'Hara commented that she is in support of the Proposed Project but would like to see additional retail space on the ground floor and improved safety at the intersection at the site.

Response: We would like to thank Ms. O'Hara for her supportive comments. In response to the public input and as part of the BPDA's Article 80 review process, the size of the retail component for the project has been expanded from 2,000 gsf to 3,200 gsf. The Proponent is also committed to working with the BTD, in the required TAPA process, on mitigating measures to address and improve public safety at the nearby intersection.

8.5.31 Bob D'Amelio, Address Unknown

Comments: In opposition of the Proposed Project. Mr. D'Amelio commented generally on the parking and traffic generally in East Boston as well as the traffic at the Callahan Tunnel.

Response: We thank Mr. D'Amelio for his comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent is committed to working with the BTD in the TAPA to review the traffic study and work towards mitigating against any potential impacts resulting from the Proposed Project.

8.5.32 Kenneth Bertkau, Address Unknown

Comments: In opposition of the Proposed Project. Mr. Bertkau commented the height of the building is too large and the Proposed Project will create a hazard at the intersection and cause local business to close.

Response: We thank Mr. Bertkau for his comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. The Proponent is committed to working with the BTD in the TAPA to provide a safer pedestrian experience at the corner of Brooks and Bremen.

8.5.33 Gina Maria DeAcetis Powers, 9 Bolton Place, Charlestown

Comments: In support of the Proposed Project. As a relative of the previous owner of the property, Ms. Powers commented that after reviewing many proposals, they felt that the Proponent and Proposed Project was the right fit for the East Boston community.

Response: We would like to thank Ms. Powers for her supportive comments.

8.5.34 Michael Ross, 288 Marginal Street

Comments: In support of the Proposed Project. Mr. Ross commented that the Proposed Project will add much-need housing to the neighborhood, including numerous affordable units.

Response: We would like to thank Mr. Ross for his supportive comments.

8.5.35 Chris Johns, 156 Porter Street, #339

Comments: In support of the Proposed Project. Mr. Johns commented that retail space on the ground floor and the increased space on the adjoining sidewalks creates room for the public. He also commented that the location near the T and the airport is appropriate for a building of this height. Mr. Johns did feel the Proposed Project would benefit from a refinement of the overall design of the building.

Response: We would like to thank Mr. Johns for his supportive comments.

8.5.36 Justin Pasquariello (EB Social Centers), 68 Central Square

Comments: In support of the Proposed Project.

Response: We would like to thank Mr. Pasquariello for his supportive comments.

8.5.37 Lisa Cappuccio, 322 Bremen Street, #3

Comments: In opposition of the Proposed Project. Ms. Cappuccio commented that the proposed on-site parking for the Proposed Project will have a negative effect on parking in the neighborhood and on the MBTA in the area.

Response: We thank Ms. Cappuccio for her comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with

the inclusion and use of stackers). The Proponent has also proposed to close approximately 153 feet of curb cuts on our property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.38 Erica Wilts, Address Unknown

Comments: In support of the Proposed Project.

Response: We would like to thank Ms. Wilts for her supportive comments.

8.5.39 Komal Basra and Michael Peer, 322 Bremen Street, #2

Comments: In opposition of the Proposed Project. They commented that the proposed on-site parking for the Proposed Project will have a negative effect on parking in the neighborhood and on the MBTA in the area.

Response: We thank Mr. Basra and Mr. Peer for their comments on the Proposed Project. In response to concerns of scale and massing, the Proponent has reduced the overall height of the building from six (6) stories to five (5) stories and the north and south ends of the building from five (5) stories to four (4) stories, as well as increased the sidewalk width along Bremen Street to create more green space and publicly accessible space; it has also reduced the FAR from approximately 3.7 to 3.2 and the unit count from 165 to 145. With the changes in massing and density, the parking ratio is now at approximately 0.29 (and with the ability to potentially increase the parking ratio up to 0.42 with the inclusion and use of stackers). The Proponent has also proposed to close approximately 153 feet of curb cuts on our property along Bremen Street and Brooks Street to provide an enhanced public realm and better pedestrian safety with the potential for additional legal on-street parking spaces for residents.

8.5.40 Derek Brodin, 69 Waldermar Avenue

Comments: In support of the Proposed Project. Mr. Brodin commented that retail space on the ground floor and the increased space on the adjoining sidewalks creates room for the public. He also commented that the Proposed Project will revitalize the Bremen Street area.

Response: We would like to thank Mr. Brodin for his supportive comments.

8.5.41 Lauren Elle Gerdeman Coburn, 156 Porter Street, #147

Comments: In support of the Proposed Project. Ms. Coburn commented that the increased space on the adjoining sidewalks will activate the street and engage the public. She also commented that the location near the park is appropriate for a building of this height and will add much needed housing to the area.

Response: We would like to thank Ms. Coburn for her supportive comments.

8.5.42 Jessie Franco, 9 Jeffries Street, #3

Comments: In support of the Proposed Project.

Response: We would like to thank them for their supportive comments.

8.5.43 Marc Savatsky, 9 Jeffries Street

Comments: In support of the Proposed Project. Mr. Savatsky commented that the increased space on the adjoining sidewalks will activate the street and engage the public. She also commented that the location near the park is appropriate for a building of this height and will add much needed housing to the area.

Response: We would like to thank Mr. Savatsky for his supportive comments.

9.0 COORDINATION WITH GOVERNMENTAL AGENCIES

9.1 Architectural Access Board Requirements

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

9.2 Massachusetts Environmental Policy Act

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

9.3 Boston Civic Design Commission

The Project expects to exceed the 100,000 gross square feet size threshold requirement requiring review by the Boston Civic Design Commission.

9.4 Boston Parks Commission

As the Proposed Project is across from the Bremen Street Community Park, review by the Boston Parks Commission will be required**.**

10.0 PROJECT CERTIFICATION

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

282 Bremen Development, LLC

Signature of Proponent

10/10/19
Date

Mitchell L. Fischman ("MLF")
Consulting LLC

Signature of Preparer
Mitchell L. Fischman, Principal

10/10/19
Date

APPENDIX A – DPIR SCOPING DETERMINATION, AGENCY AND PUBLIC COMMENTS, AUGUST 21, 2019

BOSTON REDEVELOPMENT AUTHORITY
D/B/A BOSTON PLANNING & DEVELOPMENT AGENCY

SCOPING DETERMINATION
282-308 BREMEN STREET

SUBMISSION REQUIREMENTS
FOR DRAFT PROJECT IMPACT REPORT ("DPIR")

PROPOSED PROJECT:	282-308 BREMEN STREET
PROJECT SITE:	AN APPROXIMATELY 34,160 SQUARE FOOT PARCEL BOUNDED TO THE NORTHWEST BY THE REAR PROPERTY LINES OF MULTI-FAMILY RESIDENTIAL PROPERTIES ALONG CHELSEA STREET, TO THE NORTHEAST BY MULTI-FAMILY RESIDENTIAL PROPERTIES ALONG BREMEN STREET, TO THE SOUTH BY BREMEN STREET AND TO THE SOUTHWEST BY BROOKS STREET
PROPONENT:	282 BREMEN DEVELOPMENT LLC C/O TRANSOM REAL ESTATE, LLC
DATE:	AUGUST 21, 2019

The Boston Redevelopment Authority ("BRA"), d/b/a the Boston Planning & Development Agency ("BPDA") is issuing this Scoping Determination pursuant to Section 80B-5 of the Boston Zoning Code (the "Code"), in response to a Project Notification Form ("PNF"), which 282 Bremen Development, LLC (the "Proponent") filed on May 8, 2019 in connection with the proposed 282-308 Bremen Street project in East Boston (the "Proposed Project"). Notice of the receipt by the BPDA of the PNF was published in the *Boston Herald* on May 8, 2019, which initiated a public comment period with a closing date of June 10, 2019. Pursuant to Section 80A-2 of the Code, the PNF was sent to the City of Boston (the "City") and state public agencies/departments and elected officials on May 8, 2019. Hard copies of the PNF were also sent to all of the Impact Advisory Group ("IAG") members.

On March 21, 2019, the Proponent filed a Letter of Intent ("LOI") in accordance with the Mayor's Executive Order Regarding Provision of Mitigation by Development Projects in Boston for the redevelopment of an approximately 34,160 square foot land currently occupied by two (2) automobile repair facilities, surface parking, and a four (4) unit multi-family residential property located at 282-308 Bremen Street in the East Boston neighborhood of Boston.

On March 26, 2019, letters soliciting IAG nominations for the Proposed Project were delivered to City Councilor Lydia Edwards, State Representative Adrian Madaro, and State Senator Joseph Boncore. Additional letters seeking recommendations were delivered to the Mayor's Office of Neighborhood

Services and the City Councilors At-Large. Nominations were also sought from the BPDA Planning department.

Thirteen (13) individuals were nominated and appointed to the IAG and have been invited to participate in advising BPDA and City staff on the Proposed Project's possible impacts and appropriate mitigation.

The following is a list of the IAG members:

1. Jesse Schomer
2. Carol Ann Aloisi
3. David Sampson
4. Kyla McCartney
5. Nina Gaeta
6. Mariellen Dalton
7. Margaret Kelly
8. Tony Portillo
9. Joseph Gaeta
10. James Kros
11. Elena Bertkau
12. Thompson Vou
13. David Shulman

The BPDA appreciates the efforts of the IAG and the members should be applauded for their commitment to the review of the Proposed Project.

Pursuant to Section 80B5.3 of the Code, a Scoping Session was held on May 30, 2019, with the BPDA, the City's public agencies/departments, and local elected officials at which time the Proposed Project was reviewed and discussed. IAG members were also invited to attend the Scoping Session.

An IAG meeting was held on May 28, 2019, at the BCYF Paris Street Community Center located at 112 Paris Street, East Boston, MA. 02128. A BPDA sponsored and advertised public meeting was held on June 5, 2019 at the BCYF Paris Street Community Center.

Included in the Scoping Determination are written comments that were received by the BPDA in response to the PNF, from BPDA staff, public agencies/departments, elected officials, the general public, and IAG members. All of which are included in **Appendices A, B, and C and must be answered in their entirety,**

Appendix A includes written comments from the BPDA, public agencies/departments, and any elected officials.

Specifically, they are:

- BPDA Planning and Urban Design departments
- Kathleen Pederson, Interagency Green Building Committee ("IGBC")
- Bob D'Amico, City of Boston Transportation Department ("BTD")

- Carrie Marsh, City of Boston Parks and Recreation Department ("BPRD")
- Zachary Wassmouth, City of Boston Public Works Department ("PWD")
- John P. Sullivan, Boston Water and Sewer Commission ("BWSC")

Public comments received by the BPDA during the comment period are included in **Appendix B.**

IAG member comments received by the BPDA during the comment period are included in **Appendix C.**

The Scoping Determination requests information that the BPDA requires for its review of the Proposed Project in connection with Article 80 of the Code, Development Review and Approval, and other applicable sections of the Code.

In addition to the specific submission requirements outlined in the sections below, the following points are highlighted for additional emphasis and consideration:

- During the initial review phase and prior to it, the Proponent has taken steps to meet with various community stakeholders including, abutters, area civic associations (specifically, the Eagle Hill Civic Association and Maverick Central Neighborhood Association), elected officials, and various City agencies/departments. In conjunction with the next phase of the Article 80 Large Project Review process, the Proponent should continue to hold regular conversations and meetings with all interested parties through the duration of the public review process. Additionally, the BPDA requests that the Proponent complete each civic association's development review processes prior to the completion of the Article 80 public review process.

- The Proposed Project has simultaneously generated excitement and concern. While many comments show a desire to see the Project Site redeveloped, other comments indicate the need for revisions to the Proposed Project (i.e. height, density, etc.) or request that additional studies or information be provided in order further evaluate and/or minimize the potential impacts of the Proposed Project. The BPDA encourages the Proponent to continue to work with those parties and consider revisions to the Proposed Project to address concerns expressed by various community stakeholders in order to minimize and mitigate the Proposed Project's impacts.

- As stated in the PNF, the Proponent intends to provide up to sixty-eight (68) off-street vehicle parking spaces for approximately one hundred sixty-five (165) residential units. A better understanding of how these spaces will be allocated to prospective residents and visitors and how they may be managed should be provided in the DPIR.

- Given the Proposed Project's proximity to public transit, the Proponent should promote alternative modes of transit to prospective residents and visitors of the Proposed Project and should incorporate and outline transportation demand management ("TDM") measures to off-set potential impacts to the neighborhood in the DPIR.

- Utilizing the feedback obtained during the initial review phase, the Proponent should continue to work with the BTD, BPDA, and other applicable public agencies and departments

to address concerns regarding site access, circulation of traffic in and around the Project Site, potential traffic impacts, and appropriate mitigation in and around the impacted neighborhood.

- Considering the Proposed Project's proximity to the East Boston Greenway and other publicly owned open space areas in the neighborhood, the Proponent should proactively engage and consult with the BPRD and other applicable public agencies to address anticipated impacts on public parks and open spaces in the area.

- All development projects have construction impacts. As with any urban development, there needs to be a balance of construction-related inconveniences with the daily activities that will continue to occur adjacent to the Proposed Project site. A detailed approach to the Proposed Project's construction management that takes into account public feedback must be included in the DPIR.

- The Proponent must take into account all BPDA approved and under review proposals in the East Boston neighborhood of Boston, scheduled infrastructure improvements in the general area, and nearby developments in the City while conducting the DPIR's required studies (transportation, infrastructure, environmental, etc.).

- The Proponent should continue to work with community stakeholders, the IAG, BPDA, and other applicable City agencies/departments to determine appropriate mitigation and other public benefits to address the Proposed Project's impact on the neighborhood. An outline or list of the proposed mitigation and any other public benefits to be provided through the Proposed Project shall be reviewed by the IAG, BPDA, and City prior to the conclusion of the Article 80 review process.

I. PROJECT SITE

The Proposed Project is located at 282-308 Bremen Street in East Boston on several parcels which collectively comprise approximately 34,160 square feet (0.78 acres) of land (the "Project Site"). The Project Site is currently occupied by two (2) automobile repair facilities, a multi-family residential building, and surface parking and is bounded to the northwest by the rear property lines of multi-family residential properties along Chelsea Street, to the northeast by multi-family residences along Bremen Street, to the south by Bremen Street, and to the southwest by Brooks Street. The Massachusetts Bay Transportation Authority ("MBTA") Airport Blue Line subway station is located within an approximately two (2) minute walking distance (~435 feet) of the Project Site.

II. PROJECT DESCRIPTION

The Proposed Project, as described in the PNF, consists of the demolition of the existing structures occupying the Project Site and the construction of a six (6) story, 125,000 square foot mixed-use building with approximately one hundred sixty five (165) residential rental units, up to sixty eight (68) off-street vehicle parking spaces, at least one hundred sixty five (165) on-site bicycle storage spaces, and associated landscape and streetscape improvements. The residential unit mix within the Proposed Project includes fifty-eight (58) studio units, eighty-two (82) one-bedroom units, and

twenty-five (25) two-bedroom units. Of the total one hundred sixty-five (165) residential units, three (3) are proposed as "Artist Live/Work Units".

III. PREAMBLE

The Proposed Project is being reviewed pursuant to Article 80, Development Review and Approval, which sets forth a comprehensive procedure for project review of the following components: transportation, environmental protection, urban design, historic resources, infrastructure systems, site plan, tidelands, and Development Impact Project applicability. The Proponent is required to prepare and submit to the BPDA a DPIR that meets the requirements of the Scoping Determination by detailing the Proposed Project's impacts and proposed measures to mitigate, limit or minimize such impacts, as a supplement and update to the studies completed and the materials provided in connection with the PNF. The DPIR shall contain the information necessary to meet the specifications of Section 80B-3 (Scope of Large Project Review; Content of Reports) and Section 80B-4 (Standards for Large Project Review Approval), as required by the Scoping Determination. After submitting the DPIR, the Proponent shall publish notice of such submittal as required by Section 80A-2. Pursuant to Section 80B-4(c) (i) (3), the BPDA shall issue a written Preliminary Adequacy Determination ("PAD") within sixty (60) days. Public comments, including the comments of public agencies, shall be transmitted in writing to the BPDA no later than fifteen (15) days prior to the date by which the BPDA must issue its PAD. The PAD shall indicate the additional steps if any, necessary for the Proponent to satisfy the requirements of the Scoping Determination. If the BPDA determines that the DPIR adequately describes the Proposed Project's impacts and, if appropriate, propose measures to mitigate, limit or minimize such impacts, the PAD will announce such a determination and that the requirements of further review are waived pursuant to Section 80B-5.4(c) (iv). Section 80B-6 requires the Director of the BPDA to issue a Certification of Compliance indicating the successful completion of the Article 80 development review requirements before the Commissioner of Inspectional Services can issue any building permit for the Proposed Project.

IV. REVIEW/SUBMISSION REQUIREMENTS

In addition to full-size scale drawings, ten (10) copies of a bound booklet and an electronic copy (PDF format) containing all submission materials reduced to size 8-1/2" x 11", except where otherwise specified, are required. The booklet should be printed on both sides of the page. Bound booklets should be mailed directly to all of the IAG members. A copy of this Scoping Determination should be included in the booklet for reference. The electronic copy and all of the relevant project details should also be submitted to the BPDA via the Developer Portal website: https://developer.bostonplans.org/

A. General Information

1. Applicant/Proponent Information
   a. Development Team
      (1) Names
         (a) Proponent (including a description of development entity and type of corporation, and the principals thereof)
         (b) Attorney

(c) Project consultants and architect(s)

(2) Business address, telephone number, and e-mail, where available for each

(3) Designated contact person for each

b. Legal Information

(1) Legal judgments or actions pending concerning the Proposed Project

(2) History of tax arrears on property owned in Boston by Applicant

(3) Evidence of site control over the project area, including current ownership and purchase options, if any, for all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the Proponent's right or ability to accomplish the Proposed Project, and the nature of the agreements for securing parcels not owned by the Applicant

(4) Nature and extent of any and all public easements into, through, or surrounding the site

2. Project Area

a. An area map identifying the location of the Proposed Project

b. Description of metes and bounds of the project area or certified survey of the project area

c. Assessing Department Parcel ID numbers for all parcels of land included as part of the Project Site

d. Current zoning for the Project Site (both underlying and Planned Development Area ("PDA") restrictions/requirements if applicable)

3. Project Description and Alternatives

a. The DPIR shall contain a full description of the Proposed Project and its components, including its size, physical characteristics, development schedule, costs, and proposed uses. This section of the DPIR shall also present an analysis of the development context of the Proposed Project. The appropriate site and building plan to clearly illustrate the Proposed Project shall be required.

b. A description of alternatives to the Proposed Project that were considered shall be presented and primary differences among the alternatives, particularly as they may affect environmental and traffic/transportation conditions, shall be discussed.

i. An "as of right" zoning project alternative should be included in this section

4. Public Benefits

a. Anticipated employment levels including the following:

(1) Estimated number of construction jobs
(2) Estimated number of permanent jobs

b. Current and/or future activities and programs which benefit the host neighborhood, adjacent neighborhoods of Boston and the City at large, such as; childcare programs, scholarships, internships, elderly services, education, job training programs, public realm/infrastructure improvements, grant programs, etc.
c. Other public benefits, if any, to be provided

5. Community Process

a. A list of meetings held and proposed with interested parties, including public agencies/departments, abutters, civic associations, elected officials, businesses, and other community stakeholders
b. Names and addresses of project area owners, abutters, and any community or business groups which, in the opinion of the Proponent, may be substantially interested in or affected by the Proposed Project

B. REGULATORY CONTROLS AND PERMITS

An updated listing of all anticipated permits or approvals required from other municipal, state or federal agencies, including a proposed application schedule must be included in the DPIR.

A statement on the applicability of the Massachusetts Environmental Policy Act ("MEPA") should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BPDA, including, but not limited to, a copy of the Environmental Notification Form, decisions of the Secretary of Environmental Affairs, and the proposed schedule for coordination with BPDA procedures.

C. TRANSPORTATION COMPONENT

In addition to the information required to meet the specifications of Section 80B-3 and Section 80B-4 of the Code, the Proponent must also refer to the BTD "Transportation Access Plan Guidelines", "Traffic Engineering Design Guidelines and Standards", and "Go Boston 2030 Vision and Action Plan" in preparing its studies for the DPIR.

The DPIR must also address the comments outlined by BTD and BPDA staff included in **Appendix A**.

In addition to the required information, the BPDA requests that the Proponent evaluate the existing multi-modal transportation network and public infrastructure in the impacted neighborhood and identify potential improvements/mitigation in the neighborhood they may be undertaken as part of the Proposed Project to offset any impacts that may be generated as a result of the proposal.

D. ENVIRONMENTAL PROTECTION COMPONENT

In addition to the information required to meet the specifications of Section 80B-3 and Section 80B-4 of the Code, the DPIR must address and respond to the comments of the BPDA as well as the comments of the Article 37 Interagency Green Building Committee included in **Appendix A**.

The DPIR should include the most up to date Article 37- Green Buildings and IGBC documentation.

Geotechnical Impact/Groundwater

To the extent not provided in the PNF, an analysis of existing sub-soil conditions at the Project Site, groundwater levels, the potential for ground movement and settlement during excavation and foundation construction, and potential impact on adjacent buildings, utility lines, and the roadways shall be required. This analysis shall also include a description of the foundation construction methodology (e.g., pier pilings), the amount and method of excavation, and measures to prevent any adverse effects on adjacent buildings, utility lines, roadways, and the harbor.

Maintaining groundwater levels in the City is required. Consultation with the Boston Groundwater Trust ("BGWT") regarding potential groundwater impacts in areas influenced by tidal fluctuations is recommended. Measures to ensure that groundwater levels will be maintained and will not be lowered during, or after, construction shall be described. If on-going pumping is required, the metering of discharge must be conducted with oversight by the BWSC. Levels reported shall be based on Boston City Base ("BCB").

Construction Impacts

As applicable, construction impact analysis shall include a description and evaluation of the following:

(a) Potential dust and pollutant emissions and mitigation measures to control these emissions, including participation in the Commonwealth's Clean Construction Initiative.

(b) Potential noise generation and mitigation measures to minimize any increase in noise levels.

(c) Location of construction staging areas and construction worker parking; measures to encourage carpooling and/or public transportation use by construction workers.

(d) Construction schedule, including hours of construction activity.

(e) Access routes for construction trucks and the anticipated volume of construction truck traffic.

(f) Construction methodology (including foundation and piling construction), amount and method of excavation required, disposal of the excavated material, description of foundation support, maintenance of groundwater levels, and measures to prevent any adverse effects or damage to adjacent structures and infrastructure.

(g) Method of the demolition of existing buildings on the site and disposal of the demolition waste, as applicable.

(h) Potential for the recycling of construction and demolition debris, including asphalt from existing parking lots.

(I) Identification of best management practices to control erosion and to prevent the discharge of sediments and contaminated groundwater or stormwater runoff into the City's drainage system during the construction period.

(j) Coordination of project construction activities with other major construction projects being undertaken in the project vicinity at the same time, including scheduling and phasing of individual construction activities.

(k) Impact of project construction on rodent populations and description of the proposed rodent control program, including frequency of application and compliance with applicable City and State regulatory requirements.

(l) Measures to protect public safety.

Rodent Control

Compliance with City and state rodent control program requirements must be ensured. Rodent inspection monitoring and treatment, if necessary, should be carried out before, during, and at the completion of the construction period. Extermination for rodents shall be required for issuance of permits for demolition, excavation, foundation, and basement rehabilitation. Licensed exterminators shall indicate before and during construction activity whether or not rodent activity is identified. Compliance with this policy will be monitored by the Rodent Control Unit of the City's Inspectional Services Department ("ISD").

E. URBAN DESIGN COMPONENT

In addition to the information required to meet the specifications of Section 80B-3 and Section 80B-4 of the Code, the Proponent must address and respond to the comments outlined in the BPDA's Planning and Urban Design departments' comment letter, included in **Appendix A**.

The Proposed Project is subject to Article 28 of the Code and as such, is required to undergo Boston Civic Design Commission ("BCDC") review. The BCDC review process shall be completed in conjunction with the Article 80 development review process.

F. INFRASTRUCTURE SYSTEMS COMPONENT

An infrastructure impact analysis must be performed. The Proponent should continue to work with the PWD, BWSC, and the BGWT (if applicable) on infrastructure impacts.

The standard scope for the BWSC infrastructure analysis is outlined in the comment letter submitted by John P. Sullivan, Chief Engineer and Operations Officer, BWSC, to the BPDA, included in **Appendix A**.

Any proposed or anticipated infrastructure systems improvements/mitigation associated with the Proposed Project should also be outlined in the DPIR.

G. PUBLIC NOTICE

The Proponent will be responsible for preparing and publishing in one (1) or more newspapers of general circulation in the City, a public notice of the submission of the DPIR to the BPDA as required by Section 80A-2. This notice shall be published within five (5) days of the receipt of the DPIR by the BPDA. Therefore, public comments shall be transmitted to the BPDA within forty-five (45) days of the publication of the notice. A draft of the public notice must be submitted to the BPDA for review prior to publication. A sample of the public notice is attached as **Appendix D**.

Following the publication of the public notice, the Proponent shall submit a copy of the published notice together with the date of publication to the BPDA.

H. INCLUSIONARY DEVELOPMENT POLICY

The Proposed Project must comply with the Mayor's Executive Order regarding the Inclusionary Development Policy ("IDP") executed on December 10, 2015. The DPIR should include the approximate number of IDP or income-restricted units to be created (on-site or off-site), the anticipated maximum incomes of the households for those units, and the anticipated unit mix.

I. ACCESSIBILITY CHECKLIST

As part of the DPIR, the Proponent must include an up to date and completed Article 80 Accessibility Checklist for the Proposed Project. An Accessibility Checklist is attached as **Appendix E**.

J. BROADBAND READY BUILDINGS QUESTIONNAIRE

As part of the DPIR, the Proponent must include a completed Article 80 Broadband Ready Buildings Questionnaire, attached as **Appendix F**. The information that is shared through the Broadband Ready Buildings Questionnaire will help the BPDA and City understand how developers currently integrate telecommunications planning in their work and how this integration can be most responsive to a changing technological landscape. Additionally, this questionnaire must also be completed and submitted through the online submission portal which can be accessed by visiting the following link: https://docs.google.com/forms/d/e/1FAIpQLSe4HfNQ_KQbe5UbLJUfB9cUH-DQTLrFdXNq1LxbwhMT4KNTPw/viewform

K. BOSTON SMART UTILITIES CHECKLIST

The Proposed Project is subject to the Smart Utilities Policy for Article 80 Development Review. As part of the DPIR, the Proponent must include a completed Boston Smart Utilities Checklist, attached as **Appendix G**. Additionally, this checklist must also be completed and submitted through the online submission portal which can be accessed by visiting the following link: https://docs.google.com/forms/d/e/1FAIpQLSeauk6r1t5gKnfRVUpgZnJ3V6UeXbsiNYKiPJLhyJgw4udWDA/viewform

The Smart Utilities Checklist will facilitate the Boston Smart Utilities Steering Committee's review of the following: (1) compliance with the Smart Utilities Policy for Article 80 Development Review, which calls for the integration of five (5) Smart Utility Technologies (SUTs) into Article 80 developments; and (2) integration of the Smart Utility Standards.

APPENDIX A

COMMENTS FROM THE BPDA, PUBLIC AGENCIES/DEPARTMENTS AND ELECTED OFFICIALS

TO: Raul Duverge, Project Manager, BPDA
FROM: BPDA Planning and Urban Design Staff
SUBJECT: Scoping Determination Comments for 282-308 Bremen Street, East Boston

Planning Context
PLAN: East Boston
Climate Ready East Boston

Urban Design
BPDA Urban Design and Planning encourages the Proponent to consider further development of the massing and height, elevations, streetscape activation, and climate resilience measures.

- Massing and Height:
  - Given the length of the project on Bremen Street and its visibility from the park, we would like to see greater variation in height on Bremen Street and/or setbacks. For example, considering the gateway to the park and the T at Brooks Street, the Proponent should consider height at the corner of Bremen and Brooks and then lower heights toward the existing context (towards Putnam Street).
  - The current design has significant setbacks in the rear but only minor setbacks on the Bremen Street facade. The Proponent might consider more setbacks on Bremen Street in specific locations (for example, the primary residential entry).
  - Shadow analysis to be conducted using the Sun Altitude/Azimuth Table found in Appendix 6 of the Development Review Guidelines. In particular, please note the June 6th at 6 pm altitude and azimuth to be used.

- Elevations:
  - The elevations, in particular, the Bremen Street facade, begin to suggest a hierarchy of spaces. However, the hierarchy suggested on the elevation of the upper-levels is disconnected from floorplans. We suggest that the Proponent explore ways to create a more legible hierarchy on the facade that relates to what is happening inside the building.
  - The Proponent might consider using glazing or other materials, combined with setbacks (and height, as mentioned above), to more noticeably break up the Bremen Street elevation.
  - This design approach would be new to East Boston and we ask the Proponent to consider how it could be best tailored to East Boston. Is this a design that could be in any place, or is it specific to the urban form, building typologies, materials, and context of this area of East Boston?

- Streetscape Activation:

- Similar to the comment above about the elevations, we suggest that the Proponent consider creating a hierarchy of entries at the ground plane (currently, the live/work entries appear to be more prominent than the main residential entry).
- Address other entrances onto Bremen Street sidewalk
- The proposed retail space on the corner of Brooks and Bremen has great potential to activate this edge. The design should consider how this retail space relates to the public realm, including outdoor furnishings and landscape features.
- Consider enlarging this retail space to allow for either 1) a larger retail use, such as a market, or 2) 2-3 smaller retail uses to be clustered together.
- We question whether the loading dock on Brooks Street is needed. Would it be possible to have loading from inside the garage, thus reducing the curb cuts to a single one on Bremen Street? Given the heavy pedestrian volumes on Brooks Street, we are concerned about locating loading here.

- Flood-resilient Design:
  - The project is within the current FEMA floodplain, but the design of the entries, retail space, and live-work units does not address the potential flood risk.
  - This project—given its scale, the prominence of its site, and the range of ground-level uses—has the opportunity to be a model of resilient design that is not only seamlessly integrated into the public realm but also enhances the public realm. We ask that the Proponent explore how to integrate flood proofing or resilient design measures.

Transportation

Context

Go Boston 2030, the City of Boston's long-term transportation action plan, envisions a city where all residents have better and more equitable travel choices, where efficient transportation networks foster economic opportunity, and where the City has taken steps to prepare for climate change. Whether traveling by transit, on foot, on a bike, or by car, Bostonians will be able to access all parts of the city safely and reliably. This vision was created with the help of thousands of Bostonians through a significant public engagement process.

This vision establishes foundational priorities for all transportation projects in the City, including development proposals as they impact transportation networks and the public realm. Go Boston 2030's primary goals—expanding access, improving safety, and ensuring reliability—help us hold all projects accountable to this vision. Its aspirational targets clearly establish a yardstick for measuring success.

In short, when reviewing proposals we must ask ourselves, does the project bring the City closer to achieving its transportation vision, goals, and targets?

1. **Expanding Access:**
    - *Goal*: Make Boston's neighborhoods interconnected for all modes of travel.
    - *Aspirational Target*: Every home in Boston will be within a 10-minute walk of a rail station or key bus route stop, and Blue bikes station, and car share.
2. **Improving Safety:**
    - *Goal*: Substantially reduce collisions on every street through education, enforcement, and designs that reallocate street space to prioritize moving people safely rather than faster.
    - *Aspirational Target*: Eliminate traffic fatalities and severe injuries in Boston.
3. **Ensuring Reliability:**
    - *Goal*: Prioritize making travel predictable on Boston's transit and roadway networks.
    - *Aspirational Target*: Bostonians' average commute to work time will decrease by 10%.

Overview

BPDA Transportation & Infrastructure Planning supports the Proponent's accommodation of all transportation modes and limited supply of on-site parking per BTD's recommended maximum parking goals and guidelines for East Boston. We encourage the Proponent to examine modifications to the streetscape, access, analysis, and transportation demand management, including:

- **Streetscape:**
    - Please provide cross-sections of Bremen Street and Brooks Street with dimensions for proposed streetscape zones and anticipated street widths.
    - Given the street's functional classification and the scale of the project, we feel that a Neighborhood Connector street classification for Bremen Street is more appropriate than Neighborhood Residential, as suggested by the Proponent. We recommend that the Proponent strives to meet the 8' preferred pedestrian zone dimension along Bremen Street while maintaining proposed street trees, which may be achieved by narrowing the depth of the on-street parking/loading (proposed at 9') and/or modifying building setbacks. Please ensure that building doors do not open into the clear pedestrian zone in order to maintain an accessible environment.
    - Please clarify whether the proposed pick-up/drop-off zone will have flush conditions or a standard curb. Site plans indicate that this zone would have pavers distinct from the adjacent travel way.
    - BTD is piloting the Mobility micro HUB program in East Boston and Roxbury, which will provide centralized locations for multimodal connections, for example, transit, bike share, car share, EV charging, pick-up/drop-off. etc., given its proximity to the Blue Line Airport station, the intersection of Bremen and Brooks is intended to become a micro HUB. The Proponent is already proposing some of these elements

- in the site plan, so we would like to continue the dialogue with the Proponent, BTD, and PWD about how the design of the site plan and this important intersection can bring together these elements and work with the proposed curb extensions.
    - We would like to explore with BTD and the Proponent the opportunity to provide year-round Blue bikes at this intersection by integrating the existing station into the site plan. (The existing station is moved each winter from its current location at the Bremen Street Community Park entrance.)

- **Access:**
    - As noted by BPDA Urban Design, please consider alternative loading scenarios, including loading from Bremen Street.
    - As the garage may include parking stackers, please study whether the floor-to-ceiling height for the garage will now allow for the 14' clearance needed for truck loading.
    - Please ensure impacts of garage access on the public realm are minimized by providing a garage door and limiting the access width to 20' maximum for two-way operation or 10' for one-way operation.
    - Please provide additional detail on the proposed bike storage room that will accommodate 165 bicycles, including convenient access within the building and to the street, and the type, quantity, and configuration of racks.
        - We appreciate the direct sidewalk access to the bike room, as proposed. However, the room is located far from the elevators, requiring access via the garage, which won't be welcoming, or from outside, which requires people to exit and re-enter the building after parking a bike. We recommend locating the bike room directly adjacent to the lobby and elevators for simple and convenient internal access.

- **Transportation Analysis:**
    - Please add the intersections of Bennington/Brooks and Bennington/Putnam to the study area for transportation analyses.
    - Please provide a safety analysis of study area intersections as well as the Brooks Street corridor between Bennington and Bremen Streets using available Vision Zero crash data and safety concerns data.
    - Please provide an analysis of area transit services, including capacity and delay during peak periods and relative impacts associated with new transit trips supplied by the project. Please clarify trip distribution by transit mode for the 826 new transit trips per day.
    - Growth in TNC activity is a significant concern for East Boston. Please provide analysis of TNC trips generated by the project and their distribution in the street network. Would these be additional trips or are they accounted for, but not

explicitly stated, in the existing analysis?

- **Transportation Demand Management:**
  - We recommend that the Proponent further encourage reducing parking demand by unbundling the residential parking from the leasing of an individual unit. This strategy discourages auto use by residents by charging the tenant a monthly or annual fee to park on-site.
  - We recommend exploration of a more robust transportation demand management program, including subsidized transit, bike share, and car share memberships for residents as well as bundling such memberships with residential leases. Real-time transportation displays are encouraged for all lobbies.
  - We recommend coordinating with Zipcar to provide one or more on-street car share spaces along the Bremen Street frontage. This is an integral part of the micro HUB concept.
  - Per the Boston Bike Parking Guidelines, all projects over 100 residential units must provide a Blue bikes station in a location to be determined with BTD Active Transportation during the TAPA process.

- **Construction Management Plan:**
  - Please ensure that accessible paths of pedestrian travel are preserved on both sides of Brooks Street throughout the project. This is a critical pedestrian corridor for the Eagle Hill's transit access.

MEMORANDUM

TO: Raul Duverge, Project Manager
FROM: John (Tad) Read, Senior Deputy Director for Transportation & Infrastructure Planning
Manuel Esquivel, Senior Infrastructure & Energy Planning Fellow
Ryan Walker, Smart Utilities Program - Associate
DATE: June 10, 2019
SUBJECT: 282-302 Bremen Street - **Smart Utilities Comments - PNF**

Summary:
Thank you for the inclusion of the Smart Utilities Checklist in your PNF filing. We would request that you take your responses from that filing and submit them through the form available here. This can be done with your next filing and should include any updated or additional information pertinent to Smart Utility considerations. The reason for submission via the form is that it generates an edit link, which allows you to easily access your checklist and make updates as you progress in your design process. The information you have provided thus far will be presented to the Smart Utilities Steering Committee. We will coordinate a meeting to discuss any additional questions or comments that result.

Context:
On June 14, 2018 the BPDA Board adopted the *Smart Utilities Policy for Article 80 Development Review*. The policy (attached) calls for the incorporation of five (5) Smart Utility Technologies (SUTs) into new Article 80 developments. Table 1 describes these five (5) SUTs. Table 2 summarizes the key provisions and requirements of the policy, including the development project size thresholds that would trigger the incorporation of each SUT.

In general, conversations about and review of the incorporation of the applicable SUTs into new Article 80 developments will be carried out by the BPDA and City staff during every stage (as applicable) of the review and permitting process, including a) prefile stage; b) initial filing; c) Article 80 development review prior to BPDA Board approval; d) prior to filing an application for a Building Permit; and e) prior to filing an application for a Certificate of Occupancy.

In conjunction with the SUTs contemplated in the *Smart Utilities Policy,* the BPDA and City staff will review the installation of SUTs and related infrastructure in right-of-ways in accordance with the *Smart Utility Standards* ("SUS"). The SUS set forth guidelines for planning and integration of SUTs with existing utility infrastructure in existing or new streets, including cross-section, lateral, and intersection diagrams. The *Smart Utility Standards* are intended to serve as guidelines for developers, architects, engineers, and utility providers for planning, designing, and locating utilities.

In order to facilitate the review of integration of the SUTs and the SUS, the BPDA and the Smart Utilities Steering Committee has put together a *Smart Utilities Checklist* that can be filled out and updated during the review process. Please fill out the parts of the *Checklist* that apply to

your project. Make sure to review this *template* first, before submitting the *Smart Utilities Checklist.*

After submission, you will receive:

1. A confirmation email with a PDF of your completed checklist. Please include a copy of this document with your next filing with the BPDA.
2. A separate email with a link to update your initial submission. Please use ONLY this link for updating the Checklist associated with a specific project.

Note: Any documents submitted via email to Manuel.Esquivel@Boston.gov will not be attached to the PDF form generated after submission, but are available upon request.

The *Smart Utilities Policy for Article 80 Development Review*, the *Smart Utility Standards*, the *Smart Utilities Checklist*, and further information regarding the *Boston Smart Utilities Vision* project are available on the project's website: http://www.bostonplans.org/smart-utilities.

Manuel Esquivel, BPDA Senior Infrastructure and Energy Planning Fellow, will soon follow up to schedule a meeting with the proponent to discuss the *Smart Utilities Policy*. For any questions, you can contact Manuel Esquivel at manuel.esquivel@boston.gov or 617.918.4382.

Table 1 - Summary description of 5 Smart Utility Technologies (SUTs) included in the *Smart Utilities Policy for Article 80 Development Review*

Smart Utility Technology (SUTs)	Summary Description
District Energy Microgrid	Energy system for clusters of buildings. Produces electricity on development site and uses excess "heat" to serve heating/cooling needs. By combining these two energy loads, the energy efficiency of fuel consumed is increased. The system normally operates connected to main electric utility grid, but can disconnect ("island") during power outages and continue providing electric/heating/cooling needs to end-users.
Green Infrastructure	Infrastructure that allows rainwater to percolate into the ground. Can prevent storm runoff and excessive diversion of stormwater into the water and sewer system.
Adaptive Signal Technology	Smart traffic signals and sensors that communicate with each other to make multimodal travel safer and more efficient.
Smart Street Lights	Traditional light poles that are equipped with smart sensors, wifi, cameras, etc. for health, equity, safety, traffic management, and other benefits.

Telecom Utilidor	An underground duct bank used to consolidate the wires and fiber optics installed for cable, internet, and other telecom services. Access to the duct bank is available through manholes. Significantly reduces the need for street openings to install telecom services.

Table 2 - Summary of size threshold and other specifications for the 5 SUTs advanced in the *Smart Utilities Policy for Article 80 Development Review* (**Note: This table is only for informational purposes. Please refer to the complete *Smart Utilities Policy for Article 80 Development Review* to review the details.**)

	Article 80 Size Threshold	**Other specifications**
District Energy Microgrid	>1.5 million SF	Feasibility Assessment; if feasible, then Master Plan & District Energy Microgrid-Ready design
Green Infrastructure	>100,000 SF	Install to retain 1.25" rainfall on impervious areas (Increase from 1" currently required by BWSC)
Adaptive Signal Technology	All projects requiring signal installation or improvements	Install AST & related components into the traffic signal system network
Smart Street Lights	All Projects requiring street light installation or improvements	Install additional electrical connection & fiber optics at pole
Telecom Utilidor	>1.5 million SF of development, or >0.5 miles of roadway	Install Telecom Utilidor

Martin J. Walsh
Mayor

Article 37 Interagency Green Building Committee

June 10, 2019

Peter Spellios
282 Bremen Development LLC
c/o Transom Real Estate, LLC
527 Albany Street
Boston, MA 02118

Re: *282-308 Bremen Street, East Boston-* Article 37 Green Building – Comment Letter

Dear Mr. Spellios

The Boston Interagency Green Building Committee (IGBC) has reviewed the Project Notification Form (PNF) submitted in conjunction with this project for compliance with Boston Zoning Article 37 Green Buildings.

Please amend *Preliminary List of Permits or Other Approvals Which May be Sought* table to include Article 37 Compliance.

The EPNF indicates that the project will use *the LEED v4 for BD + C: New Construction and Major Renovation* rating system and commits the project to earning 53 points for a LEED Silver rating. The IGBC accepts the rating system selection and green building LEED point commitment.

The project team is encouraged to demonstrate leadership in sustainability by achieving a LEED Gold rating. Additionally, the IGBC requests that project team contact utility and state DOE representatives as soon as possible and to maximize utility and state-funding for energy efficiency and clean/renewable energy support of the project.

The Climate Resiliency Checklist was deemed incomplete. Please address the following issues:

The online Climate Resiliency Checklist has not been completed.

Greenhouse Gas Emissions
In support of the City of Boston's Resiliency and GHG emissions reduction goals including Carbon Neutral Boston 2050 the IGBC requests the project team prepare a project specific Zero Carbon Building Assessment by modeling a Low Carbon Building with an enhanced envelope and optimized systems strategies, Maximized Solar Energy Systems, and determine any amount of off-site renewable energy required for zero carbon performance including:

- Enhanced Building Envelope – reduced air infiltration (ACH below 0.6), increased opaque curtain wall insulation (below U-0.05), improved vision curtain wall performance (below U-0.20), improved window performance (below U-0.20), tuned glazing with Solar Heat Gain Coefficient (below SGHC 0.30), and increased insulation levels for roof (R-60 c.i.), wall (R-30+ with c.i.), and slab (R-7.5 c.i.) conditions.
- Optimized Building Systems – smaller, more efficient and alternative heating, cooling, dedicated fresh air with ERV (better 80% with MERV 8 filter), and hot water systems that fully consider the improved envelope performance.
- Including an all electrical building and campus solution(s).
- Maximized Solar Energy System – optimize roof design and install Solar PV systems.
- Renewable Energy Procurement – green energy, credits, and carbon offsets.

Please follow up within three weeks (of the date of this letter) with your BPDA Project Manager in responding to IGBC comments and the provision of the requested information and items.

Please let me know if you have any questions or if I can be of any assistance.

Sincerely,

Katie Pedersen
On behalf of the Interagency Green Building Committee

Cc: *Raul DuVerge,* BPDA
IGBC

FROM: BOB D'AMICO, BOB.DAMICO@BOSTON.GOV
TO: RAUL DUVERGE, RAUL.DUVERGE@BOSTON.GOV
DATE: MAY 10, 2019
SUBJECT: 282-308 BREMEN STREET, EAST BOSTON PNF COMMENTS

Please find below my comments on the proposed development at the above address.

The site is currently occupied by two auto body and repair shops in addition to a small 4-unit multifamily residential building.

Project Description

The project site is located directly across from the Bremen Street Park with convenient access to the MBTA Airport Blue Line train station.

The project consists of 165 units with 68 parking spaces along with covered storage spaces for 165 bicycles. This results in a vehicular parking ratio of 0.41. This makes perfect sense due to the project's proximity to the Airport Train Station.

135 feet of additional on-street parking space will be created due to the closure of several curb cuts due to the singular curb cut that will be used for both access/egress to the building.

BTD agrees with the proposal that loading and unloading occur on Brooks Street in a newly created curb cut that will only require 12 feet.

BTD strongly supports a plan to provide an innovative build-managed private car share service for residents further reducing the need for cars. The proponent may want to consider spaces that will accommodate Zip-car or similar usage.

BTD requests that future residents of the development be restricted from obtaining an East Boston Resident Sticker.

We also support the creation of a transportation demand management program to reduce the dependency on the automobile by encouraging alternatives to driving alone, especially during peak travel periods.

Finally, the proponent will have to provide to BTD a comprehensive Construction Management Plan and enter into a Transportation Access Plan Agreement (TAPA) for the proposed project. This will be essential since the location of this project is located in a very densely populated neighborhood.

We look forward to be working with BPDA and the proponent to create a project that will benefit the community while creating a minimal amount of impacts.

Raul Duverge <raul.duverge@boston.gov>

BPRD Comments for 282-308 Bremen Street, East Boston

1 message

Carrie Marsh <carrie.marsh@boston.gov> Fri, May 17, 2019 at 1:22 PM
To: Raul Duverge <raul.duverge@boston.gov>
Cc: Christopher Cook <christopher.cook@boston.gov>, "Liza Meyer, ASLA" <liza.meyer@boston.gov>, Jonathan Greeley <jonathan.greeley@boston.gov>, Michael Christopher <michael.christopher@boston.gov>, Teresa Polhemus <teresa.polhemus@boston.gov>

The Boston Parks and Recreation Department (BPRD) has reviewed the PNF for the proposed project at 282-308 Bremen Street in East Boston, located across the street from the Bremen Street Park.

Density: This project will provide 165 apartment units. The expected population of the building is not readily discernible from the PNF, but can be estimated to be 165-500 persons depending on the unit mix. These residents will require open space space to meet their active recreational needs.

Insufficient Onsite Open Space: The project will seek relief from zoning to reduce onsite open space. The PNF notes that 300 sf of open space per dwelling unit is required (49,500 sf total). The project will provide 68 sf of onsite open space per dwelling unit (11,182 sf total). The approval of zoning relief will result in a deficit of about 38,000 sf of onsite open space, which is nearly an acre. The residents in these households will therefore rely on existing public open spaces such as the Bremen Street Park and the East Boston Greenway for their active recreation needs.

Height and Shadows: The project is seeking relief from zoning for increased height, massing and density. The existing zoning allows a building that is 3 stories high (35 feet). Zoning relief will create a building that is 5-6 stories high (56-68 feet). The building is located due west of Bremen Street Park and the height will have an impact on the shadows on the park. The shadow analysis should be extended to include shadows created until sunset, year round.

Impact Mitigation: BPRD respectfully requests that this project provide impact mitigation to the Fund for Parks and Recreation at a level commensurate to the scale and density of the development, the requested relief of zoning for open space, and to offset the shadow impacts on the park.

Pets: Additionally, if pets are allowed, the proponent should provide a pet relief space onsite, so to minimize impacts to public open space.

Parks Commission: As noted in the PNF, this project is also subject to review of the Parks Commission under Municipal Code Section 7-4.11 (the 100' rule).

Please let me know if you have any questions.

Thank you.

CARRIE M. MARSH
Executive Secretary
Boston Parks and Recreation Commission
1010 Massachusetts Avenue, 3rd floor
Boston, Massachusetts 02118
617-961-3074 (direct) 617-635-4505 (main)

On Wed, May 8, 2019 at 4:20 PM Raul Duverge <raul.duverge@boston.gov> wrote:

CITY of BOSTON
Martin J. Walsh, Mayor

To: Raul Duverge, BPDA

From: Zachary Wassmouth, PWD

Date: July 24, 2019

Subject: 282-308 Bremen Street PNF - Boston Public Works Department Comments

Included here are Boston Public Works Department comments for the 282-308 Bremen Street PNF.

Site Plan:
The developer must provide an engineer's site plan at an appropriate engineering scale that shows curb functionality on both sides of all streets that abut the property.

Construction Within The Public Right-of-Way (ROW):
All proposed design and construction within the Public ROW shall conform to Boston Public Works Department (PWD) Design Standards (www.boston.gov/departments/public-works/public-works-design-standards). Any non-standard materials (i.e. pavers, landscaping, bike racks, etc.) proposed within the Public ROW will require approval through the Public Improvement Commission (PIC) process and a fully executed License, Maintenance and Indemnification (LM&I) Agreement with the PIC.

Sidewalks:
The developer is responsible for the reconstruction of the sidewalks abutting the project and, wherever possible, to extend the limits to the nearest intersection to encourage and compliment pedestrian improvements and travel along all sidewalks within the ROW within and beyond the project limits. The reconstruction effort also must meet current American's with Disabilities Act (ADA)/ Massachusetts Architectural Access Board (AAB) guidelines, including the installation of new or reconstruction of existing pedestrian ramps at all corners of all intersections abutting the project site if not already constructed to ADA/AAB compliance. Plans showing the extents of the proposed sidewalk improvements associated with this project must be submitted to the Public Works Department (PWD) Engineering Division for review and approval. Changes to any curb geometry will need to be reviewed and approved through the PIC.

The developer is encouraged to contact the City's Disabilities Commission to confirm compliant accessibility within the Public ROW.

Specific Scope Considerations:
The developer should consider the following to be included in the scope for this project:

- The developer should evaluate the safety for both vehicles, pedestrians, and bicycles at the intersection of Bremen Street and Brooks Street. The intersection should be evaluated to determine if adequate site distances for both motorists,pedestrians, and cyclists exist with current and proposed buildings at this location. The existing location of the crosswalks and stop lines on Bremen Street may need to be adjusted (i.e. closer to the intersection) to ensure adequate site distances. Any adjustments to this intersection to increase safety (relocation of crosswalks, pedestrian ramps, sidewalk construction, etc.) should be considered as part of the scope for this project as this is an important pedestrian link from the project site to the Park and MBTA station.
- The project should consider including a crosswalk across Brooks Street at the Bremen Street and Brooks Street intersection with guidance and final approval by the Boston Transportation Department (BTD).

PUBLIC WORKS DEPARTMENT
Boston City Hall • 1 City Hall Sq Rm 714 • Boston MA 02201-2024
CHRIS OSGOOD • Chief of Streets, Transportation, and Sanitation
Phone (617) 635-2854 • Fax (617) 635-7499

Driveway Curb Cuts:
Any proposed driveway curb cuts within the Public ROW will need to be reviewed and approved by the PIC. All existing curb cuts that will no longer be utilized shall be closed.

Discontinuances:
Any and all discontinuances (sub-surface, surface or above surface) within the Public ROW must be processed through the PIC.

Easements:
Any and all easements within the Public ROW associated with this project must be processed through the PIC.

Landscaping:
The developer must seek approval from the Chief Landscape Architect with the Parks and Recreation Department for all landscape elements within the Public ROW. Program must accompany a LM&I with the PIC.

Street Lighting:
The developer must seek approval from the PWD Street Lighting Division, where needed, for all proposed street lighting to be installed by the developer, and must be consistent with the area lighting to provide a consistent urban design. The developer should coordinate with the PWD Street Lighting Division for an assessment of any additional street lighting upgrades that are to be considered in conjunction with this project. All existing metal street light pull box covers within the limits of sidewalk construction to remain shall be replaced with new composite covers per PWD Street Lighting standards. Metal covers should remain for pull box covers in the roadway.

Roadway:
Based on the extent of construction activity, including utility connections and taps, the developer will be responsible for the full restoration of the roadway sections that immediately abut the property and, in some cases, to extend the limits of roadway restoration to the nearest intersection. A plan showing the extents and methods for roadway restoration shall be submitted to the PWD Engineering Division for review and approval.

Project Coordination:
All projects must be entered into the City of Boston Utility Coordination Software (COBUCS) to review for any conflicts with other proposed projects within the Public ROW. The Developer must coordinate with any existing projects within the same limits and receive clearance from PWD before commencing work.

Green Infrastructure:
The Developer shall work with PWD and the Boston Water and Sewer Commission (BWSC) to determine appropriate methods of green infrastructure and/or stormwater management systems within the Public ROW. The ongoing maintenance of such systems shall require an LM&I Agreement with the PIC.

Please note that these are the general standard and somewhat specific PWD requirements. More detailed comments may follow and will be addressed during the PIC review process. If you have any questions, please feel free to contact me at zachary.wassmouth@boston.gov or at 617-635-4953.

Sincerely,

Zachary Wassmouth
Chief Design Engineer
Boston Public Works Department
Engineering Division

CC: Para Jayasinghe, PWD

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

May 28, 2019

Mr. Robert Duverge
Project Manager
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Re: 282-308 Bremen Street, East Boston
Project Notification Form

Dear Mr. Duverge:

The Boston Water and Sewer Commission (Commission) has reviewed the Project Notification Form (PNF) for the proposed project located at 282-308 Bremen Street, in East Boston.

The Proposed Project consists of the redevelopment of an approximately 34,160 square foot site comprised of nine contiguous parcels of land located at 282-308 Bremen Street. The Project Site is bounded to the northwest by the rear property lines of multi-family residential properties along Chelsea Street, to the northeast by multi-family residences along Bremen Street, to the south by Bremen Street, and to the southwest by Brooks Street. The proponent, 282 Bremen Development, LLC, proposes the demolition of two existing auto repair facilities and a residential building which currently occupy the Project Site and the construction of an approximately 125,000 square foot, mixed-use building that will include one hundred sixty-five residential rental units, approximately 2,000 square feet of retail space, and up to sixty-eight off-street vehicle parking spaces.

The Project's estimated total domestic water demand is 23,694 gallons per day. The Commission owns and maintains a 12-inch Northern Low DICL installed in 2015 in Bremen Street. As well as, a 12-inch Northern Now PCI installed in 1902 in Brooks Street.

The Proposed Project will generate an estimated 21,540 gallons per day. For sewage and storm drainage service, the site is served by a 12-inch combined sewer in Bremen street and a 36-inch by 54-inch combined sewer in Brooks Street.

The Commission has the following comments regarding the PNF:

General

1. Prior to the initial phase of the site plan development, 282 Bremen Development, LLC should meet with the Commission's Design and Engineering Customer Services to review water main, sewer and storm drainage system availability and potential upgrades that could impact the development.

2. Prior to demolition of any buildings, all water, sewer and storm drain connections to the buildings must be cut and capped at the main pipe in accordance with the Commission's requirements. The proponent must complete a Cut and Cap General Services Application, available from the Commission.

3. All new or relocated water mains, sewers and storm drains must be designed and constructed at 282 Bremen Development, LLC' expense. They must be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use regulations, and Requirements for Site Plans. The site plan should include the locations of new, relocated and existing water mains, sewers and drains which serve the site, proposed service connections, water meter locations, as well as back flow prevention devices in the facilities that will require inspection. A General Service Application must also be submitted to the Commission with the site plan.

4. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority and its member communities, is implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/inflow (I/I)) in the system. In April of 2014, the Massachusetts DEP promulgated new regulations regarding wastewater. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of infiltration and inflow (I/I) for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, a minimum ratio of 4:1 for I/I removal to new wastewater flow added is used. The Commission supports the policy and will require proponent to develop a consistent inflow reduction plan. The 4:1 requirement should be addressed at least 90 days prior to activation of water service and will be based on the estimated sewage generation provided on the project site plan.

5. The design of the project should comply with the City of Boston's Complete Streets Initiative, which requires incorporation of "green infrastructure" into street designs. Green infrastructure includes greenscapes, such as trees, shrubs, grasses and other landscape plantings, as well as rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces. The proponent must develop a maintenance plan for the proposed green infrastructure. For more information on the Complete Streets Initiative see the City's website at http://bostoncompletestreets.org/

6. 282 Bremen Development, LLC should be aware that the US Environmental Protection Agency issued the Remediation General Permit (RGP) for Groundwater Remediation, Contaminated Construction Dewatering, and Miscellaneous Surface Water Discharges. If groundwater contaminated with petroleum products, for example, is encountered, 282 Bremen Development, LLC will be required to apply for a RGP to cover these discharges.

7. 282 Bremen Development, LLC is advised that the Commission will not allow buildings to be constructed over any of its water lines. Also, any plans to build over Commission sewer facilities are subject to review and approval by the Commission. The project must be designed so that access, including vehicular access, to the Commission's water and sewer lines for the purpose of operation and maintenance is not inhibited.

8. It is 282 Bremen Development, LLC's responsibility to evaluate the capacity of the water, sewer and storm drain systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan, 282 Bremen Development, LLC must include a detailed capacity analysis for the water, sewer and storm drain systems serving the project site, as well as an analysis of the impacts the proposed project will have on the Commission's water, sewer and storm drainage systems.

Water

1. 282 Bremen Development, LLC must provide separate estimates of peak and continuous maximum water demand for residential, commercial, industrial, irrigation of landscaped areas, and air-conditioning make-up water for the project with the site plan. Estimates should be based on full-site build-out of the proposed project. 282 Bremen Development, LLC should also provide the methodology used to estimate water demand for the proposed project.

2. 282 Bremen Development, LLC should explore opportunities for implementing water conservation measures in addition to those required by the State Plumbing

Code. 282 Bremen Development, LLC should consider outdoor landscaping which requires minimal use of water to maintain. If 282 Bremen Development, LLC plans to install in-ground sprinkler systems, the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should be considered.

3. 282 Bremen Development, LLC is required to obtain a Hydrant Permit for use of any hydrant during the construction phase of this project. The water used from the hydrant must be metered. 282 Bremen Development, LLC should contact the Commission's Meter Department for information on and to obtain a Hydrant Permit.

4. The Commission is utilizing a Fixed Radio Meter Reading System to obtain water meter readings. For new water meters, the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs, 282 Bremen Development, LLC should contact the Commission's Meter Department.

Sewage / Drainage

1. A Total Maximum Daily Load (TMDL) for Nutrients has been established for the Lower Charles River Watershed by the Massachusetts Department of Environmental Protection (MassDEP). In order to achieve the reductions in Phosphorus loading required by the TMDL, phosphorus concentrations in the lower Charles River from Boston must be reduced by 64%. To accomplish the necessary reductions in phosphorus, the Commission is requiring developers in the lower Charles River watershed to infiltrate stormwater discharging from impervious areas in compliance with MassDEP. 282 Bremen Development, LLC will be required to submit with the site plan a phosphorus reduction plan for the proposed development. 282 Bremen Development, LLC must fully investigate methods for retaining stormwater on-site before the Commission will consider a request to discharge stormwater to the Commission's system. The site plan should indicate how storm drainage from roof drains will be handled and the feasibility of retaining their stormwater discharge on-site. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer.

   In conjunction with the Site Plan and the General Service Application the 282 Bremen Development, LLC will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

- Identify best management practices for controlling erosion and for preventing the discharge of sediment and contaminated groundwater or stormwater runoff to the Commission's drainage system when the construction is underway.

- Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control or treatment structures to be utilized during construction.

- Provide a stormwater management plan in compliance with the DEP standards mentioned above. The plan should include a description of the measures to control pollutants after construction is completed.

2. The Commission encourages 282 Bremen Development, LLC to explore additional opportunities for protecting stormwater quality on site by minimizing sanding and the use of deicing chemicals, pesticides, and fertilizers.

3. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. 282 Bremen Development, LLC is advised that the discharge of any dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products, 282 Bremen Development, LLC will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge.

4. 282 Bremen Development, LLC must fully investigate methods for retaining stormwater on-site before the Commission will consider a request to discharge stormwater to the Commission's system. The site plan should indicate how storm drainage from roof drains will be handled and the feasibility of retaining their stormwater discharge on-site. All projects at or above 100,000 square feet of floor area are to retain, on site, a volume of runoff equal to 1.25 inches of rainfall times the impervious area. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer.

5. The Massachusetts Department of Environmental Protection (MassDEP) established Stormwater Management Standards. The standards address water quality, water quantity and recharge. In addition to Commission standards, 282 Bremen Development, LLC will be required to meet MassDEP Stormwater Management Standards.

6. Sanitary sewage must be kept separate from stormwater and separate sanitary sewer and storm drain service connections must be provided. The Commission requires that existing stormwater and sanitary sewer service connections, which are to be re-used by the proposed project, be dye tested to confirm they are connected to the appropriate system.

7. If a cafeteria or food service facility is built as part of this project, grease traps will be required in accordance with the Commission's Sewer Use Regulations. 282 Bremen Development, LLC is advised to consult with the Commission's Operations Department with regards to grease traps.

8. The Commission requests that 282 Bremen Development, LLC install a permanent casting stating "Don't Dump: Drains to Boston Harbor" next to any catch basin created or modified as part of this project. 282 Bremen Development, LLC should contact the Commission's Operations Division for information regarding the purchase of the castings.

9. The enclosed floors of a parking garage must drain through oil separators into the sewer system in accordance with the Commission's Sewer Use Regulations. The Commission's Requirements for Site Plans, available by contacting the Engineering Services Department, include requirements for separators.

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/fd

cc: Peter Spellios, 282 Bremen Development LLC
Mitchell L. Fischman, MLF Consulting LLC
K. Ronan, MWRA via e-mail
M. Zlody, BED via e-mail
P. Larocque, BWSC via e-mail

APPENDIX B

COMMENTS FROM THE PUBLIC

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

As a direct abutter, I am writing in support of the proposed development at 282 Bremen Street in East Boston.

The developer reached out and invited me to sit down and discuss the project very early on. I appreciate the thoughtful and creative design of the building. In addition to proposing a beautiful design for the building, Transom has also made significant improvements to the public realm with increased sidewalks and safer pedestrian access points.

There are very few coffee shops around here so I'm also very excited about the idea of a café or coffee shop that the whole neighborhood, and visitors of the park, can benefit from. Local, small businesses are part of what makes up the character of East Boston and I was pleased to hear that the team understands that and is willing to talk with local businesses about the coffee shop and live/work spaces. Transom has listened to my concerns, answered my questions, and continues to keep me informed as the process moves forward. East Boston has waited long enough for a developer to present a beautiful project like this, please don't delay in approving it.

Thank you.
Caroline Fromkin
275 Chelsea St, East Boston, MA 02128

B

Raul Duverge <raul.duverge@boston.gov>

282 Bremen St

1 message

Laila Siddiqui <lnsiddiqui@gmail.com> Fri, May 24, 2019 at 7:55 PM
To: raul.duverge@boston.gov

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

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Thank you.

Laila Siddiqui

Sent from my iPhone

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

East Boston has seen a great deal of development over the last few years, and I'm happy to finally have a developer who values design and listens to the neighbors concerns. The developer and his team have been in regular contact and I look forward to seeing this project happen.

Thank you.

Minkoo Kang

10 New Street,
East Boston,
MA 02128

cc: Chairwoman Christine Araujo, Board of Appeal of the City of Boston

Comment: Created Date	First Name	Last Name	Organization	Opinion	Comments
5/15/2019	John	Walkey	GreenRoots	Oppose	The building is too massive. There is 0 greenspace provided by the project. Granted it is across the street from a large green space, but we are filling in every square inch of the East Boston developable landmass with impervious surfaces. Variances for setbacks on the backs, sides and fronts are being handed out for nearly every project ion town and the result is a continuous mass of rooftops that will only contribute to heat island effects, as well as a suffocating sense of massing of the built environment that is not healthy, desirable nor attractive. And it would be slightly more tolerable if the architecture didn't evoke a gag reflex in every reasonable person outside of the accountants who run these projects. If this is good design than I'm a tactful, politic person. The day that something is proposed for Eastie that doesn't look like a bucket of farts I will keel over dead. Tell these people to find an architect. There's got to be some out there working in Newton or somewhere.
5/20/2019	Brian	Lynch		Oppose	Hello, I have no issue with the lot being transformed into living/residential units. It is pretty obvious that the lot has a lot of potential in that regard. However, the pure size of it is what bothers me as a current resident and parent. We deal with a lot of overflow issues in living near the airport. Admittingly, when choosing to live in East Boston we can't complain about all of them. However, one of the nice things we do get from dealing with the issue is a well maintained park on Bremen Street. This park has become an integral part of the neighborhood. I see the size of the project having a negative impact on 2 major things. First, the shadow that will encroach on the park as indicated in the package. In one of the images the entirety of the children's playground and beyond is casted in shadow by 6 PM on 9/21. This is unacceptable. Any shadow created on the children's park (especially exactly where the play structure is) due in part to granting a height variance should be a complete non-starter. If the height is granted and these shadows impact the children's play structure, then I really have to question where we stand as a community and who we are looking out for. The second which I am sure will be well documented is the traffic and added vehicles to the road. I do not see where approximately 135 feet of additional on-street parking brings any sort of relief to adding 97 units with no parking. Also, is the drop-off area which looks to be only accessible by residents, included in this 135 feet number? If so that number should be adjusted down. I can't see how a variance can be granted for such a bad ratio of units to parking ? even that close to the T. I am sure that ratio can come back down to reason if the project was not to be made double the size of what the lot should be intended for. In summary I just think the major problems are mitigated if the height of the project is held in check. I can't argue that the lot does not deserve to be developed. However, a little care for the parcel of land that the current community is so dependent on would be appreciated.

5/22/2019	David	Cali		Oppose	The purpose of this comment is to express my strong opposition to the proposed 282-308 Bremen Street project. My wife and I have personally met with Transom Real Estate and have personally attended the community meetings. During all discussions / meetings with Transom, they express listening to community and wanting the feedback (which they have not done a single thing with) Transom also states they have abutters support. Being one of those direct abutters, I can say factual on behalf of myself and several other direct abutters, we have seen zero support for this project. Even at the community meetings, not one person has supported this project. The defined project in this location, does not fit in the neighborhood. The size is excessive both in width and height. Bremen Street has a beautiful park, that will be overtaken by the proposed monstrosity. Transom Real Estate also claims studies showing no negative effect on the park. However, the reality is; the park will be casted by extreme shadow, and tremendous noise pollution that will result from vehicles on Bremen Street, the 1A Ramp to the tunnel, and abutting airport. East Boston is made of different neighborhoods; this massive apartment complex will destroy this neighborhood. You will no longer have families and community; you will have renters that will come and go and not become part of the fabric that holds the community together. With a project of this scale; at the proposed location, the infrastructure of East Boston needs to be considered first, not last. To believe that the renters will take the train, is a mirage. If the renters don't own a vehicle, ridesharing services will increase. As everyone already knows, the traffic in East Boston is horrendous. In addition, the proposed commercial space directly across the street from the entrance to airport station and the park is another issue. Pedestrian and vehicle bottleneck already exists at the corner of Books and Bremen. Adding an additional 165 units and commercial space on that corner will almost certainly have negative effects on safe vehicle and pedestrian traffic. Let?s face the fact that Transom Real Estate is not in this for the community needs / helping build community, they are in it for the money. We need to ask ourselves why such a monstrosity? Why isn't this project smaller scale, why no homeownership? Until this project is completely overhauled, I will strongly be opposing it. Feel free to contact me with any questions or comments.
5/31/2019	Andrew	Zimmermann	Resident	Neutral	The site absolutely needs an overhaul and I think the uses proposed are both compatible and desirable. This certainly is a bold and dense vision for the site. However the team has some work to do. The design has some redeeming qualities, mostly in that it addresses street front nicely and provides a built edge along most of the bremen frontage. Secondly, I believe the scale and location of the retail is intuitive and a no brainer as that corner is one of the most highly trafficked pedestrian corners in East Boston. The architecture however is fairly forgettable and gimmicky with the protruding bays and setbacks. I've come to expect a lot more from Rode and I suspect, in a one on one environment they would admit this is not their best work. The angled roof line is also a bit pointless. I'd rather see less building and more meaningful and impactful architectural and/or material moves. I'm a huge proponent of a parking ratio of less than 1:1 especially in this location but this is a bit extreme. The proposition should be simple - allow the developer their density, which at 3.5+ FAR and 6 stories is significant, but mandate a below grade level (either full or partial) of parking. 40 spaces with the rest being stackers is a joke. They could likely get 80-100 spaces with a below grade level and no stackers which would be more appropriate. The alternative is to reduce the height and unit count to more reasonable levels (say 4-5 stories and a 2.5-3 FAR and leave the parking plan as is. In short, the the scale of development being proposed I believe below grade parking becomes feasible and should be mandated. Lastly this proposal in terms of height, density and unit count feels like a deliberate overask in order to wind up at 100-120 units which is probably where the project should end up. Transom can certainly pull the project off since they are doing large projects elsewhere in the city. However, being new to East Boston, I'm not sure we should extend the benefit of the doubt on this proposal - as constituted. I hope there is a productive dialog that refines the project and ultimately improves the outcome.

6/3/2019	matthew	emond		Support	I fully support this project and I intend to join the community meetings. Perfect T.O.D. location with a need for park-friendly retail.
6/4/2019	Michael	Favaloro	local business owner	Support	As a longtime business owner in East Boston, I am writing in support of the proposed development at 282-302 Bremen Street. I like the design of the building and appreciate that the developer has committed to keeping the affordable units on site. I also appreciate the extensive outreach the developer and team have done with the community. As a local resident and business owner, I know how a project like this can transform our neighborhood for the better.
6/6/2019	Jodi	Remington	Resident	Oppose	This is a residential neighborhood that is already too congested. The building is too large in height and density. The parking is ridiculous. The street is a traffic nightmare every day and can?t support this burden. The building will create shadows for abutters and the park. There are already small businesses in the area, the extra is not needed. The area is zoned for family homes not monster sized buildings. There?s a lack of school seats and safety personal to support this development. I?m an abutters and strongly oppose this. Plus, the developers did not go through the community process with the neighborhood association. They did not come back with changes after all residents at the meeting opposed it.
6/7/2019	Christina	Lepre	N/A	Oppose	I attended the public meeting on 6/5, and I live around the block from the proposed development. After seeing the presentation and hearing the concerns of my neighbors, I think this building needs to come down in height and capacity. I understand that this is a desirable plot of land for development and that a development WILL happen, whether it's this one or not. The architects and developer seemed thoughtful in their planning, and I am really happy to hear that there will be affordable housing as part of this plan. But this building is, quite simply, out of character with homes in this area which are all three stories and will introduce hundreds of new residents and their cars to an already congested area in one building. I also have concerns about the height being DOUBLE THE SIZE of its surroundings and how that will impact the trees and park directly across the street with its shadow towering over Bremen street. I was glad to hear a shadow study was done, but I'm skeptical that the impact will be as minimal as the developer represented. I have a slightly different response to the parking concerns expressed in the meeting. I do not drive and I think there are way too many cars on the road in Eastie. When we moved to East Boston in January 2015 just a few days before the first of many blizzards that winter, we saw how horrible people were to each other with regard to parking and we wanted no part of it. But my partner does rent cars pretty regularly and sometimes needs to park overnight, and we often have visitors coming from out of state/other towns. My block of Chelsea and the whole stretch of Bremen on the park side are some of the only places in this area that allow for visitor parking. Building this development all but guarantees the eradication of visitor parking, which is a major problem. People need to have home health aids coming to care for them, family members visiting from other towns or out of state, etc. and this development would squeeze out the visitor parking that enables those visits. Where does the city propose that people should park in East Boston? It's ridiculous that non-residents can't even visit East Boston because of the lack of visitor parking. (Truly, something needs to be done by the city of Boston to incentivize residents of East Boston to give up their cars, which is a larger issue than this development.) But I agree with some of the suggestions that incentivizing the residents of the proposed building not to own cars, and hope the developers will take those into consideration as well. I also liked their idea of having car share available for residents in the parking structure. In conclusion, I oppose the proposed building at its current height and capacity, but I am very open to reconsidering if changes are made to bring the height down and to more strongly incentivize the residents of the proposed building to go car-free.
6/7/2019	Eileen	White		Oppose	The building proposed is too high and has too many apartments. This building could easily be scaled down to 4 floor, with much less apartments for rent and more parking on the side of the building where the green 3/6 decker building is, which is part of the parcel purchased. Traffic will be greatly increased. There is no need for a retail space on the first level. I thought the idea is not to have commercial space on Bremen Street and only have housing. The Blue Line MBTA will greatly impacted by all these new apartments (since no one owns cars in East Boston) because every residents only uses the MBTA. I strongly oppose this huge addition to our neighborhood.

6/7/2019	Cathy	Huban		Oppose	Strongly oppose! 1. The height and size of the building is totally out of character for the neighborhood which is primarily 3 family homes. Also it's design is something more conducive with the waterfront. Out of character with the buildings in the area. 2. The number of parking spaces is totally inadequate. 3. This section of Breman St has bumper to bumper traffic from the turn into the tunnel to beyond Day Square. The increase in traffic could be catastrophic. 4. One of the upcoming projects will eliminate a parking garage currently in the building. This garage is used by an auto body shop to park the cars they are working on. Also used by a church which has services 3 to 4 times a week. With the garage gone all of their cars will have to park on the street. 5. Safety concerns for the pedestrians going to the Airport T station and the park. Cars routinely ignore the stop signs on the street. With an increased population this becomes more problematic. Also, the number of people crossing the street will impact the traffic flow. 6. The affect the proposed retail space will have on 2 small family run business on Brook Street. Also, the impact it will have on Brook Street which is VERY narrow and has cars parked on both sides all the time. 7. With the increase of the imaginary cars in East Boston and parking on both sides street being completely full you need to use extreme caution driving. In the winter with snow banks making the streets smaller a real safety concern is developing. How can emergency vehicles get to their destinations? And this is true with Breman. In addition the city has done nothing to deal with the lack of areas people can move their cars during snow emergencies. Their solution is East Boston residents should drive into Boston and use the garages they have made arrangements with. 8. The Blue line is at a breaking point. They have not increased the number of cars to deal with the increase in population. 9. There is one police department, one supermarket expected to deal with the demands of the growing population. At a meeting last summer which was addressing a master plan for East Boston a gentlemen on the panel from South Boston stood up and said. "Don't let them do to East Boston what they did to South Boston". Also at an address the mayor gave in East Boston he concluded with. "When I became mayor people said to me, get developers into East Boston. Now they are saying get the developers out of East Boston." I realize the size of this property calls for some type of development. Let them build some town homes with garages!
6/7/2019	Palma	Basile		Oppose	I think the the gentrification of East Boston is a wonderful thing. I have been a resident of East Boston for almost my entire life. There has been much development going on in East Boston, multiple units replacing three family dwellings, but no additional parking provided for these new developments. My neighbors cannot find parking now, imagine what will happen when all these additional units are built! What I have seen happening in the past five years to the development going on in East Boston is that it is very poorly planned and thought out. Builders come in, throw up a building of multiple units without parking. Please consider this before you approve additional dwellings without parking. This is a BIG problem that everyone involved seems to ignore. Thank you for your consideration.
6/7/2019	brian p ferrari	ferrari	maverick central neighborhood assoc.	Oppose	I,am for new development but the size of this building is way to massive for the congested area that is already impacted with cars,pedestrian,s going to the airport t station, the impact on the area due to lack of parking which already has an impact on us abbuters who live here , safety concerns due to the increased traffic on Bremen street this will cause along with the new developments already approved . also the impact now already on the blue line which does not have enough trains as it is.they are proposing retail on the first floor and the last 2 meetings there was going to be 68 off street parking spaces and at this past Wednesday night june 5 2019 meeting it is less off street parking down to 42 off street parking spaces and the ht.of the building is way to high for us abbutters with our 2 & 3 family homes at 40 ft high that are on Chelsea street effect our quality of life which is directly behind this development. do not get me wrong it is a beautiful building but it is totally out of place with our 2 & 3 family homes in this area .
6/7/2019	isabel c ferrari	ferrari	maverick central neighborhood assoc.	Oppose	structure is way to massive the whole length of Bremen street and, I,am for developments but with all of the traffic congestion and lack of off street parking and the ht.of 68 ft tall building is way out of touch for us residents to have in our backyards and at the last meeting the ht of the building has not gotten any smaller in ht and also the last 2 meetings mentioned 68 off street parking spaces well at this past Wednesday,s night meeting the off street parking went down considerable to just 42 spaces,instad of making retail space on the first floor make it all parking spaces for off street parking spaces for 165 spaces same as the units that are to be proposed .

6/8/2019	Jarret	Bencks		Neutral	How was the retail space size/number determined? Would the developer consider including more retail on the first floor? Also, this seems like a prime location for a "car-free," no residential parking permit development, like the one being done at 1970 Dorchester Ave.
6/9/2019	Adam	Siegel		Oppose	This building is going to be too large for the area. Everything else are three story/three family style buildings. The additional traffic it will bring to Bremen street is going to be insane. Trying to get to the tunnel in the morning is already a nightmare without adding 165 residential units to the area. Also the parking for the building is nowhere near what it would need. Overall this is not the right kind of building for the neighborhood.
6/9/2019	Eva	DiMaggio		Oppose	I am a 60 year resident of East Boston and believe the height & scale of this building is to large for the neighborhood. The small number of parking spaces being provided will have a large impact on the area due to the already severe lack of parking in the neighborhood. The increase of traffic on Breman Street, which is already highly congested will further cause more delays and back up's on to the surrounding streets and neighborhoods, as well as safety issues that the traffic causes for pedestrians. The neighborhood is already feeling the burden of over crowding with the other large scale buildings that have already been built and others that are also in the process of being built. The Blue Line has already been severely impacted due to the extra commuters already using the system. The proposed retail space's will further create more parking concerns, along with extra foot traffic in the neighborhood creating safety issues. The number of units and grand size of this project is extremely concerning to the neighborhood and their thoughts and ideas should be considered before this project goes any further! Thank you for your attention to this opinion.
6/9/2019	Susie	Siegel		Oppose	There is no reason to bring a 6-story building onto Bremen Street. First of all, it will look incredibly out of place as the tallest building anywhere near it is a 3-story. Secondly and more importantly the lack of adequate parking spaces is unacceptable. The traffic in Eastie has been getting progressively worse each year and there is no way Bremen or Chelsea Street can support the overflow of extra cars that will not have garage spots. Adding an additional few hundred trying to commute out of Eastie each morning and evening will make an existing problem that much worse. There is plenty of housing in Eastie already ? what we need more of is parking, not yet another massive condo building that will exacerbate all of our existing challenges ? challenges brought on because of the influx of housing/people and the lack of preparedness on how to compensate for that.
6/10/2019	Minkoo	Kang		Support	I am writing in support of the proposed development at 282-302 Bremen Street in East Boston. So many of the recent projects in the area are full lot coverage buildings, leaving little or no room for public space. I am very pleased to see this project not only carves out room for the public but also invites the neighbors in with the café and increased sidewalk space. This proposal will help revitalize this part of Bremen Street and provide a much-needed amenity with the inclusion of a new, local café. Thank you!

6/10/2019	Samantha-Rae	Tuthill		Oppose	I lived here on Chelsea Street for four years now. My fiance and I are hoping to make it another couple years here at least. I absolutely adore this neighborhood. It's so close to the city and yet still has a great, close neighborhood feel to it. I cannot even begin to imagine the destruction a building of this size will bring to the area. There are families here that have been part of the area for generations. We have our own little routines and ways of life here. This is one of the few last places left in the city that isn't completely overrun with expensive, monstrously huge living complexes and shopping centers. So many of us who live here work around here as well. What will happen to us, and to the GENERATIONS of families that have called this area home, when a behemoth of a building like this comes right next to our park? Is it not enough that the entire rest of this city has been gentrified beyond recognition? I love my home so, so much. I love living and working in Boston, paying my taxes to Boston, doing community volunteering and involvement for Boston. If a project like this comes in, literally across the street from me, it will turn my whole life upside down. Forget my commute to work, my ability to park near my apartment, my quiet neighborhood, the diversity, the independent shops and restaurants. This will overcrowd an area that simply doesn't have the room for so many bodies. It will make it impossible for so many of us to stay here. Other landlords will start hiking their already sky-high rents. I depend on the blue line to get to work. My fiance depends on the busses to get to work in Revere. If prices go up, we'll be forced to move out. We may be forced to find new work if we can't keep our commute to our current offices. This structure would tower over everything else in the area. There is so much personal and local history in this neighborhood. I understand the need to give people more housing options but this cannot possibly be the solution. It will irrevocably change the landscape, culture and atmosphere of East Boston forever. If the city wants so much to build giant complexes here, it needs to first improve parking and T access to accommodate all those extra people without it being a detriment to the people who already call this home. I have so many elderly neighbors, people who I have personally helped shovel in the winters because it's so hard for them to move. Children who live right next door. These families need to have close access to parking at their homes and to the train. I would have been utterly hopeless last summer when I broke my leg if it wasn't so easy for my partner to park me near our place or for me to easily and safely get on the T. Flooding our area with new people and new businesses will have a drastic impact on the people who already live there. Please don't yet again make a project that will benefit the wealthy at the expense of the working class and public services employees. Boston is one of the most expensive cities in the country. It is forcing people to abandon the city they love and the lives they've built. Please do not do that to Bremen Street. People like us have so few places left. People who want something like this proposed project have so many options. Please don't take away from us to give to them. This building is not a suitable fit for this area.
6/10/2019	Talia	Rhodes		Oppose	This is a significant amount of units that will put pressure on not just East Boston, but neighboring towns as well (such as mine, Chelsea) especially in terms of transit. There are plenty of open spaces in the new "luxury" units downtown. It's questionable that there is a need for this many new units
6/10/2019	Claudia	Clarke		Oppose	Boston is turning into LA and SF with these efforts to price the people the RUN this city out of their homes.
6/10/2019	Lane	Hook	East Boston Community	Oppose	The already 20,000+ homeless population in this city will increase if this complex is built. It is completely irresponsible for a community already facing severe homeless crisis to build housing targeted at displacing low income working class homes in favor of prosperous luxury homes.
6/10/2019	Elena	Bertkau		Oppose	The height and density of the project will overwhelm the T, roadways and parking for this area. There are a large number of other projects in this area that are creating a development burden. If this project moves forward it should provide more than just 2 shared cars, provide safer intersections at all corners of the block, include in the lease that renters cannot get resident stickers/register cars to the address. I would support the proposal if they could reduce the number of units and height to make it more aligned with the neighborhood?s 3 family properties. Thank you!

6/10/2019	Max	Gruner	East Boston Main Streets	Support	On behalf of the board and staff of East Boston Main Streets, I would like to state that we are in support of the proposed development at 282-308 Bremen Street. Having had the opportunity to meet and discuss the project at length with the development team, we are excited to partner with the developer and are confident that the size, scope, and design of the building will enhance the quality of life of all who live, work and recreate in East Boston. Particularly, the thoughtfulness of the interesting design elements ensuring that this is not just "another glass box" as well as the attention to detail as manifested in the curb bump-outs and bicycle storage clearly shoe the developers interest in and knowledge of the East Boston community. With an eye on the climate resiliency work happening in Boston generally and in Eastie specifically, we are also heartened by the ambition of the developer to build an environmentally smart building. Again, we are excited and supportive of this project.
6/10/2019	Abby	Coburn		Oppose	I oppose.
6/10/2019	Jeff	Thomas		Support	+ Architecturally speaking, this is the most interesting and ambitious project that I can remember being proposed in East Boston since the major building boom began. It is to the architects credit that they incorporate inspiration from other examples of design in the neighborhood (like the Library) while creating space for their own design. The design puts some of the waterfront architecture to absolute shame. + I am happy that the developers have resisted putting in hundreds of parking spots, thereby encouraging residents of the building to bring even more cars into the neighborhood. The less parking spots, the better. Please do not encourage the ownership of cars so close to an area served by decent transit. + Elements of the sidewalk and Bremen Streetscape design are very nicely imagined. I would like to see the intersection of Bremen and Brooks to be entirely raised for safety as well as for aesthetic reasons. With additional residents that will be using that crosswalk, additional pedestrian safety measures will be needed. Raising the intersection will slow cars down and visually cue drivers to be more careful as they approach the busy pedestrian intersection. + Retail/commercial space on the corner is nicely realized in the design. I would encourage the developer to explore how they might be able to expand the amount of retail/commercial spaces available on the first floor. - One drawback to the project is it's enormous size. Unfortunately, economic conditions will likely not allow for a a project this ambitious to be a row of 3-4 story buildings, but that would clearly fit more seamlessly in the neighborhood if it was feasible. The developer acknowledged these challenges at the meeting. - Another drawback is the size of units that are being proposed. We want to encourage families to stay and grow both in the neighborhood. Smaller units will force some families to move to different units, or even neighborhoods altogether. The developer should think hard about the effects of small units on the neighborhoods future. Ideas: -If on-site parking must be provided, outfit the parking spots with electric vehicle charging capabilities, and make those particular spots available to the public if they aren't being utilized by tenants. -Raised intersection at Bremen and Brooks which I already alluded to above. -Make every effort to make the building feel accessible from the street, whether thats additional retail, or more numerous doors and stoops on the ground floor for residents. -Limit resident parking stickers for building residents and truly commit to transit-oriented development. -Ensure that retail/commercial tenants are local businesses rather than national chains. Overall, I support this project in it's current design, but there are certain things that could make it even more desirable.
6/10/2019	Lauren	O'Hara		Support	Overall I support the direction of this project and what it will bring to the neighborhood. I would like to point out a few keys pieces that would elevate the positive impact of this construction project even more. 1.) Adding local business opportunities at street level. Ideally some type of food or drink establishment would be a great addition to this particular part of the neighborhood. 2.) Ensuring that extra measures be taken in regards to safety at the crosswalk into the park/t-station. Car traffic at these intersections are already very heavy and you have to be very careful when crossing even at the crosswalk. With increased foot traffic through these crosswalks, it would be a great idea to have them raised to ensure that cars give the proper right of way to pedestrians.
6/10/2019	Bob	D'Amelio		Oppose	Born and raised in Eastie for over 25 years. What is happening is ridiculous, it's out of control with all the buildings going up along with no parking. My brother still lives on Webster st and it takes hours for him to find a spot. The powers to ne should force developers to make a minimum of one spot per unit. If not then they can't build. There is no parking as it is and the tunnel is a disaster. Bring back the old configuration when the toll booths were there.
6/10/2019	Kenneth	Bertkau		Oppose	The proposed building is just too tall for the neighborhood. It will be dangerous for crossing to the T stop and will take take local shop owners out of business. The corner with the I've cream shop will also be a mad house and the street will need to be made one way.

Gina Maria DeAcetis Powers
9 Bolton Place
Charlestown, MA 02129

Mr. Raul Duverge
Boston Planning & Development Agency
Project Manager
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

VIA EMAIL ONLY: raul.duverge@boston.gov

Re: 282 Bremen Street, East Boston (Gino's Auto Body and adjoining parcels)

Dear Mr. Duverge,

I am writing in support of the proposed development by Transom Real Estate at 282-308 Bremen Street in East Boston and this letter will memorialize my comments delivered at the BPDA Public Meeting held on June 5th at the Paris Street Community Center.

In the interests of full disclosure, I am the daughter of Gino DeAcetis and these Bremen Street parcels have been owned by my family for generations. My father was born and raised in East Boston and has been a friend, supporter, and business owner in East Boston for over 60 years. My family loves East Boston and we have watched the transformation of Bremen Street – from the rail yards to the Park N' Fly to the 18 acre Bremen Street Park -- full of life and beauty and enjoyed by all ages of the East Boston community.

Since the creation of this park, dozens of national and local real estate developers have approached my father to sell his Bremen Street parcels. Over the past 10 years, my family reviewed every proposal and determined that none of them were the right fit for East Boston. Then we met Transom. Transom's approach contrasted sharply with previous proposals as the scope and design incorporated a great deal of consideration for the community.

This property is important to my family. I have grown up with this property and have been raised and taught to value community which is why my family supports Transom Real Estate and their vision of this project.

So many of the recent projects in the area are full lot coverage buildings, leaving little or no room for public space. This project carefully considers public space as well as the neighbors. Transom's thoughtful and attractive design carves out room for the public and benefits the neighborhood with the increased sidewalk space. They have

thoughtfully considered the landscaping and design of not only the front of the building, but also the back of the building for those residents of Chelsea Street. The location of this development is in an ideal area of East Boston -- along the park and adjacent to the Airport T Station where height and much-needed units should be embraced.

The time has come to revitalize and focus on this side of Bremen Street. The proposed Transom project will help revitalize the whole Bremen Street area to the benefit and joy of the entire East Boston community for generations.

Thank you,

Gina M.D. Powers

CC: Chairwoman Christine Araujo, Board of Appeal of the City of Boston
State Senator Joseph Boncore
State Representative Adrian Madaro
City Councilor Lydia Edwards

Raul Duverge <raul.duverge@boston.gov>

282 - 302 Bremen Street, East Boston

1 message

Ross, Michael P. <mross@princelobel.com> Mon, Jun 3, 2019 at 1:55 PM
To: "raul.duverge@boston.gov" <raul.duverge@boston.gov>

Hi Raul –

I am writing in support of the project at 282-308 Bremen Street in East Boston. I live in East Boston, and own property within less than ½ mile of the proposed project. This project will bring necessary housing to a current site that is underutilized. The site is mostly commercial, and will replace 4 residential units with 165. The developer, Transom Real Estate, and its architect, RODE, are high quality developers/designers who are invested in their work and will produce the quality end-product that East Boston deserves. The project will also create 21 affordable units, which is very important to protect existing residents from being priced out of their community. Thank you for your consideration of this matter.

Best,

Mike

288 Marginal Street

East Boston

Michael P. Ross

PRINCE LOBEL

Prince Lobel Tye LLP

One International Place, Suite 3700

Boston, Massachusetts 02110

617 456 8149 Direct

mross@princelobel.com

Raul Duverge <raul.duverge@boston.gov>

282 Bremen Street

1 message

Chris Johns <cj@thoughtcraftarchitects.com> Mon, Jun 10, 2019 at 3:53 PM
To: Raul Duverge <raul.duverge@boston.gov>

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

So many of the recent projects in the area are full lot coverage buildings, leaving little or no room for public space. I am very pleased to see this project not only carves out room for the public, but also invites the neighbors in with the café and increased sidewalk space. It is located in an ideal area of East Boston- along the park and adjacent to the airport T- where height and much-needed units should be embraced.

I would like to see more refinement and simplification of the overall design, specifically, the roof lines are too chaotic and don't appear to relate to each other in the overall park-side elevation. The massing is fine but the attempted correlation to the neighborhood's two and three-story gable-roofed homes is a stretch and proportionally odd. The inconsistency of window heads and shapes in the various volumes amplifies this issue. I have confidence these items will or may already have been addressed in IAG and BCDC meetings and will be appropriately handled given Transom's track record.

This proposal will help revitalize this part of Bremen Street and provide a much-needed amenity with the inclusion of a new, local café.

Thank you.

Chris Johns
156 Porter Street, #339
Boston, MA 02128

Raul Duverge <raul.duverge@boston.gov>

282 Bremen Street

1 message

Justin Pasquariello <jpasquariello@ebsoc.org> Mon, Jun 10, 2019 at 3:24 PM
To: raul.duverge@boston.gov

Hi Raul,

I hope all is well!

I am writing to commend the developers of 282 Bremen Street for engaging in a robust process of gathering community feedback and working to consider that feedback as they develop their project. I met with them recently and am grateful about the approach they are taking.

Thank you!

J. Justin Pasquariello, Executive Director

East Boston Social Centers

68 Central Square, East Boston, MA 02128

jpasquariello@ebsoc.org

617-569-3221 X 112

Thank you for helping us to build community and strengthen families in East Boston!

· http://ebsoc.org/you-can-help/

Raul Duverge <raul.duverge@boston.gov>

282-308 Bremen Street

1 message

Lisa Cappuccio <Lisa@bostonconcepts.net> Thu, May 30, 2019 at 4:45 PM
To: "raul.duverge@boston.gov" <raul.duverge@boston.gov>
Cc: Lisa Cappuccio <Lisa@bostonconcepts.net>

Dear Mr. Duverge,

I am writing in reference to proposed project 282-308 Bremen Street, East Boston.

I am unable to attend the meeting, though I look forward to reviewing notes.

I am resident and an abutter. I reside at 322 Bremen Street.

Initially I am voicing opposition to 165 residential units with only 68 off street parking spaces. Parking on Bremen Street is already an issue, with the park and residents that live on or nearby Bremen Street. Although the MBTA is easily accessible to residents on Bremen Street, this should not deter from the issue of parking. The MBTA is not at the capacity to handle existing passengers, therefore most opt to take their own vehicles to work which means more residents with cars.

I understand and respect landowners who want to develop their properties. Though I am a big fan of the existing Braz Auto Shop – they are great neighbors – I realize it is not within our rights to tell a landowner what to do with their property.

However, it is within our rights to voice our concerns about the negative impact that will occur with 165 units and only 68 parking spaces on an already congested street. It is unrealistic to assume that these new residents will move in without vehicles. Most households will have 1-2 cars per unit on average.

Another concern is that most of these projects are approved by the City of Boston and given permits while some have turned it over by sale to another developer to implement the project. I am skeptical about this as well.

I look forward to hearing more about this project as it moves forward.

Best,

Lisa Cappuccio

322 Bremen Street

#3

East Boston, MA 02128

B

Raul Duverge <raul.duverge@boston.gov>

Bremen Street Development

1 message

Erica Wilts <erica.wilts@gmail.com> Fri, Jun 7, 2019 at 9:33 AM
To: Raul.duverge@boston.gov

Hi Raul - thanks for your time on Wednesday night. The session was very informative. I wanted to let you know that I am all in favor of this development. I live a few blocks from the site and many of these blocks in Eagle Hill need some redesign and life put into them. I think this proposal would do just that.

Thanks,
Erica

Raul Duverge <raul.duverge@boston.gov>

Project at 282-308 Bremen Street

1 message

Komal Basra <basra.komal@gmail.com> Wed, Jun 5, 2019 at 11:05 AM
To: raul.duverge@boston.gov
Cc: Michael Peer <peer.mike@gmail.com>

Dear Mr. Duverge,

We are writing in reference to the proposed project at 282-308 Bremen Street in East Boston. We are unable to attend the meeting tonight, but we want to voice our opposition to 165 residential units with only 68 off street parking spaces. We have concerns about the negative impact that will occur with 165 units and only 68 parking spaces on an already congested street and a public transit system that is already unable to handle the volume of passengers riding the blue and silver lines.

We are abutting residents at 322 Bremen Street. It is a 3 unit building and there are currently 4 cars for these 3 units. Available parking on Bremen Street has become more of an issue over the recent years with the park, library, YMCA and increasing residents that live on or nearby Bremen Street with cars.

We both commute to work from the Airport T stop, which is easily accessible to residents on Bremen Street. However, we now often wait for multiple trains during the morning and evening commutes on the blue line because the MBTA is no longer at the capacity to handle existing passengers. This was not the case 3-5 years ago, and with a 165 unit building, this will only exacerbate the issues on the blue line.

We look forward to hearing more as this project progresses.

Sincerely,
Komal Basra and Michael Peer
322 Bremen Street
Apartment 2
East Boston, MA 02128

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

So many of the recent projects in the area are full lot coverage buildings, leaving little or no room for public space. I am very pleased to see this project not only carves out room for the public, but also invites the neighbors in with the café and increased sidewalk space. It is located in an ideal area of East Boston- along the park and adjacent to the airport T- where height and much-needed units should be embraced.

This proposal will help revitalize this part of Bremen Street and provide a much-needed amenity with the inclusion of a new, local café.

Thank you.

Name: Derek J. Brodin

Address: 69 Waldemar Avenue
East Boston, MA 02128

cc: Chairwoman Christine Araujo, Board of Appeal of the City of Boston

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

I enjoy visiting the park in the summer with family and friends, so it will be great to have a more activated street that engages the public closer to the sidewalk. I like the design of the building and feel as though Bremen Street and its condition along the park can appropriately handle height and much-needed additional apartment units in East Boston. I look forward to the revitalization of this part of Bremen Street.

As a local resident, I know how a project like this can transform our neighborhood for the better.

Thank you.

Lauren Elle Gerdeman Coburn

156 Porter St. #147
East Boston, MA 02128

cc: Chairwoman Christine Araujo, Board of Appeal of the City of Boston

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

East Boston has seen a great deal of development over the last few years, and I'm happy to finally have a developer who values design and listens to the neighbors concerns. The developer and his team have been in regular contact and I look forward to seeing this project happen.

Thank you.

Name: DocuSigned by: Jessie Franco CE04BB4E7E364BD...
Jessie Franco

Address:

9 Jeffries
St. #3
East Boston
MA 02128

cc: Chairwoman Christine Araujo, Board of Appeal of the City of Boston

Mr. Raul Duverge
Boston Planning & Development Agency
City Hall, 9th Floor
One City Hall Square
Boston, Massachusetts 02201

Re: 282 Bremen Street

Dear Mr. Duverge,

I am writing in support of the proposed development at 282-302 Bremen Street in East Boston.

I enjoy visiting the park in the summer with family and friends, so it will be great to have a more activated street that engages the public closer to the sidewalk. I like the design of the building and feel as though Bremen Street and its condition along the park can appropriately handle height and much-needed additional apartment units in East Boston. I look forward to the revitalization of this part of Bremen Street.

As a local resident, I know how a project like this can transform our neighborhood for the better.

Thank you.

Name:

DocuSigned by:
Marc Savatsky
1A23C467CB034B4...

Address:
9 Jeffries St.
Boston, MA 02128

APPENDIX C

COMMENTS FROM THE IAG

FOR YOUTH DEVELOPMENT®
FOR HEALTHY LIVING
FOR SOCIAL RESPONSIBILITY

Raul Duverge
Project Manager
Boston Planning & Development Agency
One City Hall, Ninth Floor
Boston, MA, 02201

Dear Mr. Duverge,

I am writing to you in support of the 282 Bremen Street Project proposed by Transom Real Estate. This planned project will serve Bremen Street in many different functions. The building is aesthetically pleasing and will complement the Green Way and Bremen Street Park in replacement of broken down buildings and fencing that are currently there. This project will also bring much needed retail to Bremen Street that lacks a café style business near a people rich area. The plan also provides bump outs and better street/sidewalk configuration that is much needed on Bremen Street which is currently a haven for speeding cars.

If you have any questions please don't hesitate to reach out to me directly.

Sincerely,

Joseph J Gaeta Jr.
Executive Director
East Boston YMCA
YMCA OF GREATER BOSTON
215 Bremen St.,East Boston, MA 02128
P: 617-418-8320 C: 617-943-4855
jgaeta@ymcaboston.org www.ymcaboston.org/eastboston

B

Raul Duverge <raul.duverge@boston.gov>

282-308 Bremen Street

1 message

Kelly, Margaret A. <mkelly@bpl.org> Mon, Jun 10, 2019 at 7:16 PM
To: Raul Duverge <raul.duverge@boston.gov>

HI Raul,

Just want to give a little feedback on the project. I don't really have any new insights into the project. I really like the idea of having a "zip car" available for tenants to use. I think any incentive for people to not own cars will be worthwhile. Parking on Bremen Street has gotten much worse in the 5 years that the library has been here so maximizing the parking with stackers make sense. I do think that people seem more open to living without in car in this age of uber so there may be quite a few tenants who won't need a car based on that and proximity to the t. Still 67 spaces for 165 units makes for a pretty low ratio of occupants vs. spaces. I would not like to see tenants give up their right to register their car(if I understood that point correctly) at that address or be eligible to get resident parking stickers. I don't think it would be right for developers and the city (or for registration, state I guess) to concede tenants' rights in favor of development.

I really like the idea widening the corner and the overall design of the building and making the crosswalk more visible and safer.

Thanks!

Margaret

Margaret Kelly
Branch Librarian
East Boston Branch Library

June 10, 2019

To whom it may concern,

My name is Nanina Gaeta and I am a member of the 282-308 Bremen Street project IAG. The architecture of the proposed building is lovely and the incorporation of an established Greenway in its design use is an additional perk for the development residents. I understand that this is transit oriented for the residents of the building. Generally speaking, most of the information presented in the tables is understandable and I will forward more questions directly to the developer.

That said, I ask the developers and the BPDA to reconsider the size and scope of the proposed building. It is too tall for the neighborhood. I understand that the placement is adjacent to public open space and that the height is considered appropriate and financially sound for the developers: no, it is too tall. It is not what I consider an anchor development, but rather it is a potential precedent to the creation of a walled off Bremen Street, a physical delineation of those who can afford to live next to a beautiful Greenway and those who can no longer.

The proposed parking plan is great in theory, but will not happen in reality. In the end, there will be more cars attached to the development than expected, including the lot and surrounding areas. The public streets cannot and should not be reserved for residents of the building and yet, it will be their cars, and their visitor cars that will displace others.

How will the developers mitigate the impact of an overly large, pricey living area? Will this group develop more affordable (actual affordable) housing to match the number of units in the building? What is developers' idea of "mitigation?" It cannot be limited to pretty planters or a computer room somewhere in the community. The number of units demands an appropriate mitigation.

Many more of my objections to the project are based on personal philosophy and not the actual design of the development, so I will not include them here.

Thank you for your time.

Sincerely

Nina Gaeta

617-569-7913 Home

617-943-9645 cell phone

B

Raul Duverge <raul.duverge@boston.gov>

282-308 Bremen IAG comments

1 message

David Shulman <david@techctr.com> Wed, May 29, 2019 at 10:55 AM
To: Raul Duverge <raul.duverge@boston.gov>
Cc: "pspelios@transomrealestate.com" <pspelios@transomrealestate.com>, Kate Kelly <kkelly@watervilleconsulting.com>

Hi Raul,

I'm happy to be a part of the IAG for this exciting project. Our job is to advise the BPDA and ownership to identify community impacts and determine the appropriate mitigation. So far, the majority of the community concerns are related to height, traffic and parking. I'd like to document my initial suggestions to mitigate these impacts. In addition to concerns regarding the final project, there are concerns about the construction plan. This email will address both.

Project Mitigation for existing community members:

- **Impact** – Loss of light for abutters and nearby residents . **Solution**– Provide a green roof with community garden space that is easily accessible. Priority goes to direct abutters on Bremen and Chelsea Streets.
- **Impact** – Loss of on-street parking. Making existing curb cuts into legal parking spaces doesn't add parking due to the fact that the community is already parking in these spaces. **Solution** – A minimum of ½ of the new indoor parking spots should be made public and available to anyone with an East Boston resident sticker. Another consideration would be to offer parking permits issued from property management to any resident on the same block of Bremen, Putnam, Porter and Chelsea Streets. Ownership mentioned that they don't make any money on parking. It would be even better if all spaces were made public. This will go a long way in addressing the neighborhood parking issue and make people feel better about the requested parking variance.
- **Impact** – Loss of on-street parking. The community is concerned that new residents will come with cars and park on the street. **Solutions –** Follow-up with the ownership promise to provide two electric vehicles. These vehicles should be available to both new residents of 282 as well as abutters on Bremen, Putnam, Porter and Chelsea streets. If this is not possible from a liability perspective, A zip-car or other shared car service must be provided in addition to the dedicated electric vehicles.
- **Impact** – Increased vehicle traffic and congestion. **Solution –** Present a creative solution to traffic based upon your traffic consultant's study. If it's not possible to make all of Bremen 1-way (away from the Sumner Tunnel) we should make Bremen 1-way in front of 282-308 Bremen. Reduce the street to 1-lane in this area and make the sidewalk in front of the building much wider to address pedestrian congestion and keep in line with the landscape architects plan to connect this block to the park. Transom is "trying to be different". The community welcomes creative suggestions to mitigate existing and new traffic issues in this neighborhood.
- **Impact –** Light pollution. **Solution** – Focus exterior lighting on Bremen St. Don't point any lights into existing residents windows (this has been an issue with other large projects). BPDA must review and approve any exterior lighting even though this is not typically part of their review process. Any required fire department lighting must be within the enclosed penthouse so that it is not visible from any nearby residents.

Construction Plan suggestions:

- Permit should be issued for an 8 hour period on weekdays only. The start and stop time should be calculated to have the least impact on traffic during the morning commute and school drop offs at Excel Academy.
- No weekend permits or exceptions.
- Residents should be able to park in front of the construction site on the street during construction (even if the sidewalk is closed).
- Construction workers must park in a remote lot and be shuttled to the work site so that they don't impact resident parking. Consequences for workers violating the parking agreement must be pre-determined and enforceable.

- A plan to stop contractors or subcontractors that are not following the rules must be in place to resolve the issue in real time.
- No idling trucks before the job site opens. A plan to stop this in real time must be in place.
- Dust control. A plan must be in place to clean the exterior of abutters houses and windows whenever an issue is reported. This is typically a problem when masonry work is performed.
- All abutters homes should be inspected for structural integrity and setup with measurement devices to see if they are moving, settling or being affected negatively due to excavation and foundation work. A plan to monitor these structures and address any issues must be in place. If any structures are found to be questionable before the foundation work begins they should be reinforced prior to foundation work to prevent a much larger issue and expense.
- Penalties must be pre-determined and enforceable. Any money collected should go into a community mitigation fund.

The IAG will discover additional impacts and concerns as the process continues. This email is to ensure that these suggestions and concerns are received during the comment period and provide the development team time to review, respond and hopefully work into the final plan. I'm writing this as an individual on the IAG however I'm also the co-chair of the Maverick Central Neighborhood Association. I'm sure we'll have additional input at the next community presentation.

Feel free to contact me anytime for additional information or clarification.

Sincerely,

David Shulman

150 Liverpool Street APT 7

East Boston, MA 02128

617-834-1208

Cc:

Kate Kelly

Peter Spellios

Raul Duverge <raul.duverge@boston.gov>

Project Comment Submission: 282-302 Bremen Street

1 message

kentico@boston.gov <kentico@boston.gov> Mon, Jun 10, 2019 at 5:50 PM
To: BRAWebContent@cityofboston.gov, raul.duverge@boston.gov, jeff.ng@boston.gov, comment_email_processor@o-2zlaqa64yog14nfnqlzmbbrpfox00q4is2vvlpd3irp6a8fovy.36-1heureao.na30.apex.salesforce.com

CommentsSubmissionFormID: 6403

Form inserted: 6/10/2019 5:50:26 PM

Form updated: 6/10/2019 5:50:26 PM

Document Name: 282-302 Bremen Street

Document Name Path: /Development/Development Projects/282-302 Bremen Street

Origin Page Url: /projects/development-projects/282-302-bremen-street?fbclid=IwAR3qPIZZ6HGj_8dpLqzTQOD3G2JmsZvY6OjntoLIg6UC6V66xcPEMBBO2DA

First Name: Elena

Last Name: Bertkau

Organization:

Email: Ekbertkau@mgh.harvard.edu

Street Address: 309 chelsea st #3

Address Line 2:

City: Boston

State: MA

Phone: (203) 895-4995

Zip: 02128

Opinion: Oppose

Comments: The height and density of the project will overwhelm the T, roadways and parking for this area. There are a large number of other projects in this area that are creating a development burden. If this project moves forward it should provide more than just 2 shared cars, provide safer intersections at all corners of the block, include in the lease that renters cannot get resident stickers/register cars to the address. I would support the proposal if they could reduce the number of units and height to make it more aligned with the neighborhood's 3 family properties. Thank you!

PMContact: raul.duverge@boston.gov

Project ID: 3282

APPENDIX D

EXAMPLE OF DPIR PUBLIC NOTICE

SAMPLE

PUBLIC NOTICE

The Boston Redevelopment Authority ("BRA") d/b/a the Boston Planning & Development Agency ("BPDA"), pursuant to Article 80 of the Boston Zoning Code, hereby gives notice that a Draft Project Impact Report ("DPIR") for Large Project Review has been received from

_____ on _____
(Name of Applicant) (Date)

for _____
(Brief Description of Project)

proposed at _____.
(Location of Project)

The Proponent is seeking the issuance of a Preliminary Adequacy Determination by the Director of the BPDA pursuant to Section 80B-5 of the Code. The BPDA, in the Preliminary Adequacy Determination regarding the DPIR, may waive further review requirements pursuant to Section 80B-5.4(c)(iv) of the Code, if after reviewing public comments, the BPDA finds that such DPIR adequately described the Proposed Project's impacts.

The DPIR may be reviewed on the BPDA website- www.bostonplans.org or at the office of the Secretary of the BPDA, Room 910, Boston City Hall, 9th Floor, 1 City Hall Square, Boston, MA. 02201 between 9:00 AM and 5:00 PM, Monday through Friday, except legal holidays. Public comments on the DPIR, including the comments of public agencies, should be submitted in writing to Raul Duverge, Senior Project Manager, BPDA, at the address stated above or via email at Raul.Duverge@Boston.gov, within forty five (45) days of this notice or by_____.

BOSTON REDEVELOPMENT AUTHORITY
d/b/a BOSTON PLANNING & DEVELOPMENT AGENCY

Teresa Polhemus
Executive Director/Secretary

APPENDIX E

ACCESSIBILITY CHECKLIST

Article 80 – Accessibility Checklist

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

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

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

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

Accessibility Analysis Information Sources:

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

Glossary of Terms:

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

1. Project Information:

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

Project Name:	
Primary Project Address:	
Total Number of Phases/Buildings:	
Primary Contact (Name / Title / Company / Email / Phone):	
Owner / Developer:	
Architect:	
Civil Engineer:	
Landscape Architect:	
Permitting:	
Construction Management:	

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

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

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	

2. Building Classification and Description:

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

What are the dimensions of the project?

Site Area:	*SF*	Building Area:	*GSF*
Building Height:	*FT.*	Number of Stories:	*Flrs.*
First Floor Elevation:		Is there below grade space:	*Yes / No*

What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	Residential - Multi-unit, Four +	Institutional	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:				

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:	
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	

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:	
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:	

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:	

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.	
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	

Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	

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?	
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?	
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	
Where is the accessible visitor parking located?	
Has a drop-off area been identified? ***If yes,*** will it be accessible?	

7. Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.

Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	

If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	
If a residential development, how many accessible Group 2 units are being proposed?	
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes,*** provide reason.	
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes,*** describe:	

9. Community Impact:

Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.

Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	
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?	
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.	
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?	
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?	

10. Attachments *Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.*
Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

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

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

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

Architectural Access staff can be reached at:

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

APPENDIX F

BROADBAND READY BUILDINGS QUESTIONNAIRE

CITY of BOSTON | boston planning & development agency

ARTICLE 80 DESIGN REVIEW
BROADBAND READY BUILDINGS QUESTIONNAIRE

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

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

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

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

SECTION 1: GENERAL QUESTIONS

Project Information

- Project Name:
- Project Address Primary:
- Project Address Additional:
- Project Contact (name / Title / Company / email / phone):
- Expected completion date

Team Description

- Owner / Developer
- Architect
- Engineer (building systems):
- Permitting:
- Construction Management

SECTION 2: RIGHT OF WAY TO BUILDING

Point of Entry Planning

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

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

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

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

- Yes
- No
- Unknown

SECTION 3: INSIDE OF THE BUILDING

Riser Planning

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

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

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

Telecom Room

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

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

- What is the size of the telecom room?

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

- Will the telecom room be located in an area of the building containing one or more load bearing walls?
- Will the telecom room be climate controlled?
    - Yes
    - No
    - Unknown

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

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

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

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

- Other information/comments

Delivery of Service Within Building (Residential Only)

Please enter 'unknown' if these decisions have not yet been made or you are presently unsure. Questions 5 through 8 are for residential development only.

#5: Will building/developer supply common inside wiring to all floors of the building?

- Yes
- No
- Unknown

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

#7: Is the building/developer providing wiring within each unit?

- Yes
- No
- Unknown

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

SECTION 4: ACCOMMODATION OF NEW AND EMERGING TECHNOLOGIES

Cellular Reception

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

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

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

- Yes
- No
- Unknown

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

- Yes
- No
- Unknown

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

- Yes
- No
- Unknown

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

- Carrier
- Neutral host provider
- Self-installing

Rooftop Access

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

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

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

- Yes
- No
- Unknown

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

- Yes
- No
- Unknown

SECTION 5: TELECOM PROVIDER OUTREACH

Supporting Competition and Choice

Having a choice of broadband providers is a value add for property owners looking to attract tenants and for tenants in Boston seeking fast, affordable, and reliable broadband service. In addition to enabling tenant choice in your building, early outreach to telecom providers can also reduce cost and disruption to the public right of way. The following questions focus on steps that property owners can take to ensure that multiple wireline or fixed wireless broadband providers can access your building and provide service to your tenants.

#15: (Residential Only) Please provide the date upon which each of the below providers were successfully contacted, whether or not they will serve the building, what transmission medium they will use (e.g. coax, fiber) and the reason they provided if the answer was 'no'.

- Comcast
- RCN
- Verizon
- NetBlazr
- Starry

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

- Yes
- No
- Unknown

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

- Yes
- No
- Unknown

SECTION 6: FEEDBACK

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

APPENDIX G

BOSTON SMART UTILITIES CHECKLIST

Boston Smart Utilities Checklist

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

Background

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

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

b) integration of the Smart Utility Standards

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

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

Part 1 - General Project Information

1.1 Project Name	<<1.1 Project Name>>
1.2 Project Address	<<1.2 Project Address>>
1.3 Building Size (square feet) **For a multi-building development, enter total development size (square feet)*	<<1.3 Building Size (square feet)>>
1.4 Filing Stage	<<1.4 Filing Stage>>

Boston Smart Utilities Checklist

1.5 Filing Contact Information

1.5a Name	<<1.5a Name>>
1.5b Company	<<1.5b Company>>
1.5c E-mail	<<1.5c E-mail>>
1.5d Phone Number	<<1.5d Phone Number>>

1.6 Project Team

1.6a Project Owner/Developer	<<1.6a Project Owner/Developer>>
1.6b Architect	<<1.6b Architect>>
1.6c Permitting	<<1.6c Permitting>>
1.6d Construction Management	<<1.6d Construction Management>>

Part 2 - District Energy Microgrids

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

Note on submission requirements timeline:

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

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

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

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

Boston Smart Utilities Checklist

Please email submission to manuel.esquivel@boston.gov

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

Part 3 - Telecommunications Utilidor

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

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

Please email submission to manuel.esquivel@boston.gov

Boston Smart Utilities Checklist

3.1 Consultant Assessing/Designing Telecom Utilidor (if applicable)	<<3.1 Consultant Assessing/Designing Telecom Utilidor (if applicable)>>
3.2 Date Telecom Utilidor Map/Diagram was submitted	<<3.2 Date Telecom Utilidor Map/Diagram was submitted>>
3.3 Dimensions of Telecom Utilidor (include units)	
3.3a Cross-section (i.e., diameter, width X height)	<<3.3a Cross-section (i.e., diameter, width X height)>>
3.3b Length	<<3.3b Length>>
3.4 Capacity of Telecom Utilidor (i.e., number of interducts, 2 inch (ID) pipes, etc.)	<<3.4 Capacity of Telecom Utilidor (i.e., number of interducts, 2 inch (ID) pipes, etc.)>>
3.5 Which of the following have you had engagement/review meetings with regarding the Telecom Utilidor? (select all that apply)	<<3.5 Which of the following have you had engagement/review meetings with regarding the Telecom Utilidor? (select all that apply)>>
3.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding the Telecom Utilidor? (Optional: include dates)	<<3.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding the Telecom Utilidor? (Optional: include dates)>>

Part 4 - Green Infrastructure

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

Boston Smart Utilities Checklist

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

Please email submission to manuel.esquivel@boston.gov

4.1 Consultant Assessing/Designing Green Infrastructure (if applicable)	<<4.1 Consultant Assessing/Designing Green Infrastructure (if applicable)>>
4.2 Date Green Infrastructure Map/Diagram was submitted	<<4.2 Date Green Infrastructure Map/Diagram was submitted>>
4.3 Types of Green Infrastructure included in the project (select all that apply)	<<4.3 Types of Green Infrastructure included in the project (select all that apply)>>
4.4 Total impervious area of the development (in square inches)	<<4.4 Total impervious area of the development (in square inches)>>
4.5 Volume of stormwater that will be retained (in cubic inches)* **Note: Should equal to at least "Total impervious area (entered in section 4.4)" times "1.25 inches"*	<<4.5 Volume of stormwater that will be retained (in cubic inches)*>>
4.6 Which of the following have you had engagement/review meetings with regarding Green Infrastructure? (select all that apply)	<<4.6 Which of the following have you had engagement/review meetings with regarding Green Infrastructure? (select all that apply)>>
4.7 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Green Infrastructure? (Optional: include dates)	<<4.7 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Green Infrastructure? (Optional: include dates)>>

Boston Smart Utilities Checklist

Part 5 - Adaptive Signal Technology (AST)

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

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

Please email submission to manuel.esquivel@boston.gov

5.1 Consultant Assessing/Designing Adaptive Signal Technology (if applicable)	<<5.1 Consultant Assessing/Designing Adaptive Signal Technology (if applicable)>>
5.2 Date AST Map/Diagram was submitted	<<5.2 Date AST Map/Diagram was submitted>>
5.3 Describe how the AST system will benefit/impact the following transportation modes	
5.3a Pedestrians	<<5.3a Pedestrians>>
5.3b Bicycles	<<5.3b Bicycles>>
5.3c Buses and other Public Transportation	<<5.3c Buses and other Public Transportation>>
5.3d Other Motorized Vehicles	<<5.3d Other Motorized Vehicles>>
5.4 Describe the components of the AST system (including system design and components)	<<5.4 Describe the components of the AST system (including system design and components)>>
5.5 Which of the following have you had engagement/review meetings with	<<5.5 Which of the following have you had engagement/review meetings with regarding AST?

Boston Smart Utilities Checklist

regarding AST? (select all that apply)	(select all that apply)>>
5.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding AST? (Optional: include dates)	<<5.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding AST? (Optional: include dates)>>

Part 6 - Smart Street Lights

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

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

Please email submission to manuel.esquivel@boston.gov

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

Boston Smart Utilities Checklist

Part 7 - Smart Utility Standards

The Smart Utility Standards set forth guidelines for planning and integration of SUTs with existing utility infrastructure in existing or new streets, including cross-section, lateral, and intersection diagrams. The Smart Utility Standards are intended to serve as guidelines for developers, architects, engineers, and utility providers for planning, designing, and locating utilities. The Smart Utility Standards will serve as the baseline for discussions on any deviations from the standards needed/proposed for any given utility infrastructure.

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

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

Please email submission to manuel.esquivel@boston.gov

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

APPENDIX B – AIR QUALITY APPENDIX

APPENDIX B
AIR QUALITY

282 BREMEN STREET
DRAFT PROJECT IMPACT REPORT

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

                                          ***   MODEL SETUP OPTIONS SUMMARY   ***
 -

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

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

 **Model Uses URBAN Dispersion Algorithm for the SBL for   5 Source(s),
   for Total of   1 Urban Area(s):
   Urban Population =   71532.0 ; Urban Roughness Length = 1.000 m

 **Model Allows User-Specified Options:
         1. Stack-tip Downwash.
         2. Model Assumes Receptors on FLAT Terrain.
         3. Use Calms Processing Routine.
         4. Use Missing Data Processing Routine.
         5. No Exponential Decay.
         6. Full Conversion Assumed for NO2.
         6. Urban Roughness Length of 1.0 Meter Used.
         7. Option for Capped & Horiz Stacks Selected With:
                 0 Capped Stack(s); and   5 Horizontal Stack(s)

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

 **Model Accepts FLAGPOLE Receptor Heights.

 **The User Specified a Pollutant Type of: CO

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

 **This Run Includes: 5 Source(s);   1 Source Group(s); and   777 Receptor(s)

                with: 5 POINT(s), including
                           0 POINTCAP(s) and   5 POINTHOR(s)
                 and: 0 VOLUME source(s)
                 and: 0 AREA type source(s)
                 and: 0 LINE source(s)
                 and: 0 OPENPIT source(s)
                 and: 0 BUOYANT LINE source(s) with   0 line(s)

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

 **The AERMET Input Meteorological Data Version Date: 18081

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

 **NOTE: The Following Flags May Appear Following CONC Values: c for Calm Hours

```
                                                    m for Missing Hours
                                                    b for Both Calm and Missing Hours

**Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =     6.10 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                 Emission Units = GRAMS/SEC                              ;  Emission Rate Unit Factor =   0.10000E+07
                 Output Units   = MICROGRAMS/M**3

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

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

**File for Summary of Results:   W:\Apps\aermod\4425\CO_5yrs_CO.SUM
*** AERMOD - VERSION  18081 ***   *** 282 Bremen Street BPDA                                                    ***        04/11/19
*** AERMET - VERSION  18081 ***   ***                                                                           ***        14:27:26
                                                                                                                          PAGE   2
*** MODELOPTs:    NonDFAULT  CONC  FLAT  FLGPOL  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN

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

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1

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


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

                                                1.54,   3.09,   5.14,   8.23,  10.80,
*** AERMOD - VERSION  18081 ***   *** 282 Bremen Street BPDA                                                    ***        04/11/19
*** AERMET - VERSION  18081 ***   ***                                                                           ***        14:27:26
                                                                                                                          PAGE   3
*** MODELOPTs:    NonDFAULT  CONC  FLAT  FLGPOL  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN

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

  Surface file:   Urban.sfc                                                                  Met Version:  18081
  Profile file:   Urban.PFL
  Surface format: FREE
  Profile format: FREE
  Surface station no.:    11111                 Upper air station no.:    22222
                Name: UNKNOWN                                 Name: UNKNOWN
                Year:   2010                                  Year:   2010

 First 24 hours of scalar data
 YR MO DY JDY HR     H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS   WD     HT  REF TA     HT
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 10 01 01   1 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   10.   10.0  255.2    2.0
 10 01 02   2 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   20.   10.0  255.2    2.0
 10 01 03   3 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   30.   10.0  255.2    2.0
 10 01 04   4 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   40.   10.0  255.2    2.0
 10 01 05   5 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   50.   10.0  255.2    2.0
 10 01 06   6 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   60.   10.0  255.2    2.0
 10 01 07   7 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   70.   10.0  255.2    2.0
```

```
 10 01 08   8 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   80.   10.0  255.2    2.0
 10 01 09   9 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50   90.   10.0  255.2    2.0
 10 01 10  10 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  100.   10.0  255.2    2.0
 10 01 11  11 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  110.   10.0  255.2    2.0
 10 01 12  12 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  120.   10.0  255.2    2.0
 10 01 13  13 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  130.   10.0  255.2    2.0
 10 01 14  14 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  140.   10.0  255.2    2.0
 10 01 15  15 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  150.   10.0  255.2    2.0
 10 01 16  16 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  160.   10.0  255.2    2.0
 10 01 17  17 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  170.   10.0  255.2    2.0
 10 01 18  18 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  180.   10.0  255.2    2.0
 10 01 19  19 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  190.   10.0  255.2    2.0
 10 01 20  20 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  200.   10.0  255.2    2.0
 10 01 21  21 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  210.   10.0  255.2    2.0
 10 01 22  22 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  220.   10.0  255.2    2.0
 10 01 23  23 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  230.   10.0  255.2    2.0
 10 01 24  24 01   -1.2  0.043 -9.000  0.020 -999.   21.      5.5  1.00   1.62   0.21    0.50  240.   10.0  255.2    2.0


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

 F indicates top of profile (=1) or below (=0)
 *** AERMOD - VERSION  18081 ***   *** 282 Bremen Street BPDA                                          ***        04/11/19
 *** AERMET - VERSION  18081 ***   ***                                                                 ***        14:27:26
                                                                                                                  PAGE   4
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  FLGPOL  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN

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


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

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

ALL      HIGH   1ST HIGH VALUE IS      15.30053  ON 10011301: AT (  332775.40,  4693514.03,     6.10,     6.10,    4.52)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
 *** AERMOD - VERSION  18081 ***   *** 282 Bremen Street BPDA                                          ***        04/11/19
 *** AERMET - VERSION  18081 ***   ***                                                                 ***        14:27:26
                                                                                                                  PAGE   5
 *** MODELOPTs:    NonDFAULT  CONC  FLAT  FLGPOL  NOCHKD  SCREEN  NODRYDPLT  NOWETDPLT  URBAN

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

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

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of            0 Informational Message(s)

 A Total of        18504 Hours Were Processed

 A Total of            0 Calm Hours Identified

 A Total of            0 Missing Hours Identified (  0.00 Percent)
```

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

INDOOR GARAGE ANALYSIS PROGRAM

PROJECT: 282 BREMEN STREET GARAGE PEAK PM HOUR - YEAR: 2026

DISTANCE IN: 114 METERS
DISTANCE OUT: 114 METERS

NUMBER OF EXIT LANES: 1 LANE(S)
PEAK VOLUME: 14 VEH/HOUR

CO RATE: 3.045 GRAMS CO/MILE

SPEED IN GARAGE: 5.0 M.P.H.

TOTAL CO EMISSIONS = 0.050 GRAMS/MIN = 0.00084 GRAMS/SEC

MOVES2014B OUTPUT – 282 BREMEN STREET

Zone ID	Road Type ID	Link Length (miles)	Link Volume (Vehicles/Hr)	Link Avg Speed (Miles/Hr)	Pollutant	Emission Factor (Grams/veh-mi)
250250	5	0.071022727	12	5	CO	3.04536
250250	5	0.071022727	14	5	CO	3.04536

APPENDIX C – NOISE APPENDIX

APPENDIX C
NOISE

282-308 BREMEN STREET
DRAFT PROJECT IMPACT REPORT

Page **Contents**

Figure 1
Sound Monitoring & Modeling Locations
282-308 Bremen Street East Boston, MA

TECH environmental
FOCUSED KNOWLEDGE. REAL SOLUTIONS.

Figure 2
Sound Modeling Receptor Locations
282-308 Bremen Street, East Boston, MA

Cadna Noise Modeling Results

	31.5	63	125	250	500	1000	2000	4000	8000	A-Wtd	
Local Nighttime Limit	68	67	61	52	46	40	33	28	26	**50**	
NIGHTTIME RESULTS & CITY OF BOSTON ANALYSIS	**31.5**	**63**	**125**	**250**	**500**	**1000**	**2000**	**4000**	**8000**	**A-Wtd**	**Complies Night?**
4 Brooks Street	57	52	47	40	35	30	23	15	3	38	**YES**
241 Chelsea Street	58	53	47	40	34	29	23	16	5	37	**YES**
249 Chelsea Street	60	57	53	47	43	38	30	21	7	45	**YES**
255 Chelsea Street	62	58	54	48	45	39	32	23	10	46	**YES**
261 Chelsea Street	61	57	53	48	44	38	31	22	9	45	**YES**
271 Chelsea Street	59	55	49	42	37	32	25	18	7	40	**YES**
277 Chelsea Street	61	57	53	46	42	36	27	19	8	44	**YES**
285 Chelsea Street	59	55	51	45	40	35	26	17	4	42	**YES**
310 Bremen Street	60	55	49	42	36	30	24	17	6	39	**YES**
Bremen Street Park Playground	57	53	49	43	39	33	25	15	1	40	**YES**

NIGHTTIME RESULTS & MASSDEP ANALYSIS (< +10 dBA)	**Impact Level (dBA)**	**Background Level (dBA)**	***Total Level (dBA)***	***Increase (dBA)***	**Complies Night?**
4 Brooks Street	37.8	41.6	43.1	**+1.5**	**YES**
241 Chelsea Street	37.4	43.4	44.4	**+1.0**	**YES**
249 Chelsea Street	44.7	43.4	47.1	**+3.7**	**YES**
255 Chelsea Street	46.1	43.4	48.0	**+4.6**	**YES**
261 Chelsea Street	45.3	43.4	47.5	**+4.1**	**YES**
271 Chelsea Street	39.6	49.0	49.5	**+0.5**	**YES**
277 Chelsea Street	43.7	49.0	50.1	**+1.1**	**YES**
285 Chelsea Street	42.3	49.0	49.8	**+0.8**	**YES**
310 Bremen Street	39.0	41.6	43.5	**+1.9**	**YES**
Bremen Street Park Playground	40.4	41.6	44.1	**+2.5**	**YES**

APPENDIX D – TRANSPORTATION APPENDIX

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 1
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Brooks Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	7	32	4	0	0	0	0	0	11	18	0	0	0	54	8
7:15 AM	0	2	27	3	0	0	0	0	0	5	15	0	0	0	49	5
7:30 AM	0	8	21	9	0	0	0	0	0	12	19	0	1	0	43	4
7:45 AM	0	5	22	6	0	0	0	0	0	5	24	0	0	0	51	5
8:00 AM	0	7	25	6	0	0	0	0	0	8	18	0	0	0	56	3
8:15 AM	0	7	25	6	0	0	0	0	0	8	15	0	0	0	69	2
8:30 AM	0	9	29	9	0	0	0	0	0	9	22	0	0	0	51	6
8:45 AM	0	7	30	3	0	0	0	0	0	6	19	0	0	0	56	8

	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	6	18	3	0	0	0	0	0	10	61	0	0	0	33	6
4:15 PM	0	9	34	9	0	0	0	0	0	17	52	0	0	0	38	9
4:30 PM	0	4	18	3	0	0	0	0	0	24	52	0	0	0	31	9
4:45 PM	0	2	17	5	0	0	0	0	0	31	65	0	0	0	39	10
5:00 PM	0	4	38	7	0	0	0	0	0	15	52	0	0	0	41	8
5:15 PM	0	8	32	5	0	0	0	0	0	19	58	0	0	0	29	10
5:30 PM	0	7	30	2	0	0	0	0	0	20	54	0	0	0	39	8
5:45 PM	0	9	28	8	0	0	0	0	0	23	53	0	0	0	37	7

AM PEAK HOUR 8:00 AM to 9:00 AM	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**30**	**109**	**24**	**0**	**0**	**0**	**0**	**0**	**31**	**74**	**0**	**0**	**0**	**232**	**19**
PHF	**0.87**				**0.00**				**0.85**				**0.88**			
HV %	**0.0%**	**0.0%**	**4.6%**	**12.5%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**6.5%**	**9.5%**	**0.0%**	**0.0%**	**0.0%**	**5.2%**	**0.0%**

PM PEAK HOUR 4:45 PM to 5:45 PM	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**21**	**117**	**19**	**0**	**0**	**0**	**0**	**0**	**85**	**229**	**0**	**0**	**0**	**148**	**36**
PHF	**0.80**				**0.00**				**0.82**				**0.94**			
HV %	**0.0%**	**0.0%**	**0.9%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.4%**	**0.0%**	**0.0%**	**0.0%**	**4.7%**	**0.0%**

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 1
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Brooks Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	1	0	0	0	3	1
7:30 AM	0	0	1	1	0	0	0	0	0	0	2	0	0	0	2	0
7:45 AM	0	0	4	0	0	0	0	0	0	0	3	0	0	0	2	0
8:00 AM	0	0	3	0	0	0	0	0	0	1	1	0	0	0	4	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	0
8:30 AM	0	0	0	2	0	0	0	0	0	0	3	0	0	0	1	0
8:45 AM	0	0	2	1	0	0	0	0	0	0	2	0	0	0	4	0

	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	1	0	0	0	0	0	0	3	0	0	0	2	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	2	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	1	0
5:00 PM	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0
5:45 PM	0	1	1	0	0	0	0	0	0	1	0	0	0	0	1	0

AM PEAK HOUR	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
7:15 AM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
8:15 AM	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**0**	**0**	**0**	**11**	**1**
PHF	**0.63**				**0.00**				**0.67**				**0.75**			

PM PEAK HOUR	Brooks Street Northbound				Brooks Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
4:00 PM																
to	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
5:00 PM	**0**	**1**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**7**	**0**
PHF	**0.75**				**0.00**				**0.50**				**0.88**			

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 1
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Brooks Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Brooks Street Northbound					Brooks Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	7		0	1	0	21		0	0	0	61		0	0	0	89	
7:15 AM	0	0	0	5		0	0	0	12		0	0	0	63		0	0	0	66	
7:30 AM	0	0	0	6		0	0	0	11		1	1	0	29		0	0	0	52	
7:45 AM	0	0	0	11		0	0	0	17		0	0	0	36		0	1	0	38	
8:00 AM	0	1	0	4		0	0	0	5		0	0	0	32		0	0	0	62	
8:15 AM	0	0	0	6		0	0	0	12		0	1	1	27		0	0	0	41	
8:30 AM	0	0	0	6		0	0	0	7		0	0	0	45		0	0	0	51	
8:45 AM	0	0	0	5		0	0	0	19		0	0	0	21		0	0	0	45	

	Brooks Street Northbound					Brooks Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	0	0	4		0	1	0	31		0	0	0	46		0	0	0	31	
4:15 PM	0	1	0	9		1	0	0	19		0	0	0	38		0	0	0	52	
4:30 PM	0	0	0	12		1	0	0	20		0	1	0	49		0	0	0	36	
4:45 PM	0	0	0	10		0	0	0	30		0	1	0	36		0	0	0	51	
5:00 PM	0	0	0	16		0	0	0	31		1	0	0	36		0	1	0	29	
5:15 PM	0	0	0	19		0	0	0	32		0	0	0	45		0	0	0	40	
5:30 PM	0	0	0	9		1	1	1	27		0	1	0	34		0	0	0	29	
5:45 PM	0	1	0	5		0	0	0	41		0	0	0	49		0	0	0	56	

AM PEAK HOUR 8:00 AM to 9:00 AM	Brooks Street Northbound					Brooks Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
	0	1	0	21		0	0	0	43		0	1	1	125		0	0	0	199	

PM PEAK HOUR 4:45 PM to 5:45 PM	Brooks Street Northbound					Brooks Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
	0	0	0	54		1	1	1	120		1	2	0	151		0	1	0	149	

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 2
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Putnam Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

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PASSENGER CARS & HEAVY VEHICLES COMBINED

	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	10	23	21	0	0	22	1	0	4	76	0
7:15 AM	0	0	0	0	0	12	27	29	0	0	18	1	0	3	83	0
7:30 AM	0	0	0	0	0	7	35	21	0	0	26	3	0	0	64	0
7:45 AM	0	0	0	0	0	10	28	24	0	0	25	2	1	3	77	0
8:00 AM	0	0	0	0	0	7	29	20	0	0	19	3	0	2	78	0
8:15 AM	0	0	0	0	0	8	23	8	0	0	20	1	0	1	102	0
8:30 AM	0	0	0	0	0	13	20	13	0	0	21	4	0	4	88	0
8:45 AM	0	0	0	0	0	7	14	16	0	0	23	3	0	1	75	0

	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	10	13	6	0	0	64	3	0	3	46	0
4:15 PM	0	0	0	0	0	8	12	4	0	0	55	1	0	6	52	0
4:30 PM	0	0	0	0	0	10	16	14	0	0	49	3	0	7	51	0
4:45 PM	0	0	0	0	0	16	14	16	0	0	62	5	0	2	48	0
5:00 PM	0	0	0	0	0	13	17	21	0	0	55	3	0	4	49	0
5:15 PM	0	0	0	0	0	9	14	7	0	0	59	5	0	3	40	0
5:30 PM	0	0	0	0	0	9	16	12	0	0	50	1	0	1	54	0
5:45 PM	0	0	0	0	0	11	14	14	0	0	53	4	0	5	35	0

AM PEAK HOUR 7:15 AM to 8:15 AM	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**36**	**119**	**94**	**0**	**0**	**88**	**9**	**1**	**8**	**302**	**0**
PHF	**0.00**				**0.92**				**0.84**				**0.90**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.8%**	**3.4%**	**3.2%**	**0.0%**	**0.0%**	**9.1%**	**0.0%**	**0.0%**	**0.0%**	**5.6%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**47**	**59**	**55**	**0**	**0**	**221**	**12**	**0**	**19**	**200**	**0**
PHF	**0.00**				**0.79**				**0.87**				**0.94**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**4.3%**	**5.1%**	**0.0%**	**0.0%**	**0.0%**	**4.1%**	**8.3%**	**0.0%**	**5.3%**	**5.5%**	**0.0%**

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 2
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Putnam Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

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HEAVY VEHICLES

	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	1	2	1	0	0	2	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0
7:30 AM	0	0	0	0	0	0	1	1	0	0	2	0	0	0	5	0
7:45 AM	0	0	0	0	0	1	2	1	0	0	3	0	0	0	4	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	2	0	0	0	6	0
8:15 AM	0	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0
8:30 AM	0	0	0	0	0	3	0	1	0	0	3	1	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	3	0

	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	1	0	0	0	4	0	0	0	3	0
4:15 PM	0	0	0	0	0	1	1	0	0	0	3	0	0	0	3	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	4	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	4	1	0	0	2	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	2	0	0	0	2	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**1**	**5**	**2**	**0**	**0**	**8**	**0**	**0**	**0**	**19**	**0**
PHF	**0.00**				**0.50**				**0.67**				**0.79**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Putnam Street Northbound				Putnam Street Southbound				Bennington Street Eastbound				Bennington Street Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**11**	**1**	**0**	**1**	**12**	**0**
PHF	**0.00**				**0.63**				**0.60**				**0.65**			

Client:	Andrew Fabiszewski
Project #:	440_C47_HSH
BTD #:	Location 2
Location:	East Boston, MA
Street 1:	Bennington Street
Street 2:	Putnam Street
Count Date:	9/5/2019
Day of Week:	Thursday
Weather:	Clouds & Sun, 70°F

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PEDESTRIANS & BICYCLES

	Putnam Street Northbound					Putnam Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	15		0	0	0	4		0	0	0	19		0	0	0	31	
7:15 AM	0	0	0	4		0	0	0	5		0	0	0	15		0	0	0	19	
7:30 AM	0	0	0	5		0	0	0	4		0	1	0	34		0	0	1	18	
7:45 AM	0	0	0	13		0	0	0	7		0	0	0	32		0	1	0	29	
8:00 AM	0	0	0	18		0	1	0	12		0	0	0	26		0	0	0	40	
8:15 AM	0	1	0	29		0	0	0	10		0	1	0	16		0	0	0	39	
8:30 AM	0	0	0	7		0	0	0	15		0	0	0	35		0	0	0	22	
8:45 AM	0	0	0	10		0	0	0	9		0	0	0	11		0	0	0	20	

	Putnam Street Northbound					Putnam Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	0	0	12		0	0	0	32		0	0	0	24		0	0	0	33	
4:15 PM	0	0	0	13		1	1	0	11		0	0	0	58		0	0	0	26	
4:30 PM	0	0	0	7		0	0	0	8		0	0	0	21		0	0	0	19	
4:45 PM	0	0	0	8		0	0	1	15		0	1	0	25		0	0	0	16	
5:00 PM	0	0	0	9		0	0	0	15		0	0	0	42		0	1	0	23	
5:15 PM	0	1	0	10		0	1	0	20		0	0	0	19		0	0	0	28	
5:30 PM	0	0	0	8		0	0	0	21		0	2	1	21		0	0	0	27	
5:45 PM	0	0	0	13		0	0	0	22		0	0	0	30		0	0	0	25	

AM PEAK HOUR 7:15 AM to 8:15 AM	Putnam Street Northbound					Putnam Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
	0	0	0	40		0	1	0	28		0	1	0	107		0	1	1	106	

PM PEAK HOUR 4:15 PM to 5:15 PM	Putnam Street Northbound					Putnam Street Southbound					Bennington Street Eastbound					Bennington Street Westbound				
	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
	0	0	0	37		1	1	1	49		0	1	0	146		0	1	0	84	

NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.

Massachusetts Highway Department
Statewide Traffic Data Collection
2016 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.21	1.17	1.10	1.04	0.97	0.92	0.90	0.88	0.97	0.93	0.97	1.05	0.88
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.15	1.03	1.02	0.99	0.92	0.91	0.91	0.90	0.94	0.93	0.99	1.02	0.97
R4-R7	1.09	1.13	1.06	1.05	0.95	0.90	0.88	0.91	0.95	0.95	1.04	1.07	0.95
U1-Boston	1.03	1.04	0.99	0.96	0.94	0.91	0.93	0.91	0.95	0.93	0.98	0.98	0.93
U1-Essex	1.06	1.08	1.04	1.01	0.95	0.89	0.88	0.86	0.94	0.94	1.01	1.05	0.91
U1-Southeast	1.07	1.12	1.05	1.01	0.95	0.89	0.87	0.86	0.94	0.95	0.99	1.01	0.94
U1-West	0.97	0.97	0.91	0.95	0.92	0.90	0.94	0.92	0.92	0.90	0.93	0.94	0.94
U1-Worcester	1.10	1.14	1.03	1.00	0.94	0.91	0.92	0.90	0.94	0.93	0.97	1.04	0.92
U2	1.02	1.00	0.97	0.96	0.93	0.90	0.93	0.91	0.94	0.93	0.96	0.99	0.95
U3	1.00	1.00	0.96	0.95	0.92	0.89	0.94	0.92	0.94	0.93	0.96	0.97	0.96
U4-U7	1.02	1.03	0.97	0.96	0.92	0.89	0.93	0.92	0.94	0.95	0.98	0.96	0.93
Rec - East	1.18	1.17	1.13	1.05	0.93	0.84	0.79	0.80	0.93	1.00	1.09	1.13	0.99
Rec - West	1.20	1.24	1.29	1.18	1.03	0.85	0.70	0.81	0.92	0.95	1.11	1.15	0.98

Round off:
0-999 = 10
>1000 = 100

U = Urban
R = Rural

1 - Interstate
2 - Freeway and Expressway
3 - Other Principal Arterial
4 - Minor Arterial
5 - Major Collector
6 - Minor Collector
7 - Local Road and Street

Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations 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 and 2198.

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Jan-19

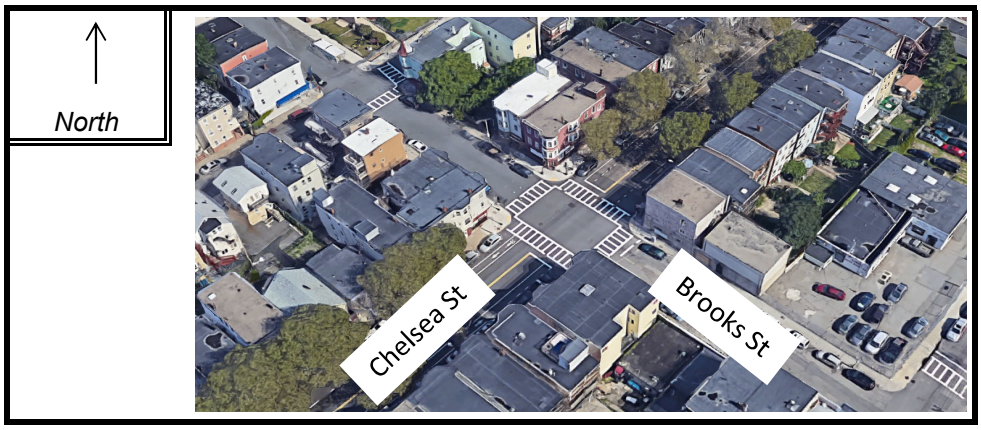
DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : x

~ INTERSECTION DATA ~

MAJOR STREET : Chelsea St

MINOR STREET(S) : Brooks St

INTERSECTION DIAGRAM
(Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	0	85	513	262		860

" K " FACTOR : 0.090 APPROACH ADT : 9,556 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 6 # OF YEARS : 4 AVERAGE # OF CRASHES (**A**) : 1.50

CRASH RATE CALCULATION : 0.43 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Comments :

Project Title & Date: 282-308 Bremen Street

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston | COUNT DATE : Jan-19

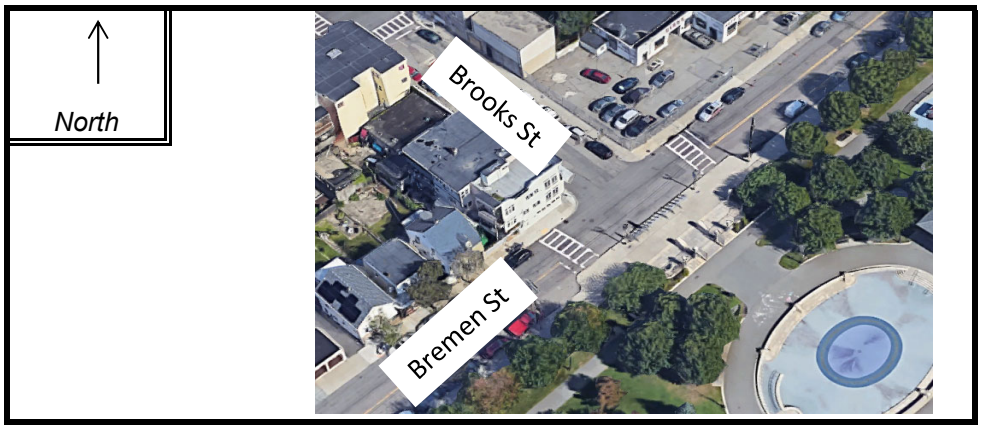
DISTRICT : 6 | UNSIGNALIZED : x | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Bremen St

MINOR STREET(S) : Brooks St

INTERSECTION DIAGRAM
(Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	26	0	382	346		754

" K " FACTOR : 0.090 | APPROACH ADT : 8,378 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 2 | # OF YEARS : 4 | AVERAGE # OF CRASHES (**A**) : 0.50

CRASH RATE CALCULATION : 0.16 | RATE = (A * 1,000,000) / (ADT * 365)

Comments :

Project Title & Date: 282-308 Bremen Street

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Jan-19

DISTRICT : 6 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Bremen St

MINOR STREET(S) : Putnam St

INTERSECTION DIAGRAM
(Label Approaches)

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	80	0	348	315		743

" K " FACTOR : 0.090 APPROACH ADT : 8,256 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 2 # OF YEARS : 4 AVERAGE # OF CRASHES (**A**) : 0.50

CRASH RATE CALCULATION : 0.17 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Comments :

Project Title & Date: 282-308 Bremen Street

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston | COUNT DATE : Jan-19

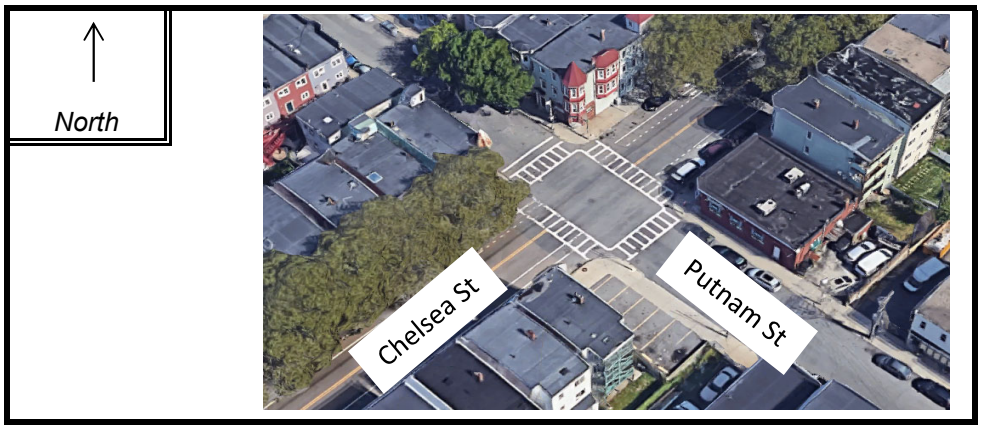
DISTRICT : 6 | UNSIGNALIZED : x | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Chelsea St

MINOR STREET(S) : Putnam St

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	126	36	420	233		815

" K " FACTOR : 0.090 | APPROACH ADT : 9,056 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 3 | # OF YEARS : 4 | AVERAGE # OF CRASHES (**A**) : 0.75

CRASH RATE CALCULATION : 0.23 | RATE = (A * 1,000,000) / (ADT * 365)

Comments :

Project Title & Date: 282-308 Bremen Street

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Sep-19

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED : x

~ INTERSECTION DATA ~

MAJOR STREET : Bennington St

MINOR STREET(S) : Brooks St

INTERSECTION DIAGRAM (Label Approaches)

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	0	157	314	184		655

" K " FACTOR : 0.090 APPROACH ADT : 7,278 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 5 # OF YEARS : 4 AVERAGE # OF CRASHES (**A**) : 1.25

CRASH RATE CALCULATION : 0.47 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Comments :

Project Title & Date: 282-308 Bremen Street

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Boston COUNT DATE : Sep-19

DISTRICT : 6 UNSIGNALIZED : x SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Bennington St

MINOR STREET(S) : Putnam St

INTERSECTION DIAGRAM (Label Approaches)

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	EB	WB	NB	SB		
VOLUMES (PM) :	249	0	97	311		657

" K " FACTOR : 0.090 APPROACH ADT : 7,300 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF CRASHES : 3 # OF YEARS : 4 AVERAGE # OF CRASHES (**A**) : 0.75

CRASH RATE CALCULATION : 0.28 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Comments :

Project Title & Date: 282-308 Bremen Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	30	109	24	31	74	0	0	232	19	
Future Volume (vph)	0	0	0	30	109	24	31	74	0	0	232	19	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	12	12	12	12	12	12	
Grade (%)		0%			0%			0%			0%		
Storage Length (ft)	0		0	0		0	0		0	0		0	
Storage Lanes	0		0	0		0	0		0	0		0	
Taper Length (ft)	25			25			25			25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.95			0.99			1.00		
Frt					0.980						0.990		
Flt Protected					0.991			0.986					
Satd. Flow (prot)	0	0	0	0	1704	0	0	1721	0	0	1790	0	
Flt Permitted					0.991			0.876					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1517	0	0	1790	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					28						10		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		219			589			321			657		
Travel Time (s)		5.0			13.4			7.3			14.9		
Confl. Peds. (#/hr)				125		199	43		21	21		43	
Confl. Bikes (#/hr)						1			1				
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.88	0.88	0.88	
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	
Heavy Vehicles (%)	2%	2%	2%	0%	5%	12%	6%	10%	0%	0%	5%	0%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)													
Mid-Block Traffic (%)		0%			0%			0%			0%		
Adj. Flow (vph)	0	0	0	34	125	28	36	87	0	0	264	22	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	187	0	0	123	0	0	286	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		2.0	2.0			2.0		0.2
Minimum Gap (s)				3.0	3.0		3.0	3.0			3.0		3.0
Time Before Reduce (s)				0.0	0.0		0.0	0.0			0.0		0.0
Time To Reduce (s)				0.0	0.0		0.0	0.0			0.0		0.0
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					38.8			32.8			32.8		
Actuated g/C Ratio					0.64			0.54			0.54		
v/c Ratio					0.69			0.15			0.30		
Control Delay					20.6			8.0			8.7		
Queue Delay					0.0			0.0			0.0		
Total Delay					20.6			8.0			8.7		
LOS					C			A			A		
Approach Delay					20.6			8.0			8.7		
Approach LOS					C			A			A		
Queue Length 50th (ft)					17			20			50		
Queue Length 95th (ft)					#56			41			88		
Internal Link Dist (ft)		139			509			241			577		
Turn Bay Length (ft)													
Base Capacity (vph)					270			814			965		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.69			0.15			0.30		

Intersection Summary

Area Type: Other
Cycle Length: 59
Actuated Cycle Length: 61
Natural Cycle: 40
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 12.3 Intersection LOS: B
Intersection Capacity Utilization 40.9% ICU Level of Service A
Analysis Period (min) 15

* User Entered Value
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Brooks St & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	119	94	0	0	0	0	88	9	8	302	0
Future Volume (Veh/h)	36	119	94	0	0	0	0	88	9	8	302	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	39	129	102	0	0	0	0	105	11	9	336	0
Pedestrians		28			40			107			106	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			0			10			10	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								657				
pX, platoon unblocked												
vC, conflicting volume	598	538	471	778	532	256	364			156		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	598	538	471	778	532	256	364			156		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	70	80	100	100	100	100			99		
cM capacity (veh/h)	352	434	516	170	438	703	1174			1436		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	270	116	345
Volume Left	39	0	9
Volume Right	102	11	0
cSH	446	1700	1436
Volume to Capacity	0.61	0.07	0.01
Queue Length 95th (ft)	98	0	0
Control Delay (s)	24.7	0.0	0.3
Lane LOS	C		A
Approach Delay (s)	24.7	0.0	0.3
Approach LOS	C		

Intersection Summary					
Average Delay	9.3				
Intersection Capacity Utilization	45.3%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	21	117	19	84	229	0	0	148	36	
Future Volume (vph)	0	0	0	21	117	19	84	229	0	0	148	36	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.96			0.98			0.97		
Frt					0.983						0.974		
Flt Protected					0.993			0.987					
Satd. Flow (prot)	0	0	0	0	1807	0	0	1822	0	0	1732	0	
Flt Permitted					0.993			0.867					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1562	0	0	1732	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					22						30		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		174			544			268			672		
Travel Time (s)		4.0			12.4			6.1			15.3		
Confl. Peds. (#/hr)				151		149	120		54	54		120	
Confl. Bikes (#/hr)									2			1	
Peak Hour Factor	0.92	0.92	0.92	0.80	0.80	0.80	0.82	0.82	0.82	0.94	0.94	0.94	
Heavy Vehicles (%)	2%	2%	2%	0%	1%	0%	0%	4%	0%	0%	5%	0%	
Adj. Flow (vph)	0	0	0	26	146	24	102	279	0	0	157	38	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	196	0	0	381	0	0	195	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		3.0	3.0			3.0		0.2
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					37.9			31.9			31.9		
Actuated g/C Ratio					0.63			0.53			0.53		
v/c Ratio					0.72			0.46			0.21		
Control Delay					22.5			11.1			7.1		
Queue Delay					0.0			0.0			0.0		
Total Delay					22.5			11.1			7.1		
LOS					C			B			A		
Approach Delay					22.5			11.1			7.1		
Approach LOS					C			B			A		
Queue Length 50th (ft)					19			77			28		
Queue Length 95th (ft)					#45			119			57		
Internal Link Dist (ft)		94			464			188			592		
Turn Bay Length (ft)													
Base Capacity (vph)					273			829			934		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.72			0.46			0.21		

Intersection Summary

Area Type:	Other		
Cycle Length: 59			
Actuated Cycle Length: 60			
Natural Cycle: 50			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.0		Intersection LOS: B	
Intersection Capacity Utilization 48.9%		ICU Level of Service A	
Analysis Period (min) 15			

* User Entered Value

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brooks Street & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	59	55	0	0	0	0	221	12	19	200	0
Future Volume (Veh/h)	47	59	55	0	0	0	0	221	12	19	200	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.92	0.92	0.92	0.87	0.87	0.87	0.94	0.94	0.94
Hourly flow rate (vph)	59	75	70	0	0	0	0	254	14	20	213	0
Pedestrians		49			37			146			184	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		5			0			14			18	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								672				
pX, platoon unblocked												
vC, conflicting volume	747	607	408	804	600	482	262			305		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	747	607	408	804	600	482	262			305		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	76	80	87	100	100	100	100			98		
cM capacity (veh/h)	245	382	532	182	389	482	1253			1239		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	204	268	233
Volume Left	59	0	20
Volume Right	70	14	0
cSH	358	1700	1239
Volume to Capacity	0.57	0.16	0.02
Queue Length 95th (ft)	84	0	1
Control Delay (s)	27.5	0.0	0.8
Lane LOS	D		A
Approach Delay (s)	27.5	0.0	0.8
Approach LOS	D		

Intersection Summary					
Average Delay	8.2				
Intersection Capacity Utilization	46.3%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	31	113	25	32	77	0	0	240	20	
Future Volume (vph)	0	0	0	31	113	25	32	77	0	0	240	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.95			0.99			1.00		
Frt					0.980						0.990		
Flt Protected					0.991			0.985					
Satd. Flow (prot)	0	0	0	0	1705	0	0	1720	0	0	1789	0	
Flt Permitted					0.991			0.871					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1508	0	0	1789	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					27						10		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		219			589			321			657		
Travel Time (s)		5.0			13.4			7.3			14.9		
Confl. Peds. (#/hr)				125		199	43		21	21		43	
Confl. Bikes (#/hr)						1			1				
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.88	0.88	0.88	
Heavy Vehicles (%)	2%	2%	2%	0%	5%	12%	6%	10%	0%	0%	5%	0%	
Adj. Flow (vph)	0	0	0	36	130	29	38	91	0	0	273	23	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	195	0	0	129	0	0	296	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		2.0	2.0			2.0		0.2
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					38.1			32.1			32.1		
Actuated g/C Ratio					0.63			0.53			0.53		
v/c Ratio					0.72			0.16			0.31		
Control Delay					23.0			8.0			8.8		
Queue Delay					0.0			0.0			0.0		
Total Delay					23.0			8.0			8.8		
LOS					C			A			A		
Approach Delay					23.0			8.0			8.8		
Approach LOS					C			A			A		
Queue Length 50th (ft)					18			22			52		
Queue Length 95th (ft)					#63			43			91		
Internal Link Dist (ft)		139			509			241			577		
Turn Bay Length (ft)													
Base Capacity (vph)					270			803			957		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.72			0.16			0.31		

Intersection Summary

Area Type:	Other		
Cycle Length: 59			
Actuated Cycle Length: 60.2			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 41.9%		ICU Level of Service A	
Analysis Period (min) 15			

* User Entered Value

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brooks St & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	123	97	0	0	0	0	91	9	8	313	0
Future Volume (Veh/h)	37	123	97	0	0	0	0	91	9	8	313	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	40	134	105	0	0	0	0	108	11	9	348	0
Pedestrians		28			40			107			106	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			0			10			10	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								657				
pX, platoon unblocked												
vC, conflicting volume	614	553	483	798	548	260	376			159		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614	553	483	798	548	260	376			159		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	68	79	100	100	100	100			99		
cM capacity (veh/h)	344	425	508	160	430	700	1162			1433		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	279	119	357
Volume Left	40	0	9
Volume Right	105	11	0
cSH	437	1700	1433
Volume to Capacity	0.64	0.07	0.01
Queue Length 95th (ft)	108	0	0
Control Delay (s)	26.6	0.0	0.2
Lane LOS	D		A
Approach Delay (s)	26.6	0.0	0.2
Approach LOS	D		

Intersection Summary					
Average Delay	10.0				
Intersection Capacity Utilization	46.3%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	22	121	20	87	237	0	0	153	37	
Future Volume (vph)	0	0	0	22	121	20	87	237	0	0	153	37	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.96			0.98			0.97		
Frt					0.983						0.974		
Flt Protected					0.993			0.987					
Satd. Flow (prot)	0	0	0	0	1807	0	0	1822	0	0	1732	0	
Flt Permitted					0.993			0.863					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1555	0	0	1732	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					22						30		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		174			544			268			672		
Travel Time (s)		4.0			12.4			6.1			15.3		
Confl. Peds. (#/hr)				151		149	120		54	54		120	
Confl. Bikes (#/hr)									2			1	
Peak Hour Factor	0.92	0.92	0.92	0.80	0.80	0.80	0.82	0.82	0.82	0.94	0.94	0.94	
Heavy Vehicles (%)	2%	2%	2%	0%	1%	0%	0%	4%	0%	0%	5%	0%	
Adj. Flow (vph)	0	0	0	28	151	25	106	289	0	0	163	39	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	204	0	0	395	0	0	202	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		3.0	3.0			3.0		0.2
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					37.3			31.2			31.2		
Actuated g/C Ratio					0.63			0.53			0.53		
v/c Ratio					0.75			0.48			0.22		
Control Delay					25.1			11.5			7.2		
Queue Delay					0.0			0.0			0.0		
Total Delay					25.1			11.5			7.2		
LOS					C			B			A		
Approach Delay					25.1			11.5			7.2		
Approach LOS					C			B			A		
Queue Length 50th (ft)					20			81			29		
Queue Length 95th (ft)					#50			125			59		
Internal Link Dist (ft)		94			464			188			592		
Turn Bay Length (ft)													
Base Capacity (vph)					273			819			926		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.75			0.48			0.22		

Intersection Summary

Area Type:	Other		
Cycle Length: 59			
Actuated Cycle Length: 59.3			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

* User Entered Value

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brooks Street & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	61	57	0	0	0	0	229	12	20	207	0
Future Volume (Veh/h)	49	61	57	0	0	0	0	229	12	20	207	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.92	0.92	0.92	0.87	0.87	0.87	0.94	0.94	0.94
Hourly flow rate (vph)	62	77	72	0	0	0	0	263	14	21	220	0
Pedestrians		49			37			146			184	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		5			0			14			18	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								672				
pX, platoon unblocked												
vC, conflicting volume	765	625	415	826	618	491	269			314		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765	625	415	826	618	491	269			314		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	79	86	100	100	100	100			98		
cM capacity (veh/h)	238	372	527	174	379	476	1245			1229		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	211	277	241
Volume Left	62	0	21
Volume Right	72	14	0
cSH	349	1700	1229
Volume to Capacity	0.60	0.16	0.02
Queue Length 95th (ft)	94	0	1
Control Delay (s)	29.9	0.0	0.8
Lane LOS	D		A
Approach Delay (s)	29.9	0.0	0.8
Approach LOS	D		

Intersection Summary					
Average Delay	8.9				
Intersection Capacity Utilization	47.5%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	31	113	25	32	78	0	0	240	20	
Future Volume (vph)	0	0	0	31	113	25	32	78	0	0	240	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.95			0.99			1.00		
Frt					0.980						0.990		
Flt Protected					0.991			0.986					
Satd. Flow (prot)	0	0	0	0	1705	0	0	1721	0	0	1789	0	
Flt Permitted					0.991			0.871					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1508	0	0	1789	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					27						10		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		219			589			321			657		
Travel Time (s)		5.0			13.4			7.3			14.9		
Confl. Peds. (#/hr)				125		199	43		21	21		43	
Confl. Bikes (#/hr)						1			1				
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.85	0.85	0.85	0.88	0.88	0.88	
Heavy Vehicles (%)	2%	2%	2%	0%	5%	12%	6%	10%	0%	0%	5%	0%	
Adj. Flow (vph)	0	0	0	36	130	29	38	92	0	0	273	23	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	195	0	0	130	0	0	296	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		2.0	2.0			2.0		0.2
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					38.1			32.1			32.1		
Actuated g/C Ratio					0.63			0.53			0.53		
v/c Ratio					0.72			0.16			0.31		
Control Delay					23.0			8.1			8.8		
Queue Delay					0.0			0.0			0.0		
Total Delay					23.0			8.1			8.8		
LOS					C			A			A		
Approach Delay					23.0			8.1			8.8		
Approach LOS					C			A			A		
Queue Length 50th (ft)					18			22			52		
Queue Length 95th (ft)					#63			43			91		
Internal Link Dist (ft)		139			509			241			577		
Turn Bay Length (ft)													
Base Capacity (vph)					270			803			957		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.72			0.16			0.31		

Intersection Summary

Area Type:	Other		
Cycle Length: 59			
Actuated Cycle Length: 60.2			
Natural Cycle: 45			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 13.1		Intersection LOS: B	
Intersection Capacity Utilization 42.0%		ICU Level of Service A	
Analysis Period (min) 15			

* User Entered Value

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brooks St & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	123	97	0	0	0	0	91	9	8	313	0
Future Volume (Veh/h)	37	123	97	0	0	0	0	91	9	8	313	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	40	134	105	0	0	0	0	108	11	9	348	0
Pedestrians		28			40			107			106	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			0			10			10	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								657				
pX, platoon unblocked												
vC, conflicting volume	614	553	483	798	548	260	376			159		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	614	553	483	798	548	260	376			159		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	68	79	100	100	100	100			99		
cM capacity (veh/h)	344	425	508	160	430	700	1162			1433		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	279	119	357
Volume Left	40	0	9
Volume Right	105	11	0
cSH	437	1700	1433
Volume to Capacity	0.64	0.07	0.01
Queue Length 95th (ft)	108	0	0
Control Delay (s)	26.6	0.0	0.2
Lane LOS	D		A
Approach Delay (s)	26.6	0.0	0.2
Approach LOS	D		

Intersection Summary					
Average Delay	10.0				
Intersection Capacity Utilization	46.3%	ICU Level of Service		A	
Analysis Period (min)	15				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Ø2
Lane Configurations													
Traffic Volume (vph)	0	0	0	22	121	20	87	238	0	0	153	37	
Future Volume (vph)	0	0	0	22	121	20	87	238	0	0	153	37	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Ped Bike Factor					0.96			0.98			0.97		
Frt					0.983						0.974		
Flt Protected					0.993			0.987					
Satd. Flow (prot)	0	0	0	0	1807	0	0	1822	0	0	1732	0	
Flt Permitted					0.993			0.863					
Satd. Flow (perm)	0	0	0	0	*300	0	0	1555	0	0	1732	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					22						30		
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		174			544			268			672		
Travel Time (s)		4.0			12.4			6.1			15.3		
Confl. Peds. (#/hr)				151		149	120		54	54		120	
Confl. Bikes (#/hr)									2			1	
Peak Hour Factor	0.92	0.92	0.92	0.80	0.80	0.80	0.82	0.82	0.82	0.94	0.94	0.94	
Heavy Vehicles (%)	2%	2%	2%	0%	1%	0%	0%	4%	0%	0%	5%	0%	
Adj. Flow (vph)	0	0	0	28	151	25	106	290	0	0	163	39	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	0	0	0	204	0	0	396	0	0	202	0	
Turn Type				Split	NA		Perm	NA			NA		
Protected Phases				3	3			1!			1!		2
Permitted Phases					1!		1						
Detector Phase				3	3		1	1			1		
Switch Phase													
Minimum Initial (s)				1.0	1.0		4.0	4.0			4.0		1.0
Minimum Split (s)				3.0	3.0		9.0	9.0			9.0		18.0
Total Split (s)				5.0	5.0		35.0	35.0			35.0		19.0
Total Split (%)				8.5%	8.5%		59.3%	59.3%			59.3%		32%
Maximum Green (s)				3.0	3.0		30.0	30.0			30.0		14.0
Yellow Time (s)				2.0	2.0		3.0	3.0			3.0		2.0
All-Red Time (s)				0.0	0.0		2.0	2.0			2.0		3.0
Lost Time Adjust (s)					0.0			0.0			0.0		
Total Lost Time (s)					2.0			5.0			5.0		
Lead/Lag							Lead	Lead			Lead		Lag
Lead-Lag Optimize?							Yes	Yes			Yes		Yes
Vehicle Extension (s)				0.2	0.2		3.0	3.0			3.0		0.2
Recall Mode				None	None		Max	Max			Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													200
Act Effct Green (s)					37.3			31.2			31.2		
Actuated g/C Ratio					0.63			0.53			0.53		
v/c Ratio					0.75			0.48			0.22		
Control Delay					25.1			11.5			7.2		
Queue Delay					0.0			0.0			0.0		
Total Delay					25.1			11.5			7.2		
LOS					C			B			A		
Approach Delay					25.1			11.5			7.2		
Approach LOS					C			B			A		
Queue Length 50th (ft)					20			81			29		
Queue Length 95th (ft)					#50			125			59		
Internal Link Dist (ft)		94			464			188			592		
Turn Bay Length (ft)													
Base Capacity (vph)					273			819			926		
Starvation Cap Reductn					0			0			0		
Spillback Cap Reductn					0			0			0		
Storage Cap Reductn					0			0			0		
Reduced v/c Ratio					0.75			0.48			0.22		

Intersection Summary

Area Type:	Other		
Cycle Length: 59			
Actuated Cycle Length: 59.3			
Natural Cycle: 55			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 13.9		Intersection LOS: B	
Intersection Capacity Utilization 50.2%		ICU Level of Service A	
Analysis Period (min) 15			

* User Entered Value

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

! Phase conflict between lane groups.

Splits and Phases: 6: Brooks Street & Bennington Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	62	57	0	0	0	0	229	12	20	207	0
Future Volume (Veh/h)	49	62	57	0	0	0	0	229	12	20	207	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.79	0.79	0.79	0.92	0.92	0.92	0.87	0.87	0.87	0.94	0.94	0.94
Hourly flow rate (vph)	62	78	72	0	0	0	0	263	14	21	220	0
Pedestrians		49			37			146			184	
Lane Width (ft)		12.0			0.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		5			0			14			18	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								672				
pX, platoon unblocked												
vC, conflicting volume	765	625	415	826	618	491	269			314		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	765	625	415	826	618	491	269			314		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	74	79	86	100	100	100	100			98		
cM capacity (veh/h)	238	372	527	173	379	476	1245			1229		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	212	277	241
Volume Left	62	0	21
Volume Right	72	14	0
cSH	349	1700	1229
Volume to Capacity	0.61	0.16	0.02
Queue Length 95th (ft)	95	0	1
Control Delay (s)	30.0	0.0	0.8
Lane LOS	D		A
Approach Delay (s)	30.0	0.0	0.8
Approach LOS	D		

Intersection Summary					
Average Delay	9.0				
Intersection Capacity Utilization	47.5%	ICU Level of Service		A	
Analysis Period (min)	15				

	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg
Southbound	5:00 AM	5:00 AM	5:15 AM	5:15 AM	5:30 AM	5:30 AM	5:45 AM	5:45 AM	6:00 AM	6:00 AM	6:15 AM	6:15 AM	6:30 AM	6:30 AM	6:45 AM	6:45 AM	7:00 AM
Wonderland	5	0	3	0	5	0	374	0	169	0	222	0	261	0	205	0	338
Revere Beach	36	0	70	2	60	0	68	7	73	4	107	5	83	8	93	4	112
Beachmont	0	0	128	0	48	0	43	1	69	1	89	2	105	2	103	1	108
Suffolk Downs	0	0	4	0	5	0	5	0	6	0	9	0	11	2	11	1	17
Orient Heights	1	0	98	0	35	0	84	2	48	2	111	4	118	4	105	3	144
Wood Island	0	1	64	3	38	3	26	10	52	5	56	5	58	5	61	4	67
Airport	0	2	116	18	108	9	70	25	107	14	123	20	153	21	140	17	137
Maverick	0	1	167	13	101	6	197	19	179	16	276	21	244	23	310	20	261
Aquarium	0	2	1	48	3	35	1	81	1	61	1	78	10	96	3	104	4
State Street	0	22	1	282	1	169	1	349	0	309	1	472	1	508	2	497	2
Government Center	0	12	0	249	0	159	0	306	0	243	0	310	0	300	0	302	0
Bowdoin	0	3	0	36	0	21	0	68	0	49	0	78	0	75	0	80	0
	5:00								6:00								
Northbound	5:00	5:00	5:00	5:00	5:00	5:00	5:00	5:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	6:00	7:00
Bowdoin	0	0	0	0	1	0	1	0	1	0	2	0	2	0	4	0	5
Government Center	1	0	4	0	28	1	34	0	27	0	35	1	66	0	62	0	71
State Street	0	1	12	0	37	0	52	1	55	1	59	2	187	2	109	2	96
Aquarium	0	0	4	0	2	3	2	2	4	4	6	6	16	12	13	11	9
Maverick	0	0	3	7	12	17	16	23	12	25	19	33	23	96	21	77	20
Airport	0	0	2	5	3	24	6	33	6	27	9	38	13	81	11	50	12
Wood Island	0	0	1	1	1	12	1	17	2	14	4	16	3	52	4	26	2
Orient Heights	0	0	1	3	1	7	3	11	1	10	2	12	4	21	3	17	3
Suffolk Downs	0	0	0	1	0	1	0	2	0	1	0	2	0	4	0	4	0
Beachmont	0	0	0	4	3	6	1	4	1	6	1	6	2	9	2	11	2
Revere Beach	0	0	0	2	1	9	1	10	1	6	1	8	1	13	1	11	1
Wonderland	0	0	0	2	0	10	0	14	0	16	0	15	0	24	0	19	0

	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg
Southbound	7:00 AM	7:15 AM	7:15 AM	7:30 AM	7:30 AM	7:45 AM	7:45 AM	8:00 AM	8:00 AM	8:15 AM	8:15 AM	8:30 AM	8:30 AM	8:45 AM	8:45 AM	9:00 AM	9:00 AM	9:15 AM	9:15 AM
Wonderland	0	381	0	359	0	362	0	366	0	364	0	414	0	312	0	221	0	134	0
Revere Beach	13	126	4	97	5	91	4	109	4	110	4	106	3	76	3	62	3	68	2
Beachmont	1	118	1	162	1	126	3	152	3	173	2	153	2	97	2	71	1	83	1
Suffolk Downs	1	19	1	15	1	17	1	21	0	16	1	16	1	13	0	12	0	7	0
Orient Heights	3	154	3	133	5	172	3	187	4	188	3	159	3	151	3	85	1	75	2
Wood Island	6	79	6	64	8	72	9	80	3	70	3	75	3	66	3	44	2	40	2
Airport	26	154	21	176	16	177	14	169	15	227	14	207	12	165	13	151	10	132	10
Maverick	31	334	26	358	27	373	25	363	26	432	24	403	26	370	24	268	20	246	21
Aquarium	114	4	143	15	170	4	192	18	203	6	223	12	237	6	200	7	134	6	104
State Street	523	1	617	2	638	2	653	3	674	2	743	3	721	4	582	3	426	3	348
Government Center	382	0	446	1	407	0	391	1	432	0	473	0	444	0	357	0	269	0	260
Bowdoin	88	0	104	0	105	0	102	0	104	0	98	0	97	0	74	0	57	0	43
	7:00							8:00								9:			
Northbound	7:00	7:00	7:00	7:00	7:00	7:00	7:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00	8:00	9:00	9:00	9:00	9:00
Bowdoin	0	5	0	9	0	8	0	7	0	7	0	10	0	11	0	9	0	9	0
Government Center	0	68	0	59	1	61	1	56	1	55	1	61	2	57	2	53	1	55	2
State Street	3	100	3	88	3	86	3	76	4	77	3	93	4	77	5	68	3	82	4
Aquarium	18	11	21	13	24	13	29	12	28	7	31	13	38	9	37	7	32	7	27
Maverick	69	26	64	28	61	23	61	16	48	19	44	18	58	13	51	13	42	15	48
Airport	50	15	50	9	47	8	41	6	34	6	39	5	40	6	30	6	28	5	32
Wood Island	17	3	17	2	14	5	10	2	7	2	7	2	8	1	7	1	5	1	7
Orient Heights	19	5	24	2	17	5	16	4	14	4	12	5	14	4	12	3	12	3	14
Suffolk Downs	2	0	2	0	1	0	2	0	2	0	3	1	5	1	2	0	2	0	2
Beachmont	9	1	12	4	10	3	12	2	8	4	7	3	7	2	7	2	8	2	9
Revere Beach	10	1	13	1	13	0	14	1	17	1	15	1	14	1	14	1	15	0	16
Wonderland	24	0	27	0	23	0	23	0	19	0	22	0	22	0	16	0	15	0	19

	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg
Southbound	9:30 AM	9:30 AM	9:45 AM	9:45 AM	10:00 AM	10:00 AM	10:15 AM	10:15 AM	10:30 AM	10:30 AM	10:45 AM	10:45 AM	11:00 AM	11:00 AM	11:15 AM	11:15 AM	11:30 AM	11:30 AM	11:45 AM
Wonderland	110	0	94	0	113	0	74	0	78	0	59	0	69	0	75	0	72	0	36
Revere Beach	54	1	47	2	46	3	51	1	38	2	32	2	39	2	44	2	34	2	25
Beachmont	46	1	59	1	43	2	35	2	22	2	40	2	29	2	25	3	20	3	25
Suffolk Downs	8	1	7	0	6	1	4	1	4	0	4	0	5	1	4	1	3	1	4
Orient Heights	83	1	78	3	50	3	82	2	60	2	73	3	53	3	61	3	75	3	83
Wood Island	41	2	24	3	27	2	28	2	22	2	15	2	20	2	19	2	20	2	16
Airport	113	10	97	13	107	12	99	13	70	12	70	14	72	18	78	20	62	18	59
Maverick	206	22	183	24	129	21	117	19	139	18	117	20	93	18	96	20	96	22	111
Aquarium	7	99	5	80	7	64	7	62	8	56	7	51	10	41	10	46	12	44	9
State Street	2	287	2	265	1	233	1	211	2	183	2	166	2	166	2	166	2	152	2
Government Center	0	206	0	173	0	163	0	156	0	145	0	137	0	119	0	133	0	130	0
Bowdoin	0	40	0	33	0	26	0	29	0	22	0	21	0	18	0	21	0	20	0
	00				10:00								11:00						
Northbound	9:00	9:00	9:00	9:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	10:00	11:00	11:00	11:00	11:00	11:00	11:00	11:00
Bowdoin	12	0	10	0	10	0	12	0	12	0	12	0	13	0	18	0	17	0	14
Government Center	56	1	47	1	43	1	64	2	61	1	56	2	63	2	82	2	87	2	55
State Street	71	4	65	3	71	2	72	4	71	3	85	3	98	4	103	5	91	4	97
Aquarium	8	22	8	13	11	10	10	12	14	13	15	11	15	13	17	15	14	14	21
Maverick	12	49	11	47	12	45	16	53	17	52	13	58	14	62	17	68	20	64	18
Airport	6	30	4	28	7	29	6	33	8	34	6	37	7	42	10	50	9	46	10
Wood Island	1	8	1	6	1	9	1	9	2	9	1	9	2	10	2	11	3	11	4
Orient Heights	2	13	4	11	3	14	3	16	3	18	4	16	2	17	3	22	3	25	4
Suffolk Downs	0	2	0	2	0	2	0	3	1	4	0	4	0	4	1	7	1	5	1
Beachmont	2	8	2	8	2	9	2	11	2	12	2	11	1	12	2	15	2	17	2
Revere Beach	1	14	1	14	0	15	1	18	0	18	1	18	1	20	1	24	1	23	1
Wonderland	0	21	0	20	0	22	0	28	0	24	0	27	0	31	0	36	0	36	0

	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg
Southbound	11:45 AM	12:00 PM	12:00 PM	12:15 PM	12:15 PM	12:30 PM	12:30 PM	12:45 PM	12:45 PM	1:00 PM	1:00 PM	1:15 PM	1:15 PM	1:30 PM	1:30 PM	1:45 PM	1:45 PM	2:00 PM	2:00 PM
Wonderland	0	64	0	61	0	67	0	51	0	67	0	54	0	51	0	73	0	43	0
Revere Beach	2	37	2	50	3	31	3	31	3	44	3	47	2	33	4	37	4	36	2
Beachmont	2	35	2	23	3	18	2	28	2	35	3	30	2	31	2	29	3	23	3
Suffolk Downs	1	4	1	3	1	3	1	5	1	3	1	4	1	5	1	5	1	4	0
Orient Heights	2	56	4	67	3	58	2	47	4	33	4	63	3	39	4	49	3	35	3
Wood Island	2	15	2	19	2	17	2	15	3	16	3	23	3	19	3	20	3	24	2
Airport	14	63	18	63	23	60	18	71	15	70	17	67	22	65	16	120	20	89	11
Maverick	21	85	21	68	22	105	21	95	26	93	26	92	27	105	25	125	34	128	24
Aquarium	44	12	37	13	35	17	37	10	35	21	31	22	34	21	36	23	45	22	37
State Street	146	4	139	4	139	4	153	2	141	6	148	4	159	3	147	4	202	4	172
Government Center	119	0	131	0	123	0	123	0	109	1	133	0	131	0	115	0	151	0	135
Bowdoin	18	0	18	0	18	0	19	0	18	0	20	0	21	0	20	0	20	0	21
		12:00								13:00									
Northbound	11:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	12:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	13:00	14:00	14:00
Bowdoin	0	16	0	22	0	16	0	17	0	16	0	22	0	19	0	19	0	25	0
Government Center	2	97	2	117	3	78	2	108	3	131	3	129	3	125	2	118	2	181	3
State Street	3	134	5	138	5	91	4	156	5	149	5	175	7	133	5	149	7	221	8
Aquarium	11	26	14	22	15	24	9	29	12	28	14	32	12	28	9	36	14	53	19
Maverick	57	16	85	20	89	23	66	24	99	15	100	21	111	21	95	30	95	22	140
Airport	43	7	59	16	66	15	46	12	64	12	63	17	71	9	61	32	66	20	85
Wood Island	10	3	13	2	17	3	13	4	17	3	18	3	22	2	19	4	24	4	33
Orient Heights	20	3	26	4	30	4	25	4	31	4	30	4	35	4	33	6	47	3	52
Suffolk Downs	6	0	8	0	7	1	6	0	7	0	8	0	9	0	5	1	8	1	9
Beachmont	17	2	21	2	24	2	19	2	26	3	24	3	29	3	26	2	32	2	41
Revere Beach	23	1	27	1	34	1	27	1	36	1	35	1	40	1	33	1	38	1	51
Wonderland	35	0	48	0	54	0	41	0	58	0	62	0	70	0	57	0	65	0	92

	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg
Southbound	2:15 PM	2:15 PM	2:30 PM	2:30 PM	2:45 PM	2:45 PM	3:00 PM	3:00 PM	3:15 PM	3:15 PM	3:30 PM	3:30 PM	3:45 PM	3:45 PM	4:00 PM	4:00 PM	4:15 PM	4:15 PM	4:30 PM
Wonderland	90	0	60	0	52	0	79	0	54	0	65	0	48	0	71	0	55	0	59
Revere Beach	66	4	53	3	53	3	50	3	61	3	57	4	39	4	52	4	48	3	43
Beachmont	42	4	43	4	31	4	40	4	38	3	44	4	29	2	27	3	31	3	34
Suffolk Downs	6	1	5	1	5	1	6	1	5	1	7	1	7	1	5	0	5	1	6
Orient Heights	56	4	44	5	43	6	45	5	64	4	55	5	45	4	49	5	54	5	44
Wood Island	21	5	34	3	27	3	30	4	36	3	33	5	42	4	39	5	39	4	31
Airport	105	19	97	18	92	15	116	15	125	16	110	17	104	15	97	18	107	15	99
Maverick	109	36	176	31	143	28	139	32	176	32	168	37	148	33	128	28	127	31	146
Aquarium	30	47	29	61	31	54	34	59	40	73	37	83	37	68	43	43	46	50	56
State Street	6	207	5	222	5	202	6	225	6	251	6	229	6	202	7	225	7	238	7
Government Center	0	173	0	169	0	149	0	183	0	201	0	180	0	155	0	166	0	154	1
Bowdoin	0	31	0	29	0	19	0	16	0	18	0	19	0	17	0	19	0	16	0
	14:00						15:00								16:00				
Northbound	14:00	14:00	14:00	14:00	14:00	14:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	15:00	16:00	16:00	16:00	16:00	16:00
Bowdoin	30	0	38	0	39	0	64	0	64	0	66	0	67	0	95	0	83	0	117
Government Center	202	3	218	2	227	3	262	4	282	6	386	6	322	7	361	7	375	6	436
State Street	269	10	286	7	272	11	348	19	349	17	364	13	449	13	424	22	420	17	460
Aquarium	62	19	51	22	72	23	91	27	101	30	94	35	89	33	116	31	142	27	136
Maverick	22	183	34	190	35	193	36	231	45	240	40	256	36	268	37	264	38	265	46
Airport	24	110	23	122	19	112	29	129	26	130	22	149	23	144	25	150	26	151	22
Wood Island	4	39	5	39	5	38	5	45	5	47	5	50	9	50	8	50	8	57	5
Orient Heights	5	61	5	63	5	64	6	79	8	80	5	93	6	98	8	103	6	108	8
Suffolk Downs	1	10	1	10	1	8	1	9	1	11	2	12	1	12	2	14	1	14	2
Beachmont	4	43	4	54	2	56	4	67	4	77	4	85	3	85	3	99	4	105	2
Revere Beach	1	53	1	59	2	62	2	74	1	80	2	96	1	93	2	91	2	91	2
Wonderland	0	91	0	99	0	110	0	162	0	170	0	194	0	204	0	251	0	263	0

	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg
Southbound	4:30 PM	4:45 PM	4:45 PM	5:00 PM	5:00 PM	5:15 PM	5:15 PM	5:30 PM	5:30 PM	5:45 PM	5:45 PM	6:00 PM	6:00 PM	6:15 PM	6:15 PM	6:30 PM	6:30 PM	6:45 PM	6:45 PM
Wonderland	0	48	0	55	0	52	0	60	0	44	0	28	0	57	0	36	0	28	0
Revere Beach	3	43	3	47	4	35	3	28	5	23	3	23	2	21	4	20	2	14	4
Beachmont	3	28	3	20	5	26	3	24	4	16	3	18	3	14	3	18	3	13	3
Suffolk Downs	1	7	1	5	1	4	1	6	0	4	0	5	1	3	1	4	1	3	0
Orient Heights	5	41	4	48	4	46	4	32	4	37	4	28	3	34	5	27	4	25	4
Wood Island	4	37	3	33	4	27	3	30	3	20	2	16	2	14	4	13	3	9	2
Airport	14	102	13	114	14	87	13	85	12	86	10	57	9	70	12	42	11	66	6
Maverick	28	159	28	129	32	124	27	122	28	89	25	77	20	77	24	65	21	64	17
Aquarium	55	47	61	76	50	57	36	43	33	42	30	32	22	24	27	26	19	20	20
State Street	236	13	235	19	247	14	222	10	197	11	158	9	123	7	128	5	101	5	100
Government Center	163	0	160	1	170	1	144	0	139	0	127	0	99	0	111	0	86	0	85
Bowdoin	15	0	13	0	16	0	16	0	15	0	10	0	8	0	5	0	5	0	4
				17:00								18:00							
Northbound	16:00	16:00	16:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	17:00	18:00	18:00	18:00	18:00	18:00	18:00	18:00	18:00
Bowdoin	0	117	0	133	0	106	0	86	0	73	0	60	0	42	0	34	0	37	0
Government Center	11	389	9	473	10	493	7	376	7	434	5	344	4	271	3	277	2	250	2
State Street	25	554	21	549	39	670	29	563	20	459	20	431	14	395	10	309	7	252	8
Aquarium	28	141	31	191	30	188	34	170	26	159	27	139	24	111	19	107	13	91	10
Maverick	295	42	302	42	302	43	356	36	335	29	302	29	278	26	257	22	211	32	197
Airport	163	23	165	22	168	21	178	23	164	22	146	25	135	24	128	16	107	23	105
Wood Island	60	5	58	5	63	6	66	5	61	5	49	5	44	5	39	3	35	3	34
Orient Heights	122	7	125	6	153	9	169	6	139	6	119	6	101	6	95	5	73	4	71
Suffolk Downs	16	1	15	2	17	1	19	1	13	1	11	1	9	0	10	0	7	0	6
Beachmont	115	4	120	3	153	3	156	4	127	3	104	3	97	3	83	2	60	3	60
Revere Beach	100	2	103	2	101	1	107	2	99	1	86	1	77	1	72	1	58	1	68
Wonderland	299	0	336	0	392	0	419	0	282	0	323	0	260	0	168	0	204	0	132

	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg
Southbound	7:00 PM	7:00 PM	7:15 PM	7:15 PM	7:30 PM	7:30 PM	7:45 PM	7:45 PM	8:00 PM	8:00 PM	8:15 PM	8:15 PM	8:30 PM	8:30 PM	8:45 PM	8:45 PM	9:00 PM	9:00 PM	9:15 PM
Wonderland	33	0	34	0	22	0	14	0	34	0	26	0	10	0	21	0	36	0	23
Revere Beach	17	2	15	3	11	4	16	2	12	3	12	1	7	1	14	3	13	4	12
Beachmont	14	3	9	3	10	1	10	2	9	4	6	2	11	2	8	3	9	4	5
Suffolk Downs	3	0	2	0	5	0	2	0	2	0	2	0	1	0	1	0	1	0	1
Orient Heights	19	4	25	3	24	4	18	3	17	3	19	3	20	2	12	4	18	2	17
Wood Island	11	3	10	3	8	3	9	2	8	3	7	2	6	2	5	2	7	3	6
Airport	52	8	44	10	41	9	48	6	47	9	39	8	24	5	40	6	35	11	26
Maverick	40	18	60	17	53	16	44	15	39	16	46	16	40	13	33	11	24	12	27
Aquarium	15	15	18	19	17	18	14	13	11	11	14	10	14	10	12	10	15	7	13
State Street	3	82	4	89	4	79	2	76	3	76	3	72	1	53	3	63	2	65	3
Government Center	0	67	0	69	0	58	0	53	0	54	0	54	0	43	0	42	0	47	0
Bowdoin	0	3	0	5	0	5	0	4	0	4	0	4	0	3	0	3	0	3	0
	19:00								20:00										
Northbound	19:00	19:00	19:00	19:00	19:00	19:00	19:00	19:00	20:00	20:00	20:00	20:00	20:00	20:00	20:00	20:00	21:00	21:00	21:00
Bowdoin	19	0	36	0	26	0	26	0	17	0	23	0	20	0	18	0	12	0	15
Government Center	209	1	239	2	179	1	162	2	202	1	196	1	174	1	137	0	178	0	196
State Street	241	6	217	8	152	6	197	5	167	6	181	3	141	4	125	3	180	4	164
Aquarium	85	9	58	9	72	7	65	6	60	6	62	7	46	6	61	3	66	4	66
Maverick	25	170	23	173	26	132	26	141	24	146	18	145	25	115	19	107	15	138	16
Airport	17	93	26	91	22	77	25	80	19	83	22	85	21	78	21	67	23	86	29
Wood Island	4	30	3	30	2	25	2	27	2	27	2	32	2	26	2	23	2	27	2
Orient Heights	7	64	4	64	5	51	4	53	6	49	4	52	4	44	5	38	4	51	2
Suffolk Downs	0	6	0	8	1	6	0	5	0	5	0	4	0	4	0	3	0	5	0
Beachmont	2	52	2	51	3	44	2	46	2	42	2	41	2	37	2	35	2	40	2
Revere Beach	1	56	1	57	1	48	0	51	1	47	1	49	1	45	0	40	1	54	1
Wonderland	0	123	0	116	0	90	0	94	0	89	0	92	0	77	0	68	0	74	0

	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg
Southbound	9:15 PM	9:30 PM	9:30 PM	9:45 PM	9:45 PM	10:00 PM	10:00 PM	10:15 PM	10:15 PM	10:30 PM	10:30 PM	10:45 PM	10:45 PM	11:00 PM	11:00 PM	11:15 PM	11:15 PM	11:30 PM	11:30 PM
Wonderland	0	9	0	18	0	29	0	23	0	9	0	11	0	14	0	7	0	12	0
Revere Beach	1	7	1	12	2	12	2	12	2	5	1	7	2	7	2	5	1	6	1
Beachmont	2	8	1	8	2	4	3	14	3	8	1	5	1	2	1	5	1	4	1
Suffolk Downs	0	1	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	1	0
Orient Heights	2	17	2	8	2	17	3	17	2	16	1	7	2	10	1	9	1	4	2
Wood Island	3	3	3	6	2	8	3	11	3	5	1	9	1	6	3	5	1	5	1
Airport	8	40	5	39	5	40	8	29	8	44	5	39	3	34	4	28	3	37	3
Maverick	11	31	11	29	12	26	12	30	11	29	12	19	12	12	10	16	8	14	10
Aquarium	6	12	7	6	7	11	7	12	10	9	12	5	5	10	2	10	3	4	2
State Street	52	2	53	1	57	2	60	1	55	1	53	1	49	1	47	1	44	1	44
Government Center	43	0	43	0	38	0	46	0	49	0	38	0	26	0	26	0	22	0	22
Bowdoin	4	0	4	0	3	0	5	0	6	0	3	0	1	0	1	0	1	0	1
	21:00					22:00								23:00					
Northbound	21:00	21:00	21:00	21:00	21:00	22:00	22:00	22:00	22:00	22:00	22:00	22:00	22:00	23:00	23:00	23:00	23:00	23:00	23:00
Bowdoin	0	15	0	12	0	11	0	17	0	21	0	16	0	33	0	22	0	15	0
Government Center	1	191	1	152	0	256	0	245	0	283	1	193	0	296	1	286	1	212	1
State Street	3	115	4	161	4	145	4	185	2	131	4	164	2	153	6	109	3	148	2
Aquarium	4	49	4	69	4	84	4	82	6	68	4	84	4	84	3	57	3	101	1
Maverick	143	17	116	18	128	8	172	15	177	14	159	11	147	8	178	11	159	11	163
Airport	90	25	72	28	81	19	99	32	109	19	106	25	96	27	112	24	97	15	95
Wood Island	28	1	26	1	27	2	34	2	36	1	31	3	30	3	36	2	33	2	29
Orient Heights	48	5	39	3	41	3	46	3	55	3	50	2	42	3	55	2	49	2	48
Suffolk Downs	5	0	4	0	4	0	3	0	4	0	4	0	3	0	4	0	4	0	3
Beachmont	44	1	38	1	40	1	42	2	48	1	45	1	42	1	54	2	47	1	45
Revere Beach	54	1	51	0	51	0	56	0	79	0	68	0	67	0	78	1	64	0	64
Wonderland	72	0	65	0	66	0	69	0	69	0	70	0	65	0	84	0	57	0	55

	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg	off_avg	on_avg
Southbound	11:45 PM	11:45 PM	12:00:00 AM	12:00:00 AM	12:15:00 AM	12:15:00 AM	12:30:00 AM	12:30:00 AM	12:45:00 AM	12:45:00 AM	1:00:00	1:00:00	1:15:00 AM	1:15:00 AM	1:30:00 AM	1:30:00 AM	1:45:00 AM
Wonderland	8	0	7	0	5	0	2	0	0	0	0	0	0	0	0	0	0
Revere Beach	4	1	3	2	1	1	1	0	0	0	0	0	0	0	0	0	0
Beachmont	2	0	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0
Suffolk Downs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Orient Heights	8	2	5	0	5	0	4	0	0	0	0	0	0	0	0	0	0
Wood Island	4	1	4	1	3	1	1	0	0	0	0	0	0	0	0	0	0
Airport	28	3	18	2	10	2	10	1	1	0	0	0	0	0	0	0	0
Maverick	8	7	8	6	7	4	5	4	0	0	0	0	0	0	0	0	0
Aquarium	7	2	5	1	3	2	1	1	1	0	0	0	0	0	0	0	0
State Street	1	35	1	23	1	13	1	10	0	1	0	0	0	0	0	0	0
Government Center	0	18	0	16	0	13	0	8	0	1	0	0	0	0	0	0	0
Bowdoin	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
			0:00								1:00						
Northbound	23:00	23:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	0:00	1:00	1:00	1:00	1:00	1:00	1:00	1:00
Bowdoin	17	0	8	0	3	0	4	0	2	0	0	0	0	0	0	0	0
Government Center	233	1	176	0	87	0	139	0	31	0	36	0	6	0	0	0	0
State Street	137	1	76	2	76	0	64	1	14	0	15	0	18	0	0	0	0
Aquarium	66	2	32	1	41	1	33	1	12	0	3	0	9	0	0	0	0
Maverick	6	147	9	97	8	75	4	83	5	20	0	22	2	12	0	0	0
Airport	21	88	20	62	12	42	5	51	8	12	0	10	5	6	0	0	0
Wood Island	6	28	3	18	1	11	1	15	0	6	0	4	0	3	0	0	0
Orient Heights	1	47	1	33	1	25	2	24	2	8	2	4	2	3	2	0	0
Suffolk Downs	0	3	0	2	0	2	0	2	0	1	0	2	0	1	0	0	0
Beachmont	1	48	1	29	0	25	0	19	0	6	0	5	0	4	0	1	0
Revere Beach	0	62	0	50	0	48	0	55	0	20	0	11	0	13	0	1	0
Wonderland	0	61	0	30	0	1	0	0	0	0	0	0	0	0	0	0	0

	off_avg
Southbound	1:45:00 AM
Wonderland	0
Revere Beach	0
Beachmont	0
Suffolk Downs	0
Orient Heights	0
Wood Island	0
Airport	0
Maverick	0
Aquarium	0
State Street	0
Government Center	0
Bowdoin	0
Northbound	1:00
Bowdoin	0
Government Center	0
State Street	0
Aquarium	0
Maverick	0
Airport	0
Wood Island	0
Orient Heights	0
Suffolk Downs	0
Beachmont	0
Revere Beach	0
Wonderland	0

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

Seq - StopID - Stop Name	05:00 (743.0)(B076) [52] {FA18}			05:12 (743.0)(B077) [43] {FA18}			05:29 (743.0)(B079) [46] {FA18}			05:44 (743.0)(B080) [35] {FA18}			05:58 (743.0)(B082) [30] {FA18}			06:11 (743.0)(B076) [52] {FA18}			06:22 (743.0)(B07 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74630 - CHELSEA INBOUND	4.7	0	4.8	3.1	0	3.1	5.1	0	5.2	3.1	0	3.3	7	0	7	4.8	0	4.8	5.1	0
2 - 74632 - BELLINGHAM SQUARE - INBOUND	8.5	0	13.2	5	0	8.1	5	0	10.3	6.4	0	9.7	5.1	0	12.2	7	0	11.9	7.7	0
3 - 74634 - BOX DISTRICT INBOUND	5.4	0	18.6	7.4	0	15.5	7.7	0	18	6.5	0	16.2	6.6	0	18.7	9.2	0	21.1	6	0
4 - 74636 - EASTERN AVENUE - INBOUND	5.5	1.1	22.9	3.6	0.2	18.9	3.5	0.6	20.9	2.7	0.1	18.8	3.5	0.3	22	7.1	0.9	27.3	7.1	0.6
5 - 7097 - AIRPORT STATION BUSWAY - INBO	15.6	2.5	36	14.1	1.7	31.3	20.5	3.1	38.3	11.9	2.8	27.8	14	1.7	34.3	18.4	6.6	39.1	12	5.3
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	0	36	0	0.1	31.2	0	0	38.3	0.1	0.2	27.7	0	0.1	34.2	0	0.1	39	0.1	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	0	36	0	0.1	31.1	0	0.2	38.1	0.1	2.4	25.3	0	0	34.1	0	0	38.7	0	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	0.3	5.1	31.2	0.4	5.8	25.9	1	11.2	27.9	1	7.6	18.6	0.4	9.4	25.3	0.5	8.3	30.9	0.5	6.7
9 - 74614 - SILVER LINE WAY BEFORE MANULI	1.3	11.8	20.7	0.7	11	15.9	0.7	13.6	15.2	0.4	9	10.8	0.6	8.5	17.8	1.3	9.3	23.4	1	6.9
10 - 74615 - WORLD TRADE CENTER - INBOUND	0.3	0.9	20.3	0.1	0.7	15.4	1	0.8	16.1	0.6	1.1	11.1	1.9	2	17.7	0.8	1.4	22.8	1.5	2.3
11 - 74616 - COURTHOUSE INBOUND	0.7	1.4	19.8	0.4	1.9	14	0.1	2.8	13.5	0.8	3.4	8.9	1.4	3.8	15.3	1.2	7.8	16.1	1.3	3.5
12 - 74617 - SOUTH STATION SILVER LINE - I	0	19.3	0.4	0	13.1	0.7	0	12.6	0.8	0	8.1	0.5	0	13.8	1.5	0	15.1	1	0	17.4
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum			36			31.3			38.3			27.8			34.3			39.1		
Total	42.3	42.1		34.8	34.6		44.6	44.9		33.6	34.7		40.5	39.6		50.3	49.5		42.3	42.7

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	7) [43]	06:34 (743.0)(B078) [32] {FA18}			06:51 (743.0)(B079) [49] {FA18}			07:03 (743.0)(B080) [31] {FA18}			07:12 (743.0)(B082) [30] {FA18}			07:21 (743.0)(B076) [47] {FA18}			07:31 (743.0)(B077) [40] {FA18}			07:43 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74630 - CHELSEA INBOUND	5.1	6.1	0	6.1	8.2	0	8.2	9.2	0	9.2	7.7	0	7.7	8.7	0	8.8	7.4	0	7.5	7
2 - 74632 - BELLINGHAM SQUARE - INBOUND	12.7	4.8	0.1	10.8	10.6	0.1	18.7	17.8	0.2	26.7	14.4	0.1	22	12.4	0.1	21.1	17.4	0.1	24.8	11.3
3 - 74634 - BOX DISTRICT INBOUND	18.7	12.1	0.1	22.8	13.8	0.8	31.7	13.3	0.1	40	12.1	0.1	33.9	12.1	0.2	33	18.4	0.6	42.6	15.9
4 - 74636 - EASTERN AVENUE - INBOUND	25.2	4.8	0.8	26.8	9.6	0.8	40.4	11.9	1	50.9	6.9	0.4	40.4	7.9	0.5	40.4	8.5	0.9	50.2	6.4
5 - 7097 - AIRPORT STATION BUSWAY - INBO	32	9.3	10.1	26.1	11.8	13.7	38.6	10.9	18.3	43.5	7.8	18.1	30.1	13.4	18.4	35.4	13	23	40.1	7.9
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	32	0	0	25.4	0.8	0	39.4	0.1	0.1	43.5	0	0	30	0.9	0	36.3	0	0.1	40	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	31.5	0	0	25.4	0	0.3	39	0.1	0.3	43.3	0	0	28	0.1	0.2	36.2	0.1	0.7	39.4	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	24.5	0.9	6.4	20.6	1.1	7.2	33	1	8.7	35.6	0.3	5.4	23.2	0.4	9.5	27.1	0.5	9.6	29.9	0.8
9 - 74614 - SILVER LINE WAY BEFORE MANULI	19.2	0.4	6.8	14.4	1.6	8.2	26.9	0.8	7.6	29.3	0.9	4.8	21.6	2.4	7.2	23.7	2	5	28	1.6
10 - 74615 - WORLD TRADE CENTER - INBOUND	20	1.1	1.3	14.2	1.9	2.3	26.4	1.1	0.4	30.1	3.2	2.6	22.1	1.7	1.2	24.2	2.4	3.2	28.1	2.9
11 - 74616 - COURTHOUSE INBOUND	17.7	0.5	3.8	10	1.6	3.3	24.6	1.4	3.9	27.2	1.3	5	16.5	1.7	5	19.9	1.7	4.9	25.4	2.5
12 - 74617 - SOUTH STATION SILVER LINE - I	0.5	0	10.8	0.2	0	23.4	1.3	0	26.5	0.7	0	16.3	2.4	0	19.3	0.9	0	23	1.9	0
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	32			26.8			40.4			50.9			40.4			40.4			50.2	
Total		40	40.2		61	60.1		67.6	67.1		54.6	52.8		61.7	61.6		71.4	71.1		56.3

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	743.0)(B078) [26] {FA18}		07:53 (743.0)(B081) [40] {FA18}			08:03 (743.0)(B079) [41] {FA18}			08:13 (743.0)(B080) [24] {FA18}			08:23 (743.0)(B082) [25] {FA18}			08:32 (743.0)(B076) [37] {FA18}			08:41 (743.0)(B077) [39] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74630 - CHELSEA INBOUND	0	7.1	10	0	10	7.7	0	7.9	8.9	0	9.2	6.7	0	7	5.7	0	6	4.7	0	5.3
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0	18.3	6.1	2.7	13.5	10.3	0	18.1	13.2	0.2	22.1	8.7	0.1	15.6	9	0	15	8.4	0.1	13.6
3 - 74634 - BOX DISTRICT INBOUND	0.2	34.1	9.1	2.1	21.3	10.9	0.1	29	10.6	0.2	32.5	13	0.2	28.5	6.5	0.1	21.4	6.1	0.2	19.5
4 - 74636 - EASTERN AVENUE - INBOUND	0	40.5	4.7	1.4	25.7	5.8	0.3	34.4	6.9	0.3	39.2	5.3	2.1	32.3	4.8	0.1	26	4.8	0.3	24
5 - 7097 - AIRPORT STATION BUSWAY - INBO	15.1	33.2	14.6	11.4	31.3	11	14	31.4	12.4	16.4	35.2	8.4	12.3	28.3	7.1	10.4	22.7	8.5	10.1	22.5
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	33.3	0.1	0.1	31.3	0	0	31.4	0.1	0.2	35.1	0	0	26.9	0	0	22.7	0	0.2	22.3
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	33.3	0.1	0.2	30.9	0.2	0.5	31.2	0.3	0.6	34.7	0	0	26.5	0	0	22.7	0.9	0.5	22.8
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	4.3	29.8	4.1	4.5	30.5	1.1	5.7	26.4	1.7	6.9	29.5	0.4	5.8	22.7	0.3	4.8	18.2	0.5	4.2	17.8
9 - 74614 - SILVER LINE WAY BEFORE MANULI	3.8	25.5	4.6	4.1	31.5	1.7	5.8	22.5	2.2	7.6	24.8	1.9	4.8	20.5	2.4	4	16.6	2.2	2.8	18.2
10 - 74615 - WORLD TRADE CENTER - INBOUND	3.7	26.8	4.6	3.1	34.4	3.8	2.4	23.9	1.7	0.8	25.7	1.3	2.1	19.7	2.6	0.6	18.6	3.6	2.8	20.4
11 - 74616 - COURTHOUSE INBOUND	5.2	24	3.8	4.8	31.6	2.7	5.3	21.2	1.8	5.1	22.2	1	3.1	18.2	1.3	3.3	14.1	1.6	3.9	17.9
12 - 74617 - SOUTH STATION SILVER LINE - I	22	2	0	25.2	8.2	0	18.8	2.8	0	21.3	0.9	0	16.8	0.9	0	15	1.6	0	14.8	3.4
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum		40.5			34.4			34.4			39.2			32.3			26			24
Total	54.3		61.8	59.6		55.2	52.9		59.8	59.6		46.7	47.3		39.7	38.3		41.3	39.9	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

Seq - StopID - Stop Name	08:51 (743.0)(B078) [20] {FA18}			09:04 (743.0)(B081) [36] {FA18}			09:11 (743.0)(B079) [41] {FA18}			09:21 (743.0)(B080) [27] {FA18}			09:34 (743.0)(B082) [26] {FA18}			09:41 (743.0)(B076) [40] {FA18}			09:51 (743.0)(B07 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74630 - CHELSEA INBOUND	4.1	0	4.1	5.9	0	6.4	3.9	0	5.6	3.6	0	3.7	4.3	0	4.6	3.5	0	3.8	4.5	0
2 - 74632 - BELLINGHAM SQUARE - INBOUND	5.4	0.1	9.4	4.5	1.4	9.5	4.8	0.1	10.3	4.5	0	8.1	6.1	0.1	10.6	2.5	0.1	6.2	2.4	0
3 - 74634 - BOX DISTRICT INBOUND	7.2	0.1	16.6	4.5	2	12.8	4.1	0.2	14.3	3.8	0.1	11.5	4.3	0.1	14.8	2.5	0.1	8.6	1.6	0.1
4 - 74636 - EASTERN AVENUE - INBOUND	3.7	1.6	19.4	2.7	1.1	15	3.1	0.4	17.9	2.5	0.3	14.1	2	0.1	16.7	1.4	0.2	9.8	1.7	0.1
5 - 7097 - AIRPORT STATION BUSWAY - INBO	5.9	6.4	18.9	8.8	7.6	18.9	5	4	18.2	6.6	4.7	16	7.7	4.4	20	4.5	2.3	12	3.9	3.2
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	0.1	18.8	0	0	18.9	0	0	18.3	0	0.2	15.9	0	0	20	0.1	0	12.1	0.2	0.1
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	0	19	0	0.1	18.9	0	0	18.4	0	0	16.5	0.1	0.3	19.8	0	0	12.1	0	0.1
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	0.7	3.9	14.1	2.4	3.2	17.7	1.1	3.7	15.8	0.7	2.4	15	0.3	2.4	17.9	1	3	10.2	0.4	2.1
9 - 74614 - SILVER LINE WAY BEFORE MANULI	0.7	2.2	14.2	5.3	2.2	21.2	1.7	2	15.4	1.6	2	14	0.6	3.2	15.3	1.1	1.6	9.7	0.8	1.3
10 - 74615 - WORLD TRADE CENTER - INBOUND	0.9	0.2	14.9	2	1.2	22	1.7	0.5	16.6	3.6	2.4	17.3	2.6	1.8	16.3	1.8	1.6	9.9	2.2	1
11 - 74616 - COURTHOUSE INBOUND	1.5	4.3	12.7	2.8	4.1	20.7	1.4	4	13.9	1.7	5.5	13.5	1.9	3.2	14.9	1.2	1.8	9.1	1	1.4
12 - 74617 - SOUTH STATION SILVER LINE - I	0	10.7	2	0	14.9	5.9	0	11.9	2.3	0	11.1	2.5	0	13.8	1.2	0	8.5	0.8	0	8.5
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum			19.4			22			18.4			17.3			20			12.1		
Total	30.1	29.6		38.9	37.8		26.8	26.8		28.6	28.7		29.9	29.4		19.6	19.2		18.7	17.9

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	7) [46]	10:05 (743.0)(B078) [28] {FA18}			10:19 (743.0)(B081) [42] {FA18}			10:34 (743.0)(B080) [34] {FA18}			10:49 (743.0)(B082) [32] {FA18}			11:04 (743.0)(B077) [44] {FA18}			11:19 (743.0)(B078) [32] {FA18}			11:34 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74630 - CHELSEA INBOUND	4.5	4.9	0	4.9	6.1	0	6.3	4.6	0	4.6	5	0	5.5	4.8	0	4.9	5.9	0	5.9	7.9
2 - 74632 - BELLINGHAM SQUARE - INBOUND	6.9	2.8	0	7.6	3.4	0.9	8.8	3.7	0.1	8.3	1.5	0.1	7	2.4	0.1	7.3	2.5	0.2	8.3	1.8
3 - 74634 - BOX DISTRICT INBOUND	8.4	2.6	0.3	10	2.1	0.5	10.4	2.6	0.1	10.7	2.4	0.2	9	2	0.3	9	2	0.3	10	1.9
4 - 74636 - EASTERN AVENUE - INBOUND	10	1.7	0.1	11.9	1.7	0.8	11.5	2.6	0.1	13.2	1.7	0.4	10.4	2.3	0.6	10.7	1.7	0.7	11.2	2.3
5 - 7097 - AIRPORT STATION BUSWAY - INBO	10.7	5.9	3.4	14.2	7.2	4	15.4	4.2	2.7	14.6	3.2	2.6	11	3.1	3.8	10.1	2.9	3.4	10.5	3.7
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	11	0	0	14.2	0	0	15.4	0	0	14.6	0	0	11	0	0	10.1	0	0	10.5	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	10.7	0	0	14.2	0	0.1	15.3	0	0	14.6	0	0.2	10.8	0	0.1	10.1	0	0	10.5	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	9	0.8	3.1	11.9	2	2.7	14.4	0.9	3.1	12.2	0.7	2.6	8.8	1.1	2.7	8.5	1	1.7	9.8	1.9
9 - 74614 - SILVER LINE WAY BEFORE MANULI	8.7	0.8	1.7	11	1.6	1.6	14.8	1.2	1.4	12.2	1.5	1.4	9.1	1	0.8	8.8	1.4	1.4	9.8	1.4
10 - 74615 - WORLD TRADE CENTER - INBOUND	9.9	2.2	0.8	12.4	1.3	0.8	15.2	1.8	1	13	1.8	0.5	10.3	1.5	1.3	9.2	2.1	0.8	11.3	3.2
11 - 74616 - COURTHOUSE INBOUND	9.5	1.1	1.7	11.8	2.8	2.4	15.5	1.5	2.5	12	1.9	1	11.5	1.1	1.3	9.2	1.6	2.1	10.8	2.8
12 - 74617 - SOUTH STATION SILVER LINE - I	1	0	10.9	0.9	0	14.5	1	0	11.5	0.5	0	10.6	0.5	0	8.4	0.6	0	9.8	1	0
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	11			14.2			15.5			14.6			11.5			10.7			11.3	
Total		22.8	22		28.2	28.3		23.1	22.5		19.7	19.6		19.3	19.4		21.1	20.4		26.9

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	743.0)(B081) [38] {FA18}		11:49 (743.0)(B080) [38] {FA18}			12:05 (743.0)(B082) [30] {FA18}			12:19 (743.0)(B084) [47] {FA18}			12:34 (743.0)(B086) [38] {FA18}			12:49 (743.0)(B081) [37] {FA18}			13:04 (743.0)(B080) [42] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74630 - CHELSEA INBOUND	0	8	5.2	0	5.2	4.4	0	4.5	6.3	0	6.3	6.2	0	6.2	9.6	0	9.6	5.4	0	5.4
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0.8	9.2	1.8	0.1	6.8	2.9	0	7.4	2.4	0.2	8.6	2.6	0.2	8.6	2.2	0.7	11.1	2.5	0.2	7.7
3 - 74634 - BOX DISTRICT INBOUND	0.9	10.2	1.8	0.4	8.2	2.2	0.2	9.4	1.9	0.3	10.2	2.2	0.2	10.6	1.6	0.6	12.1	1.6	0.1	9.2
4 - 74636 - EASTERN AVENUE - INBOUND	1.4	11.6	1	0.6	8.6	1.1	0.9	9.7	1.5	1.2	10.4	1.6	1.2	11	1.1	1.1	12.1	1.3	0.7	9.7
5 - 7097 - AIRPORT STATION BUSWAY - INBO	3.2	11.9	2.2	2.5	8.4	3	2.5	10.1	4.1	3.1	11.4	2.7	3.3	10.3	3.9	3	13.1	2.9	3.2	9.4
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	11.9	0	0	8.4	0	0	10.1	0	0	11.4	0	0	10.3	0	0	13.1	0	0	9.4
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	11.9	0.1	0	8.6	0.1	0.1	10.1	0	0	11.4	0	0	10.3	0	0	13.1	0	0	9.2
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	1.6	12.3	0.5	0.8	8.4	1.2	1.8	9.5	0.5	1.9	9.6	0.5	1.4	9.5	1.5	1.4	13.3	0.4	1.6	8.1
9 - 74614 - SILVER LINE WAY BEFORE MANULI	1.6	12.1	1.5	1.1	8.5	1.3	1	9.4	1.4	1.7	9.8	1.3	1.4	9.4	1.4	1.5	13	2.1	1.9	9.1
10 - 74615 - WORLD TRADE CENTER - INBOUND	0.5	14.8	2.7	0.8	10.3	3	1.1	11.6	1.9	1.4	10.2	3.2	1.4	11.9	2.8	2.3	14.1	2.8	0.7	11.3
11 - 74616 - COURTHOUSE INBOUND	1.4	16.2	2.4	1.3	11.7	2.7	1.3	13.3	1.6	1	10.7	2.3	1.3	12.5	2.5	1.5	15.1	2.4	1.4	12.4
12 - 74617 - SOUTH STATION SILVER LINE - I	14.6	1.6	0	10.7	0.6	0	12.6	0.7	0	9.8	1	0	10.8	2.1	0	14.1	0.9	0	10.5	1.8
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum		16.2			11.7			13.3			11.4			12.5			15.1			12.4
Total	26		19.2	18.3		21.9	21.5		21.6	20.6		22.6	21.2		26.6	26.2		21.4	20.3	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

Seq - StopID - Stop Name	13:19 (743.0)(B082) [32] {FA18}			13:34 (743.0)(B084) [40] {FA18}			13:49 (743.0)(B086) [34] {FA18}			14:04 (743.0)(B081) [37] {FA18}			14:19 (743.0)(B088) [22] {FA18}			14:34 (743.0)(B082) [28] {FA18}			14:49 (743.0)(B08 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74630 - CHELSEA INBOUND	5.2	0	5.2	4.6	0	4.6	6.7	0	6.7	9.9	0	10	8	0	8.2	5.9	0	6	12	0
2 - 74632 - BELLINGHAM SQUARE - INBOUND	2.1	0.1	7.3	2.7	0.2	7.1	3	0.1	9.8	2.3	1.1	11.2	3.1	0	11.3	3.4	0.1	9.3	3.5	0.8
3 - 74634 - BOX DISTRICT INBOUND	2.8	0.5	9.5	2.3	0.1	9.3	1.2	0.2	10.7	1.9	0.8	12.3	3.7	0.3	14.7	3.9	0.1	13	3	0.5
4 - 74636 - EASTERN AVENUE - INBOUND	2.1	0.5	11.1	2.1	1	10.4	1.9	0.7	12	2	1.2	13.1	1.4	0.7	15.4	1.8	1.4	13.3	3	0.5
5 - 7097 - AIRPORT STATION BUSWAY - INBO	4.3	3.6	11.8	4	2.6	11.9	3.5	2.5	13	4.9	3.7	14.6	5.6	3	18	3.9	3.2	14.1	4.6	6
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	0	11.8	0	0	11.9	0	0	13	0	0	14.6	0	0	18	0	0	14.1	0	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	0.3	11.6	0.2	0.2	11.9	0	0	13.4	0	0	14.7	0	0	17.8	0	0	14.1	0	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	0.8	2.4	10	0.6	2	10.6	0.4	2.1	11.7	1.9	2	14.6	0.5	2.4	15.8	1.8	3.1	13.3	1.1	3.5
9 - 74614 - SILVER LINE WAY BEFORE MANULI	2.7	2.3	11.1	1.6	1.9	10	2.6	1.8	12.2	2.5	2.2	14.9	3.7	3	16.8	3.5	2.3	14.6	7.9	2.8
10 - 74615 - WORLD TRADE CENTER - INBOUND	2.8	1.6	12.2	2.2	1	11.6	5.5	2.2	16.9	3.4	2.3	15.9	9.1	0.9	25.2	7.6	2.7	20.2	11.8	2.1
11 - 74616 - COURTHOUSE INBOUND	3.1	1.2	14.6	3.1	1.1	13.7	3.3	1.2	18.7	3.4	2.6	16.6	7.5	2	30.6	4.7	1.4	23.5	10.5	2.1
12 - 74617 - SOUTH STATION SILVER LINE - I	0	12.6	1.6	0	13.2	0.5	0	17.4	1.6	0	14.1	2.5	0	27.6	3	0	17.8	5.6	0	34.7
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum			14.6			13.7			18.7			16.6			30.6			23.5		
Total	25.9	25.1		23.4	23.3		28.1	28.2		32.2	30		42.6	39.9		36.5	32.1		57.4	53

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	Trip (RouteVar)(Block) [Observations]																			
	4) [39]	15:07 (743.0)(B086) [35] {FA18}			15:19 (743.0)(B087) [30] {FA18}			15:31 (743.0)(B088) [16] {FA18}			15:50 (743.0)(B083) [24] {FA18}			16:02 (743.0)(B084) [36] {FA18}			16:14 (743.0)(B085) [30] {FA18}			16:25 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74630 - CHELSEA INBOUND	12.2	11.6	0	11.7	8	0	8.2	7.1	0	7.4	10	0	11.7	7.9	0	8.1	10.6	0	10.6	8.2
2 - 74632 - BELLINGHAM SQUARE - INBOUND	15.1	7.3	0.1	18.8	3.7	0.2	11.7	2.6	0.4	9.6	4.1	1.1	16.7	3.1	0.3	10.9	3.4	0.3	13.7	1.8
3 - 74634 - BOX DISTRICT INBOUND	17.7	4.3	0.6	22.5	3.2	0.2	15.1	3.9	0	13.6	4.3	0.5	19.2	3.1	0.2	13.7	2.1	1.2	14.6	1.7
4 - 74636 - EASTERN AVENUE - INBOUND	20.1	4.1	0.9	25.7	3.9	0.8	17.8	2.6	0.3	15.4	2.7	0.5	21.3	1.4	0.4	14.7	2.3	0.5	16.5	3.4
5 - 7097 - AIRPORT STATION BUSWAY - INBO	18.6	7	6.8	25.9	9.3	5.2	21.9	4.9	5.5	15.4	4.8	8.3	18.4	2.6	4.6	12.6	4	6.5	14	3.7
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	18.8	0	0	25.9	0	0.1	21.8	0	0	15.4	0	0	18.4	0	0	12.6	0	0	14	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	18.8	0	0	25.9	0	0	21.4	0	0	15.4	0	0	18.8	0	0	12.6	0.1	0.1	13.9	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	16.5	0.8	3.9	23	0.7	3	19	0.6	3.3	13	0.8	2.7	17	1.5	2.5	11.9	1.5	2.3	13.1	0.7
9 - 74614 - SILVER LINE WAY BEFORE MANULI	21.7	3.6	3.3	23.2	4.7	3.9	20.3	6.6	2.1	17.6	9.3	1.3	24.9	8.5	0.8	19.4	12.4	1.4	23.7	10.8
10 - 74615 - WORLD TRADE CENTER - INBOUND	32.3	6.2	1.4	28	8.7	3.1	26.5	11.6	3.9	27.7	12.2	0	37	12.1	2.6	29.2	12.1	0.8	34.9	13.5
11 - 74616 - COURTHOUSE INBOUND	40.8	5.6	4	29.6	8.9	3.8	33.1	10	1.2	36.5	9.2	1.1	45.1	7.8	1.7	34.4	9.2	3.4	41.2	8.8
12 - 74617 - SOUTH STATION SILVER LINE - I	5.4	0	28.3	1.2	0	27.1	4.1	0	33.2	3.3	0	38.5	5.1	0	32.1	2.8	0	39.2	1.1	0
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	40.8			29.6			33.1			36.5			45.1			34.4			41.2	
Total		50.5	49.3		51.1	47.4		49.9	49.9		57.4	54		48	45.2		57.7	55.7		52.6

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	743.0)(B086) [29] {FA18}		16:36 (743.0)(B087) [18] {FA18}			16:47 (743.0)(B088) [12] {FA18}			16:58 (743.0)(B089) [16] {FA18}			17:09 (743.0)(B083) [20] {FA18}			17:20 (743.0)(B084) [46] {FA18}			17:31 (743.0)(B085) [25] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74630 - CHELSEA INBOUND	0	8.2	5.7	0	5.9	9.6	0	9.6	8.6	0	9.4	6.6	0	6.6	6.4	0	7	6.6	0	6.7
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0.5	9.4	3.2	0.3	8.8	2.8	0.1	12.3	3.3	0.5	12.2	2.1	0.3	8.4	2.4	0.1	9.5	2.5	0.3	8.9
3 - 74634 - BOX DISTRICT INBOUND	0.6	10.6	1.1	0.3	9.6	2.6	0.2	14.7	1.4	0.6	13.1	1.7	0.2	9.9	1.4	0.6	10.3	1.6	0.4	10.1
4 - 74636 - EASTERN AVENUE - INBOUND	0.6	13.4	3.1	0.6	12.1	3.5	0.2	18	2	0.9	14.3	2	0.5	11.4	1.1	0.6	10.7	1.4	1.1	10.4
5 - 7097 - AIRPORT STATION BUSWAY - INBO	4.8	12.3	4.1	5	11.3	1.5	6.5	13	4.7	5.6	14.2	2.4	4.2	9.7	1.8	3.9	8.6	2	3.5	8.9
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	12.3	0	0.1	11.3	0	0	13	0	0	14.2	0	0	9.7	0	0	8.6	0	0	8.9
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	12.3	0	0	11.9	0	0	13	0	0	14.2	0	0	9.7	0.1	0	8.7	0	0	8.9
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	2	11.5	0.8	3.7	10.2	0.8	2.2	11.6	1.3	1.5	14.3	0.7	1.2	9.2	1.3	1.3	8.5	0.8	1.2	8.5
9 - 74614 - SILVER LINE WAY BEFORE MANULI	1	20.9	8.8	1.6	16.4	10.2	0.4	21.5	8	1.8	20.4	5.6	0.7	14.1	4.8	0.5	12.8	5.6	1.8	13
10 - 74615 - WORLD TRADE CENTER - INBOUND	2.7	32.7	27.1	3.1	42.2	20.8	5.6	36.8	12.1	2.6	29.9	10.2	0.2	24.1	11.9	0.9	24.4	10	0.3	22.7
11 - 74616 - COURTHOUSE INBOUND	2.7	38.8	11.5	3.2	50.5	11.1	1.8	46.3	7.2	5.3	33.1	14.4	1.1	37.4	11	0.9	34.4	10.8	0.9	32.6
12 - 74617 - SOUTH STATION SILVER LINE - I	34.3	4.4	0	45.6	4.9	0	38.3	6.9	0	30.8	2.4	0	36.8	0.6	0	33.7	0.7	0	31.7	0.9
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum		38.8			50.5			46.3			33.1			37.4			34.4			32.6
Total	49.2		65.4	63.5		62.9	55.3		48.6	49.6		45.7	45.2		42.2	42.5		41.3	41.2	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

Seq - StopID - Stop Name	17:42 (743.0)(B086) [30] {FA18}			17:53 (743.0)(B087) [22] {FA18}			18:05 (743.0)(B088) [16] {FA18}			18:17 (743.0)(B089) [8] {FA18}			18:30 (743.0)(B083) [12] {FA18}			18:42 (743.0)(B084) [40] {FA18}			18:47 (743.0)(B08 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74630 - CHELSEA INBOUND	5.1	0	5.4	5.5	0	6	5.6	0	5.8	6.3	0	6.9	4.9	0	5.4	4.3	0	4.4	2.9	0
2 - 74632 - BELLINGHAM SQUARE - INBOUND	1	0.2	6.2	2	0.3	7.6	2.4	0.3	7.9	0.4	0.4	6.9	0.8	0.1	6.1	1	0.2	5.3	0.9	0.2
3 - 74634 - BOX DISTRICT INBOUND	0.8	0.3	6.7	0.6	0.4	7.9	2.3	0.5	9.6	1.3	0.4	7.8	1.1	0.4	6.8	0.8	0.4	5.7	1	0.9
4 - 74636 - EASTERN AVENUE - INBOUND	1.2	0.1	7.8	1.8	0.6	9	1.1	0.2	10.5	0.9	0.4	8.3	1.3	0.3	7.7	0.6	0.3	6	0.2	0.2
5 - 7097 - AIRPORT STATION BUSWAY - INBO	1.1	2.1	6.8	2	3.2	7.8	0.7	2.7	8.5	1.1	1.3	8.1	0.8	2	6.4	0.8	1.3	5.5	1.1	1.2
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	0	6.8	0	0	7.8	0	0	8.5	0.1	0	8.3	0	0	6.4	0	0	5.5	0	0.1
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0.9	0.1	7.5	0	0	7.8	0	0	7.1	0	0	8.3	0	0	6.4	0.2	0.1	5.6	0.1	0.1
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	2	0.9	8.6	0.5	1	7.4	1.1	1.1	7.2	6.9	0.8	14.4	0.5	0.9	6	1.9	1.1	6.4	1.3	0.9
9 - 74614 - SILVER LINE WAY BEFORE MANULI	3.8	1	9.7	3.8	0.8	10.4	1.7	0.7	8.2	3.8	2	16.1	3.5	0.8	8.7	2.8	1.1	8.1	2	0.4
10 - 74615 - WORLD TRADE CENTER - INBOUND	9.4	1.3	17.7	10.2	1.5	19	7.1	2.5	15.1	4	3.3	17.3	6.8	1.2	15.2	3.5	0.2	11.4	5.9	0.9
11 - 74616 - COURTHOUSE INBOUND	9.7	0.6	27.5	10.7	3	26.8	8.9	0.9	25.3	5.5	3.9	18.9	11.7	0.5	26.3	5	0.7	15.9	6.7	0.5
12 - 74617 - SOUTH STATION SILVER LINE - I	0	25.6	1.9	0	20.1	6.7	0	18.4	6.5	0	17.9	1	0	23.6	2.8	0	13.8	2.1	0	13.5
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum			27.5			26.8			25.3			18.9			26.3			15.9		
Total	35	32.2		37.1	30.9		30.9	27.3		30.3	30.4		31.4	29.8		20.9	19.2		22.1	18.9

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	5) [34]	18:56 (743.0)(B086) [32] {FA18}			19:07 (743.0)(B087) [27] {FA18}			19:18 (743.0)(B088) [15] {FA18}			19:30 (743.0)(B089) [14] {FA18}			19:42 (743.0)(B083) [15] {FA18}			19:54 (743.0)(B084) [44] {FA18}			20:06 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74630 - CHELSEA INBOUND	3.4	3.9	0	4.3	4.6	0	4.7	4.7	0	4.7	5.4	0	6.1	2.8	0	2.9	2.7	0	2.7	2.3
2 - 74632 - BELLINGHAM SQUARE - INBOUND	5	1.8	0.1	6	1.5	0.3	5.9	1.4	0.3	5.8	0.6	0.4	6.3	0.3	0.1	3.1	0.5	0.2	3.1	0.9
3 - 74634 - BOX DISTRICT INBOUND	5.2	0.5	0.5	6.1	1.3	0.5	6.7	0.9	0.3	6.3	0.4	0.1	6.6	0.7	0.2	3.6	0.6	0.1	3.5	0.4
4 - 74636 - EASTERN AVENUE - INBOUND	5	0.6	0.9	5.8	0.5	0.5	6.7	0.4	0.1	6.6	0.4	0.7	6.6	1.2	0.1	4.7	0.2	0.2	3.5	1.1
5 - 7097 - AIRPORT STATION BUSWAY - INBO	4.9	0.4	1.3	4.9	1	2	5.6	1	2.2	5.4	1.2	1.9	6.1	0.6	1.5	3.8	1.3	0.5	4.4	1
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	4.9	0	0	4.9	0	0	5.6	0	0	5.4	0	0.1	6.1	0	0	3.8	0	0	4.4	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	4.8	0.4	0.1	5.3	0	0.1	5.7	0.2	0.1	5.4	0	0.1	5.9	0	0	3.8	0	0	4.4	0.1
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	5.4	1.2	1	5.5	1.1	1.2	5.9	0.6	1.1	5.1	0.6	0.4	6.2	0.7	0.7	3.9	1	0.9	4.6	0.7
9 - 74614 - SILVER LINE WAY BEFORE MANULI	6.7	2.2	0.4	6.8	1.8	0.6	6.6	1.5	0.7	6.2	1.9	0.8	7.8	1.7	0.5	5.1	1.8	0.9	5.5	1.4
10 - 74615 - WORLD TRADE CENTER - INBOUND	11.8	6.3	1.4	12.5	4.3	0.4	10.4	2.4	0.4	8.3	1.2	0.3	9	2.7	0	7.8	3	0.1	8.5	2.5
11 - 74616 - COURTHOUSE INBOUND	18.1	7.4	1	18.9	5.1	1.3	14	6.9	0.5	14.3	1.6	0.8	8.8	8.8	1.1	15.5	5.6	0.8	13.4	5.1
12 - 74617 - SOUTH STATION SILVER LINE - I	4.6	0	15.3	3.6	0	13.4	0.9	0	12.5	1.7	0	8	0.8	0	13.5	2	0	12	1.4	0
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	18.1			18.9			14			14.3			9			15.5			13.4	
Total		24.7	22		21.2	20.3		20	18.2		13.3	13.6		19.5	17.7		16.7	15.7		15.5

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	743.0)(B086) [32] {FA18}		20:18 (743.0)(B087) [30] {FA18}			20:30 (743.0)(B088) [15] {FA18}			20:42 (743.0)(B089) [16] {FA18}			20:54 (743.0)(B083) [15] {FA18}			21:06 (743.0)(B084) [48] {FA18}			21:18 (743.0)(B086) [35] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74630 - CHELSEA INBOUND	0	2.4	3.2	0	3.2	4.8	0	4.8	6.2	0	6.4	3.5	0	3.5	3.3	0	3.3	3.1	0	3.1
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0	3.3	1.5	0.3	4.4	1.4	0	6.5	0.4	0	6.9	1.1	0	4.6	0.3	0.1	3.6	1.1	0.1	4.1
3 - 74634 - BOX DISTRICT INBOUND	0.1	3.6	0.6	0	5	0.5	0.5	6.6	0.4	0.1	7.2	0.6	0.5	4.7	0.6	0.1	4.1	1.1	0.1	5.1
4 - 74636 - EASTERN AVENUE - INBOUND	0.3	4.4	0.8	0.6	5.1	1.1	0.7	7	1.1	0.1	8.2	0.7	0.7	4.8	0.6	0.4	4.4	0.9	0.5	5.4
5 - 7097 - AIRPORT STATION BUSWAY - INBO	1	4.4	0.7	1.2	4.6	0.9	2.1	5.9	0.4	1.4	7.3	0.5	0.9	4.4	0.5	0.8	4.1	0.5	0.6	5.3
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	4.4	0	0	4.6	0	0	5.9	0	0	7.3	0	0	4.4	0	0	4.1	0	0	5.3
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0.1	4.4	0.1	0.1	4.7	0.2	0.1	5.9	0.1	0.1	7.3	0	0	4.4	0	0.1	4.1	0	0.1	5.3
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	1	4.3	0.8	0.8	4.6	0.5	0.7	5.7	0.4	0.3	7.4	0.9	0.7	4.7	0.8	0.8	4.1	0.8	0.9	5.1
9 - 74614 - SILVER LINE WAY BEFORE MANULI	0.7	4.8	1.3	0.4	5.5	1.8	0.7	7	2.3	0.6	9.1	1	0.4	5.2	1.1	0.4	4.8	1.1	0.7	5.4
10 - 74615 - WORLD TRADE CENTER - INBOUND	0.4	7	2.5	0	8	8.3	1.5	13.8	1.1	0.6	9.7	3.9	2.9	8.5	3.1	0.1	7.8	3	0.5	8.2
11 - 74616 - COURTHOUSE INBOUND	1	11.5	3.7	0.3	11	4.8	0.1	17.2	3.3	0.8	11.9	3.6	0	11.5	4.5	0.1	12.1	3.3	0.1	11.4
12 - 74617 - SOUTH STATION SILVER LINE - I	10.2	1.3	0	9.6	1.2	0	15.5	1.7	0	11.9	0	0	9.9	2.1	0	11.1	0.8	0	10.5	0.6
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum		11.5			11			17.2			11.9			11.5			12.1			11.4
Total	14.8		15.2	13.3		24.3	21.9		15.7	15.9		15.8	16		14.8	14		14.9	14.1	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	21:30 (743.0)(B087) [33] {FA18}			21:43 (743.0)(B088) [15] {FA18}			21:56 (743.0)(B089) [16] {FA18}			22:08 (743.0)(B083) [18] {FA18}			22:15 (743.0)(B084) [47] {FA18}			22:23 (743.0)(B086) [34] {FA18}			22:36 (743.0)(B08 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74630 - CHELSEA INBOUND	2.7	0	2.8	2.8	0	2.9	6	0	6	3.6	0	3.7	2.5	0	2.6	3.1	0	3.3	2.8	0
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0.8	0.1	3.5	0.1	0.1	3.2	0.5	0.5	6	1.3	0.2	4.8	0.6	0.1	3.1	0.8	0.1	4	0.5	0.1
3 - 74634 - BOX DISTRICT INBOUND	0.8	0.1	4.2	0.5	0	3.7	0.1	0	6.4	0.3	0.1	5.1	0.5	0.1	3.5	0.5	0.2	4.4	0.5	0
4 - 74636 - EASTERN AVENUE - INBOUND	0.8	1	3.9	0.8	0.3	4.2	0.6	0.5	6.6	1.4	0.2	6.3	0.4	0.2	3.7	0.2	0.3	4.4	0.2	0.3
5 - 7097 - AIRPORT STATION BUSWAY - INBO	1.9	0.7	5.2	3.1	1	6.3	1	0.9	6.6	2.4	2.1	6.6	1.3	0.8	4.2	2.2	0.9	5.7	2.9	0.3
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	0	5.2	0	0	6.3	0	0	6.6	0	0	6.6	0	0	4.2	0	0	5.7	0	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0.5	0	5.6	0	0	6.3	0	0	6.6	0	0	6.6	0	0	4.3	0	0.1	5.7	0	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	1.7	2.4	5	0.4	1.7	5.2	2.1	1.5	7.7	0.6	1.4	5.7	1	1.2	4	0.6	1.2	5.1	0.8	3
9 - 74614 - SILVER LINE WAY BEFORE MANULI	1.3	0.4	4.9	1.7	1.8	5	1.4	1.4	7.1	1.9	1.4	6.2	1.4	0.7	4.9	1.4	0.8	5.7	1.6	0.9
10 - 74615 - WORLD TRADE CENTER - INBOUND	3.7	1	7.6	2.7	0.1	7.6	1.9	3.1	6.4	4.5	3.2	8.8	2.8	0.3	7.5	3.9	0.4	9.2	2	1.1
11 - 74616 - COURTHOUSE INBOUND	5.3	0.2	12.7	6.1	0.1	13.5	1.8	0.9	7.3	5.8	0.1	13.4	2.8	0.2	10.1	5	0.5	13.2	2.7	0.2
12 - 74617 - SOUTH STATION SILVER LINE - I	0	10.2	3	0	12.7	0.8	0	6.1	1.2	0	9.4	5	0	8.5	1.6	0	10.3	3.2	0	6.8
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum			12.7			13.5			7.7			13.4			10.1			13.2		
Total	19.5	16.1		18.2	17.8		15.4	14.9		21.8	18.1		13.3	12.1		17.7	14.8		14	12.7

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	7) [34]	22:51 (743.0)(B088) [15] {FA18}			23:06 (743.0)(B089) [17] {FA18}			23:21 (743.0)(B083) [16] {FA18}			23:26 (743.0)(B086) [24] {FA18}			23:38 (743.0)(B087) [33] {FA18}			23:51 (743.0)(B088) [17] {FA18}			24:06 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74630 - CHELSEA INBOUND	2.8	3	0	3.1	5	0	5	1.8	0	1.8	2.5	0	2.5	3.2	0	3.2	1.2	0	1.3	1.6
2 - 74632 - BELLINGHAM SQUARE - INBOUND	3.2	0.9	0	4	0.3	0.1	5.2	0.6	0	2.4	0	0	2.5	0.3	0	3.5	0	0.1	1.2	0
3 - 74634 - BOX DISTRICT INBOUND	3.7	0	0.1	3.9	0.1	0	5.3	0.2	0	2.6	0.1	0	2.6	0.2	0	3.6	0.1	0	1.4	0
4 - 74636 - EASTERN AVENUE - INBOUND	3.8	0.5	0.3	4.1	0.5	0.1	5.6	0.3	0.1	2.8	0.5	0.1	3.1	1.1	0	4.7	0.3	0.1	1.8	0.3
5 - 7097 - AIRPORT STATION BUSWAY - INBO	6.1	1.2	0.6	4.7	0.4	0.5	5.5	0.2	0.6	2.3	0.3	0	3.4	0.4	0.3	4.8	0.2	0.3	1.6	0.3
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	6.1	0	0	4.7	0	0	5.5	0	0	2.3	0	0	3.4	0	0	4.8	0	0	1.6	0
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	6.1	0.1	0.2	4.5	0	0	5.5	0	0	2.4	0	0	3.4	0.4	0.4	5	1.1	0.1	2.7	0
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	4.1	0.6	1.4	3.8	1	1	5.6	0.5	0.6	2.5	0.4	0.3	3.5	0.7	0.5	5.1	0.8	0.5	3.2	0.7
9 - 74614 - SILVER LINE WAY BEFORE MANULI	5	1.5	0.6	4.7	2.2	0.8	7	0.8	0.7	2.7	1.7	0.7	4.4	1.3	0.6	5.7	1.4	0.6	3.4	1.6
10 - 74615 - WORLD TRADE CENTER - INBOUND	6	3.5	0.3	7.9	1.1	0.5	7.6	1.9	0.5	4.1	0.7	0.1	4.9	0.9	0.1	6.4	1.9	0.6	4.9	0.9
11 - 74616 - COURTHOUSE INBOUND	8.5	6	0.1	13.7	2.5	0.9	9.6	1.6	0.1	4.9	1.4	0.1	6.3	1.3	0.3	7.3	2.2	0.3	7.4	1.5
12 - 74617 - SOUTH STATION SILVER LINE - I	1.5	0	13.7	0	0	8.6	0.5	0	3.9	1.5	0	4.9	1.3	0	6.6	0.7	0	5.2	1.7	0
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	8.5			13.7			9.6			4.9			6.3			7.3			7.4	
Total		17.3	17.3		13.1	12.5		7.9	6.5		7.6	6.2		9.8	8.8		9.2	7.8		6.9

Massachusetts Bay Transportation Authority

Route 743

Weekday - Inbound

	743.0)(B089) [16] {FA18}		24:21 (743.0)(B083) [12] {FA18}			24:34 (743.0)(B087) [21] {FA18}			24:47 (743.1)(B088) [11] {FA18}			25:02 (743.1)(B089) [6] {FA18}			25:22 (743.1)(B083) [4] {FA18}			Total		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74630 - CHELSEA INBOUND	0	1.8	1.2	0	1.2	0.8	0	1	0.8	0	0.8	0.7	0	0.7	0	0	0	526.6	0	543.2
2 - 74632 - BELLINGHAM SQUARE - INBOUND	0	1.8	0	0	1.2	0.1	0.1	0.9	0.2	0	1	0.3	0	1	0	0	0	342.8	21.2	869.2
3 - 74634 - BOX DISTRICT INBOUND	0	1.8	0	0	1.2	0	0	0.9	0	0	1	0	0	1	0	0	0	329.2	27.2	1172.4
4 - 74636 - EASTERN AVENUE - INBOUND	0.3	1.8	0.3	0	1.5	0.2	0.2	0.9	0	0	1	0.2	0	1.2	0	0	0	233.1	52.1	1358.1
5 - 7097 - AIRPORT STATION BUSWAY - INBO	0.4	1.8	1.6	0	3.1	1.6	0	2.4	1.2	0.1	2.1	0.7	0.8	1	0.5	0	0.5	458.6	424.8	1398.6
6 - 12010 - TED WILLIAMS TUNNEL IB ENTRNC	0	1.8	0	0	3.1	0	0	2.4	0	0	2.1	0	0	1	0	0	0.5	2.6	2	1398
7 - 12008 - TED WILLIAMS TUNNEL IB EXIT-	0	1.9	0	0	3.1	0	0.2	2.3	0	0	2.1	0	0	1	0	0	0.5	7	9.9	1392.4
8 - 17096 - CONGRESS @ WORLD TRADE CENTER	0.6	1.9	1.2	1.1	3.3	0	1.4	0.9	0.1	0.5	1.7	0	0.2	0.8	0	0	0.5	93.7	270.2	1220
9 - 74614 - SILVER LINE WAY BEFORE MANULI	0.5	3.3	1.3	0.6	4	0	0	2.7	.	.	.	.	.	.	.	.	.	248.6	239.6	1235.9
10 - 74615 - WORLD TRADE CENTER - INBOUND	0.1	4.1	0	0	4	0	0	0.9	.	.	.	.	.	.	.	.	.	417.7	128.7	1555.8
11 - 74616 - COURTHOUSE INBOUND	0.1	5.5	0.6	0.1	4.5	0	0	0.9	.	.	.	.	.	.	.	.	.	396.6	190.6	1755.7
12 - 74617 - SOUTH STATION SILVER LINE - I	4.8	0.4	0	4.3	0.2	0	0.9	0	.	.	.	.	.	.	.	.	.	0	1571	186.4
13 - 892 - SUMMER ST @ DORCHESTER AVE	.	.	.	.	.	.	.	.	0	1.7	0	0	0.8	0	0	0.5	0	0	3	0
Maximum		5.5			4.5			2.7			2.1			1.2			0.5			1755.7
Total	6.8		6.2	6.1		2.7	2.8		2.3	2.3		1.9	1.8		0.5	0.5		3056.5	2940.3	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	04:31 (743.0)(B076) [50] {FA18}			04:42 (743.0)(B077) [35] {FA18}			04:57 (743.0)(B079) [30] {FA18}			05:12 (743.0)(B080) [19] {FA18}			05:19 (743.0)(B082) [22] {FA18}			05:30 (743.0)(B076) [52] {FA18}			05:42 (743.0)(B07 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74611 - SOUTH STATION SILVER LINE - O	0.8	0	0.9	1.1	0	1.3	1.7	0	1.7	1.8	0	1.8	0.9	0	1	2.9	0	3.2	17.3	0
2 - 74612 - COURTHOUSE OUTBOUND	0.1	0	0.9	0	0	1.3	0.2	0	2.1	0.2	0.1	1.9	0	0	1.1	0	0.2	3.2	0.1	3.5
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.3	0.1	1.1	0.2	0	1.6	0.2	0	2.3	0.1	0	2	0.2	0.1	1.2	0.1	0.3	3	0.3	4
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1.2	1	1.8	0.6	0.5	1.7	1.5	1.3	2.8	1.1	0.8	2.3	0.5	0.5	1.3	1.1	1.2	2.9	0.5	2.9
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	0.1	2	0	0	1.7	0.1	0.1	2.7	0	0	2.3	0.3	0.2	1.6	0	0.1	2.9	0.1	0.4
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	0	2	0	0	1.7	0	0	2.7	0	0	2.3	0	0	1.5	0	0	2.8	0	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	0.1	0.3	1.7	0.3	0.5	1.6	0.9	0.9	2.7	0.7	0.7	2.3	0.5	0.2	1.8	1.4	0.4	3.8	1.5	1.3
8 - 74637 - EASTERN AVENUE - OUTBOUND	0	0.4	1.4	0	0.1	1.6	0.6	0.1	3.2	0.2	0.1	2.4	0	0.3	1.6	0	1.2	2.7	0.1	1.4
9 - 74635 - BOX DISTRICT OUTBOUND	0	0.1	1.2	0	0.1	1.5	0	0	3.2	0	0.1	2.4	0	0	1.6	0.1	0.1	2.6	0	0.7
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	0.1	0	1.3	0	0	1.5	0.1	0.5	2.8	0.5	0.1	2.7	0.1	0.1	1.7	0.1	0.4	2.4	0.1	1.2
11 - 74631 - CHELSEA OUTBOUND	0	0.6	0.7	0	1.1	0.4	0	2.2	0.6	0	2.5	0.3	0	1.5	0.3	0	2.3	0.1	0	4.2
Maximum			2			1.7			3.2			2.7			1.8			3.8		
Total	2.7	2.6		2.2	2.3		5.3	5.1		4.6	4.4		2.5	2.9		5.7	6.2		20	19.6

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	7) [41]	05:51 (743.0)(B078) [26] {FA18}			05:59 (743.0)(B079) [47] {FA18}			06:14 (743.0)(B080) [34] {FA18}			06:28 (743.0)(B082) [30] {FA18}			06:41 (743.0)(B076) [49] {FA18}			06:52 (743.0)(B077) [44] {FA18}			07:02 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74611 - SOUTH STATION SILVER LINE - O	17.4	10.3	0	10.3	11.5	0	11.8	20.1	0	20.6	37.8	0	39	20.3	0	21	24.4	0	24.7	14.7
2 - 74612 - COURTHOUSE OUTBOUND	14.3	0.1	1.7	8.8	0.1	1.5	10.4	0.3	6.5	14.4	0.8	12.8	26.9	0.3	5.1	16	0.2	6.4	19	0.2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	10.6	0.1	3	6	0.2	2	8.6	0.1	4.9	9.6	0.8	9	18.7	5.4	4.4	17.1	1.3	5.6	14.8	0.6
4 - 74624 - SILVER LINE WAY AFTER MANULIF	8.1	0.6	1.4	5.2	1.6	2.5	7.9	1.1	3.4	7.3	0.9	6.7	13	1	2.9	15.4	0.6	4.3	11.8	1
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	7.1	0.4	0.6	5.3	0.1	0.2	8.1	0.1	0.5	7.1	0	1	11.9	0.1	0.2	15	0.2	1.1	11.8	0.1
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	7.1	0	0	5.2	0	0	7.9	0	0	6.9	0	0	12.1	0	0	15.3	0	0	11.7	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	7.3	1.2	0.2	6.2	1.5	1	8.4	2.2	0.9	8.2	2.4	2.6	11.9	2.2	6.7	10.7	1.6	2.2	11	2.7
8 - 74637 - EASTERN AVENUE - OUTBOUND	6	0	1.5	4.8	0.1	0.7	7.8	0.1	1.1	7.2	1.1	1.3	11.7	1.1	1.3	10.4	1.6	1.1	11.5	0.8
9 - 74635 - BOX DISTRICT OUTBOUND	5.3	0	0.5	4.3	0	1.2	6.6	0	1.2	6	0.1	1	10.8	1	0.4	11.1	0.3	0.8	11	0.3
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	4.2	0.1	1.5	2.9	0	1.7	5	0.1	1.1	4.9	0.2	2.5	8.5	0.1	2.9	8.2	0.2	4.3	6.9	0.3
11 - 74631 - CHELSEA OUTBOUND	0	0	2.8	0.1	0	4.6	0.3	0	4.9	0	0	8.6	0.3	0	8.1	0.1	0	6.3	0.6	0
Maximum	17.4			10.3			11.8			20.6			39			21			24.7	
Total		12.8	13.2		15.1	15.4		24.1	24.5		44.1	45.5		31.5	32		30.4	32.1		20.7

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	743.0)(B078) [30] {FA18}		07:11 (743.0)(B081) [24] {FA18}			07:21 (743.0)(B079) [48] {FA18}			07:33 (743.0)(B080) [28] {FA18}			07:42 (743.0)(B082) [28] {FA18}			07:51 (743.0)(B076) [37] {FA18}			08:01 (743.0)(B077) [39] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74611 - SOUTH STATION SILVER LINE - O	0	15	15.8	0	15.8	29.3	0	30.4	30.7	0	32.1	32	0	35.4	31	0	32.1	38	0	39.1
2 - 74612 - COURTHOUSE OUTBOUND	2.7	12.5	0.9	4.3	12.5	0.8	7.1	24.2	1.3	9.1	24.3	1.6	12.9	24.1	1.2	11.2	22.1	1.4	12.8	27.2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	3.2	9.9	1.4	4	9.9	1	6.7	18.6	0.9	9.7	15.3	0.3	8.6	15.9	0.4	8.3	14.2	0.3	9.9	17.7
4 - 74624 - SILVER LINE WAY AFTER MANULIF	2.3	8.6	2	3	8.9	1.4	7.3	12.8	1.2	5.5	11	0.6	7.5	9	0.9	5.4	9.6	0.8	5.8	13.9
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	8.7	0.1	0.3	8.5	0.5	1.1	12.2	0.1	0.9	10.3	0.1	1.9	7.2	0.3	0.7	9.2	0.1	3.1	10.8
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	8.4	0	0	8.5	0	0	12.2	0	0	10.1	0	0	7.4	0	0	9.3	0	0	10.8
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	2.1	8.9	1.8	1.4	8.9	4.6	1.9	14.9	2.6	1.2	11.6	2.8	1	9.1	1.7	0.8	10.2	1.8	0.5	12.2
8 - 74637 - EASTERN AVENUE - OUTBOUND	1.3	8.4	0.8	0.9	8.8	0.7	2.4	13.1	0.5	1	11.2	0.4	0.8	8.7	0.9	0.6	10.5	1.1	1.3	11.9
9 - 74635 - BOX DISTRICT OUTBOUND	1	7.7	0.3	0.8	8.3	0.6	1.8	12	0.1	1.4	9.9	0.3	1	8	0.1	1.2	9.4	0.3	0.5	11.7
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	1.8	6.1	0.9	1.8	7.4	0.3	4.3	8.1	0.1	3.3	6.8	0.1	1.7	6.4	0.1	2.7	6.8	0.1	3.5	8.3
11 - 74631 - CHELSEA OUTBOUND	6.1	0.1	0	7.2	0.2	0	7.7	0.4	0	5.8	1	0	5.2	1.1	0	6.4	0.4	0	7.6	0.6
Maximum		15			15.8			30.4			32.1			35.4			32.1			39.1
Total	20.6		24	23.7		39.2	40.3		37.5	37.9		38.2	40.6		36.6	37.3		43.9	45	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	08:13 (743.0)(B078) [20] {FA18}			08:22 (743.0)(B081) [36] {FA18}			08:31 (743.0)(B079) [35] {FA18}			08:41 (743.0)(B080) [23] {FA18}			08:53 (743.0)(B082) [21] {FA18}			09:01 (743.0)(B076) [40] {FA18}			09:11 (743.0)(B07 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74611 - SOUTH STATION SILVER LINE - O	45.5	0	47.8	28.5	0	30.7	36.4	0	39.3	38.3	0	41	43	0	46.4	39.1	0	43.3	31.2	0
2 - 74612 - COURTHOUSE OUTBOUND	3.8	19.5	32.1	5.9	12.3	25.8	2.5	19.3	22.9	2.1	17.3	25.7	4.3	19.9	31.3	1.4	17.1	27	1.5	12.9
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.4	12.2	20.3	3.6	8.2	21.2	0.4	12.6	10.6	0.5	16.1	10.1	0.1	12.3	19.2	0.4	11.2	16.3	0.3	7.6
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1	13.2	8.2	3.4	8.9	16.1	1.1	5.9	6.4	0.9	5.7	5.7	0.7	8.4	11.8	1.2	9.1	9.4	1.2	7
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.2	0.8	6.9	0.1	0.2	16.4	0.2	1.1	5.6	0.4	1.7	5.4	0.3	3.6	8.7	0.4	1.7	8.7	0	0.2
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	0	7	0	0	15.3	0	0	5.3	0	0	5.3	0	0	8.4	0	0	8.5	0	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	2.1	0.4	8.6	1.2	3.1	13.8	1.4	0.7	6	0.8	0.4	5.8	1.8	1.1	9	1.1	1.4	8.3	1	1.1
8 - 74637 - EASTERN AVENUE - OUTBOUND	0.2	0.8	8.1	0.9	1	13.6	0.5	0.5	6	0.6	0.6	5.8	0.8	0.5	9.4	0.8	0.9	8.2	0.2	0.9
9 - 74635 - BOX DISTRICT OUTBOUND	0.2	0.5	7.8	0.2	0.4	13.4	0.1	0.4	5.7	0.1	0.5	5.4	0.2	0.8	8.9	0.2	0.7	7.6	0.1	0.6
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	0	1.9	5.9	0.2	0.5	13.1	0.1	1	4.8	0	1.1	4.3	0.1	1.2	7.7	0.1	1.7	6	0	1
11 - 74631 - CHELSEA OUTBOUND	0	5.7	0.2	0	10.6	2.5	0	4.4	0.4	0	3.9	0.5	0	3.4	4.3	0	4.3	1.7	0	5.8
Maximum			47.8			30.7			39.3			41			46.4			43.3		
Total	53.4	55		44	45.2		42.7	45.9		43.7	47.3		51.3	51.2		44.7	48.1		35.5	37.1

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	7) [42]	09:21 (743.0)(B078) [23] {FA18}			09:36 (743.0)(B081) [39] {FA18}			09:51 (743.0)(B080) [27] {FA18}			10:06 (743.0)(B082) [29] {FA18}			10:21 (743.0)(B077) [45] {FA18}			10:37 (743.0)(B078) [32] {FA18}			10:51 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74611 - SOUTH STATION SILVER LINE - O	33.4	18.8	0	19.4	23.1	0	24.8	29.3	0	29.6	23.7	0	24	16.4	0	16.9	17.1	0	17.9	15.8
2 - 74612 - COURTHOUSE OUTBOUND	22.1	0.7	7.7	13.1	3.7	7.6	20.8	1.7	14.8	16.9	0.9	8.4	16.1	0.4	4.6	12.9	0.6	4.8	13.7	2.1
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	14.8	0	4.8	8.3	2.2	5.1	17.9	0.3	7.1	10.1	0.8	5.6	11.3	0.3	3.3	9.9	0.4	3.5	10.6	1.5
4 - 74624 - SILVER LINE WAY AFTER MANULIF	9.5	1.2	4.3	5.4	3.1	6.4	15.6	1.4	4.3	8.1	1.1	2.4	11.3	1.4	3.6	7.7	1	3	8.6	1.2
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	9.3	0.1	0.7	5	0.1	0.3	16	0.4	1.1	7.2	0.2	0.8	10.2	0	0.1	7.6	0.3	0.9	8.2	0.1
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	9.5	0	0	5	0	0	14.8	0	0	7.2	0	0	10.1	0	0	7.6	0	0	8	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	9.3	1.3	1.3	5.2	2.2	3	13.9	3	1.2	8.9	2.4	1.8	10.7	2.4	1.4	8.6	1.1	1.6	7.4	2.3
8 - 74637 - EASTERN AVENUE - OUTBOUND	8.6	0	0.6	4.6	0.6	1.7	12.9	0.6	1.1	8.4	1.1	1.4	10.3	0.3	1.1	7.9	0.1	0.6	6.9	0.4
9 - 74635 - BOX DISTRICT OUTBOUND	8	0.3	0.4	4.5	0.3	1.6	11.6	0.1	1.4	7.1	0.3	1.6	9.1	0.4	1.6	6.7	0.1	0.8	6.3	0.2
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	7.1	0	0.7	3.8	0.4	1.1	11	0	2.4	4.8	0.2	2.9	6.5	0.2	1.5	5.4	0.2	1.7	4.7	1
11 - 74631 - CHELSEA OUTBOUND	1.3	0	3.6	0.3	0	10	0.9	0	4.2	0.6	0	5.5	1	0	5.4	0.1	0	4.7	0.1	0
Maximum	33.4			19.4			24.8			29.6			24			16.9			17.9	
Total		22.4	24.1		35.7	36.8		36.8	37.6		30.7	30.4		21.8	22.6		20.9	21.6		24.6

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	743.0)(B081) [37] {FA18}		11:06 (743.0)(B080) [39] {FA18}			11:21 (743.0)(B082) [31] {FA18}			11:36 (743.0)(B084) [22] {FA18}			11:51 (743.0)(B086) [18] {FA18}			12:06 (743.0)(B081) [37] {FA18}			12:21 (743.0)(B080) [40] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74611 - SOUTH STATION SILVER LINE - O	0	15.9	14.5	0	15.3	14.1	0	15.2	8.9	0	9.3	10.8	0	10.8	10.6	0	11.8	10.3	0	10.9
2 - 74612 - COURTHOUSE OUTBOUND	4	14	0.6	4.7	11.2	0.5	4.5	11.2	0.2	1.5	8.1	0.5	1.9	9.2	1.2	1.6	11.5	0.7	1.5	10.1
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	3.6	11.8	0.3	2.5	9	0.2	1.7	9.8	0.3	1.8	6.6	0.5	1.2	8.4	1.3	2.1	10.8	0.5	1.1	9.5
4 - 74624 - SILVER LINE WAY AFTER MANULIF	2.6	10.5	1.4	2	8.5	1.3	2.8	8.3	1.5	1.7	6.4	1.2	1.4	8.5	1.6	2.7	9.8	1.5	1	9.9
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.3	10.6	0.3	0.4	8.5	0.1	0.3	8	0.1	0	6.5	0.4	0.2	8.8	0.2	0.1	9.9	0.2	0.2	9.7
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	10.2	0	0	8.4	0	0	8.1	0	0	6.5	0	0	8.8	0	0	9.9	0	0	9.9
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	3	9.6	1.6	2.6	7.4	1.7	2	7.7	2.9	1.6	7.7	1.7	2.1	8.5	2.2	3.5	8.5	2.9	3	9.8
8 - 74637 - EASTERN AVENUE - OUTBOUND	1.1	9	0.1	0.8	6.7	0.3	1.2	6.8	0.2	1.6	6.3	0.6	1	8.1	0.7	0.5	8.8	0.5	1.9	8.4
9 - 74635 - BOX DISTRICT OUTBOUND	0.6	8.6	0.2	1.3	5.7	0.2	0.9	6.1	0.2	1	5.6	0.2	1.4	6.8	0.4	0.9	8.2	0.2	1.8	6.8
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	1.9	8.1	0.1	1.6	4.2	0.1	1.7	4.4	0.1	1.6	4.1	0.2	2.3	4.7	1.3	1.8	8	0.1	1.9	5
11 - 74631 - CHELSEA OUTBOUND	7.7	0.4	0	4.1	0.1	0	4	0.5	0	4.1	0	0	4.5	0.2	0	7.5	0.4	0	4.9	0.1
Maximum		15.9			15.3			15.2			9.3			10.8			11.8			10.9
Total	24.8		19.1	20		18.5	19.1		14.4	14.9		16.1	16		19.5	20.7		16.9	17.3	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	12:37 (743.0)(B082) [29] {FA18}			12:51 (743.0)(B084) [42] {FA18}			13:06 (743.0)(B086) [35] {FA18}			13:21 (743.0)(B081) [39] {FA18}			13:36 (743.0)(B088) [12] {FA18}			13:51 (743.0)(B082) [29] {FA18}			14:06 (743.0)(B08 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74611 - SOUTH STATION SILVER LINE - O	12.1	0	12.6	13	0	14.1	13.7	0	14.9	16.7	0	17	10.3	0	10.3	12.3	0	13.3	11.1	0
2 - 74612 - COURTHOUSE OUTBOUND	0.8	2.4	10.7	0.8	2.6	12.3	0.8	2.5	13.5	2.2	3.6	15.9	1.6	1.6	10.1	2.9	2	14.2	2.4	2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.5	1.2	10	0.6	1.8	11.3	0.7	1.9	12.3	1.5	2.4	14.9	0.8	0.9	10	0.8	1	14	1.4	1.3
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1.9	1.7	10.5	1.9	1.5	11.6	2.2	1.6	13.1	2.2	2.5	14.4	3.4	1.2	12.4	3.9	1.4	16.4	5.1	1.3
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	0.2	10.6	0.2	0.1	11.7	0.1	0.1	13	0.5	1	14.1	0.1	0.2	13.1	0.5	0.4	16.7	0.3	0.3
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	0	10.6	0	0	11.6	0	0	13	0	0	14	0	0	12.4	0	0	17.1	0	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	4.3	3.3	11.7	3.1	2.5	12.2	3	2.9	13.1	3.5	4.1	13.5	12.7	5.1	20	4.8	5.6	16	4.4	5.4
8 - 74637 - EASTERN AVENUE - OUTBOUND	0.9	1.3	11.2	0.2	2	10.5	1.9	1.6	13.3	1.1	2.8	11.8	0.3	3.1	17.3	0.5	2.7	13.9	0.7	2.7
9 - 74635 - BOX DISTRICT OUTBOUND	0.2	3.1	8.3	0.1	2.3	8.3	0.1	2.3	11.1	0.9	2	10.7	0.3	3.1	14.5	0.1	4.3	9.7	0.1	3.3
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	0.1	3.1	5.3	0	2.6	5.7	0.1	3.7	7.5	1.2	2.6	9.4	0.8	6.3	8.9	0.2	5.1	4.8	0.4	3.4
11 - 74631 - CHELSEA OUTBOUND	0	5.1	0.2	0	5.7	0	0	7.3	0.2	0	9	0.4	0	8.5	0.4	0	4.7	0.1	0	6.7
Maximum			12.6			14.1			14.9			17			20			17.1		
Total	20.9	21.4		19.9	21.1		22.6	23.9		29.8	30		30.3	30		26	27.2		25.9	26.4

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	Trip (RouteVar)(Block) [Observations]																			
	4) [42]	14:21 (743.0)(B086) [33] {FA18}			14:37 (743.0)(B087) [22] {FA18}			14:51 (743.0)(B088) [19] {FA18}			15:06 (743.0)(B083) [12] {FA18}			15:17 (743.0)(B084) [34] {FA18}			15:28 (743.0)(B085) [15] {FA18}			15:39 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74611 - SOUTH STATION SILVER LINE - O	11.2	19.6	0	19.8	16.6	0	17.9	23.3	0	26.8	13.1	0	13.1	23.1	0	27.8	23.3	0	23.4	22.6
2 - 74612 - COURTHOUSE OUTBOUND	11.6	2.8	4.2	18.4	2.9	3.3	17.7	4.4	6.6	24.6	3.9	3.3	13.8	6.7	4.7	30.4	4.3	5.4	22.5	3
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	11.7	2.1	2.5	18	2.9	1.6	19	3.3	3.7	24.1	4.5	1	17.3	4.4	2.6	32.2	1.7	3.6	20.5	2
4 - 74624 - SILVER LINE WAY AFTER MANULIF	15.5	6.1	1.5	22.1	4.9	1.4	22.7	9.5	3.1	30.6	9.1	2	24.3	8.3	3.4	36.5	6.1	4.9	21.7	6.1
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	15.8	0.5	0.1	24.1	0.5	0.3	22.9	1.4	0.7	31.3	0	0	24.5	0.9	0.2	37.6	0.4	0.7	21.5	0.6
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	16.1	0	0	23.2	0	0	22.9	0.1	0.1	31.4	0	0	24.4	0	0	37.4	0	0	21.5	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	15.1	5.1	8.8	19.5	9.7	7.7	24.9	10.9	11.5	30.8	3.3	10.5	17.2	7.9	13.7	31.7	11.6	5.8	27.3	13.6
8 - 74637 - EASTERN AVENUE - OUTBOUND	13.1	1.2	3.6	17	3.2	4.5	23.9	1	4.9	26.8	0.5	3.8	13.9	0.9	4.7	27.9	0.1	3.3	24.1	1.7
9 - 74635 - BOX DISTRICT OUTBOUND	9.9	0.2	4.8	12.4	0.5	7.4	17.1	0.8	5.4	22.3	0.7	3.1	11.5	0.6	7.7	20.8	0.3	7.9	16.6	0.3
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	6.9	0.3	5	7.7	0.4	8.7	8.8	0	9.6	12.7	0.2	6	5.7	0.3	9.6	11.5	0.3	8.4	8.5	0.3
11 - 74631 - CHELSEA OUTBOUND	0	0	7.4	0.1	0	7.9	1	0	12.4	0.3	0	5.7	0	0	11.4	0.2	0	8.5	0.1	0
Maximum	16.1			24.1			24.9			31.4			24.5			37.6			27.3	
Total		37.9	37.9		41.6	42.8		54.7	58		35.3	35.4		53.1	58		48.1	48.5		50.2

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	743.0)(B086) [30] {FA18}		15:50 (743.0)(B087) [18] {FA18}			16:01 (743.0)(B088) [5] {FA18}			16:12 (743.0)(B089) [10] {FA18}			16:23 (743.0)(B083) [21] {FA18}			16:34 (743.0)(B084) [41] {FA18}			16:45 (743.0)(B085) [28] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74611 - SOUTH STATION SILVER LINE - O	0	23.6	21.7	0	25.9	22.4	0	24.6	26.5	0	26.5	23.3	0	26.6	23	0	25.4	25.5	0	29.1
2 - 74612 - COURTHOUSE OUTBOUND	4	22.7	3.9	4	25.2	5.5	5.3	24	4.6	4.1	27	4.8	5.3	26	3.3	4.3	24.4	3.4	4.3	26.7
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	2.8	21.8	1.3	1.6	24.9	0.8	1.5	23.3	2.5	2	27.5	2.5	1.7	26.9	2.2	1.7	24.9	3	1.3	28.4
4 - 74624 - SILVER LINE WAY AFTER MANULIF	3.9	24	3.6	1.8	26.7	6.3	2.8	26.8	3.1	4.7	25.9	7.8	3	31.6	5	2	28	6.5	2.1	34.1
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	24.2	0	0.1	26.6	4.6	0.8	30.8	0	0	27.9	0.8	0.1	32.2	0.7	0.1	28.7	1.3	0.8	34.6
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	24.5	0	0	26.5	0	0	30.8	0	0	26.4	0	0	32.2	0	0	28.8	0	0	34.6
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	8.6	29.5	7.8	8.7	25.6	10.4	9.2	32	9.3	6.4	29.3	8.1	10.6	29.8	8.3	8.3	28.8	10.2	8.8	35.9
8 - 74637 - EASTERN AVENUE - OUTBOUND	5.8	25.5	2.4	6.2	21.8	1.2	6	27.2	0.3	5.3	24.3	0.7	4.5	26	1.2	5	25	0.8	4.8	31.9
9 - 74635 - BOX DISTRICT OUTBOUND	8.8	17	0.2	5.9	16	0.4	8.4	19.2	0.6	4.6	20.3	0.2	8.6	17.7	0.3	7.3	18	0.3	8.5	23.6
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	9.9	7.4	0.1	7.5	8.6	0.2	8.6	10.8	1.3	7.2	14.4	0.2	9.7	8.1	0.1	10	8.1	0.3	12.5	11.5
11 - 74631 - CHELSEA OUTBOUND	7.2	0.2	0	7.4	1.2	0	10.8	0	0	13.1	1.3	0	7.6	0.5	0	7.8	0.3	0	11	0.4
Maximum		29.5			26.7			32			29.3			32.2			28.8			35.9
Total	51.1		41	43.2		51.8	53.4		48.2	47.4		48.4	51.1		44.1	46.5		51.3	54.1	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	16:56 (743.0)(B086) [28] {FA18}			17:07 (743.0)(B087) [20] {FA18}			17:19 (743.0)(B088) [11] {FA18}			17:29 (743.0)(B089) [11] {FA18}			17:40 (743.0)(B083) [13] {FA18}			17:51 (743.0)(B084) [32] {FA18}			18:03 (743.0)(B08 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74611 - SOUTH STATION SILVER LINE - O	20.1	0	23.9	24.6	0	27.8	25.6	0	27.7	26.5	0	26.5	20.7	0	21.5	23	0	23.8	22.1	0
2 - 74612 - COURTHOUSE OUTBOUND	3.4	4.4	22.1	5.1	4.9	26.9	3.3	4.2	26.8	1.9	4.3	24.1	3.5	4.5	20.5	4.4	4.2	23.6	4.1	4.2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	1.4	1.5	22.1	3.2	2.7	27.4	1.7	1.5	27.1	1.8	0.8	25.1	1.8	1.4	20.9	1.8	2	23.4	2	1.2
4 - 74624 - SILVER LINE WAY AFTER MANULIF	3.5	1.8	24.7	3.5	1.6	30.2	4.4	2.7	28.7	6.2	9	23.1	3.2	2.2	22	3.8	1.9	25.7	3.5	1.8
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.8	0.1	25.6	0.9	0.8	29.1	0	0.1	28.6	0.8	0.5	23.4	0.7	0.4	22.3	1.2	1	26.8	0.4	0.6
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	0	25.4	0	0.1	30.7	0.1	0.1	28.6	0	0	23.4	0	0.1	21.3	0	0	25.5	0	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	5.7	8.1	23	11	9.4	32.3	8	7.7	28.9	8.1	9.5	22.6	8.9	7.2	24	6.5	6.8	25.6	8.1	6.4
8 - 74637 - EASTERN AVENUE - OUTBOUND	4	4.6	22.4	1.1	4.9	28.4	0.1	3.9	25.1	1.4	3.5	20.5	0.5	3.7	20.8	0.4	3.6	22.4	0.6	4.8
9 - 74635 - BOX DISTRICT OUTBOUND	0.3	5.9	16.8	0.2	7.4	21.3	0.1	8.1	17.1	1.3	4.9	16.8	0.5	6.5	14.8	0.3	6.3	16.4	0.1	5.6
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	0.2	8	8.9	0.6	10.5	11.3	0.3	7.8	9.5	0.6	5.3	12.2	0.3	6.9	8.2	0.1	9.6	6.8	0	9.5
11 - 74631 - CHELSEA OUTBOUND	0	8.6	0.4	0	10	1.3	0	9.5	0.1	0	10.2	2	0	7.6	0.5	0	6.4	0.2	0	7
Maximum			25.6			32.3			28.9			26.5			24			26.8		
Total	39.4	43		50.2	52.3		43.6	45.6		48.6	48		40.1	40.5		41.5	41.8		40.9	41.1

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	5) [25]	18:13 (743.0)(B086) [26] {FA18}			18:25 (743.0)(B087) [21] {FA18}			18:38 (743.0)(B088) [15] {FA18}			18:48 (743.0)(B089) [10] {FA18}			19:01 (743.0)(B083) [16] {FA18}			19:13 (743.0)(B084) [41] {FA18}			19:25 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74611 - SOUTH STATION SILVER LINE - O	22.4	20.2	0	23.9	11.7	0	17.8	15.9	0	18.3	19.1	0	20.6	11.9	0	15.8	11	0	12.2	11.1
2 - 74612 - COURTHOUSE OUTBOUND	21.7	3.7	4.7	22.8	2.4	2.2	17.5	1.1	2.9	16.5	2.4	6.1	14.1	1.6	2.2	15.2	2	2.1	12	2.2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	22.5	0.9	0.6	23.1	1.3	0.9	17.9	0.9	1.7	15.7	1.4	1.4	14.1	1.1	0.1	16.1	1.3	0.8	12.5	0.6
4 - 74624 - SILVER LINE WAY AFTER MANULIF	24.3	3	1.6	24.5	1.8	1	19.2	2.3	2.1	16	2.1	5	15.6	2.4	1.6	16.9	2	1.5	13.1	1.9
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	24.6	0.4	0.3	24.7	0.6	0.4	17.3	0.6	0.4	17.2	0.3	0.1	15.8	0.6	0.5	16	0.3	0.1	13.4	0.2
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	24.6	0	0	24.2	0	0	20.2	0	0	16.1	0	0	15.8	0	0	17.1	0	0.1	13.2	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	26.4	4.7	5.8	23.5	5.8	3.9	21.9	6.1	5.4	16.9	3.7	4.6	14.9	4	3.6	17.4	3.1	3.9	12.5	3.4
8 - 74637 - EASTERN AVENUE - OUTBOUND	22.2	1.4	3.7	21.3	0.6	3.8	18.8	0.5	3.2	14.1	1.8	2	14.7	0.5	2.9	15.1	0.5	2.3	10.7	0.3
9 - 74635 - BOX DISTRICT OUTBOUND	16.6	0.1	6	15.4	0.1	5.7	13.2	0.1	4.2	10.1	0.8	3.3	12.2	0.1	4.3	10.9	0.3	2.8	8.2	0.1
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	7.2	0.3	8.4	7.3	0.2	6.1	7.2	0.1	4.1	6.1	1.2	4.2	9.2	0.2	7.3	3.9	0.2	3.8	4.7	0
11 - 74631 - CHELSEA OUTBOUND	0.1	0	6.8	0.5	0	5.9	1.3	0	6	0.1	0	7.3	1.9	0	3.8	0.1	0	4.6	0.1	0
Maximum	26.4			24.7			21.9			18.3			20.6			17.4			13.4	
Total		34.7	37.9		24.5	29.9		27.6	30		32.8	34		22.4	26.3		20.7	22		19.8

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	743.0)(B086) [35] {FA18}		19:36 (743.0)(B087) [33] {FA18}			19:49 (743.0)(B088) [14] {FA18}			20:00 (743.0)(B089) [13] {FA18}			20:13 (743.0)(B083) [15] {FA18}			20:24 (743.0)(B084) [47] {FA18}			20:37 (743.0)(B086) [35] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74611 - SOUTH STATION SILVER LINE - O	0	14.7	13.7	0	14.2	10.2	0	10.6	8.8	0	9	7.1	0	9.1	9.1	0	10.4	9.1	0	9.7
2 - 74612 - COURTHOUSE OUTBOUND	2.2	14.7	2.4	1.4	15	2.9	1.6	11.9	2.2	1.1	10.4	2.9	0.3	11.7	2.3	1	11.7	2.2	0.9	11
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.5	14.8	1.3	0.8	15.5	0.6	0.4	12.1	1.2	0.1	11.5	0.9	0	12.6	1.1	0.5	12.3	1	0.4	11.6
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1.7	15.2	2	1.4	16.4	2.6	2.3	12.4	2.5	2.7	10.8	3.7	0.9	15.4	2.1	1.3	13.1	1.7	1.2	12
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	15.1	0.1	0	16.3	0.2	0.4	12.2	0.8	0	10.8	0.5	0.2	15.7	0.3	0.2	12.9	0.1	0.1	11.9
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	15.4	0	0	16.3	0	0	12.6	0	0	11.5	0	0	15.7	0	0	13	0	0	11.9
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	5	13.6	5	4.5	16.8	1.8	3.4	10.6	2.8	3.1	11.2	3	4.8	13.9	1.9	4.9	10.3	2	4.7	9.2
8 - 74637 - EASTERN AVENUE - OUTBOUND	2.8	11.1	0.2	3.3	13.8	0.3	1.4	9.5	0.4	1.3	10.3	0.6	2.4	12.1	0.2	2	8.6	0.3	1.8	7.7
9 - 74635 - BOX DISTRICT OUTBOUND	3.3	7.9	0	3.6	10.2	0.1	3.5	6.1	0.1	1.8	8.5	0.1	4.1	8	0.1	2.8	5.9	0.2	2.7	5.2
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	3.6	4.3	0.1	6.2	4.1	0	3.1	2.9	0.5	3.3	5.7	0.1	4.6	3.5	0.1	3	3	0	2.8	2.4
11 - 74631 - CHELSEA OUTBOUND	3.9	0.3	0	4	0.1	0	2.9	0	0	5.3	0.4	0	3.5	0	0	3	0.1	0	2.3	0.1
Maximum		15.4			16.8			12.6			11.5			15.7			13.1			12
Total	23.1		24.8	25.2		18.7	19		19.3	18.7		18.9	20.8		17.2	18.7		16.6	16.9	

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	20:48 (743.0)(B087) [31] {FA18}			21:01 (743.0)(B088) [13] {FA18}			21:12 (743.0)(B089) [16] {FA18}			21:25 (743.0)(B083) [13] {FA18}			21:36 (743.0)(B084) [48] {FA18}			21:49 (743.0)(B086) [33] {FA18}			22:01 (743.0)(B08 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 74611 - SOUTH STATION SILVER LINE - O	8.4	0	9.6	9.7	0	9.7	9.1	0	9.1	9.9	0	9.9	9.1	0	10	11.9	0	12.5	10.6	0
2 - 74612 - COURTHOUSE OUTBOUND	1.5	0.4	10.7	5.4	1.3	12.8	2.4	2.9	8.7	3.6	1.3	12.2	4.1	1.3	13	5	0.8	16.8	8.7	1
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.6	0.3	11.1	0.4	0.2	13	1	0.4	9.3	0.8	0.6	12.4	0.6	0.8	12.9	0.7	0.3	17.2	1.3	0.5
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1.5	1	11.6	4.6	1.3	16.3	1.9	1.3	9.9	5.2	1	16.6	2.5	1.5	14	2.9	1	19.2	3.2	0.7
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.1	0.1	11.7	0.5	0.2	17.2	0.1	0.1	9.9	0	0.2	16.5	0	0.1	13.9	0.1	0.1	19.5	0.4	0.3
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	0	11.2	0	0	17.2	0	0	9.9	0	0	16.6	0	0	14	0	0	19.3	0	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	1.9	4.1	9.4	2.5	9.6	10	1.9	4.7	7.8	2.5	7.5	11.5	1.5	6.5	8.9	2.9	9.4	13.2	2.4	13.1
8 - 74637 - EASTERN AVENUE - OUTBOUND	0.1	1.2	8.4	0.3	2	8.3	0.4	1.6	6.5	0.3	2.4	9.4	0.4	2	7.3	0.6	2.8	11	0.6	2.8
9 - 74635 - BOX DISTRICT OUTBOUND	0	2.7	5.6	0.1	2.6	5.8	0.5	1.1	5.9	0	2.6	6.8	0.3	1.9	5.6	0	2.4	8.6	0	2.6
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	0.1	3.3	2.6	0.2	3.1	2.8	0.9	2.4	4.4	0.1	4.1	2.8	0.2	2.3	3.5	0.2	4.6	4.2	0	4.2
11 - 74631 - CHELSEA OUTBOUND	0	2.5	0.1	0	2.4	0.2	0	3.6	0.8	0	2.6	0.2	0	3.3	0.2	0	3.9	0.3	0	3.3
Maximum			11.7			17.2			9.9			16.6			14			19.5		
Total	14.2	15.6		23.7	22.7		18.2	18.1		22.4	22.3		18.7	19.7		24.3	25.3		27.2	28.5

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	7) [32]	22:13 (743.0)(B088) [15] {FA18}			22:25 (743.0)(B089) [15] {FA18}			22:37 (743.0)(B083) [14] {FA18}			22:50 (743.0)(B086) [34] {FA18}			23:05 (743.0)(B087) [34] {FA18}			23:20 (743.0)(B088) [16] {FA18}			23:35 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 74611 - SOUTH STATION SILVER LINE - O	12.1	10.7	0	11.5	10	0	10.7	10.5	0	12.3	8.6	0	10.9	10.9	0	11.5	13.7	0	14.4	10.5
2 - 74612 - COURTHOUSE OUTBOUND	19.4	7.9	0.1	19.3	5.9	1.2	15.4	7.6	0.6	19.3	6.8	0.6	16.3	8.8	0.5	17.6	16	1	28.3	8.1
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	20.3	1	0.6	19.7	0.2	1.2	14.4	1.6	0.6	20.3	1.3	0.3	17.3	1.9	0.1	19.6	2.6	0.5	30.4	1.3
4 - 74624 - SILVER LINE WAY AFTER MANULIF	22.8	2.9	1.3	21.3	3.4	2.7	15.3	2.1	1.1	21.4	2	0.9	19.2	4.8	0.8	24.2	4.6	1.8	33.4	3.8
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	22.9	0.2	0	21.5	0.3	0.1	15.5	0.1	0	21.5	0.2	0.1	19.5	0.5	0.2	24.6	0.3	0.1	33.5	1.1
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	22.9	0	0	21.5	0	0	15.5	0	0	21.5	0	0	18.6	0	0	24.7	0	0	33.5	0
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	12.2	2.6	12.5	11.5	2.7	7.5	10.7	2	10.4	13.1	1.8	10.2	10.5	1.9	14.8	11.8	1.7	22	13.4	3.3
8 - 74637 - EASTERN AVENUE - OUTBOUND	9.9	0.6	3.1	9	0.7	1.8	9.6	0.1	4.4	8.7	0.2	1.7	9	0.6	1.6	10.7	0.2	2.6	10.9	0.2
9 - 74635 - BOX DISTRICT OUTBOUND	7.4	0.1	2.7	6.3	0.3	2.4	7.5	0.1	2.5	6.3	0.2	2.1	7.2	0.1	2.6	8.2	0.1	2.8	8.3	0.6
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	3.4	0	3.1	3.3	0.1	2.9	4.7	0	3.3	3	0	3.2	4	0	3.9	4.2	0.1	5.2	3.1	0.3
11 - 74631 - CHELSEA OUTBOUND	0.2	0	3.2	0.1	0	4.5	0.2	0	3.2	0.1	0	3.9	0.1	0	4.2	0	0	3.1	0.1	0
Maximum	22.9			21.5			15.5			21.5			19.5			24.7			33.5	
Total		26	26.6		23.6	24.3		24.1	26.1		21.1	23		29.5	28.7		39.3	39.1		29.2

Massachusetts Bay Transportation Authority

Route 743

Weekday - Outbound

	743.0)(B089) [16] {FA18}		23:50 (743.0)(B083) [14] {FA18}			24:05 (743.0)(B087) [30] {FA18}			24:20 (743.0)(B088) [16] {FA18}			24:35 (743.0)(B089) [15] {FA18}			24:55 (743.0)(B083) [10] {FA18}			Total		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 74611 - SOUTH STATION SILVER LINE - O	0	10.9	6.9	0	7.8	5.9	0	6.7	8.2	0	9.1	3.9	0	3.9	5.2	0	5.2	1686.2	0	1809.9
2 - 74612 - COURTHOUSE OUTBOUND	2.9	16.6	5.8	0.1	13.4	4	0.2	10.1	3.8	0.1	12.8	2.8	0.3	6.3	0.1	0.9	4.4	274.4	436.2	1638.2
3 - 74613 - WORLD TRADE CENTER - OUTBOUND	0.6	17.6	1.1	0.2	14.4	1.2	0.1	11.3	1.2	0.1	13.9	0.5	0.2	6.7	0.4	0.1	4.7	115	272.5	1482.4
4 - 74624 - SILVER LINE WAY AFTER MANULIF	1.4	20.4	3.4	1.1	16.7	2.8	0.5	13.7	3.7	1.1	16.4	0.7	0.9	6.5	0.5	1.2	4.1	266.3	278.3	1492.2
5 - 12005 - TED WILLIAMS TUNNEL OB ENTRAN	0.4	21.7	0	0	16.7	1	0.2	14.7	0.7	0.1	17.1	0.5	0.4	7.2	0	0	3.8	36.3	42.6	1494.1
6 - 12009 - TED WILLIAMS TUNNEL OB EXIT O	0	21.5	0	0	16.7	0.5	0	15.1	0	0	16.8	0	0	6.7	0	0	4.1	0.7	0.5	1488.9
7 - 7096 - AIRPORT STATION BUSWAY - OUTB	13.9	11	1.2	9.6	8.3	0.9	9.7	6.3	0.5	10.8	6.8	0.3	2.5	4.5	0.3	1.3	3.1	362	503.4	1351.5
8 - 74637 - EASTERN AVENUE - OUTBOUND	1.4	9.8	0	1.2	7.1	0.1	0.9	5.6	0.2	1.3	5.8	0	0.6	3.9	0.1	0.2	3	61.8	214.8	1199.6
9 - 74635 - BOX DISTRICT OUTBOUND	2.6	7.8	0	2.6	4.4	0	1.3	4.3	0	2	3.8	0.1	1.2	2.7	0	0.6	2.4	22.4	276	946
10 - 74633 - BELLINGHAM SQUARE - OUTBOUND	4.1	4.1	0.1	3	1.5	0.1	2.4	1.9	0	2.3	1.4	0	1.8	0.9	0	1.6	0.8	22.3	385.3	583.8
11 - 74631 - CHELSEA OUTBOUND	2.4	1.8	0	1.3	0.2	0	1.8	0.1	0	1.4	0.1	0	0.9	0.1	0	0.6	0.2	0	539.9	44.8
Maximum		21.7			16.7			15.1			17.1			7.2			5.2			1809.9
Total	29.7		18.5	19.1		16.5	17.1		18.3	19.2		8.8	8.8		6.6	6.5		2847.4	2949.5	

Massachusetts Bay Transportation Authority

Route 121

Weekday - Outbound

	06:15 (121.0)(B055) [20] {FA18}			06:45 (121.0)(B055) [24] {FA18}			07:15 (121.0)(B055) [23] {FA18}			07:45 (121.0)(B055) [20] {FA18}			08:15 (121.0)(B055) [17] {FA18}			08:45 (121.0)(B055) [21] {FA18}			15:20 (121.2)(B05 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5740 - MAVERICK STATION	1.8	0	1.8	4.4	0	4.5	17.2	0	17.2	3	0	4.4	6.5	0	6.5	4.6	0	4.7	13.1	0
2 - 5742 - MERIDIAN ST @ HAVRE ST	0	0	1.8	0.7	0	5.1	0.7	0.2	17.7	0.2	0	4.8	0.4	0	6.8	0.7	0.7	5	1.3	0.2
3 - 5743 - MERIDIAN ST @ SARATOGA ST	0.8	0.3	2.3	0.1	1.3	3.9	0.4	0.3	17.7	0.7	0.5	4.5	0.2	1.4	5.6	0.3	1.8	4	0.8	4.8
4 - 5903 - LEXINGTON ST @ MARION ST	0.7	0.7	2.3	0	0.8	3.2	0.2	0.2	18	0.5	0.5	4.1	0.3	3.5	2.4	0	1.7	2.3	0.4	3.5
5 - 5904 - LEXINGTON ST @ BROOKS ST	1	0	3.3	0.2	0.4	2.9	0.1	1.1	16.7	0.2	0.6	3.8	0.5	0.2	2.6	0	0.4	2	0	1.5
6 - 5905 - LEXINGTON ST @ PUTNAM ST	0.2	0.1	3.4	0.3	1.6	1.7	0.3	15	2	1.5	1.3	4.1	0.1	0.9	1.8	0.4	0.4	2	0.5	3.1
7 - 5906 - LEXINGTON ST @ PRESCOTT ST	2.6	0	6	2.1	0.1	3.6	1.2	0.6	2.7	0.4	0.3	4.2	0.5	0.5	1.9	0.3	0.4	2	0.2	3.2
8 - 5907 - LEXINGTON ST @ SHELBY ST	1.3	0.4	6.9	1.7	0.1	5.2	0.9	0.3	3.3	0.4	0.2	4.5	0.1	0.1	1.8	0	0	2	0	1.8
9 - 56641 - E EAGLE ST @ CHELSEA ST	0	0	6.9	0	0	5.2	0	0	3.3	0	0	4.5	0	0	1.8	0	0	2	.	.
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0	0	6.9	0	0	5.3	0	0	3.3	0	0	4.5	0	0	1.8	0	0	2	.	.
11 - 5666 - WOOD ISLAND STATION BUSWAY	0	6.9	0	0	5.3	0	0	3.3	0.1	0	3.7	0.8	0	1.8	0.1	0	1.5	0.4	.	.
Maximum			6.9			5.3			18			4.8			6.8			5		
Total	8.4	8.4		9.5	9.6		21	21		6.9	7.1		8.6	8.4		6.3	6.9		16.3	18.1

Massachusetts Bay Transportation Authority

Route 121

Weekday - Outbound

	Trip (RouteVar)(Block) [Observations]																				
	56) [11]	15:45 (121.2)(B056) [13] {FA18}			16:10 (121.2)(B056) [20] {FA18}			16:35 (121.2)(B056) [20] {FA18}			17:00 (121.2)(B056) [19] {FA18}			17:25 (121.2)(B056) [18] {FA18}			17:50 (121.2)(B056) [18] {FA18}			18:14 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5740 - MAVERICK STATION	13.5	11.5	0	11.5	14.9	0	14.9	21.1	0	21.1	23.2	0	23.2	24.5	0	24.5	18.4	0	18.4	15.2
2 - 5742 - MERIDIAN ST @ HAVRE ST	14.6	0.9	0.4	12.1	0.7	0.7	14.8	1.8	1.1	21.8	1.1	1.1	23.2	0.8	0.6	24.7	0.6	0.7	18.3	1.1
3 - 5743 - MERIDIAN ST @ SARATOGA ST	11.5	1.2	2.8	10.5	1.7	4	12.6	1.3	5.2	17.9	1.4	5.4	19.2	1.6	6.7	19.6	2	3.3	17	1.3
4 - 5903 - LEXINGTON ST @ MARION ST	9.3	0.1	3.6	6.9	0.4	3	10	0.1	5.1	13	0.2	6.5	12.9	0.4	3.9	16.1	0.2	4.6	12.6	0.1
5 - 5904 - LEXINGTON ST @ BROOKS ST	7.7	0	1.2	5.7	0.2	2.5	7.7	0	3	10	0	2.3	10.6	0	3.8	12.3	0	3.8	8.8	0.1
6 - 5905 - LEXINGTON ST @ PUTNAM ST	5.2	0.1	1.8	4	0.1	2.5	5.3	0.1	3.7	6.4	0.3	2.9	7.9	0.1	4.1	8.3	0.1	3.7	5.2	0.2
7 - 5906 - LEXINGTON ST @ PRESCOTT ST	2.4	0.1	3.2	0.9	0.3	3.9	1.7	0.3	5	2	0.2	5.2	2.9	0.1	6.2	2.2	0.2	3.6	1.8	0.2
8 - 5907 - LEXINGTON ST @ SHELBY ST	0.5	0	0.8	0.1	0	1.6	0.1	0	1.7	0.3	0	2.7	0.3	0	2.1	0.2	0	1.7	0.2	0
9 - 56641 - E EAGLE ST @ CHELSEA ST	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
11 - 5666 - WOOD ISLAND STATION BUSWAY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Maximum	14.6			12.1			14.9			21.8			23.2			24.7			18.4	
Total		13.9	13.8		18.3	18.2		24.7	24.8		26.4	26.1		27.5	27.4		21.5	21.4		18.2

Massachusetts Bay Transportation Authority

Route 121

Weekday - Outbound

	121.2)(B056) [19] {FA18}		18:38 (121.2)(B056) [19] {FA18}			Total		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load
1 - 5740 - MAVERICK STATION	0	15.2	12.1	0	12.2	191.5	0	193.6
2 - 5742 - MERIDIAN ST @ HAVRE ST	0.7	15.6	0.7	0.3	13	11.7	6.7	199.3
3 - 5743 - MERIDIAN ST @ SARATOGA ST	4.4	12.5	1.1	3.2	10.8	14.9	45.4	169.6
4 - 5903 - LEXINGTON ST @ MARION ST	3.3	9.3	0.2	2.8	8.2	3.8	43.7	130.6
5 - 5904 - LEXINGTON ST @ BROOKS ST	1.4	7.9	0	1.6	6.6	2.3	23.8	108.6
6 - 5905 - LEXINGTON ST @ PUTNAM ST	2.9	5.2	0.2	3.1	3.7	4.5	47.1	66.2
7 - 5906 - LEXINGTON ST @ PRESCOTT ST	3.8	1.6	0.1	2.9	0.8	8.8	38.9	36.7
8 - 5907 - LEXINGTON ST @ SHELBY ST	1.5	0.2	0	0.8	0.1	4.4	15.8	25.7
9 - 56641 - E EAGLE ST @ CHELSEA ST	.	.	.	.	.	0	0	23.7
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	.	.	.	.	.	0	0	23.8
11 - 5666 - WOOD ISLAND STATION BUSWAY	.	.	.	.	.	0	22.5	1.4
Maximum		15.6			13			199.3
Total	18		14.4	14.7		241.9	243.9	

Massachusetts Bay Transportation Authority

Route 121

Weekday - Inbound

	06:00 (121.0)(B055) [18] {FA18}			06:30 (121.0)(B055) [23] {FA18}			07:00 (121.0)(B055) [24] {FA18}			07:30 (121.0)(B055) [21] {FA18}			08:00 (121.0)(B055) [18] {FA18}			08:30 (121.0)(B055) [16] {FA18}			15:33 (121.2)(B0E {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5666 - WOOD ISLAND STATION BUSWAY	1.2	0	1.2	1	0	1	4.3	0	4.3	0.7	0	0.7	0.7	0	0.7	0.6	0	0.6	.	.
2 - 5848 - BENNINGTON ST @ NEPTUNE RD	0	0	1.2	0	0	1	0	0	4.3	0.1	0	0.8	0	0	0.7	0.1	0	0.7	.	.
3 - 5849 - BENNINGTON ST @ CHELSEA ST	0	0	1.3	0	0	1	0.3	0	4.7	1	0	1.6	0.3	0.1	0.9	0.9	0	1.5	.	.
4 - 5450 - EAGLE ST @ LEXINGTON ST	0.4	0	1.8	3.5	0	4.5	4.6	0.1	9.2	0.9	0	2.6	0.1	0	1	0.3	0	1.8	0	0
5 - 5898 - LEXINGTON ST @ PRESCOTT ST	4.5	0.1	5.9	9.8	0	14.3	8.3	1.4	16.1	2	0.2	4.3	2.1	0	3.1	2.8	0.1	4.5	0.9	0
6 - 5899 - LEXINGTON ST @ PUTNAM ST	8.6	0.2	14.2	2.5	0.1	16.1	7.8	1.7	22.2	1.5	0.1	5.6	1.9	0.1	4.9	2.1	0.1	6.5	1	0
7 - 5900 - LEXINGTON ST @ BROOKS ST	6.2	0.1	20.3	9	0.9	24.3	3.5	0	25.7	3.7	0	9.4	2	0	6.9	1	0.1	7.4	0.2	0
8 - 5901 - LEXINGTON ST @ MARION ST	6.5	0.1	26.7	10	0.3	33.9	6.8	1	31.5	4	0	13.4	1.6	0.3	8.1	0.8	1.1	7.1	0.8	0
9 - 5902 - LEXINGTON ST @ MERIDIAN ST	4.3	0.1	31	6.1	0.3	39.7	5.9	10	27.4	4.4	0.5	17.3	3.6	0.4	11.3	2.3	0.9	8.4	1.2	0
10 - 5736 - MERIDIAN ST @ LIVERPOOL ST	2.1	0	33.1	1.4	0.4	40.7	2.4	0.3	29.6	2.5	0.1	19.7	2.3	0.1	13.4	1.1	1.1	8.4	1.5	0.5
11 - 5737 - MERIDIAN ST @ HAVRE ST	0.1	0.2	33	0.2	0.2	40.7	0.2	1.3	28.5	0.2	1.6	18.4	0.3	0.4	13.3	0.3	0.9	7.8	0.1	0.4
12 - 5740 - MAVERICK STATION	0	33	0	0	40.6	0.1	0	28.5	0	0	18.1	0.2	0	13.3	0	0	7.7	0.1	0	4.1
Maximum			33.1			40.7			31.5			19.7			13.4			8.4		
Total	33.9	33.8		43.5	42.8		44.1	44.3		21	20.6		14.9	14.7		12.3	12		5.7	5

Massachusetts Bay Transportation Authority

Route 121

Weekday - Inbound

	Trip (RouteVar)(Block) [Observations]																				
	6) [11]	15:58 (121.2)(B056) [17] {FA18}			16:23 (121.2)(B056) [20] {FA18}			16:48 (121.2)(B056) [20] {FA18}			17:12 (121.2)(B056) [19] {FA18}			17:38 (121.2)(B056) [18] {FA18}			18:02 (121.2)(B056) [19] {FA18}			18:26 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5666 - WOOD ISLAND STATION BUSWAY	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2 - 5848 - BENNINGTON ST @ NEPTUNE RD	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3 - 5849 - BENNINGTON ST @ CHELSEA ST	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4 - 5450 - EAGLE ST @ LEXINGTON ST	0.1	0.4	0	0.4	0.5	0	0.6	0.5	0	0.6	0.3	0	0.6	0.5	0	0.7	0.7	0	0.8	0.5
5 - 5898 - LEXINGTON ST @ PRESCOTT ST	1	1.4	0	1.8	2	0.1	2.5	0.9	0	1.5	1.3	0	1.8	0.8	0	1.5	0.7	0.1	1.5	0.2
6 - 5899 - LEXINGTON ST @ PUTNAM ST	2.1	0.8	0.1	2.6	1.1	0.1	3.5	1	0	2.4	2.3	0.1	4.1	0.1	0	1.6	0.5	0	1.9	0.1
7 - 5900 - LEXINGTON ST @ BROOKS ST	2	0.5	0	3.1	0.5	0	3.9	0.3	0	2.7	0.3	0	4.4	0.6	0	2.2	0.3	0	2.3	0
8 - 5901 - LEXINGTON ST @ MARION ST	3	1.2	0.3	4	0.6	0	4.5	0.6	0	3.3	0.3	0.1	4.6	0.1	0	2.2	0.2	0	2.4	0
9 - 5902 - LEXINGTON ST @ MERIDIAN ST	4.2	1.8	0.1	5.7	1	0	5.4	1.6	0.9	4	1.7	0.1	6.3	0.4	0.2	2.4	0.5	0.6	2.3	0.3
10 - 5736 - MERIDIAN ST @ LIVERPOOL ST	4.7	1	0.4	6.4	1.6	0.4	6.7	1.6	0.3	5.3	1.1	0.4	6.9	0.6	0.4	2.7	1.7	0.3	3.7	2.5
11 - 5737 - MERIDIAN ST @ HAVRE ST	4.5	0.2	0.5	6	0.1	0.5	6.3	0	0.3	5	0.1	0.7	6.3	0	0.4	2.2	0.1	0.5	3.3	0.1
12 - 5740 - MAVERICK STATION	0.4	0	5.9	0.1	0	6.2	0.1	0	5	0	0	6.3	0	0	2.2	0.1	0	3.2	0.1	0
Maximum	4.7			6.4			6.7			5.3			6.9			2.7			3.7	
Total		7.3	7.3		7.4	7.3		6.5	6.5		7.4	7.7		3.1	3.2		4.7	4.7		3.7

Massachusetts Bay Transportation Authority

Route 121

Weekday - Inbound

	121.2)(B056) [17] {FA18}		Total		
Seq - StopID - Stop Name	Off	Load	On	Off	Load
1 - 5666 - WOOD ISLAND STATION BUSWAY	.	.	8.5	0	8.5
2 - 5848 - BENNINGTON ST @ NEPTUNE RD	.	.	0.2	0	8.7
3 - 5849 - BENNINGTON ST @ CHELSEA ST	.	.	2.5	0.1	11
4 - 5450 - EAGLE ST @ LEXINGTON ST	0	0.5	13.2	0.1	25.2
5 - 5898 - LEXINGTON ST @ PRESCOTT ST	0	0.7	37.7	2	60.5
6 - 5899 - LEXINGTON ST @ PUTNAM ST	0.1	0.8	31.3	2.7	88.5
7 - 5900 - LEXINGTON ST @ BROOKS ST	0	0.8	28.1	1.1	115.4
8 - 5901 - LEXINGTON ST @ MARION ST	0	0.8	33.5	3.2	145.5
9 - 5902 - LEXINGTON ST @ MERIDIAN ST	0.1	1	35.1	14.2	166.4
10 - 5736 - MERIDIAN ST @ LIVERPOOL ST	0.2	3.3	23.4	4.9	184.6
11 - 5737 - MERIDIAN ST @ HAVRE ST	0.2	3.2	2	8.1	178.5
12 - 5740 - MAVERICK STATION	3.1	0.1	0	177.2	1.3
Maximum		3.3			184.6
Total	3.7		215.5	213.6	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

Seq - StopID - Stop Name	05:50 (120.0)(B050) [25] {FA18}			06:25 (120.0)(B053) [20] {FA18}			06:25 (120.6)(B051) [15] {FA18}			07:00 (120.0)(B050) [22] {FA18}			07:25 (120.0)(B051) [22] {FA18}			07:50 (120.0)(B052) [19] {FA18}			08:14 (120.0)(B05 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5740 - MAVERICK STATION	4	0	9.5	2	0	9	.	.	.	7.9	0	30	8	0	21.1	9.7	0	14.3	4.4	0
2 - 5742 - MERIDIAN ST @ HAVRE ST	0	0	9.5	0.1	0.1	9	.	.	.	0.4	0.6	29.7	0.1	0.1	21.1	0.2	0.5	14.1	0.7	0.3
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	0.1	0.1	9.5	0.1	0.7	8.4	.	.	.	1.6	3.5	27.9	0.6	0.7	21	0.7	1.1	13.6	0.2	0.5
4 - 5867 - BENNINGTON ST @ PORTER ST	2.2	0	11.6	0.8	0.6	8.6	.	.	.	3.5	2.5	28.9	1.8	0.4	22.5	1.1	0.7	13.9	1.7	0.9
5 - 5868 - BENNINGTON ST @ MARION ST	1.4	0.1	12.9	2.4	0.3	10.7	.	.	.	1.3	0.2	30	2.1	0.1	24.5	0.9	1.2	13.6	1.1	0.6
6 - 5869 - BENNINGTON ST @ BROOKS ST	0.6	0.2	13.2	1.5	0.2	12	.	.	.	3.6	2.2	31.5	0.7	0.5	24.7	0.7	0.2	14.1	0.8	0.4
7 - 5870 - BENNINGTON ST @ PUTNAM ST	0.2	0	13.5	1.1	0	13.1	.	.	.	2.9	0.3	34	1.4	0	26	0.4	0.3	14.2	0.6	0.3
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	0.2	0.2	13.6	1.5	0.1	14.5	.	.	.	0.9	0.3	34.7	0.4	0.8	25.6	0.5	3.5	11.3	1.9	0.6
9 - 5664 - BENNINGTON ST @ BREMEN ST	0.1	0.8	12.8	1.8	0.4	15.9	.	.	.	1.2	1.5	34.4	0.6	1.5	24.6	0.3	0.3	11.3	0.2	0.5
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0	0	12.8	0	0	15.9	.	.	.	0	0	34.4	0	0	24.6	0	0	11.3	0	0
11 - 5666 - WOOD ISLAND STATION BUSWAY	0.1	1.9	11.1	0.2	2.3	13.8	.	.	.	2	2.2	34.2	1.7	0.4	26	0.9	0.9	11.2	0.3	1.6
12 - 5872 - BENNINGTON ST @ SWIFT ST	0	0	11.1	0	0.1	13.7	.	.	.	0.2	0	34.4	0	0	26	0	0	11.2	0	0
13 - 5873 - BENNINGTON ST @ HARMONY ST	0	0	11	0.1	0	13.8	.	.	.	0	0.8	33.6	0.1	0.1	26	0	0.1	11.2	0	0.1
14 - 5874 - BENNINGTON ST @ MOORE ST	0	0	11	0.1	0.1	13.8	.	.	.	0.7	6.5	27.8	0.1	3	23.1	0.5	0.7	10.9	0.1	0.3
15 - 5875 - BENNINGTON ST @ BYRON ST	0.4	0.9	10.4	1	2.3	12.5	.	.	.	2.1	7.4	22.6	1.8	3.7	21.2	1.1	2	10.1	0.4	2.2
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	0.7	0.1	11	0.3	0	12.8	.	.	.	1.7	0.3	24	1.1	0.5	21.8	1.3	0.2	11.1	1.5	0.9
17 - 5878 - BENNINGTON ST @ TRIDENT ST	0	0.1	10.9	0	0	12.8	.	.	.	0.3	0.1	24.3	0.6	0.2	22.2	0.4	0.3	11.2	0.1	0.5
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	3	1.7	12.2	1.3	4.3	9.8	1.5	0	7.9	1.7	5.5	20.5	0.8	3.6	19.4	0.9	3.5	8.8	1.2	2.6
20 - 5882 - BOARDMAN ST @ SARATOGA ST	0	0	12.3	0	0.1	10	0.1	0.1	6.2	0	0.1	20.7	0.2	0.6	19.2	0	0.2	8.7	0.1	0
21 - 5883 - BOARDMAN ST @ ASHLEY ST	0	0	12.3	0	0	10	0	0	2.1	0	0.1	20.7	0.1	0	19.3	0	0.1	8.7	0	0
22 - 5884 - BOARDMAN ST @ LEYDEN ST	0.5	0.9	12	0	0.2	9.8	0.3	0.5	1.9	0.2	1	19.9	0.8	0.1	20	2.6	0.4	10.9	0.1	0.1
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	0.1	5.1	7	0.1	2	7.9	0.3	2.7	0.9	1	1.1	19.8	0.4	0.7	19.6	0.3	0.5	10.7	0.2	1.4
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	0	0	6.9	1	0.1	8.7	1.5	0.1	2.4	0.5	1.4	18.9	0.2	0.3	19.5	0.3	0.1	10.9	0.1	0.2
25 - 5887 - 220 WALDEMAR AVE	3.4	0	10.3	4.5	0.2	13	6	0	8.4	2.6	0.1	21.4	0.6	0.3	19.9	1.6	0.5	12	1.6	0.7
26 - 5888 - 160 WALDEMAR AVE	2.4	0	12.6	2.6	0	15.6	6.8	0	15.2	1.7	0	23.1	1.2	0	21	1.5	0.2	13.3	0.3	0.1
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	0	0	12.6	0	0.1	15.5	1.7	0.1	16.8	0	0	23.1	0	0	21	0.1	0.4	12.9	0.3	0.5
28 - 5890 - 171 FAYWOOD AVE	8.9	0.2	21.6	6.6	0.1	21.7	8.9	0.4	25.3	4.6	0.1	27.8	3.5	0.1	23.9	3.1	0.3	15	1.3	0.7
29 - 5891 - 219 FAYWOOD AVE	2.6	0	24.2	3.7	0.2	25.2	2.9	0.1	28	1.1	0.1	28.9	0.5	0.1	24.3	0.8	0.1	15.7	0.9	0.2
30 - 5892 - 202 ORIENT AVE	1	0	25.3	0.6	0	25.7	1.5	0	29.5	0	0	28.9	0	0	24.3	0	0	15.7	0.1	0
31 - 5893 - ORIENT AVE @ DRUMLIN RD	0.1	0.7	24.7	0.3	1.3	24.7	0.1	0.1	28.8	0.3	1	28.2	0	0.6	23.7	0	0.1	15.6	0	0.6
32 - 6292 - ORIENT AVE @ SELMA ST	0.1	0	24.8	0.1	0.1	24.7	0.3	0	29.1	0.2	0	28.1	0.1	0	23.9	0.2	0.7	15.1	0	0
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	0	0	24.2	0	0	24.6	0	0	29.1	0	0	27.5	0	0	24.1	0	0.1	15.2	0	0.1
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	0	0	24.2	0.1	0.1	24.7	0.1	0	29	0.1	0	27.5	0	0	24.1	0.1	0	15.3	0	0
35 - 5896 - WALLEY ST @ GLADSTONE ST	0.4	0	24.5	0	0	24.1	1.1	0	28.9	0	0	27.5	0.1	0.8	23.4	0	2.3	13.1	0	0.3
36 - 5881 - BENNINGTON ST @ ANTRIM ST	0.2	0	12.4	0.3	0	10.1	.	.	.	0.7	0.4	20.8	0.3	0	19.6	0.1	0	8.9	0.5	0.3
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	0	18.2	6.6	0	18.2	6.7	0	13.5	15.9	0	7.5	20	0	4.6	18.8	0	8.5	5.5	0	4
Maximum			25.3			25.7			29.5			34.7			26			15.7		
Total	32.7	31.2		34.2	34.2		33.1	17.6		45	46.8		29.9	23.8		30.3	30		20.7	21.5

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

	50) [19]	08:34 (120.0)(B051) [22] {FA18}			08:54 (120.0)(B054) [19] {FA18}			09:14 (120.0)(B052) [19] {FA18}			09:34 (120.0)(B050) [23] {FA18}			09:54 (120.0)(B051) [21] {FA18}			10:14 (120.0)(B054) [21] {FA18}			10:34 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5740 - MAVERICK STATION	29.4	3.9	0	23.6	3.4	0	6.7	3.8	0	12.2	5	0	38.6	4.4	0	25.3	4.2	0	10.3	6.7
2 - 5742 - MERIDIAN ST @ HAVRE ST	29.7	0.7	0.3	24	0.5	0.1	7.2	0.4	0.5	12.1	0.7	1.7	37.6	1	0	26.2	1.1	0.2	11.6	0.8
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	29.9	0.4	1	23.5	0.4	1.1	6.7	0.4	0.6	11.8	0.5	3.4	34.7	0.7	1.6	25.3	1.3	1	11.9	0.8
4 - 5867 - BENNINGTON ST @ PORTER ST	30.7	1.4	0.8	24	1.8	0.7	7.8	1.8	1.2	12.5	2.2	2.9	34.1	2	0.7	26.5	2.8	1	13.7	2.7
5 - 5868 - BENNINGTON ST @ MARION ST	31.2	0.3	0.4	24	0.3	0.3	7.6	0.5	0.2	12.9	0.8	0.5	34.4	0.7	0.1	27.1	0.4	0.6	13.6	0.2
6 - 5869 - BENNINGTON ST @ BROOKS ST	31.1	0.7	0.6	24	0.5	0.2	7.9	0.8	0.3	13.4	0.3	0.9	33.8	0.4	0.3	27.1	1.2	0.5	14.3	0.1
7 - 5870 - BENNINGTON ST @ PUTNAM ST	31.4	0.3	0.2	24.1	0.3	0.3	7.9	0.7	0.5	13.6	0.7	1.9	32.7	0.6	0.5	27.2	0	0.6	13.8	0.4
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	32.7	0.3	1	23.5	0.5	0.7	7.6	0.1	0.9	12.7	0.1	3.1	29.7	0.3	1	26.5	0.3	0.8	13.3	0.8
9 - 5664 - BENNINGTON ST @ BREMEN ST	32.4	0	0.3	23.2	0.2	0.4	7.4	0.1	0.2	12.6	0.1	1.5	28.3	0.2	0.6	26.1	0.1	0.6	12.9	0
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	32.4	0	0	23.2	0	0	7.4	0	0	12.6	0	0.1	28.1	0	0	26.1	0	0	12.9	0
11 - 5666 - WOOD ISLAND STATION BUSWAY	31.1	0.3	0.8	22.7	0.3	0.4	7.2	0.3	0.3	12.6	0.6	1	27.7	0.4	0.2	26.2	0.4	0.6	12.8	0.4
12 - 5872 - BENNINGTON ST @ SWIFT ST	31.1	0.1	0.5	22.3	0.1	0.1	7.3	0	0.1	12.5	0.1	0.4	27.4	0.1	0	26.3	0	0.1	12.7	0
13 - 5873 - BENNINGTON ST @ HARMONY ST	31.1	0.1	0.1	22.3	0	0.2	7.1	0	0.2	12.4	0.1	0.9	26.6	0	0.2	26.1	0	0.6	12.1	0.1
14 - 5874 - BENNINGTON ST @ MOORE ST	30.9	0	0.7	21.6	0.1	0.3	6.8	0.2	0.9	11.6	0.4	1.7	25.3	0.1	0.5	25.7	0	0.4	11.7	0.1
15 - 5875 - BENNINGTON ST @ BYRON ST	29.1	0.2	1.2	20.7	0.2	1.6	5.4	0.3	0.8	11.2	0.3	3.5	22.1	0.3	1.3	24.7	0.4	1.5	10.6	0.2
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	29.7	1.5	0.5	21.8	0.8	0.2	5.9	0.7	0.7	11.2	0.2	1	21.3	0.1	0.5	24.3	0.6	0.5	10.7	0.3
17 - 5878 - BENNINGTON ST @ TRIDENT ST	29.7	0	0.6	21.2	0.2	0.6	5.5	0.2	0.2	11.2	0	2	19.3	0.1	0.9	23.5	0.1	0.4	10.4	0.1
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	28.4	1.5	0.7	22.1	1.1	1.2	5.4	0.8	1.4	10.6	1.1	2.6	17.9	0.9	1.5	22.9	1.1	2.1	9.4	1.1
20 - 5882 - BOARDMAN ST @ SARATOGA ST	28.7	0	0	22.2	0.2	0.2	5.5	0	0	10.6	0.2	0.2	17.3	0.1	0.1	22.9	0	0	9.3	0.2
21 - 5883 - BOARDMAN ST @ ASHLEY ST	28.7	0	0.1	22.1	0	0.1	5.4	0.2	0	10.8	0	0.1	17.1	0	0	22.9	0	0	9.3	0
22 - 5884 - BOARDMAN ST @ LEYDEN ST	28.3	0.1	0.2	22	0	0.1	5.3	0.1	0.3	10.6	0	0.9	16.3	0	0.3	22.6	0	0.1	9.2	0
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	27.4	0	0.7	21.3	0.1	0.3	5.1	0	0.3	10.3	0	3.1	13.1	0	0.4	22.2	0	0.3	8.9	0
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	27.4	0.1	0.1	21.4	0	0.1	5	0.1	0.1	10.3	0	0	13.2	0	0	22.2	0	0	8.8	0.1
25 - 5887 - 220 WALDEMAR AVE	28.2	0.7	0.4	21.7	0.7	0.6	5.2	0.7	0.3	10.7	0.3	1	12.5	0.6	0.4	22.4	0.6	0.5	8.9	0.6
26 - 5888 - 160 WALDEMAR AVE	28.4	0.9	0.3	22.3	0.8	0.2	5.8	0.4	0.2	10.9	0.2	0.1	12.6	0	0	22.4	0.4	0.1	9.2	0.4
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	28.2	0.2	1.6	20.5	0.2	0.2	6	0.2	0.1	11.4	0.1	0	12.7	0.4	0.1	22.8	0.2	0.1	9.6	0.1
28 - 5890 - 171 FAYWOOD AVE	28.8	1	0.3	22.4	0.4	0.1	5.7	0.5	0.2	11.5	1.2	1	12.6	1	0.4	24.5	0.3	0.7	9	0.1
29 - 5891 - 219 FAYWOOD AVE	29.5	0.8	0.1	23.5	0.9	0.5	5.5	0.5	0.4	11.2	0.3	0.8	12.1	0.1	0.2	24.3	0.2	0.2	8.8	0.3
30 - 5892 - 202 ORIENT AVE	29.6	0.1	0	23.6	0.5	0	6	0.3	0.1	11.5	0.2	0	12.4	0.2	0	24.5	0.1	0.1	8.8	0.3
31 - 5893 - ORIENT AVE @ DRUMLIN RD	28.9	0.1	0.3	23.4	0.1	0.4	5.7	0.3	0.3	11.5	0	0.3	12	0.1	0.3	24.3	0.1	0.6	8.3	0.1
32 - 6292 - ORIENT AVE @ SELMA ST	28.9	0	0	23.4	0.1	0	6.1	0.1	0.1	11.5	0	0.3	11.8	0.1	0	24.4	0	0.1	8.3	0
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	28.8	0	0	22.4	0	0	6.5	0	0	11.6	0	0	12.2	0	0	23.3	0	0	8.4	0.1
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	28.8	0	0	22.1	0.1	0	6.6	0	0	11.6	0	0	12.3	0	0	23.1	0	0	8.4	0
35 - 5896 - WALLEY ST @ GLADSTONE ST	28.6	0	0.1	22	0	0.3	6.3	0.1	0.1	11.7	0	0.3	12	0	0.1	23	0	0.1	8.4	0.1
36 - 5881 - BENNINGTON ST @ ANTRIM ST	28.6	0.2	0.1	22.2	0.1	0.1	5.3	0.2	0.2	10.6	0.4	1	17.3	0.4	0.4	22.9	0.5	0.5	9.3	0.2
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	24.2	0	3.6	18.5	0	3.3	3.4	0	4.2	7.7	0	11.9	0	0	1.3	21.8	0	2.3	6.3	0
Maximum	32.7			24.1			7.9			13.6			38.6			27.2			14.3	
Total		15.9	17.6		14.9	14.9		14.8	15.9		16.1	50.1		15.3	13.9		16.4	17.2		17.4

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

	120.0)(B052) [20] {FA18}		10:59 (120.0)(B051) [22] {FA18}			11:24 (120.0)(B054) [20] {FA18}			11:49 (120.0)(B052) [20] {FA18}			12:14 (120.0)(B051) [22] {FA18}			12:39 (120.0)(B054) [20] {FA18}			13:04 (120.0)(B052) [21] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 5740 - MAVERICK STATION	0	16.1	7.9	0	27.5	5.1	0	13.7	8.7	0	18.9	6.2	0	29.5	10.9	0	20.6	8.5	0	22.3
2 - 5742 - MERIDIAN ST @ HAVRE ST	0.7	16.2	2.3	0.5	29.3	1.8	0.3	15.2	2.1	0.8	20.2	1.8	0.3	31	2	0.2	22.4	2.3	0.5	24.1
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	0.7	16.4	1.8	1.4	29.8	1.2	0.5	15.8	2.3	2.1	20.5	1.5	0.8	31.7	2.7	1.8	23.2	1.6	1	24.7
4 - 5867 - BENNINGTON ST @ PORTER ST	1.5	17.6	3.9	1.1	32.5	4	1	18.9	3.7	1	23.2	3.7	0.6	34.8	5.2	1.5	26.9	5.3	1.7	28.3
5 - 5868 - BENNINGTON ST @ MARION ST	0.4	17.5	0.6	0.7	32.4	0.6	0.6	18.9	1.3	0.4	24.1	0.8	0.4	35.2	0.8	0.3	27.4	0.5	0.6	28.1
6 - 5869 - BENNINGTON ST @ BROOKS ST	0.3	17.2	0.6	0.6	32.5	0.5	0.4	19	0.7	0.6	24.1	0.8	0.6	35.4	0.8	0.7	27.5	2	0.7	29.4
7 - 5870 - BENNINGTON ST @ PUTNAM ST	0.6	17	0.3	1.1	31.7	0.2	1.3	17.8	0.4	1.1	23.5	0.7	0.9	35.1	0.2	1.2	26.5	0.8	1	29.2
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	1.1	16.7	0.5	1.2	31	0.3	1	17.1	0.2	1.3	22.3	0.4	1.6	33.9	0.3	2.3	24.5	0.6	1.9	28
9 - 5664 - BENNINGTON ST @ BREMEN ST	0.7	16	0.1	0.7	30.4	0.2	0.6	16.7	0.7	0.7	22.4	0.2	1.4	32.8	0.2	1	23.7	0.5	1.1	27.3
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0.1	15.9	0	0	30.4	0	0.1	16.7	0.1	0.1	22.4	0	0.2	32.5	0	0.2	23.5	0	0.1	27.2
11 - 5666 - WOOD ISLAND STATION BUSWAY	0.6	15.7	0.5	0.5	30.4	0.6	0.3	16.9	1.1	0.4	23	0.8	0.7	32.6	1.5	0.6	24.5	1	0.9	27.4
12 - 5872 - BENNINGTON ST @ SWIFT ST	0.1	15.6	0	0.1	30.3	0	0.1	16.9	0.1	0.2	22.9	0.1	0.2	32.6	0	0.1	24.4	0	0.2	27.1
13 - 5873 - BENNINGTON ST @ HARMONY ST	0.2	15.5	0	0.5	29.8	0	0.5	16.4	0.1	0.8	22.3	0	0.8	31.8	0	0.5	24	0	0.6	26.6
14 - 5874 - BENNINGTON ST @ MOORE ST	0.4	15.2	0	0.6	29.1	0	0.4	16	0.2	0.9	21.6	0.1	0.6	31.3	0.1	0.9	23.2	0	0.5	26.1
15 - 5875 - BENNINGTON ST @ BYRON ST	1.1	14.4	0.1	1.2	28.1	0.1	1.9	14.3	0.3	3.5	18.3	0.5	2	29.7	0.6	2.8	21.1	0.5	2.6	24
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	0.4	14.3	0.2	1.5	26.7	0.4	1.5	13.1	0.4	1	17.8	0.3	1.3	28.7	0.3	2.3	19	0.4	2	22.4
17 - 5878 - BENNINGTON ST @ TRIDENT ST	1.2	13.2	0.3	1.1	25.9	0.2	0.7	12.6	0.1	0.7	17.2	0.1	1	27.8	0.4	1.4	18	0	2	20.5
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	1	13.2	2	1.2	26.6	1	1.5	12.1	1	2	16.2	1.6	2.2	27.2	1.8	2.9	16.9	1.1	2	19.6
20 - 5882 - BOARDMAN ST @ SARATOGA ST	0.1	13.3	0	0.1	26.8	0	0.1	11.6	0.1	0.2	16.2	0	0	27.2	0	0	16.9	0	0.3	19.7
21 - 5883 - BOARDMAN ST @ ASHLEY ST	0	13.3	0	0.1	26.7	0	0.1	11.6	0	0.2	16	0	0.1	27.1	0.1	0.1	16.9	0	0	19.7
22 - 5884 - BOARDMAN ST @ LEYDEN ST	0.2	13.2	0	0.1	26.7	0	0.1	11.5	0.1	0.1	16	0	0.2	26.9	0	0.1	16.9	0.1	0.3	19.6
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	0.4	12.8	0	0.5	26.1	0.1	0.6	11	0.1	0.2	15.8	0	0.2	26.7	0.2	0.5	16.6	0.2	0.6	19.2
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	0	12.9	0	0.2	26	0.2	0	11.2	0.1	0.1	15.8	0	0.1	26.6	0.1	0.1	16.6	0	0.1	19
25 - 5887 - 220 WALDEMAR AVE	0.8	12.7	0.8	1.3	25.5	0.7	0.7	11.3	1.1	1.1	15.8	0.9	1	26.5	1.1	1.1	16.6	1	1	19.1
26 - 5888 - 160 WALDEMAR AVE	0.3	12.8	0.1	0	25.6	0.4	0.1	11.6	0.2	0.3	15.7	0.2	0.2	26.5	0.5	0.3	16.8	0.6	0.8	18.9
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	0.2	12.7	0	0	25.5	0.3	0.2	11.7	0.3	0	15.8	0.1	0.1	26.5	0.1	0.7	16.2	0.1	0.2	18.8
28 - 5890 - 171 FAYWOOD AVE	0.6	12.1	0.5	0.7	25.8	0.5	0.4	10.9	0.8	1.3	14.7	0.7	0.8	27.1	0.8	0.8	16	0.8	1	17.6
29 - 5891 - 219 FAYWOOD AVE	0.1	12.2	0	0.7	25.3	0.3	0.7	10.5	0.5	0.2	15.3	0.1	0.8	26.3	0.5	1	15.5	0.3	0.2	17.7
30 - 5892 - 202 ORIENT AVE	0.1	12.4	0	0	25.3	0.1	0.1	10.6	0.1	0.3	15.2	0.1	0.1	26.3	0	0.3	15.2	0.1	0.2	17.6
31 - 5893 - ORIENT AVE @ DRUMLIN RD	0.3	12.1	0	0.5	24.8	0	0.1	10.4	0.1	0.3	14.9	0.3	0.3	26.3	0.1	0.6	14.7	0.3	0.3	17.6
32 - 6292 - ORIENT AVE @ SELMA ST	0.1	12.1	0	0.1	24.6	0	0	10.4	0	0	14.9	0.3	0.4	26.2	0.1	0.2	14.5	0.1	0	17.6
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	0.1	12.3	0	0	24	0	0	11.3	0	0	15.6	0	0	25.6	0.2	0	14.1	0	0	18.7
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	0	12.3	0.1	0	24.1	0	0	11.3	0	0	15.6	0	0	25.5	0.1	0	14.7	0	0.1	18.6
35 - 5896 - WALLEY ST @ GLADSTONE ST	0	12.3	0	0.3	23.8	0	0.3	11	0	0.4	15.3	0	0.1	25.4	0	0.2	14	0	0.1	18.5
36 - 5881 - BENNINGTON ST @ ANTRIM ST	0.2	13.2	0.4	0.4	26.6	0.2	0.6	11.7	0.3	0.3	16.3	0.2	0.3	27.1	0.7	0.8	16.9	1.1	0.8	20
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	2.6	9.7	0	1.4	22.4	0	2.9	8.3	0	2.6	12.8	0	2.5	23	0	2.9	12.1	0	3.4	15.6
Maximum		17.6			32.5			19			24.1			35.4			27.5			29.4
Total	17.2		23	20.4		19	19.7		27.3	25.2		22.5	22.8		32.4	30.4		29.8	28.8	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

	Trip (RouteVar)(Block) [Observations]																			
	13:29 (120.0)(B051) [23] {FA18}			13:54 (120.0)(B054) [7] {FA18}			**14:05 (120.5)(B001) [13] {SP18}**			14:19 (120.0)(B052) [21] {FA18}			14:44 (120.0)(B051) [22] {FA18}			15:09 (120.0)(B054) [33] {FA18}			15:34 (120.0)(B05 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5740 - MAVERICK STATION	8.5	0.1	30.7	1	1.4	7	.	.	.	10.8	0	29.5	13.4	0	42	14.3	0	17.9	17.6	0
2 - 5742 - MERIDIAN ST @ HAVRE ST	1.7	0.5	31.9	0	0	7.7	.	.	.	2.9	0.7	31.7	3.4	0.5	45	2.5	0.4	20.4	3.1	1.1
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	1.6	2	31.4	0	0	7.7	.	.	.	16.4	3.3	44.8	5.6	1.3	49.3	4.2	2.9	21.6	3.9	3.7
4 - 5867 - BENNINGTON ST @ PORTER ST	4.4	1.4	34.4	0	0	7.7	.	.	.	10.5	1.8	53.4	9.6	2.3	56.6	5.9	1.6	25.9	7.1	1.8
5 - 5868 - BENNINGTON ST @ MARION ST	0.5	0.3	34.6	0	0	7.7	.	.	.	2	0.4	55	1.3	1.2	56.6	1.5	0.7	26.8	1.5	1.2
6 - 5869 - BENNINGTON ST @ BROOKS ST	4.6	0.6	38.6	4	0.1	11.6	10.4	0	10.7	1.5	0.7	55.8	1.6	0.7	57.5	1.4	1.3	26.8	1.4	1.4
7 - 5870 - BENNINGTON ST @ PUTNAM ST	2.7	0.9	40.5	0.6	0	12.1	1.5	0.3	11.8	0.8	0.7	55.9	0.5	1.2	56.9	0.4	1.5	25.7	0.6	1.6
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	0.7	0.9	40.3	0.6	0	12.7	0.7	0.1	12.5	1.1	1.8	55.2	1.8	4.2	54.4	2	2	25.7	1.5	4.3
9 - 5664 - BENNINGTON ST @ BREMEN ST	0.9	0.8	40.3	0.1	0	12.9	0	0.2	12.3	0.6	0.7	55.1	1.7	1.9	54.2	1.1	1.2	25.6	2.8	1.6
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0	0	40.3	0	0	12.9	0	0	12.3	0	0.1	55.1	0	0	54.2	0	0	25.6	0	0.1
11 - 5666 - WOOD ISLAND STATION BUSWAY	1	0.9	40.5	1.6	0.4	14	0.8	0.5	12.6	2.4	0.5	57	3.1	1.3	56	3.6	0.8	28.5	3.9	0.6
12 - 5872 - BENNINGTON ST @ SWIFT ST	0	0.2	40.3	0	0.1	13.9	0	0	12.6	0.1	0.1	56.9	0	0	56	0.2	0.1	28.6	0.1	0.2
13 - 5873 - BENNINGTON ST @ HARMONY ST	0.1	0.5	40	0.1	0	14	0	0.1	12.5	0	0.4	56.6	0.1	0.3	55.8	0.2	0.5	28.2	0.1	0.9
14 - 5874 - BENNINGTON ST @ MOORE ST	0.1	0.7	39.4	0	0.1	13.9	0	0.2	12.4	0.5	1.3	55.8	0.1	1.3	54.6	0.3	2.1	26.4	0.8	1.8
15 - 5875 - BENNINGTON ST @ BYRON ST	0.5	2.3	37.6	0.3	1.3	12.9	0.3	0.8	11.9	1.3	7.1	49.9	1	5.5	50	1.1	6.5	21.1	1.2	7.4
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	0.3	3.3	34.6	0.1	1.4	11.6	0.1	0.7	11.3	0.4	4.8	45.5	0.3	3.2	47.2	0.8	2.5	19.4	0.6	3.4
17 - 5878 - BENNINGTON ST @ TRIDENT ST	0.3	1.4	33.4	0.1	0	11.7	0	0.1	11.2	0.3	3.8	42	0.1	2	45.3	0.4	2.5	17.3	0.4	3.3
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	2.2	2.9	34.3	2.7	1.4	13	5.4	1.2	15.5	5.5	6.1	41.4	3.3	4.4	44.2	4.1	3.8	17.6	4.2	2.8
20 - 5882 - BOARDMAN ST @ SARATOGA ST	0.3	0.2	35.1	0.3	0.1	14	0.5	0.5	15.8	0.4	0.6	41.1	0.4	0.6	44.5	0	0.4	17.5	0.1	0.2
21 - 5883 - BOARDMAN ST @ ASHLEY ST	0	0.3	34.8	0.4	0	14.4	0.2	1.4	14.6	0.1	0.2	41	0.1	0.6	44.1	0.1	0.1	17.5	0	0.3
22 - 5884 - BOARDMAN ST @ LEYDEN ST	0.1	0.3	33	0	0.4	14	0	0.5	14.1	0.1	0.7	40.5	0.2	0.1	44.2	0	0.1	17.5	0.2	0.5
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	0.1	1.9	32.8	0	1.4	12.6	0	1.8	12.3	0.6	1.2	39.9	2.7	0.4	46.5	1.3	0.1	18.7	0.6	0.2
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	0	0.1	32.6	0	0.3	12.3	0.1	1.4	11	0.1	0.7	39.4	0	0.8	45.7	0.1	0.2	18.6	0	0.1
25 - 5887 - 220 WALDEMAR AVE	0.5	1.7	31.5	0.6	0.9	12	0	0.1	10.9	0.8	4.1	36	0.6	1.9	44.4	0.2	2	16.8	1.3	3.7
26 - 5888 - 160 WALDEMAR AVE	0.2	1.1	30.5	0.6	0.4	12.1	0.2	0.4	10.7	0.1	3.6	32.6	0.3	1.4	43.3	0.4	1.3	15.9	0.6	1.2
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	0	0.1	30.5	0	0	12.1	0	0.2	10.5	0	0.7	32	0.2	0.4	43.1	0.2	0.5	15.5	0.4	0.7
28 - 5890 - 171 FAYWOOD AVE	1	2	27.8	0.7	0.5	13.3	0.5	3.8	7.3	2	4.7	29.2	1.4	4.6	39.8	0.4	3.2	13.1	1.7	4.3
29 - 5891 - 219 FAYWOOD AVE	0.8	1.4	27.2	0.5	0.7	13.2	0.5	1.3	6.5	0.5	1	28.7	0.3	2	38.1	0.2	2.2	11.2	0.6	2.3
30 - 5892 - 202 ORIENT AVE	0.1	0.1	27.2	0	0.2	13	0	0.5	6	0.1	0.7	28.1	0	0.7	37.4	0	1.2	10.1	0	0.3
31 - 5893 - ORIENT AVE @ DRUMLIN RD	0.4	0.8	26.8	0.5	0.5	13	0.4	2.3	4.1	0.8	0.7	28.1	1.2	0.3	38.3	0.3	1.1	9.4	0.4	0.4
32 - 6292 - ORIENT AVE @ SELMA ST	0	0.1	26.7	0	0	13	0	0.1	4	0	0.2	28	0.1	0.1	38.2	0.1	0.3	9.3	0.1	0.3
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	0.1	0	28.5	0	0	12	0	0	4	0.1	0.1	28	0	0	38.2	0	0.1	9	0	0.3
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	0	0.4	28.2	0.1	0	10.6	0	0.5	3.5	0	0.3	27.7	0.1	0	38.3	0.2	0.1	9.1	0	0.1
35 - 5896 - WALLEY ST @ GLADSTONE ST	0	0.3	28	0.1	0	10.8	0	0.7	2.8	0	0.4	26.9	0	0.4	37.9	0.1	0.2	8.9	0.2	0.5
36 - 5881 - BENNINGTON ST @ ANTRIM ST	1.3	0.6	35	1.1	0.3	13.9	0.8	0.5	15.8	0.6	0.6	41.3	1	0.4	44.8	1	0.7	17.9	2.1	1.2
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	0	2.8	24	0	2.8	8.3	0	2.7	0.1	0	2.6	24.8	0	5.4	32.9	0	2.8	6.5	0	3.6
Maximum			40.5			14.4			15.8			57			57.5			28.6		
Total	35	33.9		16.1	14.7		22.4	22.9		63.4	57.4		55.5	51.4		48.6	47		59.1	57.4

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

	52) [19]	15:59 (120.0)(B051) [21] {FA18}			16:24 (120.0)(B054) [21] {FA18}			16:49 (120.0)(B052) [20] {FA18}			17:14 (120.0)(B051) [20] {FA18}			17:39 (120.0)(B054) [28] {FA18}			18:04 (120.0)(B052) [22] {FA18}			18:29 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5740 - MAVERICK STATION	52.9	15.9	0	49.9	19.9	0	27	17.2	0	56.1	16.3	0	58.7	15.3	0	28.2	11.9	0	56.6	11.4
2 - 5742 - MERIDIAN ST @ HAVRE ST	54.9	2.5	0.5	51.9	2.3	0.8	28.5	3.5	0.7	58.9	2.1	0.6	60.2	1.5	0.5	29.2	1.6	0.5	57.7	1
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	55.1	2	2.1	51.8	2.5	2.6	28.5	2.9	3.3	58.5	1.6	3	58.8	1.9	2.3	28.8	1.9	2.5	57.1	1.1
4 - 5867 - BENNINGTON ST @ PORTER ST	60.4	6.5	2.8	55.5	8.3	3.5	33.2	7.6	2.3	63.8	6.6	2	63.4	5.9	3	31.7	4.6	1.6	60	5
5 - 5868 - BENNINGTON ST @ MARION ST	60.7	1.7	1	56.2	1.3	1.7	32.8	1.4	1.2	64	0.9	1.4	62.9	0.9	0.9	31.7	0.7	1.4	59.4	0.6
6 - 5869 - BENNINGTON ST @ BROOKS ST	60.6	1.5	2	55.8	0.7	1.6	31.9	1.6	2	63.6	0.9	1.9	61.9	0.6	2.2	30.2	0.8	1.5	58.7	0.5
7 - 5870 - BENNINGTON ST @ PUTNAM ST	59.6	0.5	1.2	55	0.4	2.5	29.8	0.7	1.9	62.5	0.8	1.8	60.8	0.2	2	28.4	0.5	1	58.2	0.2
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	56.8	1.6	2.4	54.2	1	3.4	27.3	1.7	3.7	60.5	1.2	2.1	59.9	0.4	2.1	26.8	0.5	1.6	57.2	0.3
9 - 5664 - BENNINGTON ST @ BREMEN ST	57.9	0.9	2.1	53	0.7	1.2	26.8	0.2	1.6	59.1	0.5	1.1	59.4	0.5	1.3	25.9	0.3	1	56.5	0.1
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	57.9	0	0	53	0	0	26.8	0	0.2	58.9	0	0	59.4	0	0	25.9	0.1	0.1	56.5	0
11 - 5666 - WOOD ISLAND STATION BUSWAY	61.2	5.7	0.9	57.8	4.5	1.2	30.1	5.4	1	63.3	4.1	1	62.5	3.8	0.5	29.1	2.6	0.3	58.8	2.2
12 - 5872 - BENNINGTON ST @ SWIFT ST	61.1	0.1	0.1	57.8	0.2	0.2	30.1	0.1	0.1	63.3	0.1	0.2	62.4	0.1	0	29.2	0.1	0	58.9	0
13 - 5873 - BENNINGTON ST @ HARMONY ST	60.3	0.2	1	57	0.4	1.3	29.2	0.1	1.1	62.3	0.3	1.3	61.4	0.1	0.8	28.6	0	0.3	58.6	0.1
14 - 5874 - BENNINGTON ST @ MOORE ST	59.3	0.6	0.6	56.9	0.2	1	28.4	0.1	0.6	61.9	0.2	1.7	59.9	0.1	1.4	27.3	0.2	0.4	58.4	0
15 - 5875 - BENNINGTON ST @ BYRON ST	53.1	1.9	4.7	54.1	1.1	6.5	23	1.8	7.9	55.8	1.4	6.5	54.9	1.8	4.8	24.3	1	3.5	55.9	0.5
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	50.3	0.9	3.2	51.9	0.5	2.4	21.2	0.4	2.5	53.7	0.2	3.1	52.1	0.3	2.5	22	0.4	1.8	54.5	0.3
17 - 5878 - BENNINGTON ST @ TRIDENT ST	47.3	0.1	2.5	49.5	0	2.4	18.9	0.1	1.9	52	0.3	0.8	51.6	0.1	0.6	21.6	0	1	53.5	0.1
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	48.7	3.5	3.6	49.3	3.9	3.7	19	4.7	4.4	52.2	3.7	3.2	52.3	3	2.7	21.9	1.8	2.9	52.4	2.1
20 - 5882 - BOARDMAN ST @ SARATOGA ST	49.4	0.4	0.3	49.4	0.1	0.1	19.1	0.1	0.4	51.6	0.2	0.9	51.6	0	0.4	21.3	0	0.4	51.7	0.1
21 - 5883 - BOARDMAN ST @ ASHLEY ST	49.1	0.1	0.2	49.3	0	0.3	18.9	0	0.5	51.2	0	0.1	51.5	0	0.1	21.1	0.1	0.4	51.5	0
22 - 5884 - BOARDMAN ST @ LEYDEN ST	48.8	0.1	0.1	49.3	0	0.1	18.8	0.1	0.4	50.9	0	0.5	51	0	0.4	20.8	0	0.2	51.3	0
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	49.3	0.1	0.1	49.3	0.3	0	19	0.3	0.2	51	0.1	0	51	0.1	0.1	20.8	0.2	0	51.5	0.2
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	49.2	0	0.3	49	0	0.3	18.8	0.1	0.1	51	0	0.1	51	0	0.5	20.3	0	0	51.5	0
25 - 5887 - 220 WALDEMAR AVE	46.7	1.3	1.5	48.9	1.2	2.5	17.5	0.6	2.5	49.2	0.4	2	49.4	0.4	1.5	19.2	0.2	0.7	50.9	0.7
26 - 5888 - 160 WALDEMAR AVE	46.2	0.9	0.9	48.9	0.2	0.3	17.4	0.4	0.4	49.3	0.6	1.1	49	0.5	0.6	19.1	0.4	0.4	50.9	0.1
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	46.2	0.1	0	49	0	0.3	17.1	0.2	0.5	49	0	0.6	48.4	0.1	1.2	18.1	0	0.3	50.8	0
28 - 5890 - 171 FAYWOOD AVE	43.8	0.9	3.5	45.8	2.1	2	17.3	1.2	2.6	47.6	0.6	2.3	47.1	0.5	1.6	17.1	0.6	2.1	47.3	0.2
29 - 5891 - 219 FAYWOOD AVE	42	0.6	1.9	44.5	0.7	1.1	16.9	0.4	3.2	45	0.4	1.5	45.9	0.6	1.1	16.6	0.6	0.6	47.3	1.1
30 - 5892 - 202 ORIENT AVE	41.7	0.2	0.3	44.3	0	0.6	16.3	0.3	0.7	44.7	0	0.3	45.6	0.1	0.2	16.5	0.3	0.2	47.4	0
31 - 5893 - ORIENT AVE @ DRUMLIN RD	41.7	0.1	1	43.4	0.2	0.4	16.1	0	0.2	44.5	0.1	0.2	45.6	0.4	0.4	16.5	0.5	0.6	47.2	0
32 - 6292 - ORIENT AVE @ SELMA ST	41.4	0.1	0.4	43.1	0	0.3	15.9	0	0.2	44.3	0	0.2	45.4	0	0.1	16.4	0	1	46.3	0
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	41.2	0	0.6	43	0	0	15.8	0	0.1	44.3	0	0.1	45.3	0	0	16.2	0	0	48.4	0
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	41.2	0.1	0.1	43	0	0.1	15.7	0	0.4	43.9	0.1	0.1	45.3	0	0	16.2	0	0.1	48.4	0
35 - 5896 - WALLEY ST @ GLADSTONE ST	40.8	0	0.2	42.8	0	0.2	15.5	0	0.2	43.7	0.1	0.3	45.1	0	0	16.1	0	0	48.3	0
36 - 5881 - BENNINGTON ST @ ANTRIM ST	49.6	1	1	49.3	0.7	0.5	19.1	1.1	1.4	51.9	0.9	1	52.3	0.4	0.6	21.7	0.6	0.9	52.1	0.2
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	37.2	0	2.6	40.4	0	5	10.7	0	2.3	41.5	0	1.4	43.7	0	2.5	13.8	0	3	45.3	0
Maximum	61.2			57.8			33.2			64			63.4			31.7			60	
Total		52.1	45.7		53.4	50.1		54.3	52.7		44.7	44.4		39.6	38.9		32.5	32.3		28.1

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

Seq - StopID - Stop Name	120.0)(B051) [19] {FA18}		18:54 (120.0)(B054) [28] {FA18}			19:27 (120.0)(B052) [22] {FA18}			20:00 (120.0)(B054) [28] {FA18}			20:56 (120.0)(B054) [2] {FA18}			21:56 (120.0)(B054) [16] {FA18}			22:56 (120.0)(B054) [16] {FA18}		
	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 5740 - MAVERICK STATION	0	57.8	11.4	0	26.4	10.5	0	59.1	12	0	27.8	2.5	0	18.5	8.3	0	10.6	7.9	0	11.5
2 - 5742 - MERIDIAN ST @ HAVRE ST	1.1	57.7	1.6	0.5	27.4	1.2	1.1	59.2	0.7	0.4	28.1	1	0	19	1.1	0.3	11.4	0.7	0.3	11.9
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	3.4	55.4	1.2	1.2	27.4	0.6	2.5	57.3	1.9	1.4	28.5	0	0	19	0.5	0.7	11.3	0.1	0.8	11.3
4 - 5867 - BENNINGTON ST @ PORTER ST	5.6	54.8	4.9	2.8	29.6	5.6	6	56.9	3.8	2	30.4	6	1	24	1.4	0.6	12.1	0.7	1	10.9
5 - 5868 - BENNINGTON ST @ MARION ST	2.6	52.8	0.3	1.3	28.6	0.5	1.9	55.6	0.8	0.9	30.3	0	0	21.5	0.3	2	10.4	0.1	0.5	10.5
6 - 5869 - BENNINGTON ST @ BROOKS ST	2.1	51.2	1	1.3	28.3	0.9	1.2	55.3	0.3	1.1	29.4	1	0.5	22	0.3	0.6	10.1	0.6	0.3	10.8
7 - 5870 - BENNINGTON ST @ PUTNAM ST	3.2	48.2	0.4	1.5	27.1	0.6	5.9	50	0.3	1.7	28	0	0.5	21.5	0	0.7	9.4	0	0.3	10.6
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	4.9	43.5	0.4	1.6	26	0.6	4.6	46	0.9	1.9	27.1	0	2	19.5	0.4	0.5	9.3	0.3	1.8	9.1
9 - 5664 - BENNINGTON ST @ BREMEN ST	2.6	41.1	0.4	0.9	25.4	0.2	1.4	44.9	0.5	1	26.6	1.5	0	21	0.7	0.4	9.6	0.2	0.5	8.8
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0.1	40.9	0	0	25.4	0	0	44.9	0	0	26.6	0	0	21	0	0.1	9.5	0	0	8.8
11 - 5666 - WOOD ISLAND STATION BUSWAY	1.6	41.5	2	1.1	26.3	1.5	2.4	44	1.3	0.4	27.5	2	0	23	2.5	0.3	11.8	3.9	0	12.8
12 - 5872 - BENNINGTON ST @ SWIFT ST	0.6	40.9	0	0	26.3	0	0.2	43.8	0	0	27.4	0	0.5	22.5	0	0.3	11.5	0.1	0.1	12.7
13 - 5873 - BENNINGTON ST @ HARMONY ST	1.5	39.5	0.1	0.8	25.6	0.1	3.3	40.6	0.1	1	26.6	0	0.5	22	0.1	0.3	11.3	0.1	0.6	12.3
14 - 5874 - BENNINGTON ST @ MOORE ST	0.7	38.8	0.1	0.7	25	0.2	1.1	39.6	0.1	0.7	26	0	1	21	0.1	0.8	10.6	0.1	0.1	12.2
15 - 5875 - BENNINGTON ST @ BYRON ST	6.1	33.2	0.1	2.9	22.2	0.3	8.5	31.5	0.2	2.3	23.9	0.5	1.5	20	0.1	2.6	8.1	0.1	4.8	7.4
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	4.7	28.7	0.1	1.3	21	0	2.8	28.7	0.1	1.3	22.7	0	4	16	0.1	2.1	6.1	0	1.8	5.7
17 - 5878 - BENNINGTON ST @ TRIDENT ST	1.4	27.5	0.1	0.6	20.5	0	1.7	27	0.1	0.8	22	0	0.5	15.5	0.2	0.2	6.2	0.4	0.1	6.1
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	4.9	24.6	2.1	1.6	21	1.9	3.6	25.3	1.8	1.7	22.1	1	3.5	13	2.1	0.7	7.6	0.9	0.6	6.4
20 - 5882 - BOARDMAN ST @ SARATOGA ST	0.6	23.4	0	0.1	21.1	0	0.8	23.2	0	0	21.6	1	0.5	13.5	0	0	7.8	0.1	0	6.4
21 - 5883 - BOARDMAN ST @ ASHLEY ST	0.7	22.6	0	0.4	20.6	0	0.8	22.4	0	0.1	21.5	0	0	13.5	0.1	0.3	7.6	0	0.1	6.3
22 - 5884 - BOARDMAN ST @ LEYDEN ST	0.2	22.5	0	0.1	20.5	0	0	22.4	0	0.1	21.4	0	0	13.5	0.1	0.1	7.6	0	0.1	6.2
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	0.1	22.5	0.1	0	20.6	0	0	22.4	0.1	0	21.4	0.5	1	13	0	0.6	7	0.4	0.9	5.7
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	0	22.5	0	0.1	20.5	0	0.2	22.2	0	0.1	21.3	0	0.5	12.5	0.1	0.1	6.9	0	0.7	5
25 - 5887 - 220 WALDEMAR AVE	3.7	19.5	0.2	1.9	18.9	0.2	2.4	20	1.1	1.3	21.1	0	0.5	12	0.1	0.5	6.6	0.1	0.4	4.8
26 - 5888 - 160 WALDEMAR AVE	2.1	17.5	0.3	0.4	18.7	0	2	18	0.2	0.4	20.9	0	0.5	11.5	0	0.4	6.1	0	0.4	4.4
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	0.1	17.4	0.3	0.2	18.8	0	2.7	15.4	0	0	20.9	0	0	11.5	0	0	6.1	0.1	0	4.5
28 - 5890 - 171 FAYWOOD AVE	5.4	12.3	0.5	2.2	16.7	0.9	8.3	8.4	0.5	1.3	21.1	1	1.5	11	0.1	0.9	5.3	0.3	0.4	4.2
29 - 5891 - 219 FAYWOOD AVE	2.2	11.2	1	0.7	16.9	0.3	2.2	6.4	0	0.9	20.2	1	1	11	0	0.5	4.8	0	0.2	4
30 - 5892 - 202 ORIENT AVE	1.2	10.1	0.1	0.1	16.9	0	0.3	6.2	0	0	20.2	0	0	11	0	0.5	4.4	0	0.1	3.9
31 - 5893 - ORIENT AVE @ DRUMLIN RD	1.1	8.9	0.5	0.3	17.2	0	0	6.2	0.1	0.3	20	0	0.5	10.5	0	1.3	3.2	0.4	0	4.3
32 - 6292 - ORIENT AVE @ SELMA ST	0.1	8.8	0	0.1	17.1	0	0.2	6.1	0	0.1	19.9	0	0	10.5	0	0	3.2	0	0.1	4.2
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	0	9.7	0	0	17.6	0	0	6.2	0	0	19.1	0	0	10.5	0	0	3.2	0	0	4.4
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	0	9.7	0	0.2	17.4	0	0.1	6.1	0.1	0.1	19.1	0	0	10.5	0	0.1	3.1	0	0	4.4
35 - 5896 - WALLEY ST @ GLADSTONE ST	0.9	8.8	0	0.1	17.3	0	0	6.1	0	0.1	19	0	0	10.5	0	0	3.1	0	0.1	4.3
36 - 5881 - BENNINGTON ST @ ANTRIM ST	0.8	23.9	0.6	0.4	21.2	0.3	1.6	24	0.5	0.9	21.7	0.5	0.5	13	0.3	0	7.8	0.1	0.2	6.3
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	8.8	0	0	2.5	14.8	0	6	0.1	0	1.8	17.3	0	1	9.5	0	0.5	2.9	0	1.3	3.2
Maximum		57.8			29.6			59.2			30.4			24			12.1			12.8
Total	75.1		29.8	29.9		26.4	75.8		27.5	26.1		19.5	23		19	19		17.7	18.6	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Outbound

	23:56 (120.0)(B054) [15] {FA18}			24:56 (120.0)(B054) [2] {FA18}			Total		
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load
1 - 5740 - MAVERICK STATION	5.5	0	9.5	6	0	9.5	352.3	1.5	1065.8
2 - 5742 - MERIDIAN ST @ HAVRE ST	0.1	0.6	9.1	0	0	9.5	53.5	18.8	1101.5
3 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	0.1	0.7	8.4	0	0	9.5	68.9	63.3	1107.8
4 - 5867 - BENNINGTON ST @ PORTER ST	0.5	0.3	8.5	0	0	9.5	156.5	64.2	1199.7
5 - 5868 - BENNINGTON ST @ MARION ST	0	0.7	7.9	0	0	9.5	33.3	29.3	1201.6
6 - 5869 - BENNINGTON ST @ BROOKS ST	0.1	0.7	7.3	0	2.5	7	53	36.7	1217.3
7 - 5870 - BENNINGTON ST @ PUTNAM ST	0	0.1	7.2	0	2	5	23.9	44.6	1196.5
8 - 5871 - BENNINGTON ST @ PRESCOTT ST	0	0.6	6.6	0	1	4	27.8	70.9	1153.8
9 - 5664 - BENNINGTON ST @ BREMEN ST	0	0.1	6.5	0	0	4	20.7	36.4	1138.1
10 - 5665 - BENNINGTON ST @ NEPTUNE RD	0	0	6.5	0	0	4	0.2	1.6	1136.7
11 - 5666 - WOOD ISLAND STATION BUSWAY	1.1	0.3	7.3	0	1	3	72.4	33.6	1175.7
12 - 5872 - BENNINGTON ST @ SWIFT ST	0	0	7.3	0	0	3	2	5.3	1172.3
13 - 5873 - BENNINGTON ST @ HARMONY ST	0	0.1	7.1	0	0	3	2.9	23.8	1152.2
14 - 5874 - BENNINGTON ST @ MOORE ST	0	0.2	6.9	0	0	3	6.6	37.9	1120.4
15 - 5875 - BENNINGTON ST @ BYRON ST	0	1.7	5.2	0	0	3	27.3	138.7	1009.5
16 - 5877 - BENNINGTON ST @ WESTBROOK ST	0.3	0.5	4.9	0	0	3	19	68.7	959.7
17 - 5878 - BENNINGTON ST @ TRIDENT ST	0	0	4.9	0	0	3	6.3	41.6	925.4
18 - 5879 - ORIENT HEIGHTS NORTH BUSWAY	0.8	0.4	5.3	0	0	3	87.2	103.6	917.2
20 - 5882 - BOARDMAN ST @ SARATOGA ST	0	0.1	5.3	0	0	3	5.2	9.6	912.7
21 - 5883 - BOARDMAN ST @ ASHLEY ST	0	0	5.3	0	0	3	1.6	8	902.5
22 - 5884 - BOARDMAN ST @ LEYDEN ST	0	0	5.3	0	0	3	5.8	11.1	896.2
23 - 4728 - MCCLELLAN HIGHWAY @ BOARDMAN	0	0	5.3	0	0	3	10.8	31.6	878
24 - 5886 - WALDEMAR AVE @ MCCLELLAN HWY	0	0	5.3	0	0	3	4.8	9.7	873.3
25 - 5887 - 220 WALDEMAR AVE	0	0.9	4.4	0	3	0	40.6	51.7	862.8
26 - 5888 - 160 WALDEMAR AVE	0	0.1	4.3	0	0	0	27.6	22.6	867.6
27 - 5889 - CRESTWAY RD @ FAYWOOD AVE	0	0	4.3	0	0	0	6	13.1	861.5
28 - 5890 - 171 FAYWOOD AVE	0	0.2	3.9	0	0	0	62.6	67.6	853.4
29 - 5891 - 219 FAYWOOD AVE	0	0.3	3.6	0	0	0	27.4	35	845.2
30 - 5892 - 202 ORIENT AVE	0	0	3.6	0	0	0	6.5	9.5	843
31 - 5893 - ORIENT AVE @ DRUMLIN RD	0.1	0	3.7	0	0	0	8.8	21.4	829.3
32 - 6292 - ORIENT AVE @ SELMA ST	0	0.2	3.6	0	0	0	2.2	6.2	825.8
33 - 5894 - ORIENT AVE OPP BEACHVIEW RD	0	0	3.9	0	0	0	0.5	1.6	828
34 - 5895 - ORIENT AVE @ FAYWOOD AVE	0	0	3.9	0	0	0	1.4	2.9	825.1
35 - 5896 - WALLEY ST @ GLADSTONE ST	0	0	3.9	0	0	0	2.3	10.4	814.4
36 - 5881 - BENNINGTON ST @ ANTRIM ST	0	0	5.3	0	0	3	22.1	20.5	910.7
37 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	0	0.3	3.6	0	0	0	0	181.1	639.9
Maximum			9.5			9.5			1217.3
Total	8.6	9.1		6	9.5		1250	1334.1	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

Seq - StopID - Stop Name	05:25 (120.0)(B050) [25] {FA18}			06:00 (120.0)(B053) [20] {FA18}			06:35 (120.0)(B050) [25] {FA18}			06:47 (120.1)(B051) [22] {FA18}			07:00 (120.0)(B052) [18] {FA18}			07:25 (120.0)(B053) [19] {FA18}			07:45 (120.0)(B05 {FA18}	
	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	2.2	0	3.6	1.1	0	2.1	8.2	0	14.8	6.9	0	22.5	8.8	0	8.8	9.7	0	34.3	2	0
3 - 5839 - BENNINGTON ST @ TRIDENT ST	0.1	0	3.7	0.4	0	2.5	2.1	0	16.8	1.6	0.1	24	2.9	0	11.7	3.3	0.1	37.5	2.7	0
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	8.5	0	12.2	4.3	0	6.8	5.9	1.1	21.6	8.9	2.4	30.5	6.4	1.9	16.2	3.6	0.1	41.1	3.3	0
5 - 5842 - BENNINGTON ST @ BYRON ST	7.4	0.1	19.6	9.4	0	16.2	7.3	0.2	28.8	8.9	0.5	39	5.3	1.7	19.8	12.5	3.3	50.3	9.1	0.4
6 - 5843 - BENNINGTON ST @ MOORE ST	1.1	0	20.6	0.3	0	16.4	1.8	0	30.6	2.3	0.2	41	2.1	1.1	20.8	0.9	1.4	49.8	2.4	0.3
7 - 5844 - BENNINGTON ST @ CURTIS ST	0.2	0	20.8	0.1	0	16.5	0.1	0	30.7	0	0	41	0.4	0	21.2	0.4	0	50.2	0.6	0
8 - 5666 - WOOD ISLAND STATION BUSWAY	0	12.2	8.7	0.2	11.6	5.2	0.4	6	25.1	0.3	5.9	35.5	0.4	7.6	14.3	0.8	10.6	40.4	2.4	6.3
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	0	0	8.7	0	0.1	5.1	0	0	25.1	0	0	35.5	0.1	0.1	14.3	0	0.1	40.3	0	0
10 - 5849 - BENNINGTON ST @ CHELSEA ST	0.3	0	9	0.1	0.1	5.2	1	0.2	25.8	1.5	0.5	36.5	0.8	0.2	14.8	0.2	4.9	35.6	1.6	2
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	1.6	0.1	10.4	1.5	0.1	6.6	2.2	0.4	27.7	2	0.4	38	1.2	0.1	15.9	1.8	0.3	37.2	4.8	1.1
12 - 5851 - BENNINGTON ST @ PUTNAM ST	2	0.4	12	0.9	0.1	7.4	3.2	0.6	30.4	4.5	4.1	38.4	1.9	4.6	13.2	1	1.1	37.1	3.9	1.8
13 - 5852 - BENNINGTON ST @ BROOKS ST	1.6	0	13.6	2.5	0.1	9.9	2.7	0.8	32.3	2.2	0.8	39.8	2.9	1.1	15.1	4.2	1.3	39.9	4.8	1.4
14 - 5853 - BENNINGTON ST @ MARION ST	2	1	14.6	8.9	0.3	18.5	3.8	1.1	35	1.1	0.2	40.7	1.2	0.3	15.9	0.7	0.8	39.8	2.6	1.2
15 - 5854 - BENNINGTON ST @ PORTER ST	2.5	0.2	16.9	0.9	1.1	18.2	0.9	1.1	34.8	0.2	1.2	39.7	0.7	0.9	15.7	1.5	0.8	40.5	1.5	1
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	0.1	0.1	16.9	0.1	0.7	17.6	0.8	11.4	24.2	0.8	18.8	21.6	2.1	3.6	14.1	1.7	1.5	40.7	2	1.3
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	1.2	0	18.1	2	0.2	19.4	1.5	0.3	25.4	1.6	1.4	21.8	2.8	0.2	16.7	2	0.2	42.6	2.3	0
18 - 5737 - MERIDIAN ST @ HAVRE ST	0.2	1.1	17.2	0	0.2	19.2	0.1	0.7	24.8	0.1	0.8	21.1	0.4	1.3	15.8	0.3	3	39.8	1.1	1.8
19 - 57400 - MAVERICK STATION	1.2	11.8	6.6	0.7	15	5	2.2	8.3	18.6	.	.	.	2.1	6.8	11.2	4.4	9.9	34.4	1.2	7.2
20 - 15857 - SUMNER ST @ ORLEANS ST	0	0	6.6	0	0	5	0	0	18.6	.	.	.	0	0	11.2	0	0	34.4	0	0.2
21 - 5857 - SUMNER ST @ COTTAGE ST	0	0	6.6	0.2	0.3	4.9	5.2	0.9	22.9	.	.	.	1.3	0.8	11.7	0.5	4.8	30	0.3	8.8
22 - 5858 - SUMNER ST @ LAMSON ST	0.2	1.8	5.2	0.8	0.1	5.6	0.6	3.4	20.2	.	.	.	1.9	3	10.8	1.3	3.4	27.9	1.1	0.9
23 - 5859 - SUMNER ST @ WEBSTER ST	1.1	0	6.2	0.9	0.5	6	2.8	0.1	22.8	.	.	.	1.2	0.1	11.9	3	0	30.9	4.6	0.2
24 - 5860 - JEFFRIES ST @ WEBSTER ST	1.5	0	7.8	2.9	0.1	8.9	0.6	0.4	23.1	.	.	.	1.6	0.3	13.2	2.1	1.4	31.6	3.4	0.1
25 - 5861 - JEFFRIES ST @ MAVERICK ST	0.6	0	8.4	1.8	0	10.7	1.4	0.2	24.3	.	.	.	0.2	0.1	13.3	1.8	0.1	33.3	1	0
26 - 5862 - OPP 345 MAVERICK ST	1.1	0	9.5	1.6	0	12.2	1.3	0	25.6	.	.	.	0.6	0	13.9	1.9	0	35.2	1.7	0.1
27 - 5863 - MAVERICK ST @ LAWSON ST	1.2	0	10.6	2.3	0	14.5	2	0.2	27.4	.	.	.	0.4	0.2	14.1	1.1	0.8	35.5	1.5	0.5
28 - 5864 - MAVERICK ST @ COTTAGE ST	2.5	0.5	12.6	2.8	0	17.3	4.5	1.1	30.8	.	.	.	0.7	2.1	12.7	1.6	9.9	27.3	2.6	8.6
29 - 5865 - MAVERICK ST @ FRANKFORT ST	0.1	0.1	12.6	0.9	0.4	17.8	1.2	0.1	31.9	.	.	.	0.2	0.1	12.8	0.3	0.6	26.9	0.8	0.1
30 - 5740 - MAVERICK STATION	0	7.1	5.5	0	10.9	7	0	8.7	23.2	0	8.9	13.1	0	9	4.8	0	26.9	0	0	13.5
Maximum			20.8			19.4			35			41			21.2			50.3		
Total	40.5	36.5		47.6	41.9		63.8	47.3		42.9	46.2		50.6	47.2		62.6	87.3		65.3	58.8

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	50) [21]	08:05 (120.0)(B051) [22] {FA18}			08:25 (120.0)(B054) [19] {FA18}			08:45 (120.0)(B052) [19] {FA18}			09:05 (120.0)(B050) [21] {FA18}			09:25 (120.0)(B051) [21] {FA18}			09:45 (120.0)(B054) [21] {FA18}			10:05 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	21.5	1.3	0	20.1	4.4	0	4.5	7.5	0	13.2	4	0.4	29.2	3.1	0	21.8	5.4	0.2	8.6	4.9
3 - 5839 - BENNINGTON ST @ TRIDENT ST	24.2	2.1	0	22.2	1.6	0.1	5.8	1.4	0.3	14.3	2	0	30.9	1.5	0.1	23.2	1.5	0.1	10	1.5
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	27.5	3	0	25.1	2.8	0.4	8.5	3	0.4	16.9	2.7	0	34.2	3.7	0.1	26.8	3.4	0.4	13	2.1
5 - 5842 - BENNINGTON ST @ BYRON ST	36.2	5.1	0.2	30	2.2	0.7	9.9	1.3	0.2	18	2.9	0	37.1	2.6	0.1	29.3	2	0	15	1.5
6 - 5843 - BENNINGTON ST @ MOORE ST	38.3	1	0.1	31	0.7	0	10.7	1.2	0.2	19	1	0	38	0.6	0.1	29.8	0.6	0	15.6	0.4
7 - 5844 - BENNINGTON ST @ CURTIS ST	38.9	0.2	0	31.2	0.6	0.1	11.2	0.6	0	19.6	0.4	0	38.4	0.1	0	29.9	0.3	0	15.8	0.3
8 - 5666 - WOOD ISLAND STATION BUSWAY	35	0.4	6	25.6	0.6	3.4	8.4	0.9	3.6	16.9	0.5	3.7	35.2	0.2	3.2	26.9	0.6	2.1	14.3	0.8
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	35	0	0	25.6	0	0.1	8.3	0	0	16.9	0	0	35.3	0.2	0	27.1	0	0	14.3	0
10 - 5849 - BENNINGTON ST @ CHELSEA ST	34.7	0.4	0.5	25.5	0.6	0.2	8.7	0.8	0.6	17.5	0.6	0	35.9	0.4	0.2	27.4	0.5	0.4	14.4	0.4
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	38.3	2	0.6	26.9	1.5	0	10.2	0.8	0.1	18.2	1	0.4	36.5	1.6	0.2	28.8	1	0.8	14.7	0.9
12 - 5851 - BENNINGTON ST @ PUTNAM ST	40.4	1	0.8	27.1	1.6	0.2	11.6	0.8	0.3	18.7	1.2	0.4	37.3	1.4	0.3	29.8	1.6	0.2	16.1	1
13 - 5852 - BENNINGTON ST @ BROOKS ST	43.7	1.4	2.2	26.4	0.9	0.5	12.1	0.5	0.4	18.8	0.9	0.3	37.8	0.5	0.4	29.9	1	0.5	16.3	0.7
14 - 5853 - BENNINGTON ST @ MARION ST	45.1	1.2	0.8	26.7	0.9	1.7	11.3	1.4	3.7	16.5	1.6	1.7	37.8	1	0.6	30.3	0.7	0.4	16.8	0.5
15 - 5854 - BENNINGTON ST @ PORTER ST	45.6	0.6	1	26.3	0.4	2.3	9.4	0.3	2.1	14.6	0.9	2.8	35.9	0.7	2.6	28.4	0.4	2.5	14.7	0.9
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	46.2	0.6	0.9	26	0.4	0.7	9.1	0.5	1.6	13.4	0.8	1.2	35.4	0.9	1.3	28	0.6	2	13.2	0.7
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	48.5	3.2	0.3	29	2.3	0.7	10.7	2.5	0.3	15.7	2.4	0.3	37.6	2	0.4	29.6	1.3	0.6	14	2
18 - 5737 - MERIDIAN ST @ HAVRE ST	47.9	0.4	1.5	27.9	0.3	1.9	9.1	0.4	1.4	14.7	0.2	2.5	35.3	0.2	2.7	27.1	0	3	11	0.1
19 - 57400 - MAVERICK STATION	41.9	1.9	7.4	22.5	1.2	5.4	5	1	6.2	9.5	0.8	7.1	29	1.2	6.9	21.5	1.7	5.2	7.5	0.9
20 - 15857 - SUMNER ST @ ORLEANS ST	41.7	0	0.4	22.1	0	0.2	4.8	0.1	0.1	9.5	0	0.1	28.9	0	0.3	21.2	0	0.1	7.4	0
21 - 5857 - SUMNER ST @ COTTAGE ST	33.2	0.1	1.8	20.4	0.3	0.3	4.7	0.5	0.7	9.3	0	0.5	28.4	0.4	0.7	21	0	0.5	7	0.1
22 - 5858 - SUMNER ST @ LAMSON ST	33.4	0.8	1.2	20	0.9	1.6	4	0.5	0.8	9.1	0.3	0.3	28.4	0.9	0.4	21.4	0.3	0.6	6.8	0.2
23 - 5859 - SUMNER ST @ WEBSTER ST	37.8	2	0.3	21.7	0.8	0.1	4.8	0.6	0	9.7	1.2	0	29.6	0.7	0.2	21.9	0.8	0.2	7.3	0.4
24 - 5860 - JEFFRIES ST @ WEBSTER ST	41	2.2	0.2	23.7	2.1	0.3	6.3	0.6	0.4	9.9	0.7	0	30.2	0.8	0.2	22.4	0.6	0.1	7.8	0.4
25 - 5861 - JEFFRIES ST @ MAVERICK ST	42	0.9	0.2	24.5	0.8	0.2	6.9	0.3	0.2	10	0.2	0.2	30.2	0.2	0.1	22.5	0.6	0.5	7.9	0.8
26 - 5862 - OPP 345 MAVERICK ST	43.1	1.7	0.5	25.6	0.7	0.2	7.5	1.1	0.1	11.1	0.5	0	30.8	0.2	0.1	22.6	0.5	0.2	8.2	0.8
27 - 5863 - MAVERICK ST @ LAWSON ST	44.5	2.2	0	27.9	2.1	0.1	9.4	1.3	0	12.3	1	0.1	31.7	1	0	23.6	0.3	0.1	8.4	0.6
28 - 5864 - MAVERICK ST @ COTTAGE ST	38.5	2.8	1.4	29.3	1.6	0.2	10.9	0.7	0.1	12.8	0.9	0.2	32.4	0.7	0.1	24.2	0.6	0.1	8.9	0.5
29 - 5865 - MAVERICK ST @ FRANKFORT ST	39.1	0.9	0.2	30	0.7	0.1	11.9	0	0	12.8	0.1	0	32.5	0.1	0	24.3	0.3	0	9.1	0.1
30 - 5740 - MAVERICK STATION	25.7	0	10.5	19.7	0	8.5	3.3	0	4.5	8.4	0	4.6	28	0	3.4	20.9	0	2.9	6.2	0
Maximum	48.5			31.2			12.1			19.6			38.4			30.3			16.8	
Total		39.4	39		33	30.2		30.6	28.3		28.8	26.8		26.9	24.7		26.6	23.7		23.5

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	120.0)(B052) [20] {FA18}		10:30 (120.0)(B051) [21] {FA18}			10:55 (120.0)(B054) [20] {FA18}			11:20 (120.0)(B052) [20] {FA18}			11:45 (120.0)(B051) [22] {FA18}			12:10 (120.0)(B054) [20] {FA18}			12:35 (120.0)(B052) [22] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	0	12.2	2.6	0	23.8	4	0	10.1	5	0	14.7	3.2	0	25.6	4.4	0	12.7	3.5	0	15.1
3 - 5839 - BENNINGTON ST @ TRIDENT ST	0.3	13.4	1.1	0	24.9	2.4	1	11.4	0.9	0.2	15.4	1.5	0.1	27	1.3	0.1	13.9	1.3	0.3	16.1
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	0.3	15.2	1	0	25.9	1.8	0.2	13.5	2.4	0.2	17.7	1.3	0.1	28.2	1.3	0.5	14.8	2.5	0.6	18
5 - 5842 - BENNINGTON ST @ BYRON ST	0.1	16.5	0.7	0.1	26.4	1.4	0.1	14.8	1.9	0	19.6	1.3	0	29.5	1.9	0.1	16.6	2.3	0	20.2
6 - 5843 - BENNINGTON ST @ MOORE ST	0.1	16.8	1.2	0.1	27.5	1.1	0.1	15.8	0.7	0.1	20.1	0.8	0	30.3	1.2	0.1	17.6	0.3	0.2	20.3
7 - 5844 - BENNINGTON ST @ CURTIS ST	0.2	16.9	0.1	0	27.7	0.4	0.1	16.1	0.2	0.1	20.2	0.4	0	30.7	0.8	0	18.4	1.1	0	21.4
8 - 5666 - WOOD ISLAND STATION BUSWAY	2.2	15.5	0.7	0.9	27.4	0.6	1.6	15.1	0.8	1.3	19.7	0.5	1	30.2	0.7	1.4	17.8	0.6	1	21
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	0.1	15.5	0.1	0	27.5	0.2	0.3	15	0.2	0	19.8	0	0	30.3	0.1	0.1	17.8	0.2	0.1	21.1
10 - 5849 - BENNINGTON ST @ CHELSEA ST	0.7	15.2	0.5	0.1	27.8	0.7	0.4	15.3	0.5	0.2	20.1	0.7	0.6	30.4	0.5	0.7	17.6	0.8	0.4	21.5
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	0.2	15.9	0.4	0.3	28	1.6	0.3	16.6	0.5	0	20.6	1	0.3	31	1.7	0.2	19.1	0.8	0.1	22.2
12 - 5851 - BENNINGTON ST @ PUTNAM ST	0.1	16.8	1.5	0	29.4	1.1	0.4	17.3	0.7	0.5	20.7	0.7	0.4	31.4	0.8	0.4	19.5	2.4	0.3	24.2
13 - 5852 - BENNINGTON ST @ BROOKS ST	0.3	17.2	0.5	0.2	29.7	0.6	0.4	17.6	0.6	1.1	20.2	1.2	0.5	32	0.5	0.3	19.6	0.4	1.3	23.4
14 - 5853 - BENNINGTON ST @ MARION ST	0.3	17.4	0	0.2	29.5	1.4	0.5	18.4	0.6	0.9	19.9	0.5	0.5	32	0.6	0.6	19.6	0.3	0.6	23
15 - 5854 - BENNINGTON ST @ PORTER ST	1.9	16.4	0.3	1.8	28	0.8	2.7	16.5	0.7	3.4	17.3	0.6	2.1	30.5	0.8	2.9	17.5	0.5	2.8	20.7
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	1.5	15.6	0.9	1.5	27.3	1	2	15.6	1	1.7	16.6	1.1	1.5	30.1	1.2	1.7	17	1.2	2	20
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	0.4	17.3	1	1	27.3	1.4	0.5	16.5	1.4	0.4	17.7	1.4	0.2	31.3	1.5	0.6	17.9	2.8	0.8	22
18 - 5737 - MERIDIAN ST @ HAVRE ST	2.6	14.7	0.3	2	25.7	0.2	2.4	14.2	0.1	2.1	15.6	0	2.3	29	0.1	2.9	15.1	0.2	2.3	19.9
19 - 57400 - MAVERICK STATION	4.5	11.2	0.7	4.2	22.2	1.6	4.9	10.9	1	3.7	12.9	1	4.6	25.3	1.4	3.6	12.9	1.5	6.2	15.2
20 - 15857 - SUMNER ST @ ORLEANS ST	0.1	11.1	0	0.2	22.1	0	0.3	10.7	0	0.2	12.7	0	0	25.3	0.1	0.1	12.9	0	0.2	15
21 - 5857 - SUMNER ST @ COTTAGE ST	0.2	10.9	0.1	0.5	21.8	0.3	0.6	10	0.3	0.7	12.3	0.2	0.1	25.4	0.1	0.6	12.4	0.1	0.5	14.7
22 - 5858 - SUMNER ST @ LAMSON ST	0.2	10.9	0	0.2	21.7	0.2	0.6	9.9	0.4	0.9	11.8	0.4	1	24.8	0.6	0.9	12	0.5	0.6	14.6
23 - 5859 - SUMNER ST @ WEBSTER ST	0.2	11.1	0.5	0.1	22.2	0.6	0.6	9.9	0.5	0	12.2	0.2	0.5	24.5	0.4	0.3	12.1	0.2	0.2	14.6
24 - 5860 - JEFFRIES ST @ WEBSTER ST	0.1	11.4	0.4	0.1	22.5	0.5	0.3	10.2	0.7	0.1	12.8	0.4	0.2	24.7	0.2	0.6	11.7	0.1	0.3	14.5
25 - 5861 - JEFFRIES ST @ MAVERICK ST	0.2	11.9	0.2	0.1	22.6	0.1	0.1	10.2	0.3	0.1	12.9	0.1	0	24.8	0.1	0.1	11.2	0	0.1	14.5
26 - 5862 - OPP 345 MAVERICK ST	0.2	12.5	0.4	0.3	22.8	0.2	0.1	10.3	0.4	0.2	13.2	0.2	0.1	24.9	0.3	0.1	11.9	0.6	0.1	15
27 - 5863 - MAVERICK ST @ LAWSON ST	0.1	13	0.3	0.3	22.8	0.6	0.2	10.7	0.2	0	13.4	0.2	0.1	25	0.2	0.3	11.9	0.2	0.5	14.8
28 - 5864 - MAVERICK ST @ COTTAGE ST	0.1	13.4	0.5	0.1	23.2	0.5	0.3	10.8	0.6	0.3	13.7	0.2	0.1	25	0.4	0.1	12.1	0.3	0.3	14.8
29 - 5865 - MAVERICK ST @ FRANKFORT ST	0	13.5	0.3	0.1	23.2	0	0.2	10.7	0.2	0.2	13.7	0.2	0.2	24.9	0	0.2	12	0.3	0.1	15
30 - 5740 - MAVERICK STATION	4.1	9.4	0	4.2	19.1	0	2	8.3	0	3.5	10.2	0	1.6	23.3	0	2.3	9.7	0	1.4	13.6
Maximum		17.4			29.7			18.4			20.7			32			19.6			24.2
Total	21.3		16.3	18.6		25.3	23.2		22.8	22.1		19.3	18.1		23.2	21.8		25	23.3	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	Trip (RouteVar)(Block) [Observations]																			
	13:00 (120.0)(B051) [22] {FA18}			13:25 (120.0)(B054) [22] {FA18}			13:50 (120.0)(B052) [21] {FA18}			14:15 (120.0)(B051) [22] {FA18}			14:40 (120.0)(B054) [22] {FA18}			15:05 (120.0)(B052) [21] {FA18}			15:30 (120.0)(B0 {FA18}	
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	4.8	0	27.7	3.6	0	14.5	5	0	20.5	4.4	0	29.5	4	0	4.5	4.8	0	28.6	7	0
3 - 5839 - BENNINGTON ST @ TRIDENT ST	0.9	0.2	28.4	1	0.2	15.3	1.6	0.3	21.8	1.3	0.5	30.3	1.5	0.3	5.6	1.3	0.5	29.4	1.5	0.4
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	1.4	0.3	29.5	1.8	0.2	17	1	0.4	22.5	1.3	0.2	31.4	2.1	0.3	7.5	2.8	0.5	31.6	1.2	0.6
5 - 5842 - BENNINGTON ST @ BYRON ST	2.5	0.3	31.7	2.5	0	19.4	1.4	0.3	23.5	1.7	0	33	4.2	0.2	11.5	2.7	1.4	32.9	1.4	2
6 - 5843 - BENNINGTON ST @ MOORE ST	0.5	0.2	32	1.9	0	21.3	1.6	0	25.1	0.7	0	33.7	1.4	0.1	12.8	0.5	0	33.3	0.5	0.3
7 - 5844 - BENNINGTON ST @ CURTIS ST	0.9	0	32.8	0.3	0	21.5	0.5	0.1	25.5	0.3	0.1	33.9	1	0	13.7	0.8	0.2	33.9	0.1	0
8 - 5666 - WOOD ISLAND STATION BUSWAY	0.6	1	32.5	0.9	1.8	20.6	1	1.6	24.9	0.3	1	33.2	0.8	3.3	11.3	1.5	3.3	32.1	1.1	1
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	0	0.1	32.4	0	0	20.6	0.1	0	25	0	0	33.2	0.1	0.2	11.2	0.2	0	32.4	0.1	0
10 - 5849 - BENNINGTON ST @ CHELSEA ST	0.8	0.3	33	1.5	0.1	22	1	0.5	25.5	0.7	0.2	33.7	1	0.8	11.5	0.8	0.7	32.5	1.5	0.8
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	1.6	0.4	34.1	2.4	0.2	24.2	1.9	0.3	27.1	1.7	0.1	35.3	1.3	1	11.8	4.3	0.6	36.2	2.2	0.2
12 - 5851 - BENNINGTON ST @ PUTNAM ST	1	0.4	34.7	1.4	1	24.5	0.5	0.2	27.4	1.1	0.5	35.9	0.8	0.3	12.3	1.1	0.5	36.8	2.5	0.6
13 - 5852 - BENNINGTON ST @ BROOKS ST	0.7	0.5	35	1	0.8	24.6	2.2	1.3	28.3	0.9	0.7	36	0.7	1	12	1.4	0.4	37.9	1.2	1.1
14 - 5853 - BENNINGTON ST @ MARION ST	0.3	1.5	33.8	2.9	1.4	26.3	0.5	0.8	28	0.7	0.8	36	1.1	0.7	12.4	1.6	0.5	38.9	1.5	1.1
15 - 5854 - BENNINGTON ST @ PORTER ST	0.5	2.6	31.6	0.6	2.9	24	0.9	2.5	26.3	1.8	2.1	35.6	1.3	2.4	11.3	1.2	2.4	37.7	0.8	2.7
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	2	2	31.6	1.3	2.9	22.4	2.3	2	26.7	3.6	1.5	37.6	2.8	1.9	12.2	1.5	2.5	36.6	2.7	2.7
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	2.2	0.8	33	1.5	0.7	23.1	1.6	0.5	27.8	6.4	0.4	43.6	4.9	1.5	15.6	3.3	1.4	38.5	2	0.7
18 - 5737 - MERIDIAN ST @ HAVRE ST	0	2.7	30.3	0.2	3.2	20.1	0.6	2.3	26.1	0.9	2.9	41.6	0.3	2.2	13	0.4	2	36.9	0.2	2
19 - 57400 - MAVERICK STATION	1.5	5.3	26.5	2	5.6	16.6	2.8	5.6	23.3	3.4	7.7	37.3	4.3	5.6	11.7	5.6	9.9	32.6	4.7	6.4
20 - 15857 - SUMNER ST @ ORLEANS ST	0	0.1	26.4	0	0.1	16.2	0	0.1	23.2	0.1	0.1	37.3	0.1	0.2	11.6	0	0.2	32.4	0	0.6
21 - 5857 - SUMNER ST @ COTTAGE ST	0.1	0.5	26	0.1	0.7	15.7	0.5	1.7	22	1	3	35.3	0.2	1.8	10	0.5	1.2	31.7	0.1	1.6
22 - 5858 - SUMNER ST @ LAMSON ST	0.4	0.6	25.8	0.1	2.5	13.3	0.1	1.2	20.9	0.5	0.9	35	0.1	0.9	9.2	0.3	1.1	30.9	0.2	1.6
23 - 5859 - SUMNER ST @ WEBSTER ST	0.5	0.4	25.8	0.8	0.7	13.2	1	1	20.9	0.2	1.9	33.2	0	1.3	8	0.1	1.2	29.9	0.3	1.5
24 - 5860 - JEFFRIES ST @ WEBSTER ST	0.1	0.4	25.5	0.5	0.3	13.4	0.7	0.5	20.3	0.2	0.6	32.8	0.8	1	7.7	0.3	0.7	29.5	0.2	0.6
25 - 5861 - JEFFRIES ST @ MAVERICK ST	0.1	0	25.6	0.2	0.1	13.6	0.2	0.1	20.4	0.7	0	33.5	0.5	0	8.2	0.2	0.1	29.6	0.1	0.1
26 - 5862 - OPP 345 MAVERICK ST	0.2	0.1	25.7	0.4	0.3	13.7	0.3	0.5	20.2	0.6	1.1	33	0.3	0.6	8	0.5	0.5	29.6	0.7	0.5
27 - 5863 - MAVERICK ST @ LAWSON ST	0.3	0.3	25.7	0.1	0.4	13.4	0.7	0.4	20.5	0.3	0.3	33	0.3	1.4	7	0.4	0.6	29.4	0.6	0.4
28 - 5864 - MAVERICK ST @ COTTAGE ST	0.3	0.6	25.4	0.3	0.3	13.4	1	0.4	21.9	1	2	32	2.1	2.1	7	9.1	0.6	38	1.8	1
29 - 5865 - MAVERICK ST @ FRANKFORT ST	0.1	0	25.5	0.1	0.3	13.5	0.4	0.2	22.1	0.1	0.3	31.8	0.4	0.2	7.2	0.6	0.1	38.5	0.1	0.8
30 - 5740 - MAVERICK STATION	0	2.3	23.3	0	2.8	11.2	0	3.5	18.8	0	3.2	28.6	0	2.4	6	0	5.3	33.2	0	4.7
Maximum			35			26.3			28.3			43.6			15.6			38.9		
Total	24.3	23.9		29.4	29.5		31.4	28.3		35.9	32.1		38.4	33.7		47.8	38.4		36.3	36

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	51) [22]	15:55 (120.0)(B054) [33] {FA18}			16:20 (120.0)(B052) [20] {FA18}			16:45 (120.0)(B051) [20] {FA18}			17:10 (120.0)(B054) [26] {FA18}			17:35 (120.0)(B052) [21] {FA18}			18:00 (120.0)(B051) [20] {FA18}			18:25 (
Seq - StopID - Stop Name	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	39.9	4.3	0	10.7	3.3	0	37.6	3.9	0	45.3	4	0	12.7	4	0	45.9	2.3	0	46	3.9
3 - 5839 - BENNINGTON ST @ TRIDENT ST	41	0.9	0.2	11.4	1.3	0.1	38.8	1.1	0.5	46	0.9	0.2	13.3	0.9	0.4	46.4	1.1	0.1	47	1
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	41.5	1.8	0.2	13.1	5.7	1.3	43.2	2.7	1.3	47.4	2.7	0.4	15.7	1.3	0.5	47.1	1.2	0.5	47.7	1.6
5 - 5842 - BENNINGTON ST @ BYRON ST	41	2.3	0.4	15	6	0.7	48.6	1.9	0.6	48.7	3.5	0.6	18.5	2.7	0.9	49	2	0.4	49.3	1.3
6 - 5843 - BENNINGTON ST @ MOORE ST	41.2	1.3	0.1	16.3	6.1	0.2	54.5	1.2	0.1	49.7	0.9	0.1	19.4	0.5	0.1	49.4	0.8	0.2	49.9	0.5
7 - 5844 - BENNINGTON ST @ CURTIS ST	41.3	0.2	0	16.4	0.7	0.2	54.9	0.2	0.2	49.7	0.3	0	19.7	0.2	0.1	49.5	0.4	0.1	50.2	0.2
8 - 5666 - WOOD ISLAND STATION BUSWAY	41.4	1.4	1.8	16	3.1	3.7	54.3	0.8	1.2	49.3	1.2	1.9	18.9	0.7	0.3	49.9	0.4	0.9	49.8	0.8
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	41.5	0.1	0	16.1	0.3	0.1	54.6	0.1	0.1	49.2	0	0.2	18.7	0.1	0	50	0.2	0.3	49.7	0.1
10 - 5849 - BENNINGTON ST @ CHELSEA ST	42.1	0.7	0.8	16	1.2	1.3	54.4	1	0.6	49.6	0.8	0.6	18.9	0.4	0.3	50.1	0.5	0.3	49.9	0.5
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	44.1	2.2	0.6	17.7	2.3	1.6	55.1	2.6	1	51.2	2	0.8	20.2	1.2	0.6	50.7	0.9	0.4	50.3	0.8
12 - 5851 - BENNINGTON ST @ PUTNAM ST	46	1.5	0.6	18.5	1.9	2	55	1	0.7	51.6	1.5	0.6	21.1	1.8	0.2	52.3	0.9	0.4	50.8	0.7
13 - 5852 - BENNINGTON ST @ BROOKS ST	46.1	1	1	18.5	0.5	2.6	52.9	1.3	0.8	52.1	1.7	1	21.8	1	1.5	51.8	1	0.9	50.9	0.8
14 - 5853 - BENNINGTON ST @ MARION ST	46.5	0.9	0.9	18.5	1.3	2.1	52.1	1.2	0.9	52.4	0.4	1.2	21	0.3	0.4	51.7	0.5	0.3	51.1	0.4
15 - 5854 - BENNINGTON ST @ PORTER ST	44.5	0.4	2	16.9	1.2	3.4	49.9	0.6	1.9	51.1	0.9	1.9	20	0.4	2.7	49.4	0.6	1.8	49.8	0.4
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	44.5	1.6	1.7	16.8	1.3	2.5	48.7	1.2	1.6	50.7	1.6	2.3	19.2	1.4	1.6	49.2	1.5	1.9	49.4	1.5
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	45.7	1.5	0.6	17.6	1.9	0.8	49.8	2.2	0.7	52.2	2.6	0.5	21.3	2.5	0.4	51.3	1.6	0.5	50.8	0.9
18 - 5737 - MERIDIAN ST @ HAVRE ST	44	0.1	2.1	15.7	0.4	2.5	47.7	0.6	2.1	50.7	0.2	2.9	18.7	0.4	1.4	50.2	0.2	1	50	0.3
19 - 57400 - MAVERICK STATION	42.3	4.4	5.6	14.5	6.7	5.8	48.7	6.9	6.6	51.1	7.9	4.5	22	6.7	5.1	51.8	4.8	3.7	51.3	3.4
20 - 15857 - SUMNER ST @ ORLEANS ST	41.7	0.1	0.1	14.4	0.1	0.5	48.3	0.1	0.6	50.5	0.1	0.5	21.6	0	0.3	51.5	0	0.6	50.8	0
21 - 5857 - SUMNER ST @ COTTAGE ST	40.2	0.2	1.3	13.3	0.4	2	46.7	0.5	1.7	49.4	0.5	1.3	20.7	0	0.9	50.7	0.1	1	49.8	0.2
22 - 5858 - SUMNER ST @ LAMSON ST	38.7	0.3	1.5	12.1	0.7	3.2	44.2	1	2.7	47.6	1.1	2.3	19.5	0.3	1.8	49.2	0.2	0.9	49.2	0.1
23 - 5859 - SUMNER ST @ WEBSTER ST	37.5	0.3	1.1	11.3	0.3	1.8	42.8	0.6	1.8	46.4	0.5	2.4	17.6	0.2	1.9	47.6	0.4	1.1	48.5	0.4
24 - 5860 - JEFFRIES ST @ WEBSTER ST	36.4	0.4	0.5	11.2	0.7	1.5	42	0.2	1.5	45.1	0.4	1.7	16.3	0.2	1.7	46.1	0.4	1.7	47.3	0.2
25 - 5861 - JEFFRIES ST @ MAVERICK ST	36.4	0.2	0.2	11.2	0.4	0.1	42.3	0.2	0	45.2	0.4	0.4	16.3	0.6	1.1	45.6	0.4	0.1	47.5	0.2
26 - 5862 - OPP 345 MAVERICK ST	36.6	0.5	0.4	11.3	0.2	0.7	41.7	0.3	0.4	45.2	0.1	0.8	15.5	0.2	0.3	45.5	0.3	0.5	47.3	0.3
27 - 5863 - MAVERICK ST @ LAWSON ST	36.9	0.3	0.5	11.1	0.4	0.3	41.8	0.7	0.5	45.4	0.4	0.1	15.8	0.2	0.3	45.4	0.2	0.8	46.7	0.2
28 - 5864 - MAVERICK ST @ COTTAGE ST	38.3	0.5	0.7	10.9	1.2	1.3	41.7	1	0.6	45.7	0.6	0.8	15.7	0.2	0.7	45	0.2	0.7	46.2	0.3
29 - 5865 - MAVERICK ST @ FRANKFORT ST	37.6	0	0.5	10.4	0.4	0.9	41.2	0.2	0.8	45.1	0.2	0.5	15.3	0	0	45	0.1	0.2	46.1	0.1
30 - 5740 - MAVERICK STATION	32.9	0	3.9	7.1	0	2.3	38.9	0	2.7	42.4	0	2	13.3	0	1.6	43.3	0	1.6	44.5	0
Maximum	46.5			18.5			55.1			52.4			22			52.3			51.3	
Total		29.4	29.3		50	45.5		35.3	34.2		37.4	32.5		28.4	27.1		23.2	22.9		21.1

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	120.0)(B054) [28] {FA18}		18:58 (120.0)(B052) [22] {FA18}			19:33 (120.0)(B054) [28] {FA18}			20:37 (120.0)(B054) [27] {FA18}			21:37 (120.0)(B054) [13] {FA18}			22:37 (120.0)(B054) [16] {FA18}			23:37 (120.0)(B054) [16] {FA18}		
Seq - StopID - Stop Name	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load	On	Off	Load
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	0	17.7	4.8	0	50.1	4.5	0	19.3	3	0	20.4	2	0	3.5	2.8	0	5.6	2.3	0	5.5
3 - 5839 - BENNINGTON ST @ TRIDENT ST	0.2	18.5	0.4	0.2	50.3	0.6	0.1	19.7	0.7	0.1	21	0.3	0.3	3.5	0.3	0	5.9	0.1	0.1	5.4
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	0.7	19.4	0.7	0.5	50.5	0.5	0.7	19.5	0.7	0.5	21.1	0.4	0.6	3.2	0.3	0.4	5.8	0.1	0.3	5.3
5 - 5842 - BENNINGTON ST @ BYRON ST	0.4	20.4	0.9	0.3	51.1	1	0.2	20.3	0.2	0.3	21	0.3	0.5	3.1	1.1	0.7	6.3	0	0.4	4.8
6 - 5843 - BENNINGTON ST @ MOORE ST	0	20.9	0.4	0.1	51.4	0.5	0.1	20.7	0.1	0	21.2	0.2	0	3.3	0	0.2	6.1	0	0	4.8
7 - 5844 - BENNINGTON ST @ CURTIS ST	0	21	0	0.1	51.4	0.1	0	20.8	0.2	0	21.4	0	0	3.3	0	0	6.1	0	0	4.8
8 - 5666 - WOOD ISLAND STATION BUSWAY	1.1	20.8	0.4	0.3	51.5	0.4	0.6	20.5	0.1	0.2	21.3	0.4	0.2	3.5	0.3	1.1	5.3	1	0	5.8
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	0.1	20.8	0	0.2	51.3	0	0.1	20.4	0	0	21.3	0	0	3.5	0	0.1	5.1	0	0.1	5.8
10 - 5849 - BENNINGTON ST @ CHELSEA ST	0.6	20.6	0.1	0.6	50.8	0.8	1	20.2	0.1	0.2	21.1	0.5	0.3	3.6	0	0	5.1	0.2	0.1	5.9
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	0.5	21	1	0.4	51.5	0.9	0.1	21	0.5	0.2	21.4	0.6	0.2	4	0.4	0.1	5.4	0.5	0.4	6
12 - 5851 - BENNINGTON ST @ PUTNAM ST	0.4	21.3	1	0.1	52.4	0.2	0.1	21	0.1	0.2	21.3	0.7	0.2	4.5	0.1	0.1	5.4	0	0.1	5.9
13 - 5852 - BENNINGTON ST @ BROOKS ST	0.6	21.5	0.5	0.7	52.2	0.7	0.3	21.4	0.1	0.3	21.1	0.5	0	5	0.2	0.7	4.9	0.1	0.2	5.8
14 - 5853 - BENNINGTON ST @ MARION ST	0.5	21.4	0.5	1.2	51.5	0.5	0.4	21.6	0.5	1	20.6	0.7	0.3	5.4	0.1	0.3	4.7	0.1	0.3	5.5
15 - 5854 - BENNINGTON ST @ PORTER ST	1.2	20.5	0.2	0.7	51	0.1	1	20.8	0.4	0.8	20.2	0.2	0.5	5.1	0	0.7	4	0.2	0.6	5.1
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	1.4	20.6	1.6	0.8	51.9	1.3	1	21.1	0.7	0.8	20.1	1.2	0.3	5.9	0	0	4	0	0.1	5
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	0.6	20.9	0.8	0.5	52.1	0.9	0.3	21.7	0.7	0.3	20.5	0.6	0.3	6.3	0.2	0	4.2	0	0.1	4.9
18 - 5737 - MERIDIAN ST @ HAVRE ST	1.4	19.8	0.5	0.6	51.9	0.1	1	20.9	0	0.2	20.3	0	0.2	6.2	0	0.2	4	0	0	4.9
19 - 57400 - MAVERICK STATION	2.8	20.3	5	2.5	54.4	4.7	3.2	22.4	3.4	1.8	21.9	5.5	3.3	8.3	5.9	0.9	9	2.8	1.1	6.5
20 - 15857 - SUMNER ST @ ORLEANS ST	0.5	19.9	0.1	0.1	54.4	0	0.1	22.2	0	0.1	21.8	0	0.1	8.2	0	0	9	0	0	6.5
21 - 5857 - SUMNER ST @ COTTAGE ST	1	19.1	0	1.3	53.1	0.1	1.2	21.2	0.1	0.7	21.2	0.2	1.4	7	0	0.4	8.6	0	0.5	6
22 - 5858 - SUMNER ST @ LAMSON ST	1.1	18.1	0	1.7	51.5	0.2	1	20.4	0	0.5	20.7	0	1.7	5.3	0	0.8	7.8	0	0.7	5.3
23 - 5859 - SUMNER ST @ WEBSTER ST	1.1	17.4	0.3	1.2	50.5	0.2	0.9	19.6	0.1	0.8	20	0.2	0.6	5	0	0.9	6.9	0	0.4	4.9
24 - 5860 - JEFFRIES ST @ WEBSTER ST	0.7	16.9	0	1.2	49.2	0.1	1.3	18.5	0.1	0.6	19.5	0.2	0.6	4.6	0.1	0.6	6.5	0	0.5	4.4
25 - 5861 - JEFFRIES ST @ MAVERICK ST	0.1	16.9	0.2	0.6	48.8	0.2	0.4	18.3	0.1	0	19.6	0	0.2	4.5	0	0.1	6.4	0	0	4.4
26 - 5862 - OPP 345 MAVERICK ST	0.3	16.9	0.2	0.7	47.6	0.1	0.7	17.8	0.1	0.3	19.4	0	0.2	4.2	0.2	1.2	5.4	0	0.3	4.1
27 - 5863 - MAVERICK ST @ LAWSON ST	0.4	16.7	0	0.3	48	0.3	0.4	17.6	0.3	0.5	19.2	0.6	0.8	4.2	0.1	0.7	4.9	0	0.2	3.9
28 - 5864 - MAVERICK ST @ COTTAGE ST	0.6	16.4	0.5	0.3	48.5	0.1	0.7	17	0.3	0.4	19	0.1	0.6	3.6	0.1	0.8	4.3	0.3	0.1	4.1
29 - 5865 - MAVERICK ST @ FRANKFORT ST	0.1	16.4	0.1	0	48.6	0	0.3	16.7	0.1	0	19.1	0.1	0.2	3.5	0	0.3	4	0.2	0.1	4.2
30 - 5740 - MAVERICK STATION	1.4	15	0	1.3	47.3	0	1.1	15.8	0	1.6	17.5	0	1	2.6	0	0.5	3.6	0	0.4	3.8
Maximum		21.5			54.4			22.4			21.9			8.3			9			6.5
Total	19.8		20.2	18.5		19.1	18.3		12.7	12.4		15.5	14.6		12.2	11.8		7.9	7.1	

Massachusetts Bay Transportation Authority

Route 120

Weekday - Inbound

	24:37 (120.0)(B054) [16] {FA18}			Total		
Seq - StopID - Stop Name	On	Off	Load	On	Off	Load
1 - 5880 - ORIENT HEIGHTS NORTH BUSWAY	1.4	0	4.8	172.3	0.6	809.5
3 - 5839 - BENNINGTON ST @ TRIDENT ST	0.1	0.1	4.8	52	7.8	852.7
4 - 5841 - BENNINGTON ST @ WESTBROOK ST	0.1	0.9	4	103.3	20	937.7
5 - 5842 - BENNINGTON ST @ BYRON ST	0.1	0.2	3.9	126.7	18.6	1045.8
6 - 5843 - BENNINGTON ST @ MOORE ST	0.1	0	3.9	41.4	5.9	1080.9
7 - 5844 - BENNINGTON ST @ CURTIS ST	0	0	3.9	13.7	1.6	1092.5
8 - 5666 - WOOD ISLAND STATION BUSWAY	0	0	3.9	29.6	117.9	1005
9 - 5848 - BENNINGTON ST @ NEPTUNE RD	0	0	3.9	2.5	2.6	1005.2
10 - 5849 - BENNINGTON ST @ CHELSEA ST	0	0	3.9	27	23	1009.3
11 - 5850 - BENNINGTON ST @ PRESCOTT ST	0	0	3.9	61.2	15.7	1055
12 - 5851 - BENNINGTON ST @ PUTNAM ST	0.1	0.1	3.9	53.1	26.3	1081.4
13 - 5852 - BENNINGTON ST @ BROOKS ST	0.1	0	4	48.2	30.3	1099.1
14 - 5853 - BENNINGTON ST @ MARION ST	0.1	0	4.1	47.1	34	1112.3
15 - 5854 - BENNINGTON ST @ PORTER ST	0.1	0.1	4.2	28.9	74.1	1066.6
16 - 15867 - BORDER ST @ LIBERTY PLAZA SHO	0	0.1	4.1	49.6	88.6	1026.9
17 - 5736 - MERIDIAN ST @ LIVERPOOL ST	0	0	4.1	76.9	20.4	1084.1
18 - 5737 - MERIDIAN ST @ HAVRE ST	0	0	4.1	10.1	71.4	1022.2
19 - 57400 - MAVERICK STATION	1.3	0.3	5.2	121.4	222.2	901
20 - 15857 - SUMNER ST @ ORLEANS ST	0	0	5.2	0.9	7.4	894.3
21 - 5857 - SUMNER ST @ COTTAGE ST	0.1	0	5.3	14.9	48.5	860.6
22 - 5858 - SUMNER ST @ LAMSON ST	0	0.1	5.1	17.5	50.7	828.3
23 - 5859 - SUMNER ST @ WEBSTER ST	0	0	5.1	28.9	27.6	829.3
24 - 5860 - JEFFRIES ST @ WEBSTER ST	0	0.5	4.6	27.6	23.9	831.5
25 - 5861 - JEFFRIES ST @ MAVERICK ST	0	0	4.6	16.3	6.2	841
26 - 5862 - OPP 345 MAVERICK ST	0	0.2	4.4	21.3	12.9	849
27 - 5863 - MAVERICK ST @ LAWSON ST	0	0.3	4.1	25.1	13.4	862.2
28 - 5864 - MAVERICK ST @ COTTAGE ST	0	0.1	4	46	41	868.8
29 - 5865 - MAVERICK ST @ FRANKFORT ST	0	0	4	10	8.5	870.5
30 - 5740 - MAVERICK STATION	0	1.5	2.7	0	185.6	711.2
Maximum			5.3			1112.3
Total	3.6	4.5		1273.5	1206.7	

APPENDIX E – RESPONSE TO CLIMATE CHANGE QUESTIONNAIRE

boston planning & development agency

Appendix E. DPIR Climate Resiliency Checklist
282-308 Bremen Street, East Boston

A.1 - Project Information

Project Name:	**282-308 Bremen Street**			
Project Address:	282-308 Bremen Street			
Project Address Additional:				
Filing Type (*select*)	*Initial (PNF, EPNF, NPC or other substantial filing)* ***DPIR*** *Design / Building Permit (prior to final design approval), or Construction / Certificate of Occupancy (post construction completion)*			
Filing Contact	*Colleen Soden*	*Soden Sustainability Consulting*	*colleen@sodensustainability.com*	*617-372-7857*
Is MEPA approval required	*Yes/**no***		*Date*	

A.3 - Project Team

Owner / Developer:	282 Bremen Development, LLC
Architect:	RODE Architects, Inc.
Engineer:	Sherwood Consulting & Design, LLC
Sustainability / LEED:	Soden Sustainability
Permitting:	Mitchell L. Fischman ("MLF") Consulting LLC
Construction Management:	TBD

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Residential
List the First Floor Uses:	2,000 gross square feet of ground floor retail space plus amenity, lobby, circulation, BOH spaces,
List any Critical Site Infrastructure and or Building Uses:	n/a

Site and Building:

Site Area:	*34,160 SF*	Building Area:	*110,000 SF*
Building Height:	*62 Ft*	Building Height:	*4-5 Stories*
Existing Site Elevation – Low:	*14.5 Ft BCB*	Existing Site Elevation – High:	*16.5 Ft BCB*
Proposed Site Elevation – Low:	*14.5 Ft BCB*	Proposed Site Elevation – High:	*16.5 Ft BCB*
Proposed First Floor Elevation:	*Ft BCB*	Below grade levels:	*0 Stories*

Article 37 Green Building:

LEED Version - Rating System :	LEED v4 BDC	LEED Certification:	*Yes / **No***
Proposed LEED rating:	*Certified/**Silver**/ Gold/Platinum*	Proposed LEED point score:	*53 Pts.*

Building Envelope

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

Roof:	*30 (R)*	Exposed Floor:	*12.5(R)*
Foundation Wall:	*7.5(R)*	Slab Edge (at or below grade):	*R10 Unheated R 15 Heated*

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

Area of Opaque Curtain Wall & Spandrel Assembly:	*2(%)*	Wall & Spandrel Assembly Value:	*.064(U)*
Area of Framed & Insulated / Standard Wall:	*67.5(%)*	Wall Value	*R13 + R 7.5 ci*
Area of Vision Window:	*30%*	Window Glazing Assembly Value:	*.45(U)*
		Window Glazing SHGC:	*0.40(SHGC)*
Area of Doors:	*.5%*	Door Assembly Value:	*u- 0.77 Glazed, U -0.37 Opaque*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	*Energy performance was evaluated using an eQuest v3.65 energy model created based on 3/22/19 schematic drawings. Loads were estimated based on building size and use type*		
Annual Electric:	*1,197,540(kWh)*	Peak Electric:	*1,026(kW)*
Annual Heating:	*2,030(MMbtu/hr)*	Peak Heating:	*1.5 (MMbtu)*
Annual Cooling:	*65,000(Tons/hr)*	Peak Cooling:	*47.5(Tons)*
Energy Use - Below ASHRAE 90.1 - 2013:	*31%*	Have the local utilities reviewed the building energy performance?:	*Yes / **no***
Energy Use - Below Mass. Code:	*28.2%*	Energy Use Intensity:	*48.8 (kBtu/SF)*

Back-up / Emergency Power System

Electrical Generation Output:	*150(kW)*	Number of Power Units:	1
System Type:	*Ground(kW)*	Fuel Source:	Natural Gas

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

Electric:	*145(kW)*	Heating:	*.8(MMbtu/hr)*
		Cooling:	*30(Tons/hr)*

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

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

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: *1,093 (Tons)*

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

We have completed early SD modeling to determine the ECMs that we will study as the project evolves

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

This building aims to maximize daylighting to reduce the need for artificial lighting

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

The high efficiency equipment includes: low flow plumbing fixtures, high efficiency condensing boilers, high efficiency condensing domestic hot water heaters and LED lighting.

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

Solar is being evaluated for this project

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

None at this time

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

Engagement with ICF is in progress.

B.2 - GHG Reduction - Adaptation Strategies

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

The building has space on the roof that could house both a solar PV array to offset electrical use as well as solar hot water heaters to reduce natural gas use in the building.

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:	*3 Deg.*	Temperature Range - High:	*103 Deg.*
Annual Heating Degree Days:	5596	Annual Cooling Degree Days	900

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

Days - Above 90°:	*25#*	Days – Above 100°:	*10#*
Number of Heatwaves / Year:	*5#*	Average Duration of Heatwave (Days):	*4#*

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

Heat island effect is reduced by incorporating reflective building materials as well as underground parking.

C.2 - Extreme Heat – Adaptation Strategies

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

The building is cooled by many individual heat pumps that can operate independently to maintain indoor conditions at higher outdoor average temperatures.

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

Interruptions of power can be mitigated in the short term by the emergency generator. Longer power outages could require operable windows to provide ventilation and natural cooling.

D - Extreme Precipitation Events

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

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	*4.90 In.*

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

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):

E – Sea Level Rise and Storms

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

Is any portion of the site in a FEMA SFHA?	*Yes / No*	What Zone:	AE, AH, AO, AR, A99, V, VE
		Current FEMA SFHA Zone Base Flood Elevation:	*16.46 Ft BCB*

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

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

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

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	*19.3 Ft BCB*		
Sea Level Rise - Design Flood Elevation:	*21.3 Ft BCB*	First Floor Elevation:	*16.5 Ft BCB*
Site Elevations at Building:	*TBD Ft BCB*	Accessible Route Elevation:	*TBD Ft BCB*

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

Specific measures are currently under consideration

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.:

Specific measures are currently under consideration

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:

Specific measures are currently under consideration

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

Specific measures are currently under consideration

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.:

Specific measures are currently under consideration

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

Specific measures are currently under consideration

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

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

Appendix E1. 282-308 Bremen St, East Boston, MA
DPIR Application Preliminary Energy Model Analysis

Summary

For the 282 Bremen Street Project PNF application, an energy analysis was performed based on the geometry and orientation described in the March 22, 2019 schematic building drawings. Analysis was performed by Allison Gaiko, PE, LEED AP for Soden Sustainability Consulting using eQuest3.65 to compare the proposed design case to two baseline scenarios:

- Energy cost comparison to ASHRAE 90.1-2010 Appendix G in accordance with LEED v4 requirements
- Energy use comparison to ASHRAE 90.1-2013 in accordance with MA Energy Code requirements

Model Input Assumptions

Below is a table summarizing the input of the proposed design and two baseline energy models

		ASHRAE 90.1-2010	ASHRAE 90.1-2013		Proposed
Opaque Assemblies	Roof	R20ci insulation – U-0.048	R30ci insulation – U-0.032		R30ci insulation - U-0.032 (White roof)
	Above Grade Walls	R13 + R7.5ci – U-0.064	R13 + R10ci – U-0.055		R13 + R7.5ci – U0.064
	Exposed Floor	R30 – U-0.038	R30 – U-0.038		R12ci – U-0.065
	Slab on Grade (unheated)	F-0.730	F-0.688		F-0.730
Glazing	Metal Framing U-Factor (other)	Assembly U-0.55	Assembly U-0.50 (operable)		Assembly U-0.45
	Metal Framing U-Factor (curtainwall/storefront)	Assembly U-0.45	Assembly U-0.42 (fixed)		Assembly U-0.45
	SHGC	Assembly SHGC - 0.4	Assembly SHGC - 0.4		Assembly SHGC - 0.4
Lighting	Residential Dwelling[3]	0.90 W/SF	0.81 W/SF		0.72 W/SF
	Retail Sales[3]	1.68 W/SF	1.30 W/SF		1.34 W/SF
	Corridor/Transition[3]	0.66 W/SF	0.59 W/SF		0.53 W/SF
	Parking Garage[3]	0.19 W/SF	0.17 W/SF		0.15 W/SF
Process Loads	Residential Dwelling[1]	2.08 W/SF	2.08 W/SF		1.94 W/SF
	Corridor/Transition	0.2 W/SF	0.2 W/SF		0.2 W/SF
	Elevator	30 kW/car	30 kW/car		30 kW/car

Appendix E1. 282-308 Bremen St, East Boston, MA
DPIR Application Preliminary Energy Model Analysis

		ASHRAE 90.1-2010	ASHRAE 90.1-2013		Proposed
DHW	Hot Water Heater Efficiency	80%	80%		95%
	Lavatory Sink Flow[2]	2.2 GPM	2.2 GPM		0.5 GPM
	Kitchen Sink Flow[2]	2.2 GPM	2.2 GPM		1.5 GPM
	Shower Flow[2]	2.5 GPM	2.5 GPM		1.5 GPM
HVAC	Boiler[3]	80%	88%		95%
	HW temperature	180 °F	180 °F		150 °F
	EER 65< DX <135 MBH[3]	11 EER	13.1 EER		12.1 EER
	EER 240 < DX <760 MBH[3]	9.8 EER	13.4 EER		10.8 EER
	SEER DX < 65[3]	13 SEER	13.3 EER		15.4 SEER

Please note that the energy model is not created to predict actual energy use for the proposed building but rather to compare energy consumption between the design case and baseline cases. Inputs such as occupancy, weather data and individual occupants' habits affect the proposed model's ability to predict energy use. For this reason, the baseline and design models were created with identical weather data as well as identical schedules for parameters such as occupancy, lighting EFLH (electrical full load hours), and temperature set points. Schedules were based on the EFLH Tab of the v4 Minimum Energy Performance Calculator created for LEED v4 and are summarized in the attached Appendix.

Table notes:

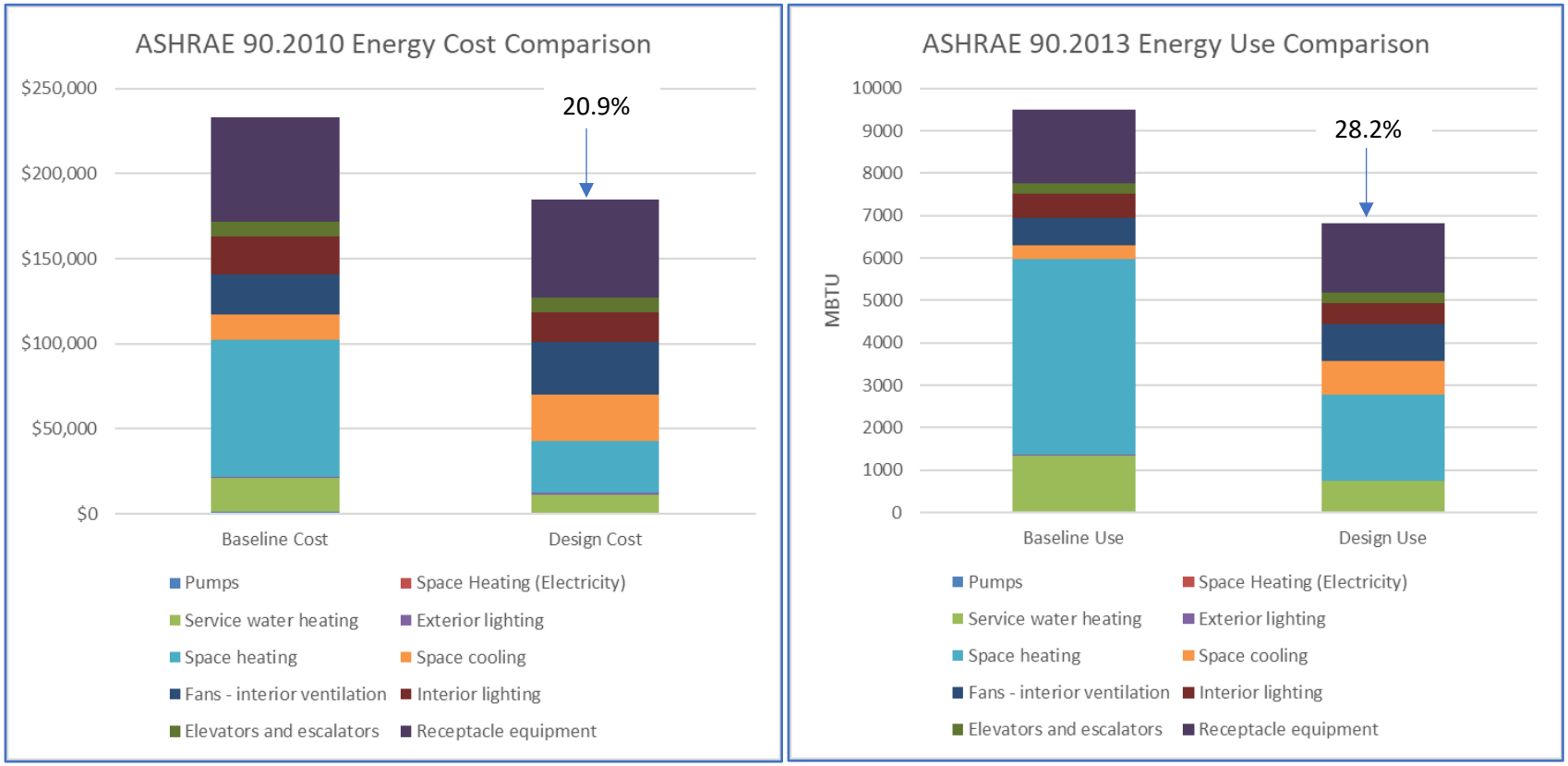
1. Reduction in plug load in the residential units is based on Energy Star appliances that have been incorporated in the project and has been calculated based on the Multi-Family Tab of the v4 Minimum Energy Performance Calculator created for LEED v4 and are summarized in the attached Appendix.
2. Reduction in domestic hot water flow in the residential units is based on the reduced flow fixtures and Energy Star appliances that have been incorporated in the project and has been calculated based on the Multi-Family Tab of the v4 Minimum Energy Performance Calculator created for LEED v4 and are summarized in the attached Appendix.
3. In accordance with Massachusetts Code requirements section C406, two additional efficiency package options were included in the ASHARAE 90.1-2013 baseline case. The two options selected were (1) More efficient HVAC performance – Exceed energy efficiency provisions by 10% and (2) Reduced lighting power density by 10%.

Appendix E1. 282-308 Bremen St, East Boston, MA
DPIR Application Preliminary Energy Model Analysis

Model Results

The results of the 282 Bremen Street preliminary energy model analysis show:

- 20.9% annual energy cost reduction vs ASHRAE 90.1-2010 (8 LEEDv4 points)
- 28.2% annual energy use reduction vs ASHRAE 90.1-2013 (MA Energy Code)



Most of the energy savings in the 282 Bremen Street project are the result of reduced lighting, heat recovery of apartment exhaust, efficient domestic hot water heaters and efficient boilers, and are represented in the above graphs by reductions in space heating, interior lighting and service water heating energy use and cost.

Appendix

(OPTIONAL) Equivalent Full Load Hours Calculator

Default Schedules

Residential Dwelling Unit Default Schedules

Schedule Name: Dwelling Unit Thermostat setpoint schedule

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	Hours/day	Hours/year
Daily Heating Setpoint	70.0	70.0	70.0	70.0	70.0	70.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	70.0	24.00	8,760
Daily Cooling Setpoint	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	80.0	80.0	80.0	80.0	80.0	80.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	78.0	24.00	8,760

Schedule Name: Dwelling Unit Lighting Schedule

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	7.7%	14.0%	14.0%	10.8%	10.8%	10.8%	7.7%	7.7%	7.7%	7.7%	7.7%	10.8%	21.7%	21.7%	21.7%	21.7%	18.6%	1.6%	2.34	585
Weekend	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	7.7%	14.0%	14.0%	10.8%	10.8%	10.8%	7.7%	7.7%	7.7%	7.7%	7.7%	10.8%	21.7%	21.7%	21.7%	21.7%	18.6%	1.6%	2.34	243
Holiday	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%	7.7%	14.0%	14.0%	10.8%	10.8%	10.8%	7.7%	7.7%	7.7%	7.7%	7.7%	10.8%	21.7%	21.7%	21.7%	21.7%	18.6%	1.6%	2.34	26
Total Equivalent Full Load Hours of Operation per Year																										854

Schedule Name: Dwelling Unit Miscellaneous Equipment Schedule

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	5%	5%	5%	5%	5%	5%	5%	5%	50%	50%	50%	50%	30%	50%	50%	50%	50%	50%	35%	5%	5%	5%	5%	5%	5.80	1,450
Weekend	5%	5%	5%	5%	5%	5%	5%	5%	50%	50%	50%	50%	30%	50%	50%	50%	50%	50%	35%	5%	5%	5%	5%	5%	5.80	603
Holiday	5%	5%	5%	5%	5%	5%	5%	5%	50%	50%	50%	50%	30%	50%	50%	50%	50%	50%	35%	5%	5%	5%	5%	5%	5.80	64
Total Equivalent Full Load Hours of Operation per Year																										2,117

Schedule Name: Residential Common Area Miscellaneous Equipment Schedule

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	10%	10%	10%	10%	10%	30%	45%	45%	45%	45%	30%	30%	30%	30%	30%	30%	30%	30%	60%	80%	90%	80%	60%	30%	9.00	2,250
Weekend	10%	10%	10%	10%	10%	30%	45%	45%	45%	45%	30%	30%	30%	30%	30%	30%	30%	30%	60%	80%	90%	80%	60%	30%	9.00	936
Holiday	10%	10%	10%	10%	10%	30%	45%	45%	45%	45%	30%	30%	30%	30%	30%	30%	30%	30%	60%	80%	90%	80%	60%	30%	9.00	99
Total Equivalent Full Load Hours of Operation per Year																										3,285

Schedule Name: Residential DHW Schedule

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	5%	5%	5%	5%	5%	5%	30%	50%	40%	30%	30%	35%	40%	35%	35%	30%	30%	50%	50%	40%	35%	45%	30%	5%	6.70	1,675
Weekend	5%	5%	5%	5%	5%	5%	30%	50%	40%	30%	30%	35%	40%	35%	35%	30%	30%	50%	50%	40%	35%	45%	30%	5%	6.70	697
Holiday	5%	5%	5%	5%	5%	5%	30%	50%	40%	30%	30%	35%	40%	35%	35%	30%	30%	50%	50%	40%	35%	45%	30%	5%	6.70	74
Total Equivalent Full Load Hours of Operation per Year																										2,446

Schedule Name: Garage Exhaust

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	7%	7%	7%	7%	7%	7%	17%	20%	50%	50%	15%	15%	35%	15%	15%	15%	25%	50%	50%	25%	7%	7%	7%	7%	4.64	1,159
Weekend	7%	7%	7%	7%	7%	7%	17%	20%	50%	50%	15%	15%	35%	15%	15%	15%	25%	50%	50%	25%	7%	7%	7%	7%	4.64	482
Holiday	7%	7%	7%	7%	7%	7%	17%	20%	50%	50%	15%	15%	35%	15%	15%	15%	25%	50%	50%	25%	7%	7%	7%	7%	4.64	51
Total Equivalent Full Load Hours of Operation per Year																										1,693

Copy & Paste Schedule Above

Schedule Name: Apt Elev

	12-1AM	1-2AM	2-3AM	3-4AM	4-5AM	5-6AM	6-7AM	7-8AM	8-9 AM	9-10AM	10-11AM	1AM-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM	7-8PM	8-9PM	9-10PM	10-11PM	11-12PM	EFLH/day	EFLH/year
Weekday	5%	5%	5%	5%	5%	5%	20%	40%	50%	40%	40%	35%	35%	30%	30%	30%	40%	45%	50%	40%	35%	30%	10%	5%	6.35	1,588
Weekend	5%	5%	5%	5%	5%	5%	10%	25%	50%	50%	50%	40%	45%	45%	40%	40%	50%	45%	45%	45%	30%	30%	25%	15%	7.10	738
Holiday	5%	5%	5%	5%	5%	5%	10%	25%	50%	50%	50%	40%	45%	45%	40%	40%	50%	45%	45%	45%	30%	30%	25%	15%	7.10	78
Total Equivalent Full Load Hours of Operation per Year																										2,404

Multifamily Home Details

Complete the table for each building in the project. Input the number of units and the average floor area for units with the corresponding bedroom number.

Building Unit summary

Building ID	Studio		1 Bedroom		2 Bedrooms		3 Bedrooms		4 Bedrooms		5 Bedrooms		6 Bedrooms		7 Bedrooms		8 Bedrooms	
	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)	Qty	Average Floor Area (sq ft)
282 Bremen St	61	435	77	650	27	900												
Total number of units																		165
Total number of bedrooms																		192
Total Area of Dwelling Units (square feet)																		100,885

Building ID	Total Number of Units	Total Number of Bedrooms	Total Area of Dwelling Units (square feet)	Average Number of Bedrooms Per Unit	Average Floor Area per Unit (square feet)	Average Floor Area Per Unit for Reference Building (square feet)
282 Bremen St	165	192	100,885	1.16	611	1,098

Homes Dwelling Unit Equipment Calculator

Enter the appliances and equipment that is present in the residential dwelling units for the project. For clothes washers and dryers, enter the quantity of each unit installed within the project scope of work. For fans, enter the total supply volume for all fans installed for the project.

Building ID	Load Source	Quantity (or sum total fan volume [cfm] for fans)	Energy Star Eqp?	Average bedrooms per dwelling unit		Electric Loads					Natural Gas Loads					Annual Service Hot Water Load (gallons/year)			
						Annual Consumption (kWh/year)		Sensible Ratio	Latent Ratio		Annual Consumption (therms/year)		Sensible Ratio	Latent Ratio		Baseline Per Equipment	Proposed Per Equipment	Baseline Total	Proposed Total
						Baseline	Proposed				Baseline	Proposed							
282 Bremen St	Cooking (electric stove/range)	165	Yes	1.16364		39660	39660	0.4	0.3		0	0	0.00	0.00		0.00	0.00	0.00	0
282 Bremen St	Clothes Dryer (In-unit electric)	165	Yes	1.16364		35658	35658	0.15	0.05		0	0	0.00	0.00		0.00	0.00	0.00	0
282 Bremen St	Bath / Utility Fan, 10 to 89 cfm	13050	Yes	1.16364		7938.75	6804.64	0	0		0	0	0.00	0.00		0.00	0.00	0.00	0
282 Bremen St	Refrigerator	165	Yes	1.1636364		87,285	69,795	1	0		0	0	0.00	0.00		0.00	0.00	0.0	0.0
282 Bremen St	Dishwasher	165	Yes	1.1636364		33,990	27,060	0.6	0.15		0	0	0.00	0.00		1,290.00	860.00	212,850.0	141,900.0
282 Bremen St	Clothes Washer (In-unit)	165	Yes	1.1636364		13,365	9,405	0.8	0		0	0	0.00	0.00		2,435.80	1,127.40	401,907.0	186,021.0

Add Row | Delete Row

Homes Dwelling Unit Equipment Modeling Summary

Report the modeled Receptacle Equipment and Appliances Equivalent Full Load Hours of Operation in the Schedules tab before referring to the table below. The Equivalent Full Load Hours of Operation is used to calculate the equipment power density for residential dwelling units that must be modeled based on the building equipment reported for the building. After confirming the Equivalent Full Load Hours of Operation in the schedules tab, use the values below for the Baseline and Proposed Miscellaneous Equipment Loads in the Dwelling Units. These loads include 0.5 Watts per square foot of electric miscellaneous equipment load with a 0.9 sensible ratio and 0.1 latent ratio in addition to the equipment load sources selected above.

Building ID	Equivalent Full Load Hours of Dwelling Unit Miscellaneous Equipment Operation Per Year	Total Area of Dwelling Units (square feet)		Electric Miscellaneous Loads in Dwelling Unit (including appliances and equipment listed above)							Natural Gas Miscellaneous Loads in Dwelling Unit (including appliances and equipment listed above)							Dwelling Unit Equipment Hot Water Loads	
				Baseline			Proposed				Baseline			Proposed				Base	Proposed
				Equipment Power Density (Watts/sq ft)	Sensible Ratio	Latent Ratio	Equipment Power Density (Watts/sq ft)	Sensible Ratio	Latent Ratio		Equipment Power Density (Btu/ sq ft)	Sensible Ratio	Latent Ratio	Equipment Power Density (Btu/ sq ft)	Sensible Ratio	Latent Ratio			
282 Bremen St	2,117	100885		2.08	0.60	0.11	1.94	0.59	0.12		0.00			0.00				614757.00	327921.00

Homes Service Water Heating Load Summary

Residential Usage Profile Dependent on Project Demographics		Baseline Residential Usage per person Excluding Clothes / Dish Washers	
Low	Demographics such as all occupants working, seniors, middle income, and higher population density.	12	gallons/day
Medium	Demographics such as mixture of working / non-working occupants, mixture of age groups, medium population densities.	25	gallons/day
High	Demographics such high percentages of children, low income, public assistance, or no occupants working.	44	gallons/day

Report the modeled Service Water Heating Full Load Hours of Operation in the Schedules tab before referring to the table below. The Equivalent Full Load Hours of Operation is used to calculate the DHW modeled peak residential flow a the DHW Heater that must be modeled to be consistent with the annual hot water consumption calculated here. After confirming the Equivalent Full Load Hours of Operation in the schedules tab,Identify the residential service water heating usage profile, and the average fixture flows for sink and shower fixtures. Supply temperature at fixture point of use shall be 120 degrees F. If the modeled supply DHW temperature from the DHW heater is higher than this, indicate the supply DHW temperature from the DHW heater and the average cold water input temperature below.

This information along with the appliance information entered above and the schedule data from the schedules tab is used to determine the DHW modeled Peak Flow at DHW heater,which should be input into the energy model.

Building ID	Residential Usage Profile	Average Fixture Flows (gallons/minute)		DHW Temperature Settings (degrees F)			DHW Sink and Shower Fixture Loads at Point of Use (gallons / year)		DHW In-Unit Appliance Loads at Point of Use (gallons / year)		DHW Laundry Room Equipment Loads at Point of Use (gallons / year)		DHW Total Residential Loads at Point of Use (gallons / year)		DHW Total Residential Loads at DHW Heater (gallons / year)		DHW Equivalent Full Load Hours of Operation	DHW Modeled Peak Residential Flow at DHW Heater (gallons / minute)	
		Showers	Sinks	DHW Supply Temp	Average Cold Water Temp	DHW Temp at Fixture Point of Use	Baseline	Proposed	Baseline	Proposed	Baseline	Proposed	Baseline	Proposed	Baseline	Proposed		Baseline	Proposed
282 Bremen St	Medium	1.50	0.50	135.0	50.0	120.0	1,752,000	1,238,186	614,757	327,921	0	0	2,366,757	1,566,107	1,949,094	1,289,735	2,446	13.281	8.788

Note: Flow rates are based on Energy Star Multifamily Simulation Guidance. One person is assumed per bedroom.

APPENDIX F – RESPONSE TO COB ACCESSIBILTY GUIDELINES

Article 80 – Accessibility Checklist

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

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

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

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

Accessibility Analysis Information Sources:

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

Glossary of Terms:

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

1. Project Information: *If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.*			
Project Name:	**282-308 Bremen Street**		
Primary Project Address:	282-308 Bremen St, Boston, MA 02128		
Total Number of Phases/Buildings:	One Phase/Building		
Primary Contact (Name / Title / Company / Email / Phone):			
Owner / Developer:	282 Bremen Development LLC		
Architect:	RODE Architects, Inc		
Civil Engineer:	Sherwood Consulting & Design, LLC		
Landscape Architect:	OJB Landscape Architecture		
Permitting:	Mitchell L. Fischman ("MLF") Consulting LLC		
Construction Management:	TBD		
At what stage is the project at time of this questionnaire? Select below:			
	PNF / Expanded PNF Submitted	**Draft /** Final **Project Impact Report Submitted**	BPDA Board Approved
	BPDA Design Approved	Under Construction	Construction Completed:
Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	Yes, outlets at exterior walls and group 1 sink depth.		
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:	*34,160 SF*	Building Area:	*Approx. 110,000 GSF*
Building Height:	*46'-6"- 62 FT*	Number of Stories:	*5-6 Floors*

First Floor Elevation:	10'-0"	Is there below grade space:		*Yes /* ☑ *No*
What is the Construction Type? (Select most appropriate type)				
	☑ Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	☑ Residential - Multi-unit, Four +	Institutional	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	*Lobby, Commercial, Live/Work, Parking, Resident Amenity Space, Bike storage, Leasing, Loading, Trash,*			

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 site is located in East Boston along Bremen St. between Brooks St. and Putnam St. and across from the Bremen Street Community Park. The neighborhood, much like the rest of East Boston is the artificial outcome of large amounts of man-made fill resulting in relatively little elevation change over the entire land mass. The site is virtually flat with a subtle downward slope of ~5"/400' from the South to the North.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	• MBTA Subway – Blue Line, Airport Station (accessible), 0.1 miles away; Located directly across from the site on the opposite side of the Bremen Street Community Park. • MBTA Bus lines: Silver Line SL3 to South Station from Airport Station, 0.1 miles away. Bus Route 120 operates along Bennington St, 0.2 miles North West of the site. .All MBTA Bus Routes are accessible.

List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	**Affordable/Public Housing:** 406 Meridian Street, Section 8 - Family 129 Havre Street, Section 8 - Family 172 Maverick Street, Section 8 – Family 209 Sumner Street, Federal Family & Elderly/Disabled 38 Vallar Road, State Family **Assisted Living:** Don Orione Home, 111 Orient Ave **Schools:** Boston Public: Early Ed / Elementary Bradley, Guild, PJ Kennedy, O'Donnell, Otis, Alighieri Montessori, Adams, K-12: East Boston HS, Other: McKay K-8, Umana Academy, East Boston EEC **Police:** Boston Police District A-7, Station 0.6 miles **Fire:** District 1; Engine Co.'s 5, 9, & 56. Ladder's 2 & 21 **Hospitals:** East Boston Neighborhood Health Center, 0.6 miles; Ambulance Districts 7
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	**Recreation/Open Space:** Bremen Street Community Park, East Boston Memorial Park, Bremen Street Park II, East Boston Greenway, Piers Park, LoPresti Park **Public Library:** Boston Public Library East Boston Branch – 0.1 miles **Community Center:** Paris Street Community Center, 112 Paris St Harborside Community Center, 312 Border St BCYF Martin Pino Community Center, 86 Boardman St **Transit:** Site is located (0.1 miles) to the Airport Station Blue Line and Silver Line station connecting the site to major Boston public facilities.
4. Surrounding Site Conditions – Existing: *This section identifies current condition of the sidewalks and pedestrian ramps at the development site.*	
Is the development site within a historic district? ***If yes,*** identify which district:	The development team is not aware of the project site being located within an historic district. The nearest historic district is the Beacon Hill District, 3.3 miles away.
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	Yes, existing sidewalk widths vary from 7'-0" to 8'-0" with a 6" curb. There is an existing non-compliant accessible curb cut along Bremen St. at the intersection of Brooks. There are approximately a total 158' of existing non-accessible curb cuts along both Bremen and Brooks. The sidewalks are in various levels of disrepair and are comprised of cast in place concrete.

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 existing sidewalks and pedestrian ramps are to remain.
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.	The proposed sidewalk complies with the Boston Complete Streets Guidelines and will fall under the *Residential* Street Type. The streetscape will focus on pedestrian safety, street trees, and well-defined connections to public transportation and public parks and amenities.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	The total dimension of the proposed sidewalk is 9'. The total dimension will align with the adjacent existing sidewalk. The Pedestrian Zone will be 5' 6" and the Greenscape/Furnishing Zone is 3' wide with a 6" curb. The slope of the sidewalks will follow the grade of the existing sidewalk. There are also 3 pedestrian bump outs of 9' into the right of way bringing the total proposed pedestrian zone to 18' in those areas.
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?	Th Pedestrian Zone will be concrete. The Greenscape/Furnishing Zone will also be concrete. The proposed materials will be on both the City of Boston pedestrian right-of-way and 2' of the project site
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No

If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	Yes, the development team will be seeking a pedestrian easement with the Public Works Department or Public Improvement Commission, if needed.
Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	Yes, the project may go through the PIC process.
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	Up to approx. 68 spaces utilizing stackers located within a parking garage.
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	2 accessible spaces, 1 will be van accessible
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	All accessible parking requirements are met on site.
Where is the accessible visitor parking located?	Accessible parking spaces are located in the parking garage, closest to the elevator core. These parking spaces can be designated for visitors as required.
Has a drop-off area been identified? ***If yes,*** will it be accessible?	Yes, all provided drop-off areas will be accessible.

7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.*	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	All entryways are flush conditions.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes, all standard entrances are accessible.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	All future way-finding signage will be developed to meet Building Code and Accessibility Board Requirements
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	Approx. 145 Multifamily Rental Units
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	Approx. 145 rental units The development will include affordable units in compliance with the City of Boston's Inclusionary Housing Policy.
If a residential development, how many accessible Group 2 units are being proposed?	5% of the 145 rental units will be accessible: approximately 7 units will be provided in full compliance with MAAB Group-2A regulations
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	Accessible units will include a mix of affordable and market rate units, in a proportion similar to the overall composition of units. Final breakdown to be determined.

If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	N/A
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes***, provide reason.	No
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes***, describe:	Interior elevators are provided to access all floors.
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.*	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	Yes, the project is improving the Bremen Street and Brooks street crossings by providing a pedestrian sidewalk bump out to minimize the crossing distance.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	All amenity spaces will be fully accessible, with all accessible controls and appliances and will accommodate for accessible seating, and accessible amenity bathrooms.

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.
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?	Proposed plan has not yet been reviewed with the Boston Disability Commissioner or Architectural Access Staff.
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?	Has not yet been presented.

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 Figures F-1, F-2, and F-3 that follow.**
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project.

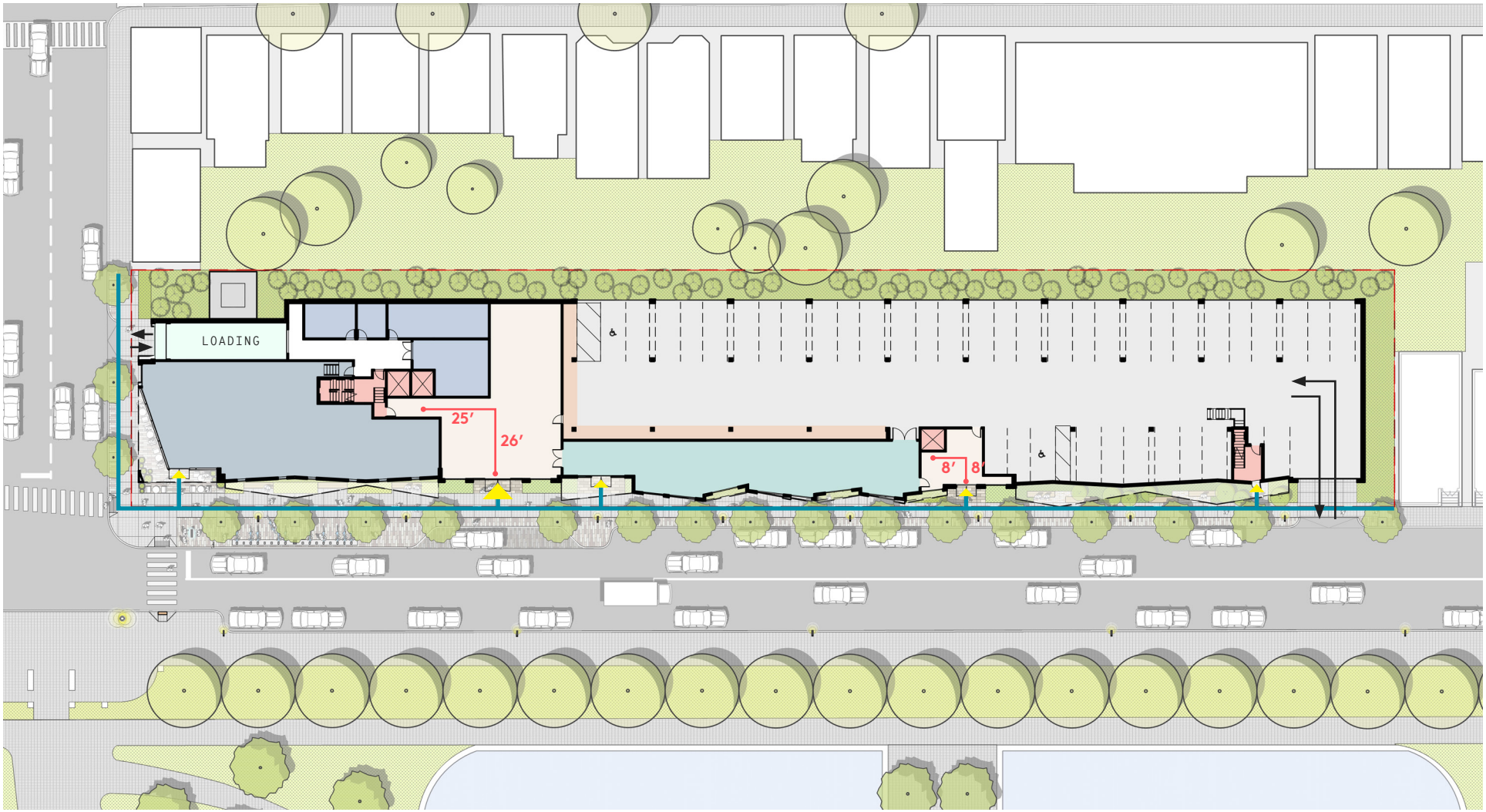
This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open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

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

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

Architectural Access staff can be reached at:

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



LEGEND

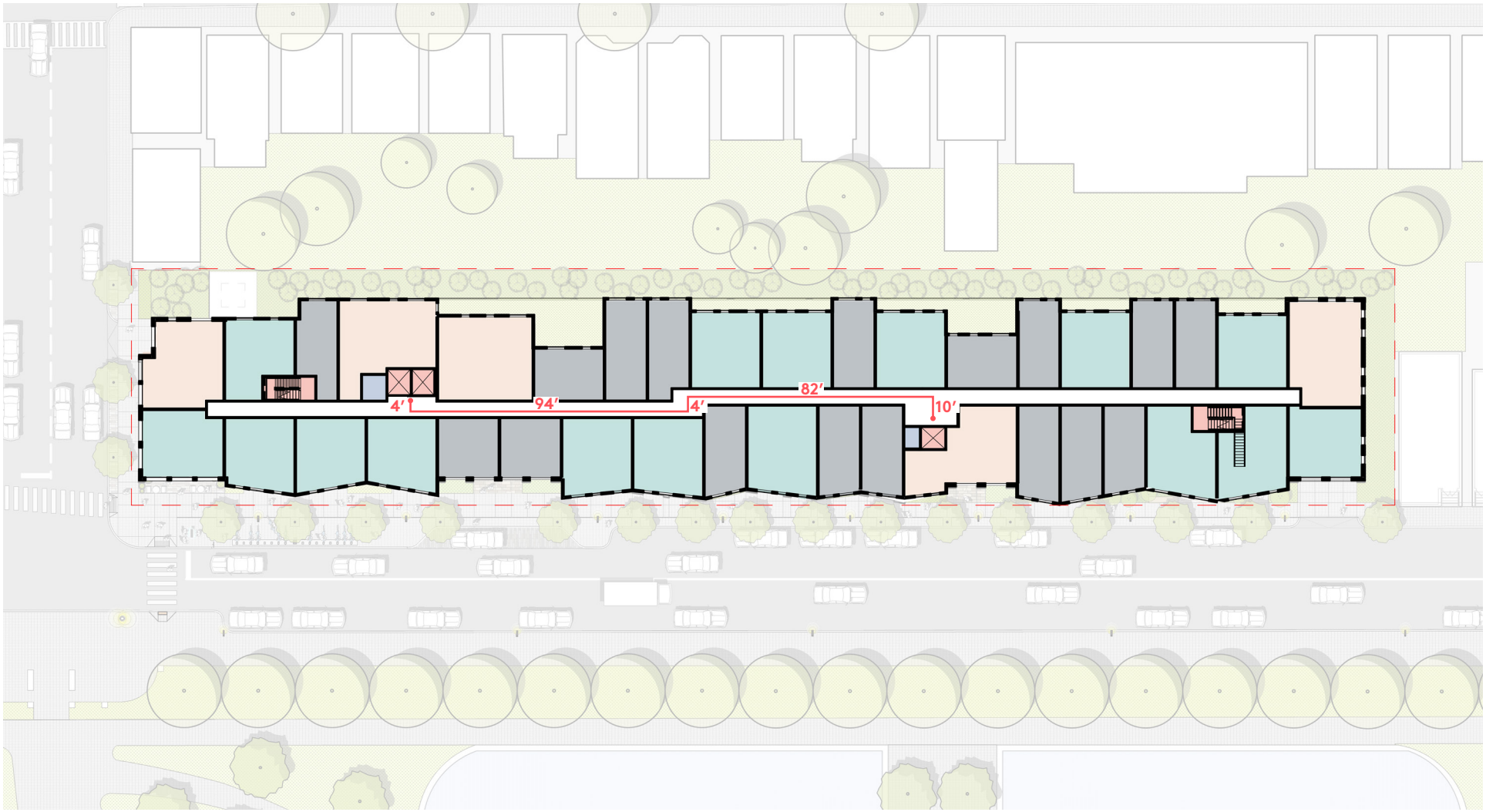
RETAIL
CIRCULATION
LOBBY
SERVICE
ARTIST/MAKERSPACE
PARKING
LOADING
BIKES
ENTRY
ACCESSIBLE ROUTE
VEHICULAR ROUTE

N

1” = 50’–0”

RODE

FIGURE F-1 / **ACCESSIBILITY (SITE + L1)**



LEGEND

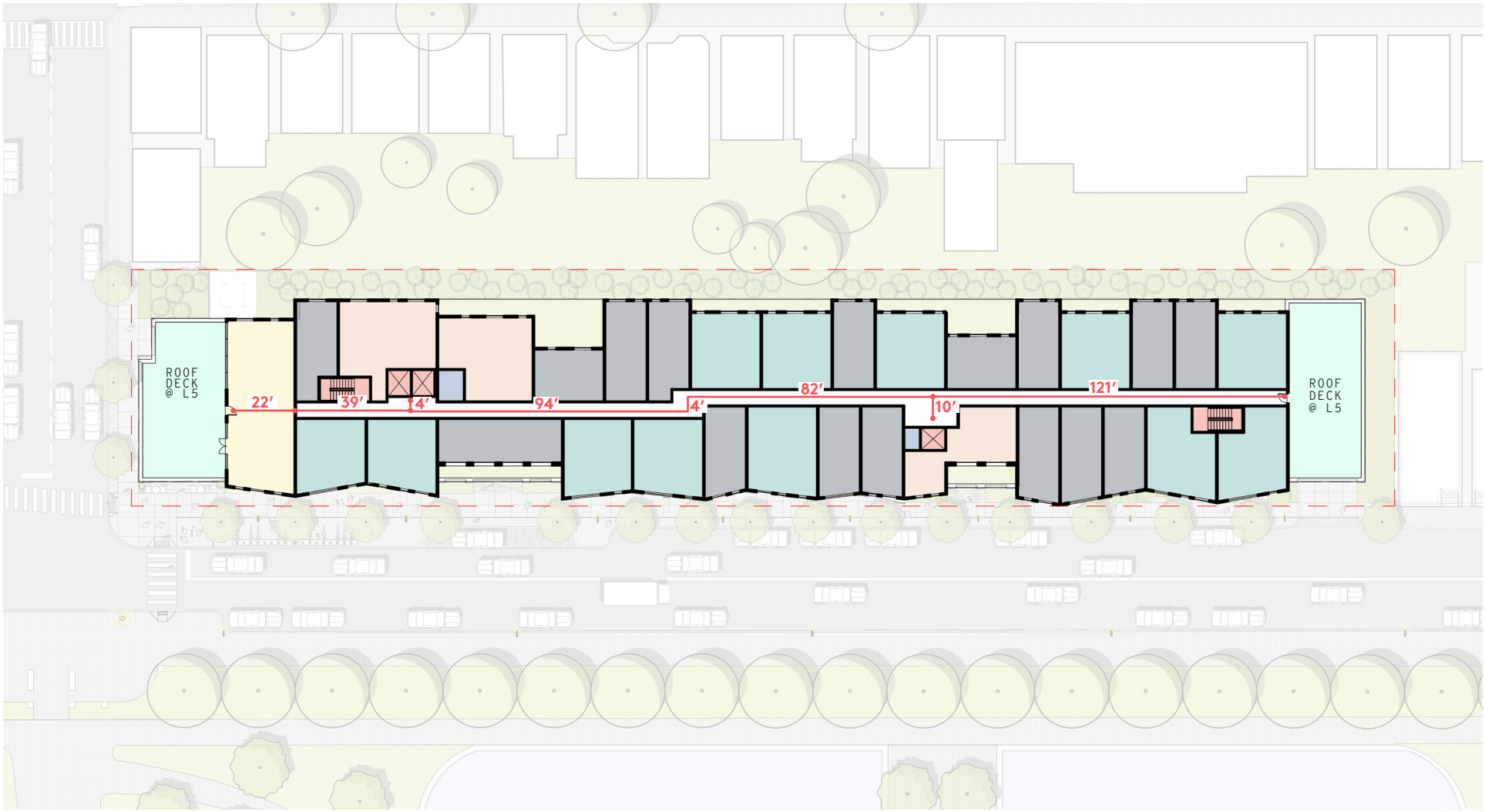
STUDIO
1–BED
2–BED
SERVICE
CIRCULATION
ROOF DECK
ACCESSIBLE ROUTE

N

1” = 50’–0”

FIGURE F-2 / **ACCESSIBILITY (LEVEL 2–4)**

RODE



LEGEND

STUDIO
1–BED
2–BED
SERVICE
CIRCULATION
ROOF DECK
AMENITY SPACE
ACCESSIBLE ROUTE

N

1” = 50’–0”

FIGURE F-3 / **ACCESSIBILITY (LEVEL 5 FLOOR PLAN)**

RODE

APPENDIX G – RESPONSE TO COB BROADBAND QUESTIONNAIRE

Appendix G

Broadband Ready Buildings Questionnaire

282-308 Bremen Street, East Boston

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

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

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

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

Section 1: General Questions

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

Project Information

- Project Name: **282-308 Bremen Street, East Boston**
- Project Address Primary: **282-308 Bremen Street, East Boston**
- Project Address Additional: **N/A**
- Project Contact: **Bryan Lee, Blee@transomrealeastate.com, Tel: 617-307-6530**
- Expected completion date: **2022**

Team Description

- Owner / Developer: **282 Bremen Development, LLC, c/o Transom Real Estate, LLC**
- Architect: **RODE Architects Inc.**
- Engineer (building systems): **TBD**
- Permitting: **Mitchell L. Fischman ("MLF") Consulting LLC**
- Construction Management: **TBD**

Section 2: Right of Way to Building

Point of Entry Planning

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

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

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

- Other information/comments: **Unknown**

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

- **Yes**
- No
- Unknown

Section 3: Inside of the Building

Riser Planning

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

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

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

Telecom Room

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

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

- What is the size of the telecom room? **Unknown**

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

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

- Will the telecom room be climate controlled?

  - **Yes**
  - No
  - Unknown

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

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

- Will the telecom room contain a flood drain?
  - Yes
  - No
  - **Unknown**
- Will the telecom room be single use (telecom only) or shared with other utilities?
  - Telecom only
  - Shared with other utilities
- U**nknown**

Delivery of Service Within Building (Residential Only)

Please enter 'unknown' if these decisions have not yet been made or you are presently unsure. Questions 5 through 8 are for residential development only.

#5: Will building/developer supply common inside wiring to all floors of the building?

- Yes
- No
- **Unknown**

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

#7: Is the building/developer providing wiring within each unit?

- **Yes**
- No
- Unknown

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

Section 4: Accommodation of New and Emerging Technologies

Cellular Reception

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

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

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

- **Yes**
- No

- Unknown

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

- **Yes**
- No
- Unknown

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

- **Yes**
- No
- Unknown

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

- Carrier
- Neutral host provider
- **Self-installing**

Rooftop Access

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

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

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

- Yes
- No
- **Unknown**

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

- Yes
- No
- **Unknown**

Section 5: Telecom Provider Outreach

Supporting Competition and Choice

Having a choice of broadband providers is a value add for property owners looking to attract tenants and for tenants in Boston seeking fast, affordable, and reliable broadband service. In addition to enabling tenant choice in your building, early outreach to telecom providers can also reduce cost and disruption to the public right of way. The following questions focus on steps that property owners can take to ensure that multiple wireline or fixed wireless broadband providers can access your building and provide service to your tenants.

#15: (Residential Only) Please provide the date upon which each of the below providers were successfully contacted, whether or not they will serve the building, what transmission medium they will use (e.g. coax, fiber) and the reason they provided if the answer was 'no'. **TO BE COMPLETED DURING DESIGN DEVELOPMENT**

- Comcast - enter contact info
- RCN - enter contact info
- Verizon - enter contact info
- Wicked Broadband - enter contact info
- WebPass
- Starry
- Level 3
- Cogent
- Lightower
- XO Communications
- AT&T
- Zayo
- Other(s) - please specify - enter contact info

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

- **Yes**
- No
- Unknown

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

- Yes
- No
- **Unknown**

Section 6: Feedback for Boston Planning and Development Agency

The Boston Planning and Development Agency looks forward to supporting the developer community in enabling broadband choice for resident and businesses. Please provide feedback on your experience completing these questions. **Some of these questions are difficult to respond to at this point in the design process.**

APPENDIX H – RESPONSE TO BOSTON SMART UTILITIES CHECKLIST

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

Date Submitted:	**09/23/19**
Submitted by:	**Mitchell L. Fischman Consulting LLC**

Background

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

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

b) integration of the Smart Utility Standards

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

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

Part 1 - General Project Information

1.1 Project Name	**282-308 Bremen Street**
1.2 Project Address	**282-308 Bremen Street, East Boston**
1.3 Building Size (square feet) **For a multi-building development, enter total development size (square feet)*	**Approx. 110,000 gsf**
1.4 Filing Stage	**Draft Project Impact Report ("DPIR")**

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

1.5 Filing Contact Information

1.5a Name	**Mitchell L. Fischman**
1.5b Company	**Mitchell L. Fischman ("MLF") Consulting LLC**
1.5c E-mail	mitchfischman@gmail.com
1.5d Phone Number	**781-760-1726**

1.6 Project Team

1.6a Project Owner/Developer	**282 Bremen Development, LLC** **c/o Transom Real Estate, LLC**
1.6b Architect	**RODE Architects, Inc.**
1.6c Permitting	**MLF Consulting LLC**
1.6d Construction Management	**TBD**

Part 2 - District Energy Microgrids

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

Note on submission requirements timeline:

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

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

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

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

Please email submission to manuel.esquivel@boston.gov

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

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

Part 3 - Telecommunications Utilidor

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

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

Please email submission to manuel.esquivel@boston.gov

3.1 Consultant Assessing/Designing Telecom Utilidor (if applicable)	

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

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

Part 4 - Green Infrastructure

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

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

Please email submission to manuel.esquivel@boston.gov

4.1 Consultant Assessing/Designing Green Infrastructure (if applicable)	**Sherwood Consulting and Design, LLC**

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

4.2 Date Green Infrastructure Map/Diagram was submitted	**See Response to Item 4.3 below.**
4.3 Types of Green Infrastructure included in the project (select all that apply)	**It is too early to define type LLCs of Green Infrastructure and to determine if any are possible or feasible for this site until we are in design development. Please note: the site has limited landscaping area to employ these strategies effectively.**
4.4 Total impervious area of the development (in square inches)	**4,072,752 square inches** **(See graphic of pervious and impervious areas that follows based on the architect's conceptual design plans contained in the PNF)**
4.5 Volume of stormwater that will be retained (in cubic inches)* **Note: Should equal to at least "Total impervious area (entered in section 4.3)" times "1.25 inches"*	**5,090,940 cubic inches**
4.6 Which of the following have you had engagement/review meetings with regarding Green Infrastructure? (select all that apply)	**No meetings to date.**
4.7 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Green Infrastructure? (Optional: include dates)	**No meetings to date.**

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

Part 5 - Adaptive Signal Technology (AST)

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

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

Please email submission to manuel.esquivel@boston.gov

5.1 Consultant Assessing/Designing Adaptive Signal Technology (if applicable)	**Howard Stein Hudson**
5.2 Date AST Map/Diagram was submitted	**Will be submitted at the time of the TAPA review.**
5.3 Describe how the AST system will benefit/impact the following transportation modes	
5.3a Pedestrians	**Will be determined at the time of the TAPA review.**
5.3b Bicycles	**Will be determined at the time of the TAPA review.**
5.3c Buses and other Public Transportation	**Will be determined at the time of the TAPA review.**
5.3d Other Motorized Vehicles	**Will be determined at the time of the TAPA review.**
5.4 Describe the components of the AST system (including system design and components)	**Will be determined at the time of the TAPA review.**
5.5 Which of the following have you had	**No meetings to date. Will be determined at the time**

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

engagement/review meetings with regarding AST? (select all that apply)	**of the TAPA review.**
5.6 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding AST? (Optional: include dates)	**No meetings to date. Will engage in meetings at the time of the TAPA and the PIC reviews.**

Part 6 - Smart Street Lights

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

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

Please email submission to manuel.esquivel@boston.gov

6.1 Consultant Assessing/Designing Smart Street Lights (if applicable)	**Sherwood Consulting and Design, LLC, RODE Architects, and MEP to be determined.**
6.2 Date Smart Street Lights Map/Diagram was submitted	**Will be determined and provided at the time of the PIC Review.**
6.3 Which of the following have you had engagement/review meetings with regarding Smart Street Lights? (select all that apply)	**Will be determined at the time of the PIC Review.**
6.4 What engagement meetings have you had with utilities and/or other agencies (i.e., State agencies) regarding Smart Street Lights? (Optional: include dates)	**Will include discussions with Boston Street Lighting at the time of the PIC Review.**

Appendix H. Response to Boston Smart Utilities Checklist
282-308 Bremen Street, East Boston

Part 7 - Smart Utility Standards

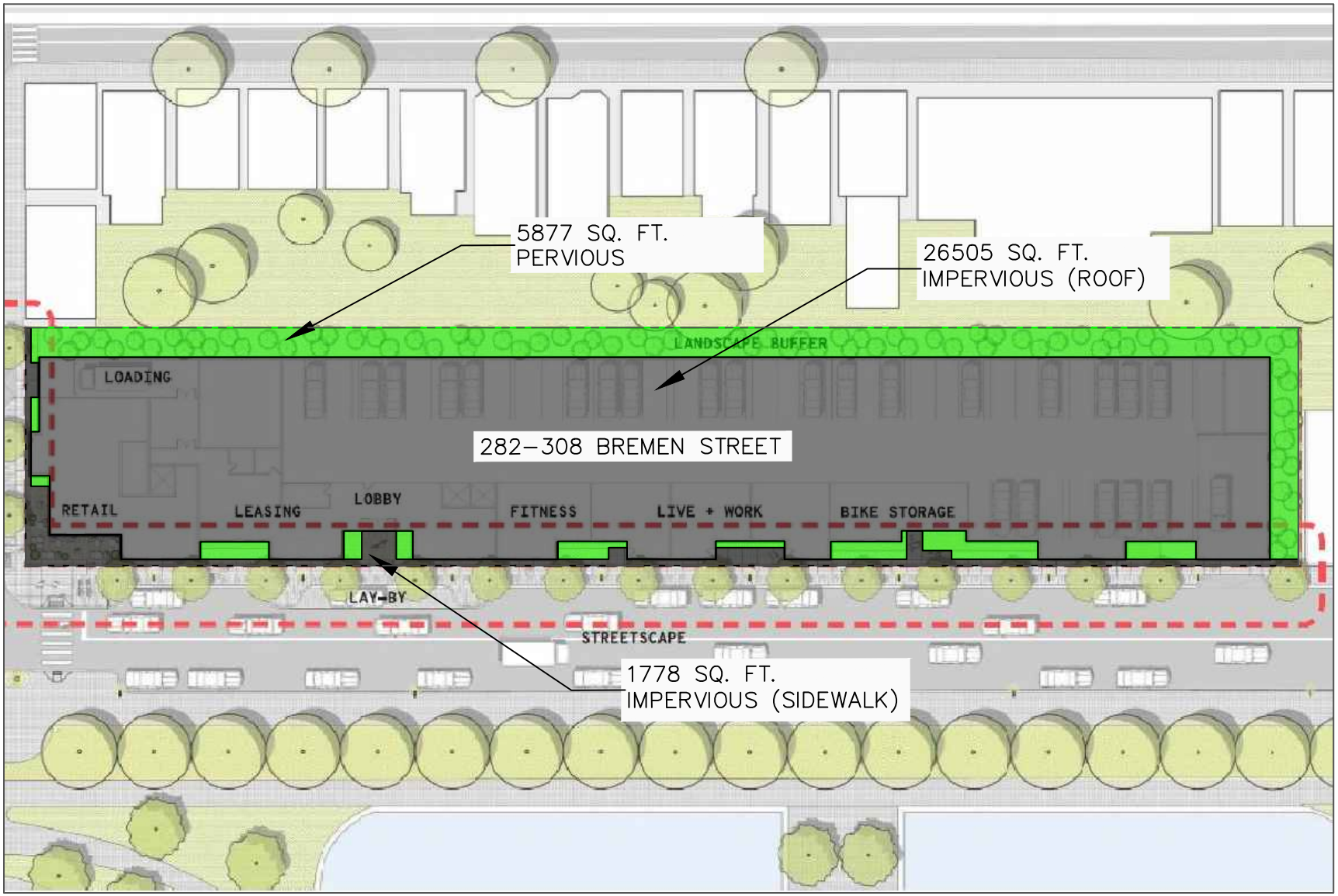
The Smart Utility Standards set forth guidelines for planning and integration of SUTs with existing utility infrastructure in existing or new streets, including cross-section, lateral, and intersection diagrams. The Smart Utility Standards are intended to serve as guidelines for developers, architects, engineers, and utility providers for planning, designing, and locating utilities. The Smart Utility Standards will serve as the baseline for discussions on any deviations from the standards needed/proposed for any given utility infrastructure.

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

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

Please email submission to manuel.esquivel@boston.gov

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



282-308 BREMEN STREET
SCALE: 1"=50'

APPENDIX I – PEDESTRIAN LEVEL WIND ASSESSMENT

REPORT

282-308 BREMEN STREET

BOSTON, MA

PEDESTRIAN WIND ASSESSMENT

PROJECT # 1902422

SEPTEMBER 19, 2019

SUBMITTED TO

Bryan Lee
BLee@transomrealestate.com

282 Bremen Development, LLC
c/o Transom Real Estate, LLC
527 Albany Street, Suite 100
Boston, MA 02118.

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T: 519.823.1311

1. INTRODUCTION

RWDI was retained by Transome Real Estate to assess the potential pedestrian wind conditions around the proposed Project at 282-308 Bremen Street in Boston, MA. The study was done in support of the Draft Project Impact Report (DPIR) to the Boston Planning and Development Agency (BPDA). This qualitative assessment is based on the following:

- a review of the regional long-term meteorological data from Boston Logan International Airport;
- design drawings and e-model received from RODE Architects Inc. on August 27, 2019;
- wind-tunnel studies undertaken by RWDI for similar projects in the Boston area;
- our engineering judgment, experience and expert knowledge of wind flows around buildings[1-3]; and,
- use of software developed by RWDI (Windestimator[2]) for estimating the potential wind conditions around generalized building forms.

This qualitative approach provides a screening-level estimation of potential wind conditions. Conceptual wind control measures to improve wind comfort are recommended, where necessary. In order to quantify these conditions or refine any conceptual mitigation measures, physical scale-model tests in a boundary-layer wind tunnel would be required.

Note that other wind issues, such as those related to cladding and structural wind loads, snow drifting and loading, door operability, etc., are not considered in the scope of this assessment.

Image 1: Rendering of the proposed development

1. C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", 10th International Conference on Wind Engineering, Copenhagen, Denmark.
2. H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", ASCE Structure Congress 2004, Nashville, Tennessee.
3. H. Wu and F. Kriksic (2012). "Designing for Pedestrian Comfort in Response to Local Climate", Journal of Wind Engineering and Industrial Aerodynamics, vol.104-106, pp.397-407.

2. SITE & BUILDING INFORMATION

The Project site, currently occupied by one-story commercial buildings, is bounded to the northwest by the rear property lines of multi-family residential properties along Chelsea Street, to the northeast by multi-family residences along Bremen Street, to the south by Bremen Street, and to the southwest by Brooks Street in the East Boston neighborhood of Boston (Image 2). The site is located just outside, to the west of, Boston Logan International Airport. Surroundings generally comprise low-rise residences and commercial buildings in a dense arrangement. The high-rise Boston core is less than 2 miles southwest of the site.

The proposed Project will be a new residential apartment development that is five stories (57 feet) tall, containing residential apartment units, live/work units, ground floor retail space plus amenity, lobby, circulation, and accompanying storage spaces, as well as garage parking spaces (Image 3). Key pedestrian areas on and around the site include main entrances on Bremen Street, nearby sidewalks and Bremen Street Community Park spanning along Bremen Street to the south.

Image 2: Aerial view of the existing site and surroundings

East elevation

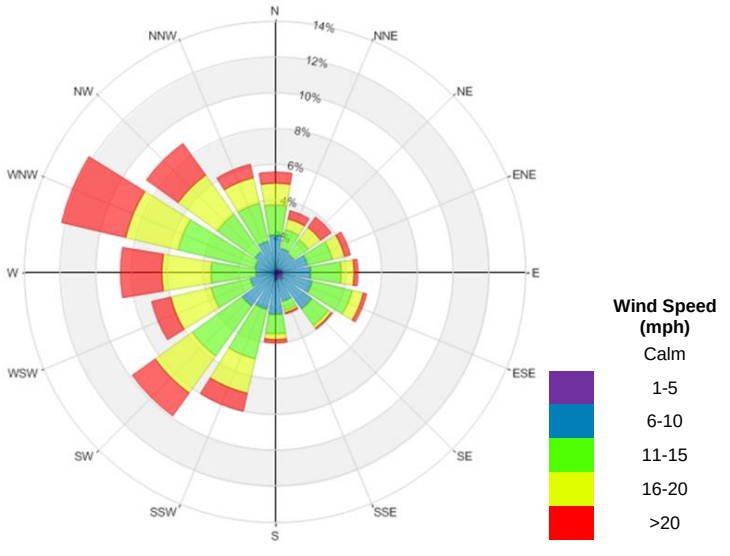
South elevation

Image 3: Project elevations

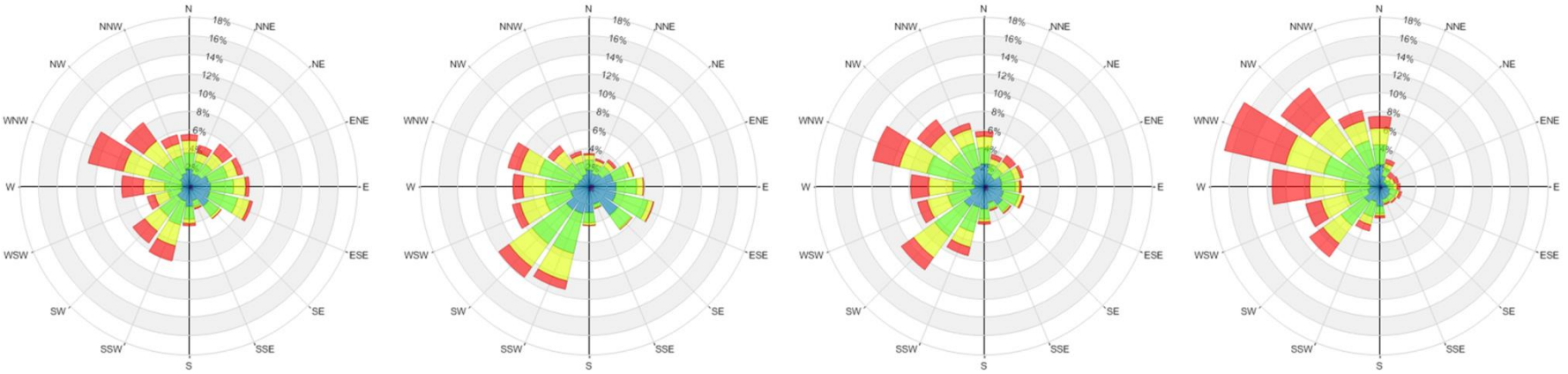
3. METEOROLOGICAL DATA

Wind statistics at Boston Logan International Airport between 1990 and 2019 were analyzed and Image 4 graphically depicts the distributions of wind frequency and directionality for the four seasons and for the annual period. When all winds are considered (regardless of speed), winds from the northwest and southwest quadrants are predominant. Northeasterly winds are also relatively frequent in the spring.

Strong winds with mean speeds greater than 20 mph (red bands in the wind roses) are prevalent from the west-northwest direction throughout the year, while the strong winds from the southwest and northeast are also common. These are critical wind directions focused on in the following discussions.



Annual Winds



Spring (March to May) | Summer (June to August) | Fall (September to November) | Winter (December to February)

Image 4: Directional distribution of winds approaching Boston Logan International Airport (1990 to 2019)

4. PEDESTRIAN WIND CRITERIA

The Boston Planning and Development Agency (BPDA) has adopted two standards for assessing the relative wind comfort of pedestrians, based on the work of Melbourne[4].

First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly-mean wind speed + 1.5 times the root mean square wind speed) of 31 mph should not be exceeded more than one percent (1%) of the time. This criterion is hereby referred to as the gust criterion.

The second set of criteria used by the BPDA to determine the acceptability of specific locations is based on the work of Melbourne[4]. This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing, or walking. The criteria are expressed in terms of benchmarks for the 1-hour mean wind speed exceeded 1% of the time (i.e., the 99-percentile mean wind speed). They are shown in Table 1.

Table 1: BPDA Mean Wind Speed Criteria *

Dangerous	> 27 mph
Uncomfortable for Walking	> 19 and ≤ 27 mph
Comfortable for Walking	> 15 and ≤ 19 mph
Comfortable for Standing	> 12 and ≤ 15 mph
Comfortable for Sitting	≤ 12 mph

* Applicable to the mean wind speed exceeded one percent (1%) of the time.

Pedestrians on sidewalks will be active and wind speeds comfortable for walking are appropriate at these locations. Lower wind speeds comfortable for standing are desired for building entrances where people are apt to linger. For any outdoor amenity at and above grade, low wind speeds comfortable for sitting or standing are desired in the summer months when such amenity spaces are typically in use. Wind speeds rated “Uncomfortable for Walking” and/or “Dangerous” are higher than desirable for any pedestrian activity.

The following discussions on pedestrian wind conditions is based on the annual wind climate. Typically the summer and fall winds tend to be more comfortable than the annual winds while the winter and spring winds are less comfortable than the annual winds.

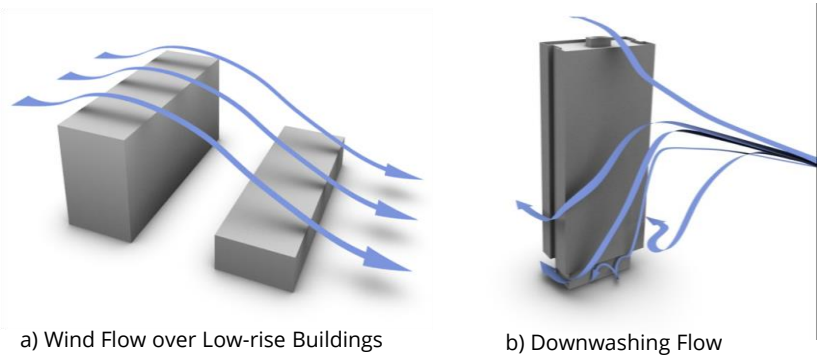
4. Melbourne, W.H., 1978, "Criteria for Environmental Wind Conditions", Journal of Industrial Aerodynamics, 3 (1978) 241 - 249.

5. PEDESTRIAN WIND CONDITIONS

5.1 Background

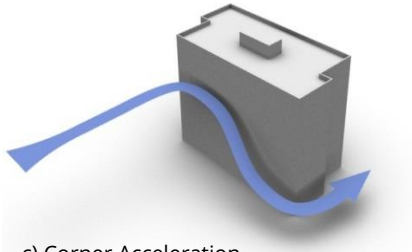
Predicting wind speeds and frequencies of occurrence is complicated. It involves the assessment of building geometry, orientation, position and height of surrounding buildings, upwind terrain and the local wind climate. Over the years, RWDI has conducted thousands of wind tunnel model studies on pedestrian wind conditions around buildings, yielding a broad knowledge base. This knowledge has been incorporated into RWDI's proprietary software that allows, in many situations, for a screening-level qualitative estimation of pedestrian wind conditions without wind tunnel testing.

Wind generally tends to flow over dense arrays of buildings of even height, as in the area surrounding the Project (Image 5a). Buildings taller than their surroundings tend to intercept the stronger winds at higher elevations and redirect them to the ground level. Such a Downwashing Flow (Image 5b) is the main cause for increased wind activity around buildings at the pedestrian level. Oblique winds also cause wind accelerations around the exposed building corners (Image 5c). If these building/wind combinations occur for prevailing winds, there is a greater potential for increased wind activity.



a) Wind Flow over Low-rise Buildings

b) Downwashing Flow



c) Corner Acceleration

Image 5: General wind flow around buildings

5.2 No Build

The buildings on and around the site are low-rise and generally of uniform height. Such a terrain typically does not cause winds to be deflected so as to cause strong accelerations near street level. The dense arrangement of buildings also protect nearby streets from high-wind activity.

Existing wind conditions at most areas on and around the development site are likely comfortable for sitting or standing on an annual basis. Wind speeds are expected to meet the effective gust criterion on an annual basis.

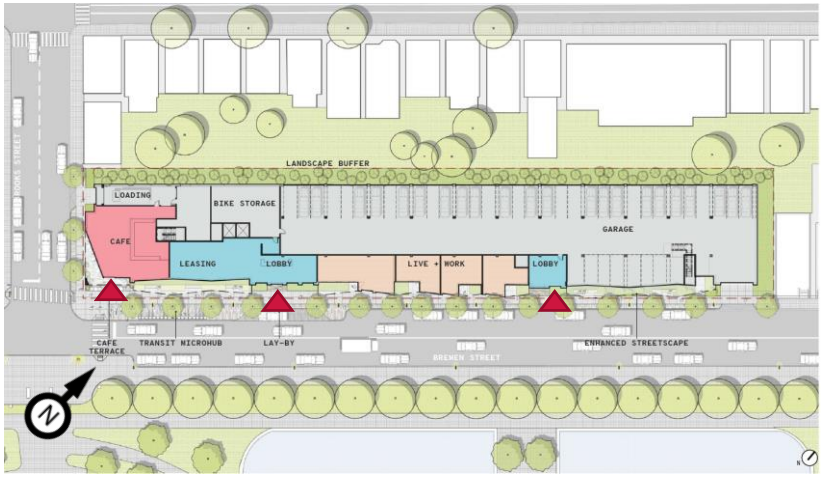


Image 6: Site plan showing main entrances in red

5.3 Build

The proposed Project, at five stories, will be taller than buildings in the immediate surroundings. The widest façade of the building will face the prevailing northwest and westerly winds (Image 6). As such, the building is expected to cause some level of downwash and corner acceleration of winds. However, being only about two stories taller than surrounding buildings, the impact of the building on wind conditions will be localized to the Project perimeter. The Project is not expected to affect wind conditions beyond its perimeter negatively.

Mean wind speeds on and around the Project, including main entrances of the Project on Bremen Street (Image 6), are expected to continue to be comfortable for sitting or standing. Higher wind speeds comfortable for walking are expected at the corner of Bremen and Brooks Street due to corner acceleration of winds. These conditions are considered appropriate for pedestrian use of the areas where they are expected. Wind speeds in the Bremen Street Community Park are not expected to be impacted negatively. In fact, a slight reduction in wind speeds is expected in areas immediately east and southeast of the Project, in the park due to sheltering by the Project from winds approaching from the west and northwest, respectively. The existing and proposed trees around the Project will enhance wind comfort when they are in full leaf.

Overall, mean wind conditions are predicted to remain similar to conditions that exist currently around the Project site. Wind conditions are also expected to meet the effective gust criterion on an annual basis.

6. SUMMARY AND APPLICABILITY OF ASSESSMENT

The proposed Project is a five-story residential building located on Bremen Street near Boston Logan International Airport. The densely built surroundings precondition wind approaching the site and reduce the potential for severe wind impact. Wind speeds around the existing site are considered to meet the effective gust criterion and to be rated comfortable for sitting or standing on an annual basis. The addition of the proposed Project is not expected to alter these conditions noticeably. An increase in wind speeds is expected at the southern corners of the building at the intersection of Bremen and Brooks Street. However, wind conditions are predicted to remain appropriate for the expected pedestrian use on and around the Project.

Overall wind conditions are expected to be similar to those that currently prevail on and around the site.

The assessment discussed in this report pertain to the proposed Boston Medical Center Institutional Masterplan development in accordance with the drawings received from RODE Architects Inc. on August 27, 2019. In the event of any significant changes to the design, construction or operation of the building or addition of surroundings in the future, RWDI could provide an assessment of their impact wind conditions discussed in this report. It is the responsibility of others to contact RWDI to initiate this process.

282-308 Bremen Street, East Boston

MLF
CONSULTING LLC