Notice of Project Change

LOVEJOY WHARF

Submitted to:

BOSTON REDEVELOPMENT AUTHORITY
ONE CITY HALL SQUARE
BOSTON, MASSACHUSETTS 02201

Prepared by

EPSILON ASSOCIATES, INC.
3 CLOCK TOWER PLACE, SUITE 250
MAYNARD, MASSACHUSETTS, 01754

Submitted by:

RELATED BEAL, LLC
177 MILK STREET
BOSTON, MASSACHUSETTS 02139

In Association with:

ADD, INC.
ROBERT A.M. STERN ARCHITECTS, LLP
COPLEY WOLFF DESIGN GROUP
NITSCH ENGINEERING
HALEY & ALDRICH, INC.
CHILDS ENGINEERING CORPORATION
VANASSE & ASSOCIATES, INC.
CONSENTINI ASSOCIATES
NUTTER MCCLENNEN & FISH LLP

SEPTEMBER 24, 2012

Epsilon
ASSOCIATES INC.

RELATED BEAL

September 24, 2013

BY HAND

Mr. Peter Meade, Director
Boston Redevelopment Authority
Boston City Hall, 9th Floor
One City Hall Plaza
Boston, Massachusetts 02201

Re: Lovejoy Wharf Project – Notice of Project Change

Dear Director Meade:

On behalf of Related Beal, LLC (the "Proponent") we are pleased to submit the enclosed Notice of Project Change for the Lovejoy Wharf Project (the "Project") in accordance with the requirements of Section 80A-6 of the Boston Zoning Code (the "Code"). This filing is being provided pursuant to Section 80A-6 of the Code in an effort to update the Boston Redevelopment Authority ("BRA") and interested stakeholders as to the Project's status. As before, this Project will play a central role in rejuvenating Lovejoy Wharf and making it a vibrant waterfront center reflective of both its history and its distinguished location within the City of Boston.

The Project is a mixed-use redevelopment project for the long under-utilized 2.1-acre Lovejoy Wharf waterfront parcel. The Project includes both the rehabilitation of the existing 160 North Washington Street Building to the world headquarters for Converse, Inc., a subsidiary of Nike, Inc., and the demolition and new building on the 131 Beverley Street parcel. The Project also includes the replacement of the existing non-utilized wharf, which will create approximately three-quarters of an acre of publicly-accessible waterfront open space, including an extension of the City of Boston's Harborwalk along the water's edge of the parcel. The wharf has never been open for public use since its construction in 1909 and has been in significant disrepair. The Project will restore this dilapidated wharf into activated landscaped open space with short term recreational boat dockage and public water transportation facilities.

Work has commenced on the Project. The rehabilitation of the 160 North Washington Street building commenced earlier this year and is currently scheduled to be completed and occupied by Converse in early 2015. The dilapidated building at 131 Beverly Street was removed earlier this year. Construction of the wharf also commenced earlier this year and is scheduled to be completed in late 2014.

RELATED BEAL • 177 Milk Street, Boston, MA 02109 • (617) 451-2100 • (617) 451-1801 fax • www.relatedbeal.com

The approvals sought by the Project's original developers contemplated both buildings containing residential rental units, a robotic controlled parking garage and retail. In accordance with the BRA Board vote in December 2012, the use of the 160 North Washington Street building was converted from residential to commercial. The ancillary retail and public spaces remains the same.

The primary modification to the Project in this current filing is the separation of 131 Beverley Street and 160 North Washington to create two independent buildings. The 131 Beverly Street Building remains as residential use as originally approved, however we anticipate building for sale condominium product (as opposed to the previous developer's plans for rental), containing approximately 175 units. The originally approved Lovejoy Wharf Project contemplated total of approximately 250 units. There are no changes to the proposed height of the 131 Beverly Street building and there are no changes proposed to the 160 North Washington Street building. The ground floor of the 131 Beverly Street building will continue to be primarily devoted to a mix of Facilities of Public Accommodation (FPAs), including a public visitor center, retail and restaurant uses.

Finally, the above-grade robotic controlled parking garage that the original developer proposed has been eliminated from the Project. The Project is surrounded by (i) an unparalleled amount of public transportation including the North Station commuter rail, multiple subway lines (green and orange lines), bus lines and anticipated scheduled and non-scheduled water transportation to be provided at the wharf at the Lovejoy Project; and (ii) a very significant supply of existing off-street public parking in the surrounding areas.

The purpose of this submission is to notify the BRA of the proposed modifications to the Project and to request that you determine, for the reasons set forth therein, that these modifications do not represent a "material" change which would require additional review in accordance with Section 80A-6 or Article 80B of the Code.

We appreciate your review of the enclosed. Please do not hesitate to contact me at 617-399-9511 or pspellios@relatedbeal.com should you have any questions or require anything additional with respect to the enclosed.

Very truly yours,

RELATED BEAL, LLC

Peter A. Spellios
Executive Vice President

Notice of Project Change

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SEPTEMBER 24, 2012

Epsilon ASSOCIATES INC.

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General Information and Project Description

1.0 GENERAL INFORMATION AND PROJECT DESCRIPTION

1.1 Introduction

Related Beal, LLC ("the Proponent") is pleased to submit this Notice of Project Change (NPC) for the Lovejoy Wharf Project (the "Project"), a project previously approved by the Boston Redevelopment Authority ("BRA") in December 2006, and modified by way of a Notice of Project Change approved by the BRA in December 2012. The Proponent remains committed to proceeding with the Project in a manner which is consistent with that which was originally approved, and which includes the many public benefits and amenities contemplated for the Project. To that end, the Proponent is pleased to note that the Project as modified in December is proceeding rapidly and that key components, including the rehabilitation of the 160 Washington Street building and the reconstruction of the wharf and associated public amenities, have commenced and are on schedule for completion in early 2015. The Notice of Project Change ("NPC") presented herein represents a final refinement of the Project design completed so as to insure that all components of the Project are completed rapidly and in accordance with the vision for Lovejoy Wharf as originally contemplated.

This filing is being made in accordance with the provisions of Section 80A-6 of the Boston Zoning Code ("the Code") primarily in an effort to update the BRA and interested stakeholders as to the Project's status. No change in use is contemplated, but the number of residential units in the 131 Beverly Street building has now been confirmed, and the interior parking contemplated for the 131 Beverly Street building is being eliminated. As before, the Project is committed to rejuvenating Lovejoy Wharf and making it a vibrant waterfront center reflective of both its history and its distinguished location within the City of Boston.

The Project as presented in the 2006 Article 80 Final Project Impact Report ("Final PIR") envisioned the renovation of the 160 Washington Street building for residential use, with restaurant and commercial space on the wharf and Washington Street levels of the building, and the demolition and reconstruction of the attached 131 Beverly Street building for residential use and an interior garage. The primary modification to the Project detailed in the subsequent 2012 NPC addressed the change of use of the upper floors of the 160 North Washington Street building from residential purposes to office purposes. This work is proceeding as approved. Meanwhile, the demolition of the 131 Beverly Street building, as necessitated by its condition and as previously approved, has been completed.

As a result of the conversion of the upper floors of 160 North Washington Street building from residential to office use as approved in December 2012, the 131 Beverly Street building needed to be reconfigured as a free-standing residential building independent and distinct from the 160 North Washington Street building, which required the redesign of all internal corridors, interior layout, common lobbies and amenities and the establishment of separate mechanical systems. That reconfiguration is now complete. The original Project

as presented in the 2006 Article 80 Final PIR contemplated a total of 250 residential units. Based on the reconfiguration of the 131 Beverly Street building and the previously approved conversion of the 160 North Washington Street building to commercial use, there is now intended to be approximately 175 residential units in the Project, all of which will be located in the 131 Beverly Street building. The primary other proposed change to the Project includes the elimination of the previously approved 315 parking space robotic parking garage within the 131 Beverly Street building. The building height and footprint remain virtually unchanged, although the position of the footprint has shifted away from the water and slightly to the west toward Beverly Street. As a result, the public wharf area is increased. In addition, an open air pedestrian passageway through the 131 Beverly Street building has been created, offering a more direct pedestrian level link between Causeway Street and the renovated Lovejoy Wharf waterfront.

The Project continues to represent a mixed-use redevelopment project for the long under-utilized 2.1-acre Lovejoy Wharf waterfront parcel. Indeed, the prior conversion of the 160 Washington Street building from residential to office combined with the residential units in the 131 Beverly Street proposed herein creates a more truly balanced project, combining both work space and residences in immediate proximity. Meanwhile, the ground floors of the two buildings will continue to be primarily devoted to a mix of Facilities of Public Accommodation (FPAs), including retail, special public destination facility space, and restaurant uses.

Consistent with the original approval, the Project includes the replacement of the existing wharf and the provision of approximately three-quarters of an acre of publicly-accessible waterfront open space, including an extension of the City of Boston Harborwalk along the water's edge of the parcel. Constructed in 1909, the wharf has never been open for public use, was in significant disrepair, and was previously closed to the public except for limited surface parking. The Project is in the process of transforming this dilapidated wharf into a fully restored, fully-activated, landscaped open space at the water's edge complete with seasonal market activities, retail vendors, seating, dining, performance space, temporary recreational boat dockage, and public water transportation facilities. As noted above, work on the wharf has been initiated, and completion of the proposed improvements is proceeding on schedule. Additionally, the slight realignment of the 131 Beverly Street building will result in an increase in the total area of this enhanced public wharf from that as originally contemplated, and the addition of the open air pedestrian passageway through the building will further link Causeway Street to the Lovejoy Wharf waterfront.

Finally, as per the original approval and the more recent 2012 NPC, the Project will provide connections between the North Washington Street grade and the wharf level located a story below by way of a new two-story Pavilion structure connected to the North Washington Street Bridge and the 160 North Washington Street building. This unique structure will include a public terrace overlooking the water and out to the Leonard P. Zakim Bunker Hill

Bridge, FPA space on both levels, and both a public staircase and a public elevator connecting North Washington Street to the revitalized wharf below.

Renovation of the 160 Washington Street building and the wharf have commenced and are anticipated to be completed in early 2015. Meanwhile, construction of the 131 Beverly Street building as presented herein is anticipated to commence in 2014, with a completion date in 2016. Upon review of the information set forth herein, the Proponent respectfully requests that the BRA determine that there is no significant change in the Project as previously presented or other material factors that would result in the need for additional review of the Project.

1.2 Project Team

Proponent:	Related Beal, LLC 177 Milk Street Boston, MA 02109-3410 (617) 451-2100 Peter A. Spellios Rey Black
Architect:	Robert A.M. Stern Architects, LLP 460 West 34th Street New York, NY 10001 (212) 967-5100 Daniel Lobitz ADD, Inc. 311 Summer Street Boston, MA 02210 (617) 234-3100 Lawrence Grossman Frances Hughes
Landscape Architect	Copley Wolff Design Group 160 Boylston Street Boston, MA 02116 (617) 654-9000 John Copley Gabrielle Weiss
Legal Counsel:	Nutter McClennen & Fish LLP Seaport West 155 Seaport Boulevard Boston, MA 02210-2604 (617) 439-2000 Mary T. Marshall

Permitting and Historic Resource Consultants:	Epsilon Associates, Inc. 3 Clock Tower Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Andrew Magee Geoff Starsiak Taya Dixon
Transportation and Parking Consultant:	Vanasse and Associates 10 N.E. Business Center Drive Andover, MA 01810-1066 (978) 474-8800 Giles Ham Shaun P. Kelly
Civil Engineer:	Nitsch Engineering 2 Center Plaza, Suite 430 Boston, MA 02108-1928 (617) 338-0063 John M. Schmid, P.E.
MEP Engineer:	Cosentini Associates Building 200, Second Floor One Kendall Square, Suite B2204 (617) 494-9292 Robert Leber
Geotechnical Consultant:	Haley & Aldrich 465 Medford Street, Suite 2200 Boston, MA 02129 (617) 886-7400 Eliot Steinberg Mark Haley
Marine Engineers:	Childs Engineering Corporation 34 William Way Bellingham, MA 02109 508-966-9092 David L. Porter
Communications and Community Outreach	McDermott Ventures 30 Rowes Wharf Boston, MA 02110 (617) 557-9190 Pamela McDermott Carolyn Spicer

1.3 Project History

The Lovejoy Wharf Project continues to represent a significant opportunity to restore the dilapidated Lovejoy Wharf and to rehabilitate and renew the buildings fronting the wharf at this gateway Boston waterfront location. In the Related Beal team the Project has a strong sponsor dedicated to carrying the Project forward to completion in a timely manner. Indeed, the rehabilitation of the 160 Washington Street building is proceeding as planned, as is the re-construction of the Lovejoy Wharf. Demolition of the 131 Beverly Street building occurred as approved and the Project is ready to proceed with the reconstruction of the 131 Beverly Street building as described in this NPC. As summarized below and discussed throughout this document, all of these aspects of the Project have undergone extensive public and City, State, and Federal review through both regulatory and planning processes.

The Project was originally presented for public review in December of 2004 through the submittal of a joint Project Notification Form/Environmental Notification Form to the Boston Redevelopment Authority (BRA) and the Massachusetts Executive Office of Environmental Affairs (now Energy and Environmental Affairs) – Massachusetts Environmental Policy Act (MEPA) office, respectively. These initial submittals were followed by the preparation and submittal of Draft and Final Project Impact Reports (PIRs) to the BRA, and Draft and Final Environmental Impact Reports (EIRs) to MEPA. In recognition of the Project's compliance with local zoning and local planning initiatives, the BRA Board voted on or about November of 2006 to authorize the issuance of an Adequacy Determination for the Final PIR for the Project and an Adequacy Determination was issued on January 12, 2007. Similarly, on December 1, 2006 the Secretary of Environmental Affairs issued a Certificate on the Final EIR finding that it complied with MEPA and its implementing regulations.

In addition to the above City and State planning and environmental reviews, the Project and Project site were the subject of an Amendment to the Boston Municipal Harbor Plan (MHP, or "the Harborpark Plan") issued by the Secretary of Environmental Affairs on October 12, 2006. Consistent with other approved MHP Amendments proximate to the Project site, including the adjacent development at 226-234 Causeway Street, the MHP Amendment for Lovejoy Wharf was approved in recognition of the Project site's unique existing conditions and significant potential for enhancing the City of Boston waterfront. The Secretary's decision found the MHP Amendment request for Lovejoy Wharf was adequate and adopted certain substitute conditions and off-setting amenities provided by the Project. The subsequent Final EIR and Chapter 91 License application included thorough analyses demonstrating the Project's consistency with the Lovejoy Wharf MHP Amendment.

The Project has also proceeded through a number of major permitting processes, including Chapter 91 review and the issuance of a Chapter 91 license, the execution of a Memorandum of Agreement with Massachusetts Historical Commission, the Massachusetts Department of Environmental Protection (MassDEP), and the Boston Landmarks Commission, the issuance of an Order of Conditions from the Boston Conservation

Commission and subsequent Superseding Order of Conditions from MassDEP, and US Army Corps of Engineers Section 404/Section 10 permitting.

Finally, the Project submitted a Notice of Project Change to the BRA in November of 2012 in accordance with the provisions of Section 80A-6 of the Boston Zoning Code for a change in use of the 160 Washington Street building from residential purposes to office purposes. This NPC was approved by the BRA Board in December 2012.

1.4 Project Description

The following section summarizes the Project as currently configured, which is consistent with the existing approval. Modifications to the use and contemplated design refinements are reviewed in Section 1.5 and are associated with: (i) the re-configuration of the 131 Beverly Street building as an free-standing residential building independent and distinct from the 160 North Washington Street building, including the redesign of all internal corridors, interior layout, common lobbies and amenities and the establishment of separate mechanical systems, and (ii) the elimination of robotic parking garage within the 131 Beverly Street building as originally approved. As noted above, the Project retains its commitment to the overall program and the extensive public benefits described in the current approvals for the Project.

1.4.1 Project Site

The Project site is an approximately 2.1 acre (91,390 square-foot) waterfront parcel that included two adjoining buildings and a wharf structure in need of extensive repair and/or replacement. The site is generally bounded by North Washington Street to the east, Lovejoy Place to the south, Beverly Street to the west, and by the Boston Inner Harbor to the north. The location of the site is shown in Figure 1-1, Aerial Locus Map. A recent survey of the Project site is included in Attachment A.

The nine-story 160 North Washington Street building, which was historically used for a variety of office and other commercial and industrial uses, is currently under construction consistent with the current approvals. Work on the building is scheduled to be completed by early 2015. The adjacent nine-story building at 131 Beverly Street was dilapidated, abandoned, and deemed unsafe for re-occupation. In consideration of its condition and public safety, and in compliance with the Lovejoy Wharf Project approvals, the 131 Beverly Street building was demolished in the early part of this year. The cleared building footprint will serve as the primary staging area for the construction of the new 160 North Washington Street building and the site of a new 131 Beverly Street building.

Approximately one-third of the existing wharf structure was until recently used for surface parking (along Beverly Street), while the remainder (towards North Washington Street) was deteriorated, fenced off, and unsafe for use. As part of the Lovejoy Wharf Project the wharf has been demolished and the construction of the replacement wharf has been initiated.

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Lovejoy Wharf - 131 Beverly Street Boston, MA

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Figure 1-1
Aerial Locus Map

The site also includes a portion of Lovejoy Place to the centerline, which represents approximately 9,508 square feet of the Project site. Lovejoy Place is a private way not open for public travel.

1.4.2 Site Context

The Project site is located within an area of the City of Boston that has experienced significant public and private investment and redevelopment. With its gateway location on the Boston waterfront the Project is an integral part of these on-going improvements. To the east of the Project site is the North End, with a mix of offices, residences, retail, and other uses. To the south is the Bulfinch Triangle with older buildings, new developments, and approved developments on the parcels left vacant by the depression of the central artery by the Central Artery/Tunnel (CA/T) project and the removal of the elevated MBTA Green Line along Causeway Street. To the west is the TD Garden, around which several projects have been completed, are under construction or proposed, and North Station.

1.4.3 Updates to Previously Approved Project

The primary modification to the Project relates to the 131 Beverly Street building and is associated with the reconfiguration of the building as a free-standing residential building independent and distinct from the 160 North Washington Street building. This includes the redesign of all internal corridors, interior layout, common lobbies and amenities and the establishment of separate mechanical systems. As part of that reconfiguration, the robotic parking garage previously proposed and approved as part of the 131 Beverly Street building has been eliminated.

The original Project as presented in the 2006 Article 80 Final PIR contemplated a total of 250 residential units. As a result of the reconfiguration of the 131 Beverly Street building and the previously approved conversion of the 160 North Washington Street building to commercial use, the Project now includes approximately 175 residential units, all of which will be located in the 131 Beverly Street building. The reconfiguration also includes the elimination of the robotic garage originally included in the 131 Beverly Street building.

Associated modifications of the originally approved Project are limited to specific design changes of a scale typically associated with final design and engineering review. The building height and footprint square-footage remain virtually unchanged, although the position of the footprint has shifted away from the water and slightly to the west toward Beverly Street. As a result, the total area of the public wharf is increased. In addition, an open air pedestrian passageway has been created through the Beverly Street building, offering a more direct pedestrian link from Causeway Street to the Lovejoy Wharf waterfront. An elevation drawing of the building is presented in Figure 1-2, North Elevation.

160 North Washington Street *131 Beverly Street*

Source:
Robert A.M. Stern Architects, LLP
ADD Inc
Copley Woff Design Group

Lovejoy Wharf – 131 Beverly Street Boston, MA

Epsilon ASSOCIATES INC.

Figure 1-2
North Elevation

All of the waterfront public amenities associated with the Project will be carried forward with the Project's implementation. These waterfront amenities are described in detail in the approved Final PIR, the City of Boston MHP Amendment for Lovejoy Wharf, and the Chapter 91 license for the Project, and are reviewed in Section 1.5.

1.5 Public Benefits

The Project offers the opportunity to revitalize a critical block on the Boston waterfront by preserving and substantially rehabilitating the historic 160 North Washington Street building and providing a new complementary adjoining structure in place of the unsalvageable and now demolished 131 Beverly Street building. The benefits of this Project were described in detail in the Final PIR for the Project and all of those benefits will be carried forward with the Project's implementation. The Proponent is excited to be moving forward with this long delayed Project, and to be able to provide the many benefits of the Project. Among the many benefits described previously, the Project will:

- Preserve and rehabilitate the 160 North Washington Street building.
- Entirely replace and landscape the existing dilapidated wharf, providing approximately three-quarters of an acre of landscaped waterfront open space available to the public for formal and informal gatherings, seasonal events, public displays of music, art, and dance, and other events designed to enliven the waterfront.
- Create a pedestrian stair at the eastern side of the site along the North Washington Street/Charlestown Bridge at the 160 North Washington Street building that will connect the bridge sidewalk to the wharf and Harborwalk below. An internal, prominently located and accessible elevator between the sidewalk and wharf levels will also be provided within the associated Pavilion structure.
- Create a new 12-foot wide Harborwalk connection along the entire length of the Project site's waterfront. The Harborwalk will be constructed at the elevation of the CA/T-constructed Harborwalk section passing under the North Washington Street/ Charlestown Bridge.
- Create an approximately 250-foot long floating dock at the edge of the wharf for touch-and-go dockage, on-call water taxi services, and other temporary boat docking.
- Provide a water transportation subsidy of approximately $794,000 as in-kind support for water transportation and operating subsidy for water transportation services.
- Provide approximately 175 residential units so as to contribute to the transformation of the neighborhood into a vibrant 24 hour mixed-use community.

- Provide approximately 2,000 square feet of rent-free building space on the ground floor of the 131 Beverly Street building for use as a Visitor Center by a non-profit organization.

- Pull back the 131 Beverly Street building from the wharf while creating an open air public passageway through the Beverly Street building between the south end of Beverly Street and the wharf. This corner of the site, which also includes the proposed Visitor Center, will thus be opened up at the pedestrian level and will become an easily accessible avenue from Causeway Street to the Boston waterfront.

- Meet the requirements of the Mayor's Executive Order addressing the provision of affordable housing.

- Provide a Development Impact Project contribution to the Neighborhood Housing Trust and Neighborhood Jobs Trust as part of the 160 North Washington Street building approval.

- Prepare and implement a Transportation Demand Management program for the site targeted at reducing automobile dependency and encouraging transportation by other modes.

- Provide approximately 300 to 350 construction jobs.

1.6 Legal Information

1.6.1 Legal Judgments or Actions Pending Concerning the Project

The Proponent is not aware of any legal judgments in effect or actions pending with respect to the Project.

1.6.2 History of Tax Arrears on the Property Related

A review of the records of the City's Assessing Department and of the record title to the property has not revealed any evidence of taxes due and owing with respect to the Project. The Proponent does not have a history of tax arrears on any property it owns within the City of Boston.

1.6.3 Site Control / Legal Easements

The Project site is shown on the survey entitled "ALTA/ACSM Land Title Survey 160 North Washington Street and 131 Beverly Street Boston, Mass." dated August 20, 2012, prepared by Otte & Dwyer, Inc. ("the Survey"), a copy of which is provided in Attachment A. Related LJW Acquisition Company, LLC holds title to the land identified as "Lot C" on the survey, known as and numbered 160 North Washington Street, and Related LJW Beverly Acquisition Company LLC holds title to the land identified as "Remainder of Lot D" on the

survey, known as and numbered 131 Beverly Street. The metes and bounds description of the Project site are provided on the survey.

The Proponent has examined title to the Project, including easements on the site, and there are no easements or rights of others which would affect or otherwise preclude development and use of the Project.

1.6.4 Zoning

The Project site is located in its entirety within the General Area Subdistrict the North Station Economic Development Area ("North Station EDA"), as shown on Map 1B of the Boston Zoning Maps, and within the Restricted Parking Overlay District. Development and use of Property within the North Station EDA is governed by the provisions of Article 39 of the Boston Zoning Code. The relevant use and dimensional requirements are summarized as follows:

- *Uses:* Multifamily residential, office, retail and restaurant uses are allowed.
- *Parking:* Parking is allowed as-of-right only if accessory to a residential use, and not for retail and restaurant uses. Accessory parking uses (such as for restaurant or retail uses) or non-accessory parking (such as parking for the general public) can be provided as a conditional use under Article 6 of the Code. The Project has obtained conditional use permits which continue to be in effect.
- *Dimensions:* An as-of-right height of 125 feet is allowed, and a maximum as-of-right height of 155 feet is allowed for projects that undergo Article 80B Large Project Review. The maximum floor-area-ratio (FAR) is 8.0 as-of-right, with 10.0 as-of-right if the project is reviewed under Article 80B Large Project Review.

The Project will comply with all existing zoning requirements with the benefit of Large Project Review in accordance with Article 80B, and relief from the Board of Appeal. If any zoning non-conformity is identified in the future, the Proponent will seek relief from the BRA, Boston Zoning Board of Appeal or Boston Zoning Commission, as appropriate.

1.7 Regulatory Controls and Permits

As identified in the filings leading to the Project's approval, the Project is subject to a number of local, state and federal ordinances. The Project's status as regards BRA Article 80B, MEPA, Chapter 91, the MHP Amendment, and the Wetlands Protection Act are summarized In Section 1.3. No new permits or approvals are anticipated.

1.8 Schedule

The renovation of the 160 North Washington Street building has commenced, and is anticipated to be completed in early 2015. Similarly, the demolition of the wharf was

completed earlier this year, and the reconstruction has commenced with an anticipated completion date of late 2014. Finally, the demolition of the 131 Beverly Street building was also completed earlier this year. It is anticipated that construction of the new building at 131 Beverly Street will commence in 2014 and be completed in 2016.

1.9 Public Communication

The Proponent is committed to effective community outreach and will continue to engage the community to insure public input on the Project. The Proponent will continue to undertake community outreach in connection with the Project, including working with the Impact Advisory Group for the Project.

Section 2.0

Transportation

2.0 TRANSPORTATION

2.1 Introduction

For the purpose of this NPC filing the previously approved November 2012 Transportation Analysis for the Lovejoy Wharf Project has been up-dated to address the impacts on the transportation system associated with the Project as modified herein. Specifically, the approved Transportation Analysis has been up-dated to reflect approximately 175 residential units in the 131 Beverly Street building. The commercial space within the building will remain at approximately 10,000 square feet. A copy of the updated approved Transportation Analysis is included as Attachment B and summarized below. As described in the updated Transportation Analysis, the redevelopment program for the adjacent 160 North Washington Street property remains substantially unchanged from that presented in the approved analysis.

2.2 Summary

The updated traffic analysis presented in Attachment B was performed in accordance with the Executive Office of Energy and Environmental Affairs/Executive Office of Transportation (EEA/EOT) guidelines for the preparation of Traffic Impact Assessments (TIAs), and the Boston Redevelopment Authority requirements for the preparation of this filing. The scope of this transportation analysis was determined during meetings with the Boston Transportation Department (BTD) officials.

The summary findings are as follows:

- The Project as modified by this filing does not result in a significant change in vehicular traffic operations (motorist delays or queuing) at the study area intersections over No-Build conditions.

- The Project as modified is projected to result in minimal increases to area transit ridership as compared to No-Build conditions, and is not anticipated to result in a significant impact on transit capacity in the area.

- The Project as modified is not projected to result in a significant increase to pedestrian activity over No-Build conditions, and is not expected to result in a notable impact to pedestrian traffic within the study area.

- Parking for the Project is available at existing off-street facilities.

- Loading activities for the Project will occur in designated off-street areas via Lovejoy Place and Beverly Street.

- The Proponent is committed to developing and implementing a comprehensive transportation demand management (TDM) program to reduce automobile dependency and encourage travel by non-automobile modes.

- Pedestrian amenities will include sidewalks and an open-air building walk-through connection to the Wharf.

- A bicycle room is also included in the building design.

- The Proponent and general contractor will develop a comprehensive construction management plan to ensure safety and minimize the impact of construction activities on pedestrian and vehicular traffic.

2.3 Conclusion

The Project is uniquely designed and situated to take advantage of the existing and expanding transportation infrastructure in the North Station area, including enhanced and improved access to the regional roadway network, proximate public transportation access, and pedestrian facility improvements. It is expected that the availability of public transportation services in the vicinity of the Project site coupled with the implementation of a comprehensive TDM program as a part of the Project will minimize the potential traffic impacts associated with the Project. Finally, the Project Proponent will be required to formalize the commitments to Project mitigation with the City of Boston via a Transportation Access Plan Agreement (TAPA) to be entered into by the Proponent (or its affiliates) and the Boston Transportation Department.

Section 3.0

Development Review Component

3.0 DEVELOPMENT REVIEW COMPONENT

3.1 Introduction

The original Project as presented in the 2006 Article 80 Final Project Impact Report contemplated a total of 250 residential units. In response to the reconfiguration of the 131 Beverly Street building and the previously approved conversion of the 160 North Washington Street building to commercial use, the Project now includes approximately 175 residential units, all of which will be located in the 131 Beverly Street building. The reconfiguration also includes the elimination of the robotic garage originally included in the 131 Beverly Street building.

The height and footprint square-footage of the 131 Beverly Street building remain virtually unchanged, although the position of the footprint has shifted away from the water and slightly to the west toward Beverly Street. As a result, the total area of the public wharf is increased. In addition, an open air pedestrian passageway has been created through the Beverly Street building, offering a more direct pedestrian link from Causeway Street to the Lovejoy Wharf waterfront.

As noted in Section 1.0, the Project and its impacts were previously reviewed and approved through the filings of a joint PNF/ENF, a Draft PIR, and a Final PIR/Draft EIR for the Lovejoy Wharf Project and a NPC associated with the 160 North Washington Street building. As described in this section the findings presented in those filings relating to development review remain valid for the Project as modified by this filing.

3.2 Wind

A qualitative assessment of Pedestrian-Level Winds (PLWs) was presented in the Final PIR that evaluated the effects of the proposed Project, a No Build Alternative (the existing condition), and a Chapter 91 Alternative on PLWs at 48 locations on and near the site. The results of the assessment were that none of the 48 locations were estimated to have PLWs that exceed the BRA guideline wind speed of 31 miles per hour (mph) more often than once in 100 hours for all three scenarios. All 48 locations were estimated to be a Category 3 (Comfortable for Walking) or better. On an annual basis, only six of the 48 locations were estimated to change category between the existing and proposed build conditions, and three of those represented improvements in wind conditions.

The height, massing, and orientation of the proposed 131 Beverly Street building as presented herein is essentially unchanged from that studied in the Final PIR (see Figure 1-2). Of particular note, the building has been significantly set back on the upper floors along the south side of the building. In light of these factors, PLWs are anticipated to be acceptable and similar to those described in the Final PIR.

3.3 Shadow

An analysis of existing and future shadow conditions was conducted in accordance with the BRA Scoping Determination and presented in the Final PIR. The shadow study included an analysis of impacts to the area surrounding Lovejoy Wharf, including on-site and nearby open spaces. Results of the analysis indicated that the Project will not generate significant impacts to the surrounding area due to the fact that the site was fully developed and the approved Project represents only a minor increase in height.

The Project as presented herein does not change the height of the 160 North Washington Street building or the 131 Beverly Street building as previously approved, nor does it expand the footprint of either building beyond that of the original buildings. The massing of the northwest corner of the proposed building has shifted toward Beverly Street, while the massing of the southwest corner has shifted away from Beverly Street, but as regards shadow impact the mass is effectively unchanged. In light of the foregoing, the shadow impact from the Project is anticipated to be similar to that which was described in the Final PIR and to the existing condition.

3.4 Daylight

The purpose of the daylight analysis is to estimate the extent to which a proposed project affects the amount of daylight reaching the streets and pedestrian ways in the immediate vicinity of the project site. As required by the BRA Scoping Determination for the Final PIR, the daylight analysis for the Project considered the daylight obstruction values for the existing condition (a No Build Alternative), the proposed condition (the Project), and an as-of-right zoning condition (maximum height of 155 feet with no setbacks). The analysis also looked at the existing daylight conditions in the surrounding area.

The results of the daylight analysis conducted for the Project using the BRA daylight analysis (BRADA) program indicated that the Project is generally consistent with both existing conditions at the Project site and daylight conditions in the surrounding area. Further, the results indicate that for seven of the eight viewpoints of the site, the proposed Project results in lower daylight obstruction values than the as-of-right building condition.

The Project includes minimal changes to the 131 Beverly Street building. The height of the building will be the same, while the massing and footprint will change slightly. In light of the foregoing, the daylight obstruction is anticipated to be similar to that which was described in the Final PIR and to the existing condition.

3.5 Solar Glare

An analysis of the potential for reflective glare from the Project's building facades was presented in the Final PIR for the Project. The analysis presented in the Final PIR was deemed conservative as it assumed the exterior skin of the Project buildings would be

smooth, specular and 100 percent reflective glass. In reality, the exterior will be composed of varying materials (i.e., masonry and glass), with the glazed portions using a Low-E glass with a reflectivity that is less than 40 percent, substantially less than the 100 percent assumed in the analysis.

The solar glare analysis presented in the Final PIR concluded that the Project as analyzed would result in only minor solar glare impacts. This was in part due to the fact that, for the most part, any solar reflection would be outside the cone of vision for pedestrians and vehicular traffic. Additionally, the number of setbacks and changes in the façade surface of the proposed building would insure that any reflected glare would be diffused and scattered.

The Project refinements do not include additional areas of glass, and the glass is not anticipated to be highly reflective; therefore, it is anticipated that the solar glare impacts will be similar to those described in the Final PIR.

3.6 Air Quality

The Final PIR confirmed that the Project satisfied all applicable laws regarding air quality. Subsequent to the Final PIR, a microscale analysis was completed for the 2012 NPC, which showed that the Project continues to satisfy the applicable laws regarding air quality. As shown above in Chapter 2, the changes to the Project result in a minimal number of new trips during peak hours. With the minimal impact, it is anticipated that the Project will continue to satisfy applicable laws regarding air quality.

3.7 Water Quality/Stormwater

The evaluations presented in the Final PIR regarding stormwater and water quality continue to be valid for the Project. Subsequent to the preparation of the Final PIR the Boston Water and Sewer Commission (BWSC) established an additional requirement for the removal of phosphorous from the discharge of stormwater associated with any development or redevelopment within the City. As discussed below, the Project will comply with this new requirement.

Stormwater flows from the existing buildings are currently discharged directly to the adjacent harbor waters. Upon completion of the Project flows from the buildings will be discharged into a collection system constructed within the Project site where they will be treated using BWSC approved methodologies for the removal of phosphorous and suspended solids. This treated stormwater will then be discharged to the BWSC stormwater collection system in Beverly Street which carries flows to the existing BWSC Outfall 35 where they are discharged to the harbor. The stormwater collection and discharge system for the wharf area will incorporate facilities to minimize the discharge of floatables to the harbor. All design and detailing of the stormwater collection and treatment systems will be developed to BWSC standards.

A maintenance and operation program will be implemented that requires periodic inspection and cleaning of all of the stormwater quality BMPs, including catch basins, the phosphorous removal system, and oil/water separators.

3.8 Flood Hazard Zones/Wetlands

The flood hazard zones and wetland resources on or proximate to the Project site were reviewed in the Final PIR and in subsequent filings with the Boston Conservation Commission, as summarized below.

3.8.1 FEMA Flood Hazard Zones

Subsequent to the completion of the Final PIR for the Project, the Federal Emergency Management Agency (FEMA) issued new Flood Insurance Rate Maps (FIRM) for the Boston area (Map# 25025C0081G, September 25, 2009). However, a review of these maps indicates no change in the FIRM mapping of the Project site.

3.8.2 Wetland Resources

As reviewed in the Final PIR, the wharf repairs occur over or within several wetland resources areas, work within which is regulated under the Massachusetts Wetlands Protection Act (WPA). These resource areas include Coastal Bank, Land Subject to Coastal Storm Flowage (Elevation 9 feet NAVD), Fish Run, and Land Under the Ocean. Similarly, certain Project activities will occur within the 100-foot buffer zone of Coastal Bank.

The Project's relation to these resource areas and the methods proposed to preclude impact to these resource areas were reviewed in detail in the Final PIR. More significantly, subsequent to the filing of the Final PIR, the Project submitted a Notice of Intent under the WPA to the Boston Conservation Commission and received an Order of Conditions authorizing the work to proceed with certain conditions. On August 7, 2009, MassDEP issued a Superseding Order allowing the Project and adopting the Conservation Commission's original Order of Conditions. No changes in these conditions are being sought in associated with the Project changes contemplated herein.

3.9 Groundwater/Geotechnical

The hydrogeological and geotechnical characteristics of the Project site were reviewed in the Final PIR. These conditions have not changed and, as noted below, the Project does not contemplate new construction of any below-grade space. As a result, construction of the Project is not expected to have adverse short- or long-term impact on groundwater conditions and/or adjacent buildings. The following sections summarize the information presented in the Final PIR for the Project.

3.9.1 Groundwater

Because of the site's waterfront location on Boston's Inner Harbor, near surface groundwater levels are anticipated to be subject to tidal influence. In general, groundwater levels at the site are expected to reflect tide levels in the adjacent Harbor, which typically range from Elevation 0.8 to Elevation 10.2 Boston City Base (BCB). Prior to demolition, the basement level of the 131 Beverly Street building (Elevation 8.2 BCB) experienced infiltration and drainage of tidal water. As part of the overall Lovejoy Wharf project, the 131 Beverly Street building has been demolished above the foundation wall and the basement backfilled with concrete and brick demolition debris. As described in the following sections, a new steel sheetpile cut-off wall with concrete backfill has also been installed along the exterior foundation wall of the former 131 Beverly Street building, which is expected to substantially eliminate tidal infiltration into the basement.

3.9.2 Geotechnical

Geotechnical information is available for the 131 Beverly Street Project site from previous shallow subsurface explorations conducted for environmental studies and evaluation of existing foundations; from deep subsurface test borings for the adjacent Central Artery Project; and from recent deep geotechnical test borings conducted along the 131 Beverly/160 North Washington Street party wall. These series of explorations have provided information on near surface fill soils, organics and underlying natural soils and bedrock conditions. Site ground surface elevation is relatively level at about Elevation 17 BCB.

As indicated by the test borings and described in the Final PIR, the subsurface soil conditions at the Project site are anticipated to include miscellaneous man-placed sand and gravel (and clay) fill underlain by organic soils and natural, inorganic sand and clay deposits, in that order. Thicknesses of these units are anticipated to range between 10 to 25 feet; 20 to 25 feet; 5 to 15 feet; and 30 to 40 feet, respectively. The bedrock at the base of these units is identified as the Cambridge Argillite, a shale- or slate-like rock of sedimentary origin. The top of the bedrock beneath the site is anticipated to range from 60 to 80 feet below ground surface (Elevation – 45 to – 65 BCB).

3.9.3 Geotechnical and Groundwater Impacts

The Project includes removal and off-site disposal of existing demolition debris backfill within the 131 Beverly Street foundation walls down to the top of the existing wood-pile supported concrete mat structure. It is anticipated that the concrete mat will remain in place as a working surface for construction of a new drilled-in pile foundation system to support the proposed building loads. During the construction, the new foundations will be installed using rotary drilling methods that sometimes introduce water into the ground rather than remove water, and excavations for new pile caps and grade beams are expected to be above the existing mat foundation level. Below-grade construction will be performed

using low-impact, conventional methods and procedures. Installation of new foundation units will use non-displacement drilling methods that will not result in significant noise or vibrations. No pile driving, blasting or other significant vibration or noise-generating activity is planned in connection with foundation construction.

Some local dewatering may be required during construction to manage and remove surface water (precipitation) runoff. To the extent possible, the Project will attempt to recharge/infiltrate that water into the ground on the site. New elevator pits extending below the lowest level floor slab will be waterproofed. No foundation drains or other features that could withdraw groundwater over the long term will be used.

The adjacent 160 North Washington Street building will remain at the same basement level (Elevation 10.5 BCB) and the remainder of that building will be rehabilitated.

As part of the initial Lovejoy Wharf new wharf construction activities, a steel sheetpile cut off wall was installed 10 to 15 feet outboard of the 131 Beverly Street and 160 North Washington Street building foundation walls (about 2 to 5 feet outboard of the original timber bulkhead along the Project site's north side0. Space between the steel sheetpile cut off wall and building foundation wall was filled with concrete to substantially eliminate potential for infiltration of tidal harbor water into each building's basement level.

No new construction of below-grade space is planned; hence, construction of the Project is not expected to have adverse short- or long-term impact on current groundwater conditions and/or on adjacent buildings.

As discussed in the Final PIR, groundwater levels at the Project site are and will be monitored prior to, during, and following Project implementation and funding will be provided to the Boston Groundwater Trust to supplement groundwater monitoring instrumentation in the Bullfinch Triangle/North End monitoring zone.

3.10 Solid and Hazardous Wastes

Waste generated by the Project is anticipated to be significantly offset by recycling and other green programs to be implemented in both buildings. Meanwhile the clean-up of the site has proceeded during the period in which Project implementation was delayed. The following sections include a review of the re-calculated solid waste volumes and a summary of the on-going site remediation efforts.

3.10.1 Solid Waste Generation During Operation

The Project will generate solid waste typical of other mixed-use projects. As described in this NPC, the Project is proposing approximately 10,000 square feet of ground floor retail space and approximately 175 residential units in the 131 Beverly Street building, with a total of approximately 250 bedrooms. Based on an estimated 4 pounds per bedroom per

day, and 5.5 tons per 1,000 square feet of retail per year, the 131 Beverly Street building will generate an estimated 237.5 tons of solid waste per year.

Solid waste generated by the Project is expected to be typical of other mixed use projects and will include wastepaper, cardboard, glass, and bottles. A portion of the waste will be recycled as described below. The remainder of the waste will be compacted and removed by a waste hauler contracted by building management. With the exception of "household hazardous wastes" typical of residential development (for example, cleaning fluids and paint), the Project will not generate hazardous waste.

As discussed in the Final PIR and the 2012 NPC, additional waste will be generated by the general public enjoying the Project's open space on the wharf and at the Project perimeter. Trash receptacles will be provided in these public areas in locations that will not impede pedestrian circulation. Building management will ensure that these receptacles are emptied daily and will inspect the site for strewn trash daily.

3.10.2 Recycling During Operation

Recycling by residents, retail and office tenants will be encouraged, coordinated, and comprehensive. To encourage recycling, the Proponent will implement a recycling program throughout the Project. This will include space for recycling on each floor, as well as dedication of space for the storage and pick-up of recyclable materials. Recyclable materials will include newspaper, cardboard, cans, and bottles.

Building management will also provide residential tenants with the facilities and services necessary to recycle materials such as light bulbs, batteries, and paint cans. The residential recycling program will be conducted in accordance with the City of Boston's recycling regulations.

3.10.3 Hazardous Materials - Compliance with Massachusetts Contingency Plan

The 131 Beverly Street property is not currently listed as a disposal site under the Massachusetts Contingency Plan, 310 CMR 40.0000 (MCP). Transformer-related PCBs contamination of debris and concrete surfaces within the basement were remediated prior to demolition of the 131 Beverly Street building in accordance with federal regulations [40 CFR 761.61(b)].

Conditions that may involve regulatory compliance obligations associated with future construction at 131 Beverly Street include the off-site transport of historic fill currently in-place as backfill within the western most bay of the former building, the off-site transport of historic fill in surrounding roadways if excavated (e.g., for new utilities), and the management of excavated soils and dewatering discharge from beneath the existing foundation mat.

Management of these materials should not create new reporting obligations under the MCP based on current and pending MCP exemptions for historic fill, but will require off-site transport documentation such as Bills of Lading. An EPA construction dewatering discharge permit may also be required.

The abutting 160 North Washington Street site is listed as a disposal site under the MCP (RTN 3-22351) based on a historic release of No. 4 and No. 6 heating oil within the basement and beneath the foundation mat. The party wall between 160 North Washington Street and 131 Beverly Street buildings delineates the western boundary of the RTN 3-22351 disposal site. Remedial response actions for RTN 22351 are in progress in conjunction with on-going construction under the MCP provisions of a Release Abatement Measure (RAM) Plan submitted to MassDEP on June 10, 2013. The status and remediation of the 160 North Washington Street site was fully addressed in the Final PIR and the 2012 NPC.

3.10.4 Recycling During Construction

As presented in the Final PIR and the 2012 NPC, the Proponent will take an active role with regard to the reprocessing and recycling of construction waste. Some waste, such as concrete from demolition will be recycled. An evaluation of the potential for recycling will occur before the construction commences. Construction will be conducted so that some materials that may be recycled are segregated from those materials not recyclable to enable disposal at an approved solid waste facility. A comprehensive recycling program will be included in the final Construction Management Plan.

3.11 Noise

The previous NPC included a noise analysis that showed that with appropriate noise attenuation measures the Project will comply with the City of Boston Zoning District Noise Standards and MassDEP Noise Policy. The mechanical equipment will be similar to that proposed and analyzed earlier, and measures will be taken, as necessary, to ensure compliance with the City of Boston Zoning District Noise Standards and MassDEP Noise Policy.

3.12 Construction Impacts

Construction impacts and the mitigation of those impacts were detailed in the Final PIR for the Project. In that the Project has not significantly changed, the construction methodology and impact mitigation presented therein continues to be applicable. A Construction Management Plan (CMP) was filed with the Boston Transportation Department (BTD) prior to the initiation of the rehabilitation work on the 160 Washington Street building and the more recent demolition of the 131 Beverly Street building. The CMP included information on construction activities, construction materials access and staging area, and specific construction mitigation measures including sidewalk closures and re-routing, and was

approved for use by BTD on April 9, 2013. An amendment to this plan will be submitted upon the final approval of the 131 Beverly Street building modifications described herein

The Proponent will continue to follow the guidelines of the City of Boston and the MassDEP, which direct the evaluation and mitigation of construction impacts. Proper pre-planning with the City and neighborhood is essential to the successful construction of the Project. Construction methodologies that ensure public safety and protect nearby residences are being employed, including the use of barricades, walkways, and signage.

3.13 Tidelands – Chapter 91/Municipal Harbor Plan

The Lovejoy Wharf Project and Project site was the subject of an Amendment to the City of Boston Municipal Harbor Plan (MHP) approved by the Secretary of Environmental Affairs on October 12, 2006. Consistent with other approved MHP Amendments proximate to the Project site, including the adjacent development at 226-234 Causeway Street, the MHP Amendment for Lovejoy Wharf was approved in recognition of the Project site's unique existing conditions and significant potential for enhancing the City of Boston waterfront. The Secretary's decision found the MHP Amendment request for Lovejoy Wharf was adequate and adopted certain substitute conditions and off-setting amenities provided by the Project. The subsequent Final EIR and Chapter 91 License application included thorough analyses demonstrating the Project's consistency with the Lovejoy Wharf MHP Amendment.

Subsequent to the approval of the Secretary of Environmental Affairs of the MHP and the Final EIR for the Project, the Proponent submitted a Chapter 91 license application for the proposed improvements. This application was prepared in recognition of the conditions and provision of the MHP and the Chapter 91 waterways regulations at 310 CMR 9.00. Based upon this application, and in consideration of the conditions of the MHP, the MassDEP Waterways Regulation Program issued a Chapter 91 license for the Project in December of 2012.

The changes in the Project described herein are compliant with the Chapter 91 license for the Project. The building height and site area dedicated to public open space is unchanged. Similarly, the building uses remain the same, including the dedication of ground floor space to Facilities of Public Accommodation. As noted elsewhere, the footprint of the 131 Beverly Street building is unchanged in area, but has been shifted slightly toward Beverly Street and away from the waterfront. As a result, the waterfront open space of the wharf is increased. Other improvements associated with this slight change include the addition of an open-air corridor on the ground floor of the building that offers a more direct pedestrian connection between Causeway Street and the Lovejoy Wharf waterfront. Finally, consistent with the existing Chapter 91 license and the 2012 NPC, the Visitor Center has been relocated to the northwest corner of the ground floor so that it faces both the waterfront of Lovejoy Wharf and the Beverly Street pedestrian way, and can be accessed by the above-referenced pedestrian corridor through the building.

The improvements identified above are in keeping with, and expand upon, the public benefits identified in the Project's Chapter 91 license, and are of a scale which should not require further license activity. The Proponent will consult with the MassDEP Waterways Regulation Program to affirm compliance with the license, and will file additional information with MassDEP if deemed appropriate.

3.14 Sustainability

The Proponent is committed to developing an environmentally friendly Project and will achieve certifiability under the Leadership in Energy and Environmental Design (LEED) rating system appropriate for the component (LEED for Core and Shell for 160 North Washington Street and LEED for New Construction for 131 Beverly Street). A preliminary LEED checklist for each component and associated narrative are included in Attachment C.

3.15 Urban Design

The Final PIR included urban design goals that were informed by the input gathered at meetings with the BRA design staff, the Boston Civic Design Commission, and at a planning charrette held in the community, as well as by the needs of the Project and constraints of the Project site.

Goals identified during the previous review of the Project included:

- Create a gateway entrance to City;
- Create a "crossroads" of pedestrian connections between the Harborwalk, The Freedom Trail, Rose Kennedy Greenway, Charles River Basin parklands, Causeway Street, North Washington Street, North Station, and other destinations, with improved signage/wayfinding;
- Activate the waterfront area with creative wharf design, a mix of ground floor uses, and public spaces that emphasize historic interpretation;
- Activate the street level and Lovejoy Wharf with retail and restaurant uses that create an urban destination;
- Create pedestrian access from North Washington Street down to Lovejoy Wharf; and
- Create visual and physical connections from Causeway Street to the water's edge.

The Final PIR provided a discussion of how the Project incorporates these goals, which includes:

- Creating a design which emphasizes the height of the west edge to create a visual gateway to the city which balances the TD Garden;
- Creating a design which emphasizes a pedestrian gateway leading to Lovejoy Wharf at the southwest corner;
- Providing pedestrian access from North Washington Street with a plaza, stair and elevator access to the wharf level;
- Pulling back the southwest facade to acknowledge the edges of the adjacent Strada buildings height and providing a visual connection to Causeway Street;
- Encouraging ground floor uses that enliven the wharf such as retail, restaurants, etc.;
- Providing touch-and-go boat access along the wharf edge;
- Extending the Harborwalk through the site; and
- Hosting markets and other events on the wharf.

The revisions to the Project continue to incorporate the goals set in the Final PIR. In addition, the previously approved change in use of the 160 North Washington Street building from residential to office will result in increased daytime activation of the Project's open space and ground level retail and commercial establishments.

3.16 Historic and Archaeological Resources

The following sections include a summary of the Project's status as regards review by historical agencies and the protection of historical resources.

3.16.1 Status of Review with Historical Agencies

The Project was subject to review under Section 106 of the National Historic Preservation Act, State Register Review, MEPA and Article 85 of the Boston Zoning Code. The Project continues to be subject to the same regulatory reviews.

3.16.1.1 Section 106 Review

The Project was subject to review under Section 106 of the National Historic Preservation Act with the US Army Corps of Engineers (Corps) acting as the lead federal agency. The Corps determined its jurisdiction included only the replacement of the wharf and the installation of the steel sheet bulkhead. By letter dated, April 25, 2006, the Corps determined "that the jurisdictional work is not integrally related to the proposed upland redevelopment of the 160 North Washington Street and 131 Beverly Street buildings." The Corps determined the Project would have "no adverse effect" on the Causeway/North

Washington Street Area, an area previously determined eligible for listing in the National Register of Historic Places.

The scope of jurisdictional work subject to review under Section 106 with the Corps remains unchanged in the current Project.

3.16.1.2 State Register Review

The Project was subject to review by the Massachusetts Historical Commission (MHC) in compliance with the MEPA process, as the Project involved the demolition of inventoried properties; specifically, the 131 Beverly Street building and a portion of the 160 North Washington Street building. The MEPA regulations require that the Project be consistent with a Memorandum of Agreement (MOA) with the MHC that has been subject to public notice or a determination of no adverse effect. Although not specifically laid out in the MEPA regulations, the State Register Review regulations note "project proponents [subject to MEPA] will find it most convenient to follow the procedures outlined in these regulations [950 CMR 71.00] at the time MEPA reports are filed." Consistent with MEPA and State Register Review, the previous Project proponent entered into consultation with the MHC which resulted in a MOA being executed among the proponent, MHC and MassDEP on August 15, 2007.

Project information will be submitted to the MHC, MassDEP and BLC for review in accordance with the terms of the MOA noted above.

3.16.1.3 Article 85 of the Boston Zoning Code

The City of Boston Article 85 Application for the Project was submitted to the Boston Landmarks Commission (BLC) on June 6, 2006. A community meeting was held on June 28, 2006 followed by a public hearing on July 11, 2006. At the public hearing, the BLC voted "it is preferable that the penthouse addition at 160 North Washington Street and the warehouse building at 131 Beverly Street are preserved or rehabilitated rather than demolished." The BLC voted to invoke the 90-day demolition delay for the buildings, but not the wharf structure. Alternatives to demolition were also presented by the previous Project proponent at the hearing. The BLC declined to make a determination of no feasible alternatives, citing the lack of an MOA with the MHC regarding mitigation. The BLC invited the previous Project proponent to return to the Commission if an MOA with the MHC was signed prior to the conclusion of the 90-day delay period to pursue a finding of no feasible alternative. An MOA was not completed by October 9, 2006 and the 90-day demolition delay expired. As described above, a MOA was subsequently executed on August 14, 2007.

The scope of demolition at 160 North Washington Street and 131 Beverly Street remains unchanged. No additional review is anticipated under Article 85.

3.16.2 Impacts to Historic Resources

The revisions to the design of the 131 Beverly Street building are minor and result in no additional impacts to historic resources within the Project site or in the vicinity of the Project site. The design of the 131 Beverly Street building has been revised to put the north elevation on two planes and to set the southwest corner back from the edge of Beverly Street and create a courtyard on the south side of the building. The revised footprint will introduce new window openings along Lovejoy Place and introduce light onto Lovejoy Place making an improvement to the pedestrian experience and enjoyment of the adjacent/nearby historic 160 North Washington Street building and 226 Causeway Street building.

The limited modifications to the Project will result in no substantive new impacts to nearby historic properties.

3.17 Infrastructure

The Project's service requirements from the existing energy system, telecommunication systems and cable system are equivalent to those reported in the Final PIR. These systems continue to have adequate capacity to meet the requirements of the Project. As the Project design progresses, the specific locations and details for connection to the existing utility systems will be developed in conjunction with the appropriate utility agencies and owners.

The following sections outline the updated proposed infrastructure for the 131 Beverly Street building of the Project.

3.17.1 Sanitary Sewer System

The existing sanitary sewer collection, transportation and treatment systems serving the Project area are equivalent to the system configurations evaluated in the Final PIR.

With the updated building program proposed for the Project, the projected average sanitary flow for the 131 Beverly Street building based on the Title V regulations at 310 CMR 15.00 is approximately 28,000 gallons per day (gpd). The potential impact of the Project on the sanitary sewer system is anticipated to be similar to that determined in the evaluations reported in the Final PIR. A summary of the anticipated wastewater flow is presented in Table 3-1.

Table 3-1 Wastewater Flow Generation

Room Use	Applicable Units	314 CMR Wastewater Generation Estimates (gpd/unit)	Total Flow (gpd)
Residential	250 bedrooms	110 /bedroom	27,500
Retail	10,000 square feet	50 /1000 sq. ft.	500
TOTAL Estimated Wastewater Flow (gpd)			**28,000**

3.17.2 Water Supply System

The existing water distribution system in the Project remains as defined in the Final PIR.

With the updated program for the 131 Beverly Street building the average domestic water consumption is projected to be 30,800 gpd. This estimate is based on a conservative factor of 1.1 applied to the daily wastewater flow generation estimate. The potential impact of the Project on the water supply system on the Project area is anticipated to be similar to that determined in the evaluations reported in the Final PIR.

3.17.3 Stormwater Management

The evaluation presented in the Final PIR is valid for the Project for all elements associated with stormwater volume. The evaluation presented in the Final PIR relative to stormwater quality does not reflect the current BWSC requirements for phosphorous removal from stormwater associated with any development or redevelopment within the City limits. The evaluation presented in this section has therefore been revised to reflect this requirement.

3.17.3.1 Existing Conditions

The existing stormwater collection and transportation system serving the Project area is equivalent to the system configurations and capacities reported in the Final PIR.

3.17.3.2 Proposed Conditions

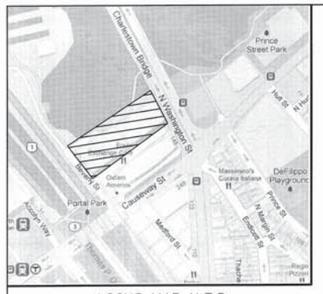
The Project intends to modify the storm drainage collection and treatment systems for the site such that roof runoff from the buildings will be re-directed to the proposed stormwater collection system located on the Project site. Surface runoff from the wharf will discharge to the inner harbor. Flows collected in the proposed stormwater collection system will be directed to the existing BWSC storm drain system beneath Beverly Street. Catch basins incorporated in the new collection system will be standard BWSC catch basins with deep sediment sumps and traps. BWSC "Don't Dump – Drains to Charles River" plaques will be installed at new catch basins or at existing catch basins if not already present. All collected stormwater flows will be treated in a manner approved by the BWSC to accomplish the required phosphorous removal prior to being discharged to the BWSC system.

3.18 Climate Change Preparedness

The Proponent understands that the City of Boston is especially interested in the adaptability of the City to long-term climate change. This interest has been manifested by the Mayor's Executive Order Relative to Climate Change in Boston and the recent convening of the Mayor's Climate Action Leadership Committee. The BRA has recently begun asking project proponents to complete an on-line questionnaire regarding their project's climate change preparedness. The Proponent has completed and submitted the on-line questionnaire and a copy of the completed questionnaire can be found in Attachment D. Given the preliminary level of design, the responses are also preliminary and may be updated as the Project design progresses.

Attachment A

Site Survey



LOCUS MAP N.T.S.

GENERAL NOTES

NORTH WASHINGTON WHARF, LLC
21 WORTHEN RD, SUITE 102, LEXINGTON, MA 02421

DEED REFERENCE: BOOK 35487 PAGE 347
PLAN REFERENCE: BOOK 4896 PAGE 234
TAX MAP REFERENCE: PARCEL I.D. 0303060000

ZONING DISTRICT:
NORTH STATION ECONOMIC DEVELOPMENT DISTRICT
GENERAL AREA SUBDISTRICT

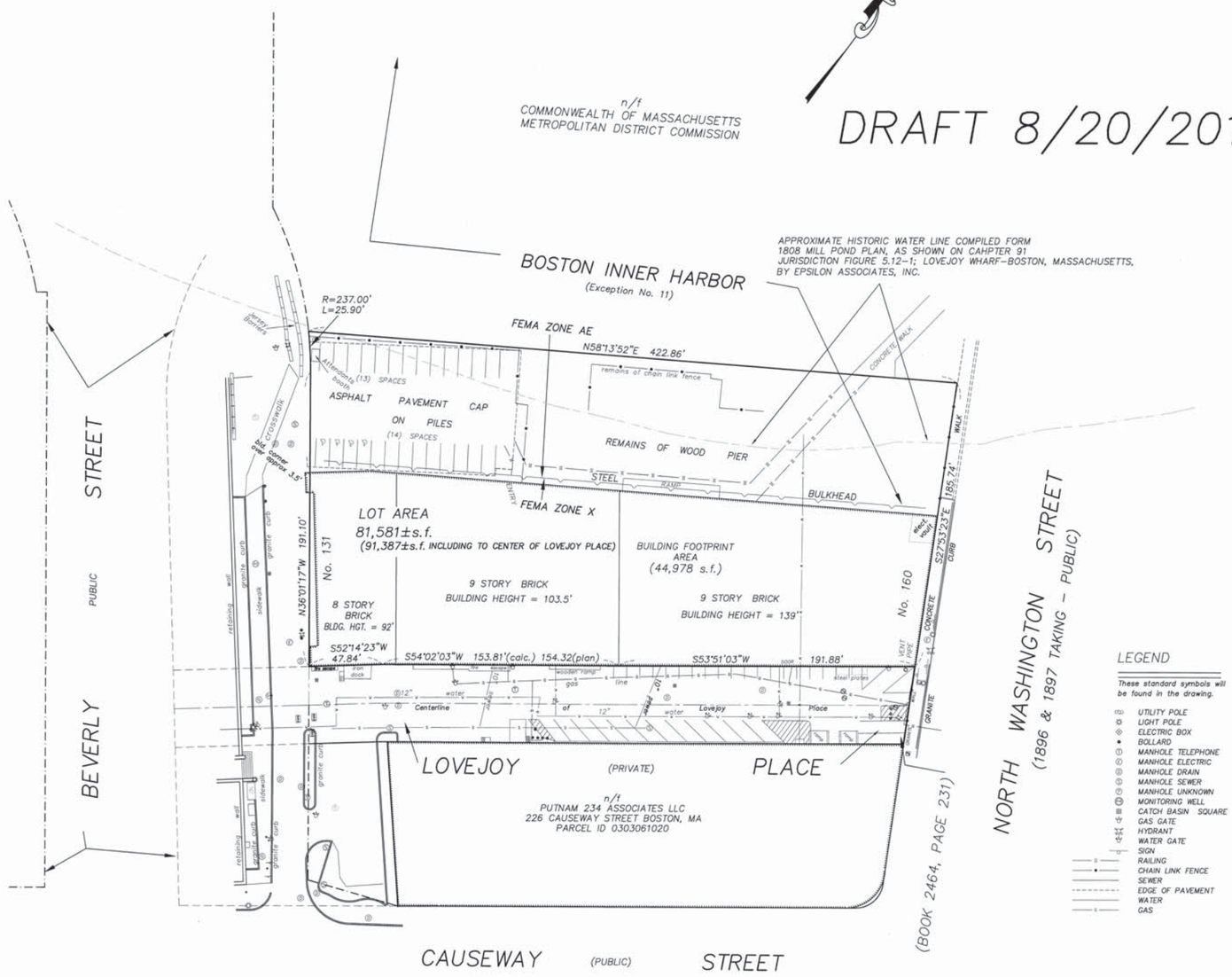
GENERAL NOTES

OWNER OF RECORD: BEVERLY WHARF, LLC
21 WORTHEN RD, SUITE 102, LEXINGTON, MA 02421

DEED REFERENCE: BOOK 35488 PAGE 1
PLAN REFERENCE: BOOK 4896 PAGE 234
TAX MAP REFERENCE: PARCEL I.D. 0303063000

ZONING DISTRICT:
NORTH STATION ECONOMIC DEVELOPMENT DISTRICT
GENERAL AREA SUBDISTRICT

DRAFT 8/20/2012



LEGEND

These standard symbols will be found in the drawing.

- UTILITY POLE
- LIGHT POLE
- ELECTRIC BOX
- BOLLARD
- MANHOLE TELEPHONE
- MANHOLE ELECTRIC
- MANHOLE DRAIN
- MANHOLE SEWER
- MANHOLE UNKNOWN
- MONITORING WELL
- CATCH BASIN SQUARE
- GAS GATE
- HYDRANT
- WATER GATE
- SIGN
- RAILING
- CHAIN LINK FENCE
- SEWER
- EDGE OF PAVEMENT
- WATER
- GAS

The Parcel shown on this survey lies within a Zone "AE & X", as described on the Flood Insurance Rate Map No. 25025C0081G, dated September 25, 2009, in which the property is located.

GENERAL UTILITY NOTE

The underground utilities depicted hereon are from field locations of observable evidence and/or compiled according to available record plans and are approximate only. The surveyor makes no guarantees that underground utilities depicted comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities are in the exact location indicated hereon although they are located as accurately as possible from the informationavailable. Otte & Dwyer, Inc. and its surveyor assume no responsibility for damages incurred as a result of utilities, shown or not shown on this plan. Always call DIGSAFE at 811 before you dig.

To The Beal Companies, LLP; Lender, its successors and/or assigns and to Commonwealth Land Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2011 "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys", jointly established and adopted by ALTA and NSPS, and includes items 2, 3, 4, 6(a), 7(a)(b1)(c), 8, 9, 11(b), 13 & 14 of Table A thereof. The field work was completed on August 17, 2012.

Name David A. Dwyer Jr., PLS
Licensed Land Surveyor No. 46707
ddwyer@ottedwyer.com

EXCEPTIONS

Exceptions, as numbered in Commitment for Title Insurance No.14892851, dated July 31, 2012, issued by Commonwealth Land Title Insurance Company.

With regard to exceptions 1-5. Our certification is limited to only matters observed on the ground or of record

No. 6	As noted on the survey (sheet 1)
No. 7	As noted on the survey (sheet 2)
No. 8	As shown on the survey (sheet 2)
No. 9	As noted on the survey (sheet 2)
No. 10	As noted on the survey (sheet 2)
No. 11	As noted on the survey (sheet 1)
No. 12	As noted ont the survey (sheet 2)
No. 13	As noted ont the survey (sheet 2)
No. 14	As shown on the survey (sheet 2)
No. 15	As noted ont the survey (sheet 2)
No. 16	Not plottable
No. 17	As shown on the survey (sheet 2)
No. 18	As noted ont the survey (sheet 2)
No. 19	As noted ont the survey (sheet 2)
No. 20	As noted ont the survey (sheet 2)

NOTE:
The surveyor has relied upon the Commitment for Title Insurance issued by Commonwealth Land Title Insurance Company Number 14892851, effective July 31, 2012 with regard to any recorded easements, rights of way or setbacks affecting the subject property.

ALTA/ACSM LAND TITLE SURVEY

160 NORTH WASHINGTON STREET & 131 BEVERLY STREET BOSTON, MASS. 02114

PREPARED FOR

THE BEAL COMPANIES

BY

OTTE & DWYER, INC.
LAND SURVEYORS
WWW.OTTEDWYER.COM
59 APPLETON STREET — SAUGUS, MA 01906
P.O. BOX 982 — (781)233-8155

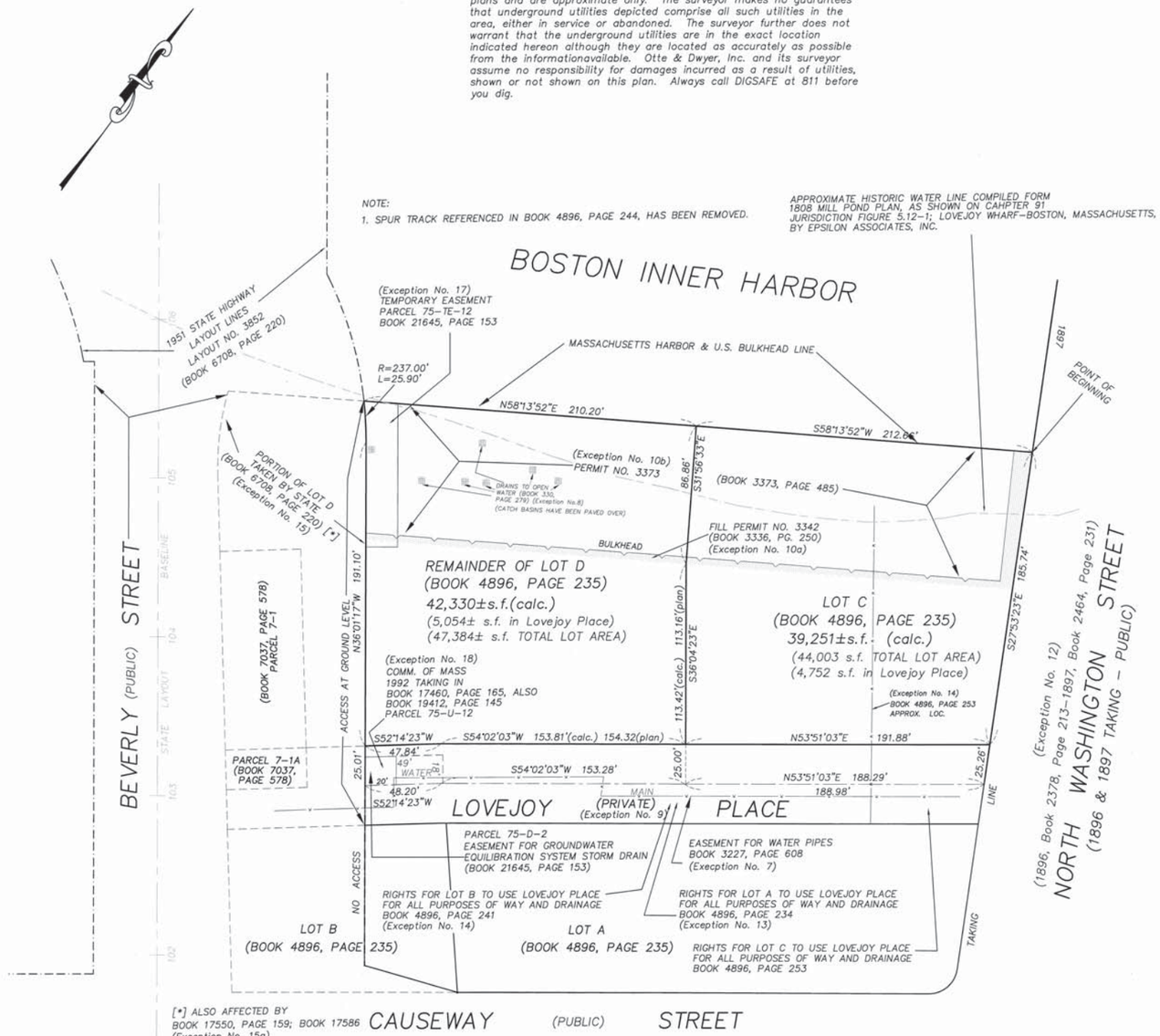
SCALE: 1"=40' — AUGUST 20, 2012
REVISED:

0' 40' 80' 120'
SCALE

JN. 11444

GENERAL UTILITY NOTE

The underground utilities depicted hereon are from field locations of observable evidence and/or compiled according to available record plans and are approximate only. The surveyor makes no guarantees that underground utilities depicted comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities are in the exact location indicated hereon although they are located as accurately as possible from the informationavailable. Otte & Dwyer, Inc. and its surveyor assume no responsibility for damages incurred as a result of utilities, shown or not shown on this plan. Always call DIGSAFE at 811 before you dig.



(Exception No. 19)
LOCUS IS SUBJECT TO AN ORDER OF CONDITIONS BOOK 29329, PAGE 162 AND EXTENSION PERMITS IN BOOK 33968, PAGE 43 AND BOOK 34505, PAGE 142.

(Exception No. 20)
LOCUS IS SUBJECT TO FINAL ORDER OF CONDITIONS BOOK 45527, PAGE 99

DRAFT 8/20/2012

EXHIBIT "A" COMMITMENT No. 14892851

160 North Washington Street, Boston, MA:

That certain parcel of improved real property commonly known as 160 North Washington Street located in the City of Boston, County of Suffolk and Commonwealth of Massachusetts, legally described as follows:

A certain parcel of land with the buildings thereon situated and now numbered 160 on Washington Street North in said Boston, the same being shown as Lot C on a "Plan of Land in Boston-Mass." dated December 18, 1926, prepared by Aspimwall & Lincoln, Civil Engrs., recorded with Suffolk Registry of Deeds, Book 4896, Page 234, and being bounded and described as follows:

NORTHEASTERLY by said Washington Street North, 211 feet;

SOUTHEASTERLY by the center of a passageway approximately 50 feet wide known as Lovejoy Place, 188.285 feet;

SOUTHWESTERLY by Lot D on said plan by three lines measuring respectively, 25 feet, 113.16 feet and 86.86 feet (the first of said lines extends from the center line of Lovejoy Place to the Southeasterly end of the brick partition wall between the buildings on said Lot C and said Lot D, the second extends through said brick partition wall and the third extends to the harbor line in the Charles River and forms as interior angle with the Northwesterly boundary herein below satforth of 89 49' 35"); and

NORTHWESTERLY by the harbor line in the Charles River, 212.66 feet.

131 Beverly Street, Boston, MA

That certain parcel of improved real property commonly known as 131 Beverly Street located in the City of Boston, County of Suffolk and Commonwealth of Massachusetts, legally described as follows:

A certain parcel of land in said Boston with the buildings thereon shown as Lot D on a plan entitled "Plan of Land in Boston-Mass." made by Aspinwall & Lincoln, C.E., dated December 18, 1926, recorded in the Registry of Deeds for Suffolk County, in Book 4896, Page 234, and being bounded and described as follows:

SOUTHWESTERLY by Beverly Street by two (2) courses as shown on said Plan, in all two hundred fifty one and 49/100 (251.49) feet;

NORTHWESTERLY by the Charles River two hundred ninety six and 19/100 (296.19) feet;

NORTHEASTERLY by Lot C as shown on said Plan and also as shown on a plan entitled "Plan of Land in Boston-Mass." made by Aspinwall & Lincold, C.E., dated December 20, 1926, recorded in said Deeds in Book 4896, Page 252, by two (2) courses, in all two hundred twenty five and 02/100 (225.02) feet, said two (2) courses last above mentioned running in part parallel witrh and three (3) feet southwesterly from a line marked by copper nails in the second floor of the three story building on Lot C and in part through a brick partition wall between the brick building on Said Lot C 67/100 (.67) feet northeasterly from the Southwesterly face of said brick pertition wall;

SOUTHEASTERLY by the center line of the passageway fifty (50) feet in width called Lovejoy Place by two (2) lines one hundred fifty three and 97/100 (153.97) feet and one hundred thirty-five and 74/100 (135.74) feet respectively;

There is excluded from the foregoing described parcel of land so much of the land taken by the Commonwealth of Massachusetts by eminent domain as set forth and described in its: (a) Order of Taking dated June 29, 1951, recorded in said Registry of Deeds in Book 6708, Page 220, as affected by a deed dated February 21, 1955, recorded with said Deeds in Book 7037, Page 587; (b) an Order of Taking dated April 15, 1992, recorded with said Deeds in Book 17462, Page 165; and (c) and Orded of Taking dated August 6, 1997, recorded with said Deeds in Book 21645, Page 153.

Said premises has benefit of the rights to a private road known as Lovejoy Planc and rights and easements set forth in a deed dated December 26, 1986, recorded at Book 13271, Page 257.

Said premises has benefit of the terms and provisions of License 3342 dated January 6, 1909 recorded in Book 3336, Page 250; and License 3373 dated May 24, 1909 recorded in Book 3373, Page 485, in accordance with the terms thereof.

EXCEPTIONS
Exceptions, as numbered in Commitment for Title Insurance No.14892851, dated July 31, 2012, issued by Commonwealth Land Title Insurance Company.

With regard to exceptions 1-5. Our certification is limited to only matters observed on the ground or of record

No. 6	As noted on the survey (sheet 1)
No. 7	As noted on the survey (sheet 2)
No. 8	As shown on the survey (sheet 2)
No. 9	As noted on the survey (sheet 2)
No. 10	As noted on the survey (sheet 2)
No. 11	As noted on the survey (sheet 1)
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NOTE:
The surveyor has relied upon the Commitment for Title Insurance issued by Commonwealth Land Title Insurance Company Number 14892851, effective July 31, 2012 with regard to any recorded easements, rights of way or setbacks affecting the subject property.

ALTA/ACSM LAND TITLE SURVEY

160 NORTH WASHINGTON STREET & 131 BEVERLY STREET BOSTON, MASS. 02114

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SCALE: 1"=40' AUGUST 20, 2012
REVISED:

0' 40' 80' 120'
SCALE

SHEET 2 of 2 JN. 11444

Attachment B

Transportation Analysis

ATTACHMENT B TRANSPORTATION ANALYSIS

B.1 Executive Summary

In association with the original Final Project Impact Report (FPIR) filing and the 2012 Notice of Project Change (NPC) filing for the Lovejoy Wharf Project, a transportation study was submitted and approved by the Boston Redevelopment Authority (BRA) (the "Approved Transportation Analysis"). That analysis addressed modifications of the Lovejoy Wharf Project associated with the proposed change in use of the 160 North Washington Street building from residential to office. In connection with this subsequent NPC filing, the Approved Transportation Analysis has been updated to address the impacts on the transportation system associated with proposed modifications in use of the 131 Beverly Street building. Specifically, the Approved Transportation Analysis has been updated to address the use of the existing building at 131 Beverly Street for approximately 175 residential condominiums, and approximately 10,000 square feet of commercial space. The redevelopment program for the 160 North Washington Street property remains substantially unchanged since the Approved Traffic Analysis.

This updated traffic analysis presented herein as Attachment B was performed in accordance with the Executive Office of Energy and Environmental Affairs/Executive Office of Transportation (EEA/EOT) guidelines for the preparation of Traffic Impact Assessments (TIAs), and the Boston Redevelopment Authority requirements for the preparation of this filing. The scope of this transportation analysis was determined during meetings with the Boston Transportation Department (BTD) officials.

The summary findings are as follows:

- The Project as modified by this filing does not result in a significant change in vehicular traffic operations (motorist delays or queuing) at the study area intersections over No-Build conditions.

- The Project as modified is projected to result in minimal increases to area transit ridership as compared to No-Build conditions, and is not anticipated to result in a significant impact on transit capacity in the area.

- The Project as modified is not projected to result in a significant increase to pedestrian activity over No-Build conditions, and is not expected to result in a notable impact to pedestrian traffic within the study area.

- Parking for the Project is available at existing off street facilities.

- Loading activities for the Project will occur in designated off-street areas via Lovejoy Place and Beverly Street.

- The Proponent is committed to developing and implementing a comprehensive transportation demand management (TDM) program to reduce automobile dependency and encourage travel by non-automobile modes.

- Pedestrian amenities will include sidewalks and an open-air building walk-through connection to the Wharf.

- A bike room is also included in the building design.

- The Proponent and general contractor will develop a comprehensive construction management plan to ensure safety and minimize the impact of construction activities on pedestrian and vehicular traffic.

Conclusion

The Project is uniquely designed and situated to take advantage of the existing and expanding transportation infrastructure in the North Station area, including enhanced and improved access to the regional roadway network, proximate public transportation access, and pedestrian facility improvements. It is expected that the availability of public transportation services in the vicinity of the Project site coupled with the implementation of a comprehensive TDM program as a part of the Project will minimize the potential traffic impacts associated with the Project. Finally, the Project Proponent will be required to formalize the commitments to Project mitigation with the City of Boston via a Transportation Access Plan Agreement (TAPA) to be entered into by the Proponent (or its affiliates) and the Boston Transportation Department.

B.2 Existing Conditions

As previously noted, the Lovejoy Wharf Project is located at 131 Beverly Street and 160 North Washington Street in the Bulfinch Triangle section of Boston. The Lovejoy Wharf Project is ideally situated from a public transportation perspective and is also located within a convenient walking distance to Government Center and the Financial District. A review of existing roadway, parking, pedestrian, and public transportation facilities was undertaken in October 2012 as part of the original NPC to assess the current availability of transportation resources in the vicinity of the Project site.

B.2.1 Study Methodology

As with the Approved Transportation Analysis, this updated transportation analysis was conducted in three distinct stages. The first stage involved an assessment of existing conditions within the study area including pedestrian and parking facilities and public transportation availability. Data concerning existing peak-hour traffic pedestrian traffic volumes was utilized from the prior NPC filing. As documented in subsequent sections of this report, analysis of project-related impacts to vehicular traffic operations was conducted based on future year 2017 traffic volumes and roadway conditions following the completion of improvements to the Causeway Street corridor. Specifically, as with the 2012 NPC Filing, separate 2017 No-Build and 2017 Build condition analyses were completed in order to address the residential condominium use based upon 175 units.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. The future design condition traffic volumes for proposed transportation improvements to the Causeway Street

corridor were utilized in the development of future traffic conditions, and include future traffic volumes associated with planned and approved area developments which were included in the 2012 NPC filing. The 2017 future year condition was assessed in accordance with the BRA/BTD analysis protocol.

The third stage of the study update presents and evaluates the traffic, pedestrian, parking, and public transportation impacts of the project, and provides recommendations as necessary for improvements to accommodate the current redevelopment project.

B.2.2 Study Area

The study area for the Project was developed in consultation with the Boston Transportation Department, and contains critical signalized and unsignalized intersections in the vicinity of the Project site. Specifically, the study area was selected to encompass the major surface roadways adjacent to the Project site including Beverly Street, North Washington Street, Causeway Street, Lomasney Way, and Merrimac Street, as well as the nine intersections expected to accommodate the majority of project-related traffic along these roadways. Study area intersections are displayed on Figure B-1 and are summarized below (all figures attached at end of report).

1. Causeway Street and Staniford Street at Lomasney Way and Merrimac Street
2. Causeway Street at Portland Street
3. Causeway Street at Friend Street
4. Causeway Street at Canal Street
5. Causeway Street at Haverhill Street, Legends Way and TD Garden Garage driveway (future)
6. Causeway Street at Beverly Street
7. Causeway Street at Beverly Street Extension
8. Causeway Street at North Washington Street and Commercial Street
9. Beverly Street at Lovejoy Place

B.2.3 Geometrics

The roadway and intersection geometrics utilized in this report reflect future year 2017 conditions following the completion of the Causeway Street improvement project, and other construction activities associated with area development within the study area. The following summarizes the geometrics utilized for analysis purposes.

Roadways

Causeway Street. Causeway Street is a four-lane, partially median divided, urban collector roadway under the jurisdiction of the City of Boston, which traverses the study area in a general east-west orientation between Merrimac Street to the west and North Washington Street to the east. Within the study area, land use along Causeway Street consists of the TD Garden, the O'Neill Federal Building, various commercial and office developments, residential developments and the MBTA North Station commuter rail station and the Green Line/Orange Line "Super Station". Taxi stands are located on both the northern and southern sides of the corridor, in the vicinity of the TD Garden. Sidewalks are provided along both sides of Causeway Street, with illumination provided by way of street lights

mounted on steel poles. Head houses to the MBTA Orange and Green Lines are located on Causeway Street proximate to Canal Street and the TD Garden.

Beverly Street. Beverly Street is a two-lane roadway under the jurisdiction of the City of Boston which traverses the study area in a general north-south orientation between the State Police and DCR facilities and Causeway Street. Within the study area, land use along Beverly Street consists of a mix of commercial, office, and residential space.

Lomasney Way. Lomasney Way is a four-lane, median divided, urban collector roadway under the jurisdiction of the City of Boston which traverses the study area in a general north-south orientation between Merrimac Street and Nashua Street. Within the study area, land use along Lomasney Way consists of the TD Garden Garage, the O'Neill Federal Building and residential developments. Sidewalks are provided along both sides of Lomasney Way, with illumination provided by way of street lights mounted on steel poles.

Merrimac Street. Merrimac Street is a four-lane, median divided, urban collector roadway under the jurisdiction of the City of Boston which traverses the study area in a general northwest-southeast direction between New Chardon Street and Staniford Street. Within the study area, land use along Merrimac Street consists of commercial and office developments, as well as the Suffolk County Courthouse. Sidewalks are provided along both sides of Merrimac Street, with illumination provided by way of street lights mounted on steel poles.

North Washington Street. North Washington Street is a four-lane urban collector roadway under the jurisdiction of the City of Boston which traverses the study area in a general northeast-southwest direction between New Chardon Street and Causeway Street. Within the study area, land use along North Washington Street consists of commercial and office developments. Sidewalks are provided along both sides of North Washington Street, with illumination provided by way of street lights mounted on steel poles.

Intersections

The following section identified the intersection geometry at each study area location, following the completion of the proposed Causeway Street improvement project.

1). *Causeway Street and Staniford Street at Lomasney Way and Merrimac Street.* Lomasney Way and Merrimac Street intersect Causeway Street and Staniford Street from the north and south, respectively, to form a skewed four-legged intersection under traffic signal control. The eastbound Staniford Street and westbound Causeway Street approaches consist of two general-purpose travel lanes and an exclusive right turn lane. The northbound Merrimac Street approach consists of an exclusive left turn lane, through lane, and an exclusive right turn lane. The Lomasney Way southbound approach consists of an exclusive left turn lane and two general-purpose travel lanes. Bituminous concrete sidewalks are provided along both sides of the road way for all four intersection approaches. Crosswalks are provided across every intersection approach. The traffic signal at this intersection operates under a four-phase, actuated signal operation, with an exclusive left turn phase

provided for northbound and southbound traffic and an exclusive pedestrian phase.

2). *Causeway Street at Portland Street.* Portland Street intersects Causeway Street from the south to form a three-legged intersection under traffic signal control. The eastbound and westbound Causeway Street approaches consist of two general-purpose travel lanes in each direction. The northbound Portland Street approach consists of a general purpose travel lane. Bituminous concrete sidewalks are provided along both sides of the roadway. Crosswalks are provided across every intersection approach. The Traffic signal at this intersection operates under a three-phase, coordinated signal operation, with an exclusive pedestrian phase provided.

3). *Causeway Street at Friend Street.* Friend Street intersects Causeway Street from the south to form a three-legged unsignalized intersection. The eastbound and westbound Causeway Street approach consists of two general purpose travel lanes in each direction. The northbound Friend Street approach consists of a single receiving lane and operates as a one way street in the southbound direction. Bituminous concrete sidewalks are provided along both sides of the road way for all three intersection approaches. Under future conditions this location will be reconstructed as a raised intersection, with crosswalks provided across both the eastbound and westbound Causeway Street approaches and northbound Friend Street approach.

4). *Causeway Street at Canal Street.* Canal Street intersects Causeway Street from the south to form a three-legged intersection under STOP-sign control. The eastbound and westbound Causeway Street approaches consists of two general purpose travel lanes. The northbound Canal Street approach consists of a shared exclusive left turn and right turn lane. Bituminous concrete sidewalks are provided along both sides of the road way for all three intersection approaches. Under future conditions this location will be reconstructed as a raised intersection, with crosswalks provided across both the eastbound and westbound Causeway Street approaches and northbound Canal Street approach.

5). *Causeway Street at Haverhill Street and TD Garden Drive.* The TD Garden Drive and Haverhill Street intersect Causeway Street from the north and south, respectively, to form a four-legged intersection under traffic signal control. Under future conditions a fifth southbound leg will be constructed to this intersection to accommodate the TD Garden garage entrance. The eastbound Causeway Street approach consists of an exclusive left-turn lane and two general purpose lanes. The westbound Causeway Street approach consists of two general purpose travel lanes. The northbound Haverhill Street approach consists of an exclusive left-turn lane and a shared through/right-turn lane, and operates as a one way street in the northbound direction. The Legends Way and TD Garden Garage drive southbound approaches each provide a single general purpose travel lane. Bituminous concrete sidewalks are provided along both sides of the road way for all four intersection approaches. Crosswalks are provided across every intersection approach. The traffic signal

at this intersection operates under a four-phase, coordinated signal operation, with an exclusive left turn lead phase provided for eastbound traffic.

6). *Causeway Street at Beverly Street.* Under future conditions, Beverly Street will intersect Causeway Street from the south to form a three-legged unsignalized intersection. The eastbound Causeway Street approach consists of two through lanes and a shared through/right turn lane. The westbound Causeway Street approach consists of two general purpose travel lanes. The northbound Beverly Street approach consists of a receiving lane and operates as a one way street in the southbound direction. Bituminous concrete sidewalks are provided along both sides of the road way for all three intersection approaches.

7). *Causeway Street at Beverly Street Extension.* Beverly Street Extension currently intersects Causeway Street from the north to form a three-legged unsignalized intersection. The eastbound Causeway Street approach consists of a shared left turn/through lane and two through lanes. The westbound Causeway Street approach consists of a through lane and a shared through/right turn lane. The southbound Beverly Street Extension approach consist of a shared left turn/right turn lane and operates under STOP sign control. Bituminous concrete sidewalks are provided along both sides of the road way for all three intersection approaches. Crosswalks are provided across the eastbound Causeway Street and southbound Beverly Street Extension approaches.

8). *North Washington Street at Causeway Street and Commercial Street.* Commercial Street and Causeway Street intersect North Washington Street from the east and west, respectively, to form a four-legged intersection under traffic signal control. Under improved conditions, the eastbound Causeway Street approach consists of two exclusive left turn lanes and a shared through/right turn lane. The westbound Causeway Street approach consists of two general-purpose lanes and an exclusive right turn lane. The northbound North Washington Street approach consists of two general-purpose lanes. The North Washington Street southbound approach consists of an exclusive left turn lane, two through lanes and an exclusive right-turn lane. Bituminous concrete sidewalks are provided along both sides of the road way for all four intersection approaches. Crosswalks are provided across every intersection approach. The traffic signal at this intersection operates under a four-phase, coordinated signal operation

9). *Beverly Street Extension at Lovejoy Place*. Lovejoy Place intersects Beverly Street Extension from the east to form a four-way unsignalized intersection. All three intersection approaches provide a single general purpose travel lane. Sidewalk is provided along the western side of Beverly Street Extension at this location.

B.2.4 Existing Traffic Volumes

Existing traffic volumes within the study area were taken from the 2012 NPC for Lovejoy Wharf. An analysis of future traffic operations is provided which provides a comparison of future of 2017 No-Build conditions with the prior BRA approved development project, and of 2017 Build conditions with the currently proposed Project (190 condominium units).

B.2.5 Existing Public Transportation

North Station is one of the principle transportation centers in the City of Boston. It provides connections to the Massachusetts Bay Transit Authority Orange Line and Green Line subway service, to commuter rail, and to Amtrak's regional rail service to New Hampshire and Maine. Figure B-2 depicts the available public transit routes and facilities within the study area.

Commuter Rail

There are four MBTA Commuter Rail lines serving North Station providing service to:

- Newburyport/Rockport
- Haverhill/Reading
- Lowell
- Fitchburg/South Acton

These four commuter lines serve the North Shore communities and the northwestern suburbs of Boston. Table B.2-1 summarizes the peak-period capacity for the four commuter rail lines serving North Station, as well as the latest MBTA ridership information during the peak-commuter periods.

Rapid Transit

The rapid transit subway system is accessible from North Station by way of the Orange and Green Lines, with connections provided by way of head houses located off Causeway Street proximate to Canal Street and the TD Garden. From North Station, the Orange Line provides service to the south to Forest Hill and north to Oak Grove. The Orange Line also provides connections to the Blue Line at State Street and to the Red Line at Downtown Crossing. The Green Line provides service to the north to Lechmere and to the west to Boston College via the B Line and to Heath via the E Line. Access to the C Line branch of the Green Line to Cleveland Circle and to the D Line branch to Riverside is available via a transfer at Government Center station. The Green Line also provides connection to the Blue Line at Government Center and to the Red Line at Park Street.

Bus Service

MBTA bus service within the study area is provided via several local bus routes, including Bus Route 4, Bus Route 92, Bus Route 93 and Bus Route 111.

Existing public transportation serving the immediate study area is summarized in Table B.2-1.

Table B.2-1 MBTA Transit Service

Service	Origin/Destination	Rush-Hour Headway (minutes)
	Rapid Transit Routes	
Orange Line Subway	Forest Hills-Oak Grove	4-5
Green Line Subway	Boston College-Lechmere	5-7
	Cleveland Circle-Lechmere	5-7
	Riverside-Lechmere	5-7
	Heath Street-Lechmere	5-7
Blue Line Subway	Bowdoin-Wonderland	3-4
	Local Bus Routes	
Bus Route 4	North Station-World Trade Center via Federal Courthouse and South Station	16
Bus Route 92	Assembly Square Mall-Downtown via Sullivan Square, Main Street and Haymarket	7-8
Bus Route 93	Sullivan Square-Downtown via Bunker Hill Street and Haymarket	7-8
Bus Route 111	Woodlawn or Broadway and Park Avenue-Haymarket via Tobin Bridge	10

Source: Massachusetts Bay Transit Authority.

B.2.6 Existing Pedestrian Volumes

The Project is served by an expansive network of pedestrian sidewalks, with controlled crossings provided at signalized intersections. Existing pedestrian volumes were collected at the nine study area intersections in October 2012 as part of the original NPC. The existing weekday morning and evening peak hour pedestrian counts are depicted on Figure B-3 and Figure B-4, respectively.

B.2.7 Existing Parking Supply

In order to assess the availability of off-site parking within the vicinity of the site, an updated inventory of on-street and off-street public parking supply in the vicinity of the Project site was conducted. The updated inventory of on-street parking supply within the study area indicates that short-term on-street metered parking is available along a number of corridors within a five minute, or quarter-mile distance of the Project site, including portions of the Merrimac Street, Portland Street, Friend Street, Canal Street and Medford Street corridors. On-street parking restrictions in the vicinity of the Project site are depicted on Figure B-5.

In addition to the aforementioned short-term parking, a number of off-street parking lots and garages provide additional long-term public parking within walking distance of the Project

site. Off-street parking lots and garages that provide public parking within a short walking distance of the Project site are depicted in Figure B-6. Table B.2-2 provides a summary of available area public parking located proximate to the site, based on data collected as part of recent City of Boston BRA filings. As noted in Table B.2-2, in excess of 2,500 public parking spaces are provided, which is expected to well exceed any project-related parking demand for this project.

Table B.2-2 Off-Street Parking Supply Summary

Map #	Address	Parking Facility	Public Space Capacity
		Parking Garage Facilities	
1	35 Lomasney Way	Garden Garage	710
2	101 Merrimac Street	101 Merrimac Street Garage	70
3	80 Causeway Street	MBTA North Station/Garden Garage	1,221
4	600 Commercial Street	North End Garage	200
		Parking Lot Facilities	
5	26-28 Lancaster Street	VIP Parking Lot	26
6	70 Lancaster Street	Stanihope – Lancaster Street	50
7	235-239 Friend Street	J & O Lot	26
8	302-320 Friend Street	Friend Street Lot	41
9	37 Merrimac Street	Rapids Parking Lot	45
10	37 Merrimac Street	P&P Parking Lot	83
11	90 N. Washington Street	Pinstripe Parking	47
12	181-183 N. Washington Street	Ruggiero Lot	7
13	580 Commercial Street	Commercial at Charter Street	49
	TOTAL		**2,575**

Source: *Project Notification Form – One Canal*; Epsilon Associates, Inc. October 2011
Notice of Project Change – Lovejoy Wharf; Epsilon Associates Inc., November 2012.

B.3 FUTURE CONDITIONS

As mentioned previously, the study area will undergo significant transportation infrastructure improvements in conjunction with the Causeway Street Improvement Project. Specifically, the Massachusetts Department of Transportation (MassDOT) is currently in the process of designing roadway, traffic signal and pedestrian improvements along the Causeway Street corridor, as well as portions of Lomasney Way and North Washington Street as part of the Crossroads Initiative project. The purpose of the improvements is to transform the Causeway Street corridor into a more pedestrian and bicycle friendly corridor, consistent with MassDOT's Complete Streets design objectives. The Causeway Street corridor serves as an important pedestrian and vehicular connection between the North End and West End neighborhoods of Boston, and is also a critical access route for the Bullfinch Triangle business and entertainment district. Key elements of the project include:

- Reconstruction of the Lowell Square intersection (Causeway Street at Merrimac Street, Staniford Street and Lomasney Way) to enhance vehicular and pedestrian traffic, including reconstructed pedestrian crossings and intersection geometry to enhance vehicular, bicycle and pedestrian activity at this location

- Reconstruction of the Causeway Street core area between Lomasney Way and North Washington Street to improve pedestrian and bicycle travel, including the reconstruction of Causeway Street at Friend Street and Causeway Street at Canal Street in order to provide raised intersections to improve pedestrian safety.

- Reconstruction of Keany Square (Causeway Street at North Washington Street and Commercial Street) to enhance vehicular and pedestrian crossings and intersection geometry to enhance vehicular, bicycle and pedestrian activity at this location.

- Modifications to the Medford Street corridor to reverse direction of traffic flow from one-way northbound to one-way southbound.

The future year 2017 traffic analyses presented herein reflect the proposed roadway and traffic signal improvements associated with the Causeway Street Improvement Project.

B.4 IMPACTS OF THE PROJECT

As with the Approved Traffic Analysis, this updated Traffic Analysis reviews the probable impacts associated with the Project (as modified by this filing) in relation to traffic volumes, pedestrian flow, public transportation use, and parking demand. Specific attention is focused on the incremental impacts of the change from 104 condominium units to approximately 190 units.

B.4.1 Introduction

As previously noted, in accordance with the MEPA and BRA/BTD requirements, two future conditions were evaluated in conjunction with the original approvals: 2017 No-Build (with the BRA approved project) and 2017 Build (with the Project). Independent of the Project, traffic volumes on the future roadway networks under No-Build conditions, include (i) all existing traffic and new traffic resulting from background traffic growth; (2) land use traffic projections including the development of all of the Bulfinch Triangle air rights parcels; and (3) traffic associated with the BRA approved redevelopment of the Project site. Future 2017 Build conditions include traffic identified in the 2017 No-Build scenario, as well as the incremental traffic increases associated with the Office Use.

B.4.2 2017 No-Build Traffic Networks

The future 2017 No-Build traffic conditions for the Project were obtained from the analysis of future traffic conditions utilized in the design of the Causeway Street Improvement Project. As previously noted, these volumes include existing traffic volumes as well as anticipated growth in traffic over a five-year planning horizon as presented in the 2012 NPC.

Figures B-7 and B-8 depict the 2017 No-Build weekday morning and evening peak-hour traffic-volume networks, respectively.

B.4.3 Project Trip-Generation

Consistent with industry and City of Boston guidelines, the trip-generation characteristics for the Project were developed using statistics published by the Institute of Transportation Engineers (ITE)[1] for similar land uses as those proposed. ITE Land Use Codes (LUC) 230 – Residential Condominium/ Townhouse, LUC 714 – Corporate Headquarters Building, LUC 814 – Specialty Retail, and LUC 932 – High Turnover Sit-Down Restaurant were utilized to develop the trip generation characteristics of the development.

Specifically, the trip generation projections for the 131 Beverly Street redevelopment are based on approximately 175 residential units and approximately 10,000 square feet of commercial space. The trip generation projections for the 160 North Washington Street building are based on approximately 20,543 square feet of commercial space (for the Office Use), 10,000 square feet of which would accommodate restaurant space that provides approximately 300 seats.

The expected travel mode split and vehicle occupancy ratio for the residential community were developed based on the City of Boston's Access Boston 2000 – 2010, Boston's City Wide Transportation Plan[2] and discussions with BTD.

Table B.4-1 summarizes the trip-generation characteristics of the proposed residential development utilizing the ITE data, unadjusted to account for modal splits in travel type.

Table B.4-1 Trip-Generation Summary Proposed Lovejoy Wharf Development

Time Period/Direction	Residential Units	Office Space	Commercial/ Restaurant	TOTAL
Average Weekday Daily:				
Entering	523	524	892	1,939
Exiting	523	524	892	1,939
Total	1,046	1,048	1,784	3,878
Weekday Morning Peak Hour:				
Entering	74	189	19	222
Exiting	67	14	12	93
Total	87	203	31	315
Weekday Evening Peak Hour :				
Entering	64	19	84	167
Exiting	31	152	66	249
Total	95	171	150	416

[a]Based on ITE Land Use Codes (LUC) 230 – Residential Condominium/Townhouse, LUC 714 – Corporate Headquarters Building, LUC 814 – Specialty Retail, and LUC 931 – Quality Restaurant.

[1] *Trip Generation,* Eighth Edition; Institute of Transportation Engineers; Washington, DC; 2003.

[2] *Boston Transportation Fact Book and Neighborhood Profiles*, Access Boston 2000-2010, Boston's City Wide Transportation Plan; City of Boston; May 2002.

The expected travel mode split and vehicle occupancy ratio for the residential and commercial components of the Project were developed based on data supplied by BTD and the Central Transportation Planning Staff (CTPS) for the appropriate subsection of the Boston Metro area for the Project. The information provides mode share usage by location and trip purposes (work, home, other) for the study area, as summarized in Table B.4-2.

Table B.4-2 Travel Mode Split Assumptions

Trip Classification/Mode	Average Weekday Daily	Weekday Morning Peak Hour (Entering)	Weekday Morning Peak Hour (Exiting)	Weekday Evening Peak Hour (Entering)	Weekday Evening Peak Hour (Exiting)
Residential-Based Person Trips :					
Pedestrian	65%	65%	65%	65%	65%
Transit	15%	15%	15%	15%	15%
Automobile	20%	20%	20%	20%	20%
Automobile Occupancy Rate	1.1	1.1	1.1	1.1	1.1
Office-Based Person Trips :					
Pedestrian	27%	27%	27%	27%	27%
Transit	15%	30%	30%	30%	30%
Automobile	43%	43%	43%	43%	43%
Automobile Occupancy Rate	1.1	1.1	1.1	1.1	1.1
Commercial-Based Person Trips :					
Pedestrian	59%	59%	59%	59%	59%
Transit	13%	13%	13%	13%	13%
Automobile	28%	28%	28%	28%	28%
Automobile Occupancy Rate	2.1	2.1	2.1	2.1	2.1

Source: BTD and modal split data for North End/West End.

Using the ITE trip-generation results identified in Table B.4-1 and the travel mode splits and vehicle occupancy ratios shown in Table B.4-2, the trip-generation characteristics of the proposed Project were developed and are summarized in Table B.4-3.

As indicated in Table B.4-3, the Project (total) is expected to result in 1,774 new automobile person trips (887 entering and 887 exiting) on an average weekday, with 1,004 transit trips (502 entering and 502 exiting) and 3,270 pedestrian trips (1,635 entering and 1,635 exiting). Applying the anticipated occupancy rate to the automobile person trips the Project is expected to generate 1,146 daily vehicle trips (573 entering and 573 exiting) with 111 vehicle trips (90 entering and 21 exiting) during the weekday morning peak hour and 134 vehicle trips (44 entering and 90 exiting) during the weekday evening peak hour.

Table B.4-3 Proposed Lovejoy Wharf Development Trip Generation Summary

Trip Classification/Mode	ITE Trips	Person Trips: Total Trips	Person Trips: Automobile Trips	Person Trips: Transit Trips	Person Trips: Pedestrian Trips	Vehicle Trips
Average Weekday Daily:						
Entering	1,939	3,024	887	502	1,635	573
Exiting	1,939	3,024	887	502	1,635	573
Total	3,878	6,048	1,774	1,004	3,270	1,146
Weekday Morning Peak Hour:						
Entering	222	263	104	69	90	90
Exiting	93	113	28	19	66	21
Total	315	376	132	88	156	111
Weekday Evening Peak Hour:						
Entering	167	267	72	39	156	4
Exiting	249	341	118	74	149	90
Total	416	608	190	113	305	134

In order to provide a comparison between the peak hour trip generation characteristics of the currently proposed development and prior BRA approved development program, the daily and peak hour trip generation projections were compared, as summarized in Table B.4-4.

Table B.4-4 Vehicular Trip-Generation Comparison

Time Period/Direction	BRA Approved Development Project[a]	Updated Development Project	Delta
Weekday Morning Peak Hour:			
Entering	89	90	1
Exiting	17	21	4
Total	106	111	5
Weekday Evening Peak Hour :			
Entering	40	44	4
Exiting	89	90	1
Total	129	134	5
Weekday Daily :	1,082	1,146	64

[a]Source: *Notice of Project Change – Lovejoy Wharf*; Epsilon Associates Inc., November 2012.

As indicated in Table B.4-4, during peak commuter hours the proposed development is expected to generate 5 additional peak hour vehicle trips as compared to the BRA approved project. On a daily basis the proposed project is projected to result in 64 additional weekday trips.

B.4.5 Project Trip Distribution

The distribution of project-generated automobile trips to the regional roadway network was based on the BRA approved trip distribution patterns identified in the prior DPIR and NPC. Parking for the non-residential portion of the Project is anticipated in an existing private garage. Parking for the residential portion of the Project is available at existing off street facilities.

B.4.6 Build Traffic Networks

The 2017 Build condition networks consist of the 2017 No-Build traffic volumes, which include traffic associated with the BRA approved redevelopment Project for the Project site plus the new project traffic. The 2017 Build condition traffic volumes were developed by applying the increase (or decrease) in traffic associated with the current development program in accordance with the revised distribution patterns with Project parking along Commercial Street. The 2017 Build weekday morning and evening peak-hour traffic-volume networks are graphically depicted on Figure B-9 and Figure B-10, respectively. A summary of peak-hour projected traffic-volume increases in the site proximity is shown in Table B.4-5. With parking relocated off site, there will be less traffic along Causeway Street with traffic increases along North Washington Street. The overall net increase in project-related traffic is only five (5) peak hour trips.

Table B.4-5 Traffic Volume Increases

Intersection/Peak Hour	2017 No-Build	2017 Build	Volume Increase Over No-Build	Percent Increase/(Decrease) Over No-Build
Causeway Street at Beverly Street Extension:				
Weekday Morning	1,357	1,278	-79	(5.8)
Weekday Evening	1,121	1,044	-77	(6.8)
Causeway at Beverly Street:				
Weekday Morning	1,493	1,422	-71	(9.8)
Weekday Evening	1,594	1,530	-64	(4.0)
Causeway Street at Canal Street:				
Weekday Morning	1,834	1,768	-66	(3.6)
Weekday Evening	1,607	1,575	-32	(2.0)
Causeway Street at Friend Street:				
Weekday Morning	1,791	1,725	-66	(3.7)
Weekday Evening	1,640	1,608	-29	(2.0)
Causeway Street at Portland Street:				
Weekday Morning	1,866	1,800	-66	(3.5)
Weekday Evening	1,718	1,689	-29	(1.7)
Causeway Street at Lomasney Way, Merrimac Street and Staniford Street:				
Weekday Morning	2,940	2,900	-40	(1.4)
Weekday Evening	2,822	2,807	-15	(0.5)
Causeway Street at North Washington Street:				
Weekday Morning	3,494	3,577	83	2.3
Weekday Evening	3,788	3,892	104	2.7

B.5 TRAFFIC OPERATIONS ANALYSIS

To assess quality of traffic flow, intersection capacity analyses were conducted under 2017 No-Build and 2017 Build traffic-volume and future roadway conditions. An existing (2012) traffic operations analysis was not performed due to on-going construction activities within the study area. The study area intersections requiring capacity analyses were determined based on additional meetings with the BTD to clarify the study area scope. Capacity analyses provide an indication of how well the roadway facilities will serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection. The analysis methodology and procedures used in the preparation of this study are based on the concepts presented in the 2000 *Highway Capacity Manual* (HCM).[3]

B.5. *Methodology*

Levels of Service

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.[4] The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing the worst.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- *LOS A* describes operations with very low delay; most vehicles do not stop at all.
- *LOS B* describes operations with relatively low delay. However, more vehicles stop than LOS A.
- *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

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[3] *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

[4] The capacity analysis methodology is based on the concepts and procedures in the *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000.

- *LOS D* describes operations with delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.

- *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.

- *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the 2000 *Highway Capacity Manual*. This method assess the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table B.5-1 summarizes the relationship between level of service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

Table B.5-1 Level-Of-Service Criteria For Signalized Intersections[a]

Level of Service	Control (Signal) Delay per Vehicle (Seconds)
A	$\leq$10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	>80.0

[a]Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000; page 16-2.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A represents a condition with little or no control delay to minor street traffic.*

- *LOS B represents a condition with short control delays to minor street traffic.*

- *LOS C represents a condition with average control delays to minor street traffic.*

- *LOS D represents a condition with long control delays to minor street traffic.*

- *LOS E represents operating conditions at or near capacity level, with very long control delays to minor street traffic.*

- *LOS F represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.*

The levels of service of unsignalized intersections are determined by application of a procedure described in the 2000 Highway Capacity Manual.[5] Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the affects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the 2000 Highway Capacity Manual. Table B.5-2 summarizes the relationship between level of service and average control delay.

Table B.5-2 Level-Of-Service Criteria For Unsignalized Intersections[a]

Level of Service	Average Control Delay (seconds per vehicle)
A	≤ 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	> 50.0

[a]Source: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000; page 17-2.

Vehicle Queue Analysis

Vehicle queue analyses are a direct measurement of an intersection's ability to process vehicles under various traffic control and volume scenarios and lane use arrangements. The vehicle queue analysis was performed using the Synchro intersection capacity analysis software which is based upon the methodology and procedures presented in the 2000 Highway Capacity Manual. The Synchro vehicle queue analysis methodology is a simulation based model which reports the number of vehicles that experience a delay of six seconds or more at an intersection. For signalized intersections, Synchro reports both the 50th (average) and 95th percentile vehicle queues. For unsignalized intersections, Synchro reports the 95th percentile vehicle queue. Vehicle queue lengths are a function of the capacity of the movement under study and the volume of traffic being processed by the

[5]Ibid 8.

intersection during the analysis period. The 95th percentile vehicle queue is the vehicle queue length that will be exceeded only 5 percent of the time, or approximately three minutes out of sixty minutes during the peak one hour of the day (during the remaining fifty-seven minutes, the vehicle queue length will be less than the 95th percentile queue length).

B.5.2 Analysis Results

Level-of-service and vehicle queue analyses were conducted for 2017 No-Build and 2017 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized for signalized and unsignalized intersections in Tables B.5-3 and B.5-4, respectively.

In summary, the Project as modified by this filing does not result in a significant change in traffic operations (motorist delays or vehicle queuing) at the study area intersections over No-Build conditions.

Signalized Intersections

Causeway Street at Merrimac Street, Staniford Street and Lomasney Way. Under 2017 No-Build and Build conditions, this signalized intersection was shown to operate at an overall LOS F during both the weekday morning and evening peak hours. The proposed Project was not shown to result in a significant increase in vehicle delays or queuing at this intersection over 2017 No-Build conditions.

Causeway Street at Portland Street. Under 2017 No-Build and Build conditions, this signalized intersection was shown to operate at an overall LOS B during the weekday morning peak hour and at LOS C during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queuing at this intersection over 2017 No-Build conditions.

Causeway Street at Haverhill Street and Legends Way. Under 2017 No-Build and Build conditions, this signalized intersection was shown to operate at an overall LOS C during the weekday morning peak hour and at LOS D during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queuing at this intersection over 2017 No-Build conditions.

Causeway Street at Commercial Street and North Washington Street. Under 2017 No-Build and Build conditions, this signalized intersection was shown to operate at an overall LOS E during the weekday morning peak hour and at LOS F during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queuing at this intersection over 2017 No-Build conditions.

Unsignalized Intersections

Causeway Street at South Beverly Street. Under 2017 No-Build conditions, the critical movements at this unsignalized intersection (westbound left turn movements from Causeway Street) were shown to operate at LOS A during the weekday morning and weekday evening peak hour. Under 2017 Build conditions, with the addition of Project-related traffic, the critical movements were shown to operate at LOS A during the

weekday morning peak hour and at LOS A during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queues at the intersection over No-Build conditions. Mainline traffic movements along Causeway Street were shown to operate at LOS A under all analysis scenarios.

Causeway Street at Beverly Street Extension. Under 2017 No-Build conditions, the critical movements at this unsignalized intersection (eastbound left turn movements from Causeway Street and southbound movements from Beverly Street Extension) were shown to operate at LOS A and C, respectively, during both the weekday morning and weekday evening peak hours. Under 2017 Build conditions, with the addition of Project-related traffic, the critical eastbound left-turn movements from Causeway Street were shown to continue to operate at LOS A during the weekday morning peak hour and weekday evening peak hour. Southbound traffic from Beverly Street Extension was shown to operate at LOS C during the weekday morning peak hour and at LOS C during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queues at the intersection over No-Build conditions. Mainline traffic movements along Causeway Street were shown to operate at LOS A under all analysis scenarios.

Causeway Street at Canal Street. Under 2017 No-Build conditions, the critical movements at this unsignalized intersection (westbound left turn movements from Causeway Street and northbound movements from Canal Street) were shown to operate at LOS A and B, respectively, during both the weekday morning and weekday evening peak hours. Under 2017 Build conditions, with the addition of Project-related traffic, these movements were shown to continue to operate at LOS A and B, respectively, during both the weekday morning and weekday evening peak hours. The proposed Project was not shown to result in a significant increase in vehicle delays or queues at the intersection over No-Build conditions. Mainline traffic movements along Causeway Street were shown to operate at LOS A under all analysis scenarios.

Causeway Street at Friend Street. Under 2017 No-Build conditions, the critical movements at this unsignalized intersection (westbound left turn movements from Causeway Street) were shown to operate at LOS A during the weekday morning and weekday evening peak hour. Under 2017 Build conditions, with the addition of Project-related traffic, the critical movements were shown to operate at LOS A during the weekday morning peak hour and at LOS A during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queues at the intersection over No-Build conditions. Mainline traffic movements along Causeway Street were shown to operate at LOS A under all analysis scenarios.

Beverly Street Extension at Lovejoy Place. Under 2017 No-Build conditions, the critical movements at this unsignalized intersection (westbound movements from Lovejoy Place) were shown to operate at LOS A during the weekday morning and weekday evening peak hour. Under 2017 Build conditions, with the addition of Project-related traffic, the critical movements were shown to continue to operate at LOS A during the weekday morning peak hour and at LOS A during the weekday evening peak hour. The proposed Project was not shown to result in a significant increase in vehicle delays or queues at the intersection over No-Build conditions. Mainline traffic movements along Beverly Street Extension were shown to operate at LOS A under all analysis scenarios.

Table B.5-3
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak Hour/Movement	2017 No-Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th	2017 Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th
Causeway Street at Merrimac Street, Staniford Street and Lomasney Way								
Weekday Morning:								
Staniford Street EB LT	>1.2	>80	F	71/171	>1.2	>80	F	71/171
Staniford Street EB LT/TH	1.14	>80	F	163/249	1.09	>80	F	153/238
Staniford Street EB RT	0.15	20	B	0/34	0.15	20	B	0/34
Causeway Street WB LT/TH	>1.2	>80	F	233/304	>1.2	>80	F	225/296
Causeway Street WB RT	0.24	>80	F	124/272	0.25	>80	F	117/232
Merrimac Street NB LT	0.97	>80	F	147/218	0.97	>80	F	147/218
Merrimac Street NB TH	0.52	34	C	99/169	0.52	34	C	99/169
Merrimac Street NB RT	0.41	33	C	53/73	0.41	33	C	53/73
Lomasney Way SB LT	>1.2	>80	F	707/862	>1.2	>80	F	675/829
Lomasney Way SB TH/RT	1.09	>80	F	245/264	1.09	>80	F	245/264
Overall	**>1.2**	**>80**	**F**	**–**	**>1.2**	**>80**	**F**	**–**
Weekday Evening:								
Staniford Street EB LT	0.86	74	E	80/188	0.83	71	E	78/183
Staniford Street EB LT/TH	0.85	55	E	178/315	0.86	56	E	178/314
Staniford Street EB RT	0.16	21	C	0/41	0.16	21	C	0/41
Causeway Street WB LT/TH	0.65	33	C	124/170	0.62	33	C	116/161
Causeway Street WB RT	0.43	>80	F	212/295	0.41	>80	F	201/301
Merrimac Street NB LT	0.66	46	D	90/152	0.66	46	D	90/152
Merrimac Street NB TH	0.93	70	E	209/376	0.93	70	E	209/376
Merrimac Street NB RT	0.11	32	C	14/37	0.17	32	C	14/37
Lomasney Way SB LT	1.06	>80	F	255/426	1.08	>80	F	261/434
Lomasney Way SB TH/RT	0.69	37	D	177/274	0.69	37	D	177/274
Overall	**0.94**	**62**	**E**	–	**0.94**	**63**	**E**	**–**

See notes at end of table.

Table B.5-3 (Continued)
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak Hour/Movement	2017 No-Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th	2017 Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th
Causeway Street at Portland Street								
Weekday Morning:								
Causeway Street EB TH	0.63	14	B	184/266	0.58	12	B	182/242
Causeway Street WB TH	0.63	16	B	94/184	0.59	15	B	92/183
Portland Street NB LT/RT	0.71	43	D	86/153	0.72	46	D	80/140
Overall	**0.65**	**18**	**B**	**–**	**0.62**	**17**	**B**	**–**
Weekday Evening:								
Causeway Street EB TH/RT	0.39	22	C	217/242	0.40	22	C	218/241
Causeway Street WB LT/TH	0.57	10	A	114/127	0.58	10	B	114/130
Portland Street NB LT/RT	0.90	72	E	143/302	0.91	74	E	140/296
Overall	**0.67**	**24**	**C**	**–**	**0.65**	**24**	**C**	**–**
Causeway Street at Haverhill Street and Legends Way								
Weekday Morning:								
Causeway Street EB LT	0.82	42	D	106/237	0.81	42	D	100/239
Causeway Street EB TH	0.66	20	C	83/184	0.61	17	B	51/157
Causeway Street WB TH/RT	0.67	29	C	193/276	0.68	30	C	191/271
Haverhill Street NB LT	0.45	28	C	70/128	0.45	28	C	70/128
Haverhill Street NB TH/RT	0.92	57	E	217/384	0.92	56	E	217/385
Legends Way SB LT/RT	0.01	25	C	1/8	0.01	24	C	1/8
Garage Drive SB LT/RT	0.44	41	D	27/71	0.44	41	D	2/71
Overall	**0.82**	**33**	**C**	**–**	**0.81**	**33**	**C**	**–**
Weekday Evening:								
Causeway Street EB LT	0.41	21	C	11/35	0.39	20	B	11/32
Causeway Street EB TH	0.90	34	C	86/283	0.89	32	C	84/278
Causeway Street WB TH/RT	0.86	50	D	186/288	0.82	47	D	185/267
Haverhill Street NB LT	0.52	42	D	51/95	0.52	42	D	51/95
Haverhill Street NB TH/RT	0.42	41	D	50/97	0.42	41	D	50/97
Legends Way SB LT/RT	0.06	39	D	6/20	0.06	39	D	6/20
Garage Drive SB LT/RT	1.04	74	E	474/757	1.04	74	E	474/757
Overall	**0.87**	**51**	**D**	**–**	**0.87**	**50**	**D**	**–**

See notes at end of table.

Table B.5-3 (Continued)
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Signalized Intersection/Peak Hour/Movement	2017 No- Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th	2017 Build V/C[a]	Delay[b]	LOS[c]	Queue[d] Avg/95th
Causeway Street at Commercial Street and North Washington Street								
Weekday Morning:								
Causeway Street EB LT	0.53	56	E	122/151	0.54	56	E	122/152
Causeway Street EB TH/RT	>1.2	>80	F	341/493	>1.2	>80	F	379/531
Commercial Street WB LT/TH	0.84	79	E	151/170	0.84	79	E	156/175
Commercial Street WB RT	0.36	20	B	116/144	0.36	20	B	117/146
North Washington Street NB LT/TH/RT	>1.2	>80	F	373/507	>1.2	>80	F	396/527
North Washington Street SB LT	0.68	32	C	271/401	0.76	37	D	269/397
North Washington Street SB TH	0.65	19	B	358/442	0.66	20	B	363/442
North Washington Street SB RT	0.95	49	D	663/851	0.95	51	D	677/855
Overall	**1.06**	**69**	**E**	**–**	**1.09**	**77**	**E**	**–**
Weekday Evening:								
Causeway Street EB LT	0.55	54	D	188/204	0.56	54	D	190/206
Causeway Street EB TH/RT	0.44	53	D	148/218	0.48	54	D	164/236
Commercial Street WB LT/TH	1.05	>80	F	188/299	1.16	>80	F	227/339
Commercial Street WB RT	>1.2	>80	F	942/1150	>1.2	>80	F	1,044/1278
North Washington Street NB LT/TH/RT	>1.2	>80	F	658/796	>1.2	>80	F	658/797
North Washington Street SB LT	0.73	51	D	210/320	0.77	55	E	225/342
North Washington Street SB TH	0.66	25	C	407/424	0.66	25	C	407/424
North Washington Street SB RT	0.58	27	C	279/304	0.58	27	C	209/215
Overall	**>1.2**	**>80**	**F**	**–**	**>1.2**	**>80**	**F**	**–**

[a]Volume-to-capacity ratio.
[b]Control (signal) delay per vehicle in seconds.
[c]Level-of-Service.
[d]Queue length in feet.
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SEB = southeastbound; NWB = northwestbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

Table B.5-4
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak Hour/Movement	2017 No-Build				2017 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th
Causeway Street at Beverly Street								
Weekday Morning:								
Causeway Street EB TH/RT	740	< 5	A	0	679	< 5	A	0
Causeway Street WB LT	92	9	B	8	86	< 5	A	8
Causeway Street WB TH	662	< 5	A	0	657	< 5	A	0
Weekday Evening:								
Causeway Street EB TH/RT	1,001	< 5	A	0	993	< 5	A	0
Causeway Street WB LT	37	9	A	3	4	< 5	A	1
Causeway Street WB TH	559	< 5	A	0	533	< 5	A	0
Causeway Street at Beverly Street Extension								
Weekday Morning:								
Causeway Street EB LT/TH	565	< 5	A	0	504	< 5	A	0
Causeway Street WB TH/RT	746	< 5	A	0	744	< 5	A	0
Beverly Street SB LT/RT	49	27	D	24	30	22	C	21
Weekday Evening:								
Causeway Street EB LT/TH	494	< 5	A	0	486	< 5	A	0
Causeway Street WB TH/RT	513	< 5	A	0	526	< 5	A	0
Beverly Street SB LT/RT	117	16	C	38	32	18	C	20

See notes at end of table.

Table B.5-4 (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak Hour/Movement	2017 No-Build				2017 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th
Causeway Street at Canal Street								
Weekday Morning:								
Causeway Street EB TH/RT	911	< 5	A	0	905	< 5	A	0
Causeway Street WB LT/TH	825	< 5	A	0	820	< 5	A	0
Canal Street NB LT/RT	98	11	B	15	98	11	B	15
Weekday Evening:								
Causeway Street EB TH/RT	686	< 5	A	0	678	< 5	A	0
Causeway Street WB LT/TH	900	< 5	A	3	874	< 5	A	3
Canal Street NB LT/RT	23	11	B	5	23	11	B	5
Causeway Street at Friend Street								
Weekday Morning:								
Causeway Street EB TH/RT	966	< 5	A	0	870	< 5	A	0
Causeway Street WB LT/TH	825	< 5	A	0	900	< 5	A	0
Weekday Evening:								
Causeway Street EB TH/RT	755	< 5	A	0	747	< 5	A	0
Causeway Street WB LT/TH	887	< 5	A	3	861	< 5	A	3

See notes at end of table.

Table B.5-4 (Continued)
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY

Unsignalized Intersection/Peak Hour/Movement	2017 No-Build				2017 Build			
	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th	Demand[a]	Delay[b]	LOS[c]	Queue[d] 95th
Beverly Street Extension at Lovejoy Place								
Weekday Morning:								
Lovejoy Place EB LT/RT	47	9	A	4	31	9	A	6
Beverly Street NB TH/RT	131	< 5	A	0	45	< 5	A	0
Beverly Street SB LT/TH	2	< 5	A	0	2	< 5	A	0
Weekday Evening:								
Lovejoy Place EB LT/RT	107	9	A	10	24	9	A	5
Beverly Street NB TH/RT	61	< 5	A	0	24	< 5	A	0
Beverly Street SB LT/TH	11	< 5	A	0	11	< 5	A	0

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level-of-Service.
[d]Queue length in feet.
EB = eastbound; WB = westbound; NB = northbound; SB = southbound; SEB = southeastbound; LT = left-turning movements; TH = through movements
RT = right-turning movements.

B.5.3 Public Transportation Impact Analysis

Under 2017 Build conditions, the projected transit trips expected to be generated by the Project (90 trips during the weekday morning peak hour and 114 trips during the weekday evening peak hour) are not anticipated to result in an a significant impact on transit capacity in the area, particularly when distributed the various public transportation modes available in the vicinity of the Project site (commuter rail, subway and bus).

B.5.4 Pedestrian Impact Analysis

Under 2017 Build conditions, the additional pedestrian trips expected to be generated by the proposed Project (total) (160 trips during the weekday morning peak hour and 310 trips during the weekday evening peak hour) are not expected to result in a significant impact on the capacity of pedestrian facilities in the area. As compared to the prior development program, the proposed Project is projected to generate less than 30 additional pedestrian trips during the weekday morning peak hours. The Project site and the study area are currently served by an expansive network of pedestrian sidewalks, with controlled crossings provided at signalized intersections. Additional pedestrian facility improvements are being undertaken and will be completed as part of the Causeway Street improvement project. The reconstruction of Lovejoy Wharf will serve as a key pedestrian connection between the Harborwalk and Freedom Trail, as well as nearby Portal Park and Charles River Basin Parks.

B.5.5 Parking Demand Analysis

The proposed Project will provide limited surface spaces along Lovejoy Place. All other parking supply will be provided at off-site locations.

A review of available public parking facilities in vicinity of the site indicates that nearby parking is available to accommodate the parking demands associated with the project.

B.5.6 Loading/Delivery Impacts

All loading and delivery activities associated with the Project will occur in designated off-street areas via Lovejoy Place. Larger truck activity, which is expected to occur infrequently, will occur via a proposed loading dock off Lovejoy Place, with smaller panel truck deliveries occurring via a drop-off area on Beverly Street.

Hours of deliveries will be coordinated with BTD officials to insure that truck activity impacts are minimized during commuter hours and to avoid sensitive streets in the city. Moving activities will be closely coordinated and managed by the property management team to ensure that public ways and sidewalks remain passable and unobstructed at all times.

B.6 RECOMMENDATIONS AND CONCLUSIONS

The following section summarizes the proposed transportation demand management measures to minimize the vehicular traffic impacts of the Project, and construction management commitments by the Proponent to minimize impacts to vehicular and pedestrian traffic during the construction of the Project.

B.6.1 Transportation Demand Management

The proposed Project is ideally situated in relation to the regional roadway network and the public transportation system to facilitate opportunities to reduce vehicle trips and encourage alternative modes of travel. Overall, the Project's impact relative to traffic, public transportation, and pedestrians is expected to be minor.

The Proponent is committed to developing and implementing a TDM program for the site that is targeted at reducing automobile dependency and that encourages travel by non-automobile modes for its employees. The Proponent is prepared to encourage all tenants to take advantage of the proximate transit access, to market the residential and office space to future residents and tenants, and to work with them to implement measures that encourage the use of public transportation, ridesharing, bicycling, and walking. The specific elements of the TDM may include:

- Encourage commercial tenants to join in the A Better City Transportation Management Association (ABC TMA).
- On-site transit pass sales and distribution for tenants and employees.
- Provision of an on-site transportation coordinator with the responsibility of ensuring that transit information is properly posted and updated, and purchase/distribution of transit passes for tenants/employees. The coordinator will also serve as the central point of contact with the BTD.
- Provision of on-site bicycle storage facilities for building tenants and employees.
- The Project Proponent will encourage and introduce to residents a car-sharing program, such as zipcar to reduce automobile trips and parking demands associated with the project. It is noted that existing zipcar services are provided in a number of locations proximate to the site including the Government Center Garage and North End Garage.

B.6.2 Construction Management

The Project Proponent and the general contractor will use the following measures to minimize construction impacts on pedestrian and vehicular travel and to enhance safety during the project's construction phase:

- Construction worker parking will not be permitted on-site or immediately adjacent to the construction area. All construction workers will be required to access the site by public transportation, ridesharing, and/or by parking at off-site locations. A number of off-site parking facilities are located within a reasonable walking distance of the Project site in the North Station/Bulfinch Triangle area.

- Coordinate construction activities with the Causeway Street Improvement Project, BTD and the MBTA;

- Provide police details as required by the BTD;

- Coordinate with the BTD regarding all transportation-related construction impacts;

- Develop and enforce the use of designated truck routes approved by the BTD with the goal of minimizing the use of city streets to the extent possible; and

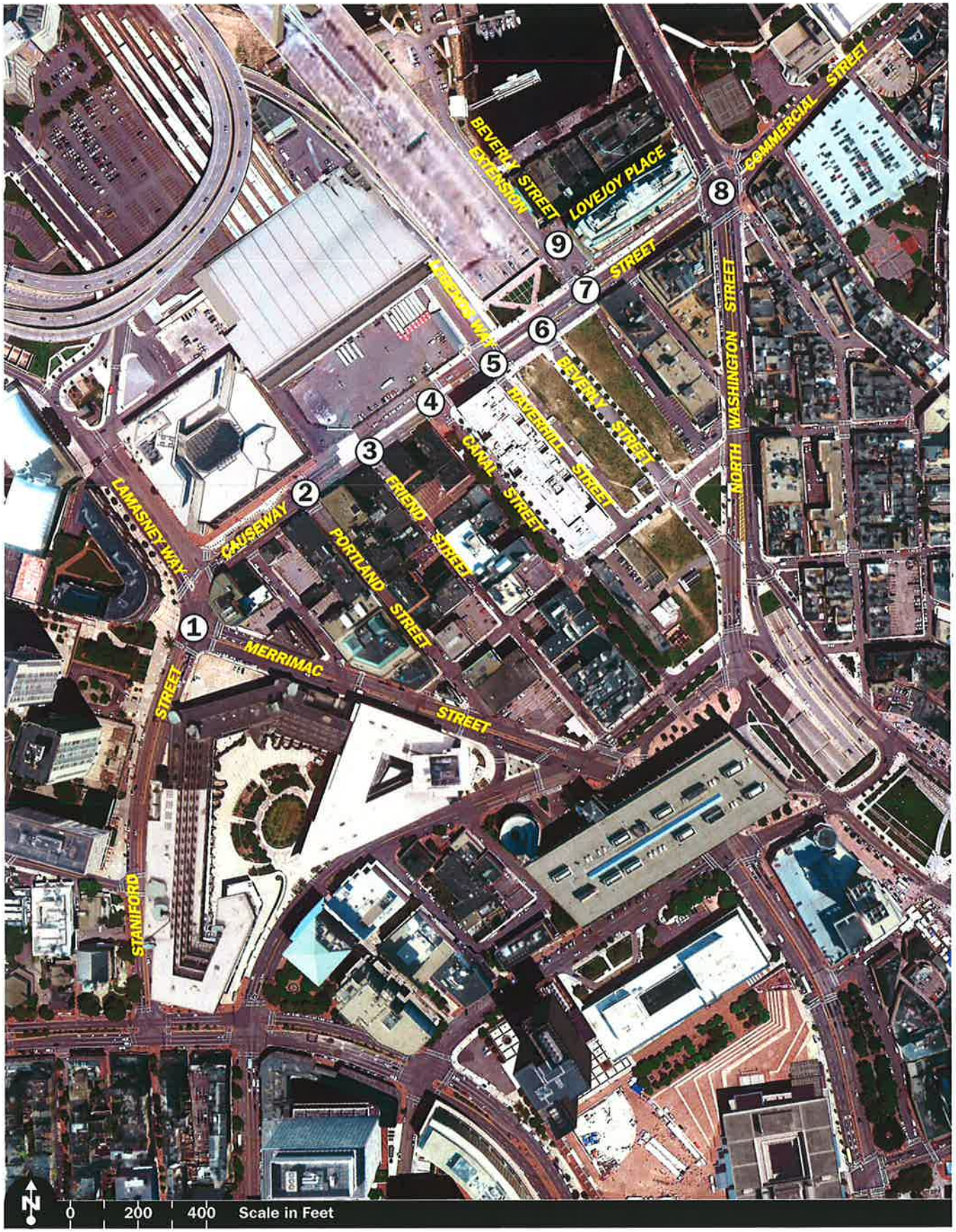
- Secure fencing and sidewalk staging protection will be provided in areas affected by each phase of construction in order to protect nearby pedestrian and vehicular traffic. Gated entrances into construction areas will be determined jointly with the BTD.

- Full or partial street closures will be avoided to the extent possible. Any possible street closures will be closely coordinated with 234 Strada, 226 Causeway, and the State Police. Should a partial street closure be necessary in order to off-load construction materials and/or complete construction-related activities, the closure will be limited to off-peak periods as defined by the BTD so as to minimize the impact on vehicular and pedestrian flow. Police details will be used as required by the BTD. Prior to the implementation of any planned construction activities within the public right-of-way, the contractor will submit to the BTD for review and approval a traffic and pedestrian management plan.

- Secure on-site storage will be provided for tools and equipment in an effort to minimize construction-related vehicle trips to the site.

B.7 CONCLUSIONS

The Project is uniquely designed and situated to take advantage of the existing and expanding transportation infrastructure in the North Station area, including enhanced and improved vehicular, bicycle and pedestrian facility improvements. As documented in this updated traffic analysis, the Project as modified by this filing is not projected to result in significant traffic impacts as compared to the Approved Traffic Analysis. It is expected that the availability of public transportation services in the vicinity of the Project, coupled with the implementation of a detailed TDM program as a part of the Project, will result in a reduction of the traffic impacts associated with the Project.



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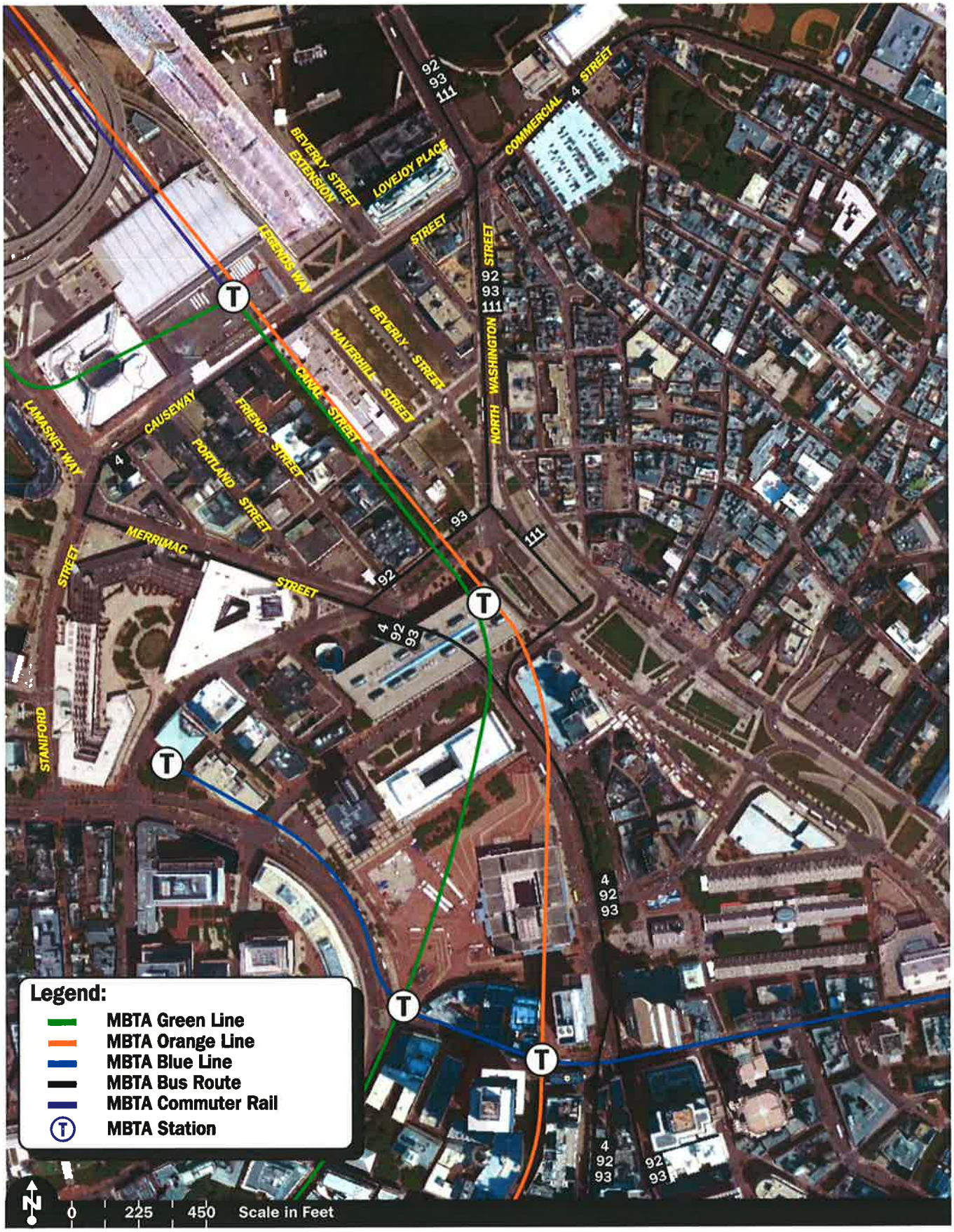
Lovejoy Wharf

Study Area Intersections
Figure B-1



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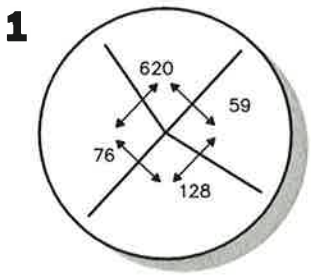
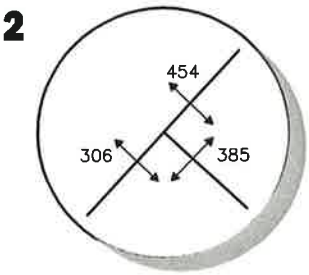
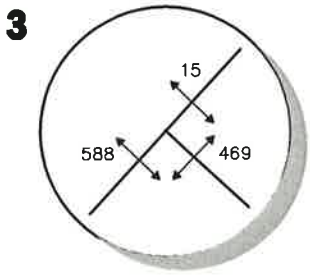
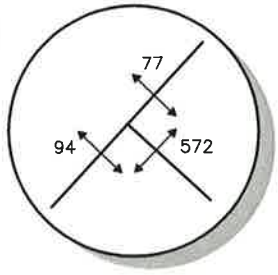
Lovejoy Wharf

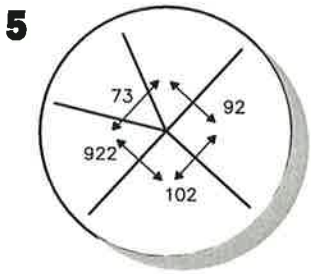
Public Transportation Map
Figure B-2

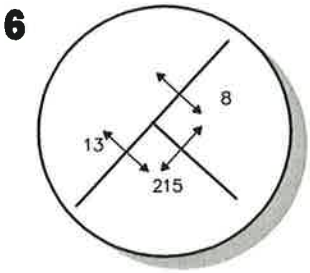


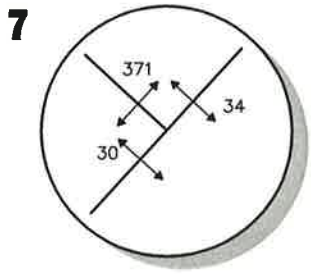


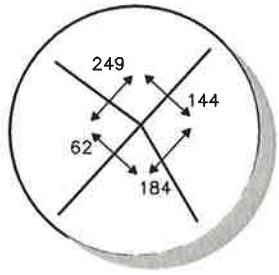


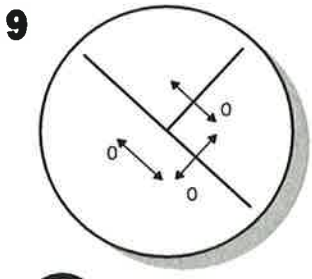












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Lovejoy Wharf

Existing Weekday Morning Peak Hour Pedestrian Volumes
Figure B-3

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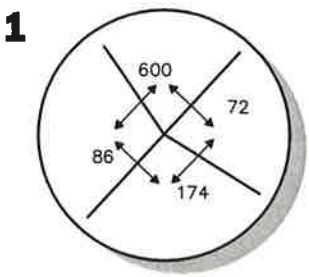

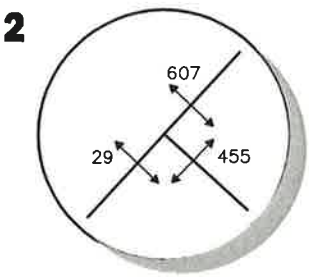

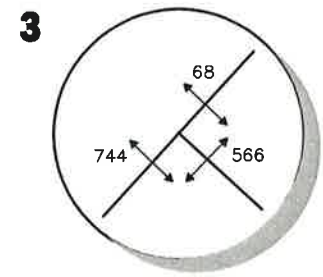

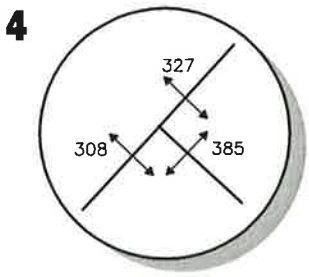

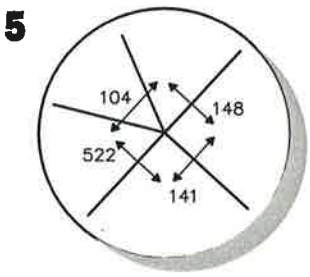

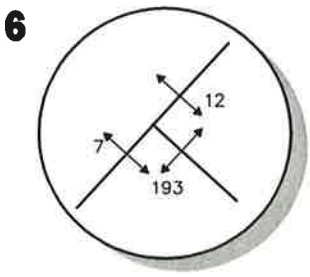

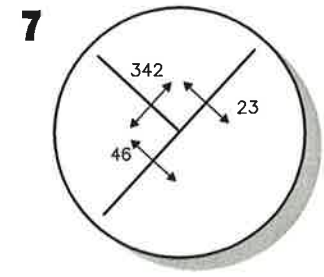

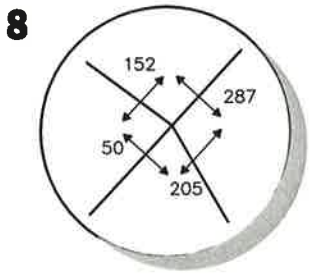

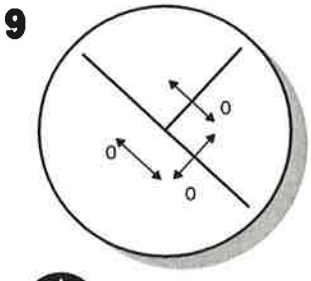

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Existing Weekday Evening Peak Hour Pedestrian Volumes
Figure B-4

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Parking Restrictions
Figure B-5

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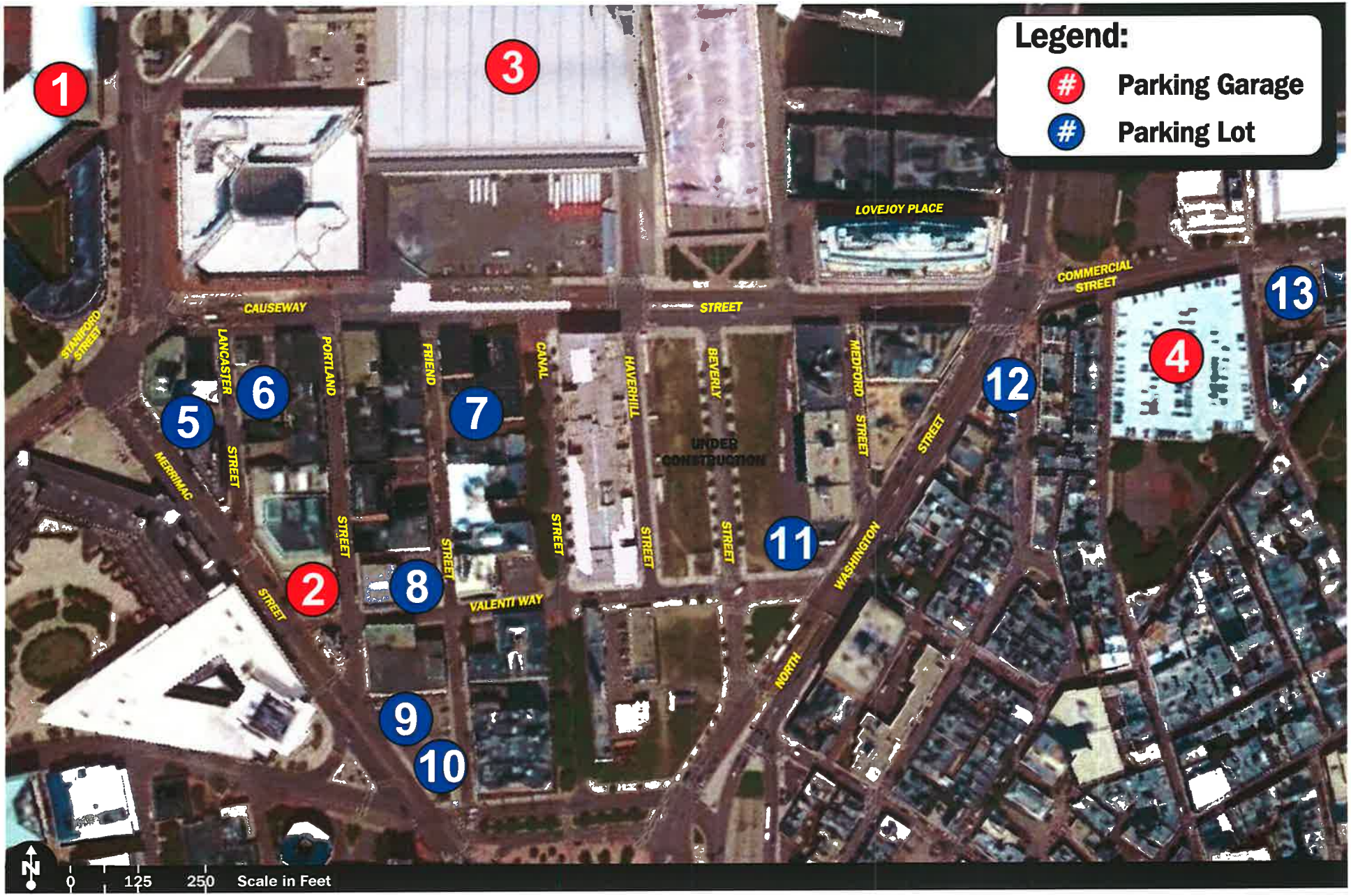

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Off-Street Parking
Figure B-6

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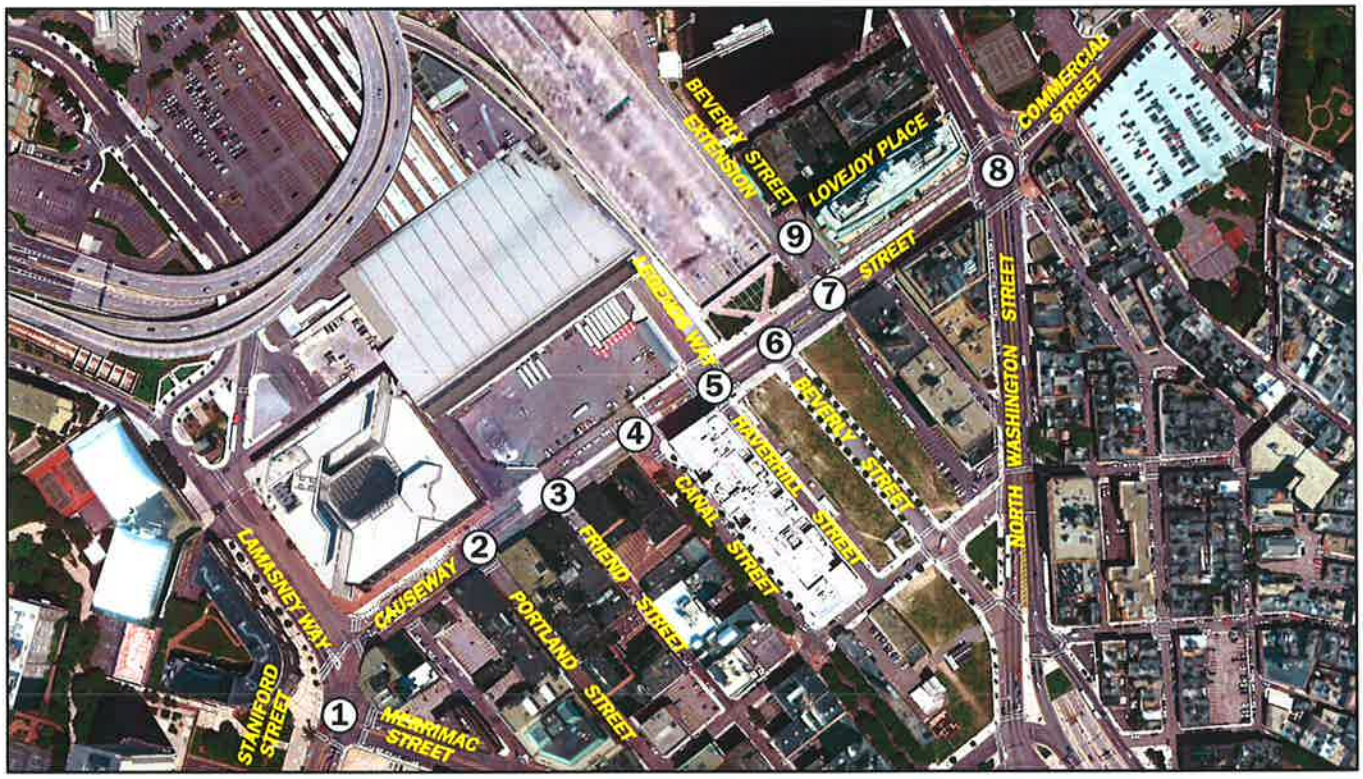

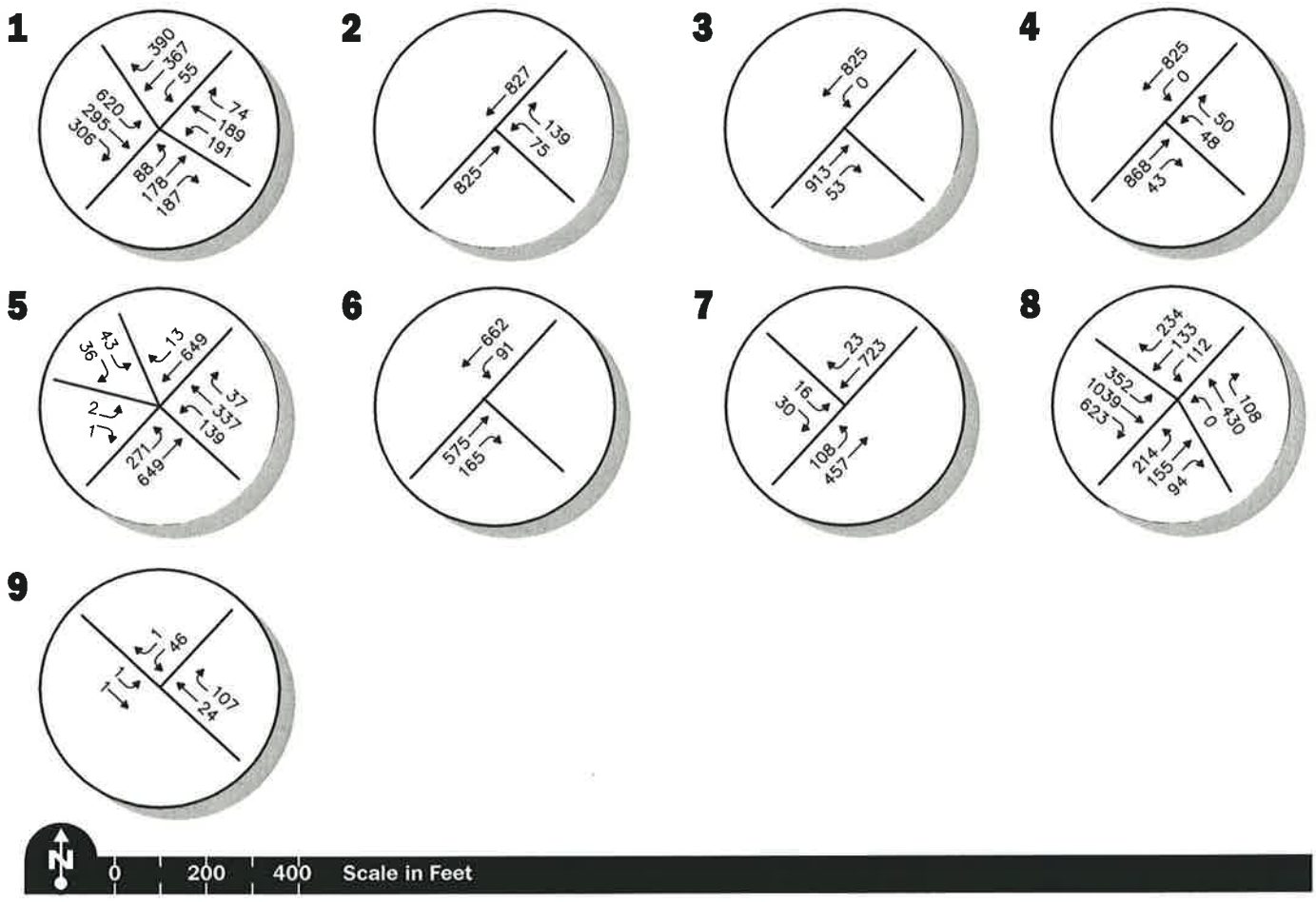

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2017 No-Build Weekday Morning Peak Hour Pedestrian Volumes
Figure B-7

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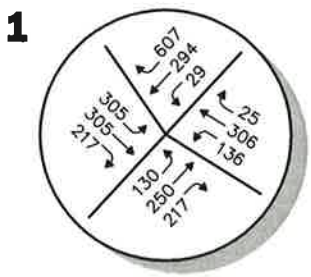

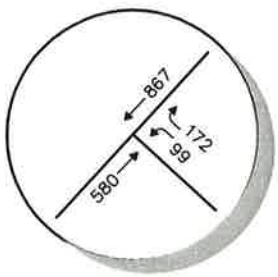

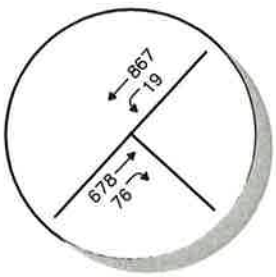

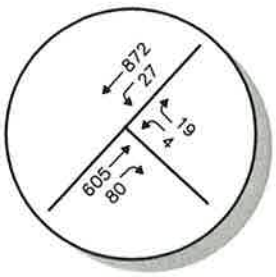

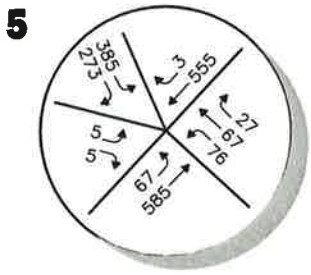

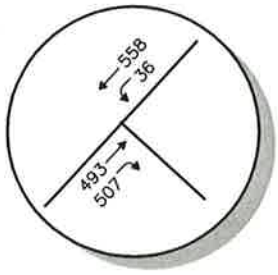

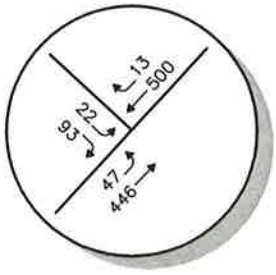

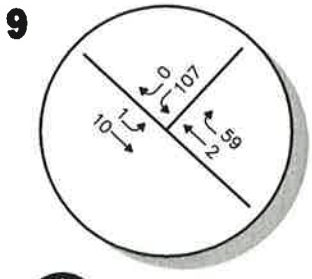

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2017 No-Build Weekday Evening Peak Hour Traffic Volumes
Figure B-8

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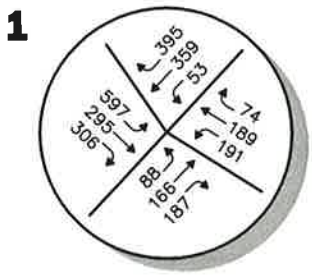

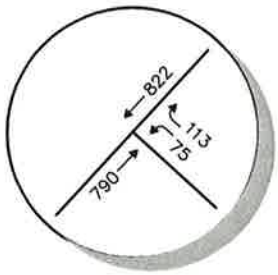

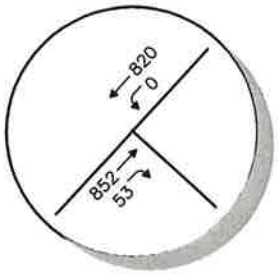

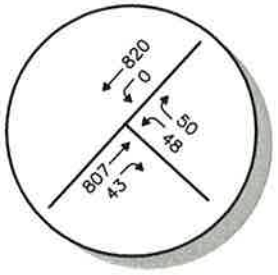

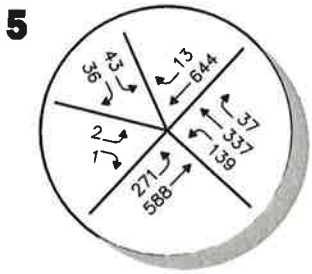

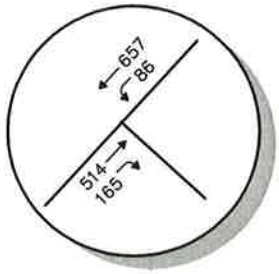

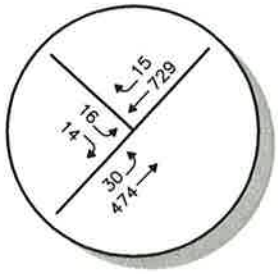

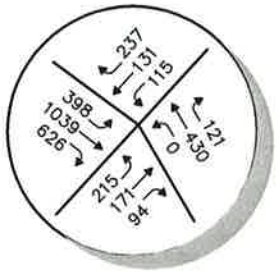

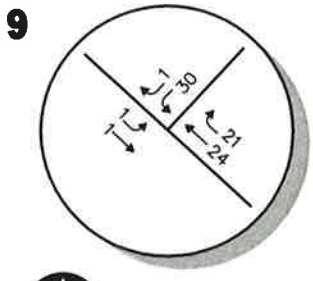

Vanasse & Associates, Inc.

Lovejoy Wharf

2017 Build
Weekday Morning
Peak Hour Traffic Volumes
Figure B-9

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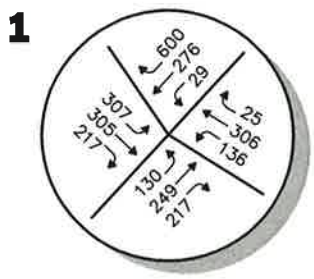

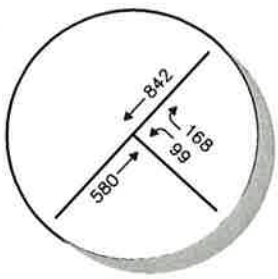

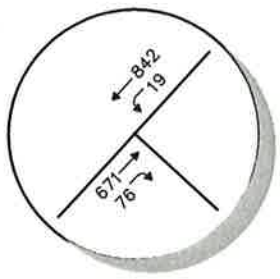

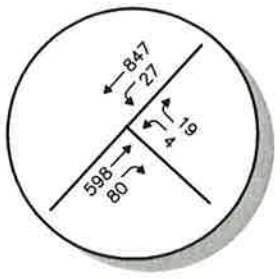

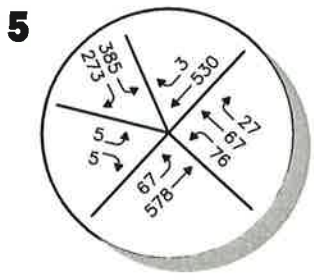

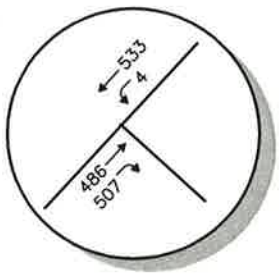

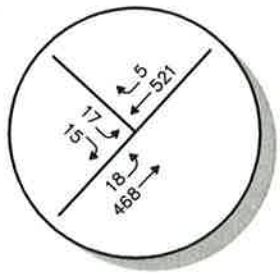

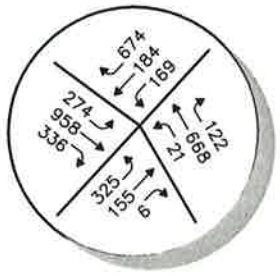

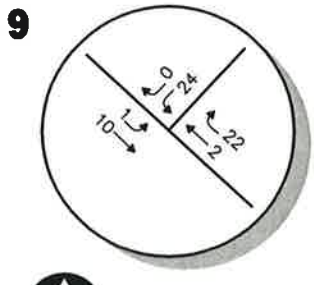

Vanasse & Associates, Inc.

Lovejoy Wharf

2017 Build
Weekday Evening
Peak Hour Traffic Volumes
Figure B-10

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Attachment C

Sustainability and LEED Checklist

LEED 2009 for New Construction and Major Renovations

Project Checklist

Lovejoy Wharf - 131 Beverly Street

9/20/2013

Sustainable Sites — Possible Points: 26

Y	?+	?-	N	d/C			
Y				C	Prereq 1	Construction Activity Pollution Prevention	
1				d	Credit 1	Site Selection	1
5				d	Credit 2	Development Density and Community Connectivity	5
1				d	Credit 3	Brownfield Redevelopment	1
6				d	Credit 4.1	Alternative Transportation—Public Transportation Access	6
1				d	Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3				d	Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2				d	Credit 4.4	Alternative Transportation—Parking Capacity	2
		1		C	Credit 5.1	Site Development—Protect or Restore Habitat	1
1				d	Credit 5.2	Site Development—Maximize Open Space	1
			1	d	Credit 6.1	Stormwater Design—Quantity Control	1
			1	d	Credit 6.2	Stormwater Design—Quality Control	1
1				C	Credit 7.1	Heat Island Effect—Non-roof	1
1				d	Credit 7.2	Heat Island Effect—Roof	1
			1	d	Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y	?+	?-	N				
Y				d	Prereq 1	Water Use Reduction—20% Reduction	
2			2	d	Credit 1	Water Efficient Landscaping - 50%, 100%	2 to 4
			2	d	Credit 2	Innovative Wastewater Technologies	2
2		1	1	d	Credit 3	Water Use Reduction - 30%, 35%, 40%	2 to 4

Energy and Atmosphere — Possible Points: 35

Y	?+	?-	N				
Y				C	Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y				d	Prereq 2	Minimum Energy Performance (10% savings required)	
Y				d	Prereq 3	Fundamental Refrigerant Management	
3		4	12	d	Credit 1	Optimize Energy Performance (by cost)	1 to 19
						Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
						Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
3						Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
						Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
						Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
						Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
						Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
						Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
						Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
						Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
						Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
						Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
						Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
						Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
						Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
						Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
						Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
						Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
						Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19
			7	d	Credit 2	On-Site Renewable Energy - 1%, 3%, 5%, 7%, 9%, 11%, 13%	1 to 7
	2			C	Credit 3	Enhanced Commissioning	2
2				d	Credit 4	Enhanced Refrigerant Management	2
1		2		C	Credit 5	Measurement and Verification	3
2				C	Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y	?+	?-	N	d/C			
Y				d	Prereq 1	Storage and Collection of Recyclables	
			3	C	Credit 1.1	Building Reuse—Maintain Existing Structural Walls, Floors, and Roof - 55%, 75%, 95%	1 to 3
			1	C	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2				C	Credit 2	Construction Waste Management - 50%, 75%	1 to 2
			2	C	Credit 3	Materials Reuse - 5%, 10%	1 to 2
1		1		C	Credit 4	Recycled Content - 10%, 20%	1 to 2
1		1		C	Credit 5	Regional Materials - 10%, 20%	1 to 2
			1	C	Credit 6	Rapidly Renewable Materials	1
		1		C	Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y	?+	?-	N				
Y				d	Prereq 1	Minimum Indoor Air Quality Performance	
Y				d	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1				d	Credit 1	Outdoor Air Delivery Monitoring	1
			1	d	Credit 2	Increased Ventilation	1
1				C	Credit 3.1	Construction IAQ Management Plan—During Construction	1
		1		C	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1				C	Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1				C	Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1				C	Credit 4.3	Low-Emitting Materials—Flooring Systems	1
			1	C	Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1			d	Credit 5	Indoor Chemical and Pollutant Source Control	1
			1	d	Credit 6.1	Controllability of Systems—Lighting	1
1				d	Credit 6.2	Controllability of Systems—Thermal Comfort	1
1				d	Credit 7.1	Thermal Comfort—Design	1
			1	d	Credit 7.2	Thermal Comfort—Verification (not applicable for residential projects)	1
		1		d	Credit 8.1	Daylight and Views—Daylight	1
1				d	Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

Y	?+	?-	N				
1				d/C	Credit 1.1	Exemplary Performance: SSc2 - Development Density	1
1				d/C	Credit 1.2	Exemplary Performance: SSc4.1 - Access to public transportation	1
1				d/C	Credit 1.3	Innovation in Design: Water Performance (metering) - EBOM credit WEc1.1	1
1				d/C	Credit 1.4	Innovation in Design: Energy Star Appliances - 50% by Power	1
1				d/C	Credit 1.5	ID: Green Education, Integrated Pest Mgt., Cooling Tower Water Mgt EBOM WEc4	1
1				d/C	Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Based on zip code 02114

Y	?+	?-	N				
1				d/C	Credit 1.1	Regional Priority: SSc7.1 - Heat Island Effect, non-roof	1
1				d/C	Credit 1.2	Regional Priority: SSc7.2 - Heat Island Effect, roof	1
1				d/C	Credit 1.3	Regional Priority: SSc3 - Brownfield Redevelopment	1
			1	d/C	Credit 1.4	Regional Priority: MRc1.1 Building reuse -75%; EAc2 - On-site renewable energy, SSc6.1 - Stormwa	1

Y	?+	?-	N		
55	3	13	39	**Total**	Possible Points: 110

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

Attachment D

Climate Change Preparedness

Boston Climate Change Preparedness Questionnaire

2. Project Information

1. Project Name and Location

Project Name : Lovejoy Wharf Project
Project Address : 131 Beverly Street

2. Project Contact:

Name : Peter Spellios and Rey Black
Company : Related Beal
Email Address : tmoked@epsilonassociates.com
Title : Executive Vice President
Phone Number : (617) 451-2100

3. Project Contact:

Name : Peter Spellios and Rey Black
Company : Related Beal
Email Address : tmoked@epsilonassociates.com
Title : Executive Vice President
Phone Number : (617) 451-2100

4. Team Description:

Owner / Developer : Related Beal
Architect : Robert AM Stern Architects/ ADD Inc
Engineer (building systems) : Cosentini Associates
Sustainability / LEED : Related Beal
Permitting : Epsilon Associates, Inc.

3. New Page

5. Is this project a:

Single building

6. At what phase is this project?

Design Approved

4. Phased, multi-building project

Project Identification

5. Single building project

7. Project Identification:

Project Name : Lovejoy Wharf Project
Primary Project Address : 131 Beverly Street

6. Master Plan

Project Identification

7. Institutional Master Plan

Project Identification

8. Building Classification and Description

8. Building Uses - check all appropriate uses:

Retail
Residential - Multi-unit, Four plus

9. Building First Floor Uses - list all:

Retail, lobby, visitor center

10. Construction Type – select most appropriate type:

Concrete Frame

11. Building Size: do not include commas

Site Area (Square Feet) : 20,595
Building Area (Square Feet) : 47,347
Building Height (Feet) : 155
Number of Stories (Floors) : 15
First Floor Elevation (feet above sea level)(Boston City Base Elev.)(Ft.) : 17-19.5

9. Green Building

12. Which LEED Rating System(s) has or will your project use (by area for projects using multiple rating systems):

	Rating System
Primary Use	LEED 2009 for New Construction
Secondary Use	
Additional Uses	

13. What are the projected LEED Rating System Outcome(s):

	Rating System
Primary Use	Silver
Secondary Use	
Additional Uses	

14. Is or will the Project Register with the US Green Building Council

15. Is or will the Project Seek US Green Building Council Certification:

10. Higher Temperatures and Heat Waves - Analysis and General Strategies

16. Analysis Sources:

17. What time span of Climate Change was considered:

18. Analysis Conditions:

What Low Temperature will be used for project planning (degrees) : 12.4
What High Temperature will be used for project planning (degrees) : 87.6

19. What Extreme Heat Event characteristics will be used for project planning:

Peak High (degrees) : 1% criteria, less than 90 hours per year

20. What measures will the project employ to reduce urban heat-island effect:

High reflective paving materials
Shade trees
High reflective roof materials

21. Will the project be able to manage hotter and more humid summers without increasing its electrical load; if so how?

No

22. Will the building remain operable without utility power for an extended period; if so for how long and by what strategies?

If Yes, for how long (days) and describe strategies: Generator backup for essential building function only. Depends on outdoor weather conditions..

11. High Temperatures and Heat Waves - Active and Passive Strategies

23. What will be the overall energy performance of the project or building (percentage above code)

20%

24. How will project energy performance be determined

Whole Building Energy Model

25. What specific measures will the project employ to reduce building energy consumption

High performance lighting
Automatic lighting controls
EnergyStar equipment / appliances
Energy recovery ventilation

26. What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure

None

27. Will the project employ Smart Grid Infrastructure and / or Systems

No

28. Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure

Operable windows (including emergency only)
Natural ventilation
High performance building envelop

29. List the R values for building envelope elements:

Roof : 25
Walls : 14
Foundation / Basement : 7.5
Windows : 0.45
Doors : 0.37

12. Sea-Level Rise and Storms – location analysis and description

30. Location Description:

Site Elevation - low point (feet above sea level)(Boston City Base Elev.)(Ft.) : 16.11
Site Elevation - high point (feet above sea level)(Boston City Base Elev.)(Ft.) : 17.57

31. Location Classification - is the site or building located in any of the following:

	Yes	No
Coastal Zone	X	
Velocity Zone		X
Flood Zone		X
Area Prone to Flooding		X

32. Are updates in the floodplain delineation due to climate change likely to change the classification of the site or building location:

Yes

33. What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding (horizontal distance in feet)

0

13. Sea-Level Rise and Storms – analysis and general strategies

34. Analysis Sources:

List Sea-Level Rise information sources : US Global Change Research Program

35. What time span of Climate Change and Rising Sea-Levels was considered:

75 Years

36. How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea-Level Rise (change in feet) : 1.5

14. Sea-Level Rise and Storms - Building Flood Proofing

37. Will the building remain occupiable without utility power during a period of extended inundation:

If yes, for how long (days): Only in warm weather

38. Will the proposed ground floor be raised in response to Sea Level Rise:

If Yes, to what elevation above the 100 year flood plain (Boston City Base Elev.)(Ft.): 1.5-4

39. Will the proposed ground floor be raised in response to Sea Level Rise:

Ground Floor Elevation (height above sea level)(Boston City Base Elev.)(Ft.) : 17
Height above 100 Year Floor Plain (Boston City Base Elev.)(Ft.) : 1.5

40. Will lower building levels be constructed in a manner to prevent water penetration:

If yes, what is the Flood Proof Elevation (height above 100 Year Floorplain) (Boston City Base Elev.)(Ft.) : 1.5

41. Describe measures and strategies intended to ensure the integrity of critical building systems during a flood or severe storm event:

All systems located above 1st Floor
Water tight utility conduits

42. Were the differing effects of fresh water and salt water flooding considered:

No

43. Will the project site and building(s) be accessible during periods of inundation or limited circulation and / or access to transportation:

If yes, to what height above 100 Year Floodplain (Boston City Base Elev.)(Ft.): 1.5

44. Describe any additional Building Floor Proofing strategies?

Steel sheeting was driven into the water along the entire edge of the wharf several feet away from the existing foundation walls. Concrete was then poured into the cavity between the sheet steel and the foundations.

15. Sea-Level Rise and Storms - Building Resiliency and Adaptability

45. Will the building be able to withstand severe storm impacts and endure temporary inundation

Resilient site design, materials and construction

46. Will the building include additional structural capacity and or building systems to accommodate future on-site renewable and or clean energy sources; if so what:

47. Can the site and building be reasonably modified to increase Building Flood Proofing; if so how:

Raise building ground floor height

48. Describe any additional Building Resiliency and Adaptability strategies:

The ground floor has already been raised