Project Notification Form

Submitted Pursuant to Article 80 of the Boston Zoning Code

1599 Columbus Avenue

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

Submitted by:
1599 Columbus LLC
c/o Urban Edge Housing Corporation
1542 Columbus Avenue
Boston, MA 02119

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

In Association with:
Utile
Klein Hornig LLP
Howard Stein Hudson
Nitsch Engineering, Inc.
G2 Collaborative

August 26, 2019

Epsilon
ASSOCIATES INC.

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Chapter 1.0

Project Information

1.0 PROJECT INFORMATION

1.1 Introduction

1599 Columbus LLC (the "Proponent"), an affiliate of Urban Edge Housing Corporation, proposes to redevelop the five parcels bound by Columbus Avenue to the east, Amory Street to the west, a church and a vacant City of Boston-owned property to the north, and commercial buildings to the south in the Jackson Square area of Boston. The redevelopment is proposed to include the construction of a new residential building with approximately 65 affordable rental units, as well as non-residential ground floor space that could include such uses as artist space, office space, or other active space along Columbus Avenue (the "Project").

The Project seeks to leverage the many benefits of the neighborhood to continue the revitalization of the area west of Columbus Avenue and south of Jackson Square Station. The Project site has excellent access to downtown Boston and beyond, as it is a short walk from Jackson Square Station, which services the Massachusetts Bay Transportation Authority (MBTA) Orange Line and several bus routes, as well as Southwest Corridor Park, a multi-use path that stretches from Forest Hills to Back Bay. In addition to this linear park, the Project site is within one-quarter mile of Jackson Square Playground and Marcella Playground, which include basketball courts, tennis courts, a baseball diamond, playground equipment and a splash pad. Commercial areas along Columbus Avenue and Centre Street provide numerous shops and restaurants. The development of the Project will allow for individuals to stay in their community, provide opportunities for others that seek to live in the neighborhood, and provide public realm enhancements that will move the area forward in its revitalization from older, underused buildings into a new residential mixed-use area that connects to the existing community.

This Project Notification Form (PNF) is being submitted to the Boston Redevelopment Authority (BRA) doing business as Boston Planning and Development Agency (herein, the BPDA) to initiate review of the Project under Article 80B, Large Project Review, of the Boston Zoning Code.

1.2 Project Description

1.2.1 Project Site

The approximately 0.49-acre Project site is located at 1595 - 1599 Columbus Avenue ("1599 Columbus Avenue") in the Jamaica Plain neighborhood of Boston. The site is bound by Columbus Avenue to the east, Amory Street to the west, and commercial properties to the north and south. A small vacant parcel to the northwest directly abuts the property and is owned by the City of Boston. The site currently includes two story commercial buildings in disrepair, and surface parking. See Figure 1-1 for a locus map, and Figure 1-2 for existing site photographs. Appendix A includes a site survey.

The Project site is proximate to multiple Massachusetts Bay Transportation Authority (MBTA) bus stops along Columbus Avenue, and is less than one-quarter mile from Jackson Square Station which serves the Orange Line and five bus routes.

1.2.2 Area Context

The immediate neighborhood surrounding the Project site is a transitional neighborhood that was historically industrial in nature but is becoming increasingly residential. The area includes a mix of older industrial, commercial and residential buildings, along with a number of newer and planned residential and commercial buildings (see Figure 1-3). The older buildings in the immediate proximity of the site typically range in height from one to four stories tall, and are surrounded by paved areas used for parking and storage. Academy Homes, a residential community owned and operated by Urban Edge, is located directly across Columbus Avenue from the site. The newer buildings in the area range in height from four to six stories, with surface parking still prevalent in many areas, but with new open spaces included in the area as well. Recently completed, in construction, and proposed development projects in the immediate vicinity include 250 Centre Street, 125 Amory Street, 75 Amory Street, 25 Amory Street, 225 Centre Street and 1785 Columbus Avenue.

The site is proximate to Centre Street, which is a major commercial corridor running through Jamaica Plain. Recreational facilities in the area include Marcella Playground, Jackson Square Playground, Highland Park, and the Southwest Corridor Park.

1.2.3 Area Planning

The Project site is located within the study area of the PLAN: JP/ROX (the Plan) which was published in February 2017 by the BPDA. The Plan provides recommendations to shape new growth and development in the Jamaica Plain and Roxbury neighborhoods. The study area of the Plan encompasses the Forest Hills/Stonybrook neighborhood, Green Street, Jackson Square, and Egleston Square and is generally bound by Columbus Avenue, Amory Street and Washington Street.

One of the main focuses of the Plan is to accelerate the production of affordable housing and to prevent displacement of low- and moderate-income residents. The Plan calls for expanding the supply of market rate and affordable housing to better meet growing demand. The Project will help achieve these goals through the transformation of the Project site to provide housing for low- and moderate-income residents. The increased supply of multifamily housing will strengthen the community with quality housing and amenities, and sustain diversity in the Jamaica Plain and Roxbury neighborhoods.

1599 Columbus Avenue Boston Massachusetts

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Figure 1-1
Aerial Locus Map

COLUMBUS AVE. - NORTHEAST CORNER


AMORY ST. - LOOKING SOUTH


COLUMBUS AVE. - LOOKING NORTH


AMORY ST. - LOOKING NORTH

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Figure 1-2
Existing Site Photographs

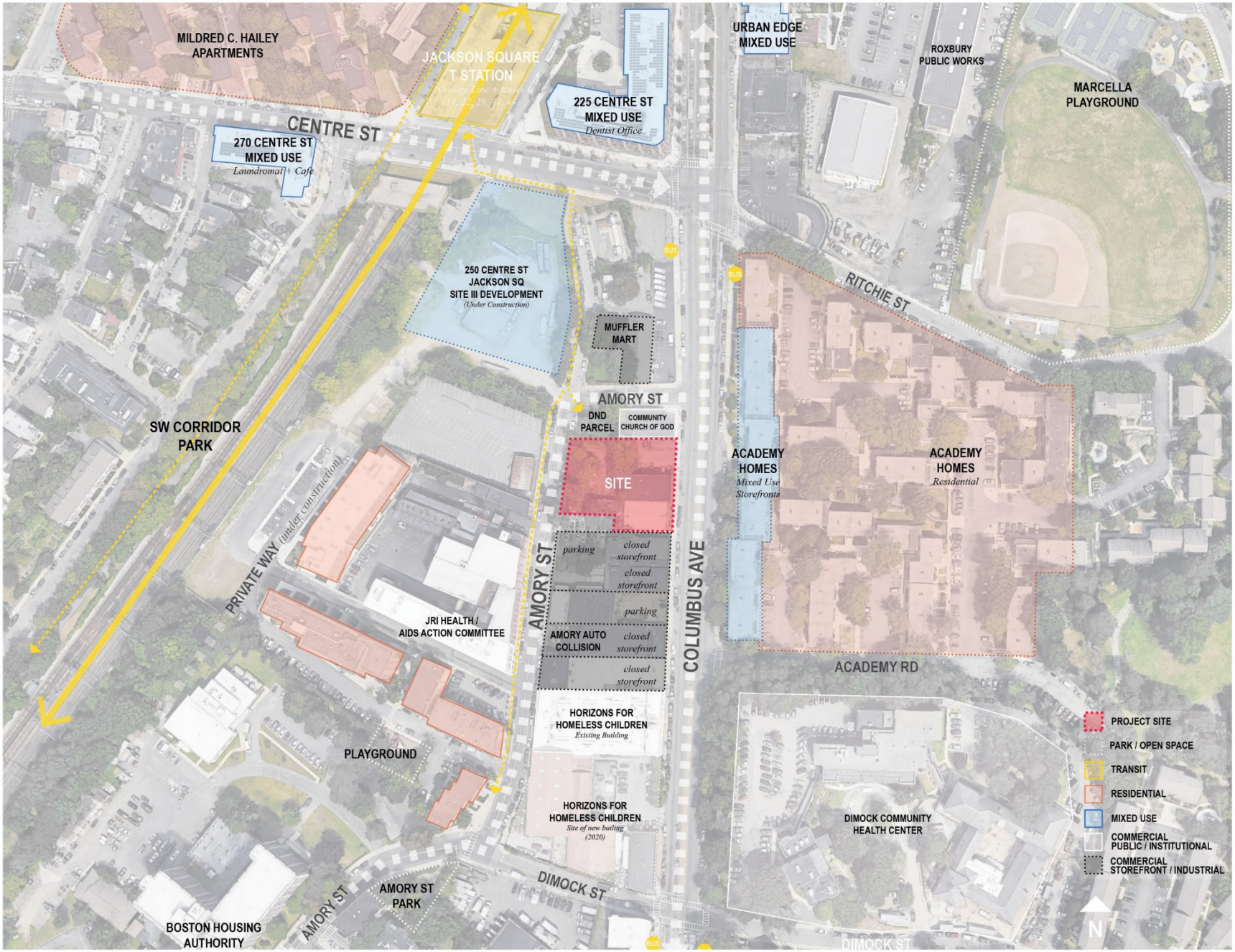

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Figure 1-3
Area Context

According to the Plan, the community vision's main goal is a balance between preserving the physical, social, and affordable aspects of the well-loved neighborhood while also focusing on new development to improve the neighborhood's quality of life and provide economic opportunities. The Project will serve the neighborhood with a quality, energy efficient building that provides affordable housing and an enhanced public realm along Columbus Avenue and Amory Street. The site's proximity to public infrastructure provides local and regional connection to the Greater Boston area and will further improve the neighborhood's economic development.

The Plan also recommends improving existing connections, particularly for pedestrians and bicyclists, while safely and gradually decreasing vehicle usage without causing detrimental congestion. The Project site enjoys local and regional access due to its proximity to several MBTA bus, subway and commuter lines, such as the MBTA Orange Line at Jackson Square which is less than one-quarter of a mile from the site. The site also proposes improved sidewalks along Columbus Avenue and Amory Street, as well as ground floor uses that will create activity.

1.2.4 Proposed Project

The Project includes the construction of a six-story, approximately 80,000 square foot (sf) building containing approximately 65 residential units and approximately 4,000 sf of non-residential space on the first floor. There are approximately 20 one-bedroom units, 36 two-bedroom units, and 9 three-bedroom units. The Project will provide approximately four Community Based Housing (CBH) units with enhanced accessibility and universal design features, as part of the 10% of units overall that will be designated Group 2A under MAAB guidelines (approximately six units). A common laundry room is located on the sixth floor of the building. All of the units will be affordable rental housing. The existing buildings will be demolished. Table 1-1 summarizes the Project program. Figure 1-4 provides a perspective of the Project and Figure 1-5 provides a site plan.

Table 1-1 Project Program

Project Element	Approximate Count / Dimension
Residential Units	65
Non-residential use	4,000 sf
Height (ft)	69'-11"
Parking Spaces	21
Total Square Footage	80,000 sf

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Figure 1-4
Perspective Looking Northwest from Columbus Avenue

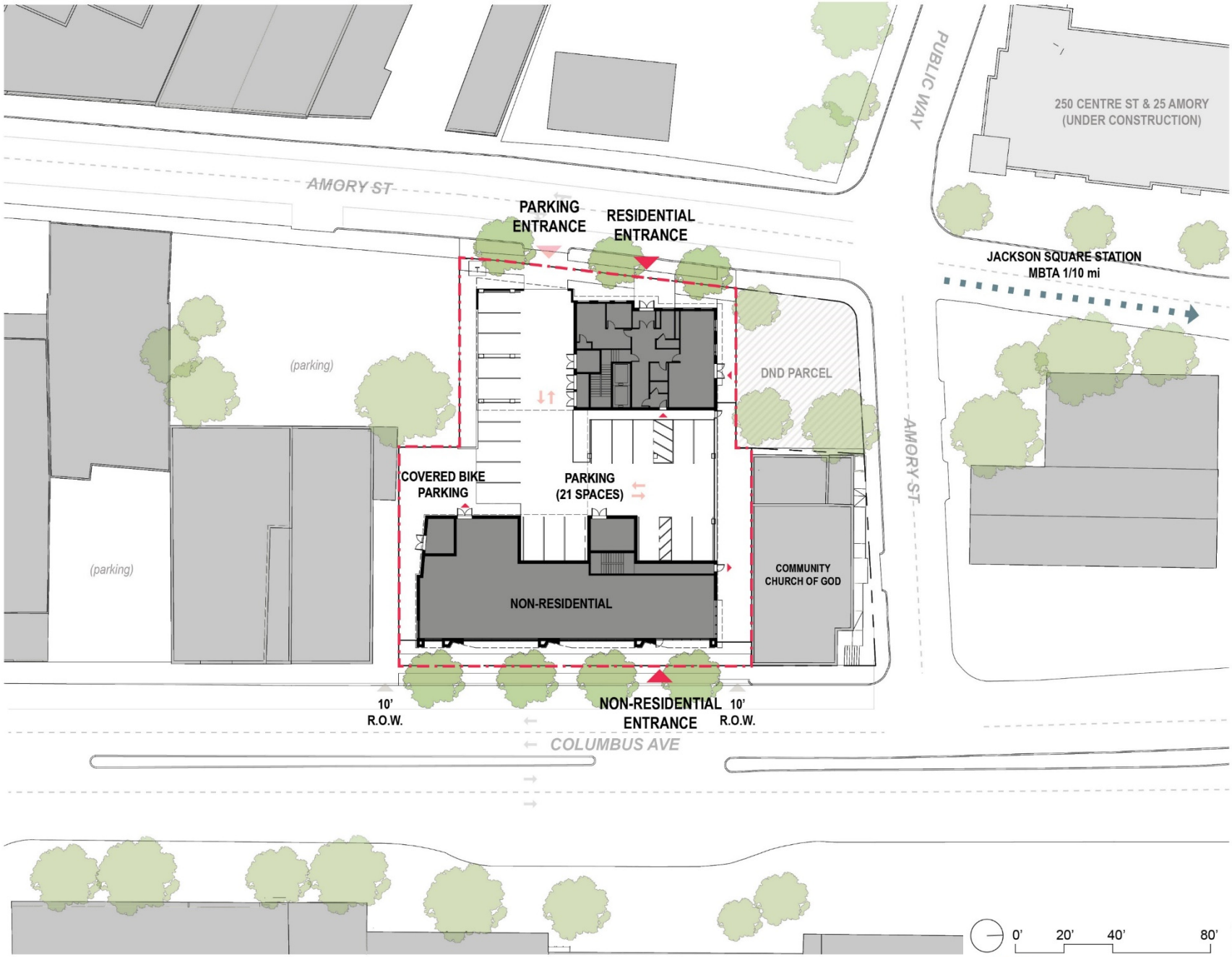

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Figure 1-5
Proposed Site Plan

The building occupies the full depth of the lot from Columbus Avenue to Amory Street, and has prominent frontages on both. The main residential entrance to the building is located on Amory Street, along with vehicular entrance to at-grade parking located under the upper floors of the building (see Figure 1-5). Along Columbus Avenue, the approximately 4,000 sf of ground floor of the building is planned to be devoted to a non-residential use, currently envisioned as workspace for artists, office space, or other uses that will activate the streetscape. If a viable commercial use is not identified, the space could be programmed to a residential use or residential amenity space. The first floor also includes a small office as well as a community room on Amory Street that will serve as an amenity for the residential component and that, along with the building entrances and office space, will create activity along the street. The upper floors will be dedicated to residential space. Figures 1-6 to 1-10 at the end of this chapter provide a ground floor plan, a typical upper floor plan, elevations and sections.

The Project will include one secured/covered bicycle parking space per unit within the parking area. Approximately 21 parking spaces will be provided on site, all located at-grade and accessible from Amory Street. An existing right of way shared with the adjacent building to the north, as well as a set back from that right of way, creates space between the proposed building and the existing adjacent building. This space is being explored as a potential pedestrian connection between Amory Street and Columbus Avenue, though the right of way must be available for vehicular use by the adjacent owner.

The Project utilizes the dimensional guidelines set forth in Plan JP/ROX to provide additional depth at public sidewalks. Those areas will be a combination of plantings and hardscape elements to complement the building entrances and public realm.

1.3 Public Benefits

The Project will provide a number of benefits to the neighborhood, surrounding community, and City of Boston, including:

- **Creation of Affordable Housing:** The Project will advance the City of Boston's housing production goals by proposing to create 65 units of 100% income-restricted affordable rental apartments in a highly desirable and transit-oriented location, providing affordable housing opportunities in close proximity to job centers, healthcare providers, and other valuable community amenities.

- **Enhancement of Underutilized Property:** The Project enhances the Columbus Avenue corridor by developing an underutilized parcel, currently containing a surface parking lot a vacant building, and a distressed building in a prominent location in Jackson Square.

- **Encouraging Mixed Uses:** The Project will create a mix of new uses that meet the intent of PLAN: JP/ROX, including housing and a non-residential space along Columbus Avenue that could be workspace for artists, office space, or other use that provides activity at the street edge.

- **Sustainable Design:** The Project team is committed to sustainable design and is exploring options that go beyond Leadership in Energy and Environmental Design standards and Article 37 requirements such as incorporation of Passive House elements into the design and renewable energy production on-site.

- **Job Creation:** Creation of approximately 250 construction jobs (including approximately 30-60 new jobs) and approximately 12 permanent jobs including property management, maintenance, administration, resident serves, cleaning, and landscaping services. Additional jobs may be created through the non-residential uses on-site.

- **Diversity Goals and Workforce Development:** The Proponent is committed to meeting or exceeding all City minority and women-owned business procurement and local resident, female, and minority hiring goals.

- **Transit-Oriented Development:** The Project will provide high-density housing located less than one-quarter mile from Jackson Square Station. The proximity to bus, subway, Southwest Corridor Park and the Centre Street shopping areas will encourage walking and biking as a means of transport.

- **Improved Pedestrian Environment:** The Project will provide an enhanced streetscape and include improved sidewalks along Amory Street and Columbus Avenue. New landscaping will utilize native vegetation.

- **Bicycling Facilities:** The Project will include off-street bicycle parking and storage to encourage cycling as a means of transportation.

1.4 Legal Information

1.4.1 Legal Judgements Adverse to the Proposed Project

The Proponent is not aware of any legal judgments or pending actions against the proposed Project.

1.4.2 History of Tax Arrears on Property

The Proponent does not own any property in Boston on which the property taxes are in arrears.

1.4.3 Site Control/Public Easements

The parcels are owned by 1599 Columbus LLC as shown on the deeds dated August 11th, 2016 and January 12th, 2018, filed with the Suffolk County Registry of Deeds. The Proponent is not aware of any public easements into or through the site.

1.5 City of Boston Zoning

The Project site is located within an Industrial Development Area Subdistrict of the Jamaica Plain Neighborhood District. The Project site is also within the study area of Plan: JP/ROX. All residential uses are forbidden in this subdistrict, and therefore the residential portion of the Project will require a use variance.

The current design includes an approximately 4,000 sf commercial space. Due to concerns regarding the viability of a retail use at this location, the commercial space is currently intended to accommodate office, cultural, or community uses and could also be reprogrammed to a residential use or residential amenity space if a desirable and feasible commercial use is not identified. Many of the potential commercial uses are allowed as-of-right in the Industrial Development Area Subdistrict. For any forbidden or conditional use, a variance or conditional use permit would be needed prior to initiation of such use.

The maximum allowable floor area ratio (FAR) is 1.0. The proposed Project has a FAR of approximately 3.8, based on the lot size of approximately 21,200 sf and proposed gross floor area of approximately 80,000 sf. A variance will be required. The maximum allowable building height is 35 feet. The proposed building is just under 70 feet in height. A variance will be required. There are no minimum requirements in this district for Lot Size or Lot Area per Dwelling Unit.

The Minimum Usable Open Space per dwelling unit in this district is 50 sf. Open space meeting this requirement must be at least 75% open to the sky, free of automotive traffic, parking, and undue hazard, and readily accessible by all those for whom it is required. As the proposed Project consists of 65 dwelling units, 3,250 sf of usable open space is required. The current design provides for approximately 4,100 sf of open space through a combination of planted areas, pedestrian paths and public spaces around the site. Additionally, the adjacent city-owned parcel at the northwest of the Project site is currently the subject of a disposition and development request for proposals (RFP). The Proponent is interested in responding to this RFP, and further exploring the possibility of utilizing this parcel as a recreational open space for the benefit of the Project residents and the general public. There is no minimum for Lot Width or Lot Frontage requirements in this district. There are no minimum front yard or side yard requirements in this district. The minimum rear yard requirement is a depth of 20 feet. The Project has a rear yard depth of approximately 27 feet. The project complies with this requirement.

Parking and loading requirements will be determined through the Article 80 Large Project Review process. The Project's proposed off-street parking and off-street loading facilities are described in Sections 2.4.2 and 2.4.3. A total of 21 at-grade parking spaces and one loading area are proposed for the Project site.

In sum, the anticipated variances for the Project include residential use, FAR, and building height.

1.6 Anticipated Permits and Approvals

Table 1-2 represents a preliminary list of permits and approvals from governmental agencies that are expected to be required for the Project, based on currently available information. It is possible that only some of these permits or actions will be required, or that additional permits or actions will be required.

Table 1-2 Anticipated Permits and Approvals

Agency	*Permit / Approval*
Local	
Boston Planning & Development Agency	Review under Article 80, including Large Project Review, as required pursuant to Article 80B of the Code; Cooperation Agreement; Other permits as may be identified
Boston Employment Commission	Construction Employment Plan
Boston Fire Department	Approval of Fire Safety Equipment; Permit for Maintenance of Fire Protection Equipment; Permit for Safe Access to Site by Fire Department
Interagency Green Building Committee	Article 37 Compliance
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Agreement
Public Improvements Commission	Street Sidewalk Specific Repair Plan; Maintenance Agreement Approval
Boston Department of Public Works	Street Opening Permit; Street/Sidewalk Occupancy Permit
Boston Water and Sewer Commission	Local Sewer and Water Tie-in; Site Plan Approval, if necessary
Boston Inspectional Services Department	Building Permit; Demolition Permit; Other construction-related permits; Certificate of Occupancy
Boston Landmarks Commission	Article 85 review
Zoning Board of Appeals	Variances and conditional use permits as needed
State	
Massachusetts Department of Environmental Protection	Notification of Demolition and Construction
Massachusetts Historical Commission	Determination of No Adverse Impact by Massachusetts Historic Commission
Massachusetts Water Resources Authority	Construction Dewatering Permit (if required); Temporary Construction Dewatering Permit (if required); Sewer Use Discharge Permit (if required)

1.7 Public Participation

The Proponent has demonstrated its commitment to actively seeking and incorporating community feedback into the development plans for the proposed Project. Prior to the submission of the Letter of Intent to the BPDA on July 11th, 2019, the Proponent met with neighborhood residents, neighborhood groups, community leaders, business owners, elected officials, City of Boston officials, and other stakeholders to seek input as the plans have progressed.

In addition to small stakeholder meetings and meetings with individuals, the Proponent has held two well publicized and well attended community meetings to date. Meetings were publicized via social media, email blasts, and neighborhood / door to door flyering leading up to the meeting dates. Representatives from the City of Boston Department of Neighborhood Development, State Representative Liz Malia's office, City Counselor Matt O'Malley's office, and the Jamaica Plain Neighborhood Liaison were in attendance at the community meetings.

The Proponent will continue to engage with the community, meet with neighborhood groups, the City and BPDA staff, and other interested parties as the Project is reviewed through the Large Project Review process.

1.8 Schedule

It is anticipated that construction will begin in early 2021 with a 15 month construction period.

1.9 Project Identification and Team

Proponent:

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(617) 989-9300
Emily Loomis
Caitlin Madden

Architect:

Utile
115 Kingston Street
Boston, MA 02111
(617) 423-7200
Matthew Littell
Nick Buehrens

Permitting Consultant:	Epsilon Associates, Inc. 3 Mill & Main Place, Suite 250 Maynard, MA 01754 (978) 897-7100 Geoff Starsiak
Legal Counsel:	Klein Hornig LLP 101 Arch Street, Suite 1101 Boston MA 02110 (617) 224-0600 Joseph Lieber
Transportation Consultant:	Howard Stein Hudson 11 Beacon Street, Suite 1010 Boston, MA 02108 (617) 482-7080 Brian Beisel Michael Littman
Civil Engineer:	Nitsch Engineering, Inc. 2 Center Plaza, Suite 430 Boston, MA 02108 (617) 338-0063 John Schmid
Landscape Architect:	G2 Collaborative 282 Moody Street, Suite 308 Waltham, MA 02453 (781) 373-5945 Lisa Giersbach

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Figure 1-6
Ground Floor Plan

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Figure 1-7
Typical Upper Floor Plan

EAST ELEVATION - COLUMBUS AVE.

WEST ELEVATION - AMORY STREET

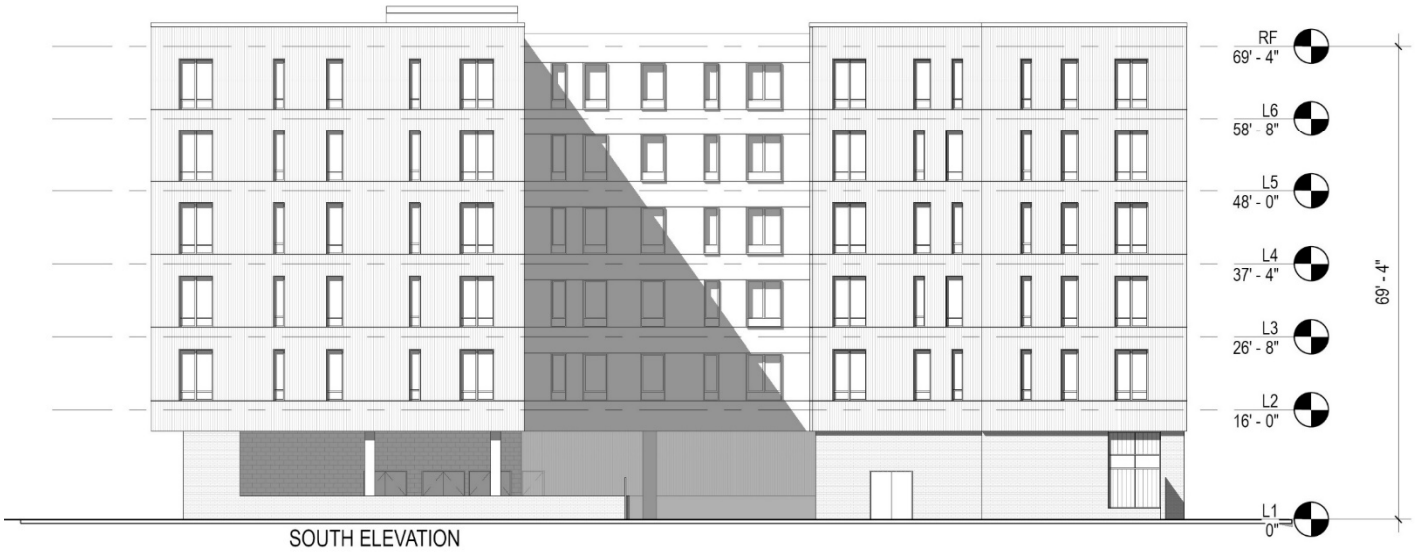

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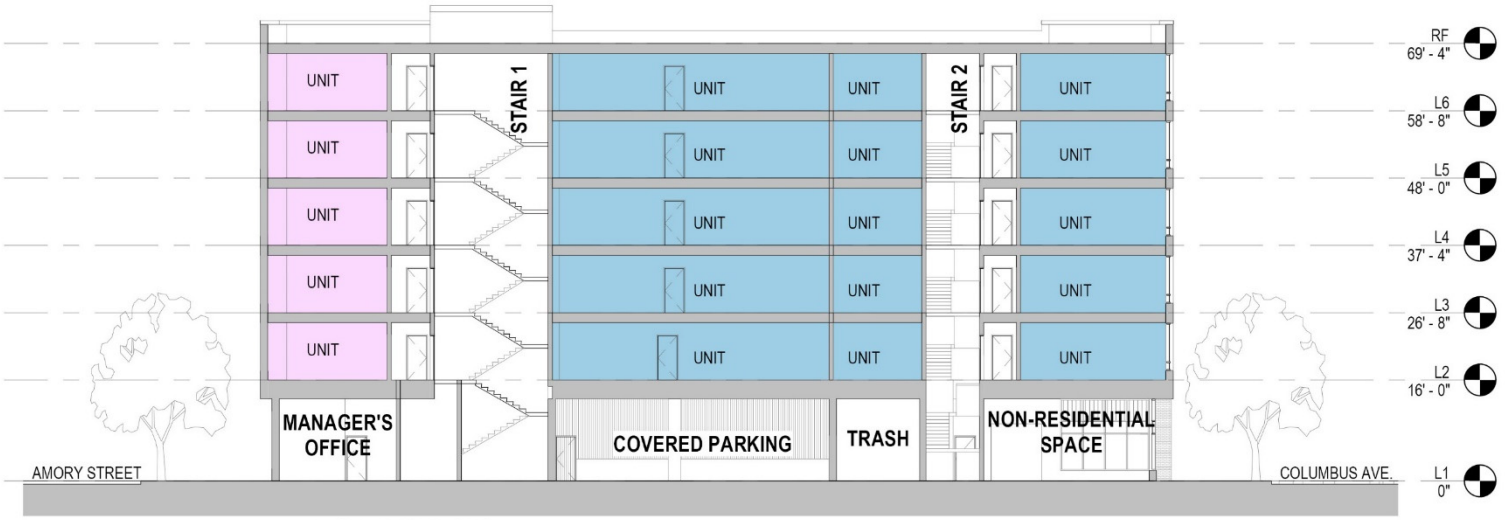
Figure 1-9
Building Elevations – North and South



EAST / WEST SECTION

NORTH / SOUTH SECTION

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Figure 1-10
Building Sections

Chapter 2.0

Transportation

2.0 TRANSPORTATION

2.1 Overview

The Proponent engaged Howard Stein Hudson (HSH) to conduct an evaluation of the transportation impacts of the Project in the Jamaica Plain neighborhood of Boston, Massachusetts. This transportation study adheres to the Boston Transportation Department (BTD) Transportation Access Plan Guidelines and BPDA Article 80 Large Project Review process. This study includes an evaluation of existing conditions, future conditions with and without the Project, projected parking demand, loading and service operations, transit services, and pedestrian and bicycle activity, transportation demand management (TDM) strategies, and construction-period impacts.

2.1.1 Project Description

The Project site is located at 1595-1599 Columbus Avenue and consists of five parcels, three along Columbus Avenue and two along Amory Street. The Project site is bounded by Columbus Avenue to east, Amory Street to the west, and existing buildings to the north and south. The Project site currently contains two 2-story buildings, a parking lot with approximately 10 unmarked spaces, and lot with overgrown vegetation.

As described in detail in Chapter 1, the proposed Project will consist of the demolition of the existing buildings and the construction of a new six-story mixed-use residential building containing approximately 65 residential units and approximately 4,000 sf of ground floor commercial space. The Project will also contain a small office and a community room. Primary vehicular access to the site will be provided by a full access driveway along Amory Street to the west side of the building.

2.1.2 Study Methodology

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

The Existing (2019) Condition analysis includes an inventory of the existing transportation conditions such as traffic characteristics, parking, curb usage, transit, pedestrian circulation, bicycle facilities, loading, and site conditions. Existing counts for vehicles, bicycles, and pedestrians were collected at the study area intersections. A traffic data collection effort forms the basis for the transportation analysis conducted as part of this evaluation.

The future transportation conditions analysis evaluates potential transportation impacts associated with the Project. The long-term transportation impacts are evaluated for the year 2026, based on a seven-year horizon from the year of the filing of this traffic study.

The No-Build (2026) Condition analysis includes general background traffic growth, traffic growth associated with specific developments (not including this Project), and transportation improvements that are planned in the vicinity of the Project site.

The Build (2026) Condition analysis includes a net increase in traffic volume due to the addition of Project-generated trip estimates to the traffic volumes developed as part of the No-Build (2026) Condition analysis. The transportation study identifies expected roadway, parking, transit, pedestrian, and bicycle accommodations, as well as loading capabilities and deficiencies.

The final part of the transportation study identifies measures to mitigate Project-related impacts and to address any traffic, pedestrian, bicycle, transit, safety, or construction related issues that are necessary to accommodate the Project. TDM measures, an outline of the Transportation Access Plan Agreement (TAPA), and an evaluation of short-term traffic impacts associated with construction activities is also provided.

2.1.3 Study Area

The transportation study area is generally bounded by Dimock Street to the south, Amory Street to the west and north, and Columbus Avenue to the east. The study area consists of the following three intersections in the vicinity of the Project site, also shown on Figure 2-1:

- Columbus Avenue Southbound/Amory Street Connector (unsignalized);
- Amory Street/Amory Street Connector (unsignalized); and
- Amory Street/Dimock Street (unsignalized).

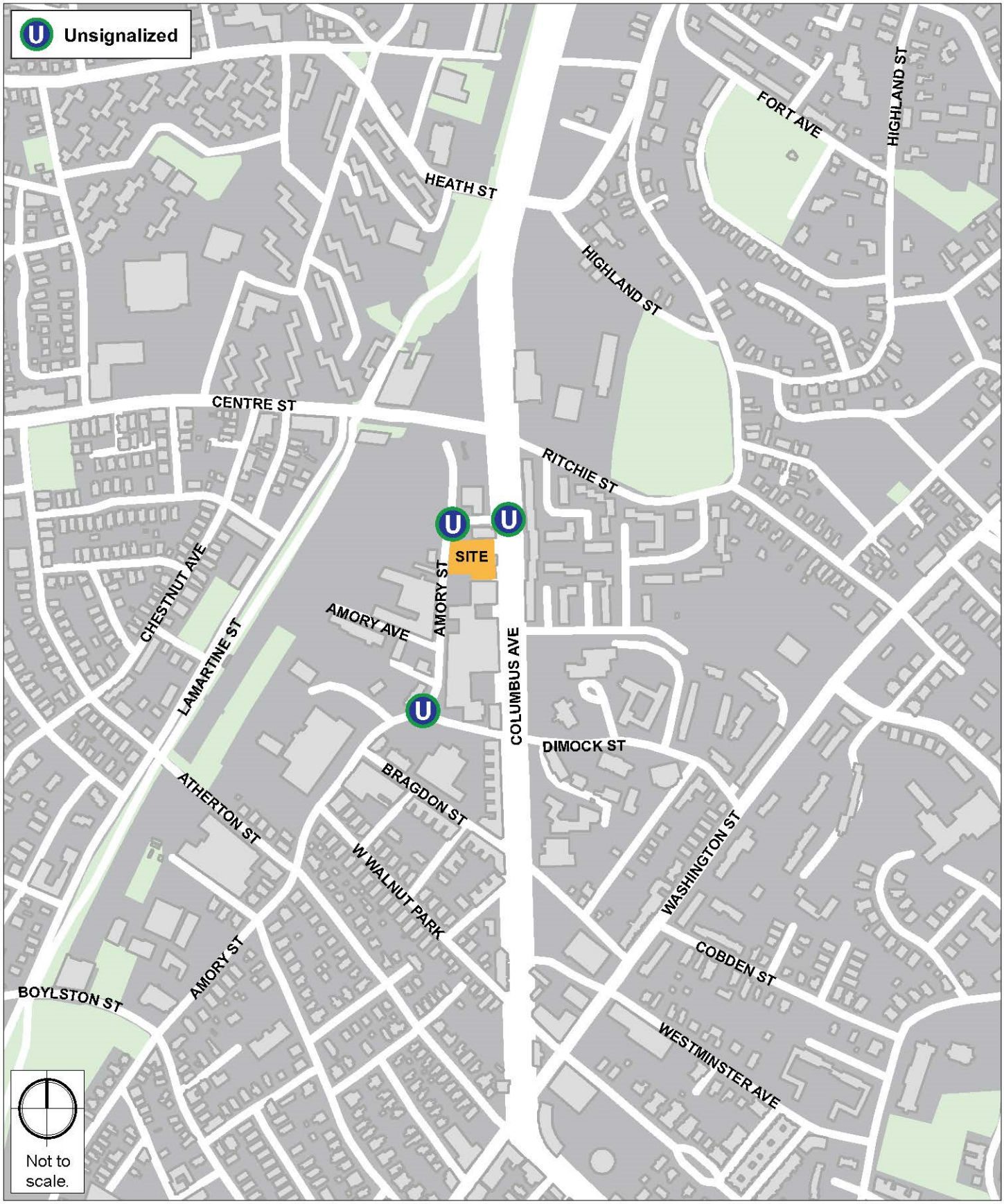
2.2 Existing Condition

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

2.2.1 Existing Roadway Conditions

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

Columbus Avenue is a two-way, four-lane roadway located to the east of the Project site. Columbus Avenue runs in a predominately north-south direction between Park Plaza in downtown Boston to the north and Franklin Park to the south. Columbus Avenue is classified as an urban principal arterial roadway under BTD jurisdiction. Near the Project site, on-street parking and sidewalks are provided along both sides of the roadway.



1599 Columbus Avenue Boston, Massachusetts

HOWARD STEIN HUDSON
Engineers + Planners

Figure 2-1
Study Area Intersections

Amory Street is a two-way, two-lane roadway located adjacent to the west of the Project site. Amory Street runs in a predominately north-south direction between Jackson Square to the north and English High School to the south, although Amory Street dead ends just before reaching Centre Street at Jackson Square Station. Amory Street is classified as an urban collector roadway under BTD jurisdiction. Near the Project site, on-street parking is provided along the east side of the roadway, and sidewalks are provided along both sides of the roadway.

Dimock Street is a two-way, two-lane roadway located to the west of Columbus Avenue, and a one-way eastbound one-lane roadway to the east of Columbus Avenue, located to the south of the Project site. Dimock Street runs in a predominately east-west direction between Amory Street to the west and Washington Street to the east. Dimock Street is classified as a local roadway under BTD jurisdiction. Near the Project site, on-street parking is restricted along both sides of the roadway, and small asphalt sidewalks are provided along both sides of the roadway.

Amory Street Connector is a two-way, two-lane roadway located to the north of the Project site. Amory Street Connector runs in a predominately east-west direction between Columbus Avenue to the east and Amory Street to the west. Amory Street Connector is classified as an urban collector roadway under BTD jurisdiction. Near the Project site, on-street parking is restricted along both sides of the roadway, and sidewalks are provided along both sides of the roadway.

2.2.2 Existing Intersection Conditions

Existing conditions at the study area intersections are described below.

Columbus Avenue Southbound/Amory Street Connector is a three-legged unsignalized intersection with two approaches. The Amory Street eastbound approach operates under stop control and consists of one right-turn only lane. The Columbus Avenue southbound approach consists of two travel lanes, a through lane, a shared through/right-turn lane, and a parking lane. Columbus Avenue is separated by a median and the Columbus Avenue northbound approach does not intersect with Amory Street. Sidewalks are provided along both sides of all approaches to the intersection. Curb ramps with tactile warning pads are provided across the west side of the intersection; however, a crosswalk is not currently provided.

Amory Street/Amory Street Connection is a three-legged unsignalized intersection. The Amory Street Connection eastbound approach operates under stop control and consists of one shared right-turn/left-turn lane. The Amory Street northbound approach consists of one shared through/right-turn lane and a parking lane. The Amory Street southbound approach consists of one shared left-turn/through lane and a parking lane. Sidewalks are provided along both sides of all approaches to the intersection. Curb ramps and painted crosswalks are not provided across any approach to the intersection.

Amory Street/Dimock Street is a three-legged, all-way stop controlled intersection. The Amory Street eastbound approach consists of one shared left-turn/through lane. The Dimock Street westbound approach consists of one shared through/right-turn lane. The Amory Street

southbound approach consists of one shared left-turn/right-turn lane. Sidewalks are provided along both sides of all approaches to the intersection. A crosswalk with curb ramps is provided across the eastbound approach to the intersection; however, tactile warning pads are not provided.

2.2.3 Existing On-Street Parking and Curb Use

An inventory of the existing curb use and on-street parking in the vicinity of the Project was collected. On-street parking surrounding the Project site primarily consists of unrestricted parking. Some of the curb use is designated commercial loading, two-hour parking, or bus stop as well. The on-street parking regulations within the study area are shown in Figure 2-2.

2.2.3.1 Car Sharing Services

Car sharing enables easy access to short-term vehicular transportation for those that do not have access to a vehicle. Vehicles are rented on an hourly or daily basis, and all vehicle costs (gas, maintenance, insurance, and parking) are included in the rental fee. Vehicles are checked out for a specific time period and returned to their designated location.

Zipcar is the primary company in the Boston car sharing market. There are currently six Zipcar locations with access to 26 vehicles within a ten-minute walk of the Project site. The nearby car sharing locations are shown in Figure 2-3.

2.2.4 Existing Traffic Data

Traffic volume data was collected at the intersection of Amory Street/Dimock Street on September 14, 2016, and at the intersection of Columbus Avenue Southbound/Amory Street Connector on November 2, 2016. Turning Movement Counts (TMCs) and vehicle classification counts were conducted during the weekday a.m. and weekday p.m. peak periods (7:00 – 9:00 a.m. and 4:00 – 6:00 p.m., respectively). The traffic classification counts included car, heavy vehicle, pedestrian, and bicycle movements. The detailed traffic counts are provided in Appendix B.

2.2.4.1 Seasonal Adjustment

To account for seasonal variation in traffic volumes throughout the year, data provided by MassDOT was reviewed. The most recent MassDOT 2017 Weekday Seasonal Factors were used to determine the need for seasonal adjustments to the TMCs. The seasonal adjustment factor for roadways similar to the study area (Factor Group U3 – Urban Other Principal Arterials) is 0.93 for the month of September and 0.96 for the month of November. This indicates that average month traffic volumes are approximately four to seven percent less than the traffic volumes that were collected. Therefore, the traffic counts were not adjusted downward to reflect average month conditions, providing a conservatively high analysis consistent with the peak season traffic volumes. The MassDOT 2017 Weekday Seasonal Factors table is provided in Appendix B.

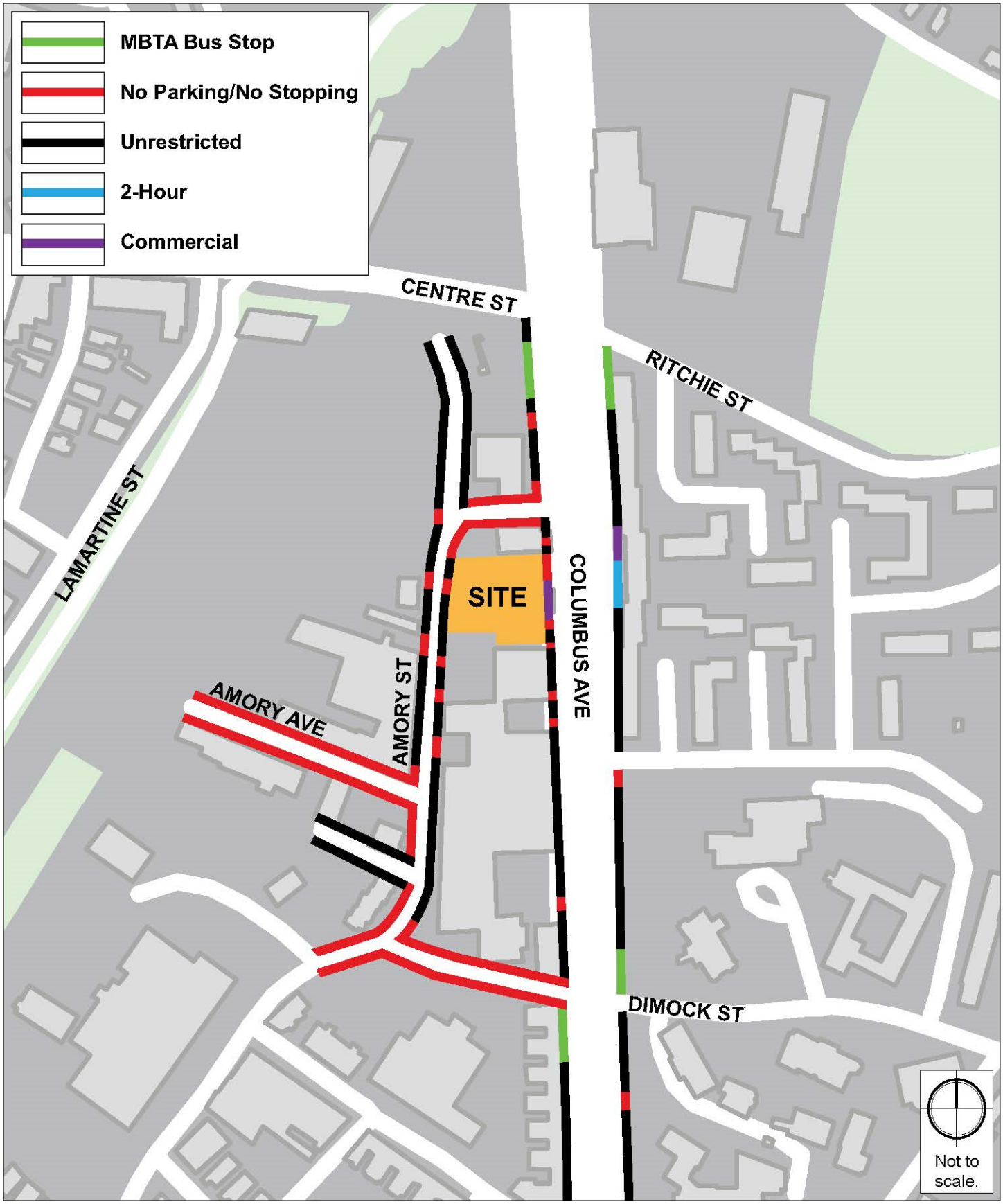


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Figure 2-2
On-Street Parking

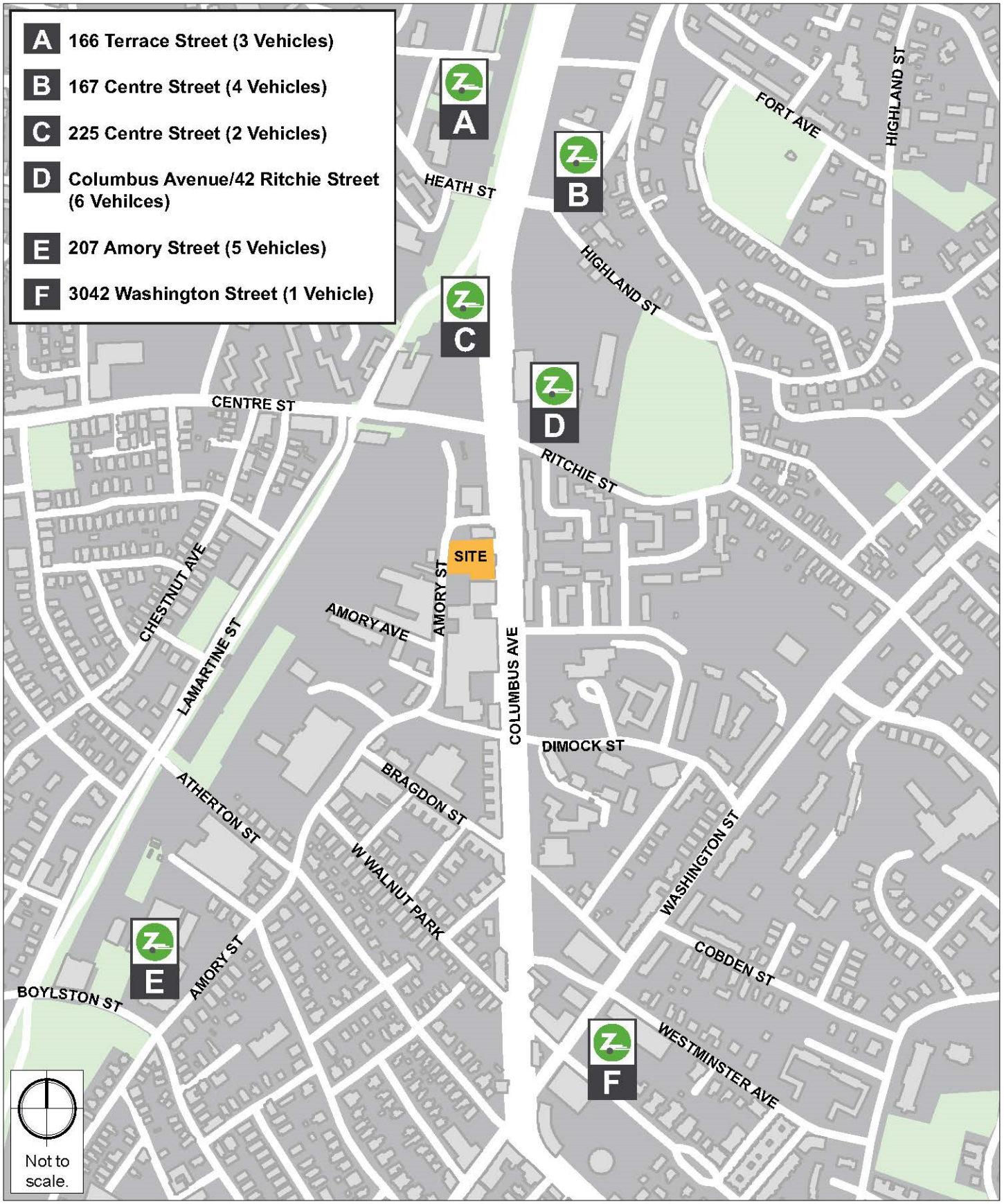

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Figure 2-3
Car Sharing Locations

2.2.4.2 Existing Vehicular Traffic Volumes

The existing traffic volumes were adjusted to the year 2019 using a one-quarter of a percent growth rate from the year they were collected. The traffic volumes were then balanced between intersections. The resulting traffic volumes were used to develop the Existing (2019) Condition traffic volumes. The Existing (2019) Condition weekday a.m. and p.m. peak hour traffic volumes are shown in Figure 2-4.

2.2.5 Existing Pedestrian Volumes and Accommodations

In general, sidewalks are provided along both sides of all nearby roadways, however many sidewalks are in poor condition with cracks and vegetation. The sidewalks measure less than seven feet wide and have fixed objects, such as streetlights and fire hydrants, that narrow the walking path.

The primary walking path between the site and Jackson Square is along Amory Street to Centre Street via an asphalt paved pedestrian only path.

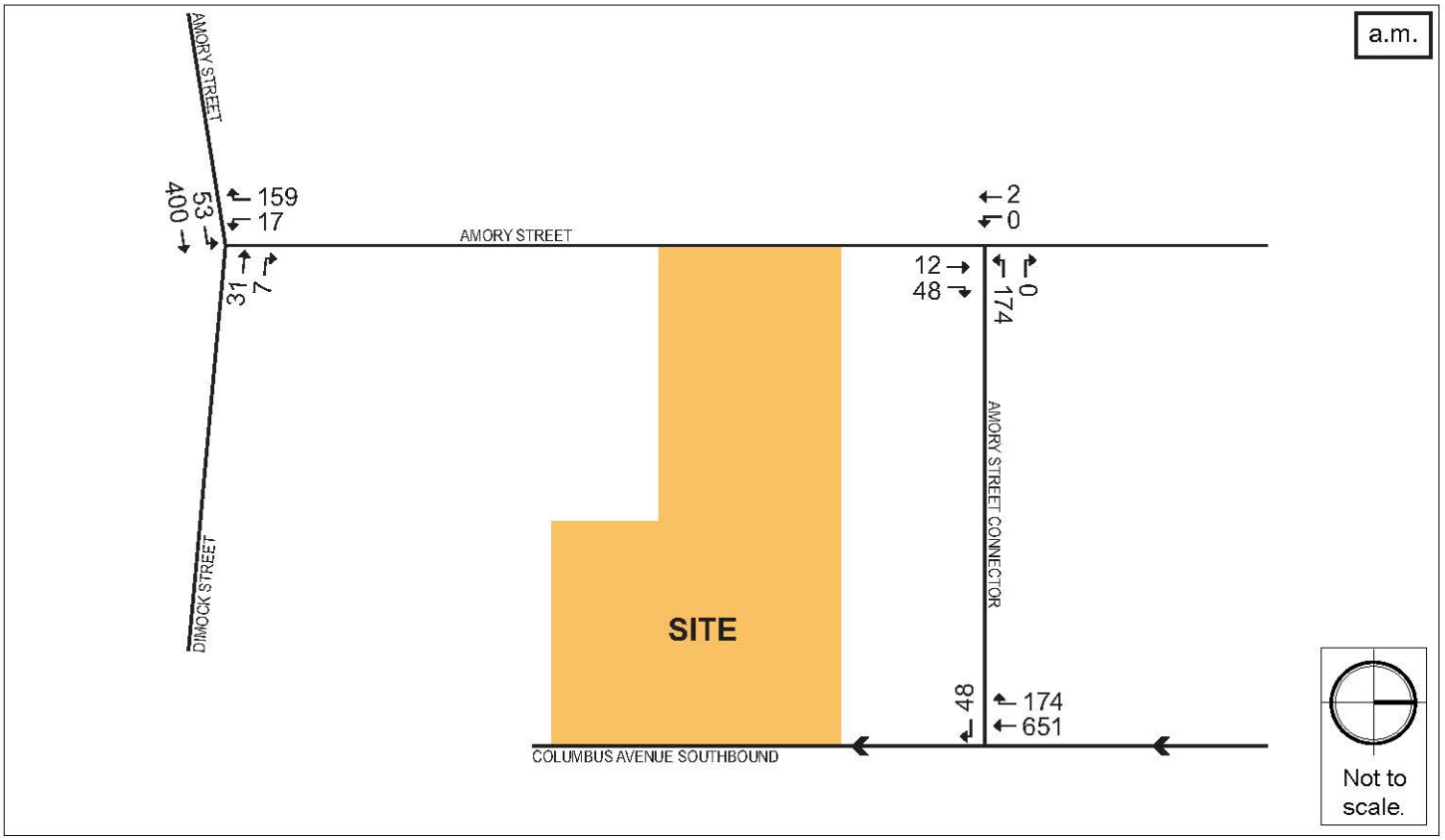
To determine the amount of pedestrian activity within the study area, pedestrian counts were conducted concurrent with the TMCs at the study area intersections and are presented in Figure 2-5. Many pedestrians walk across the four-lane cross section of Columbus Avenue at Amory Street which does not have any pedestrian infrastructure.

2.2.6 Existing Bicycle Volumes and Accommodations

In recent years, bicycle use has increased dramatically throughout the City of Boston. The Project site is conveniently located near several bicycle facilities. Most significantly, the Southwest Corridor Park which is a major bicycle corridor providing an off-street bicycle facility between Forrest Hills Station and Back Bay Station. Centre Street is marked with sharrows and a climbing bike lane for cyclists biking uphill. Bicycle counts were conducted concurrent with the vehicular TMCs and are also presented in Figure 2-5.

2.2.6.1 Bicycle Sharing Services

The site is also located near several bicycle sharing stations provided by BLUEbikes. BLUEbikes is the bicycle sharing system in the Boston area, which was launched in 2011 and consists of over 260 stations and 2,500 bicycles in four municipalities, including Boston, Cambridge, Brookline, and Somerville. There are three BLUEbikes stations within a ten-minute walk of the site, as shown in Figure 2-6.



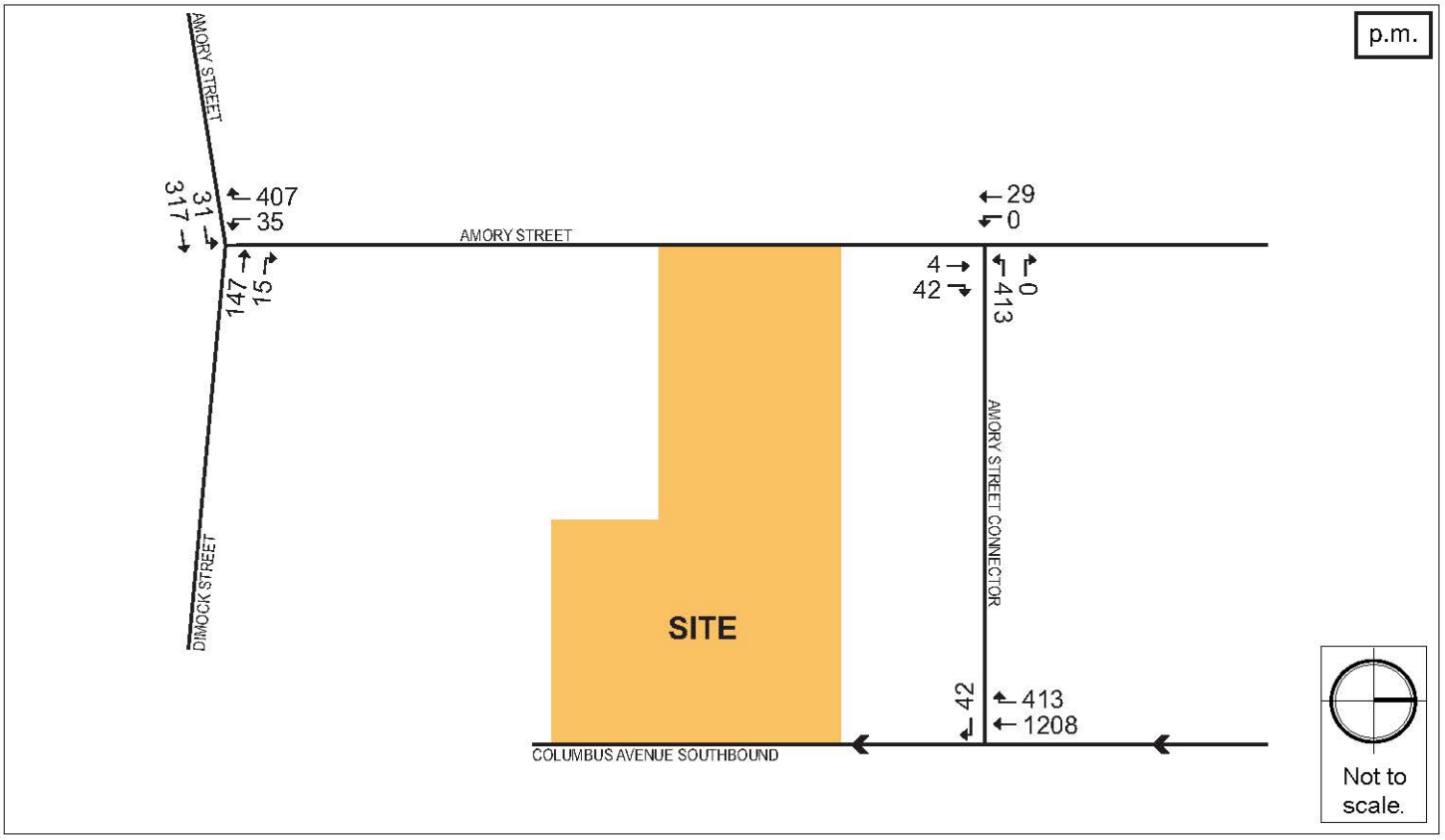


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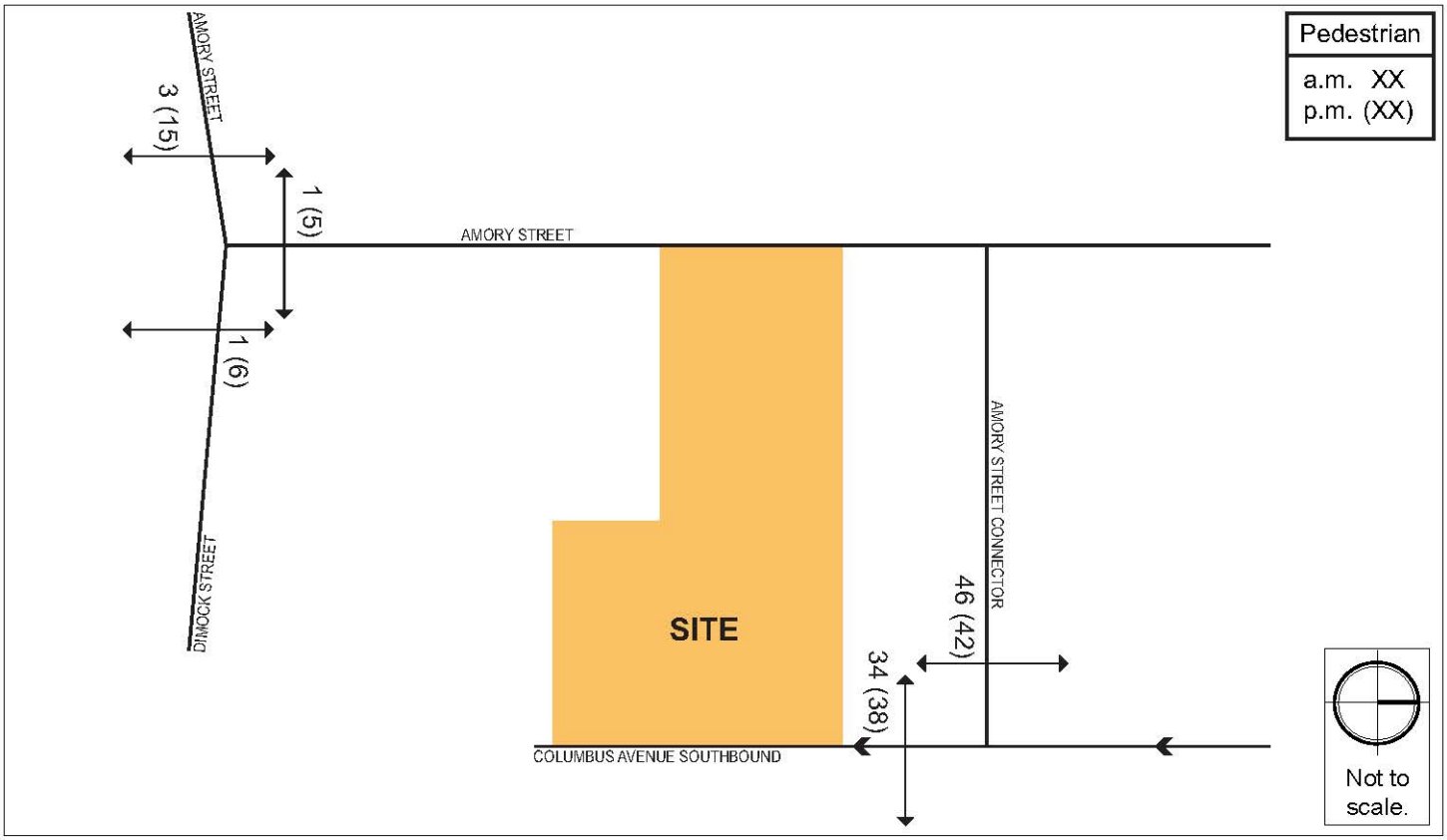
Figure 2-4

Existing (2019) Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours



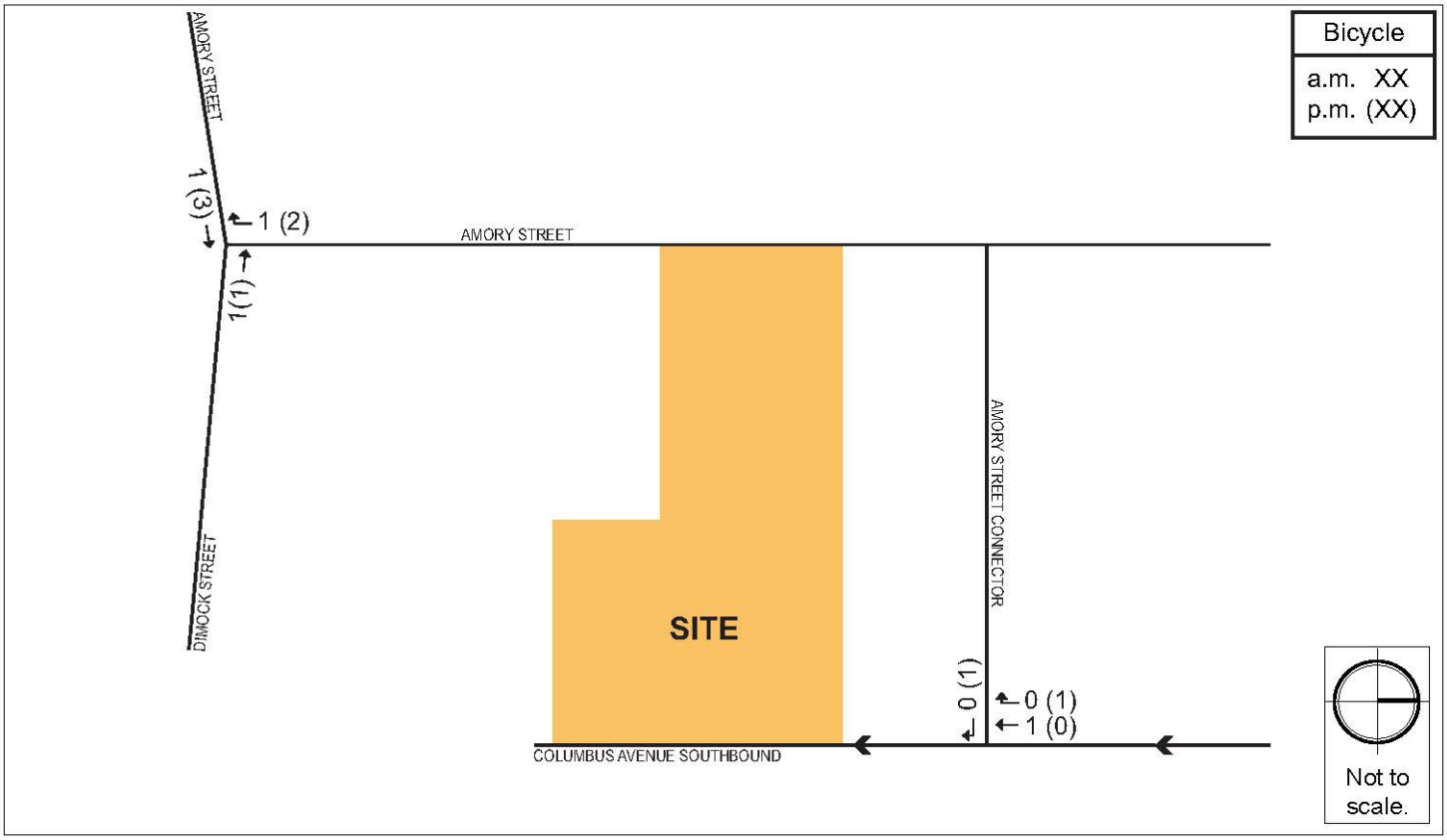


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Figure 2-5

Existing (2019) Condition Pedestrian and Bicycle Volumes, Weekday a.m. and p.m. Peak Hours

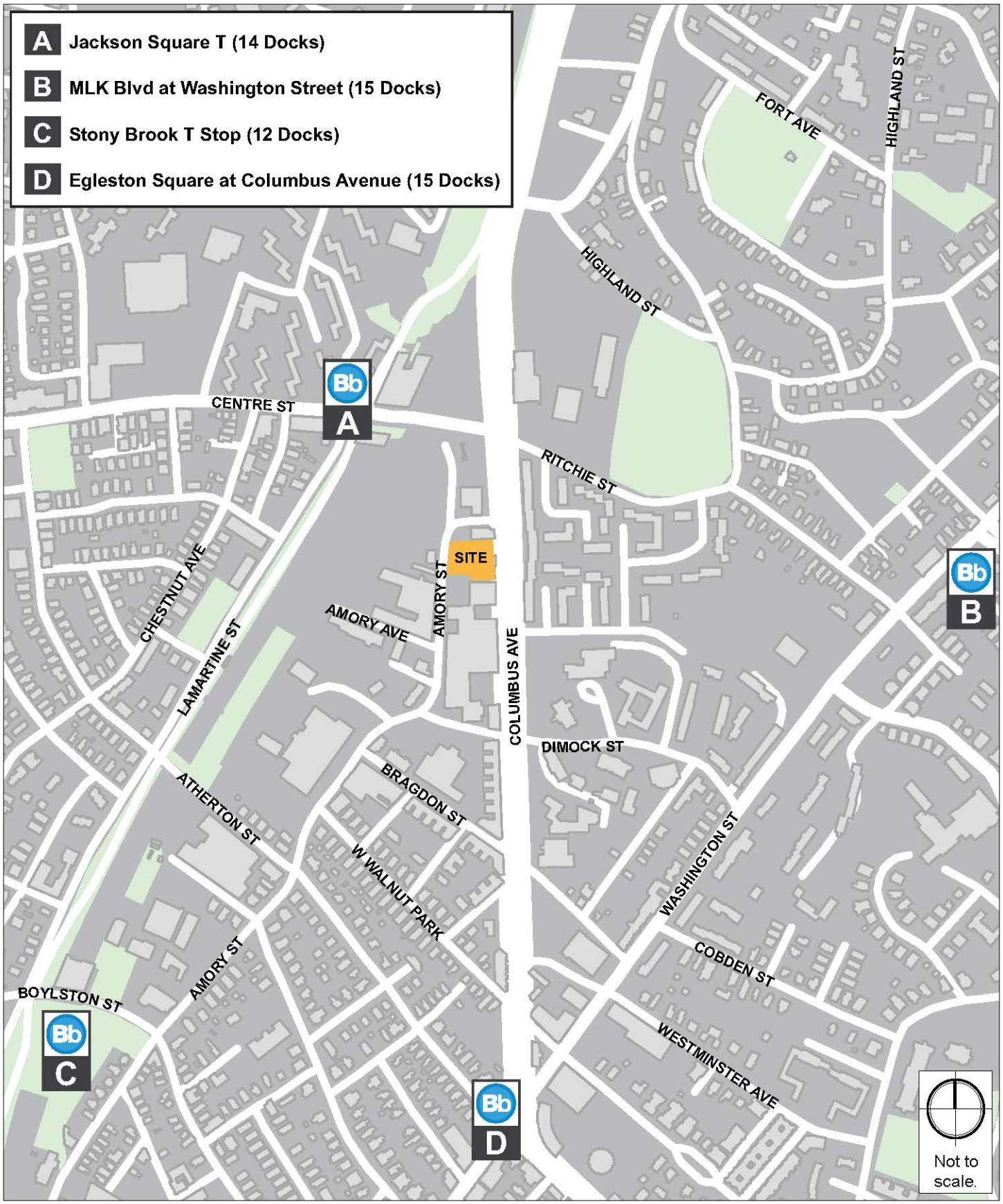

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Figure 2-6
Bicycle Sharing Locations

2.2.7 Existing Public Transportation Services

The Project site is located approximately 700 feet from Jackson Square Station along the MBTA Orange Line. Jackson Square Station is also a bus hub with service to five bus routes. One additional bus route provides service along Washington Street within walking distance to the south of the Project site. Figure 2-7 shows the nearby public transportation services that serve the Project site, and Table 2-1 provides a brief summary of the routes.

Table 2-1 Existing Public Transportation Service Summary

Weekday Service	*Rush-Hour Headway (in minutes)[1]*	
	AM	*PM*
Rapid Transit		
Orange Line		
5:16 a.m. – 12:30 am.	6	6
Bus Routes		
14: Roslindale Square – Heath Street Station		
6:00 a.m. – 7:38 p.m.	45	45
22: Ashmont Station – Ruggles Station*		
4:55 a.m. – 1:31 a.m.	8	9
29: Mattapan Station – Jackson Square Station		
5:55 a.m. – 1:21 a.m.	16	15
41: Centre & Eliot Streets – JFK/UMass Station		
4:58 a.m. – 9:23 a.m.	25	35
42: Forrest Hills Station – Dudley Square Station		
5:00 a.m. – 12:45 a.m.	12	30
44: Jackson Square Station – Ruggles Station		
5:10 a.m. – 1:19 a.m.	16	17

1 Headway is the time between buses/trains.

* Key Bus Route

2.2.7.1 MBTA Orange Line

MBTA Orange Line branch of the MBTA subway system provides convenient access to downtown Boston and other neighborhoods and communities such as Roxbury, South End, Charlestown, Somerville, Medford, and Malden. The Orange Line provides approximately six-minute peak-hour headways and eight-minute off-peak headways. The Orange Line operates between 5:16 a.m. – 12:30 a.m.

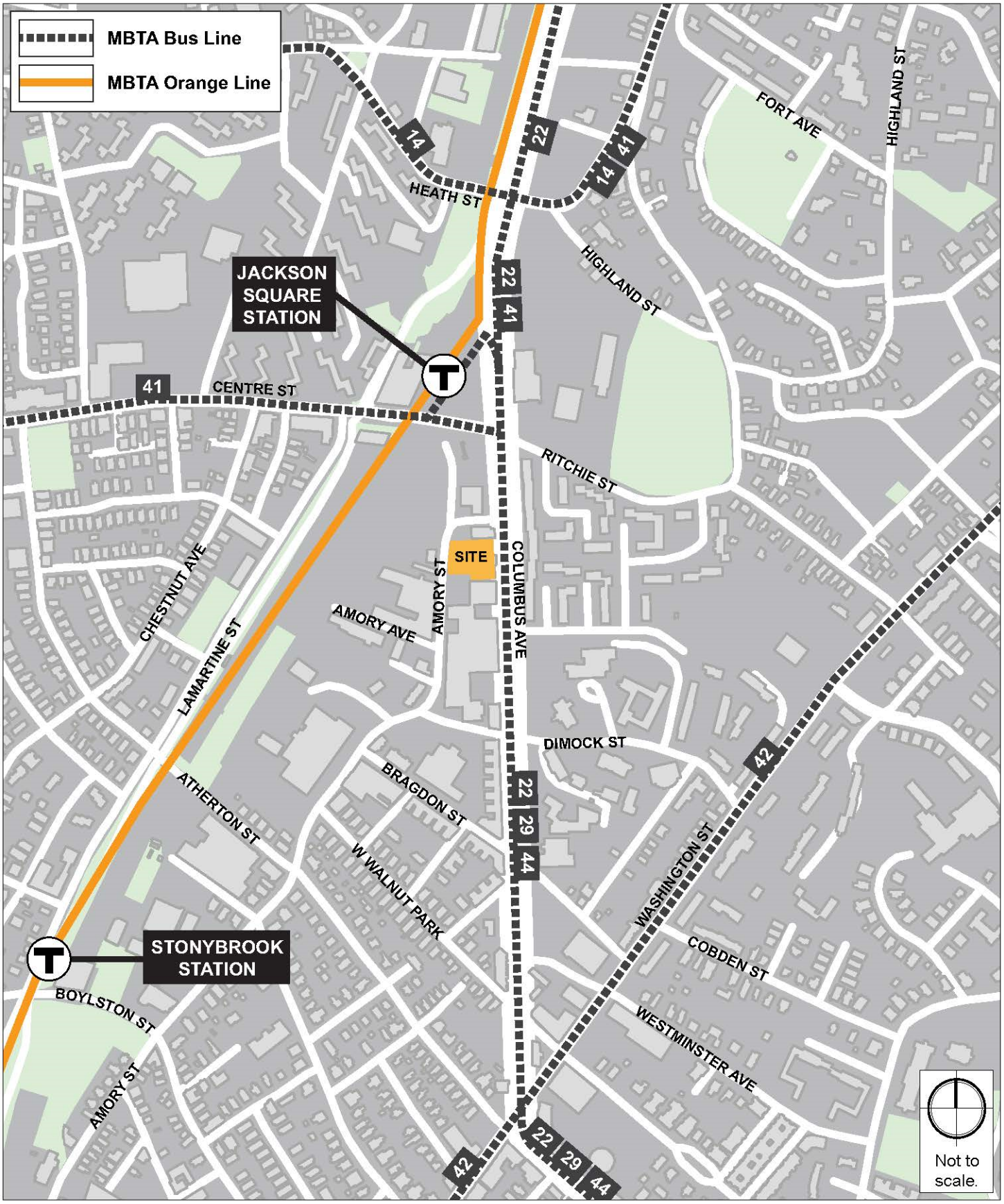

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Figure 2-7
Public Transportation

MBTA Bus Route 14 is a local route that operates between Roslindale Square and Heath Street via Cummins Highway, American Legion Highway, Blue Hill Avenue, Warren Street, Dudley Square and Jackson Square Station.

MBTA Bus Route 22 is a key bus route that operates between Ashmont Station and Ruggles Station via Talbot Avenue, Blue Hill Avenue, Seaver Street, Columbus Avenue, and Tremont Street.

MBTA Bus Route 29 is a local route that operates between Mattapan Station and Jackson Square Station via Blue Hill Avenue, Seaver Street, and Columbus Avenue.

MBTA Bus Route 41 is a crosstown route that operates between Centre and Eliot Streets and JFK UMass Station via Jackson Square Station, Dudley Square, and Uphams Corner Station.

MBTA Bus Route 42 is a local route that operates between Forest Hills Station and Dudley Station via Washington Street.

MBTA Bus Route 44 is a local route that operates between Jackson Square Station and Ruggles Station via Columbus Avenue, Seaver Street, Humboldt Avenue, Warren Street, Dudley Station, Malcom X Boulevard, and Tremont Street.

2.3 No-Build (2026) Condition

The No-Build (2026) Condition reflects a future scenario that incorporates anticipated traffic volume changes associated with background traffic growth independent of any specific project, traffic associated with other planned specific developments, and planned infrastructure improvements that will affect travel patterns throughout the study area. These infrastructure improvements include roadway, public transportation, pedestrian and bicycle improvements.

2.3.1 Background Traffic Growth

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

2.3.2 Specific Development Traffic Growth

Traffic volumes associated with known development projects can affect traffic patterns throughout the study area within the future analysis time horizon. Four such projects were specifically accounted for in the traffic volumes for future scenarios, while others were included in the general background traffic growth. The site-specific background projects are shown on Figure 2-8 and summarized below.

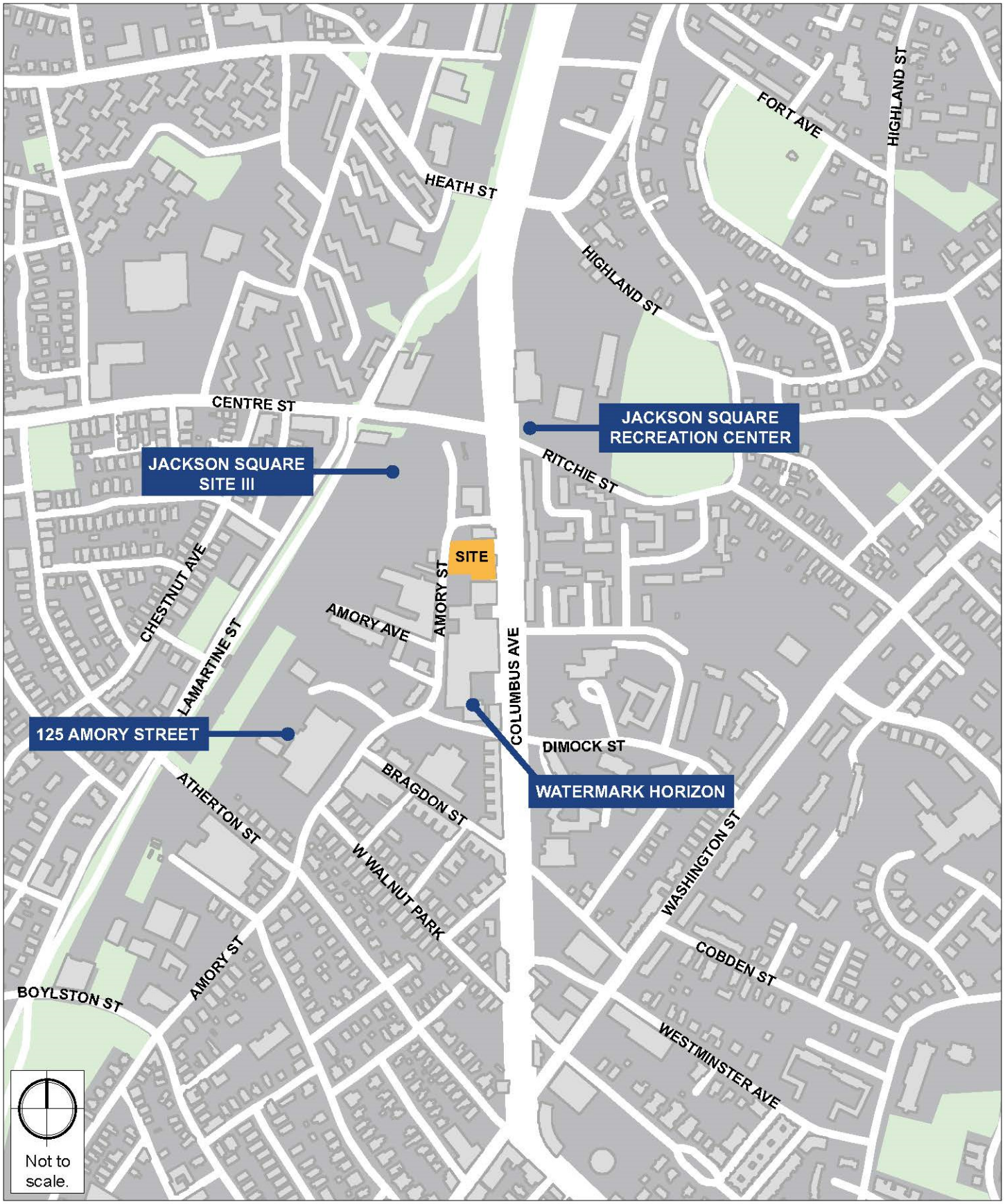

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Figure 2-8
Background Specific Projects

Watermark Horizon – This project calls for the construction of a new approximately 139,200 sf six-story office building for social services. The primary tenant of the building will be Horizons for Homeless Children in approximately 47,750 sf of space. The building will also include a small ground floor retail space of approximately 1,350 sf. The project will provide parking for 157 spaces in two parking levels, each with its own full access driveway. This project is under construction.

125 Amory Street– This project calls for the redevelopment of the Boston Housing Authority parcel located at 125 Amory Street. The redevelopment includes rehabilitating the current building and the construction of approximately 280 new residential units. This project has been approved by the BPDA Board and renovations to the Amory Street Apartment building have begun.

Jackson Square Site III – This project calls for the construction of two buildings, one located at 250 Centre Street and the other located at 25 Amory Street. 250 Centre Street will consist of approximately 110 residential units, approximately 2,400 sf of neighborhood focused ground floor retail space, and 57 parking spaces. 25 Amory Street will consist of 44 apartment units and 22 parking spaces. This project will also add a new roadway connection called Brewery Lane at the intersection of Amory Street/Amory Street Connector. This project has been approved by the BPDA Board.

Jackson Square Recreation Center – This project calls for the construction of a two story, approximately 75,000 sf recreation center located at 1522 Columbus Avenue. The building will be served by 50 at-grade parking spaces. This project has been approved by the BPDA Board.

2.3.3 Proposed Infrastructure Improvements

A review of planned improvements to roadway, transit, bicycle, and pedestrian facilities was conducted to determine if there are any nearby improvement projects in the vicinity of the study area. The proposed infrastructure improvements are listed below.

Dimock Street – Dimock Street is currently a two-way roadway with one lane in each direction between Amory Street to the west and Columbus Avenue to the east. This change would convert the two-way section of Dimock Street into a one-way eastbound with two lanes. This change increases the capacity of the signalized intersection of Columbus Avenue/Dimock Street by adding a left-turn lane to the Dimock Street eastbound approach. Additionally, the all-way stop controlled intersection of Amory Street/Dimock Street would be changed to give Amory Street eastbound a free movement and maintain the Amory Street southbound stop control. The initial plan for Dimock Street to become one-way originated from community meetings about the Jackson Square master plan from 2007. This change is expected to be completed within the seven-year time horizon and will be completed independent of this project.

Plan JP/ROX Transportation Action Plan – This is an ongoing BPDA transportation study for the same study area as the planning study, Plan JP/ROX. The transportation study identified several short-, medium-, and long-term projects within the area to improve transportation and accommodate growth in the neighborhood. BTD is in the process of identifying which projects will be constructed.

2.3.4 No-Build (2026) Condition Traffic Volumes

The one-half percent per year annual growth rate, compounded annually, was applied to the Existing (2019) Condition traffic volumes, then the traffic volumes associated with the background development projects listed above were added to develop the No-Build (2026) Condition traffic volumes. The No-Build (2026) weekday a.m. and p.m. peak hour traffic volumes are shown on Figures 2-9.

2.4 Build (2026) Condition

As previously mentioned, the Project is proposed to consist of the demolition of the existing buildings and the construction of a new six-story mixed-use residential building containing approximately 65 residential units and approximately 4,000 sf of ground floor commercial space. The Project will also contain a small office and a community room.

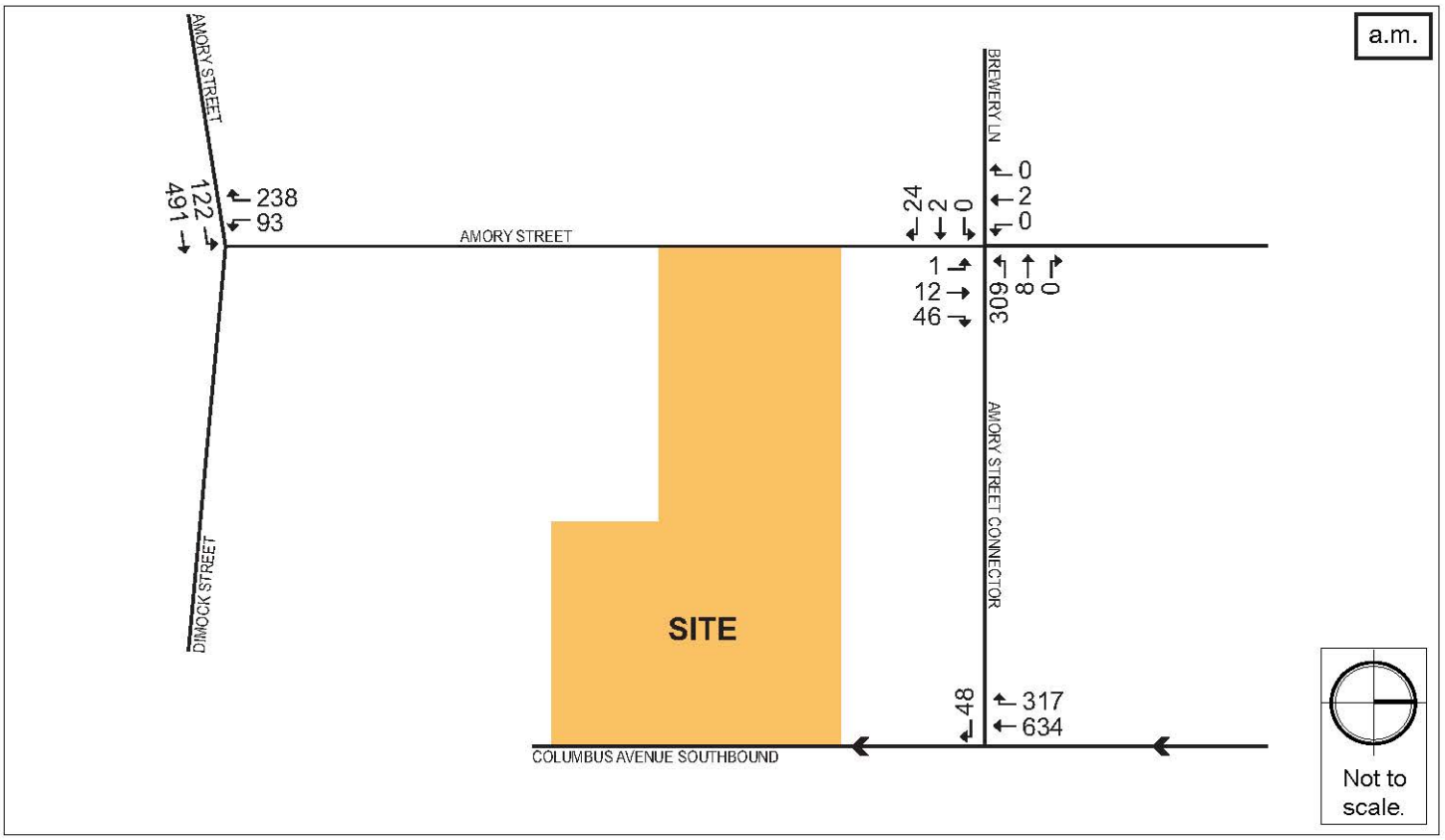
2.4.1 Site Access and Vehicle Circulation

Vehicular access to the site will be provided via a new full access driveway along Amory Street. Pedestrian access will be provided along Amory Street to access the residential lobby, and along Columbus Avenue to access the commercial space.

Currently along Columbus Avenue there are three existing curb cuts. The northern most curb cut will be greatly reduced in size, but will remain in order to provide access to a right of way that benefits the abutting property to the north at 1589 Columbus Avenue. The middle curb cut to the site will be closed. The southernmost driveway will remain, but will also be reduced in size as it is currently wider than the driveway it is serving. The Project site access plan is shown in Figure 2-10.

2.4.2 Project Parking

BTD has developed parking goals for this neighborhood as part of the PLAN: JP/ROX planning initiative. The goals include a maximum of 0.75 parking spaces per residential unit for new residential buildings. The site will contain approximately 21 ground-floor parking spaces. This results in a parking ratio of 0.32 parking spaces per residential unit. A portion of the planned 21 parking spaces may be allocated to the non-residential space. The parking ratio is consistent with the parking goals developed by the BTD for this neighborhood and the goals of PLAN: JP/ROX.



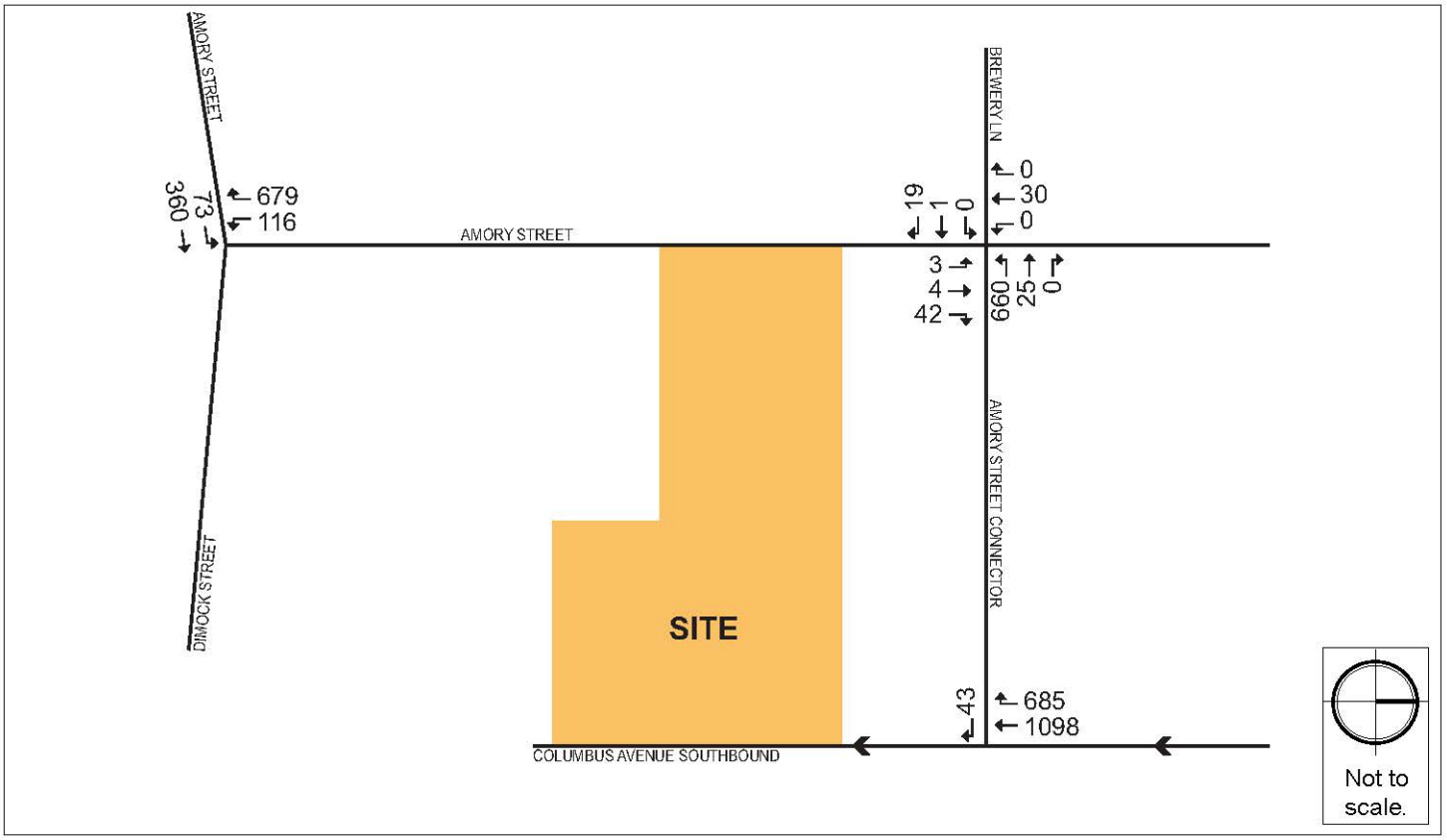


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Figure 2-9

No-Build (2026) Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours

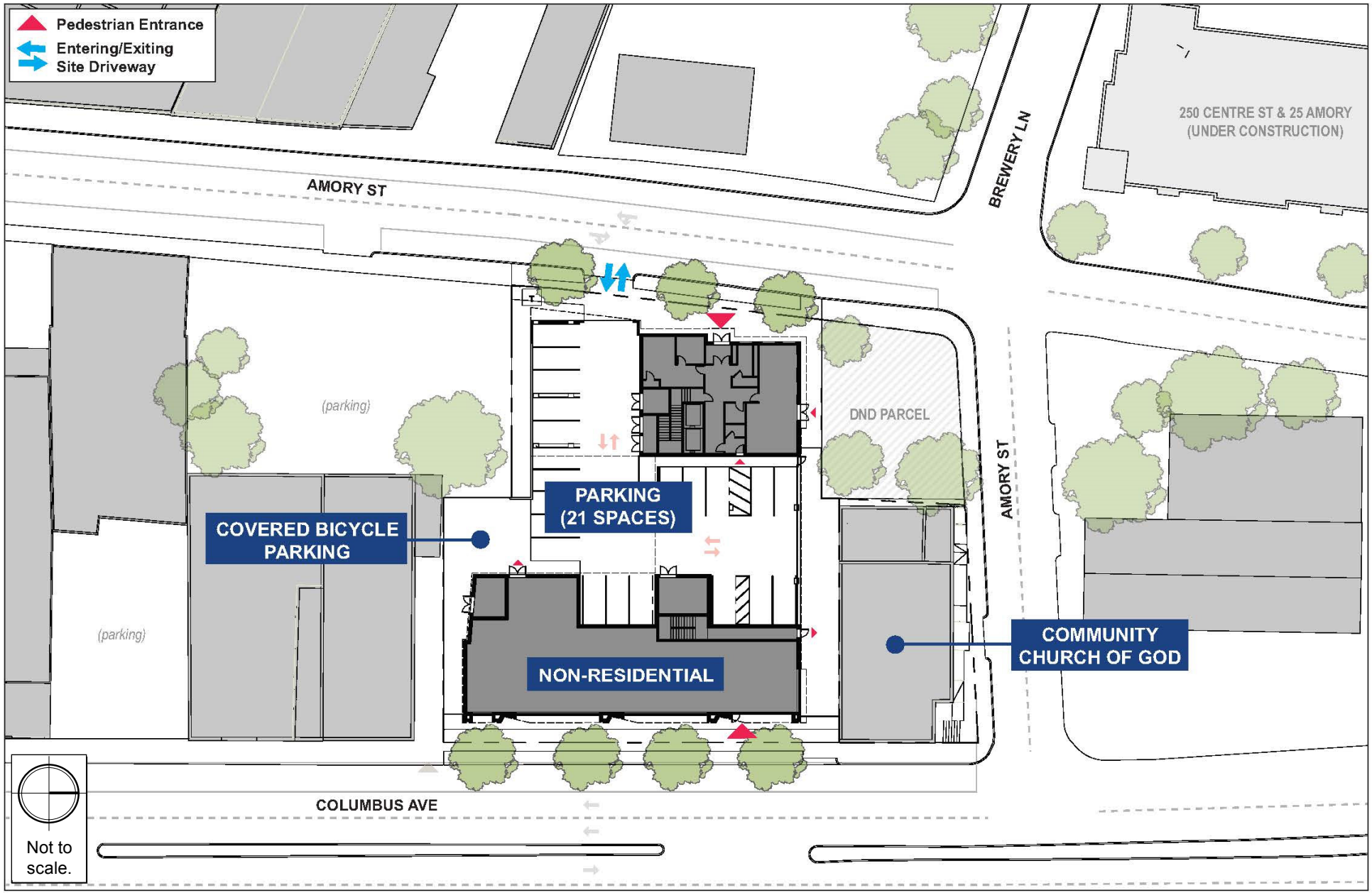

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Figure 2-10
Site Plan

2.4.3 Loading and Service Accommodations

Residential units primarily generate delivery trips related to small packages, prepared food that arrive in small box trucks or smaller vehicles, as well as move-in/move-out activity. Deliveries to the Project site will be limited to SU-36 box trucks or smaller vehicles. Residential move-in/move-out and deliveries will be accommodated along the Amory Street curb while commercial deliveries will be accommodated along the Columbus Avenue curb.

2.4.4 Bicycle Accommodations

BTD has established guidelines requiring projects subject to Transportation Access Plan Agreements to provide secure bicycle parking for residents and bicycle racks for visitors. The Project will construct one secured and covered bicycle parking space per residential unit. Public bicycle racks are also planned to be installed on Amory Street and Columbus Avenue for visitors.

2.4.5 Trip Generation Methodology

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

To estimate the number of trips expected to be generated by the Project, data published by the Institute of Transportation Engineers (ITE) in the *Trip Generation Manual*[1] were used. ITE provides data to estimate the total number of unadjusted vehicular trips associated with the Project. In an urban setting well-served by transit, adjustments are necessary to account for other travel mode shares such as walking, bicycling, and transit.

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

Land Use Code 221 – Multifamily Housing (Mid-Rise). A mid-rise multifamily housing building includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units that have between three and ten floors. Calculations of the number of trips are based on ITE's average rate per residential unit.

Land Use Code 820 – Shopping Center. A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. The Shopping Center LUC is being used for the non-residential component of the Project since the final use has not been determined, and to provide a conservative analysis for potential commercial uses.

[1] Trip Generation Manual, 10th Edition; Institute of Transportation Engineers; Washington, D.C.; 2017.

However, it should be noted that a shopping center is not being considered as a potential use. Calculations of the number of trips are based on ITE's average rate per 1,000 sf.

2.4.6 Mode Share

A mode share is the percentage of trips at a site using various methods of transportation such as vehicle, transit, or walking/biking. The residential mode share is based on the American Community Survey (ACS)[2] data for the Census Tract 813. The data reported from the ACS contains home to work based trips. The commercial mode share is based on data provided from BTD for different areas in Boston. The Project is in Area 6 – Jamaica Plain. The unadjusted vehicular trips were converted to person trips by using vehicle occupancy rates published by the Federal Highway Administration (FHWA)[3]. The person trips were then distributed to different modes according to the mode shares shown in Table 2-2.

Table 2-2 Travel Mode Share

Land Use	*Walk/Bicycle Share*	*Transit Share*	*Auto Share*	*Vehicle Occupancy Rate*
Residential[1]	6%	55%	39%	1.18
Commercial[2]	24%	15%	61%	1.82

1. Based on American Community Survey 2017 5-year estimates for Census Tract 813
2. Based on mode shares provided by BTD for Area 6 – Jamaica Plan

2.4.7 Project Trip Generation

The mode share percentages shown in Table 2-2 were applied to the number of person trips to develop walk/bicycle, transit, and vehicle trip generation estimates for the Project. Vehicular activity was observed utilizing the existing site driveway. The site is therefore currently generating traffic on the area roadways. However, in order to provide a conservatively high analysis, this study did not determine a net trip generation increase and instead assumes the existing site is not generating any traffic. The trip generation for the Project by mode is shown in Table 2-3. The detailed trip generation information is provided in Appendix B.

[2] American Community Survey 5-Year Estimates (2013-2017) Table: B08006 Means of Transportation to Work, Census Tract 813.

[3] Summary of Travel Trends: 2017 National Household Travel Survey; FHWA; Washington, D.C.; June 2017.

Table 2-3 Project Trip Generation

Land Use		*Walk/Bicycle Trips*	*Transit Trips*	*Vehicle Trips*
Daily				
Residential[1]	In	13	114	69
	Out	13	114	69
	Total	26	228	138
Commercial[2]	In	33	21	46
	Out	33	21	46
	Total	66	42	92
Total	In	46	135	115
	Out	46	135	115
	Total	92	270	230
a.m. Peak Hour				
Residential[1]	In	0	4	3
	Out	1	11	7
	Total	1	15	10
Commercial[2]	In	1	1	1
	Out	1	0	1
	Total	2	1	2
Total	In	1	5	4
	Out	2	11	8
	Total	3	16	12
p.m. Peak Hour				
Residential[1]	In	1	11	7
	Out	1	7	4
	Total	2	18	11
Commercial[2]	In	3	2	4
	Out	4	2	5
	Total	7	4	9
Total	In	4	13	11
	Out	5	9	9
	Total	9	22	20

1. ITE Trip Generation, 10th Edition, LUC 221 (Multifamily Housing Mid--Rise), 65 units, average rate
2. ITE Trip Generation, 10th Edition, LUC 820 (Shopping Center), 4,000 square feet.

As shown in Table 2-3, during the a.m. peak hour, there is expected to be 12 new vehicle trips, approximately one every five minutes, (4 entering and 8 exiting), 16 new transit trips (5 alighting and 11 boarding), and 3 new pedestrian/bicycle trips (1 entering and 2 exiting). During the p.m.

peak hour, there is expected to be 20 new vehicle trips, approximately one every three minutes, (11 entering and 9 exiting), 22 new transit trips (13 alighting and 9 boarding), and 9 new pedestrian/bicycle trips (4 entering and 5 exiting).

2.4.8 Trip Distribution

The trip distribution identifies the various travel paths for vehicles associated with the Project. Trip distribution patterns for the Project were based on BTD's origin-destination data for Area 6 – Jamaica Plain and trip distribution patterns presented in traffic studies for nearby projects. The trip distribution patterns for the Project are illustrated in Figure 2-11.

2.4.9 Build Traffic Volumes

The vehicle trips were distributed through the study area. The Project-generated trips for the a.m. and p.m. peak hours are shown in Figure 2-12. The trip assignments were added to the No-Build (2026) Condition vehicular traffic volumes to develop the Build (2026) Condition vehicular traffic volumes. The Build (2026) Condition a.m. and p.m. peak hour traffic volumes are shown on Figure 2-13.

2.5 Traffic Operations Analysis

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

LOS designations are based on average delay per vehicle for all vehicles entering an intersection. Table 2-4 displays the intersection LOS criteria. LOS A indicates the most favorable condition, with minimum traffic delay, while LOS F represents the worst condition, with significant traffic delay. LOS D or better is typically considered acceptable in an urban area. However, LOS E or F is often typical for a stop controlled minor street that intersects a major roadway.

Table 2-4 Vehicle Level of Service Criteria

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

Source: 2010 Highway Capacity Manual, Transportation Research Board.

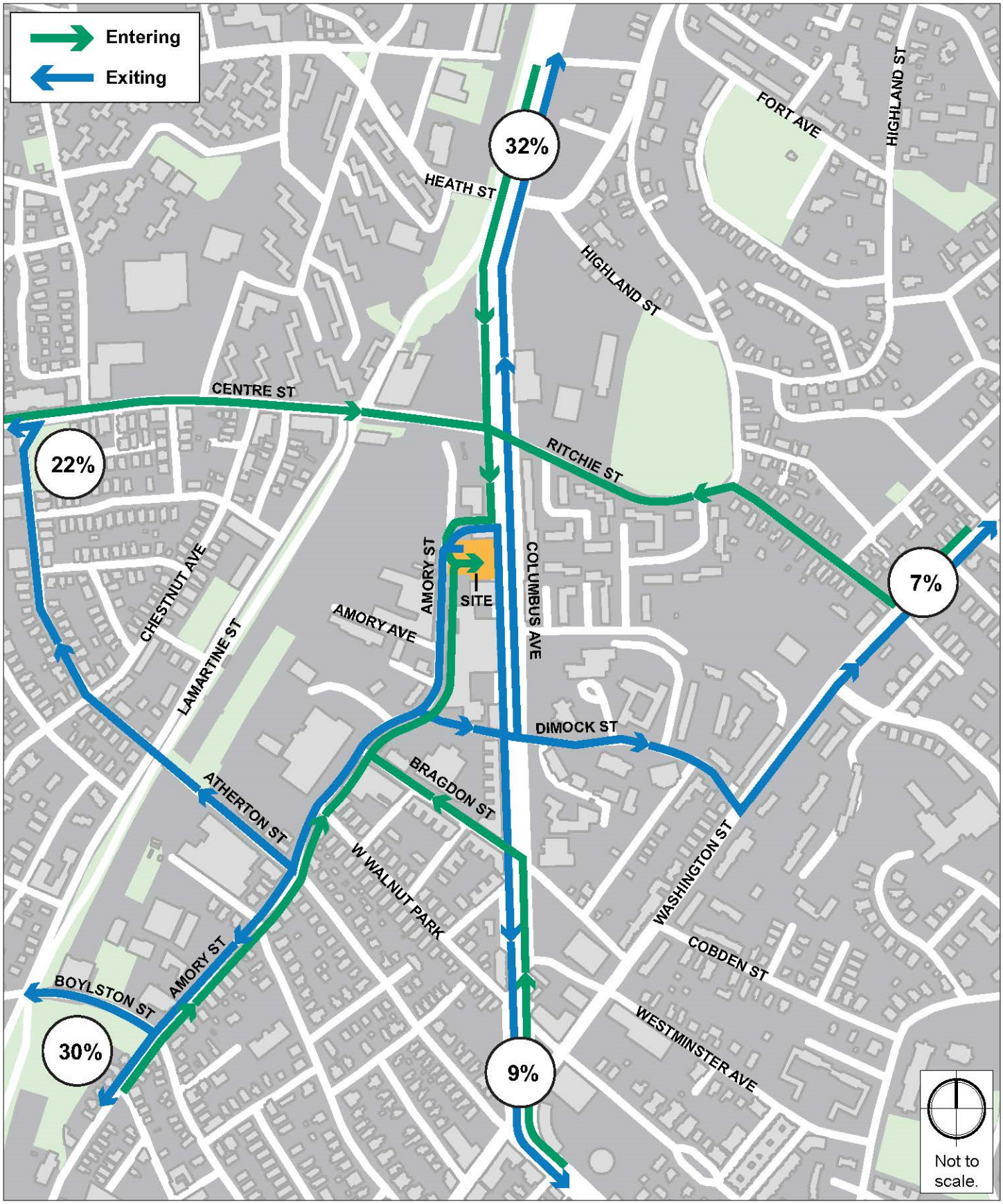

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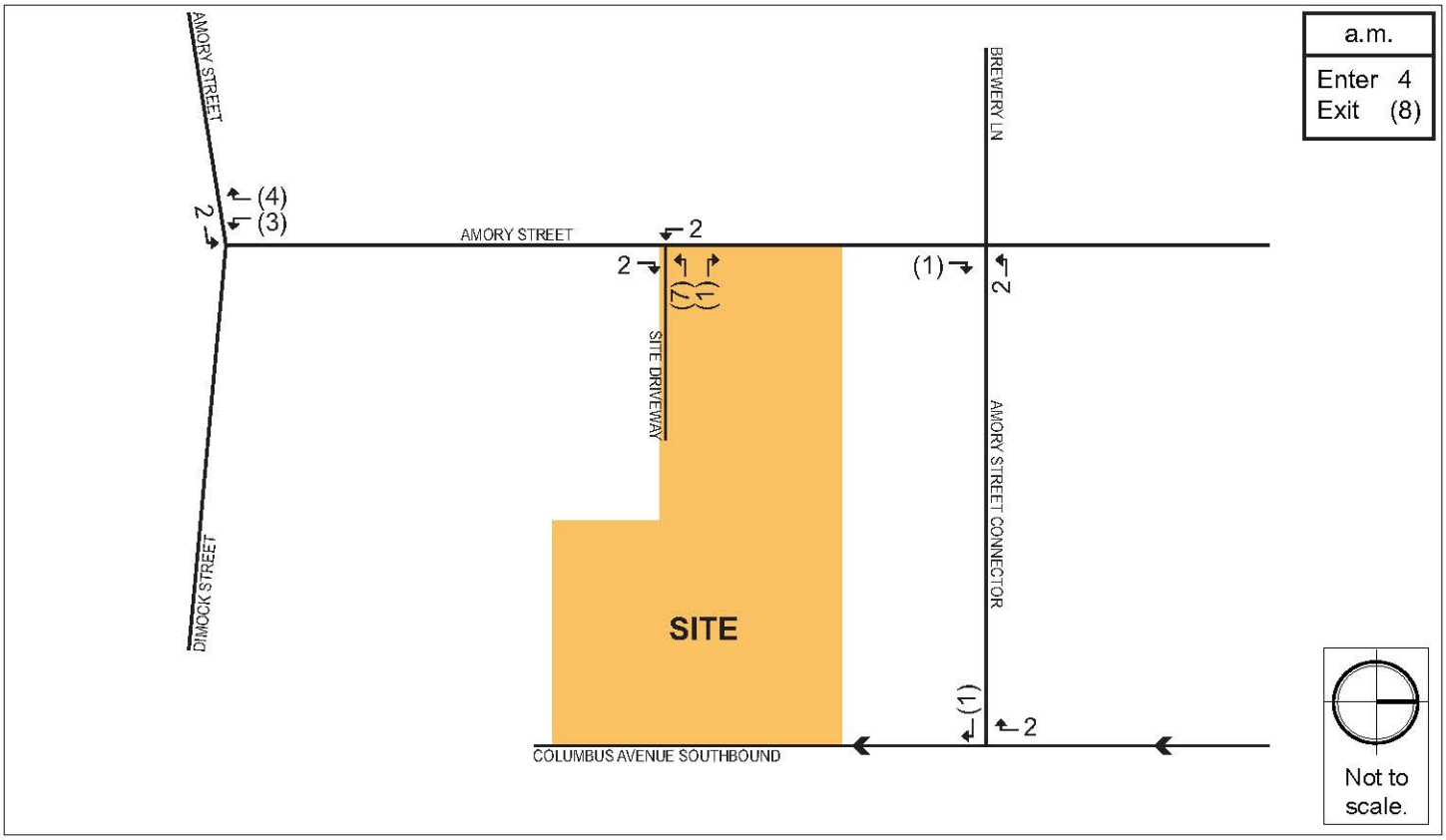
Figure 2-11
Trip Distribution



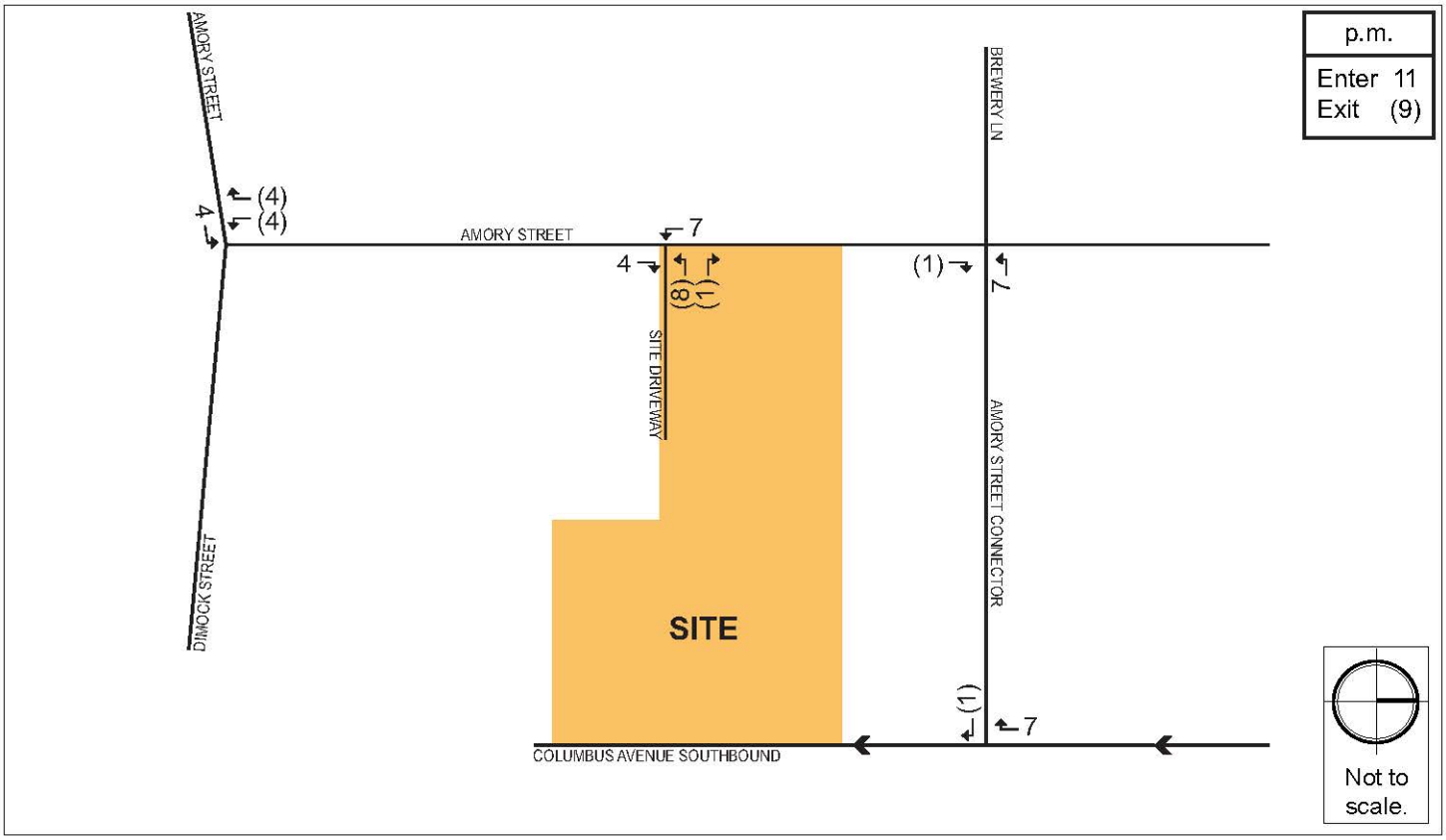


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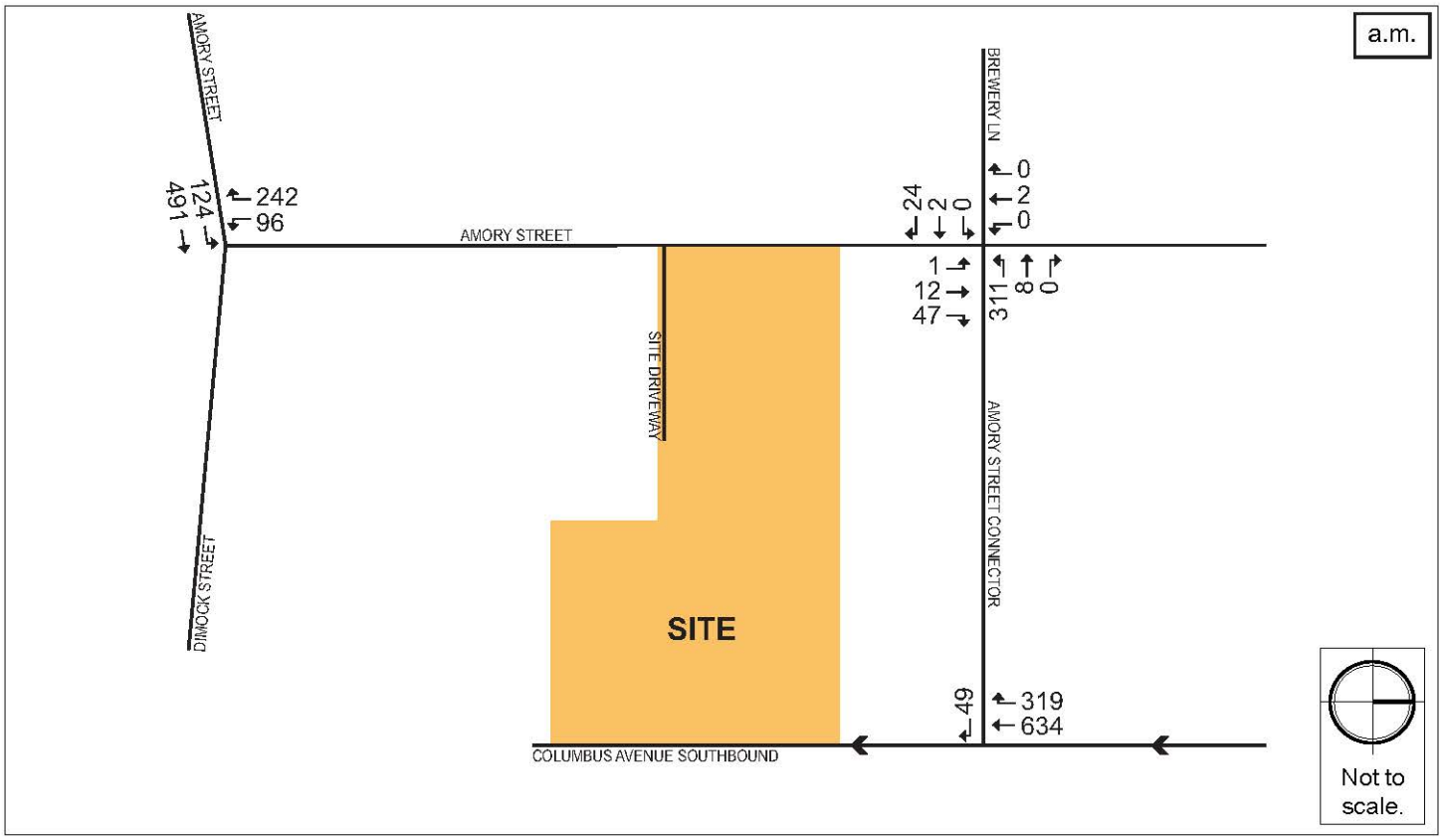
Figure 2-12

Project-generated Vehicle Trips, Weekday a.m. and p.m. Peak Hours



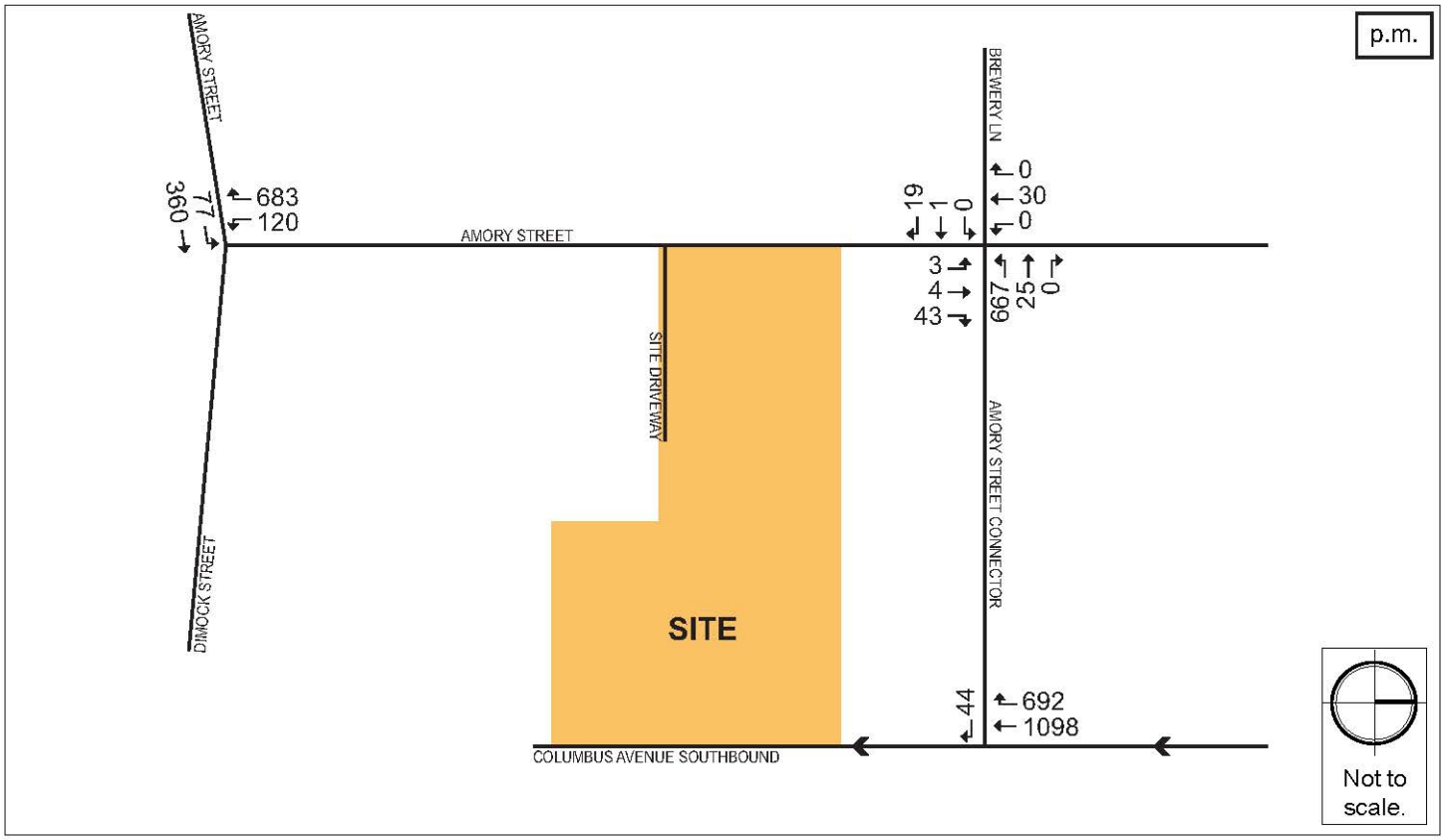


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Figure 2-13

Build (2026) Condition Traffic Volumes, Weekday a.m. and p.m. Peak Hours

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

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

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

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

Table 2-5 summarize the Existing (2019) Condition, the No-Build (2026) Condition, and the Build (2026) Condition capacity analysis for the study area intersection during the weekday a.m. and p.m. peak hours. The detailed analysis of the Synchro results is provided in Appendix B.

Table 2-5 Capacity Analysis Summary, Weekday a.m. and p.m. Peak Hours

Intersection/Movement	Existing (2019) Condition				No-Build (2026) Condition				Build (2026) Condition			
	LOS	Delay (s)	V/C Ratio	95th %ile Queue (ft)	LOS	Delay (s)	V/C Ratio	95th %ile Queue (ft)	LOS	Delay (s)	V/C Ratio	95th %ile Queue (ft)
Weekday a.m. Peak Hour												
Columbus Ave SB/ Amory St Conn	-	-	-	-	-	-	-	-	-	-	-	-
Amory St Conn EB R	B	13.4	0.12	10	B	14.3	0.14	13	B	14.4	0.14	13
Columbus Ave SB T | T/R	A	0.0	0.00	0	A	0.0	0.00	0	A	0.0	0.00	0
Amory St/Amory St Conn/Brewery Ln	-	-	-	-	-	-	-	-	-	-	-	-
Brewery Ln EB L/T/R					A	8.5	0.03	3	A	8.5	0.03	3
Amory St Conn WB L/T/R	A	9.6	0.20	18	B	11.3	0.38	45	B	11.3	0.38	45
Amory St NB L/T/R	A	0.0	0.00	0	A	0.1	0.00	0	A	0.1	0.00	0
Amory St SB L/T/R	A	0.0	0.00	0	A	0.0	0.00	0	A	0.0	0.00	0
Amory St/Dimock St	-	-	-	-	-	-	-	-	-	-	-	-
Amory Street EB L/T	B	13.9	0.60	100	A	1.5	0.08	8	A	1.5	0.08	8
Dimock Street WB T/R	A	8.3	0.07	5								
Amory Street SB L/R	A	9.2	0.26	25	C	17.9	0.58	93	C	18.5	0.60	100
Weekday p.m. Peak Hour												
Columbus Ave SB/ Amory St Conn	-	-	-	-	-	-	-	-	-	-	-	-
Amory St Conn EB R	C	22.6	0.22	20	D	26.0	0.25	25	D	26.2	0.26	25
Columbus Ave SB T | T/R	A	0.0	0.00	0	A	0.0	0.00	0	A	0.0	0.00	0
Amory St/Amory St Conn/Brewery Ln	-	-	-	-	-	-	-	-	-	-	-	-
Brewery Ln EB L/T/R					A	8.6	0.02	3	A	8.6	0.02	3
Amory St Conn WB L/T/R	B	12.2	0.47	65	D	26.0	0.84	250	D	26.9	0.85	258
Amory St NB L/T/R	A	0.0	0.00	0	A	0.4	0.00	0	A	0.4	0.00	0
Amory St SB L/T/R	A	0.0	0.00	0	A	0.0	0.00	0	A	0.0	0.00	0
Amory St/Dimock St	-	-	-	-	-	-	-	-	-	-	-	-
Amory Street EB L/T	C	15.7	0.57	93	A	1.2	0.05	5	A	1.3	0.05	5
Dimock Street WB T/R	B	11.3	0.32	33								
Amory Street SB L/R	C	16.2	0.64	115	E	41.8	0.95	383	E	45.8	0.97	408

Grey Shading indicates LOS E or F in the Existing (2019) Condition or a decrease to LOS E or LOS F in the No-Build (2026) Condition and Build (2026) Condition.

Black Shading indicates approach does not exist.

At the intersection of Columbus Avenue Southbound/Amory Street Connector, the Amory Street Connector eastbound right movement operates at a LOS B during the weekday a.m. peak hour and at LOS C during the weekday p.m. peak hour. Under the No-Build (2026) Condition, the Amory Street Connector eastbound right movement continues to operate at LOS B during the weekday a.m. peak hour and decreases to LOS D during the weekday p.m. peak hour. Under the Build (2026) Condition, there will be no changes to the LOS grade at any approaches. The longest queue is expected to occur at the Amory Street Connection eastbound approach during the weekday p.m. peak hour and extends approximately 25 feet (approximately 1 vehicle).

At the intersection of Amory Street/Amory Street Connector/Brewery Lane, the Amory Street Connector westbound movement operates at a LOS A during the weekday a.m. peak hour and at LOS B during the weekday p.m. peak hour. Under the No-Build (2026) Condition, a new eastbound approach will be constructed called Brewery Lane. The Amory Street Connector movement will decrease to LOS B during the weekday a.m. peak hour and to LOS D during the weekday p.m. peak hour. Under the Build (2026) Condition, there will be no changes to the LOS grade at any approaches. The longest queue is expected to occur at the Amory Street Connector westbound approach during the weekday p.m. peak hour and extend approximately 258 feet (10 vehicles).

At the intersection of Amory Street/Dimock Street, the Amory Street eastbound movement operates at a LOS B during weekday a.m. peak hour and the Amory Street southbound movement operates at LOS C during the weekday p.m. peak hour. Under the No-Build (2026) Condition, Dimock Street is proposed to become one-way in the eastbound direction, therefore eliminating the westbound approach at the intersection. The Amory Street eastbound movement will also operate under free control. The Amory Street southbound movement will operate at LOS C during the weekday a.m. peak hour and at LOS E during the weekday p.m. peak hour. Under the Build (2026) Condition, there will be no changes to the LOS grade at any approaches. The longest queue is expected to occur at the Amory Street southbound approach during the weekday p.m. peak hour and extend approximately 408 feet (16 vehicles).

2.6 Transportation Demand Management

The Proponent is committed to implementing TDM measures to minimize automobile usage and Project-related traffic impacts.

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

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

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

Transportation Coordinator: The Proponent will designate a Transportation Coordinator to oversee parking, loading, and move-in/move-out operations as well as promote the use of alternative transportation measures and carpooling.

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

Transit Pass Program: Promote to commercial tenants (if any) that, as employers, they can save on payroll-related taxes and provide employee benefits when they offer subsidized public transportation as a transportation benefit.

Vehicle Sharing Program: The Proponent will explore the feasibility of providing spaces in the parking area for a car sharing service.

Bicycle Accommodation: The Proponent will provide one secured, covered bicycle parking space per unit to encourage bicycling as an alternative mode of transportation.

2.7 Transportation Mitigation Measures

Although the traffic impacts associated with the new trips from the Project are minimal (generating one trip every three to five minutes during the peak hours), the Proponent will continue to work with the City so that the Project efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. As part of the Project, the Proponent will bring all abutting sidewalks and pedestrian ramps to City standards in accordance with the Boston Complete Streets design guidelines. This may include the reconstruction and widening of the sidewalks where possible, the installation of new, accessible ramps where necessary, improvements to street lighting where necessary, planting of street trees, and providing bicycle storage racks surrounding the site, where appropriate.

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

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

2.8 Evaluation of Short-term Construction Impacts

Most construction activities will be accommodated within the current Project site boundaries. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be addressed in detail in a CMP to be filed with BTD in accordance with the City's transportation maintenance plan requirements. The CMP will document all committed measures and will be executed with the City prior to commencement of construction.

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

- Limited construction worker parking on-site;
- Encouragement of worker carpooling;
- Providing secure spaces on-site for workers' supplies and tools so they do not have to be brought to the site each day; and
- Designation of truck routes for deliveries.

Chapter 3.0

Environmental Review Component

3.0 ENVIRONMENTAL REVIEW COMPONENT

3.1 Wind

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

The Project is similar in height to the proposed, under construction and new developments in the surrounding area, as well as some existing buildings. Due to the Project's height and existing and expected development conditions in the surrounding area, significant wind impacts to the pedestrian environment are not currently anticipated.

3.2 Shadow

3.2.1 Introduction and Methodology

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

The shadow analysis presents the existing shadow and new shadow that is anticipated to be created by the proposed Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the Project site. It should be noted that the shadow graphics do not account for existing or proposed trees. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 3-1 to 3-14.

The results of the analysis show that new shadow from the Project will generally be limited to nearby streets and sidewalks. Of the 14 time periods studied, no new shadow will be cast onto existing open space or bus stops in the vicinity of the Project.

1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-1
Shadow Study, March 21, 9:00 a.m.

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Figure 3-2
Shadow Study, March 21, 12:00 p.m.

1599 Columbus Avenue Boston, Massachusetts

utile

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

1599 Columbus Avenue Boston, Massachusetts

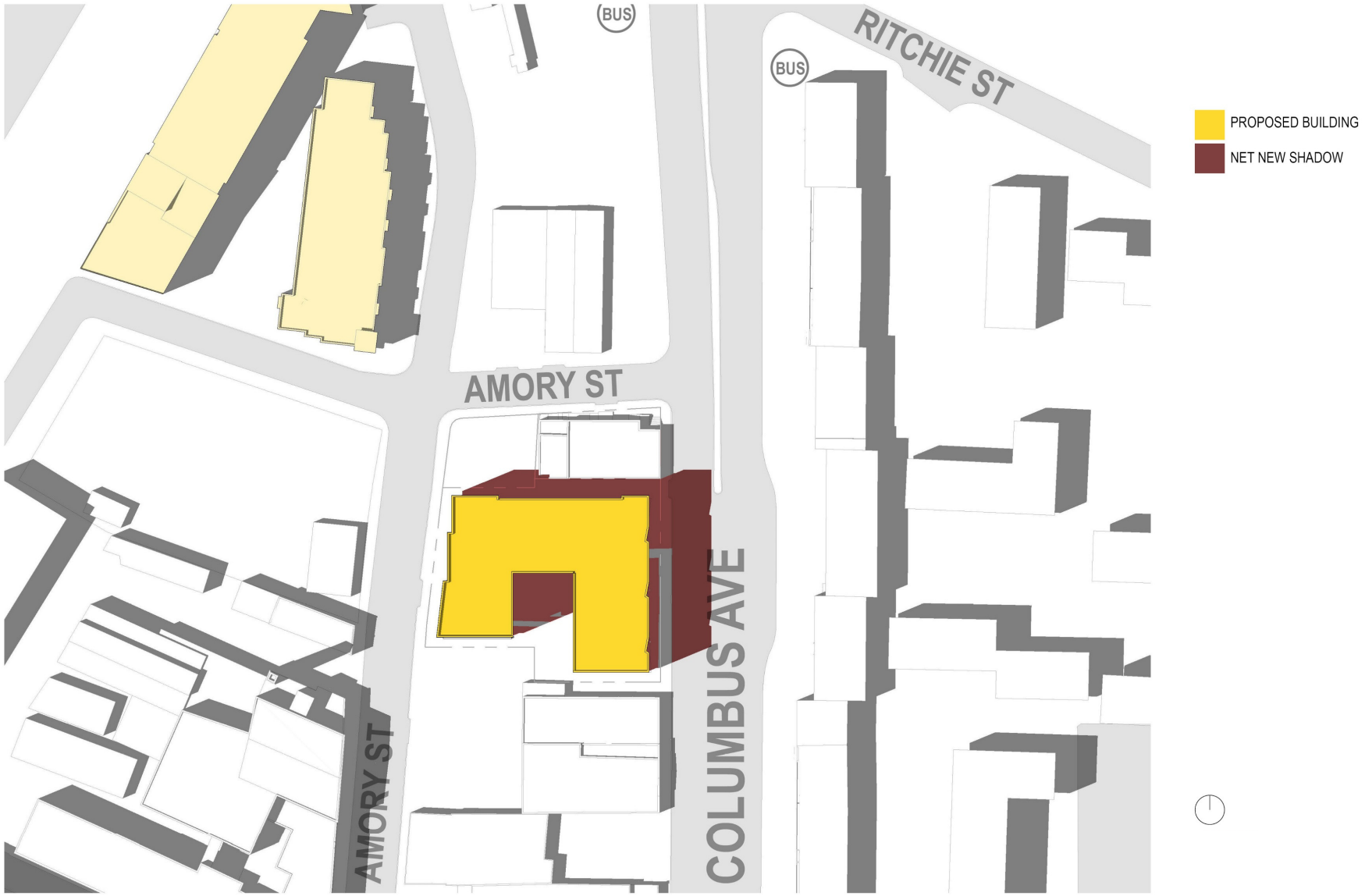
utile

Figure 3-4
Shadow Study, June 21, 9:00 a.m.

1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-5
Shadow Study, June 21, 12:00 p.m.



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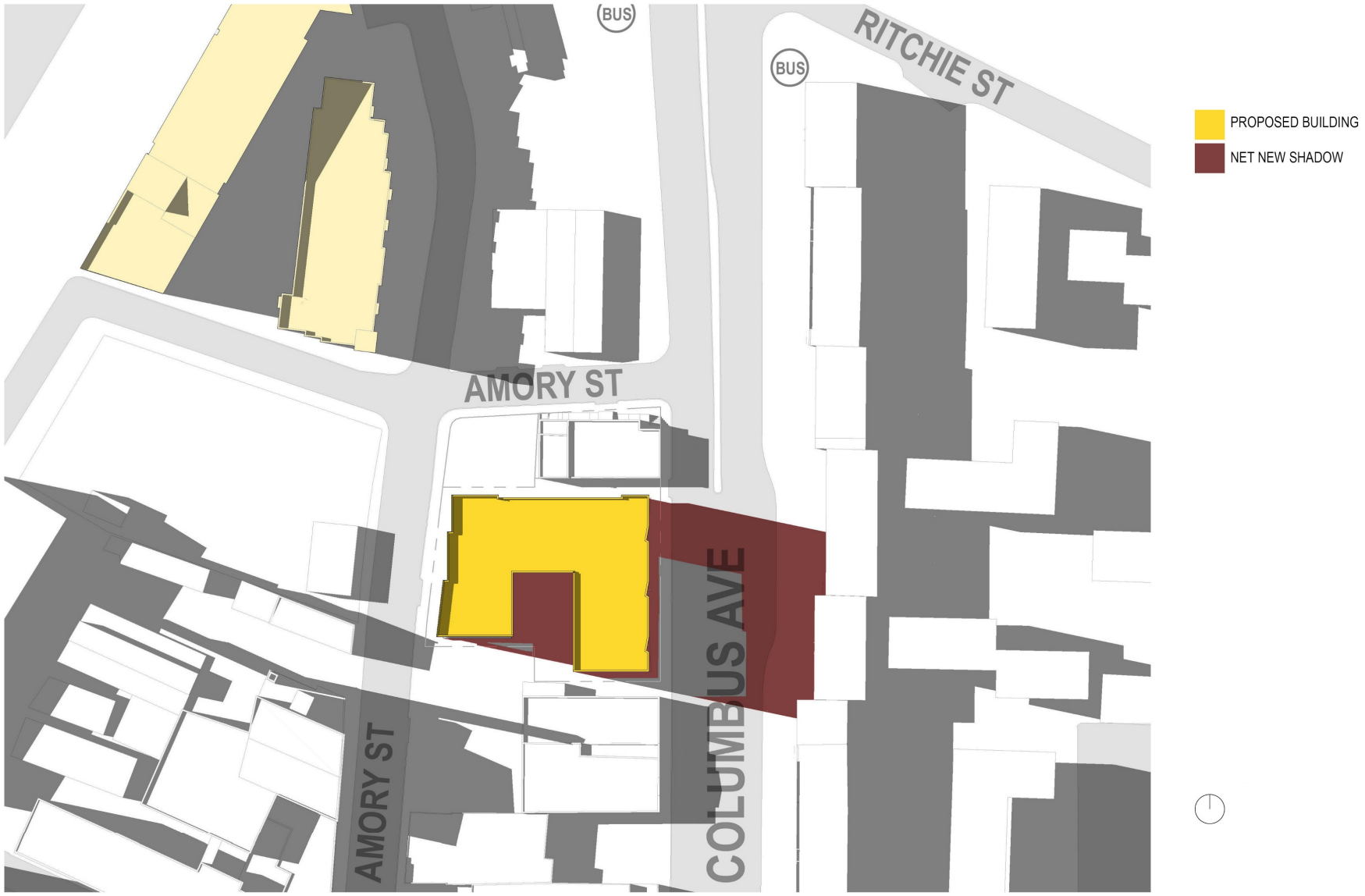
utile

Figure 3-6
Shadow Study, June 21, 3:00 p.m.



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utile

Figure 3-7
Shadow Study, June 21, 6:00 p.m.

1599 Columbus Avenue Boston, Massachusetts

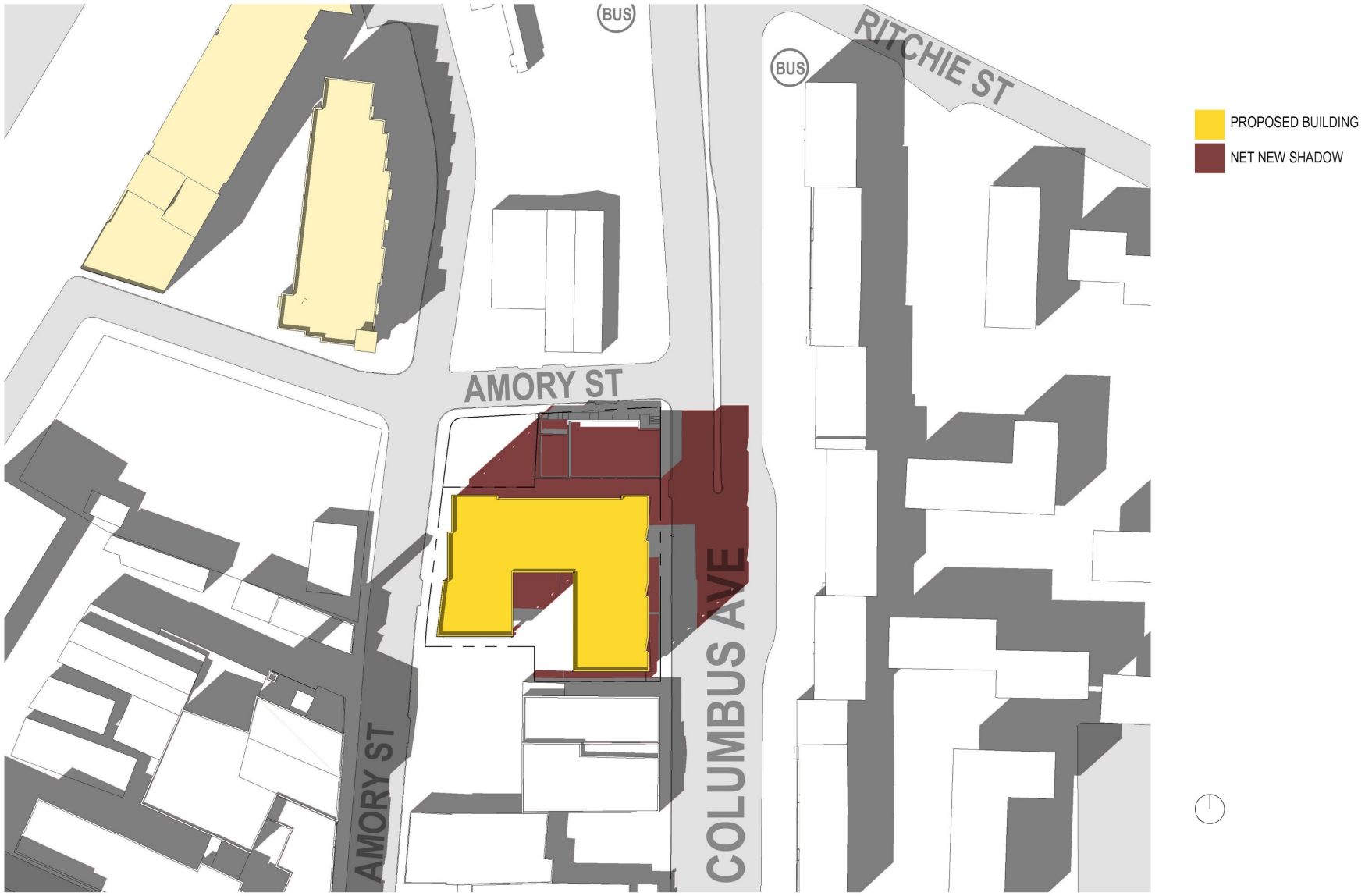
utile

Figure 3-8
Shadow Study, September 21, 9:00 a.m.

1599 Columbus Avenue Boston, Massachusetts

utile

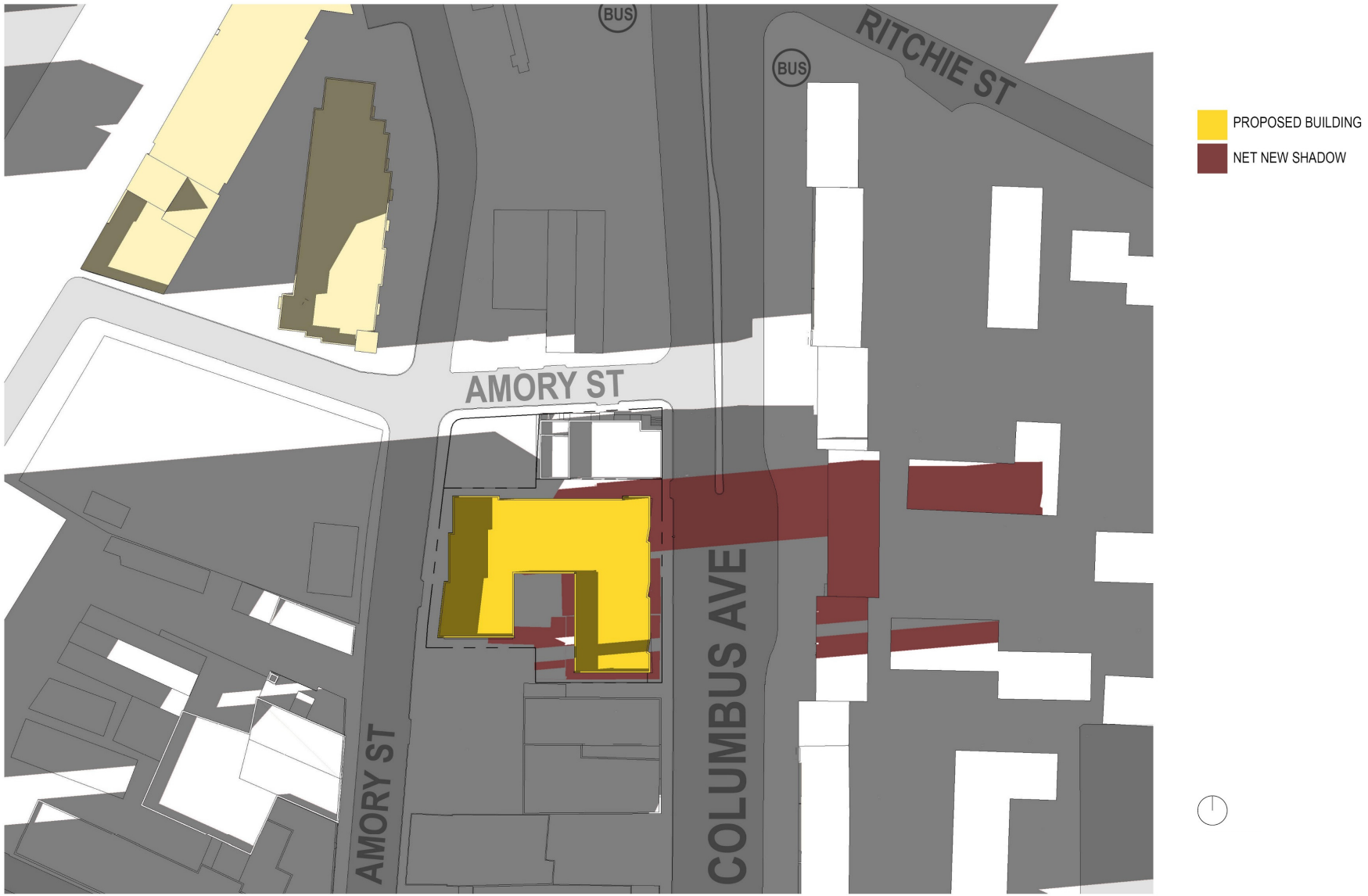
Figure 3-9
Shadow Study, September 21, 12:00 p.m.



1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-10
Shadow Study, September 21, 3:00 p.m.



1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-11
Shadow Study, September 21, 6:00 p.m.

1599 Columbus Avenue Boston, Massachusetts

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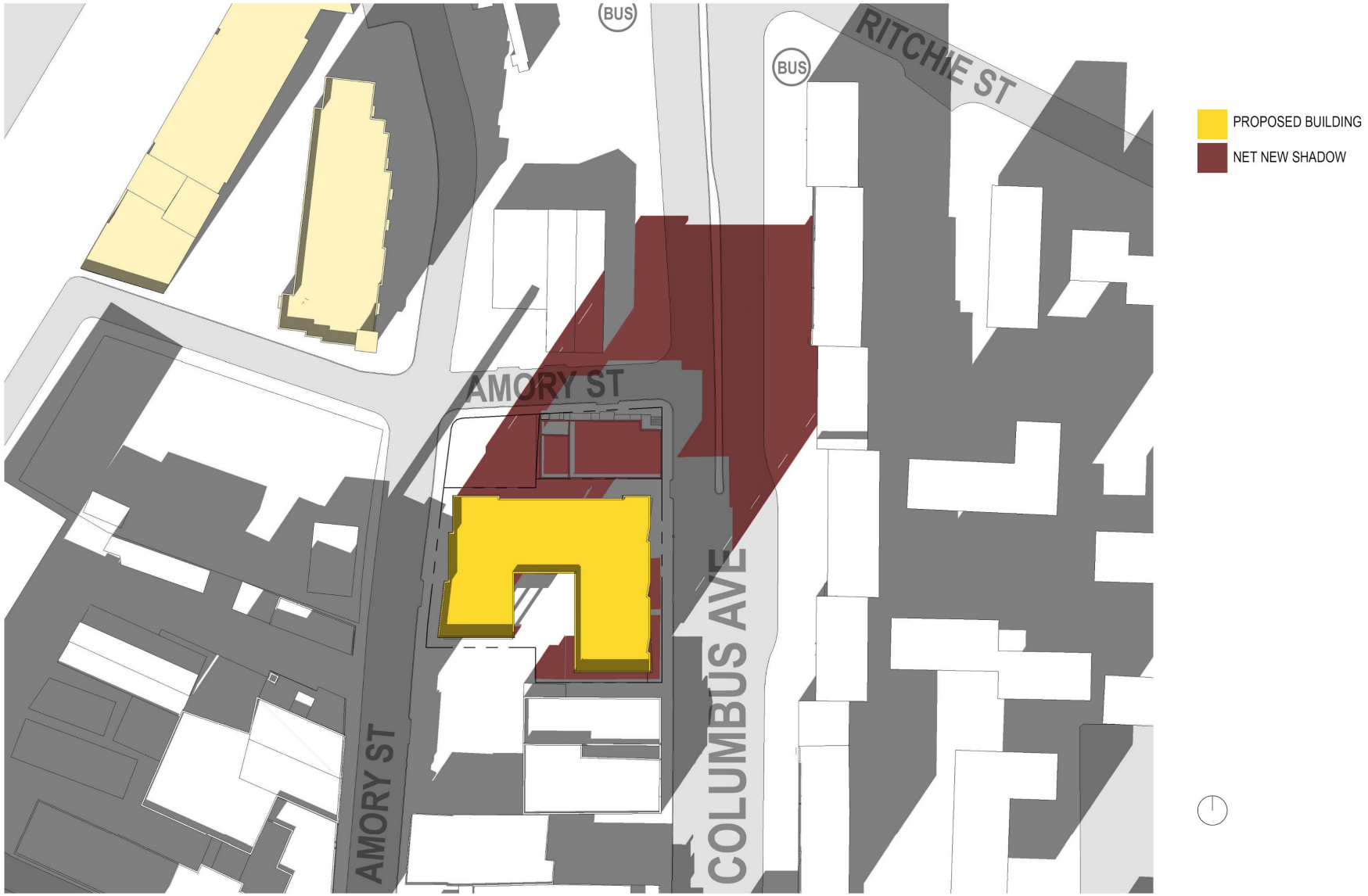
Figure 3-12
Shadow Study, December 21, 9:00 a.m.

1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-13
Shadow Study, December 21, 12:00 p.m.



1599 Columbus Avenue Boston, Massachusetts

utile

Figure 3-14
Shadow Study, December 21, 3:00 p.m.

3.2.2 Vernal Equinox (March 21)

At 9:00 a.m. during the vernal equinox, new shadow will be cast to the west onto Amory Street and its sidewalks. No new shadow will be case onto nearby bus stops or open space.

At 12:00 p.m., new shadow will be cast to the north onto Amory Street to the west and north, as well as its sidewalks closest to the Project site. No new shadow will be cast onto nearby bus stops or open space.

At 3:00 p.m., new shadow will be cast to the northeast onto a portion Amory Street and its southern sidewalk to the north of the Project site, as well as Columbus Avenue and its western sidewalk. No new shadow will be cast onto nearby bus stops or open space.

3.2.3 Summer Solstice (June 21)

At 9:00 a.m. during the summer solstice, new shadow will be cast to the west across Amory Street and its sidewalks. No new shadow will be cast onto nearby bus stops or open space.

At 12:00 p.m., minimal new shadow will be cast to the northwest onto a minor portion of Amory Street and the sidewalk adjacent to the west side of the Project site. No new shadow will be cast onto nearby bus stops or open space.

At 3:00 p.m., minimal new shadow will be cast to the northeast onto a portion of Columbus Avenue and its western sidewalk. No new shadow will be cast onto nearby bus stops or open space.

At 6:00 p.m., new shadow will be cast to the southeast across Columbus Avenue and its sidewalks. No new shadow will be cast onto nearby bus stops or open space.

3.2.4 Autumnal Equinox (September 21)

At 9:00 a.m. during the vernal equinox, new shadow will be cast to the west onto Amory Street and its sidewalks. No new shadow will be case onto nearby bus stops or open space.

At 12:00 p.m., new shadow will be cast to the north onto Amory Street to the west and north, as well as its sidewalks closest to the Project site. No new shadow will be cast onto nearby bus stops or open space.

At 3:00 p.m., new shadow will be cast to the northeast onto a portion Amory Street and its southern sidewalk to the north of the Project site, as well as Columbus Avenue and its western sidewalk. No new shadow will be cast onto nearby bus stops or open space.

At 6:00 p.m., new shadow will be cast to the west across Columbus Avenue and its sidewalks. No new shadow will be cast onto nearby bus stops or open space.

3.2.5 Winter Solstice (December 21)

At 9:00 a.m. during the winter solstice, new shadow will be cast to the northwest Amory Street and its sidewalks. No new shadow will be cast onto nearby bus stops or open space.

At 12:00 p.m., new shadow will be cast to the will be cast to the north onto Amory Street and Old Amory Street, as well as their sidewalks. No new shadow will be cast onto nearby bus stops or open space.

At 3:00 p.m., new shadow will be cast to the northeast across Amory Street and Columbus Avenue, as well as their sidewalks. No new shadow will be cast onto nearby bus stops or open space.

3.2.6 Conclusions

The shadow impact analysis looked at net new shadow created by the Project during 14 time periods. New shadow will be limited to the Project site, and the surrounding streets and sidewalks. During all time periods studied, no new shadow will be cast onto nearby bus stops or open space.

3.3 Daylight Analysis

3.3.1 Introduction

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and the sidewalks in the immediate vicinity of a project site.

3.3.2 Methodology

The daylight analysis was performed using the Boston Redevelopment Authority Daylight Analysis (BRADA) computer program[1]. This program measures the percentage of sky dome that is obstructed by a project and is a useful tool in evaluating the net change in obstruction from existing to build conditions at a specific site.

Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent city streets or pedestrian ways centered on the proposed building. The façade of the building facing the viewpoint, including heights, setbacks, corners and other features, is plotted onto a base map using lateral and elevation angles. The two-dimensional base map generated by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of 0 to 100 percent based on the width of the view, the distance between the viewpoint and the building,

[1] Method developed by Harvey Bryan and Susan Stuebing, computer program developed by Ronald Fergle, Massachusetts Institute of Technology, Cambridge, MA, September 1984.

and the massing and setbacks incorporated into the design of the building; the lower the number, the lower the percentage of obstruction of daylight from any given viewpoint.

Three viewpoints were chosen to evaluate the daylight obstruction for the proposed conditions, one from Columbus Avenue, and two from Amory Street. Three area context points were considered in order to provide a basis of comparison to existing conditions in the surrounding area. The viewpoints and area context viewpoints were taken in the following locations and are shown on Figure 3-15.

Viewpoint 1: View from the center of Columbus Avenue facing west toward the Project site.

Viewpoint 2: View from the center of Amory Street facing south toward the Project site.

Viewpoint 3: View from the center of Amory Street facing east toward the Project site.

Area Context Viewpoint AC1: View from the center of Columbus Avenue facing west toward 1705 Columbus Avenue.

Area Context Viewpoint AC2: View from the center of Amory Street facing west toward 59 Amory Street.

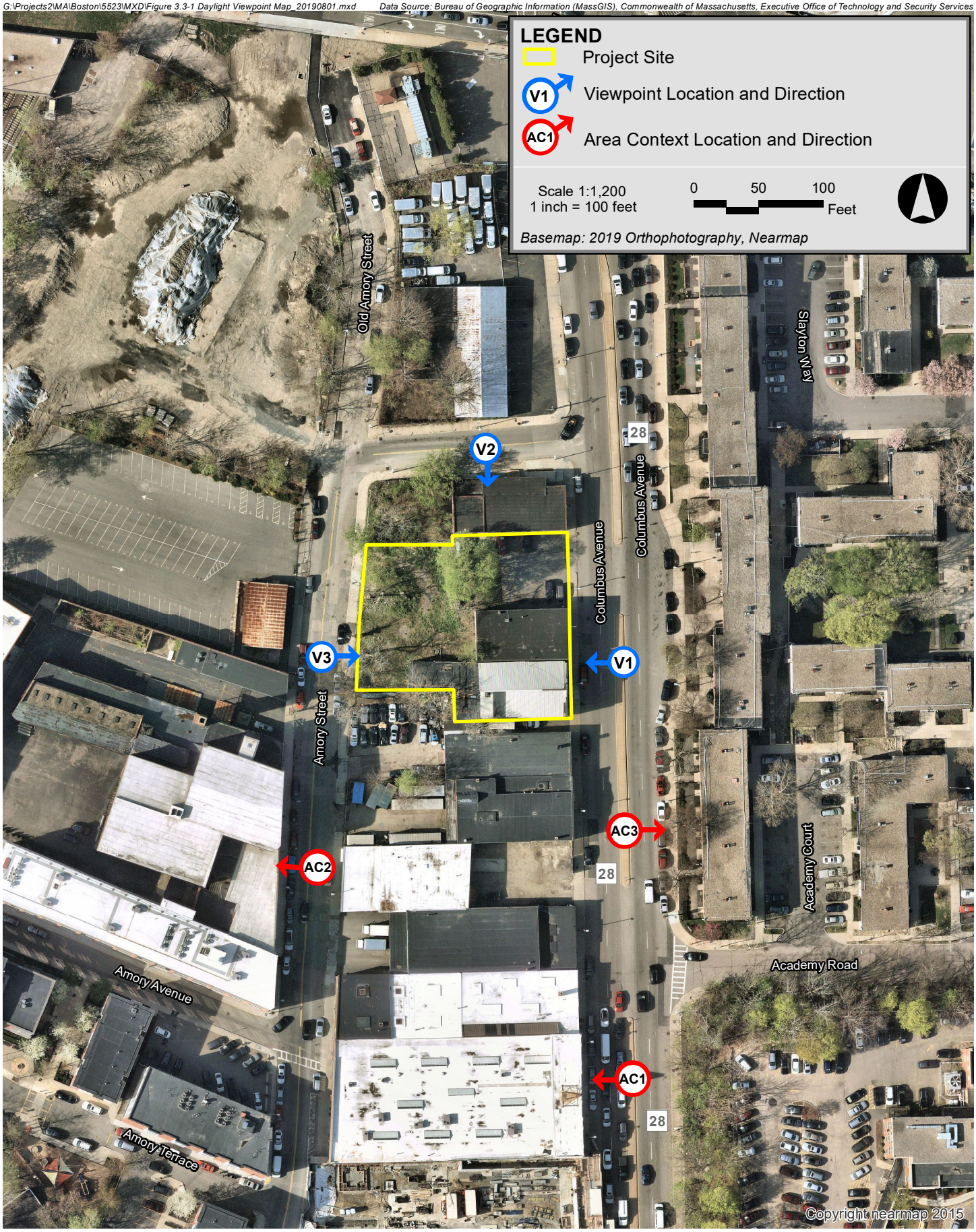
Area Context Viewpoint AC3: View from the center of Columbus Avenue facing east toward 30 Academy Court.

3.3.3 Results

The results for each viewpoint are described in Table 3-1. Figures 3-16 through 3-18 illustrate the BRADA results for each analysis.

Table 3-1 Daylight Analysis Results

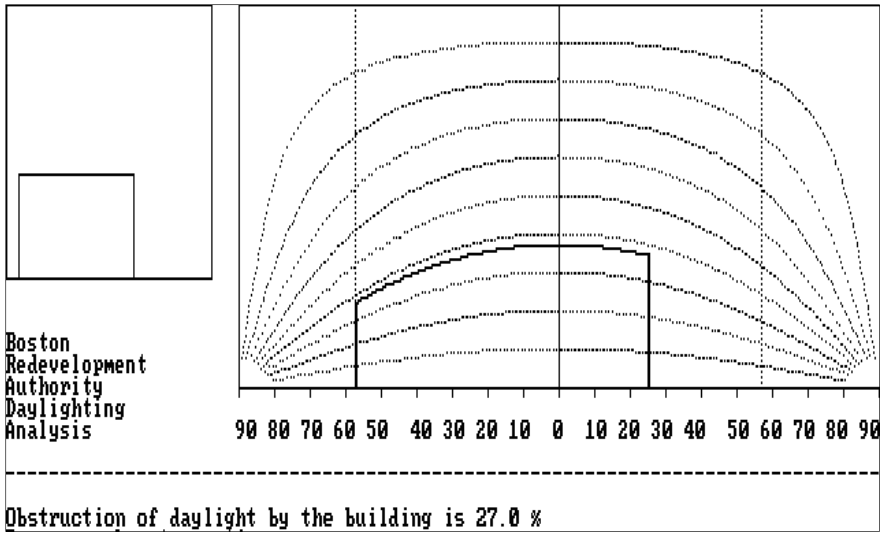
Viewpoint Locations		Existing Conditions	Proposed Conditions
Viewpoint 1	View from the center of Columbus Avenue facing west toward the Project site	27.0%	48.2%
Viewpoint 2	View from the center of Amory Street facing south toward the Project site	34.6%	35.6%
Viewpoint 3	View from the center of Amory Street facing east toward the Project site	5.7%	52.2%
Area Context Points			
AC1	View from the center of Columbus Avenue facing west toward 1705 Columbus Avenue	47.8%	N/A
AC2	View from the center of Amory Street facing west toward 59 Amory Street	72.4%	N/A
AC3	View from the center of Columbus Avenue facing east toward 30 Academy Court	43.3%	N/A



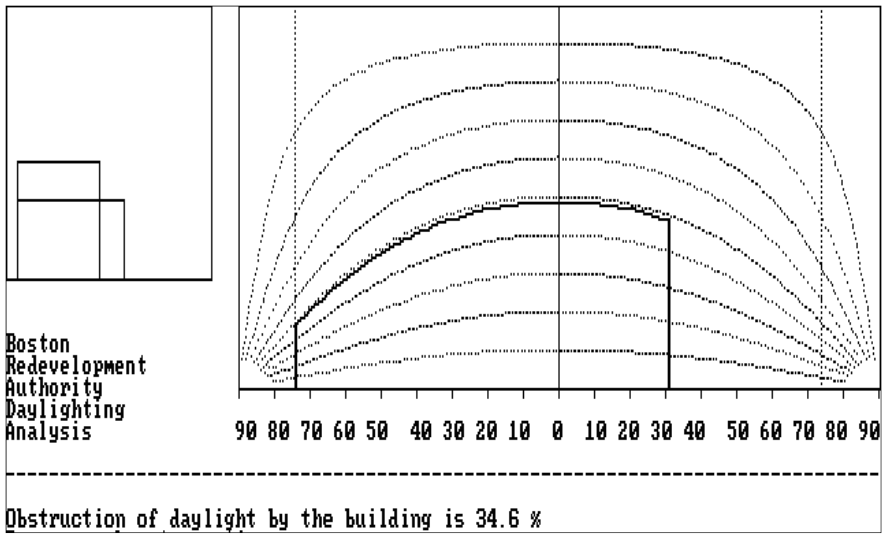
1599 Columbus Avenue Boston Massachusetts

Epsilon ASSOCIATES INC.

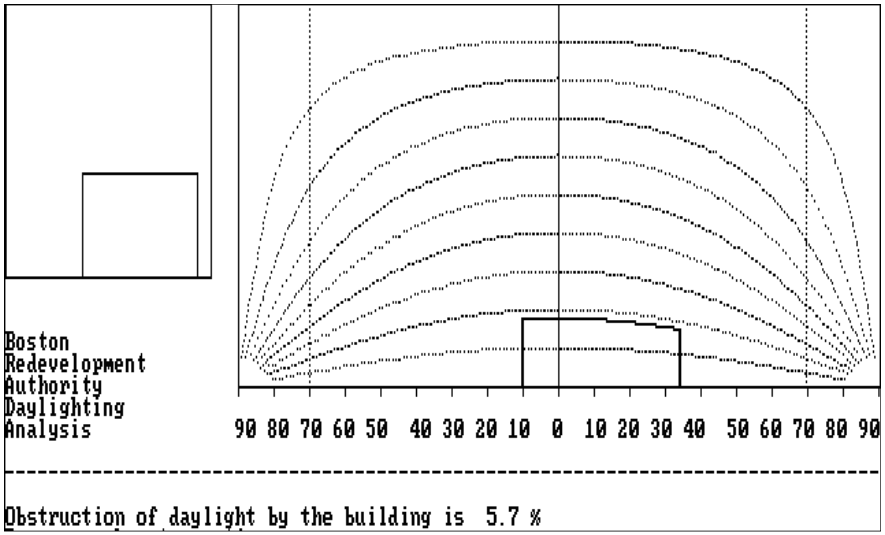
Figure 3-15
Viewpoint Locations



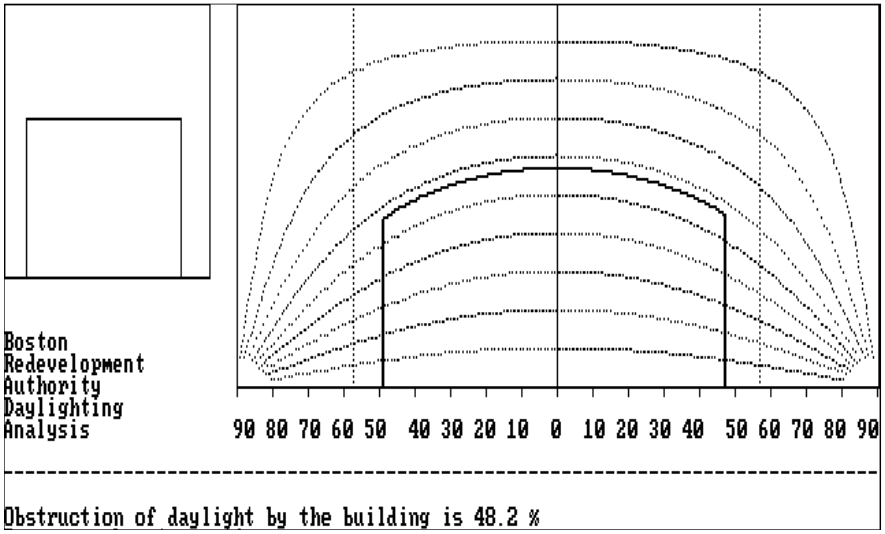
Viewpoint 1: Columbus Avenue facing west toward the Project site



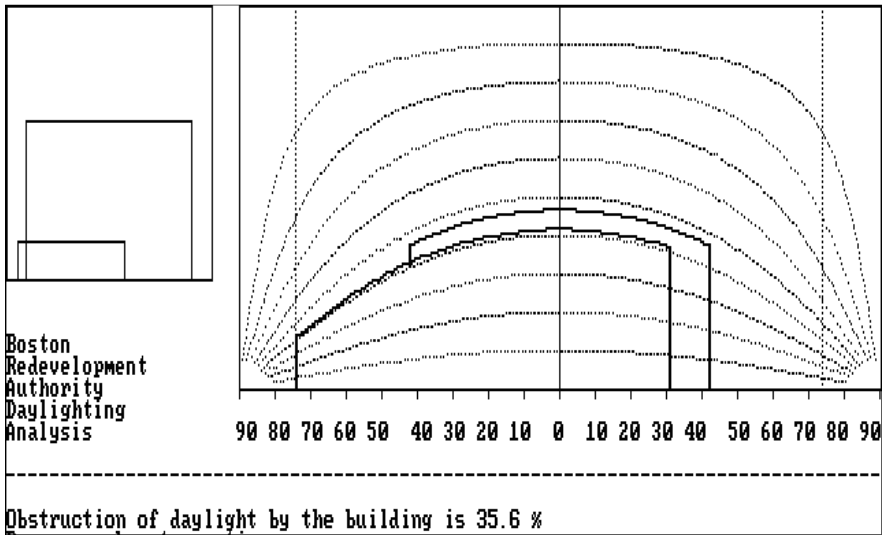
Viewpoint 2: View from Amory Street facing south toward the Project site



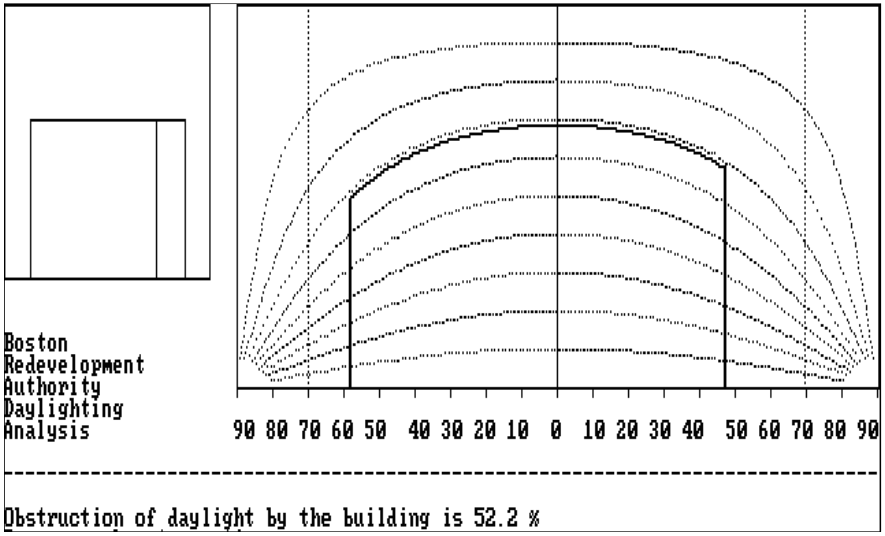
Viewpoint 3: View from Amory Street facing east toward the Project site



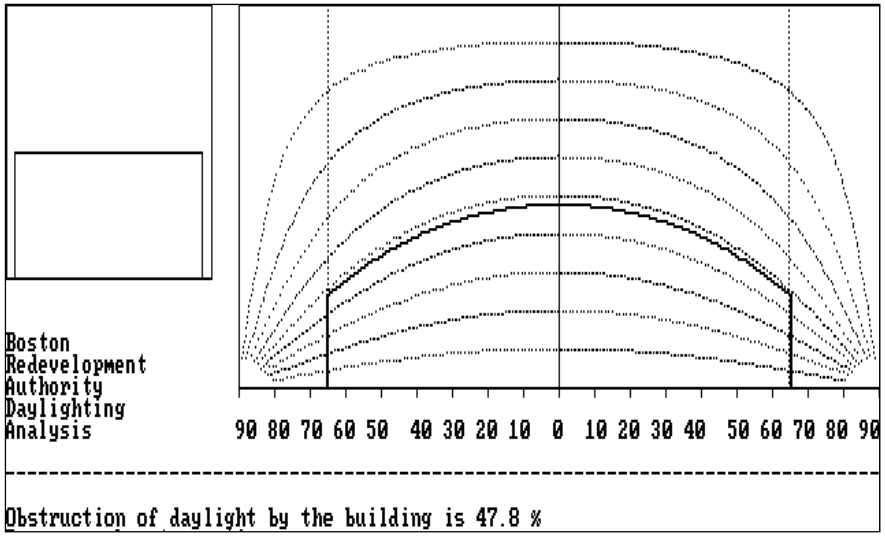
Viewpoint 1: Columbus Avenue facing west toward the Project site



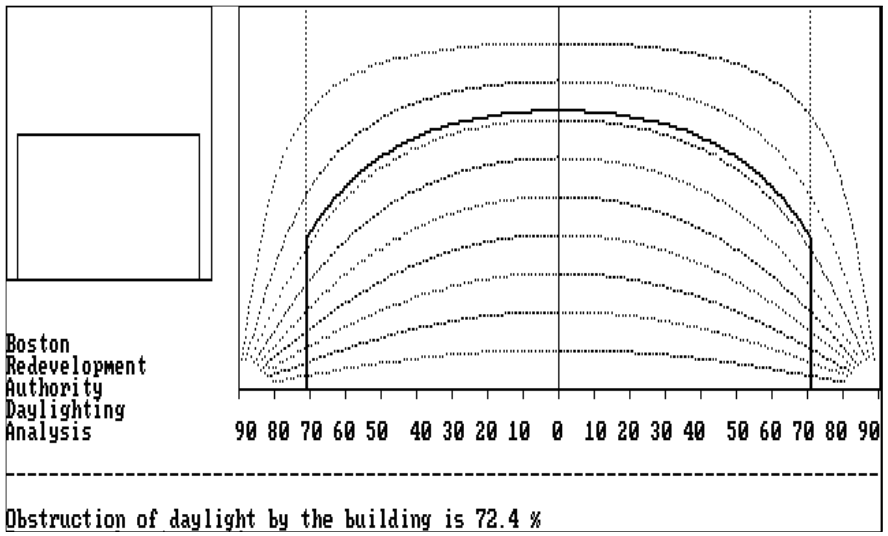
Viewpoint 2: View from Amory Street facing south toward the Project site



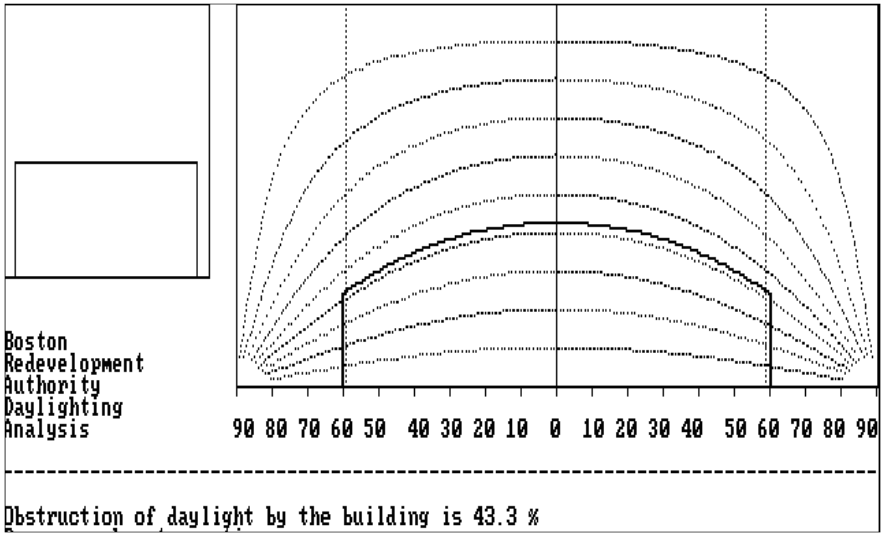
Viewpoint 3: View from Amory Street facing east toward the Project site



AC1: View from Columbus Avenue facing west toward 1705 Columbus Avenue



AC2: View from Amory Street facing west toward 59 Amory Street



AC3: View from Columbus Avenue facing east toward 30 Academy Court

Columbus Avenue – Viewpoint 1

Columbus Avenue runs along the eastern edge of the Project site. Viewpoint 1 was taken from the center of Columbus Avenue facing west toward the Project site. The development of the Project will increase the daylight obstruction value to 48.2%. While this is an increase over existing conditions, the daylight obstruction value is consistent with other buildings in the area, especially newer developments, including the Area Context buildings.

Amory Street – Viewpoints 2 and 3

Amory Street runs along the western edge of the Project site and is separated by a vacant parcel and smaller building to the north of the site. Viewpoints 2 and 3 were taken from the center of Amory Street facing south and east toward the Project site, respectively. The development of the Project will increase the daylight obstruction values to 35.6% for Viewpoint 2 and 52.2% for Viewpoint 3. While this is an increase over existing conditions, the daylight obstruction value is consistent with other newer buildings in the area, including the Area Context buildings.

Area Context

The Project area consists primarily of low- to mid-rise commercial and residential buildings and surface parking lots, but has seen an increase in development that has included taller residential buildings over the past decade. To provide a larger context for comparison of daylight conditions, obstruction values were calculated for the three Area Context viewpoints described above and shown on Figure 3-15. The daylight obstruction values ranged from 43.3% for AC3 to 72.4% for AC2. Daylight obstruction values for the Project are consistent with or lower than the Area Context values.

3.3.4 Conclusions

The daylight analysis conducted for the Project describes proposed daylight obstruction conditions at the Project site and existing conditions in the surrounding area. The results of the BRADA analysis indicate that the Project will result in increased daylight obstruction over existing conditions because portions of the site are unbuilt and buildings on the site are lower in height than the Project; however, the resulting conditions will be similar or lower than the daylight obstruction values within the surrounding area, and will be typical of newer developments in the area and other urban areas.

3.4 Solar Glare

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

3.5 Air Quality

The BPDA requires that project-induced impacts to ambient air quality be addressed. A microscale analysis is used to determine the effect on air quality of the increase in traffic generated by the Project. This microscale analysis may be required for a project at intersections where 1) project traffic would impact intersections or roadway links currently operating at Level of Service (LOS) D, E, or F or would cause LOS to decline to D, E, or F; 2) project traffic would increase traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour); or, 3) the project will generate 3,000 or more new average daily trips (ADT) on roadways providing access to a single location.

The proposed Project does not generate 3,000 ADT, nor does it increase traffic volumes by 10 percent or 100 vehicles per hour. As discussed in Chapter 2, all intersections studied will continue to operate at the same LOS as under the No Build conditions during both the a.m. and p.m. peak hours. Therefore, no quantitative analysis was completed. Given the small increases in volume at the study area intersections, it is anticipated that there would be no violations of the NAAQS for CO at any intersections associated with Project-related traffic.

3.6 Stormwater/Water Quality

Chapter 7 includes information regarding stormwater and water quality.

3.7 Flood Hazard Zones/Wetlands

The most current version of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for the Project site is Community Panel 25025C0078G, effective September 25, 2009, which indicates the FEMA Flood Zone Designation for the site area. The map shows the Project is located outside of the 0.2 percent annual change floodplain (commonly referred to as the 500-year flood limit) identifying it as an area of minimal flooding.

The Project site does not contain wetlands.

3.8 Geotechnical Conditions

A subsurface evaluation was completed to determine the soil conditions and for foundation considerations. The subsurface evaluation found that a portion of the site includes granular fill over bedrock which is as close as 0.9 foot below the surface. Over the rest of the site, in general, fill covers glacial till above bedrock which is down to an approximate maximum of 13.6 feet below the surface. Covering the bedrock is approximately one-foot of regolith and/or highly weathered rock.

Groundwater was not observed within the borings upon completion of drilling. In general, groundwater at the site is anticipated to be seasonally perched within the glacial till deposit or on the surface of the underlying bedrock. It is anticipated that future groundwater levels across the Project site may vary from those reported herein based on such factors as normal seasonal

changes, runoff during or following periods of heavy precipitation, and alterations to existing drainage patterns. The Project site is not located within the Groundwater Conservation Overlay District.

3.9 Solid and Hazardous Waste

3.9.1 Hazardous Waste

A Phase I/Phase II Environmental Site Assessment was completed for the Project site and did not identify evidence at the subject site which would indicate the presence of a Recognized Environmental Condition.

To the extent that hazardous materials are found at the Project site in reportable levels under the Massachusetts Contingency Plan (MCP), the Proponent will cause such materials to be excavated, transported and disposed of in accordance with the MCP and any other applicable laws or regulations.

3.9.2 Operational Solid Waste and Recycling

The Project will generate solid waste typical of residential and commercial uses. Solid waste is expected to include wastepaper, cardboard, glass bottles and food. Recyclable materials will be recycled through a program implemented by building management. The Project will generate approximately 92 tons of solid waste per year. With the exception of household hazardous wastes typical of residential and commercial developments (e.g., cleaning fluids and paint), the Project will not involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials.

3.10 Noise Impacts

The primary set of noise regulations relating to a potential increase in sound levels due to the Project is the City of Boston Zoning District Noise Standards (City of Boston Code – Ordinances: Section 16–26 Unreasonable Noise and City of Boston Air Pollution Control Commission Regulations for the Control of Noise in the City of Boston). Separate regulations within the Standards provide criteria to control different types of noise. Regulation 2 is applicable to the effects of the Project. Zoning District Standards are presented below in Table 3-2.

Table 3-2 City of Boston Zoning District Noise Standards, Maximum Allowable Sound Pressure Levels

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

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

Additionally, the Massachusetts Department of Environmental Protection (MassDEP) has the authority to regulate noise under 310 CMR 7.10, which is part of the Commonwealth's air pollution control regulations. According to MassDEP, "unnecessary" noise is considered an air contaminant and thus prohibited by 310 CMR 7.10. The MassDEP administers this regulation through Noise Policy DAQC 90-001 which limits a source to a 10-dBA increase above the L_{90} ambient sound level (the sound level in dBA exceeded 90 percent of the time during a measurement period) measured at the Project property line and at the nearest residences. The MassDEP policy further prohibits "pure tone" conditions where the sound pressure level in one octave-band is three decibels or more than the sound levels in each of two adjacent bands.

While the details of the mechanical equipment associated with the Project have not yet been precisely determined, steady operational noise from stationary sources will primarily involve heating, cooling and ventilation equipment for the building.

During the final design phase of the Project, mechanical equipment and noise controls will be specified to meet the applicable City of Boston and MassDEP noise limits. Reasonable efforts will

be made, if necessary, to minimize noise impacts from the Project using routinely employed methods of noise control, including:

- Selection of "low-noise" equipment models;
- Fitting of inlet and discharge vents with duct silencers;
- Installation of screening barriers to provide shielding where appropriate;
- Use of sound-attenuating enclosures, acoustical blankets, or both on continuously operating equipment with outdoor exposure; and
- Siting of noisy equipment at locations that protect sensitive receptors by shielding or with increased distance.

In summary, the Project, with appropriate noise control, is not expected to result in any adverse noise impacts to the surrounding area. Short-term, intermittent increases in noise levels will occur during Project construction. However, every reasonable effort will be made to minimize the noise impacts and ensure that the Project complies with the requirements of the City of Boston noise ordinance.

3.11 Construction Impacts

3.11.1 Introduction

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

Proper pre-planning with the City and neighborhood will be essential to the successful construction of the Project. Construction methodologies, that ensure public safety and protect nearby businesses and residents, will be employed.

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

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

3.11.2 Construction Methodology / Public Safety

Construction methodologies that ensure public safety and protect nearby tenants will be employed. Techniques such as barricades and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for

construction worker commuting and parking, routing plans for trucking and deliveries, and the control of noise and dust.

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

3.11.3 Construction Schedule

It is anticipated that construction will begin in early 2021 with a 15 month construction period.

Typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Friday, with most shifts ordinarily ending at 3:30 p.m. No substantial sound-generating activity will occur before 7:00 a.m. If longer hours, additional shifts, or Saturday work is required, the construction manager will place a work permit request to the Boston Air Pollution Control Commission and BTD in advance. It is noted that some activities such as finishing activities could run beyond 6:00 p.m. to ensure the structural integrity of the finished product; for example, certain concrete components must be completed in a single pour, and placement of concrete cannot be interrupted.

3.11.4 Construction Staging / Access

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

3.11.5 Construction Mitigation

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

A CMP will be submitted to BTD for review and approval prior to issuance of a building permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. The CMP

will also define truck routes which will help in minimizing the impact of trucks on City and neighborhood streets.

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

3.11.6 Construction Employment and Worker Transportation

The number of workers required during the construction period will vary. It is anticipated that approximately 250 construction jobs will be created. The Proponent is committed to meeting or exceeding City of Boston W/MBE and resident hiring goals and will make reasonable good-faith efforts to have at least 51% of the total employee work hours completed by Boston residents, at least 40% of total employee work hours completed by minorities and at least 12% of the total employee work hours completed by women. The Proponent will enter into a jobs agreement with the City of Boston.

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

3.11.7 Construction Truck Routes and Deliveries

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

3.11.8 Construction Air Quality

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

- Using wetting agents on areas of exposed soil on a scheduled basis;

- Using covered trucks;
- Minimizing spoils on the construction site;
- Monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized; and
- Minimizing storage of debris on site.

3.11.9 Construction Noise

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

Mitigation measures are expected to include:

- Instituting a proactive program to ensure compliance with the City of Boston noise limitation policy;
- Using appropriate mufflers on all equipment and ongoing maintenance of intake and exhaust mufflers;
- Muffling enclosures on continuously running equipment, such as air compressors and welding generators;
- Replacing specific construction operations and techniques by less noisy ones where feasible;
- Selecting the quietest of alternative items of equipment where feasible;
- Scheduling equipment operations to keep average noise levels low, to synchronize the noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels;
- Turning off idling equipment; and
- Locating noisy equipment at locations that protect sensitive locations by shielding or distance.

3.11.10 Construction Waste

The Proponent will take an active role with regard to the reprocessing and recycling of construction waste. The disposal contract will include specific requirements that will ensure that

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

3.11.11 Protection of Utilities

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

3.12 Rodent Control

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

3.13 Wildlife Habitat

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

Chapter 4.0

Sustainable Design / Climate Change Preparedness

4.0 SUSTAINABLE DESIGN / CLIMATE CHANGE PREPAREDNESS

4.1 Introduction

As required by Article 37 of the Code, the Project will show certifiability under the Leadership in Energy and Environmental Design (LEED) rating system, specifically LEED v4 Multifamily Midrise. In addition to LEED, the Project is studying the inclusion of advanced envelope performance and energy reduction goals according to the Passive House standard. This level of performance, if feasible, would result in:

- Reduced greenhouse gas (GHG) emissions;
- Lower operating costs;
- Enhanced thermal comfort and indoor air quality;
- Improved durability; and
- Greater levels of resilience during loss of power.

Located near the heart of Jackson Square, the Project site has a number of geographic advantages that it will leverage to enhance the lives of residents and minimize the Project's environmental impact. With Jackson Square Station nearby which serves the MBTA Orange Line and a number of MBTA bus routes, as well as Southwest Corridor Park which includes a popular multi-use path, the Project will minimize parking and encourage alternative modes of transportation. The Project will also study methods to minimize construction waste, use sustainably sourced materials, improve the natural environment, and provide a comfortable, high-quality interior environment for residents. A description of the Project's approach to showing compliance with LEED is provided in this section. The Project team is currently targeting 67 credits, which would achieve the Gold level if all identified credits are attained. The credits will continue to be evaluated as the design progresses, and some credits may be added, while others may be determined to be unachievable. The preliminary LEED scorecard is provided at the end of Section 4.2.

4.2 Green Building

The approach to achieve certifiability under the LEED v4 Multifamily Midrise rating system is described below.

Integrative Process

The proposed design has been, and will continue to be, guided by team meetings, including an initial meeting for advanced site analysis to understand options for energy and water savings, in a manner feasible for the Project.

Location and Transportation

The Project is located on a previously developed site near the heart of Jackson Square and on Columbus Avenue, both of which include a number of retail and service options. In addition, the Project site is less than one-quarter mile from Jackson Square Station with service on the MBTA Orange Line and several bus routes. The Project will also include bicycle storage and minimal new parking for residents.

Sustainable Sites

Construction will meet all applicable federal, state and local environmental regulations. An Erosion and Sedimentation Control Plan will be implemented, monitored, and documented. The Project will meet the stormwater standards required by the City of Boston. A variety of stormwater storage, recharge, or infiltration approaches will be considered to reduce stormwater runoff from the site. Potential options include green roofs and the storage and possible reuse of rainwater. However, due to how the LEED for Homes Midrise rating system judges the Rainwater Management credit, it is unlikely to be achieved.

The Project will include a number of measures to provide for pest control without using toxic chemicals.

Water Efficiency

All vegetation planned for the Project will be drought-resistant and native or adaptive. Potable water demand will be reduced by using sustainable practices such as proper species selection, drip irrigation and/or moisture sensors.

The building will be designed to include water efficient fixtures to maximize water conservation.

Energy Efficiency

The Project design will ensure that heating and cooling loads are minimized. The Project team is studying the feasibility of incorporating Passive House standards to further reduce heating and cooling loads. The building envelope is anticipated to include high levels of wall, roof, and floor insulation, high performance glazing with an optimized window to wall ratio, and construction detailing that avoids thermal bridging. A carefully detailed continuous exterior air barrier is anticipated to be included in the design to ensure the highest levels of air tightness to minimize energy loss due to infiltration, which would be verified at multiple stages during construction via blower door testing. Because better insulation leads to colder exterior surfaces and less heat available to evaporate water within an assembly, the building envelope would be detailed to protect against wetting, to promote drying via vapor diffusion, and to ensure durability.

The building's mechanical equipment is anticipated to include balanced, whole-building ventilation with energy recovery along with highly efficient, right-sized heating and cooling systems for each apartment. The Project will consult with local utility programs to learn more

about available energy saving opportunities. Renewable energy strategies are being explored including photovoltaics.

The Project will plan for the implementation of on-site solar photovoltaics to meet or exceed the common space electrical load. Additionally, all-electric building systems will be closely considered to eliminate on-site combustion and minimize operational carbon.

Materials and Resources

The Project will be cognizant of the materials chosen for construction and finishing of the building, choosing sustainably produced and managed products to the extent feasible. The construction manager will be required to minimize construction waste to the extent feasible.

Indoor Environmental Quality

The Project will emphasize the selection of systems and material solutions that will provide superior indoor air quality for building occupants. To promote sustainability and energy efficiency, the Project will be mechanically ventilated using an energy recovery system. Enhanced ventilation strategies for improving air quality include balanced ventilation (including continuously operating bathroom exhaust) with flow rates not exceeding ASHRAE 62.2-2010 by more than 10%, supply air flow and pressure balance testing, air leakage testing between units, and enhanced garage pollutant protection. The design team will also incorporate compartmentalization details that pay careful attention to the air sealing between units in order to limit noise and odor transfer between units, and will verify compartmentalization via blower door testing during construction.

The finishes selection is anticipated to include only zero and low volatile organic compound (VOC) products, tested or certified to the requirements of CA Section 01350, including paints, coatings, flooring, insulation, adhesives, and sealants. Finish cabinetry and millwork is anticipated to meet the California Air Resources Board requirements for ultra-low emitting formaldehyde (ULEF) resins or no-added formaldehyde-based resins.

Upon the completion of construction, air quality testing as well as a preoccupancy flush may be conducted. To minimize and control the entry of pollutants into buildings and subsequent cross-contamination of regularly occupied areas, the building will feature air filtering, walk off mats, local exhaust systems and self-closing doors where required. The Project will prohibit smoking in public spaces and residential units.

Innovation in Design and Regional Priority

The Project may pursue a number of Innovation in Design credits, including an Occupant Education Campaign, low mercury lighting and/or potentially a few pilot credits, such as enhanced acoustical performance, green training for contractors, social equity within design and construction team. Numerous Exemplary Performance and Regional Priority credits are currently being researched and considered.

LEED v4 for Building Design and Construction: Multifamily Midrise

Project Checklist

Project Name: 1599 Columbus Avenue
Date:

Y	?	N			
1			Credit	Integrative Process	2

13	2	0	Location and Transportation		15
Y			Prereq	Floodplain Avoidance	Required
				PERFORMANCE PATH	
			Credit	LEED for Neighborhood Development Location	15
				PRESCRIPTIVE PATH	
6	2		Credit	Site Selection	8
3			Credit	Compact Development	3
2			Credit	Community Resources	2
2			Credit	Access to Transit	2

2	2	2	Sustainable Sites		7
Y			Prereq	Construction Activity Pollution Prevention	Required
Y			Prereq	No Invasive Plants	Required
	2		Credit	Heat Island Reduction	2
		3	Credit	Rainwater Management	3
2			Credit	Non-Toxic Pest Control	2

10	0	0	Water Efficiency		12
Y			Prereq	Water Metering	Required
				PERFORMANCE PATH	
			Credit	Total Water Use	12
				PRESCRIPTIVE PATH	
6			Credit	Indoor Water Use	6
4			Credit	Outdoor Water Use	4

20	7	0	Energy and Atmosphere		37
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Energy Metering	Required
Y			Prereq	Education of the Homeowner, Tenant or Building Manager	Required
20	5		Credit	Annual Energy Use	30
	2		Credit	Efficient Hot Water Distribution	5
			Credit	Advanced Utility Tracking	2

4	1	0	Materials and Resources		9
Y			Prereq	Certified Tropical Wood	Required
Y			Prereq	Durability Management	Required
1			Credit	Durability Management Verification	1
0.5	1		Credit	Environmentally Preferable Products	5
2			Credit	Construction Waste Management	3

13	5	0	Indoor Environmental Quality		18
Y			Prereq	Ventilation	Required
Y			Prereq	Combustion Venting	Required
Y			Prereq	Garage Pollutant Protection	Required
Y			Prereq	Radon-Resistant Construction	Required
Y			Prereq	Air FIltering	Required
Y			Prereq	Environmental Tobacco Smoke	Required
Y			Prereq	Compartmentalization	Required
3			Credit	Enhanced Ventilation	3
0.5	1		Credit	Contaminant Control	2
3			Credit	Balancing of Heating and Cooling Distribution Systems	3
	3		Credit	Enhanced Compartmentalization	3
2			Credit	Enhanced Combustion Venting	2
1			Credit	Enhanced Garage Pollutant Protection	1
2	1		Credit	Low Emitting Products	3
1			Credit	No Environmental Tobacco Smoke	1

1	3	0	Innovation		6
Y			Prereq	Preliminary Rating	Required
1	2		Credit	Innovation	5
	1		Credit	LEED AP Homes	1

4	0	0	Regional Priority		4
1			Credit	Regional Priority: Access to Transit	1
1			Credit	Regional Priority: Balancing of Heating and Cooling Systems	1
1			Credit	Regional Priority: Annual Energy Use	1
1			Credit	Regional Priority: Nontoxic Pest Control	1

67	20	2	TOTALS	Possible Points:	110

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

Possible innovation credits:
Green power and carbon offset
Green vehicles
Radon protection

4.3 Climate Change Resilience

4.3.1 Introduction

Climate change conditions considered by the Project team and reviewed below include higher maximum and mean temperatures, more frequent and longer extreme heat events, more frequent and longer droughts and more severe rainfall events. Copies of the completed Climate Change Questionnaire is included in Appendix C. Preliminary energy model results are included in Appendix D.

4.3.2 Extreme Heat Events

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

- High-albedo roofing materials and new landscaping to minimize the heat island effect;
- New street trees to provide shade;
- A high efficiency building envelope; and
- High performance HVAC equipment.

The Proponent is also studying measures to further improve the building envelope to minimize the cooling needs of the building.

4.3.3 Rain Events

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

To mitigate the effects of extreme precipitation events, the Project's stormwater management system will be designed to minimize the volume of stormwater runoff from the Project site and promote groundwater recharge to the greatest extent practicable. Part of the stormwater management strategy is to include pervious pavers as feasible around and on the site, such as

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

within the parking area on the ground floor. The Project will strive to infiltrate at least 1.25 inches of stormwater runoff for the 24-hour storm event.

4.3.4 Drought Conditions

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

4.4 Renewable Energy

The Proponent will evaluate the potential for a roof-mounted solar photovoltaic (PV) system, and the availability of grants and renewables funding. Of the approximately 14,250 sf roof area, approximately half will be devoted to mechanical equipment. A PV system would require approximately 40% of the remaining 7,125 sf of roof area for space around the panels, between panels, etc. The remaining approximately 4,275 sf could be set aside for a future rooftop solar installation. Assuming 12 watts per square foot, this allows for an approximately 51 kW array. In the location proposed, an installation of this solar array equals an annual generation of approximately 66 MW hours. The feasibility of installing a solar PV system will depend on the incentives at the time of construction.

Chapter 5.0

Urban Design

5.0 URBAN DESIGN

5.1 Neighborhood and Site Context

The Project site is a through-block lot located on Columbus Avenue, with frontage on Amory Street to the west. The location is close to the intersection of Columbus Avenue and Amory Street, and approximately one block from Jackson Square Station which services the Orange Line and several bus routes. The immediate neighborhood surrounding the site is a mix of residential, commercial and light industrial uses, including automotive repair shops and office spaces. The area is in a period of transition, with a number of sizable development projects either recently completed, in construction, or in the planning and approvals process. See Figure 5-1 for a summary of recent development and context. New automobile and pedestrian routes are also planned in the area to connect now vacant parcels to Amory Street, Centre Street and the Jackson Square Station.

The Project site is located within the Jackson Square section of the PLAN: JP/ROX. The proposed Project responds directly to the Plan's priority for affordable housing that helps to maintain the neighborhood's economic diversity. The Plan also identifies an interest in a mix of commercial and residential uses, greater density along commercial corridors such as the Columbus Avenue/Centre Street area, support for community events and an enhanced pedestrian experience. See Section 1.2.3 for more information about the Project's consistency with PLAN: JP/ROX.

5.2 Building Scale

PLAN: JP/ROX identifies this specific location as being viable for building heights up to 155 feet. At six stories and approximately 69 feet in height, the Project is well below the 155 foot height limit. The height of the development and massing have been designed to reflect two distinct scales, the first being the larger urban scale in which the Project complements other new developments, helping to define the edge of the area currently under redevelopment to the west of Columbus Avenue toward Jackson Square Station. The Project will help define the northern edge of the reimagined Amory Street corridor, forming a gateway with the development proposal at 25 Amory Street/250 Centre Street. This corridor is defined on the southern side by the development at 1785 Columbus Avenue. The Project will fill the urban fabric along Columbus Avenue, and create an improved public realm connection from the south to the Centre Street commercial corridor (see Figures 5-1 and 5-2).

The second scale used to consider the building design is at the site level, and the unique position of the Project relative to its neighbors. Because the site is bookended by Columbus Avenue to the east and Amory Street to the west, and because both streets are identified as important "Neighborhood Connectors" in PLAN: JP/ROX, the building has been designed to have distinct and engaging frontages on both streets, and to not preference one side of the site over the other. This attitude has played a critical role in the development of the architectural expression of the building.

The Project has been conceived with a "C-shaped" footprint, with the outer edges of the footprint forming the street elevations on Amory Street and Columbus Avenue, and the inner portions delineating a south facing lightwell. Each of the street facing elevations have been further defined with a "wrapper", highlighting the significance of those specific elevations and differentiating them from the overall mass of the building (see Figures 5-3 to 5-6). Those wrapper elements are further articulated in unique ways on each elevation: along Columbus Avenue the wrapper is folded and bent to create a series of inverted bays within the larger mass; along Amory Street the wrapper steps and angles to define a series of smaller facades within the larger composition. The base of the building is proposed to be clearly distinguished from the upper floors to define the most prominent areas of the building to pedestrians, and to connote the change of program via materiality and porosity.

5.3 Site Access

As described above, the two distinct street frontages of the site provide the opportunity for unique programmatic expression on the two sides of the building at the ground level. The main residential entrance to the building is located along Amory Street, along with a small ground level community room, office spaces for property management and resident services and other service spaces. Adjacent to the building entrance, vehicle access is provided via a curb cut on Amory Street to the at-grade parking area, which is located at the interior of the site, and mostly below the building above. Along Columbus Avenue, there is approximately 4,000 sf of space that is planned for non-residential use that may be artist workspace, office space, or other uses that will activate the streetscape. While the exact configuration of building access for the non-residential space will be determined in coordination with the use and tenancy, it is expected that there will be at least one primary building entrance to this space at the northeast corner of the building. This location is adjacent to an area along the northern edge of the site that serves as a right of way to the benefit of the property to the north of the site. The Project team is exploring the use of this right of way area, and a portion of the site south of the right of way as a pedestrian connection between Amory Street and Columbus Avenue.

Approximately 21 automobile parking spaces, including approximately four accessible spaces are provided in the parking area at ground level. Additionally, storage for one bicycle per unit is planned to be located adjacent to the parking lot. The bicycle parking will be weather protected and within a secure, locked enclosure.

Additionally, service spaces such as the building's trash room, main electrical room, and fire protection room are located at the interior of the site on the ground floor, as space allows.

5.4 Exterior Materials

A primary goal of the Project is to provide exceptional energy efficiency. The Project team has developed the facades with an eye towards balancing daylighting and livability in the units with overall cost and thermal performance. The current design aims to meet those competing goals and will provide a contemporary and dynamic architectural expression.

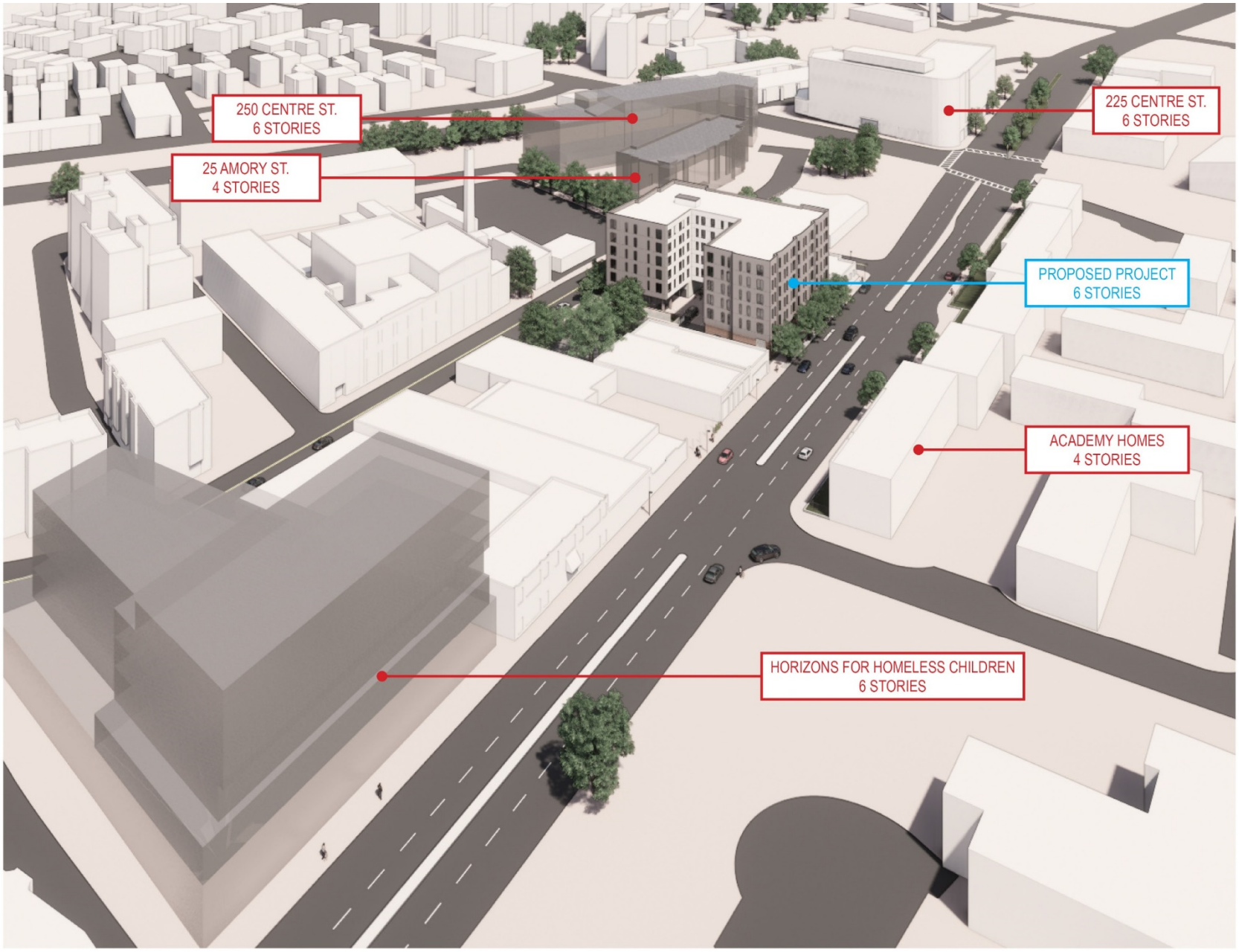
The exterior expression of the building is a direct result of the urban design and siting strategies that informed the overall massing and footprint configuration. As described, each significant street elevation (Amory Street and Columbus Avenue) is treated with a "wrapper" that has been articulated to break down the overall mass of the building and provide visual interest from the street. The expression of cladding is vertical within these wrappers, as is the fenestration pattern, which serves to accentuate the proportions and scale of the secondary surfaces of the facades. A simple horizontal joint is expressed at each floor line to offset the vertical grain. A textured metal panel is being explored on this facade. The remaining elevations (the interior of the "C", and the remainder of the north elevation between the two ends of the building) is conceived as a simpler, secondary material to the more expressive wrappers: a base for the primary elevations to contrast against. Correspondingly, the fenestration in these areas is proposed to follow a different, more horizontal expression to further differentiate the two systems. These elevations are being considered for fiber cement panels, with a painted aluminum reglet system to match the panels.

The material being explored for the base of the building is a masonry veneer, with large punched openings along Amory Street and a storefront system along Columbus Avenue.

5.5 Landscape Strategy

The Project's landscape strategy is focused on improving the public realm along Amory Street and Columbus Avenue through planting and hardscape improvements, and to provide planting buffers and walkways at the interior of the site where appropriate. In compliance with Complete Streets guidelines and PLAN: JP/ROX, the streetscape along each street is proposed to include an eight-foot pedestrian zone along the building face with a five-foot greenscape/furnishing zone with street trees (see Figure 5-7). The building is proposed to step back approximately 15 feet from the curb line at both streets, providing sufficient space for a pedestrian zone and other use zones along the building frontage. The Amory Street sidewalk is proposed to be more heavily vegetated, with a planting zone at both the curb and at the building face. Unit pavers at the building entrance will provide a visual highlight and designate a pick-up/drop-off zone at the curb (see Figure 5-8). Along Columbus Avenue, an accent paver along the building edge will provide an opportunity to further define entrances along the ground floor spaces, while a strip of pervious pavers at the curb will be used to allow infiltration and support a row of new street trees (see Figure 5-9). Planting buffers are being explored to screen the parking area from the adjacent lot along the interior southern property line.

Additionally, the small city-owned parcel to the northwest of the site is the subject of a disposition Request for Proposals. The Proponent plans to respond to the RFP with a proposal for developing this land as part of a publicly accessible open space that could further serve the neighborhood and building residents.



1599 Columbus Avenue Boston, Massachusetts

utile

Figure 5-1
Recent Development and Context

1599 Columbus Avenue Boston, Massachusetts

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Figure 5-2
Perspective Looking North on Columbus Avenue

1599 Columbus Avenue Boston, Massachusetts

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Figure 5-3
Perspective Looking Southeast from Amory Street

1599 Columbus Avenue Boston, Massachusetts

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Figure 5-4
Perspective Looking Southwest from Columbus Avenue

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Figure 5-5
Perspective Looking North on Amory Street

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Figure 5-6
Perspective Looking South on Amory Street

KEY

- CONCRETE PAVING
- UNIT PAVER
- PERMEABLE PAVER
- PLANTING
- ASPHALT

AMORY ST - NEIGHBORHOOD CONNECTOR

ZONE	PREFERRED	PROPOSED
BUILDING FRONTAGE	2'	2'
PEDESTRIAN ZONE	8'	8'
GREENSCAPE/FURNISHING	5'	5'
└ flush planted tree trenches		
CURB	6"	6"

COLUMBUS AVE - NEIGHBORHOOD CONNECTOR

ZONE	PREFERRED	PROPOSED
BUILDING FRONTAGE	2'	2'
PEDESTRIAN ZONE	8'	8'
GREENSCAPE/FURNISHING	5'	5'
└ permeable paver continuity strip		
CURB	6"	6"

1599 Columbus Avenue Boston, Massachusetts

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Figure 5-7
Preliminary Landscape Layout Plan

Figure 5-8
Streetscape View on Amory Street

Figure 5-9
Streetscape View on Columbus Avenue

Chapter 6.0

Historic and Archaeological Resources

6.0 HISTORIC AND ARCHAEOLOGICAL RESOURCES

6.1 Introduction

This section identifies the historic and archaeological resources in the vicinity of the Project site and discusses potential Project-related impacts. The Project is not anticipated to impact historic resources in the surrounding area.

6.2 Historic Resources in the Project Vicinity

6.2.1 Historic Resources of the Project Site

No historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth are within the Project site. The Project site is located within the 1997 MHC Stoney Brook Survey Area (BOS.RR); however, the Project site is not identified and has not been given an MHC Inventory number.

6.2.2 Historic Resources in the Vicinity of the Project Site

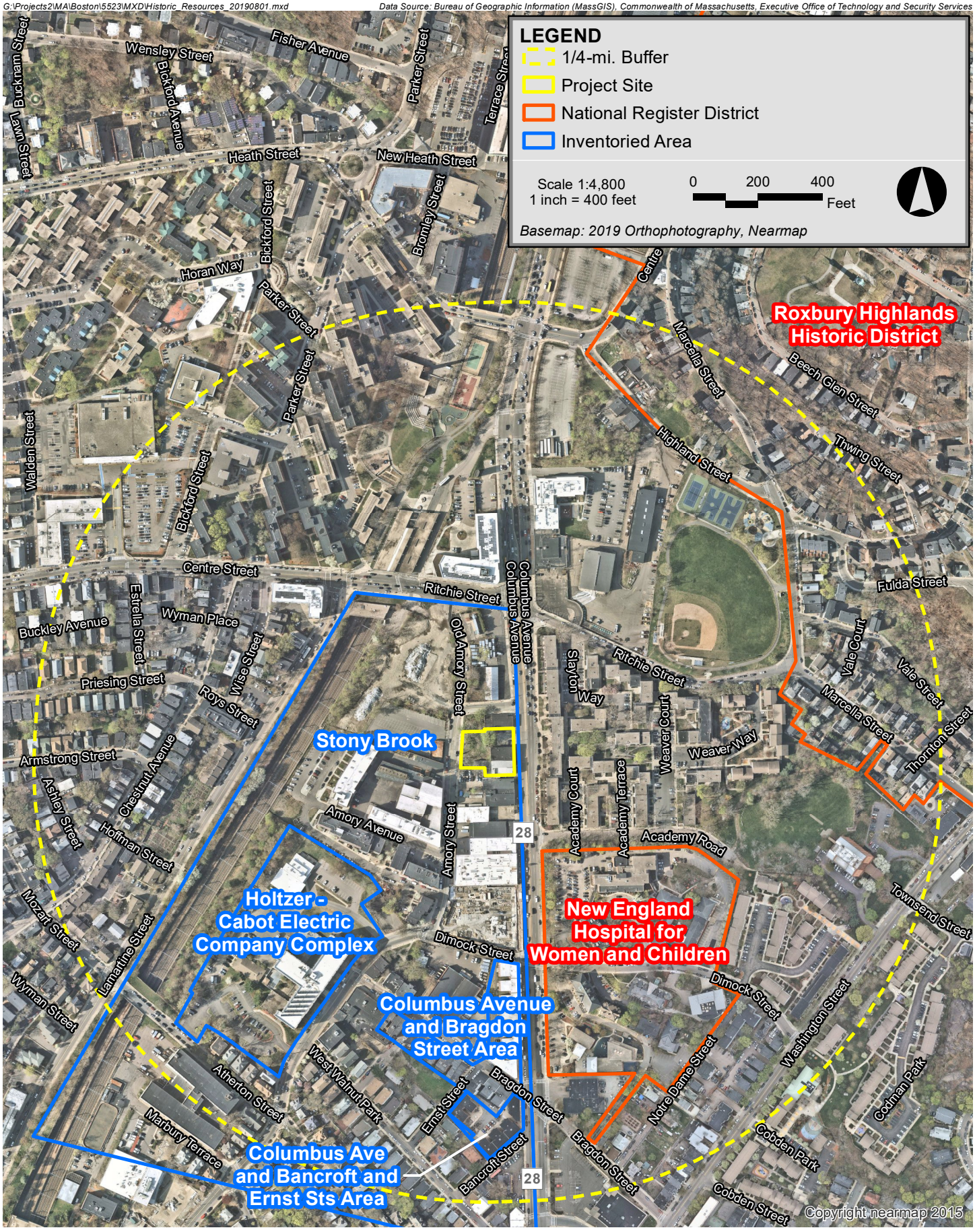
The Project site is located in the vicinity of several historic resources listed in the State and National Registers of Historic Places or included in the Inventory of Historic and Archaeological Assets of the Commonwealth. Table 6-1 identifies these resources within one-quarter mile of the Project site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

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

	Historic Resource	Address	Designation*
	New England Hospital for Woman and Children	41 & 55 Dimmock Street (Dimock Community Health Center)	NHL, NRDIS
	Roxbury Highlands Historic District	Roughly bounded by Roxbury Street, Anita Terrace, Centre, Highland, Marcella & Washington Streets, Guild Row and New Dudley Street	NRDIS, NRDOE
	Stony Brook	Roughly bounded by Jackson Sq, Columbus Street, Atherton St, Marbury Terrace and Lamartine St.	INV
	Holtzer-Cabot Electric Company Complex	Roughly bounded by Amory Terrace, Amory Street, Atherton Street and the MBTA railroad tracks	INV
	Columbus Avenue and Bragdon Street Area	Roughly bounded by Columbus Avenue, Bragdon Street, Bancroft Street, and Ernst Street	INV
	Columbus Avenue and Bancroft and Ernst Street Area	Roughly bounded by Columbus Avenue, Bancroft Street, and Ernst Street	INV

*Designation Legend

NRDIS	National Register of Historic Places historic district
NRDOE	Determined eligible for inclusion in the National Register of Historic Places
NHL	National Historic Landmark
INV	Massachusetts Historical Commission Inventory



1599 Columbus Avenue Boston Massachusetts

Epsilon ASSOCIATES INC.

Figure 6-1
Historic Resources

6.3 Archaeological Resources Within the Project Site

A review of Massachusetts Historical Commission's (MHC) online archaeological base maps was conducted on July 23, 2019 indicating that one site (19-SU-80) is mapped in the vicinity of the Project area. As the proposed Project involves construction on areas of the Project site previously developed, impacts to archaeological resources are not anticipated. As the Project advances, the Proponent will consult with MHC in accordance with M.G.L., Chapter 9, Sections 26-27C (50 CMR 71.00), as necessary, to assess potential impacts to significant historic and archeological resources. If impacts associated with the Project are unavoidable, the Proponent will work with MHC and interested parties in developing appropriate measures to mitigate Project impacts to those resources.

6.4 Impacts to Historic Resources

6.4.1 Demolition of Existing Buildings

The proposed Project will require the demolition of the existing buildings at the Project site. The buildings are not listed and have not been found to be eligible for listing on the National Register of Historic Places. Additionally, the buildings have been modified by numerous additions and alterations. The Boston Landmarks Commission (BLC) will be afforded the opportunity to review the proposed demolition through the Article 85 Demolition Delay review process.

6.4.2 Urban Design

The Project site is a through-block lot located on Columbus Avenue, with frontage on Amory Street to the west. The location is close to the intersection of Columbus Avenue and Amory Street, and approximately one block from Jackson Square Station. The immediate neighborhood surrounding the site is a mix of residential, commercial and light industrial uses, including automotive repair shops and office spaces. The proposed design of the Project reflects two distinct scales, the first being the larger urban scale in which the Project complements other new developments, helping to define the edge of the area currently under redevelopment to the west of Columbus Avenue toward Jackson Square Station. The second scale used to consider the building design is at the site level, and the unique position of the Project relative to its neighbors. Because the site is bookended by Columbus Avenue to the east and Amory Street to the west, and because both streets are identified as important "Neighborhood Connectors," the building has been designed to have distinct and engaging frontages on both streets, and to not preference one side of the site over the other. This attitude has played a critical role in the development of the architectural expression of the building. The exterior expression of the building is a direct result of the urban design and siting strategies that informed the overall massing and footprint configuration so each significant street elevation (Amory Street and Columbus Avenue) has been articulated to break down the overall mass of the building and provide visual interest from the street.

6.4.3 Shadow Impacts to Historic Resources

As described in greater detail in Section 3.2, shadow studies were conducted to investigate potential shadow impacts from the Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the vernal equinox (March 21), summer solstice (June 21), autumnal equinox (September 21), and winter solstice (December 21). In addition, shadow studies were conducted for the 6:00 p.m. time period during the summer solstice and autumnal equinox.

As illustrated in the shadow study diagrams (Figures 3-1 to 3-14), during isolated time periods the Project will cast minimal net new shadow primarily on areas north, west and east of the Project site. During the periods studied, there were no shadow impacts to any of the historic buildings within the Roxbury Highlands Historic District or the New England Hospital for Woman and Children (Dimock Community Health Center).

6.4.4 Wind Impacts to Historic Resources

The proposed Project is approximately six stories tall and is surrounded by varied terrain and buildings that are anticipated to minimize the Project's impact on pedestrian level winds. It is not anticipated that the Project will impact wind conditions near historic resources in the vicinity of the Project area.

6.5 Consistency with Other Historic Reviews

6.5.1 Boston Landmarks Commission Article 80 Review

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

6.5.2 Boston Landmarks Commission Article 85 Review

The proposed demolition of the existing buildings on the Project site will be subject to review by the BLC under Article 85 of the Boston Zoning Code. An Article 85 Application for the property will be submitted to the BLC.

6.5.3 Massachusetts Historical Commission

MHC has review authority over projects requiring state funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. Since the Project will utilize state funding, the Project will be subject to review by the MHC in compliance with its State Register Review (Chapter 254) regulations. MHC review will be initiated with the filing of a MHC Project Notification Form. If federal permits, licenses or approvals are required, the Project would be subject to Section 106 of the National Historic Preservation Act.

Chapter 7.0

Infrastructure

7.0 INFRASTRUCTURE

7.1 Introduction

This Chapter outlines the existing utilities surrounding the Project site, the connections required to provide service to the Project, and any impacts on the existing utility systems that may result from the construction of the Project. The following utility systems are discussed herein:

- Sewer
- Domestic water
- Fire protection
- Drainage

The Project includes the demolition of the existing buildings located on an assembly of parcels comprising approximately 0.49 acres, located at 1595-1599 Columbus Avenue. As described in detail in Chapter 1, the Project includes the construction of a new six-story, mixed-use building that includes approximately 65 rental apartment homes and approximately 4,000 sf of non-residential space along Columbus Avenue. The Project site is located on Columbus Avenue in Boston and is bounded by several commercial properties to the south, Amory Street to the west, Columbus Avenue to the east, and a vacant lot, church, and Amory Street to the north. The existing site is currently comprised of two distressed two-story commercial buildings and a surface parking lot.

7.2 Wastewater

7.2.1 Sewer Infrastructure

Existing Boston Water and Sewer Commission (BWSC) dedicated sewer and combined sewer mains are located in Amory Street and Columbus Avenue.

Amory Street

There is a 24-inch by 30-inch BWSC combined sewer main which flows in a northerly direction, changing sizes several times (30-inch, 24-inch by 42-inch) before joining mains in Columbus Avenue and connecting to a 60-inch by 78-inch interceptor. There is also a 15-inch dedicated sewer main which flows in a northerly direction before joining a low-level sewer in Columbus Avenue (24-inch by 48-inch) that eventually connects to the same interceptor as the combined sewer.

Columbus Avenue

There is a 12-inch dedicated sewer main which flows in a northerly direction on the westerly side of the Columbus Avenue right-of-way before joining the larger interceptors further upstream on Columbus Avenue.

The existing sewer system is illustrated in Figure 7-1.

7.2.2 Wastewater Generation

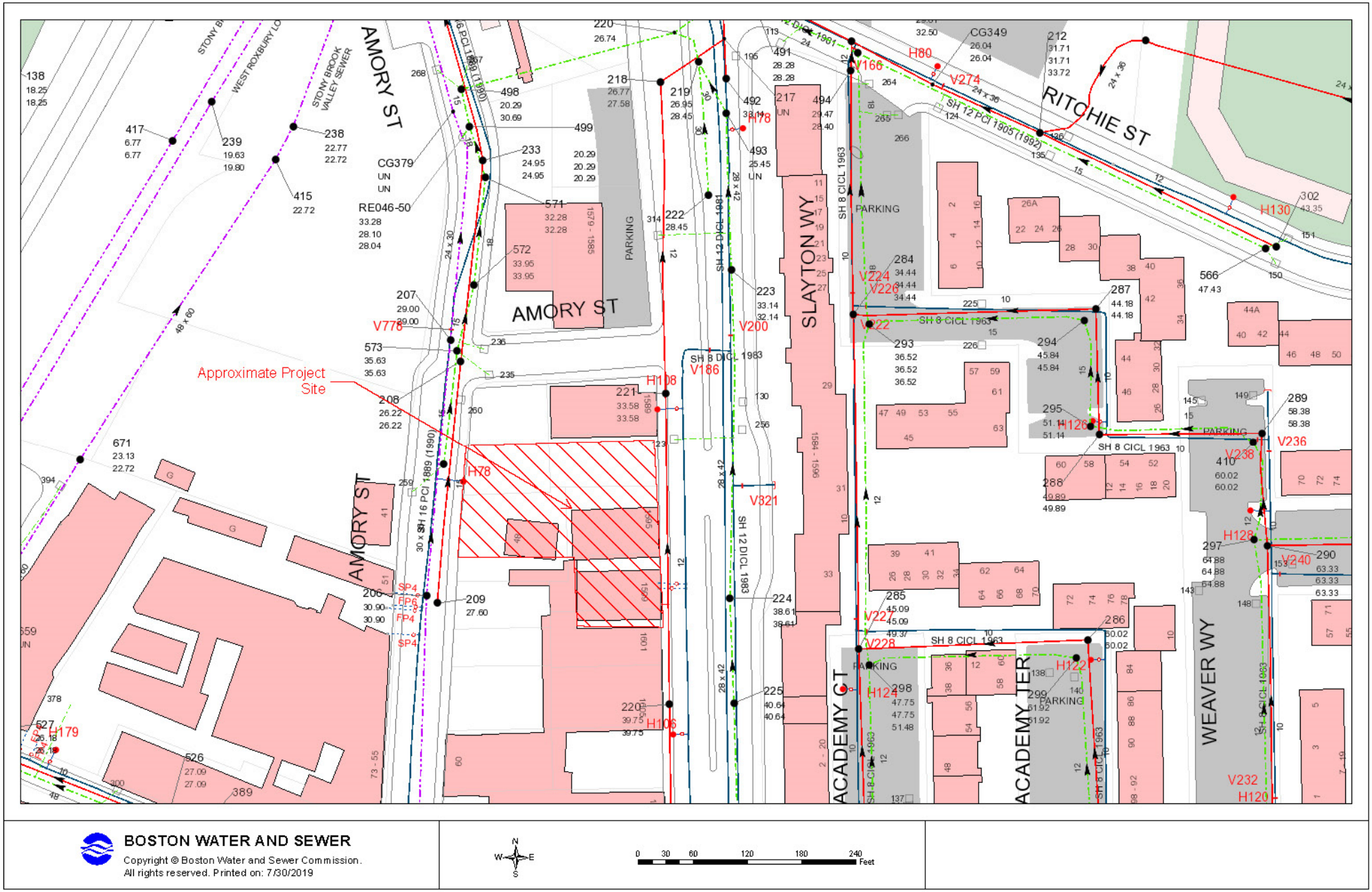
The Project's sewage generation rates were estimated MassDEP 310 CMR 15.00 values for the proposed building program. The buildings currently on-site appear to be unused, or do not have water bills available – the most recent yearly bill for 1599 Columbus Avenue shows no water or sewer usage. Therefore, MassDEP 310 CMR 15.00 values were also used for the existing buildings. 310 CMR 15.00 lists typical sewage generation values for the proposed building use, as shown in Table 7-1. Typical generation values are conservative values for estimating the sewage flows from new construction. As shown in Table 7-1, the Project is expected to generate an increase in wastewater flows of approximately 12,530 gallons per day (gpd).

Table 7-1 Proposed Project Wastewater Generation

Use	Size/Unit	310 CMR Value (gpd/unit)	Total Flow (gpd)
Existing Building Program (from average existing water billing data for 2018)			
1599 Columbus	-	-	No flow
		Total Existing Sewer Flows	**No flow**
Existing Building (using average 310 CMR values)			
Retail Space	11,640 square feet	75/1,000 SF	873
		Total Existing Sewer Flows	**873**
Proposed Building (using average 310 CMR values)			
Lobby Space	1,500 square feet	75/1,000 SF	113
Retail Space	4,000 square feet	50/1,000 SF	200
Total Bedrooms	119 Bedrooms	110/bedroom	13,090
		Total Proposed Sewer Flows	**13,403**
Increase in Sewer Flows (gpd):			**12,530**

7.2.3 Sewage Capacity & Impacts

The Project's impact on the existing BWSC systems in Amory Street and Columbus Avenue were analyzed. The existing sewer system capacity calculations are presented in Table 7-2.



1599 Columbus Avenue Boston, Massachusetts

Figure 7-1

BWSC Sewer and Drain System Map

Table 7-2 Sewer Hydraulic Capacity Analysis

Manhole (BWSC Number)	Distance (feet)	Invert Elevation (up)	Invert Elevation (down)	Slope (%)	Diameter (inches)	Manning's Number	Flow Capacity (cfs)	Flow Capacity (MGD)
Amory Street (Combined Sewer)								
210 to 206	238	32.53	30.9	0.7%	30	0.013	33.94	21.94
206 to 207	204	30.9	29	0.9%	30	0.013	39.58	25.58
207 to 380	375	29	22.67	1.7%	30	0.013	53.29	34.44
						Minimum Flow Analyzed:	33.94	21.94
Amory Street (Sewer)								
209 to 208	189	27.6	26.22	0.7%	15	0.013	5.52	3.57
208 to 233	168	26.22	24.95	0.8%	15	0.013	5.62	3.63
233 to 234	242	24.95	23.91	0.4%	15	0.013	4.23	2.74
						Minimum Flow Analyzed:	4.23	2.74
Columbus Avenue								
218 to 219	250	50.59	45.86	1.9%	12	0.013	2.13	1.37
219 to 220	259	45.86	39.77	2.4%	12	0.013	2.37	1.53
220 to 221	246	39.75	33.58	2.5%	12	0.013	2.45	1.58
						Minimum Flow Analyzed:	2.13	1.37

Note:
1. Manhole numbers taken from BWSC Sewer system GIS Map received on July 31, 2019
2. Flow calculations based on Manning Equation.

Table 7-2 indicates the hydraulic capacity of the existing combined and dedicated sewer mains in Amory Street, and the sewer main in Columbus Avenue. The minimum hydraulic capacity is 21.94 million gallons per day (MGD) or 33.94 cubic feet per second (CFS) for the 24-inch by 30-inch combined main in Amory Street, 2.74 MGD or 4.23 CFS for the 15-inch dedicated sewer main in Amory Street, and 1.37 MGD or 2.13 CFS for the 12-inch main in Columbus Avenue.

Based on an average daily flow estimate for the Project of 13,403 gpd or 0.0134 MGD, an increase of 12,530 gpd or 0.0125 MGD from the existing buildings; and with a factor of safety estimate of 10 (total estimate = 0.0125 MGD x 10 = 0.125 MGD), no capacity problems are expected within the BWSC sewer systems in any of the adjacent roadways.

7.2.4 Proposed Conditions

The Proponent will coordinate with the BWSC on the design and capacity of the proposed connections to the sewer system. Approval for the increase in sanitary flow will come from BWSC.

Sewer services for the existing buildings will be evaluated for capacity and condition and will be replaced as necessary. New sewer services resulting from the Project will connect to the existing sanitary sewer mains in Amory Street and/or Columbus Avenue.

Improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC's Site Plan Review process for the Project. This process will include a comprehensive design review of the existing and proposed service connections, an assessment of Project demands and system capacity, and the establishment of service accounts.

7.3 Water Supply

7.3.1 Water Infrastructure

Water for the Project site will be provided by the BWSC. There are five water systems within the City, and these provide service to portions of the City based on ground surface elevation. The five systems are southern low (commonly known as low service), southern high (commonly known as high service), southern extra high, northern low, and northern high. There are existing BWSC water mains in Amory Street and Columbus Avenue.

There is a 16-inch southern high in Amory Street, an 8-inch southern high in Columbus Avenue, a 12-inch southern high in Columbus Avenue, and a 36-inch southern high in Columbus Avenue.

The existing water system is illustrated in Figure 7-2.

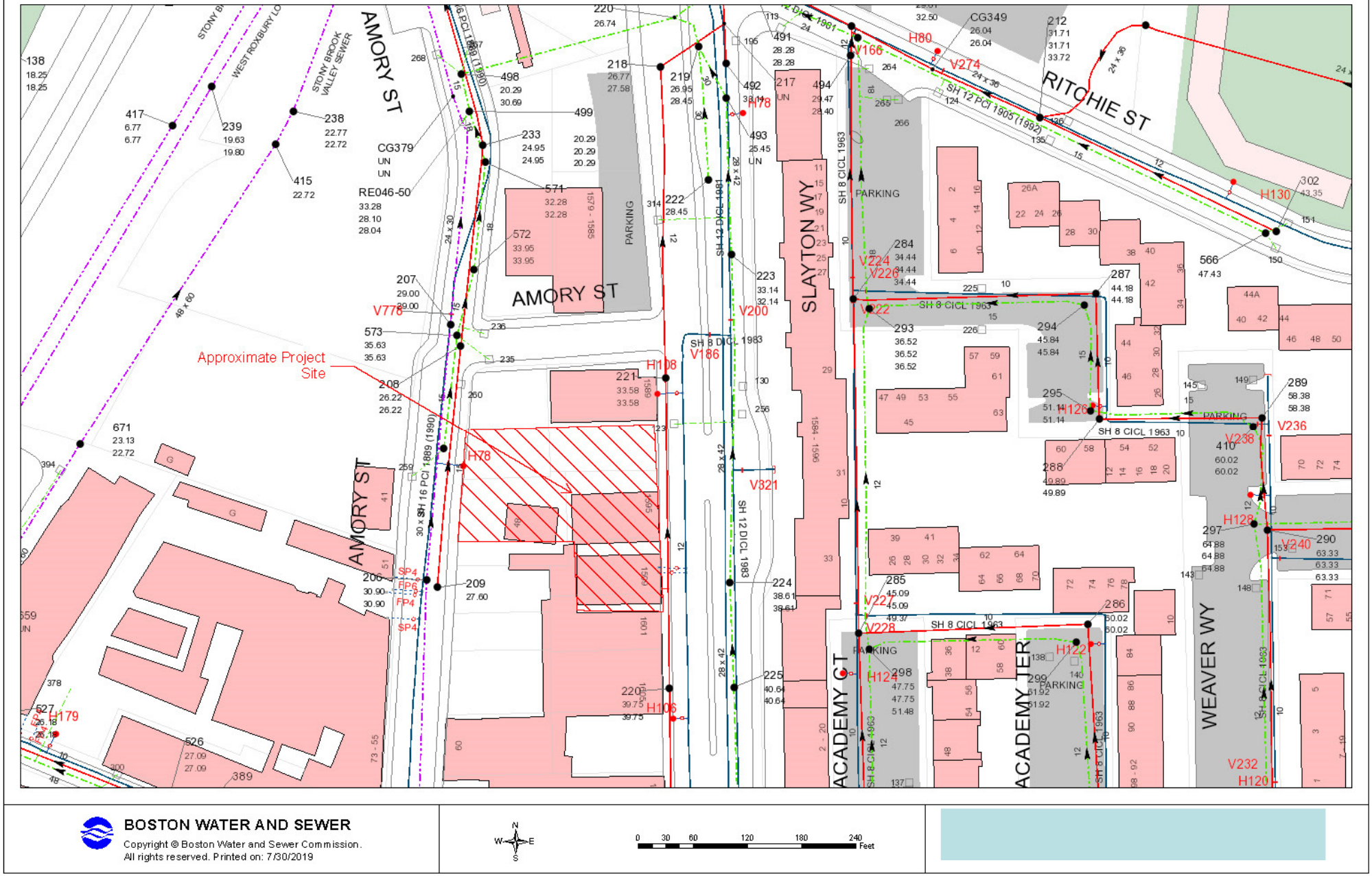
7.3.2 Water Consumption

The Project's water demand estimate for domestic services is based on the Project's estimated sewage generation, described above. A conservative factor of 1.1 (10%) is applied to the estimated average daily wastewater flows calculated with 314 CMR 15.00 values to account for consumption, system losses and other usages to estimate an average daily water demand. The Project's estimated domestic water demand is 12,530 gpd. The water for the Project will be supplied by the BWSC systems in Amory Street and/or Columbus Avenue.

The existing buildings at the Project site have multiple existing BWSC water accounts. However, no water or sewer usage has been generated by either building over the past year. Based on the estimated sewer demand (calculated using MassDEP 310 CMR 15.00 values), the existing water use of the two buildings is 860 gpd (873 x 1.1).

7.3.3 Existing Water Capacity and Impacts

BWSC record flow test data containing actual flow and pressure for hydrants within the vicinity of the Project site was requested by the Proponent. Hydrant flow data was available for one hydrant near the Project site, and is shown in Table 7-4.



1599 Columbus Avenue Boston, Massachusetts

Figure 7-2

BWSC Water System Map

Table 7-4 Existing Hydrant Flow Data

Flow Hydrant Number	Date of Test	Static Pressure (psi)	Residual Pressure (psi)	Total Flow (gpm)
18HH86	10/20/2014	104	100	2,126

Note: Data provided by BWSC on July 31, 2019.

Water capacity problems are not anticipated within this system as a result of the Project's construction.

7.3.4 Proposed Conditions

The proposed Project's impacts to the existing water system will be reviewed as part of the BWSC's Site Plan Review process.

The domestic and fire protection water services for the Project will connect to the existing BWSC water mains in Amory Street and/or Columbus Avenue. The domestic and fire protection water service connections required for the Project will meet the applicable City and State codes and standards, including cross-connection backflow prevention. Compliance with the standards for the domestic water system service connection will be reviewed as part of BWSC's Site Plan Review Process. This review will include sizing of domestic water and fire protection services, calculation of meter sizing, backflow prevention design, and location of hydrants and siamese connections that conform to BWSC and Boston Fire Department requirements.

Efforts to reduce water consumption will be made. Aeration fixtures and appliances will be chosen for water conservation qualities. In public areas, sensor operated faucets and toilets will be installed.

New water services will be installed in accordance with the latest local, state, and federal codes and standards. Backflow preventers will be installed at both domestic and fire protection service connections. New meters will be installed with Meter Transmitter Units as part of the BWSC's Automatic Meter Reading system.

7.4 Stormwater

There are existing BWSC storm drain mains and BWSC combined sewer mains in Amory Street and Columbus Avenue adjacent to the Project site (combined sewer mains as previously described in Section 7.2.1). The existing combined sewer main follows the same path as combined sewer main in Amory Street before ultimately flowing to the Massachusetts Water Resources Authority (MWRA) Deer Island Waste Water Treatment Plant for treatment and disposal. This section will be limited to describing the existing dedicated BWSC storm drain mains in Amory Street and Columbus Avenue.

Amory Street

There is a 15-inch BWSC storm drain which flows in a northerly direction along Amory Street before continuing onto Columbus Avenue.

Columbus Avenue

The 28-inch by 42-inch BWSC storm drain from Columbus Avenue flows in a northerly direction, and continues along Columbus Avenue.

The existing BWSC storm drain system is illustrated in Figure 7-1.

Stormwater at the site generally flows off-site via sheet flow – the gutters at the existing buildings discharge to grade, and are not connected to any interior stormwater management system based on the record plans available. Stormwater in the roadways is captured by existing catch basins, which flow to the existing BWSC mains in Amory Street and Columbus Avenue.

7.4.1 Proposed Conditions

The Project site is comprised of two existing buildings, a parking lot, and an open area and is mostly impervious. The Project will meet or reduce the existing peak rates of stormwater discharge and volumes of stormwater runoff from the site and promote runoff recharge to the greatest extent possible.

The Project will strive to infiltrate one-inch of stormwater runoff from impervious areas into the ground to the greatest extent possible. Different approaches to stormwater recharge will be assessed. It is anticipated that the stormwater recharge systems will work to passively infiltrate runoff into the ground with a gravity recharge system or a combination of storage tanks in the building and pumps. The underground recharge system, and any required site closed drainage systems, will be designed so that there will be no increase in the peak rate of stormwater discharge from the Project site in the developed condition compared to the existing condition.

Improvements and connections to BWSC infrastructure will be reviewed as part of BWSC's Site Plan Review process. The process will include a comprehensive design review of the proposed service connections, and assessment of Project demands and system capacity.

7.4.2 Water Quality Impact

The Project will not affect the water quality of nearby water bodies. Erosion and sediment control measures will be implemented during construction to minimize the transport of site soils to off-site areas and BWSC storm drain systems. During construction, existing catch basins will be protected with filter fabric, straw bales and/or crushed stone, to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until the areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

All necessary dewatering will be conducted in accordance with applicable MWRA and BWSC discharge permits. Once construction is complete, the Project will be in compliance with local and state stormwater management policies, as described below.

7.4.3 Groundwater Conservation Overlay District

The BPDA oversees proposed projects within the Groundwater Conservation Overlay District under Article 32. The Project parcel is not located within the Groundwater Conservation Overlay District.

7.4.4 MassDEP Stormwater Management Policy Standards

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

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

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

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

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

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

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

Compliance: The Project will comply with this Standard to the maximum extent practicable.

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

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

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

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

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

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

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

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

discharge" as defined in 314 CMR 3.04(2)(a)1 or (b) to an Outstanding Resource Water or Special Resource Water shall comply with 314 CMR 3.00 and 314 CMR 4.00. Stormwater discharges to a Zone I or Zone A are prohibited unless essential to the operation of a public water supply.

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

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

Compliance: The Project is a redevelopment. A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. A redevelopment project must comply with all other requirements of the Stormwater Management Standards and improve existing conditions.

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

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

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

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

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

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

7.5 Protection Proposed During Construction

Existing public and private infrastructure located within nearby public rights-of-way will be protected during Project construction. The installation of proposed utility connections within public ways will be undertaken in accordance with BWSC, Boston Public Works Department, the Dig-Safe Program, and applicable utility company requirements. Specific methods for

constructing proposed utilities where they are near to, or connect with, existing water, sewer, and drain facilities will be reviewed by the BWSC as part of its Site Plan Review process. All necessary permits will be obtained before the commencement of work.

The Proponent will continue to work and coordinate with the BWSC and the utility companies to ensure safe and coordinated utility operations in connection with the Project.

7.6 Conservation of Resources

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

Chapter 8.0

Coordination With Other Governmental Agencies

8.0 COORDINATION WITH OTHER GOVERNMENTAL AGENCIES

8.1 Architectural Access Board Requirements

The Project will comply with the requirements of the Architectural Access Board and the standards of the Americans with Disabilities Act. The Accessibility Checklist for each Project Component is included in Appendix E.

8.2 Massachusetts Environmental Policy Act

The Project is not anticipated to require review by the Massachusetts Environmental Policy Act (MEPA) Office of the Massachusetts Executive Office of Energy and Environmental Affairs. The Project does not exceed any of the review thresholds for the filing of an Environmental Notification Form under MEPA, as described in 301 CMR 11.03.

8.3 Massachusetts Historical Commission

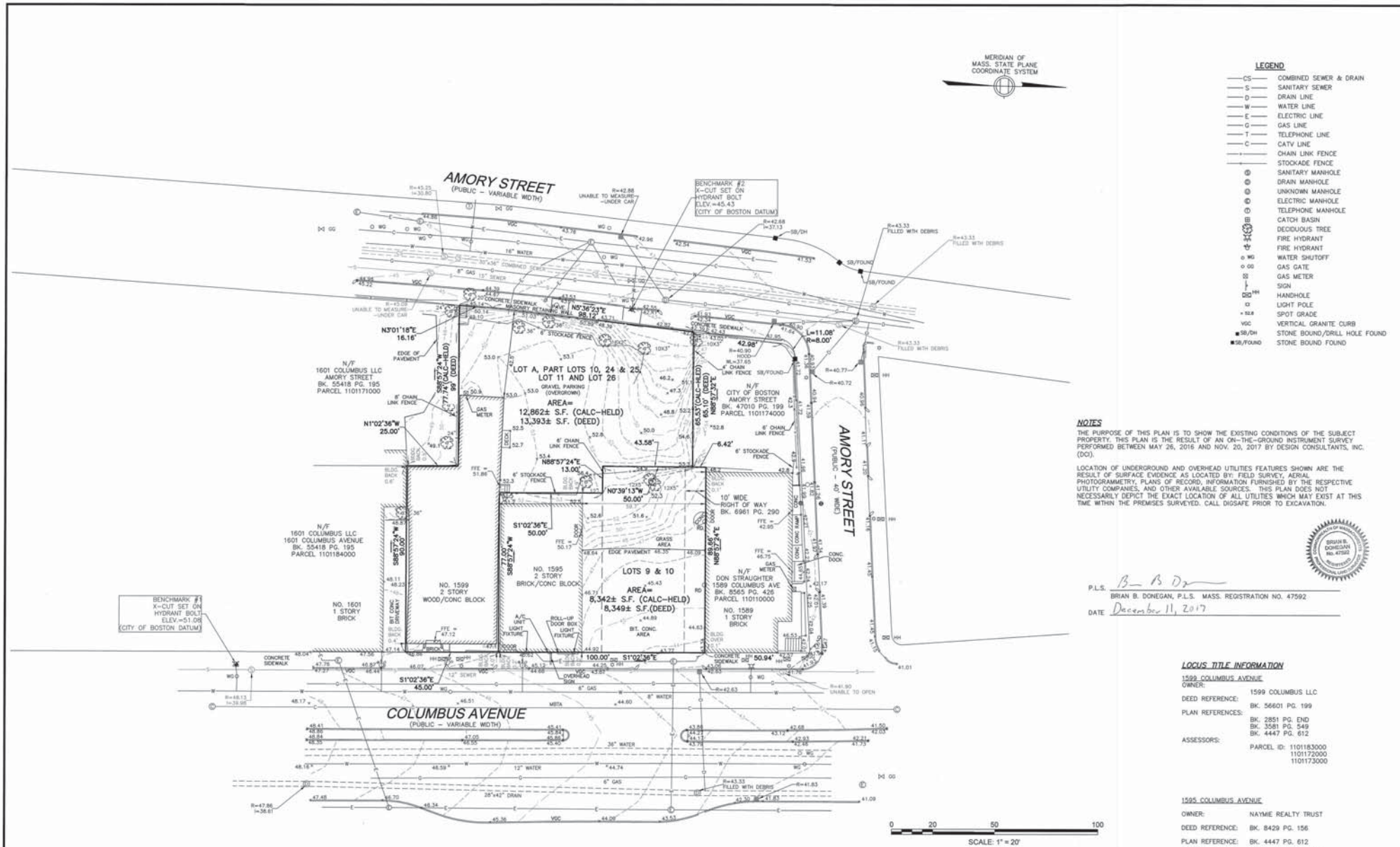
MHC has review authority over projects requiring state funding, licensing, permitting and/or approvals that may have direct or indirect impacts to properties listed in the State Register of Historic Places. Since the Project will utilize state funding, the Project will be subject to review by the MHC in compliance with its State Register Review (Chapter 254) regulations. MHC review will be initiated with the filing of a MHC Project Notification Form. If federal permits, licenses or approvals are required, the Project would be subject to Section 106 of the National Historic Preservation Act.

8.4 Boston Landmarks Commission (Article 85)

The proposed demolition of the existing buildings on the Project site will be subject to review by the BLC Article 85 of the Boston Zoning Code. An Article 85 Application for the property will be submitted to the BLC.

Appendix A

Site Survey



LEGEND

—CS—	COMBINED SEWER & DRAIN
—S—	SANITARY SEWER
—D—	DRAIN LINE
—W—	WATER LINE
—E—	ELECTRIC LINE
—G—	GAS LINE
—T—	TELEPHONE LINE
—C—	CATV LINE
—x—	CHAIN LINK FENCE
—+—	STOCKADE FENCE
Ⓢ	SANITARY MANHOLE
Ⓓ	DRAIN MANHOLE
Ⓤ	UNKNOWN MANHOLE
Ⓔ	ELECTRIC MANHOLE
Ⓣ	TELEPHONE MANHOLE
⊞	CATCH BASIN
	DECIDUOUS TREE
	FIRE HYDRANT
	FIRE HYDRANT
o WG	WATER SHUTOFF
o GG	GAS GATE
⊠	GAS METER
	SIGN
HH	HANDHOLE
☼	LIGHT POLE
+ 52.6	SPOT GRADE
VGC	VERTICAL GRANITE CURB
■SB/DH	STONE BOUND/DRILL HOLE FOUND
■SB/FOUND	STONE BOUND FOUND

NOTES

THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS OF THE SUBJECT PROPERTY. THIS PLAN IS THE RESULT OF AN ON–THE–GROUND INSTRUMENT SURVEY PERFORMED BETWEEN MAY 26, 2016 AND NOV. 20, 2017 BY DESIGN CONSULTANTS, INC. (DCI).

LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES FEATURES SHOWN ARE THE RESULT OF SURFACE EVIDENCE AS LOCATED BY: FIELD SURVEY, AERIAL PHOTOGRAMMETRY, PLANS OF RECORD, INFORMATION FURNISHED BY THE RESPECTIVE UTILITY COMPANIES, AND OTHER AVAILABLE SOURCES. THIS PLAN DOES NOT NECESSARILY DEPICT THE EXACT LOCATION OF ALL UTILITIES WHICH MAY EXIST AT THIS TIME WITHIN THE PREMISES SURVEYED. CALL DIGSAFE PRIOR TO EXCAVATION.

BRIAN B. DONEGAN No. 47592 REGISTERED PROFESSIONAL LAND SURVEYOR

P.L.S. B B D

BRIAN B. DONEGAN, P.L.S. MASS. REGISTRATION NO. 47592

DATE December 11, 2017

LOCUS TITLE INFORMATION

1599 COLUMBUS AVENUE

OWNER:	1599 COLUMBUS LLC
DEED REFERENCE:	BK. 56601 PG. 199
PLAN REFERENCES:	BK. 2851 PG. END BK. 3581 PG. 549 BK. 4447 PG. 612
ASSESSORS:	PARCEL ID: 1101183000 1101172000 1101173000

1595 COLUMBUS AVENUE

OWNER:	NAYMIE REALTY TRUST
DEED REFERENCE:	BK. 8429 PG. 156
PLAN REFERENCE:	BK. 4447 PG. 612
ASSESSORS:	PARCEL ID: 1101181000 1101182000

P:\2016 Projects\2016-049 1599 Columbus Ave Roxbury\Dwg_SURVEYING\16-049EC.dwg

Design Consultants, Inc.
CIVIL ENGINEERS and LAND SURVEYORS
120 MIDDLESEX AVENUE, SOMERVILLE, MA 02145, 617-776-3350
68 PLEASANT STREET, NEWBURYPORT, MA 01950, 978-358-7173

SCALE: HORIZ: 1"= 20' VERT:

NO.	DATE	BY	REVISIONS

FIELD: LG
CALCS: BD
CHECKED: ML
APPROVED: BD

EXISTING CONDITIONS PLAN

1599 & 1595 COLUMBUS AVENUE

PLAN OF LAND IN
BOSTON (ROXBURY), MASSACHUSETTS
SURVEYED FOR
URBAN EDGE

PROJECT NO. 2016-049
DATE: DEC. 7, 2017
SHEET NO. 1 OF 1

Appendix B

Transportation

Client:	M. Littman
Project #:	Location 1
BTD #:	0011_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Columbus Ave
Street 2:	Amory St
Count Date:	11/2/2016
Day of Week:	Wednesday
Weather:	Clear, 70 F

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

TOTAL (CARS & TRUCKS)

	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	124	27	0	0	0	9	0	0	0	0
7:15 AM	0	0	0	0	0	0	151	26	0	0	0	8	0	0	0	0
7:30 AM	0	0	0	0	0	0	164	23	0	0	0	6	0	0	0	0
7:45 AM	0	0	0	0	0	0	170	32	0	0	0	5	0	0	0	0
8:00 AM	0	0	0	0	0	0	160	37	0	0	0	3	0	0	0	0
8:15 AM	0	0	0	0	0	0	152	41	0	0	0	5	0	0	0	0
8:30 AM	0	0	0	0	0	0	130	41	0	0	0	6	0	0	0	0
8:45 AM	0	0	0	0	0	0	137	43	0	0	0	3	0	0	0	0

	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	249	103	0	0	0	5	0	0	0	0
4:15 PM	0	0	0	0	0	0	299	108	0	0	0	4	0	0	0	0
4:30 PM	0	0	0	0	0	0	320	102	0	0	0	3	0	0	0	0
4:45 PM	0	0	0	0	0	0	310	104	0	0	0	5	0	0	0	0
5:00 PM	0	0	0	0	0	0	270	96	0	0	0	6	0	0	0	0
5:15 PM	0	0	0	0	0	0	282	108	0	0	0	4	0	0	0	0
5:30 PM	0	0	0	0	0	0	268	110	0	0	0	4	0	0	0	0
5:45 PM	0	0	0	0	0	0	266	106	0	0	0	3	0	0	0	0

AM PEAK HOUR 7:30 AM to 8:30 AM	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**646**	**133**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.96**				**0.79**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.6%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**1199**	**410**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.95**				**0.75**				**0.00**			
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.4%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**

Client:	M. Littman
Project #:	Location 1
BTD #:	0011_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Columbus Ave
Street 2:	Amory St
Count Date:	11/2/2016
Day of Week:	Wednesday
Weather:	Clear, 70 F

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

TRUCKS

	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0

	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

AM PEAK HOUR 8:00 AM to 9:00 AM	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.83**				**0.00**				**0.00**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Columbus Ave Northbound				Columbus Ave Southbound				Amory St Eastbound				Amory St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
PHF	**0.00**				**0.75**				**0.00**				**0.00**			

Client:	M. Littman
Project #:	Location 1
BTD #:	0011_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Columbus Ave
Street 2:	Amory St
Count Date:	11/2/2016
Day of Week:	Wednesday
Weather:	Clear, 70 F

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

PEDESTRIANS & BICYCLES

	Columbus Ave										Amory St									
	Northbound					Southbound					Eastbound					Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	7		0	0	0	0		0	0	0	10		0	0	0	0	
7:15 AM	0	0	0	9		0	0	0	0		0	0	0	13		0	0	0	0	
7:30 AM	0	0	0	10		0	0	0	0		0	0	0	15		0	0	0	0	
7:45 AM	0	0	0	7		0	0	0	0		0	0	0	13		0	0	0	0	
8:00 AM	0	0	0	9		0	1	0	0		0	0	0	9		0	0	0	0	
8:15 AM	0	0	0	8		0	0	0	0		0	0	0	9		0	0	0	0	
8:30 AM	0	0	0	7		0	0	0	0		0	0	0	8		0	0	0	0	
8:45 AM	0	0	0	5		0	0	0	0		0	0	0	6		0	0	0	0	

	Columbus Ave										Amory St									
	Northbound					Southbound					Eastbound					Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	0	0	13		0	0	0	0		0	0	0	16		0	0	0	0	
4:15 PM	0	0	0	11		0	0	0	0		0	0	1	13		0	0	0	0	
4:30 PM	0	0	0	8		0	0	0	0		0	0	0	8		0	0	0	0	
4:45 PM	0	0	0	9		0	0	1	0		0	0	0	10		0	0	0	0	
5:00 PM	0	0	0	10		0	0	0	0		0	0	0	11		0	0	0	0	
5:15 PM	0	0	0	15		0	1	0	0		0	0	0	14		0	0	0	0	
5:30 PM	0	0	0	18		0	0	0	0		0	0	1	15		0	0	0	0	
5:45 PM	0	0	0	19		0	0	0	0		0	0	0	16		0	0	0	0	

AM PEAK HOUR[1]	Columbus Ave										Amory St									
7:30 AM	Northbound					Southbound					Eastbound					Westbound				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
8:30 AM	0	0	0	34		0	1	0	0		0	0	0	46		0	0	0	0	

PM PEAK HOUR[1]	Columbus Ave										Amory St									
4:15 PM	Northbound					Southbound					Eastbound					Westbound				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:15 PM	0	0	0	38		0	0	1	0		0	0	1	42		0	0	0	0	

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

Client:	M. Littman
Project #:	Location 6
BTD #:	0006_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Dimock St
Street 2:	Amory St
Count Date:	9/14/2016
Day of Week:	Tuesday
Weather:	Clear, 84 F

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

TOTAL (CARS & TRUCKS)

	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	2	0	33	0	13	104	0	0	0	9	2
7:15 AM	0	0	0	0	0	3	0	31	0	13	111	0	0	0	9	1
7:30 AM	0	0	0	0	0	3	0	26	0	11	109	0	0	0	4	0
7:45 AM	0	0	0	0	0	3	0	30	0	13	103	0	0	0	7	1
8:00 AM	0	0	0	0	0	2	0	31	0	14	88	0	0	0	6	1
8:15 AM	0	0	0	0	0	4	0	39	0	14	100	0	0	0	9	2
8:30 AM	0	0	0	0	0	6	0	43	0	12	102	0	0	0	10	3
8:45 AM	0	0	0	0	0	5	0	45	0	13	107	0	0	0	6	1

	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	10	0	76	0	7	79	0	0	0	18	2
4:15 PM	0	0	0	0	0	8	0	77	0	7	87	0	0	0	27	3
4:30 PM	0	0	0	0	0	6	0	70	0	7	87	0	0	0	34	3
4:45 PM	0	0	0	0	0	6	0	76	0	8	79	0	0	0	41	4
5:00 PM	0	0	0	0	0	6	0	74	0	9	62	0	0	0	44	5
5:15 PM	0	0	0	0	0	5	0	90	0	6	62	0	0	0	35	4
5:30 PM	0	0	0	0	0	3	0	97	0	3	58	0	0	0	28	2
5:45 PM	0	0	0	0	0	5	0	102	0	4	61	0	0	0	28	4

AM PEAK HOUR 8:00 AM to 9:00 AM	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**17**	**0**	**158**	**0**	**53**	**397**	**0**	**0**	**0**	**31**	**7**
PHF		**0.00**				**0.88**				**0.94**				**0.73**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**2.5%**	**0.0%**	**0.0%**	**0.8%**	**0.0%**	**0.0%**	**0.0%**	**3.2%**	**0.0%**

PM PEAK HOUR 4:15 PM to 5:15 PM	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**26**	**0**	**297**	**0**	**31**	**315**	**0**	**0**	**0**	**146**	**15**
PHF		**0.00**				**0.95**				**0.92**				**0.82**		
HV %	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**1.0%**	**0.0%**	**0.0%**	**1.9%**	**0.0%**	**0.0%**	**0.0%**	**1.4%**	**0.0%**

Client:	M. Littman
Project #:	Location 6
BTD #:	0006_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Dimock St
Street 2:	Amory St
Count Date:	9/14/2016
Day of Week:	Tuesday
Weather:	Clear, 84 F

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

TRUCKS

	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
7:00 AM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0

	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
Start Time	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
5:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	2	0	0	1	0	0	0	1	0

AM PEAK HOUR 7:00 AM to 8:00 AM	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**
PHF	**0.00**				**0.50**				**0.63**				**0.25**			

PM PEAK HOUR 4:00 PM to 5:00 PM	Northbound				Amory St Southbound				Amory St Eastbound				Dimock St Westbound			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right
	0	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**6**	**0**	**0**	**0**	**2**	**0**
PHF	**0.00**				**0.38**				**0.75**				**0.50**			

Client:	M. Littman
Project #:	Location 6
BTD #:	0006_HSH
Location:	Jamaica Plain (Boston), MA
Street 1:	Dimock St
Street 2:	Amory St
Count Date:	9/14/2016
Day of Week:	Tuesday
Weather:	Clear, 84 F

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

PEDESTRIANS & BICYCLES

	Northbound					Amory St Southbound					Amory St Eastbound					Dimock St Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
7:00 AM	0	0	0	0		0	0	1	1		0	0	0	4		0	1	0	0	
7:15 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
7:30 AM	0	0	0	0		0	0	2	0		0	0	0	0		0	0	0	1	
7:45 AM	0	0	0	0		0	0	1	0		0	0	0	0		0	0	0	0	
8:00 AM	0	0	0	0		0	0	0	1		0	1	0	3		0	0	0	1	
8:15 AM	0	0	0	0		0	0	1	0		0	0	0	0		0	1	0	0	
8:30 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	
8:45 AM	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0	

	Northbound					Amory St Southbound					Amory St Eastbound					Dimock St Westbound				
Start Time	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
4:00 PM	0	0	0	0		0	0	0	2		0	0	0	8		0	0	0	1	
4:15 PM	0	0	0	0		0	0	1	0		0	0	0	3		0	0	0	3	
4:30 PM	0	0	0	1		0	0	0	3		0	2	0	2		0	1	0	0	
4:45 PM	0	0	0	0		0	0	1	0		0	0	0	5		0	0	0	1	
5:00 PM	0	1	0	0		0	0	0	2		0	1	0	5		0	0	0	2	
5:15 PM	0	0	0	2		0	0	0	0		0	0	0	2		0	3	0	0	
5:30 PM	0	0	0	0		0	0	0	1		0	0	0	1		0	1	0	1	
5:45 PM	0	0	0	0		0	0	0	0		0	0	0	3		0	0	0	0	

AM PEAK HOUR[1]	Northbound					Amory St Southbound					Amory St Eastbound					Dimock St Westbound				
8:00 AM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
9:00 AM	0	0	0	0		0	0	1	1		0	1	0	3		0	1	0	1	

PM PEAK HOUR[1]	Northbound					Amory St Southbound					Amory St Eastbound					Dimock St Westbound				
4:15 PM																				
to	Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED		Left	Thru	Right	PED	
5:15 PM	0	1	0	1		0	0	2	5		0	3	0	15		0	1	0	6	

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

Massachusetts Highway Department
Statewide Traffic Data Collection
2017 Weekday Seasonal Factors

Factor Group	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Axle Factor
R1	1.30	1.23	1.21	1.04	0.98	0.92	0.86	0.81	0.95	0.99	1.03	1.10	0.80
R2	0.95	0.96	0.98	0.97	0.97	0.93	0.97	0.94	0.96	0.90	0.92	0.93	0.96
R3	1.05	1.01	1.04	0.99	0.94	0.93	0.91	0.92	0.96	0.94	1.01	1.03	0.97
R4-R7	1.10	1.07	1.09	1.00	0.95	0.89	0.88	0.87	0.92	0.95	1.04	1.09	0.93
U1-Boston	1.01	1.04	0.99	0.94	0.93	0.92	0.96	0.93	0.94	0.93	0.95	0.98	0.95
U1-Essex	1.04	1.05	1.00	0.96	0.93	0.89	0.90	0.90	0.93	0.93	0.98	1.03	0.90
U1-Southeast	1.07	1.05	1.02	0.97	0.95	0.90	0.89	0.88	0.92	0.94	0.98	1.01	0.97
U1-West	1.00	0.96	0.94	0.92	0.93	0.92	0.95	0.93	0.92	0.92	0.97	0.97	0.89
U1-Worcester	1.10	1.10	1.04	0.97	0.95	0.94	0.93	0.91	0.95	0.96	0.98	1.04	0.89
U2	1.01	1.03	0.98	0.95	0.93	0.91	0.94	0.92	0.95	0.95	0.95	0.97	0.98
U3	1.03	1.05	1.01	0.95	0.92	0.90	0.94	0.93	0.93	0.92	0.96	0.99	0.96
U4-U7	1.06	1.05	1.02	0.96	0.92	0.89	0.95	0.95	0.92	0.92	0.98	1.03	0.98
Rec - East	1.18	1.17	1.08	1.03	0.95	0.87	0.83	0.83	0.97	0.98	1.19	1.19	0.98
Rec - West	1.30	1.23	1.32	1.18	0.95	0.82	0.70	0.69	0.97	0.96	1.16	1.15	0.95

Round off:
0-999 = 10
>1000 = 100

U = Urban
R = Rural

1 - Interstate
2 - Freeway and Expressway
3 - Other Principal Arterial
4 - Minor Arterial
5 - Major Collector
6 - Minor Collector
7 - Local Road and Street

Recreational - East Group - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket.

Recreational - West Group - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114,1116,2196,2197 and 2198.

2018216: 1599 Columbus Avenue

Trip Generation Assessment

HOWARD STEIN HUDSON
9-Jul-2019

XX HARD CODED TO BALANCE

Land Use	Size	Category	Directional Split	Average Trip Rate	Unadjusted Vehicle Trips	Assumed National Vehicle Occupancy Rate[1]	Unadjusted Person-Trips	Transit Share[3]	Transit Person-Trips	Walk/Bike/ Other Share[3]	Walk/ Bike/ Other Trips	Auto Share[3]	Auto Person-Trips	Private Auto Person-Trips	Assumed Local Auto Occupancy Rate[5]	Primary AutoTrips
Daily Peak Hour																
Multifamily Housing (Mid Rise)[8]	65	Total		5.440	354	1.18	**418**	55%	**228**	6%	**26**	39%	**164**	164	1.18	**138**
	units	In	50%	2.720	177	1.18	**209**	55%	**114**	6%	**13**	39%	**82**	82	1.18	**69**
		Out	50%	2.720	177	1.18	**209**	55%	**114**	6%	**13**	39%	**82**	82	1.18	**69**
Shopping Center[13]	4	Total		37.750	152	1.82	**276**	15%	**42**	24%	**66**	61%	**168**	168	1.82	**92**
	KSF	In	50%	18.875	76	1.82	**138**	15%	**21**	24%	**33**	61%	**84**	84	1.82	**46**
		Out	50%	18.875	76	1.82	**138**	15%	**21**	24%	**33**	61%	**84**	84	1.82	**46**
Total		Total			**506**		**694**		**270**		**92**		**332**			**230**
		In			**253**		**347**		**135**		**46**		**166**			**115**
		Out			**253**		**347**		**135**		**46**		**166**			**115**
AM Peak Hour																
Multifamily Housing (Mid Rise)[8]	65	Total		0.360	23	1.18	**27**		**15**		**1**		**11**	11	1.18	**10**
	units	In	26%	0.094	6	1.18	**7**	55%	**4**	6%	**0**	39%	**3**	3	1.18	**3**
		Out	74%	0.266	17	1.18	**20**	55%	**11**	6%	**1**	39%	**8**	8	1.18	**7**
Shopping Center[13]	4	Total		0.94	3	1.82	**6**		**1**		**2**		**3**	3	1.82	**2**
	KSF	In	62%	0.583	2	1.82	**4**	15%	**1**	24%	**1**	61%	**2**	2	1.82	**1**
		Out	38%	0.357	1	1.82	**2**	15%	**0**	24%	**1**	61%	**1**	1	1.82	**1**
Total		Total			**26**		**33**		**16**		**3**		**14**			**12**
		In			**8**		**11**		**5**		**1**		**5**			**4**
		Out			**18**		**22**		**11**		**2**		**9**			**8**
PM Peak Hour																
Multifamily Housing (Mid Rise)[8]	65	Total		0.440	28	1.18	**33**		**18**		**2**		**13**	13	1.18	**11**
	units	In	61%	0.268	17	1.18	**20**	55%	**11**	6%	**1**	39%	**8**	8	1.18	**7**
		Out	39%	0.172	11	1.18	**13**	55%	**7**	6%	**1**	39%	**5**	5	1.18	**4**
Shopping Center[13]	4	Total		3.81	15	1.82	**28**		**4**		**7**		**17**	17	1.82	**9**
	KSF	In	48%	1.829	7	1.82	**13**	15%	**2**	24%	**3**	61%	**8**	8	1.82	**4**
		Out	52%	1.981	8	1.82	**15**	15%	**2**	24%	**4**	61%	**9**	9	1.82	**5**
Total		Total			**43**		**61**		**22**		**9**		**30**			**20**
		In			**24**		**33**		**13**		**4**		**16**			**11**
		Out			**19**		**28**		**9**		**5**		**14**			**9**

1. 2017 National vehicle occupancy rates - 1.18:home to work; 1.82: family/personal business; 1.82: shopping; 2.1 social/recreational
3. Residential mode shares based on Census Data for census tract 813 and retail mode shates based on peak-hour BTD Data for Area 6
5. Local vehicle occupancy rates based on 2009 National vehicle occupancy rates
8. ITE Trip Generation Manual, 10th Edition, LUC 221 (Multifamily Housing Mid-Rise (3-10 floors)), average rate
13. ITE Trip Generation Manual, 10th Edition, LUC 820 (Shopping Center), average rate

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	0	0	651	174
Future Vol, veh/h	0	48	0	0	651	174
Conflicting Peds, #/hr	0	34	46	0	0	46
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	92	92	96	96
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	0	61	0	0	678	181

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	510		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	6.9		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.3		-	-
Pot Cap-1 Maneuver	0	514		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	491		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	13.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	491	-	-
HCM Lane V/C Ratio	0.124	-	-
HCM Control Delay (s)	13.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.4	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	174	0	12	48	0	2
Future Vol, veh/h	174	0	12	48	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	189	0	13	52	0	2

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	41	39	0	0	65	0
Stage 1	39	-	-	-	-	-
Stage 2	2	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	970	1033	-	-	1537	-
Stage 1	983	-	-	-	-	-
Stage 2	1021	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	970	1033	-	-	1537	-
Mov Cap-2 Maneuver	970	-	-	-	-	-
Stage 1	983	-	-	-	-	-
Stage 2	1021	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	970	1537	-
HCM Lane V/C Ratio	-	-	0.195	-	-
HCM Control Delay (s)	-	-	9.6	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Intersection Delay, s/veh	12.2
Intersection LOS	B

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	53	400	31	7	17	159
Future Vol, veh/h	53	400	31	7	17	159
Peak Hour Factor	0.94	0.94	0.73	0.73	0.88	0.88
Heavy Vehicles, %	0	1	3	0	0	3
Mvmt Flow	56	426	42	10	19	181
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	13.9	8.3	9.2
HCM LOS	B	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	12%	0%	10%
Vol Thru, %	88%	82%	0%
Vol Right, %	0%	18%	90%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	453	38	176
LT Vol	53	0	17
Through Vol	400	31	0
RT Vol	0	7	159
Lane Flow Rate	482	52	200
Geometry Grp	1	1	1
Degree of Util (X)	0.596	0.07	0.256
Departure Headway (Hd)	4.455	4.849	4.604
Convergence, Y/N	Yes	Yes	Yes
Cap	810	734	778
Service Time	2.494	2.906	2.644
HCM Lane V/C Ratio	0.595	0.071	0.257
HCM Control Delay	13.9	8.3	9.2
HCM Lane LOS	B	A	A
HCM 95th-tile Q	4	0.2	1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	42	0	0	1208	413
Future Vol, veh/h	0	42	0	0	1208	413
Conflicting Peds, #/hr	0	38	42	0	0	42
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	92	92	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	56	0	0	1272	435

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	934		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	6.9		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.3		-	-
Pot Cap-1 Maneuver	0	271		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	260		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	22.6	0
HCM LOS	C	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	260	-	-
HCM Lane V/C Ratio	0.215	-	-
HCM Control Delay (s)	22.6	-	-
HCM Lane LOS	C	-	-
HCM 95th %tile Q(veh)	0.8	-	-

Intersection	
Int Delay, s/veh	10.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	413	0	4	42	0	29
Future Vol, veh/h	413	0	4	42	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	449	0	4	46	0	32

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	59	27	0	0	50	0
Stage 1	27	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	948	1048	-	-	1557	-
Stage 1	996	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	948	1048	-	-	1557	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	948	1557	-
HCM Lane V/C Ratio	-	-	0.474	-	-
HCM Control Delay (s)	-	-	12.2	0	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	2.6	0	-

Intersection	
Intersection Delay, s/veh	15.1
Intersection LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	31	317	147	15	35	407
Future Vol, veh/h	31	317	147	15	35	407
Peak Hour Factor	0.92	0.92	0.82	0.82	0.95	0.95
Heavy Vehicles, %	0	2	1	0	0	1
Mvmt Flow	34	345	179	18	37	428
Number of Lanes	0	1	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	15.7	11.3	16.2
HCM LOS	C	B	C

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	9%	0%	8%
Vol Thru, %	91%	91%	0%
Vol Right, %	0%	9%	92%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	348	162	442
LT Vol	31	0	35
Through Vol	317	147	0
RT Vol	0	15	407
Lane Flow Rate	378	198	465
Geometry Grp	1	1	1
Degree of Util (X)	0.575	0.313	0.636
Departure Headway (Hd)	5.475	5.698	4.922
Convergence, Y/N	Yes	Yes	Yes
Cap	658	628	730
Service Time	3.518	3.75	2.967
HCM Lane V/C Ratio	0.574	0.315	0.637
HCM Control Delay	15.7	11.3	16.2
HCM Lane LOS	C	B	C
HCM 95th-tile Q	3.7	1.3	4.6

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	48	0	0	634	317
Future Vol, veh/h	0	48	0	0	634	317
Conflicting Peds, #/hr	0	34	46	0	0	46
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	92	92	96	96
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	0	61	0	0	660	330

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	575	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.3	-	-
Pot Cap-1 Maneuver	0	466	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	446	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	14.3	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	446	-	-
HCM Lane V/C Ratio	0.136	-	-
HCM Control Delay (s)	14.3	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	2	24	309	8	0	1	12	46	0	2	0
Future Vol, veh/h	0	2	24	309	8	0	1	12	46	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	26	336	9	0	1	13	50	0	2	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	67	2	56	42	38	2	0	0	63	0	0
Stage 1	2	2	-	40	40	-	-	-	-	-	-	-
Stage 2	45	65	-	16	2	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	954	824	1082	941	850	1034	1620	-	-	1540	-	-
Stage 1	1021	894	-	975	862	-	-	-	-	-	-	-
Stage 2	969	841	-	1004	894	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	945	823	1082	916	849	1034	1620	-	-	1540	-	-
Mov Cap-2 Maneuver	945	823	-	916	849	-	-	-	-	-	-	-
Stage 1	1020	894	-	974	861	-	-	-	-	-	-	-
Stage 2	958	840	-	977	894	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	11.3	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	1056	914	1540	-	-
HCM Lane V/C Ratio	0.001	-	-	0.027	0.377	-	-	-
HCM Control Delay (s)	7.2	0	-	8.5	11.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.8	0	-	-

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	122	491	0	0	93	238
Future Vol, veh/h	122	491	0	0	93	238
Conflicting Peds, #/hr	1	0	0	1	1	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	73	73	88	88
Heavy Vehicles, %	0	1	3	0	0	3
Mvmt Flow	130	522	0	0	106	270

Major/Minor	Major1		Minor2	
Conflicting Flow All	1	0	784	4
Stage 1	-	-	1	-
Stage 2	-	-	783	-
Critical Hdwy	4.1	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.4	-
Follow-up Hdwy	2.2	-	3.5	3.327
Pot Cap-1 Maneuver	1635	-	365	1077
Stage 1	-	-	-	-
Stage 2	-	-	454	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	1633	-	323	1073
Mov Cap-2 Maneuver	-	-	323	-
Stage 1	-	-	-	-
Stage 2	-	-	454	-

Approach	EB	SB
HCM Control Delay, s	1.5	17.9
HCM LOS		C

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	1633	-	649
HCM Lane V/C Ratio	0.079	-	0.58
HCM Control Delay (s)	7.4	0	17.9
HCM Lane LOS	A	A	C
HCM 95th %tile Q(veh)	0.3	-	3.7

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	43	0	0	1098	685
Future Vol, veh/h	0	43	0	0	1098	685
Conflicting Peds, #/hr	0	38	42	0	0	42
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	92	92	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	57	0	0	1156	721

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1019	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.3	-	-
Pot Cap-1 Maneuver	0	238	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	228	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	26	0
HCM LOS	D	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	228	-	-
HCM Lane V/C Ratio	0.251	-	-
HCM Control Delay (s)	26	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	1	-	-

Intersection	
Int Delay, s/veh	23

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	19	660	25	0	3	4	42	0	30	0
Future Vol, veh/h	0	1	19	660	25	0	3	4	42	0	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	21	717	27	0	3	4	46	0	33	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	80	89	33	77	66	27	33	0	0	50	0	0
Stage 1	33	33	-	33	33	-	-	-	-	-	-	-
Stage 2	47	56	-	44	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	908	801	1041	912	825	1048	1579	-	-	1557	-	-
Stage 1	983	868	-	983	868	-	-	-	-	-	-	-
Stage 2	967	848	-	970	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	883	799	1041	892	823	1048	1579	-	-	1557	-	-
Mov Cap-2 Maneuver	883	799	-	892	823	-	-	-	-	-	-	-
Stage 1	981	868	-	981	866	-	-	-	-	-	-	-
Stage 2	935	846	-	950	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	26	0.4	0
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1579	-	-	1025	889	1557	-	-
HCM Lane V/C Ratio	0.002	-	-	0.021	0.838	-	-	-
HCM Control Delay (s)	7.3	0	-	8.6	26	0	-	-
HCM Lane LOS	A	A	-	A	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	10	0	-	-

Intersection	
Int Delay, s/veh	27.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	73	360	0	0	116	679
Future Vol, veh/h	73	360	0	0	116	679
Conflicting Peds, #/hr	5	0	0	5	6	15
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	82	82	95	95
Heavy Vehicles, %	0	2	1	0	0	1
Mvmt Flow	79	391	0	0	122	715

Major/Minor	Major1		Minor2	
Conflicting Flow All	5	0	560	20
Stage 1	-	-	5	-
Stage 2	-	-	555	-
Critical Hdwy	4.1	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.4	-
Follow-up Hdwy	2.2	-	3.5	3.309
Pot Cap-1 Maneuver	1630	-	493	1061
Stage 1	-	-	-	-
Stage 2	-	-	579	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	1622	-	458	1041
Mov Cap-2 Maneuver	-	-	458	-
Stage 1	-	-	-	-
Stage 2	-	-	576	-

Approach	EB	SB
HCM Control Delay, s	1.2	41.8
HCM LOS		E

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	1622	-	878
HCM Lane V/C Ratio	0.049	-	0.953
HCM Control Delay (s)	7.3	0	41.8
HCM Lane LOS	A	A	E
HCM 95th %tile Q(veh)	0.2	-	15.3

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	49	0	0	634	319
Future Vol, veh/h	0	49	0	0	634	319
Conflicting Peds, #/hr	0	34	46	0	0	46
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	79	79	92	92	96	96
Heavy Vehicles, %	0	0	0	0	3	0
Mvmt Flow	0	62	0	0	660	332

Major/Minor	Minor2			Major2	
Conflicting Flow All	-	576		-	0
Stage 1	-	-		-	-
Stage 2	-	-		-	-
Critical Hdwy	-	6.9		-	-
Critical Hdwy Stg 1	-	-		-	-
Critical Hdwy Stg 2	-	-		-	-
Follow-up Hdwy	-	3.3		-	-
Pot Cap-1 Maneuver	0	466		-	-
Stage 1	0	-		-	-
Stage 2	0	-		-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	-	446		-	-
Mov Cap-2 Maneuver	-	-		-	-
Stage 1	-	-		-	-
Stage 2	-	-		-	-

Approach	EB	SB
HCM Control Delay, s	14.4	0
HCM LOS	B	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	446	-	-
HCM Lane V/C Ratio	0.139	-	-
HCM Control Delay (s)	14.4	-	-
HCM Lane LOS	B	-	-
HCM 95th %tile Q(veh)	0.5	-	-

Intersection	
Int Delay, s/veh	9.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	2	24	311	8	0	1	12	47	0	2	0
Future Vol, veh/h	0	2	24	311	8	0	1	12	47	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	26	338	9	0	1	13	51	0	2	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	47	68	2	57	43	39	2	0	0	64	0	0
Stage 1	2	2	-	41	41	-	-	-	-	-	-	-
Stage 2	45	66	-	16	2	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	954	823	1082	940	849	1033	1620	-	-	1538	-	-
Stage 1	1021	894	-	974	861	-	-	-	-	-	-	-
Stage 2	969	840	-	1004	894	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	945	822	1082	915	848	1033	1620	-	-	1538	-	-
Mov Cap-2 Maneuver	945	822	-	915	848	-	-	-	-	-	-	-
Stage 1	1020	894	-	973	860	-	-	-	-	-	-	-
Stage 2	958	839	-	977	894	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	11.3	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1620	-	-	1056	913	1538	-	-
HCM Lane V/C Ratio	0.001	-	-	0.027	0.38	-	-	-
HCM Control Delay (s)	7.2	0	-	8.5	11.3	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	1.8	0	-	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	124	491	0	0	96	242
Future Vol, veh/h	124	491	0	0	96	242
Conflicting Peds, #/hr	1	0	0	1	1	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	73	73	88	88
Heavy Vehicles, %	0	1	3	0	0	3
Mvmt Flow	132	522	0	0	109	275

Major/Minor	Major1		Minor2	
Conflicting Flow All	1	0	788	4
Stage 1	-	-	1	-
Stage 2	-	-	787	-
Critical Hdwy	4.1	-	6.4	6.23
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.4	-
Follow-up Hdwy	2.2	-	3.5	3.327
Pot Cap-1 Maneuver	1635	-	363	1077
Stage 1	-	-	-	-
Stage 2	-	-	452	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	1633	-	321	1073
Mov Cap-2 Maneuver	-	-	321	-
Stage 1	-	-	-	-
Stage 2	-	-	452	-

Approach	EB	SB
HCM Control Delay, s	1.5	18.5
HCM LOS		C

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	1633	-	644
HCM Lane V/C Ratio	0.081	-	0.596
HCM Control Delay (s)	7.4	0	18.5
HCM Lane LOS	A	A	C
HCM 95th %tile Q(veh)	0.3	-	4

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	44	0	0	1098	692
Future Vol, veh/h	0	44	0	0	1098	692
Conflicting Peds, #/hr	0	38	42	0	0	42
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	92	92	95	95
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	0	59	0	0	1156	728

Major/Minor	Minor2		Major2	
Conflicting Flow All	-	1022	-	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	6.9	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	3.3	-	-
Pot Cap-1 Maneuver	0	237	-	-
Stage 1	0	-	-	-
Stage 2	0	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	-	228	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s	26.2	0
HCM LOS	D	

Minor Lane/Major Mvmt	EBLn1	SBT	SBR
Capacity (veh/h)	228	-	-
HCM Lane V/C Ratio	0.257	-	-
HCM Control Delay (s)	26.2	-	-
HCM Lane LOS	D	-	-
HCM 95th %tile Q(veh)	1	-	-

Intersection	
Int Delay, s/veh	23.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	1	19	667	25	0	3	4	43	0	30	0
Future Vol, veh/h	0	1	19	667	25	0	3	4	43	0	30	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	21	725	27	0	3	4	47	0	33	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	80	90	33	78	67	28	33	0	0	51	0	0
Stage 1	33	33	-	34	34	-	-	-	-	-	-	-
Stage 2	47	57	-	44	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	908	800	1041	911	824	1047	1579	-	-	1555	-	-
Stage 1	983	868	-	982	867	-	-	-	-	-	-	-
Stage 2	967	847	-	970	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	883	798	1041	891	822	1047	1579	-	-	1555	-	-
Mov Cap-2 Maneuver	883	798	-	891	822	-	-	-	-	-	-	-
Stage 1	981	868	-	980	865	-	-	-	-	-	-	-
Stage 2	935	845	-	950	868	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	26.9	0.4	0
HCM LOS	A	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1579	-	-	1025	888	1555	-	-
HCM Lane V/C Ratio	0.002	-	-	0.021	0.847	-	-	-
HCM Control Delay (s)	7.3	0	-	8.6	26.9	0	-	-
HCM Lane LOS	A	A	-	A	D	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	10.3	0	-	-

Intersection	
Int Delay, s/veh	29.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	77	360	0	0	120	683
Future Vol, veh/h	77	360	0	0	120	683
Conflicting Peds, #/hr	5	0	0	5	6	15
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	-	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	82	82	95	95
Heavy Vehicles, %	0	2	1	0	0	1
Mvmt Flow	84	391	0	0	126	719

Major/Minor	Major1		Minor2	
Conflicting Flow All	5	0	570	20
Stage 1	-	-	5	-
Stage 2	-	-	565	-
Critical Hdwy	4.1	-	6.4	6.21
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	5.4	-
Follow-up Hdwy	2.2	-	3.5	3.309
Pot Cap-1 Maneuver	1630	-	486	1061
Stage 1	-	-	-	-
Stage 2	-	-	573	-
Platoon blocked, %		-		
Mov Cap-1 Maneuver	1622	-	450	1041
Mov Cap-2 Maneuver	-	-	450	-
Stage 1	-	-	-	-
Stage 2	-	-	570	-

Approach	EB	SB
HCM Control Delay, s	1.3	45.8
HCM LOS		E

Minor Lane/Major Mvmt	EBL	EBT	SBLn1
Capacity (veh/h)	1622	-	870
HCM Lane V/C Ratio	0.052	-	0.972
HCM Control Delay (s)	7.3	0	45.8
HCM Lane LOS	A	A	E
HCM 95th %tile Q(veh)	0.2	-	16.3

Appendix C

Climate Change Questionnaire

Boston Planning & Development Agency
Climate Resiliency Report Summary

Submitted: 08/23/2019 07:35:38

A.1 - Project Information

Project Name:	1599 Columbus Avenue			
Project Address:	1595-1599 Columbus Avenue			
Filing Type:	Initial (PNF, EPNF, NPC or other substantial filing)			
Filing Contact:	Geoff Starsiak	Epsilon Associates	gstarsiak@epsilonassociates.com	978-897-7100
Is MEPA approval required?	No	MEPA date:		

A.2 - Project Team

Owner / Developer:	Urban Edge
Architect:	Utile
Engineer:	Petersen
Sustainability / LEED:	
Permitting:	Epsilon Associates
Construction Management:	

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Residential
List the First Floor Uses:	Non-residential, Lobby, parking, community room, manager's office
List any Critical Site Infrastructure and or Building Uses:	

Site and Building:

Site Area (SF):	21204	Building Area (SF):	80000
Building Height (Ft):	69	Building Height (Stories):	6
Existing Site Elevation – Low (Ft BCB):	44	Existing Site Elevation – High (Ft BCB):	54
Proposed Site Elevation – Low (Ft BCB):	44	Proposed Site Elevation – High (Ft BCB):	46
Proposed First Floor Elevation (Ft BCB):	45	Below grade spaces/levels (#):	0

Article 37 Green Building:

LEED Version - Rating System:	LEED v4 Homes Mid-rise	LEED Certification:	No

Boston Planning & Development Agency
Climate Resiliency Report Summary

boston planning & development agency

Proposed LEED rating:	Gold	Proposed LEED point score (Pts.):	67

Building Envelope:

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	R-50c.i. average (min. R30c.i. at drains)	Exposed Floor :	30c.i.
Foundation Wall:	10c..i.	Slab Edge (at or below grade):	10c.i.

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

Area of Opaque Curtain Wall & Spandrel Assembly:	0	Wall & Spandrel Assembly Value:	0.035
Area of Framed & Insulated / Standard Wall:	78	Wall Value:	R12c.i. on R19.8 cavity
Area of Vision Window:	21	Window Glazing Assembly Value:	0.15
		Window Glazing SHGC:	0.30 to 0.40
Area of Doors:	1	Door Assembly Value :	0.14

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	Energy loads and performance were simulated using a preliminary model of a typical floor, to determine relative sensitivity of envelope and systems upgrades on building performance. In the next phase, a whole-building energy model will be created to more closely predict energy use relative to code as well as peak loads.		
Annual Electric (kWh):	560000	Peak Electric (kW):	
Annual Heating (MMbtu/hr):	150	Peak Heating (MMbtu):	0.63
Annual Cooling (Tons/hr):	11000	Peak Cooling (Tons):	60
Energy Use - Below ASHRAE 90.1 - 2013 (%):	22	Have the local utilities reviewed the building energy performance?:	No
Energy Use - Below Mass. Code (%):	22	Energy Use Intensity (kBtu/SF):	26

Back-up / Emergency Power System

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

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

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

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

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

B.1 – GHG Emissions - Design Conditions

For this filing - Annual Building GHG Emissions (Tons): 330

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

The Project team is studying the feasibility of incorporating Passive House standards to minimize heating and cooling loads.

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

The building envelope is designed to include high levels of wall, roof, and floor insulation, high performance glazing with an optimized window to wall ratio, and construction detailing that avoids thermal bridging. A carefully detailed continuous exterior air barrier is anticipated to be included in the design to ensure the highest levels of air tightness to minimize energy loss due to infiltration, which would be verified at multiple stages during construction via blower door testing. Because better insulation leads to colder exterior surfaces and less heat available to evaporate water within an assembly, the building envelope would be detailed to protect against wetting, to promote drying via vapor diffusion, and to ensure durability.

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

Engineering system energy efficiency measures will include: energy recovery systems for ventilation, high efficiency cold-climate air source heat pumps, low flow plumbing fixtures, high performance lighting and lighting controls, energy metering, and an automated control system capable of monitoring equipment.

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

The Project will explore the feasibility of the implementation of on-site solar photovoltaics to meet or exceed the common space electrical load. Additionally, all-electric building systems will be closely considered to eliminate on-site fossil-fuel combustion and minimize operational carbon.

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

No district or area scale systems are located in the area.

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

Investigating Mass Save and Mass CEC incentives

B.2 - GHG Reduction - Adaptation Strategies

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

The building's MEP systems are designed to be predominantly electric, and therefore the building is well-positioned for a future grid that is increasingly cleaner. Rooftop solar PV is being explored, as well as renewable energy credits.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low (Deg.):	8	Temperature Range - High (Deg.):	91
Annual Heating Degree Days:	5596	Annual Cooling Degree Days	750

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

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

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

The Project design incorporates measures to minimize the impact of high temperature events, including materials to minimize the heat island effect and new landscaping to provide shade.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

The proposed envelope design approach will help the building use less energy and maintain comfortable internal temperatures longer. If further Passive House design approaches are included, they will further improve the building's ability to withstand future extreme temperature events.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

Operable windows will provide passive ventilation. The project will look into the inclusion of an emergency generator to meet critical system loads.

D - Extreme Precipitation Events

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

D.1 – Extreme Precipitation - Design Conditions

What is the project design precipitation level? (In. / 24 Hours): 5.25

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

The Project's stormwater management system will be designed to reduce the existing peak rates and volumes of stormwater runoff from the Project site, which is currently mostly impervious, and promote groundwater recharge to the greatest extent practicable. The Project will strive to infiltrate at least 1.25 inches of stormwater runoff for the 24-hour storm event.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

The Project will strive to infiltrate 1.25" of stormwater runoff for the 24-hour storm event. The landscape plan includes pervious pavers and new landscaping to improve stormwater retention on-site.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, the sea level in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA Special Flood Hazard Area? No

What Zone:

What is the current FEMA SFHA Zone Base Flood Elevation for the site (Ft BCB)?

Boston Planning & Development Agency

Climate Resiliency Report Summary

boston planning & development agency

Is any portion of the site in the BPDA Sea Level Rise Flood Hazard Area (see SLR-FHA online map)?	No

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented by the Sea Level Rise Flood Hazard Area (SLR-FHA), which includes 3.2' of sea level rise above 2013 tide levels, an additional 2.5" to account for subsidence, and the 1% Annual Chance Flood. After using the SLR-FHA to identify a project's Sea Level Rise Base Flood Elevation, proponents should calculate the Sea Level Rise Design Flood Elevation by adding 12" of freeboard for buildings, and 24" of freeboard for critical facilities and infrastructure and any ground floor residential units.

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

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

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

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

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

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

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

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

Thank you for completing the Boston Climate Change Checklist!

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

Appendix D

Preliminary Energy Model

1599 Columbus Ave.
Preliminary Energy Model Results – 8/5/2019

A preliminary energy model was run using the tool BEopt to test the sensitivity of envelope and systems upgrades on site energy use intensity. At this preliminary stage, the model only used a typical apartment floor in the middle of the building (representing floors 3-5 only, without exposed floors or roofs) to focus on windows and walls, and to allow for a faster simulation. Findings of this preliminary model are outlined below and in Figure 1:

- Adding three inches of exterior continuous insulation and upgrading to triple-glazed windows can lower site heating energy by 38% and can have a significant impact on peak heating load.
- Improving air tightness can significantly reduce heating energy consumption.
- Water heating is a major energy end use, so low-flow fixtures and other energy conservation measures are critical.
- Lights and appliances should be specified as energy efficient as possible to further drive down energy usage.
- Cold-climate air source heat pumps and efficient energy recovery ventilation should be carefully sized and selected for further energy use reductions.

As the design develops, a whole-building simulation will be used to further explore energy load and consumption reduction measures. Additionally, a PV feasibility analysis will indicate the potential for on-site renewables to offset energy consumption.

Figure 1: Waterfall chart showing Annual Site Energy Use Intensity (EUI) reduction measures (results for typical floor only)

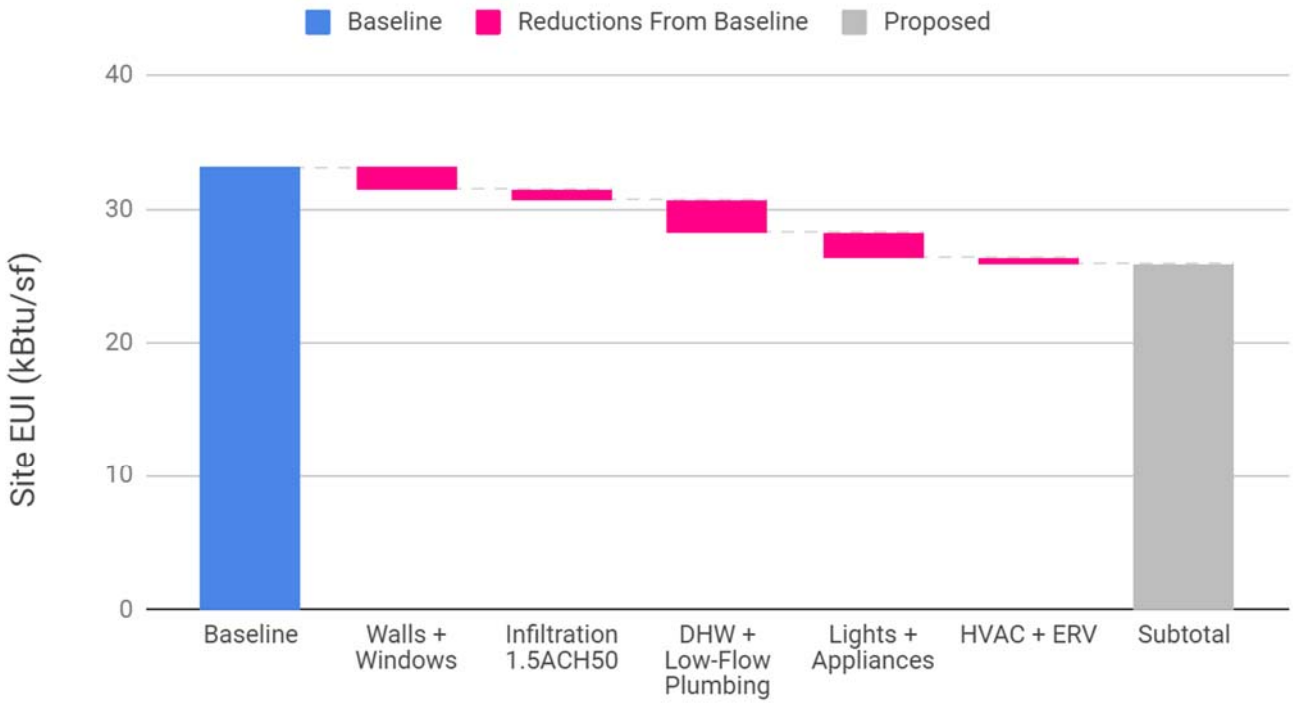


Table 1: Inputs Comparison of Proposed Design Versus Baseline Design

	Baseline: IECC 2015 Benchmark*	Proposed Design
Walls	R-13 Fiberglass Batt, 2x4, 16 in o.c.	R-19 Fiberglass Batt, 2x6, 16 in o.c. OSB Sheathing, R-12c.i. Mineral Wool (3")
Ceilings/Roofs	Adiabatic	Adiabatic
Foundation/Floors	Adiabatic	Adiabatic
Window-Wall Ratio	25%	25%
Windows	U-0.35, SHGC 0.40	U-0.20, SHGC 0.35
Air Leakage	3 ACH50	1.5 ACH50
Mechanical Ventilation	2010, Exhaust	2013, ERV, 70%
Air Source Heat Pump	SEER 13, 7.7 HSPF	SEER 19, 9.5 HSPF
Cooling/Heating Set Point	76F / 71F	76F / 71F
Water Heating	Electric Storage, Distribution: Uninsulated, TrunkBranch, Copper Fixtures: Standard	Electric Storage, Distribution: R-2, TrunkBranch, Copper Fixtures: Low-Flow
Lighting	34% CFL Hardwired, 34% CFL Plugin	100% LED Hardwired, 34% CFL Plugin
Appliances & Fixtures	Top freezer EF = 17.6, Electric Cooking Range, Dishwasher 318kWh rated	Top freezer EF = 20.4, Electric Cooking Range, Dishwasher 290kWh rated

*Inputs use the Department of Energy's 2014 Building America House Simulation Protocols, which BEopt uses for baseline modeling. Where applicable, some baseline inputs were modified to include 2015 IECC code minimums.

Figure 2: Energy end use pie chart for Baseline Case (results for typical floor only)

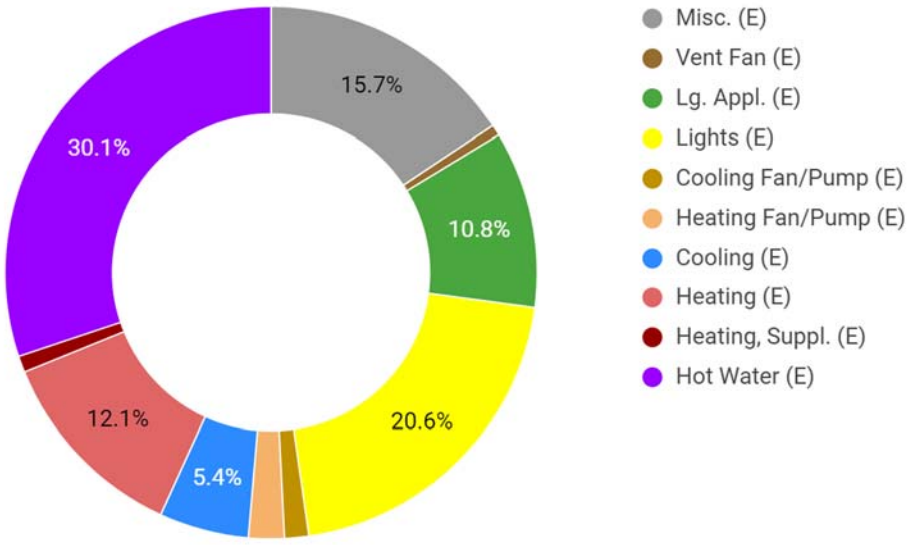


Table 2: Site Energy Use Intensity (EUI) by end use (results for typical floor only)

	IECC 2015 Benchmark (kBtu/sf)	Proposed (kBtu/sf)
Misc. (E)	5.21	5.15
Vent Fan (E)	0.22	1.28
Lg. Appl. (E)	3.59	3.27
Lights (E)	6.85	5.45
Cooling Fan/Pump (E)	0.49	0.24
Heating Fan/Pump (E)	0.72	0.11
Cooling (E)	1.81	1.48
Heating (E)	4.01	1.60
Heating, Suppl. (E)	0.33	0.20
Hot Water (E)	10.02	7.10
Total	33.25	25.87

Table 3 shows the reduction in peak heating and cooling loads as a result of building envelope and air tightness upgrades for a representative apartment with only one exposure (each apartment is planned to have an individual heat pump).

Table 3: Peak Loads for typical north-facing 2-Bedroom apartment

	IECC 2015 Benchmark (kBtu/hr)	Proposed (kBtu/hr)
Peak Heating Load	11.3	8.2
Peak Cooling Load	8.2	7.5

Appendix E

Accessibility Checklist

Article 80 – Accessibility Checklist

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

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

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

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

Accessibility Analysis Information Sources:

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

Glossary of Terms:

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

Article 80 | ACCESSIBILTY CHECKLIST

1. Project Information:

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

Project Name:	**1599 Columbus Avenue**
Primary Project Address:	**1595-1599 Columbus Ave, Boston MA 02119**
Total Number of Phases/Buildings:	**1**
Primary Contact (Name / Title / Company / Email / Phone):	**Caitlin Madden, Urban Edge, cmadden@urbanedge.org or Emily Loomis, Urban Edge, eloomis@urbanedge.org**
Owner / Developer:	**1599 Columbus LLC**
Architect:	**Utile Architects and Planners**
Civil Engineer:	**Nitsch Engineering**
Landscape Architect:	**G2 Collaborative**
Permitting:	**Epsilon Associates, Inc**
Construction Management:	**TBD**

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

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

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

2. Building Classification and Description:

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

What are the dimensions of the project?

Site Area:	*21,204 SF*	Building Area:	*~ 80,000 GSF*
Building Height:	*69' FT.*	Number of Stories:	*6 Flrs.*
First Floor Elevation:	*~44'*	Is there below grade space:	*Yes / **No***

What is the Construction Type? (Select most appropriate type)				
	Wood Frame	Masonry	Steel Frame	Concrete
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	**Residential - Multi-unit, Four +**	Institutional	Educational
	Business	Mercantile	Factory	Hospitality
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	*Residential lobby/amenity, parking, non-residential use*			

3. Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	The neighborhood consists of mainly low-rise light industrial buildings straddled between more residential Jamaica Plain and Roxbury neighborhoods a few blocks east and west. The immediate block of the parcel is mostly flat with a gradual and continuous slope up Columbus Avenue.
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	Jackson Square MBTA station is located within approximately 1,000 feet of the site and serves the Orange Line and buses; bus routes 22, 29, 44 on Columbus Avenue are within a few blocks.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Mildred C. Hailey Public Housing, Dimmock Community Health Center, Nativity Prep School, Horizons for Homeless Children Building within ¼ of a mile.
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	Anna M. Cole Community Center, Engine 42 Fire Station within ¼ mile. Shelburne Community Center and Melnea Cass Recreation Center within ¾ mile.

4. Surrounding Site Conditions – Existing:

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

Is the development site within a historic district? ***If yes,*** identify which district:	The Project site is not located within an area on the State or National Register of Historic Places.
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	Sidewalks run along the full frontage of both Columbus Avenue and Amory Street. No existing pedestrian ramps. Sidewalks are concrete and vary in their condition from poor to fair. Columbus Avenue sidewalk is approximately 8'-3" wide to property line. Amory Street sidewalk is approximately 8'-10" wide from curb to property line. There are three existing curb cuts on Columbus Avenue and one on Amory Street. The sidewalk slopes match existing grading ranging from ~3-5%. Cross slopes vary and appear to be under 2% from property line to curb.
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	It is anticipated that all sidewalks will be replaced.
5. Surrounding Site Conditions – Proposed *This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.*	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	Yes; Columbus Avenue, Neighborhood Connector; Amory Street, Neighborhood Connector.
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	Building Frontage: 3-5' Pedestrian 8' Furnishing Zone 5'
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	The Frontage Zone on Columbus Avenue is proposed to be permeable paver. The Pedestrian Zone on Columbus Avenue is proposed as concrete, it will be both on private property and the City of Boston pedestrian right-of-way. The Furnishing Zone on Columbus Avenue is fully on private property and proposed as an accent paver. The Frontage Zone on Amory Street is

	proposed as mostly planting. The Pedestrian Zone on Amory Street is proposed as concrete, it will be both on private property and the City of Boston pedestrian right-of-way. The Furnishing Zone on Amory Street is fully on private property and proposed as planting.
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	No.
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	Yes
Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	Yes. Streetscape design, all improvements to public realm, new/modified curbcuts.
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	Approximately 21 parking spaces in a partially covered garage at grade under the building.
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	Approximately 4 proposed, 1 van accessible.
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	Not required.
Where is the accessible visitor parking located?	Under the building, near the building entrance from the parking lot.

Has a drop-off area been identified? ***If yes,*** will it be accessible?	Curb side drop off is proposed in front of the residential entry along Amory Street, and in front of the non-residential entry along Columbus Avenue.
7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.*	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	Each building entrance is expected to have a flush condition.
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	Yes.
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	Yes. All routes on the ground level of the site will be accessible and clear signage will be provided. We are also planning to distinguish ground paving textures to make routes to building entrances more clear.
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	Approximately 65 units
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	Approximately 65 units for Rent. 100% Affordable Housing.
If a residential development, how many accessible Group 2 units are being proposed?	Approximately 6 units.
If a residential development, how many accessible Group 2 units will	100% of the units will be affordable, so IDP does not apply.

also be IDP units? ***If none***, describe reason.	
If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	N/A
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes,*** provide reason.	No.
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes,*** describe:	Yes. 2 Elevators to connect 6 floors. No other ramps or lifts.
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.*	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	Mitigation for the project will be determined through consultation with the BPDA.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all of these spaces and features provide accessibility?	All planned common spaces including community room, laundry and outdoor spaces will provide accessibility.
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant	Yes. One restroom is planned to be adjacent to the community room, it is to be ADA compliant, single occupancy and gender neutral. The project will aim to provide functionality for “Family/Companion” use as space allows.

and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	
Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	Sarah Leung of the Disability Commission has attended BPDA Pre-File meeting and provided comments about providing accessible routes on site plan, distributing the location of accessible units throughout the building, and identifying accessible units on the floor plans.
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	Not yet.

10. Attachments

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

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Provide a diagram of the accessible route connections through the site, including distances.
Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry.
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. • • • •

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

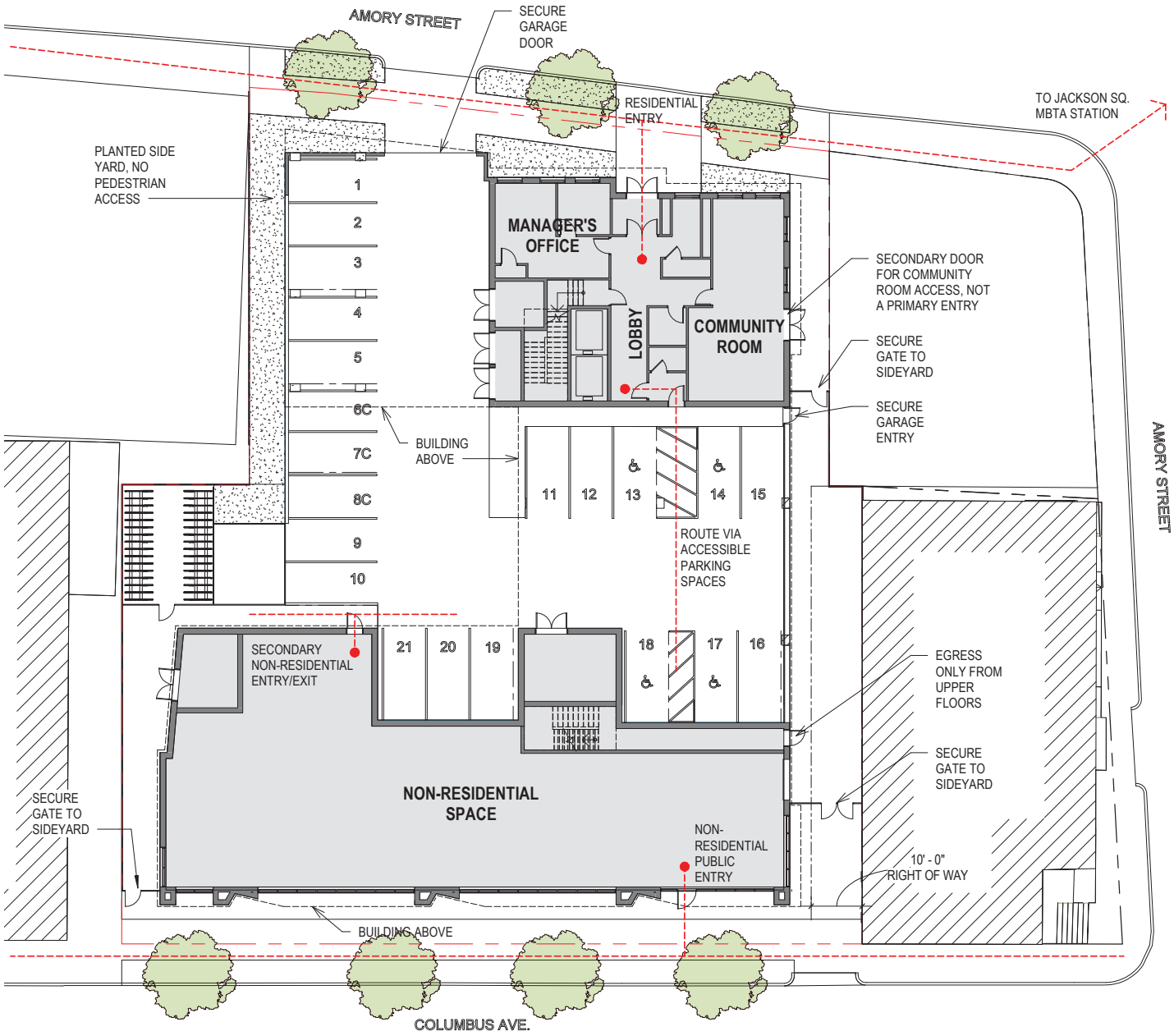
welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

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

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

Architectural Access staff can be reached at:

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


AMORY STREET
SECURE GARAGE DOOR
RESIDENTIAL ENTRY
TO JACKSON SQ. MBTA STATION
PLANTED SIDE YARD, NO PEDESTRIAN ACCESS
1
2
3
4
5
6C
7C
8C
9
10
MANAGER'S OFFICE
LOBBY
COMMUNITY ROOM
SECONDARY DOOR FOR COMMUNITY ROOM ACCESS, NOT A PRIMARY ENTRY
SECURE GATE TO SIDEYARD
SECURE GARAGE ENTRY
BUILDING ABOVE
11
12
13
14
15
ROUTE VIA ACCESSIBLE PARKING SPACES
SECONDARY NON-RESIDENTIAL ENTRY/EXIT
21
20
19
18
17
16
EGRESS ONLY FROM UPPER FLOORS
SECURE GATE TO SIDEYARD
NON-RESIDENTIAL SPACE
SECURE GATE TO SIDEYARD
NON-RESIDENTIAL PUBLIC ENTRY
10' - 0" RIGHT OF WAY
AMORY STREET
BUILDING ABOVE
COLUMBUS AVE.

1599 Columbus Avenue
Boston, MA

Level 5

Level 3

Level 6

Level 4

Level 2

UNIT TYPE	ACCESSIBLE UNIT COUNT
1 BEDROOM	4
2 BEDROOM	2
3 BEDROOM	1
TOTAL	**7**

Accessible Unit Distribution

0' 20' 40' 80'

URBAN EDGE utile

Appendix F

Broadband Checklist

16				*08/23/2019 7:53:18*
		Form Publisher Template		
08/23/2019				

This is a simple template document automatically generated by Form Publisher.
Feel free to personalize it like any other Google Spreadsheet.

Questions list:				
Project Name::				
Project Address Primary: :				
Project Address Additional: :				
Project Contact (name / Title / Company / email / phone): :				
Expected completion date:	04/01/2021			
Owner / Developer:	Urban Edge			
Architect:	Utile			
Engineer (building systems)::	Petersen			
Permitting::	Epsilon Associates			
Construction Management:				
Number of Points of Entry:	unknown			
Locations of Points of Entry:	unknown			
Quantity and size of conduits:	unknown			
Location where conduits connect (e.g. building-owned manhole, carrier-specific manhole or stubbed at property line) :	unknown			
Other information/comments:				
Do you plan to conduct a utility site assessment to identify where cabling is located within the street? This information can be helpful in determining the locations of POEs and telco rooms. Please enter 'unknown' if these decisions have not yet been made or you are presently unsure.:	Yes			
Number of risers:	Single			
Distance between risers (if more than one):	unknown			
Dimensions of riser closets:	Approx. 3' x 5'			
Riser or conduit will reach to top floor :	Yes			
Number and size of conduits or sleeves within each riser:	unknown			
Proximity to other utilities (e.g. electrical, heating):	Adjacent but in separate risers			
Other information/comments:				
What is the size of the telecom room?:	Approx. 3' x 5'			
Describe the electrical capacity of the telecom room (i.e. # and size of electrical circuits):	unknown			
Will the telecom room be located in an area of the building containing one or more load bearing walls?:	No			
Will the telecom room be climate controlled? :	Yes			

If the building is within a flood-prone geographic area, will the telecom equipment will be located above the floodplain?:				
Will the telecom room be located on a floor where water or other liquid storage is present?:	Yes			
Will the telecom room contain a flood drain?:	No			
Will the telecom room be single use (telecom only) or shared with other utilities?:	Yes			
Other information/comments:				
Will building/developer supply common inside wiring to all floors of the building? :	Yes			
If yes, what transmission medium (e.g. coax, fiber)? Please enter ‘unknown’ if these decisions have not yet been made or you are presently unsure.:	unknown			
Is the building/developer providing wiring within each unit? :	Yes			
If yes, what transmission medium (e.g. coax, fiber)? Please enter ‘unknown’ if these decisions have not yet been made or you are presently unsure.:	unknown			
Will the building conduct any RF benchmark testing to assess cellular coverage?:	Yes			
Will the building allocate any floor space for future in-building wireless solutions (DAS/small cell/booster equipment)?:	Yes			
Will the building be providing an in-building solution (DAS/ Small cell/ booster)? :	Unknown			
If so, are you partnering with a carrier, neutral host provider, or self-installing?:				
Will you allow cellular providers to place equipment on the roof?:	Unknown			
Will you allow broadband providers (fixed wireless) to install equipment on the roof? :	Unknown			
Will you allow broadband providers (fixed wireless) to install equipment on the roof? :	Unknown			
Date contacted:				
Does Comcast intend to serve the building?:				
Transmission Medium:				
If no or unknown, why?:				
Date contacted:				
Does RCN intend to serve the building?:				
Transmission Medium:				
If no or unknown, why?:				
Date contacted:				
Does Verizon intend to serve the building?:				
Transmission Medium:				

If no or unknown, why?:				
Date contacted:				
Does netBlazr intend to serve the building?:				
Transmission Medium:				
If no or unknown, why?:				
Date contacted:				
Does WebPass intend to serve the building?:				
Transmission Medium:				
If no or unknown, why?:				
Date contacted:				
Does Starry intend to serve the building?:				
Transmission Medium:				
If no or unknown, why?:				
Do you plan to abstain from exclusivity agreements with broadband and cable providers? :	Unknown			
Do you plan to make public to tenants and prospective tenants the list of broadband/cable providers who serve the building?:	Yes			