South Bay Town Center

Dorchester, Massachusetts

Project Notification Form

August 3, 2015

submitted to the **Boston Redevelopment Authority**
submitted by **Allstate Road (Edens), LLC**

prepared by **Fort Point Associates, Inc.**

in association with
ADD Inc, now with Stantec
Bohler Engineering
MDM Transportation
OLIN
DLA Piper
McPhail

Fort Point Associates, Inc.
Urban Planning Environmental Consulting Project Permitting

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Chapter 1

PROJECT SUMMARY

CHAPTER 1: PROJECT SUMMARY

1.1 PROJECT IDENTIFICATION

Project Name: South Bay Town Center Project

Address/Location: 101 Allstate Road, Dorchester

Assessor's Parcels: The Project Site is comprised of some or all of 10 parcels including:

- 0703498000 (101 Allstate Road)
- 0703497000 (95 Allstate Road)
- 0703441005 (30 West Howell Street)
- 0703441010 (20 West Howell Street)
- 0703469000 (55 Enterprise Street)
- 0703489000 (20 Baker Court)
- 0703473000 (Fields Court)
- 0703477000 (Fields Court)
- 0703488000 (Baker Court)
- 0703501045 (1 Allstate Road)

1.2 PROJECT SITE

Allstate Road (Edens), LLC (the "Proponent") proposes to construct a mixed-use, transit-oriented development called South Bay Town Center (the "Project") on largely vacant, commercial/industrial land and surface parking lots to the south of the existing South Bay Center, on a site comprised of all or portions of 10 parcels and totaling approximately 9.9 acres or 429,267 square feet (the "Project Site"). Existing buildings on the Project Site include a closed supermarket and retail building, a closed two-story office building, a vacant shipping/loading facility, and the Aggregate Concrete plant with associated machinery and aggregate piles. The Project Site is roughly bounded by the existing South Bay Center on the northwest, Enterprise Street on the southwest, Boston Street and a residential neighborhood on the southeast, and West Howell Street and hotel properties on the northeast. Massachusetts Avenue runs on the west side of the Project Site and the Southeast Expressway (Interstate 93) runs on the east side. The Project Site is a short walk from commuter rail service at Newmarket Station and subway and bus service at Andrew Station.

See Figure 1-1, Locus Plan and Figure 1-2, Aerial View of Existing Site.

1.3 PROJECT SUMMARY

The Proponent proposes to redevelop the Project Site into a mixed-use commercial and residential destination, creating approximately 113,000 square feet of retail and dining space, a 12 screen cinema, approximately 475 dwelling units, a hotel with approximately 130 rooms, and associated structured parking.

The Project will enhance the urban context of the Project Site by creating active ground floor retail uses, spaces for outdoor dining, dynamic, pedestrian-oriented publicly-accessible open spaces, and streetscape enhancements such as street trees, seating, and lighting. The proposed design is based on five main buildings, A through E, each containing mixed uses with the exception of Building E, which is location of the proposed hotel.

Parking for the Project is designed to be tucked away from view in structures with retail spaces and residences wrapped around them. Approximately 919 spaces will be in three garages, 70 spaces will be in a surface lot and on-street to serve the proposed hotel, and 32 spaces will be in a surface lot for employee parking. New internal roadways will contain approximately 45 parallel parking spaces, which will aid visitors making short visits to the Project as well as provide traffic calming on streets to improve the pedestrian experience. There will be a total of approximately 1,066 parking spaces provided for the Project.

The Project will incorporate multiple green building measures and will be Leadership in Energy and Environmental Design (LEED) certifiable as required by Article 37 of the City of Boston Zoning Code with a goal of LEED Certified. The full scope of sustainability strategies is discussed in more detail in Chapter 4, Sustainability.

Main vehicular access to the Project Site will be provided on the west on Massachusetts Avenue by way of Allstate Road and Enterprise Street and on the east by the Southeast Expressway by way of Southampton Street and the existing South Bay Center. The Project will enhance bicycle and pedestrian access to the Project Site by designing roadways that accommodate bicycles and by improving pedestrian networks through the property and providing connections north to Newmarket Station and east to Andrew Square. See Figure 1-3, Project Site Plan.

1.4 COMMUNITY PROCESS

The Proponent has placed community feedback and addressing community concerns at the forefront of its efforts to redevelop the Project Site, and has revised the Project in response to this feedback. As its affiliate is the owner of the neighboring South Bay Center, the Proponent has large existing investment in the neighborhood and endeavors to build a new development that respects its neighbors, increases public amenities, and adds new economic activity to the City of Boston.

Over the last several months, the Proponent has met with various neighborhood groups and stakeholders to explain its vision and respond to questions about the Project. The goal is to build consensus and support for a development that will meet the community's needs and will be well regarded within the neighborhood and throughout the region.

The Project Team has met formally and informally with the following neighborhood/community groups:

- Boston Collegiate School – January 7, 2015
- Citizens Connect to South Bay Committee – February 2, 2015
- John W. McCormack Civic Association – March 3 and 11, 2015, and June 16, 2015
- Columbia-Savin Hill Civic Association– March 2, 2015, and September 14, 2015
- Delegates Presentation Meeting – March 5, 2015
- South Bay Tenants/Owners Business Association – March 5, 2015
- Newmarket Business Association – March 11, 2015
- Fairmont/Indigo CDC Collaborative – March 18, 2015
- Andrew Square Civic Association – June 10, 2015
- Community Meeting – June 24, 2015
- McCormack zoning meeting – July 8, 2015
- Impact Advisory Group Meeting – July 9, 2015

In addition, the Project Team has also discussed the Project with representatives from the Boston City Council; Mayor Walsh's office; the Boston Redevelopment Authority; other City of Boston Agencies/Departments; State Legislators; State Agencies; and individual members of the community. The input gathered from the community, regulators, and officials has been incorporated in this Project Notification Form (PNF).

1.5 PUBLIC AND COMMUNITY BENEFITS

The Project will provide a range of public and community benefits to promote community welfare, economic activity, improved circulation, and affordable housing options. The Proponent is familiar with the neighborhood, with its affiliate being the current owner of the neighboring South Bay Center, and is committed to providing continued improvements to the area. Public and community benefits of the Project include the following:

- The construction of new transit-oriented commercial and retail spaces, providing new spaces for businesses to serve the neighborhood;

- The construction of new transit-oriented residential housing, which will attract more residents to the area and increase diversity of the housing stock through the creation of approximately 475 new residential units, including a total of 61 affordable units;

- Harmonization with the City's plans for the construction of new and affordable housing units as outlined in the Housing section from *Reports from Issues Working Groups for Mayor Martin J. Walsh's Transition Team*;

- Improvement of the urban design characteristics of the area by constructing a human-scaled, mixed-use development, acting as a neighborhood center;
- Landscape and site improvements such as enhanced lighting and increased security to provide a safe and secure shopping, dining, and residential experience;
- Pedestrian connectivity enhancements through existing South Bay Center to Newmarket Station with new landscaped sidewalk connections;
- Elimination of industrial truck traffic (currently more than 100 trucks per day) from local streets such as Boston Street;
- Support for the City's goals for a sustainable future through the development of energy-efficient and environmentally friendly buildings that will be LEED certifiable;
- The Project will result in increased property tax revenues to the City; and
- The Project will create approximately 1,600 construction-related jobs, 500 full-time equivalent jobs, 300 part-time equivalent jobs, and will stimulate the local and regional economies. The Proponent will adhere to all standards set forth by the City's Residents Job Policy.

1.6 SUMMARY OF REQUIRED PERMITS AND APPROVALS

The following table is a list of anticipated approvals for the Project.

Table 1-1: Anticipated Project Approvals

Agency	Approval
Local	
Boston Redevelopment Authority (BRA)	• Article 80B Large Project Review • Cooperation Agreement • Boston Residents Construction Employment Plan • Affordable Housing Agreement • Certification of Compliance with Article 80B • Certification of Consistency with Article 80C • Development Impact Project Agreement
Boston Civic Design Commission	• Recommendation to the BRA Board
Boston Zoning Commission	• Planned Development Area Development Plan Approval
Boston Landmarks Commission-Article 85	• Determination of No Significance
Boston Transportation Department	• Transportation Access Plan Agreement • Construction Management Plan
Boston Water and Sewer Commission	• Site Plan Approval

Public Improvement Commission	• Specific Repair Plan Approval
Inspectional Services Department	• Building Permit • Certificate of Occupancy • Flammable Storage and Garage Permit
State	
MEPA	• Certificate of the Secretary of Energy and Environmental Affairs • Public Benefits Determination (Tidelands)
Massachusetts Department of Transportation	• Access Permit
Department of Environmental Protection	• Notification Prior to Construction or Demolition • Source Registration for Emergency Generator • Elevator Permit
Federal	
Environmental Protection Agency	• NPDES Construction/Stormwater General Permit
Department of Public Safety	• Building Code Variances

1.7 PROJECT TEAM

Proponent	Allstate Road (Edens), LLC c/o EDENS 21 Custom House Street Boston, MA 02110 Contact: Keith Hague Director of Preconstruction 617-369-6609 khague@edens.com
Planning and Permitting	Fort Point Associates, Inc. 33 Union Street, 3rd Floor Boston, MA 02108 Contact: Robert Ricchi, AICP, LEED AP Senior Planner 617-357-7044 x209 rricchi@fpa-inc.com

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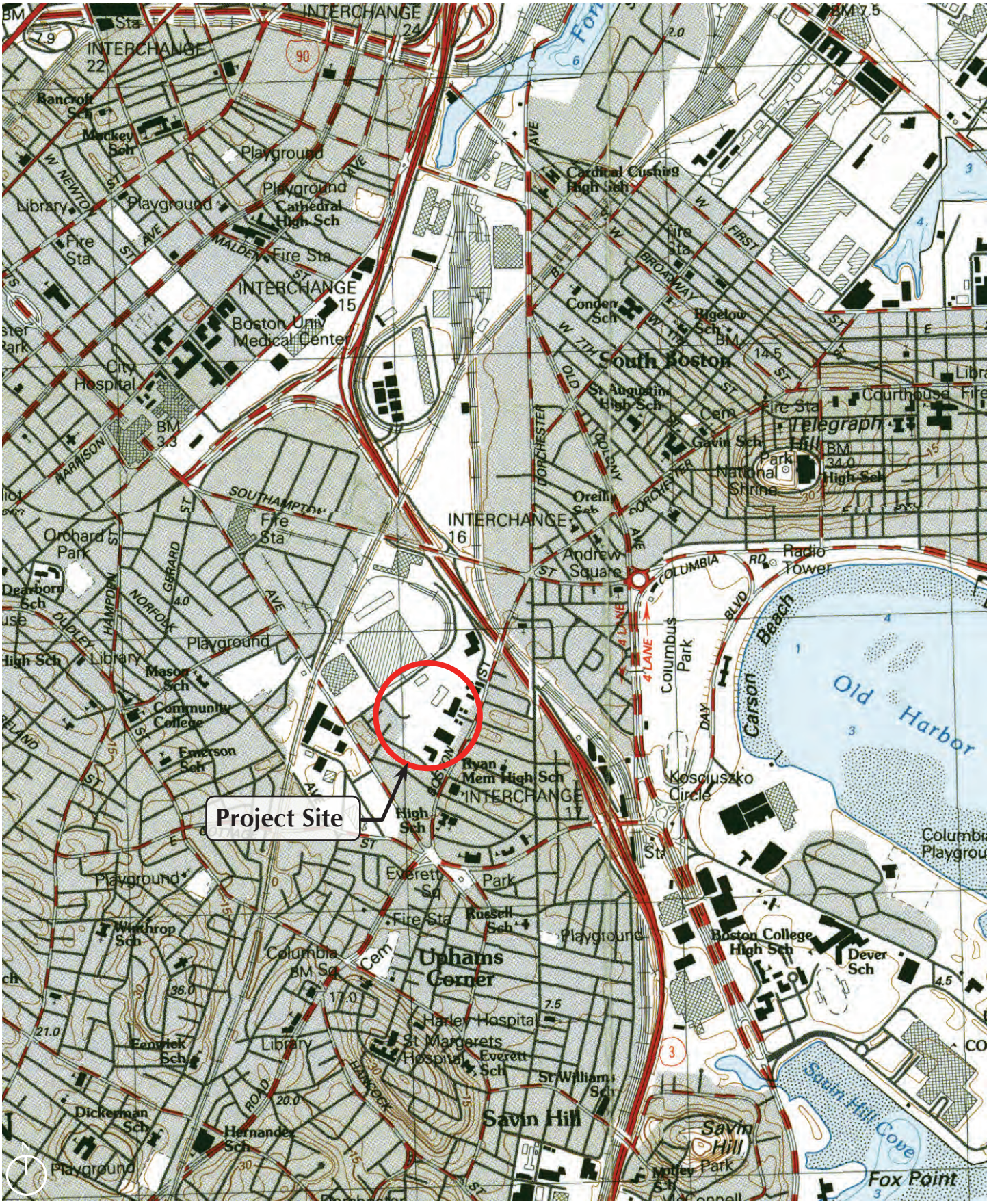
Geotechnical	McPhail Associates, Inc. 2269 Massachusetts Avenue Cambridge, MA 02140 Contact: Ambrose Donovan, PE Principal 617-868-1420 ajd@mcphail.com



Dorchester, Massachusetts

Figure 1-1
Locus Plan
Source: USGS, Fort Point Associates, Inc., 2015

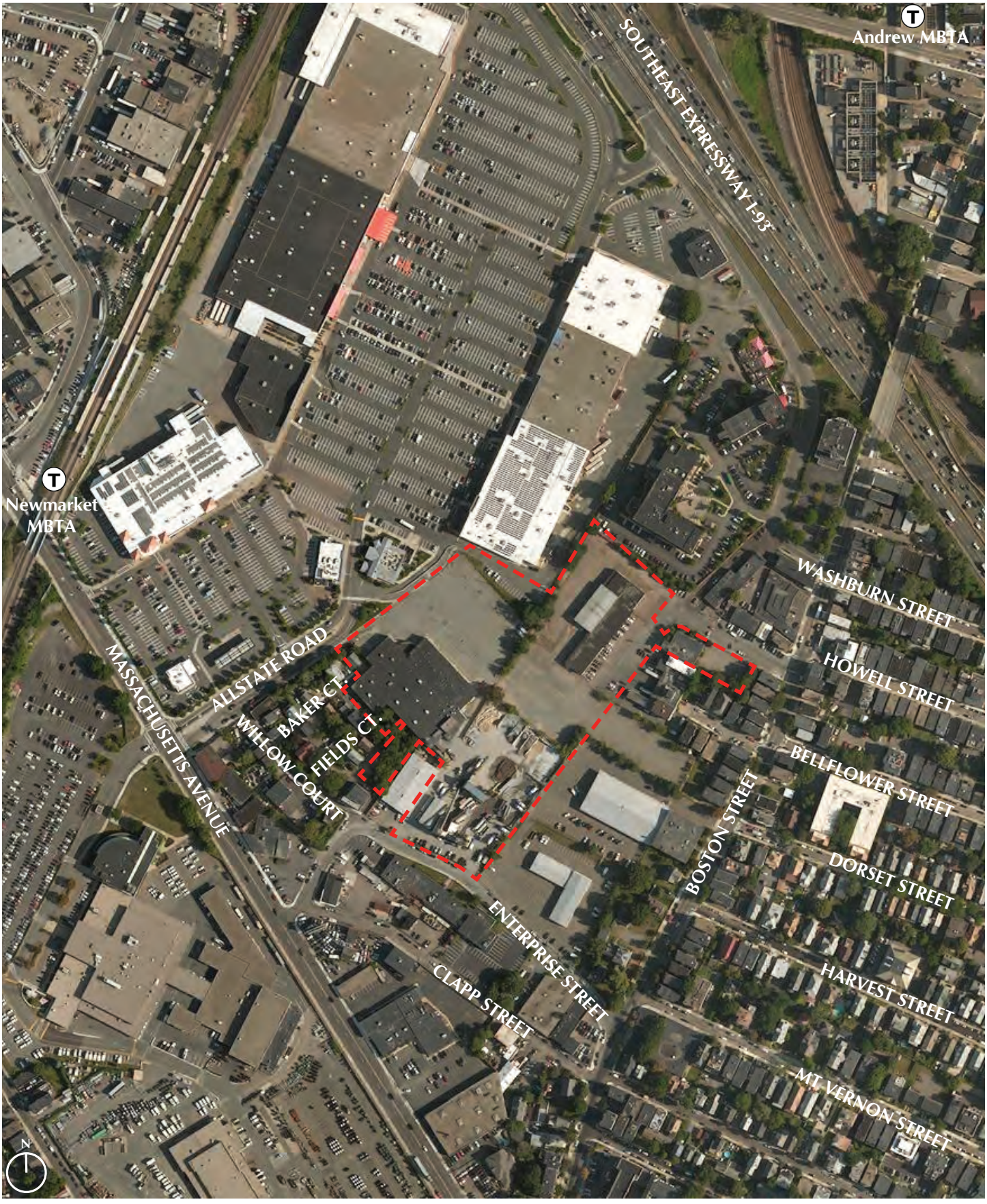


Figure 1-2

Aerial View of Existing Site

Source: Bing Maps, Fort Point Associates, Inc., 2015

Figure 1-3
Project Site Plan
Source: ADD Inc, now with Stantec, 2015

Chapter 2

PROJECT DESCRIPTION

CHAPTER 2: PROJECT DESCRIPTION

2.1 PROJECT SITE AND SURROUNDINGS

The approximately 9.9 acre Project Site is located to the south of the existing South Bay Center in Dorchester and is comprised of surface parking lots, vacant retail/commercial buildings, and the Aggregate Concrete plant. The Project Site is directly to the south of the existing South Bay Center, a big box shopping center arranged around large surface parking lots. A cohesive neighborhood of double and triple-decker homes lies to the south of the Project Site along Boston Street, and single and multi-family dwellings flank the west of the Site along Baker and Fields Courts. Office buildings and additional surface parking lie farther west along Enterprise Street and Massachusetts Avenue. To the east of the Project Site is an area of hotels and small businesses, Southeast Expressway (Interstate 93), and South Boston. MBTA Commuter Rail service is a short walk north at Newmarket Station and Red Line subway service is on the east at Andrew Station.

See Figure 2-1, Oblique View of Existing Site; Figure 2-2 through Figure 2-7, Existing Conditions Survey; Figures 2-8 through 2-11, Existing Conditions Photographs.

2.2 PROPOSED PROJECT

INTRODUCTION

The Project entails the redevelopment of a series of under-utilized parcels into a vibrant, transit-oriented, mixed-use neighborhood that could catalyze future development in its surrounding context and provide walkable amenities for adjacent residential neighborhoods. It includes approximately 113,000 square feet of retail and dining space, a 12 screen cinema, approximately 475 dwelling units, a hotel with approximately 130 rooms, new public spaces and streetscape upgrades, and associated parking. The Project is designed in five main buildings, A through E, each containing mixed uses with the exception of building E, which is the proposed hotel.

As a real estate developer with a retail-centric portfolio on the East Coast, the Proponent seeks to enrich the Dorchester community through its unique approach to project design, merchandising and operations, and community engagement. To develop this Project, the Proponent will work with a residential developer with expertise in developing successful communities and with a hotel developer that will ultimately manage the proposed hotel.

The Proponent and the Project Team recognize the intimate relationship between successful retail and quality public space, enhanced by texture and scale oriented toward the pedestrian. The Project represents a departure from the existing suburban-style shopping center at the existing South Bay Center, with the implementation of a new, urban street grid,

pedestrian orientation, mixed land uses, structured parking, and acute attention to the details of dynamic public space.

The Project Team aspires to introduce an exciting urban context influenced by the rich character and heritage of Dorchester- a destination that is new and vibrant, yet an extension of the fabric surrounding it; a place with authenticity and local essence, where residents and visitors alike comingle in a comfortable and energized atmosphere. The Proponent's efforts to thoughtfully merchandise through the selection and location of retail tenants, artisans, and dining concepts, to program both interior and exterior spaces, to artfully integrate materiality and landscaping, and to conceive events engaging the community, promise to create a lively public environment. The urban streetscape and public space create the heart of the Project, harboring activity, outdoor dining, and human interaction. Sidewalks are lined with transparent storefronts of designs unique to each retailer, thus ensuring visually compelling promenades. The social, cultural, and economic activity engendered by the project can provide an impetus for positive change to abutting, antiquated commercial and industrial properties, helping to provide a bright future for Dorchester and the City of Boston.

See Figure 2-12, Project Site Plan; Figure 2-13, Perspective Looking East; Figure 2-14, Perspective Looking South; Figure 2-15, Perspective Looking Southeast; and 2-16 Perspective Looking East.

Table 2-1: Anticipated Project Program

Building	A	B	C	D	E	Total
Gross Area (sf)	41,000	105,100	232,070	259,950	90,000	728,120
Retail (sf)	41,000	45,300	12,470	14,000	0	112,770 (16%)
Residential (sf)	0	0	219,600	245,950	0	465,550 (64%)
Cinema (sf)	0	59,800	0	0	0	59,800 (8%)
Hotel (sf)	0	0	0	0	90,000	90,000 (12%)
Unit Count	0	0	220	255	0	475
Garage Area (sf)	199,530	0	67,386	40,600	0	307,516
Garage Spaces	610	0	169	140	0	919

2.2.1 GROUND FLOOR USES

The ground floors of buildings A, B, C, and D will contain a lively ensemble of retail shops, restaurants, and a cinema, as well as lobbies to the two residential buildings and parking garages, and on some streets, apartment and live/work entrances. The goal of this project is to provide a high quality pedestrian-oriented experience similar to other shopping districts such as Cambridge's Harvard Square, where ground floor uses activate streets with sidewalk cafes, signage, canopies, lighting, and a variety of materials, planting, benches, and trees. The hotel lobby, drop off,

and hotel rooms will be at the base of building E. See Figure 2-17, Ground Floor Plan.

2.2.2 RESIDENTIAL USES

Buildings C and D contain approximately 475 apartment units, with internal parking garages and lobbies at the ground floor. Units range in size from studios to 3-bedrooms. There will be approximately 61 affordable units, spread between both buildings. Amenities such as a fitness room, pool, and lounges will also be provided.

Table 2-2: Residential Program

	Building C	**Building D**
Residential Units		
• Studio	37	35
• Jr. 1 BR	36	41
• 1 BR	71	79
• 2 BR	72	95
• 3 BR	4	5
Total	220	255

See Figure 2-18, Typical Upper Floor Plans.

2.2.3 PARKING AND ACCESS

The Project Site is well-connected to Massachusetts Avenue and the Southeast Expressway and forms of alternative transportation such as MBTA train, subway, and bus lines.

Vehicular

Primary Site access will be provided via existing driveways serving South Bay Center along Massachusetts Avenue via Allstate Road, Southampton Street, and the Frontage Road. Additional access connections will include Enterprise Street via Massachusetts Avenue and Boston Street and West Howell Street via Boston Street, which are expected to serve as secondary, lower-volume routes serving the Site and that will help disperse traffic on local neighborhood streets.

Pedestrian/Bicycle

Boston Street and Massachusetts Avenue have sidewalks, but lack bicycle lanes in the vicinity of the Project Site. The immediate site area is predominantly surface parking lots or abandoned industrial uses with minimal pedestrian or bicycle accommodation; it will be considerably improved by the Project through the

addition of new streets and sidewalks designed in general accordance with Boston's Complete Streets standards, and new trees, lighting, and open spaces.

Proposed off-site improvements include a pedestrian connection through South Bay Center toward the Stop & Shop to provide a route to the Newmarket MBTA station.

Accessibility

The entire project will be ADA-compliant (American Disabilities Act) at all public sidewalks, building entrances, public common spaces within buildings, and 5% of the residential apartments. In addition, the remaining 95% of the housing units will be compliant with the federal Fair Housing Act.

2.2.4 LANDSCAPING

The Project's mixed uses will be integrated by creating a network of streets, sidewalks, public/private courtyards, and a primary pedestrian promenade that organizes the buildings and provides direct connections, both vehicular and pedestrian, to the adjacent neighborhoods. The landscape also creates vegetated urban spaces in an area that is dominated by hardscape. These green spaces will serve both the existing neighborhood, future residents of the development, and visitors and enable exterior retail and restaurant activity and temporary events.

The streets and sidewalks also provide safe pedestrian corridors to surrounding transit locations, enhancing the quality of life in this new neighborhood. The site design incorporates sustainable landscape practices with regard to runoff and drainage, planting selections, and materials sourcing. See Figure 2-19, Preliminary Landscape Plan.

2.2.5 CONSTRUCTION PHASING AND PLAN

The Project will be phased to facilitate ideal construction timing and accommodate lease expiration of tenants currently occupying portions of the Project Site. Demolition of existing structures on the Project Site, with the exception of the Aggregate Concrete plant, is expected to start in the first quarter of 2016. Preparation of the land and installation of utility infrastructure serving buildings A, B, D, and E will immediately follow.

Phase One

The targeted construction start for Phase One, which will include buildings A and B, is the third quarter of 2016. Construction of Building D is anticipated to begin at approximately the same time or shortly thereafter. The portion of the Project Site planned for Building C is currently occupied by the Aggregate Concrete plant, which holds a lease on the property through 2016. Demolition, site work, and

construction of Building C will therefore commence the following year. The proposed hotel is anticipated to follow a similar construction timeframe to that of Building C, and begin in the third quarter of 2016.

Applying construction schedules results in targeted deliveries for Buildings A and B first, approximately in second quarter 2017. Tenant improvements, including those of various retail tenants and the cinema, will likely extend into 2018. This first delivery phase includes the cinema, approximately 100,000 square feet of shell retail space, parking facilities to serve these uses as well as the retail uses of future phases, and site improvements including infrastructure, "Main Street" and "New Road" with curbside parking and the public space and streetscape flanking the newly constructed streets. Phase One would also include delivery of the promenade between Buildings B and D, however full completion and refinement of this component will be undertaken with the Phase Two. Finally, off-site improvements to the pedestrian way through South Bay Center to Newmarket Station, the roadway and pedestrian improvements proposed at the section of Enterprise Street connecting the Project Site to Massachusetts Avenue, and the proposed improvements to the southern portion of West Howell Street will be undertaken during Phase One.

Phase Two

Phase Two includes the delivery of Building D, including the shell retail space on the ground floor, internal parking to serve the residential use, the east-west extension of West Howell Street and related streetscape to its north, and completion of the pedestrian alleyway. This phase also intends to incorporate the hotel component, Building E, however this schedule has yet to be firmly established. Phase Two delivery is targeted for second quarter 2018 delivery.

Phase Three

Phase Three will complete the development, delivering late 2019. Phase Three includes Building C, its infrastructure and immediately surrounding streetscape improvements.

The phasing and delivery timeframes noted above represent a reasonable approximation of the project schedule at this schematic stage of project design. Various factors including the real estate and finance markets, construction complexities, or unforeseen conditions could impact the delivery of the Project.

2.3 COMPLIANCE WITH BOSTON ZONING CODE

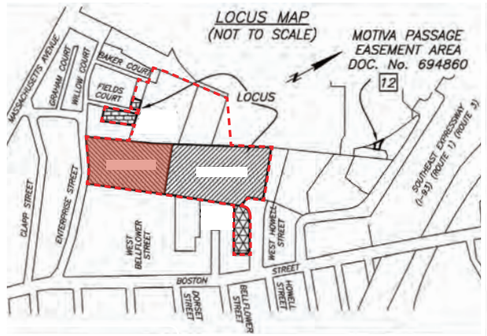
The Project is subject to land use controls contained in the City of Boston Zoning Code (the "Code"). The Project Site is located in Boston's Dorchester Neighborhood District and the South Bay Community Commercial Subdistrict under Article 65 of the Code. The Project Site is not located in a Restricted Parking District or a Groundwater Conservation District.

In accordance with Article 80B of the Code, the Project is subject to the requirements of Large Project Review because it exceeds 50,000 square feet of gross floor area. The Project is also subject to Article 37, Green Buildings, which requires that proposed buildings be LEED-certifiable.

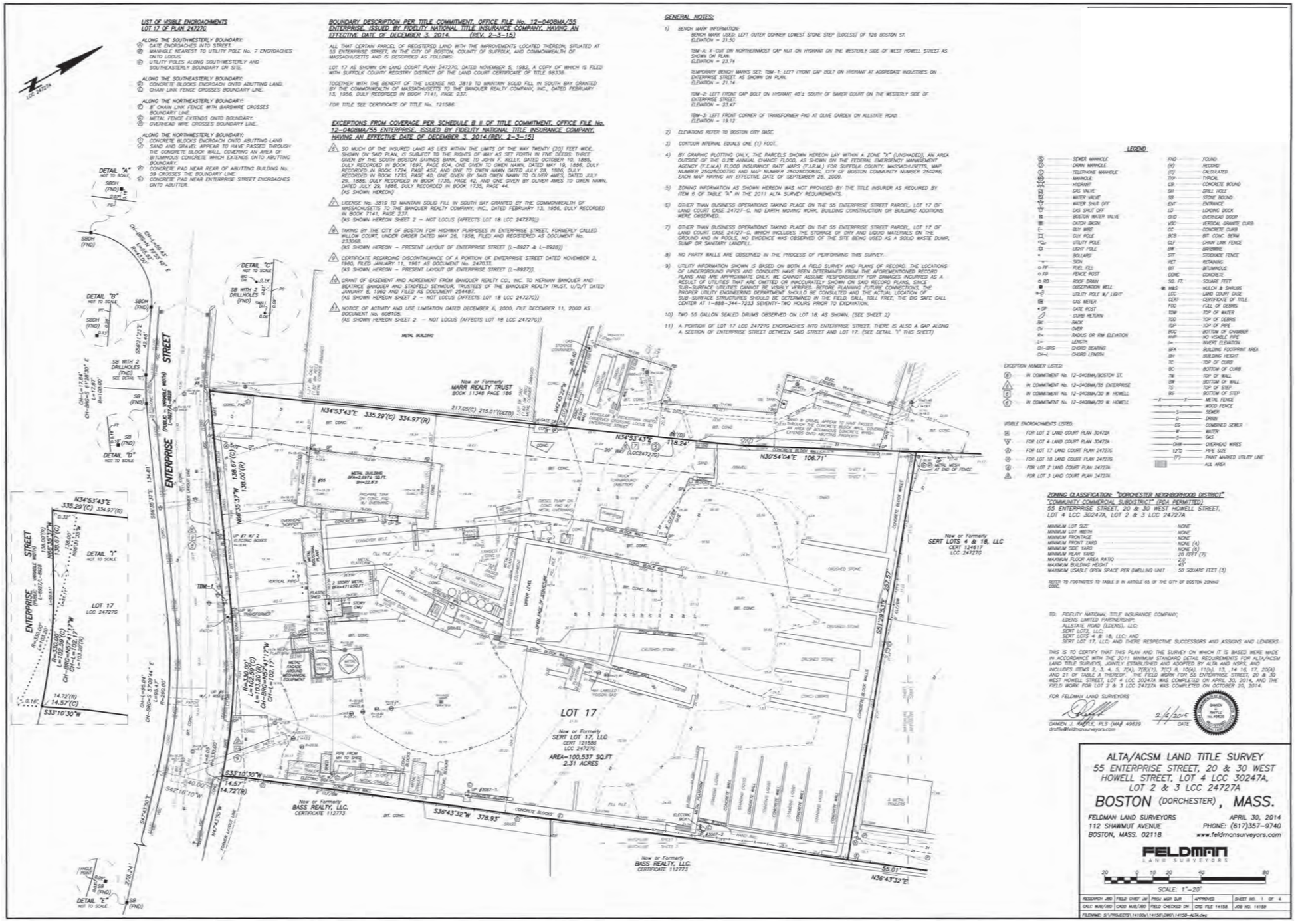
The Proponent intends to pursue a Planned Development Area (PDA) under Section 80C of the Code (Planned Development Area Review) for the Project. PDAs are permitted for developments within the South Bay Community Commercial Subdistrict. A PDA Development Plan will be prepared and submitted to the BRA in the fall. The proposed PDA Development Plan will require that the maximum height and floor area ratio (FAR) on the Project Site comply with maximum height and FAR requirements applicable to PDAs in the South Bay Community Commercial Subdistrict.

Dorchester, Massachusetts

Figure 2-1
Oblique View of Existing Site
Source: Bing Maps, Fort Point Associates, Inc., 2015

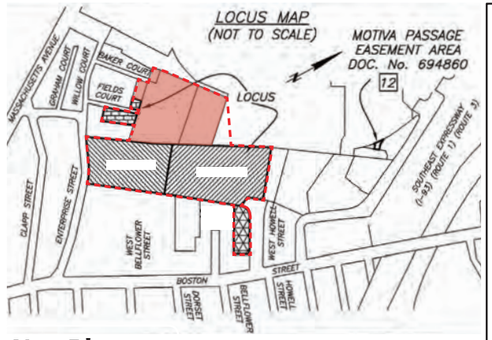


Key Plan



Dorchester, Massachusetts

Figure 2-2
Existing Conditions Survey
Source: Bohler Engineering, 2015



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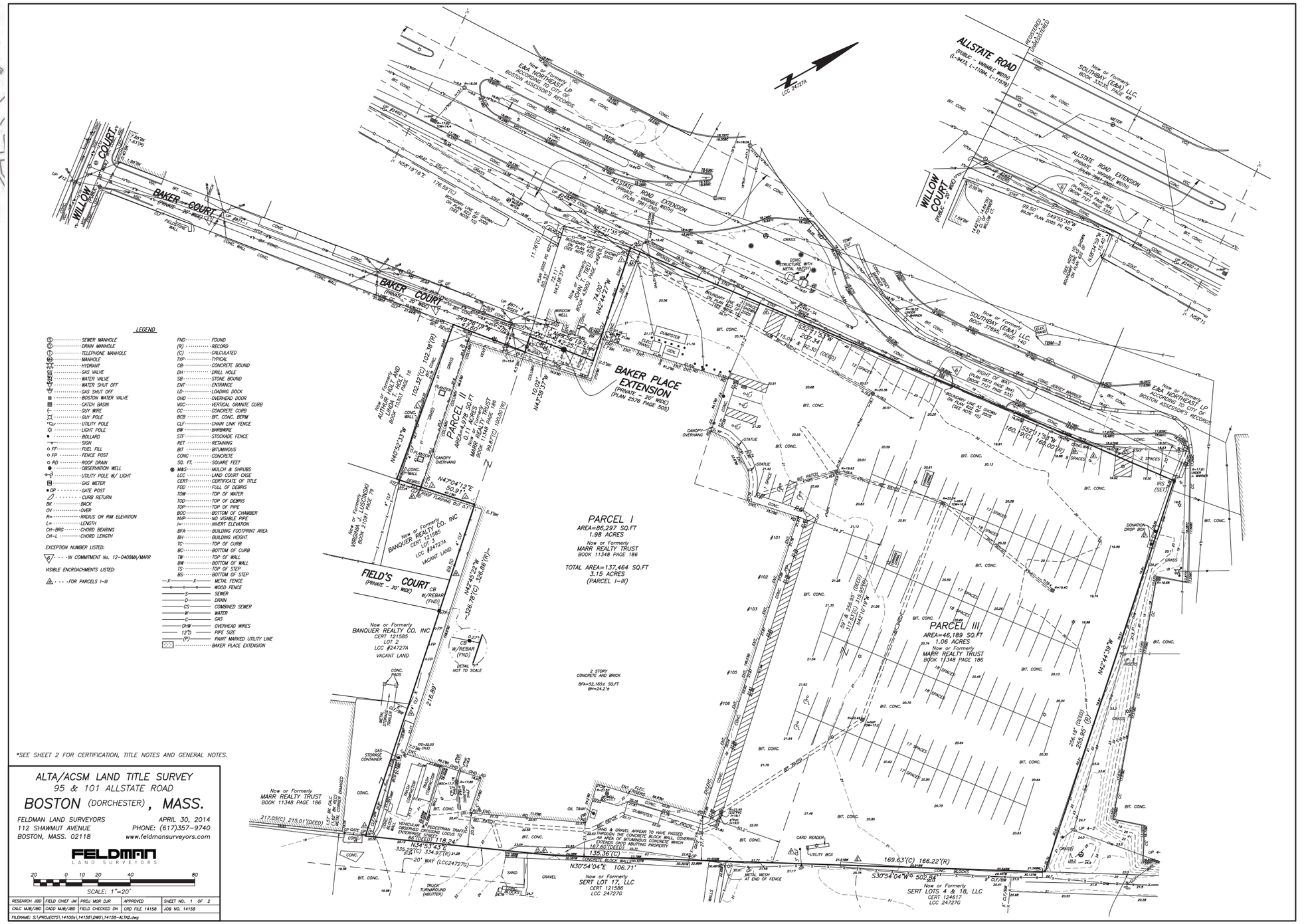
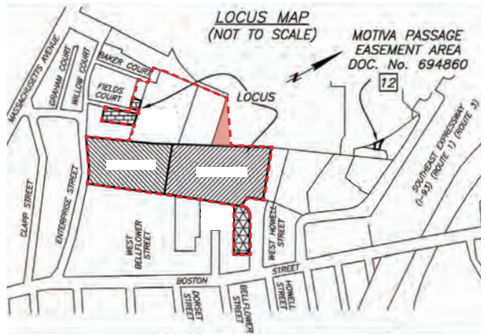
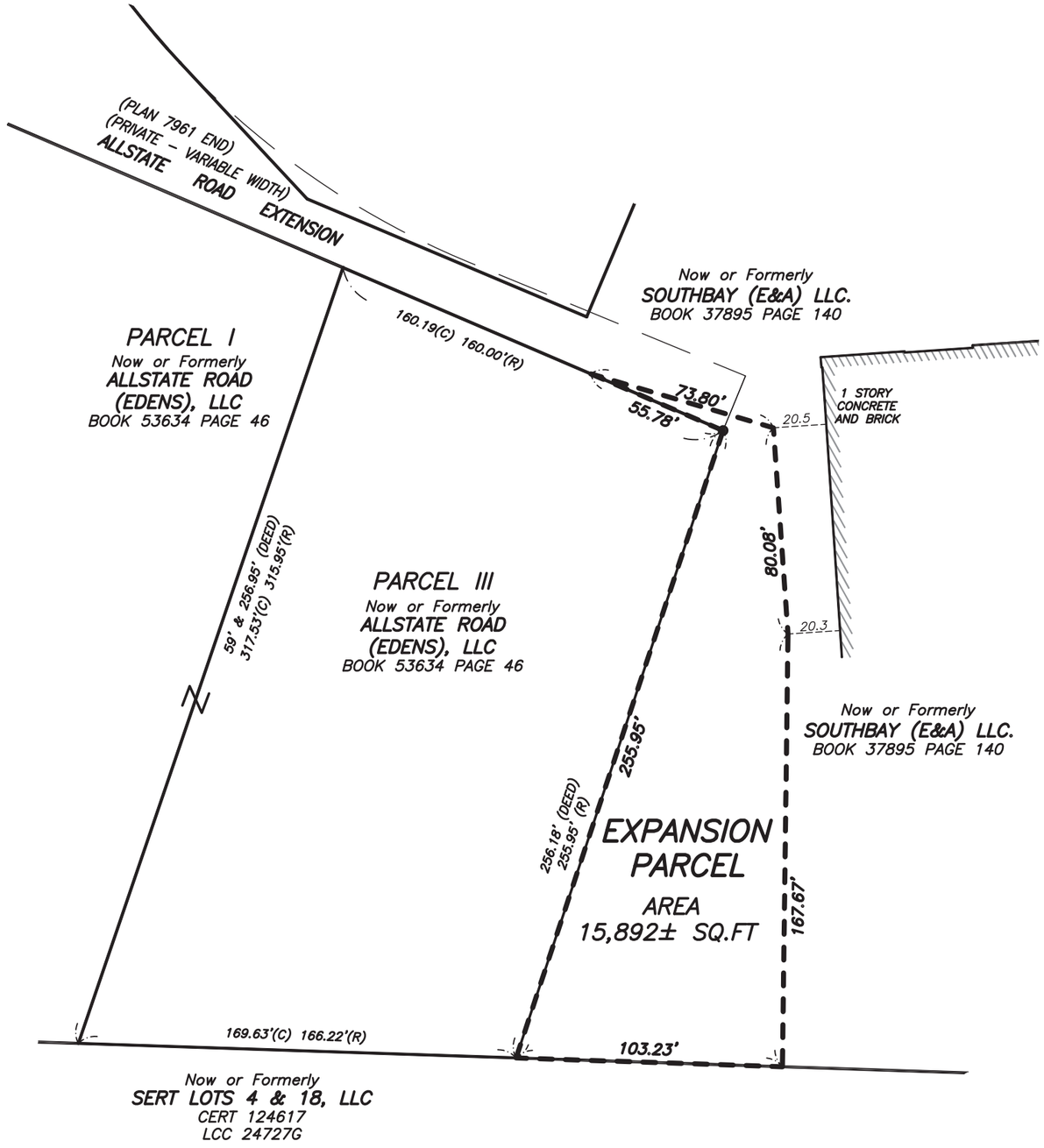


Figure 2-3
Existing Conditions Survey
Source: Bohler Engineering, 2015



Key Plan



REFERENCES

SUFFOLK COUNTY REGISTRY OF DEEDS
- BOOK 11348 PAGE 186
- BOOK 37895 PAGE 140
- BOOK 33235 PAGE 48

- PLAN BOOK 2576 PAGE 505
- PLAN BOOK 5025 PAGE 46
- PLAN BOOK 5872 PAGE 364
- PLAN BOOK 1658 PAGE 640
- PLAN BOOK 7961 END
- PLAN BOOK 1697 PAGE 604
- PLAN BOOK 21882 PAGE 259
- PLAN BOOK 1658 END
- PLAN 622 OF 2005
- PLAN BOOK 17904 PAGE 188

MASSACHUSETTS LAND COURT
- LCC 9573B
- 24727A
- 24727G

CITY OF BOSTON ENGINEERING DEPARTMENT
- FIELD BOOK 954 PAGE 95
- FIELD BOOK 793 PAGE 87, 88

PLAN NO. L–8927
- L–8928
- L–9473
- L–11094
- L–11579

NOTES:

1) THIS PLAN WAS COMPILED FROM RECORD PLANS, DEEDS AND CERTIFICATES OF TITLES. NO ON THE GROUND SURVEY WAS PERFORMED IN PREPARATION OF THIS PLAN.

EXHIBIT PLAN SHOWING EXPANSION PARCEL
1 ALLSTATE ROAD
BOSTON (DORCHESTER), **MASS.**

FELDMAN LAND SURVEYORS
112 SHAWMUT AVENUE
BOSTON, MASS. 02118
PHONE: (617)357–9740
www.feldmansurveyors.com

MARCH 4, 2015

FELDMAN
LAND SURVEYORS

SCALE: 1"=40'

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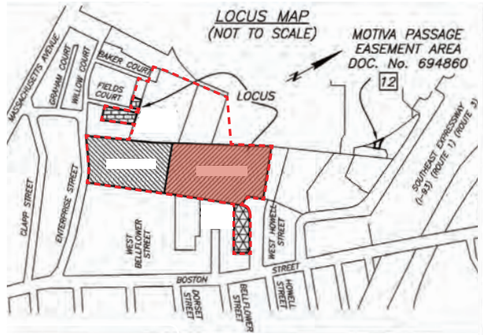
Figure 2-4
Existing Conditions Survey
Source: Bohler Engineering, 2015



Key Plan

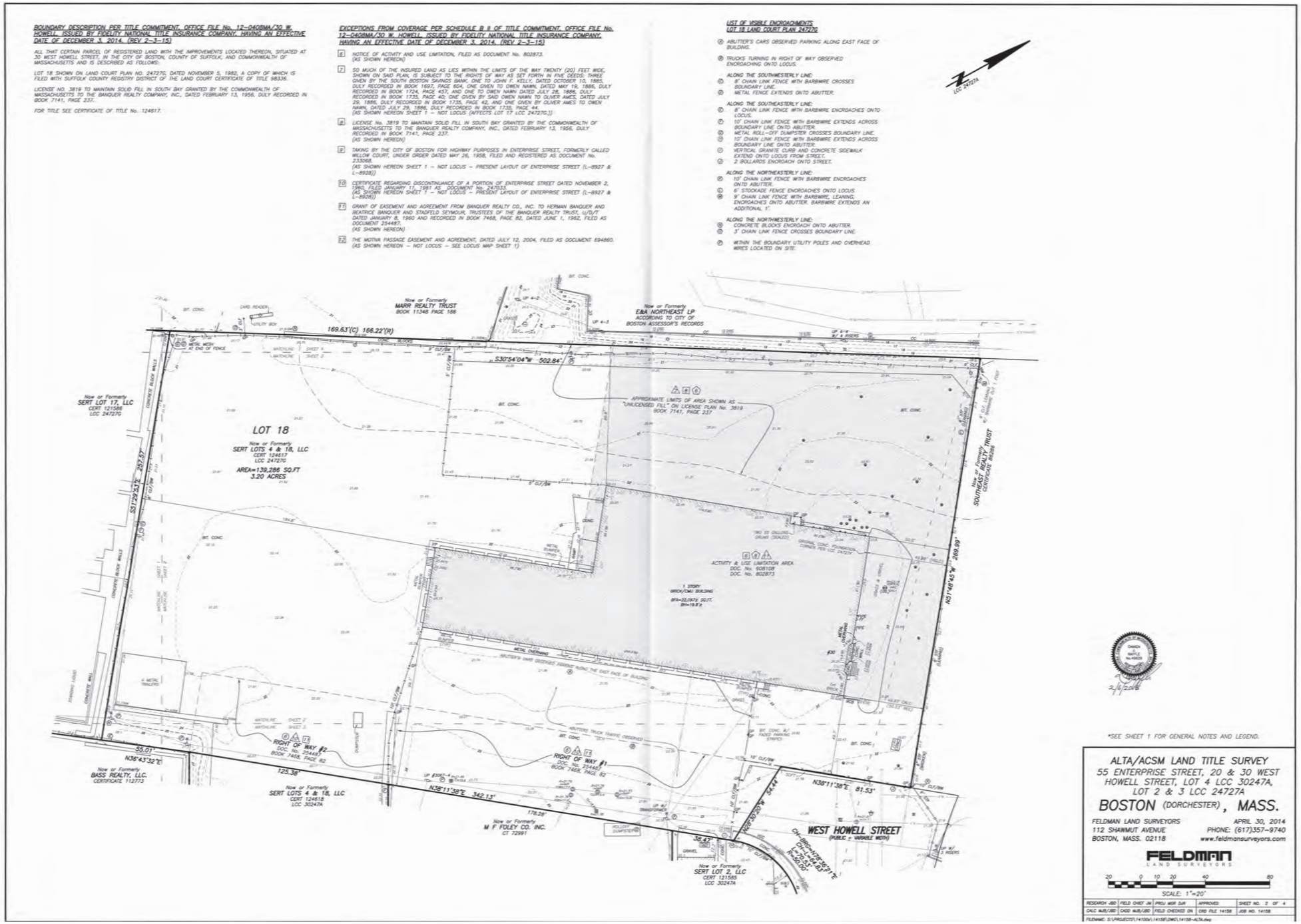
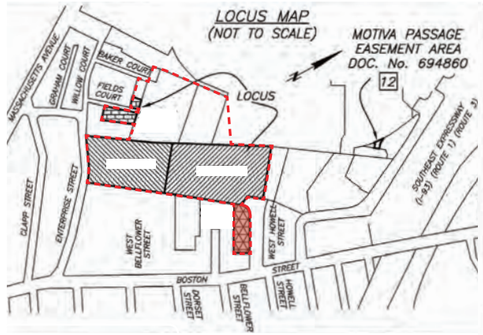


Figure 2-5
Existing Conditions Survey
Source: Bohler Engineering, 2015



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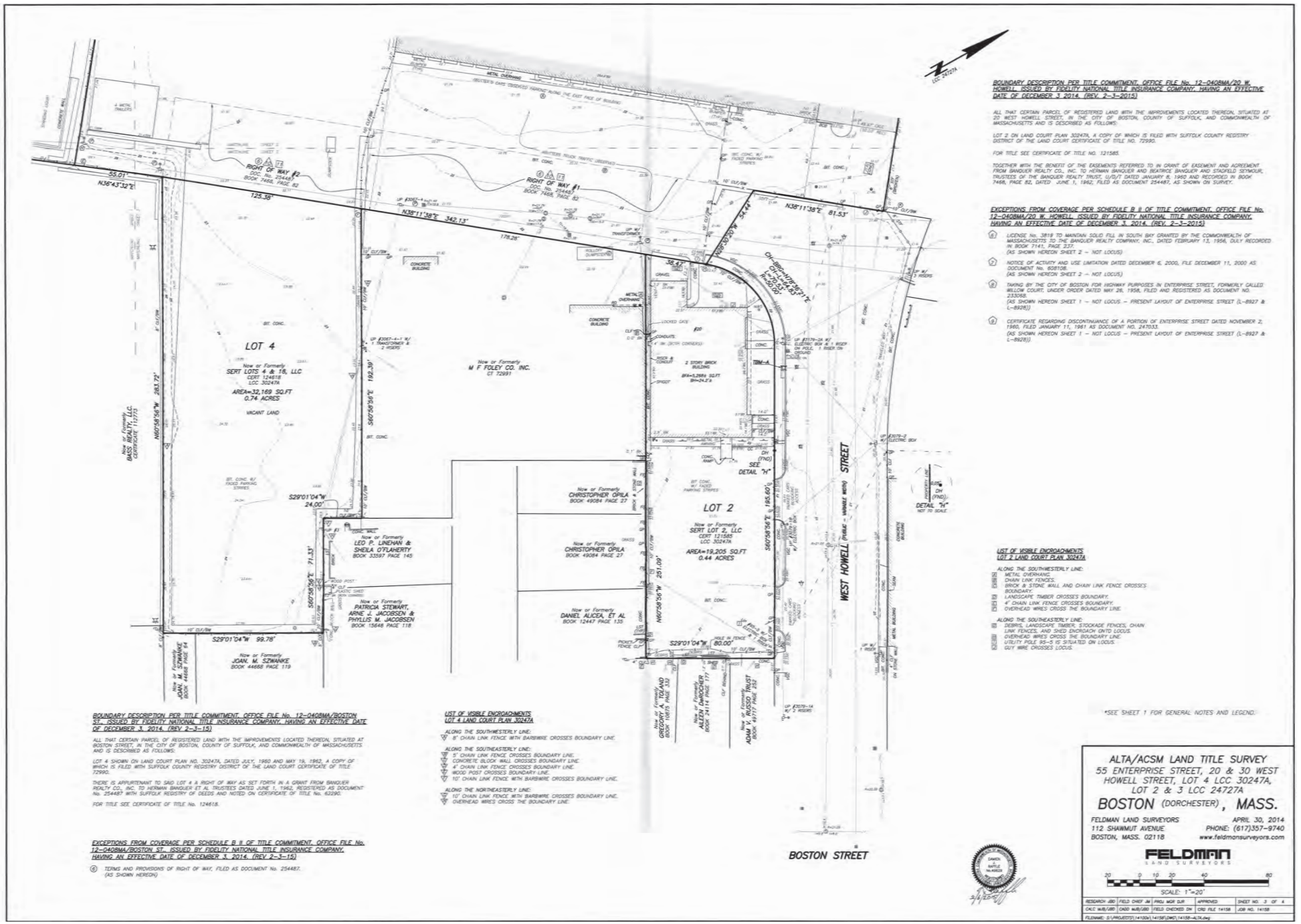
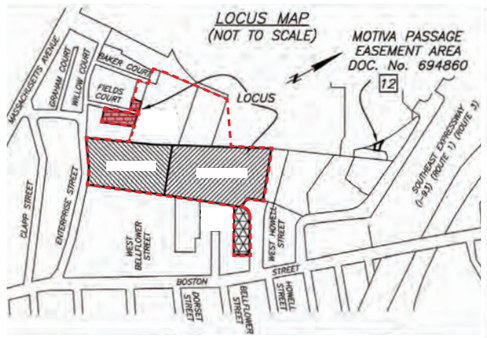


Figure 2-6

Existing Conditions Survey

Source: Bohler Engineering, 2015



Key Plan

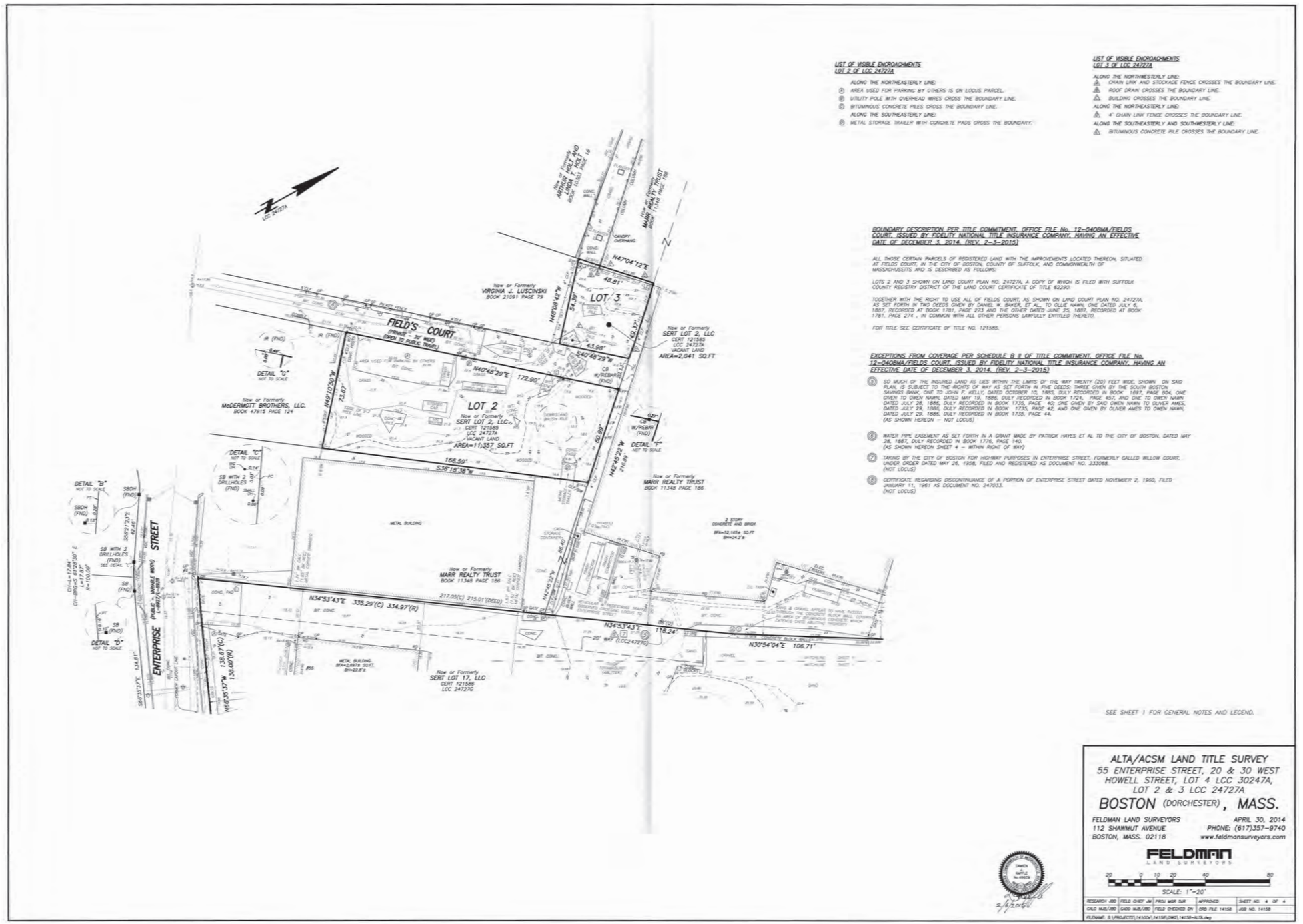


Figure 2-7
Existing Conditions Survey
Source: Bohler Engineering, 2015

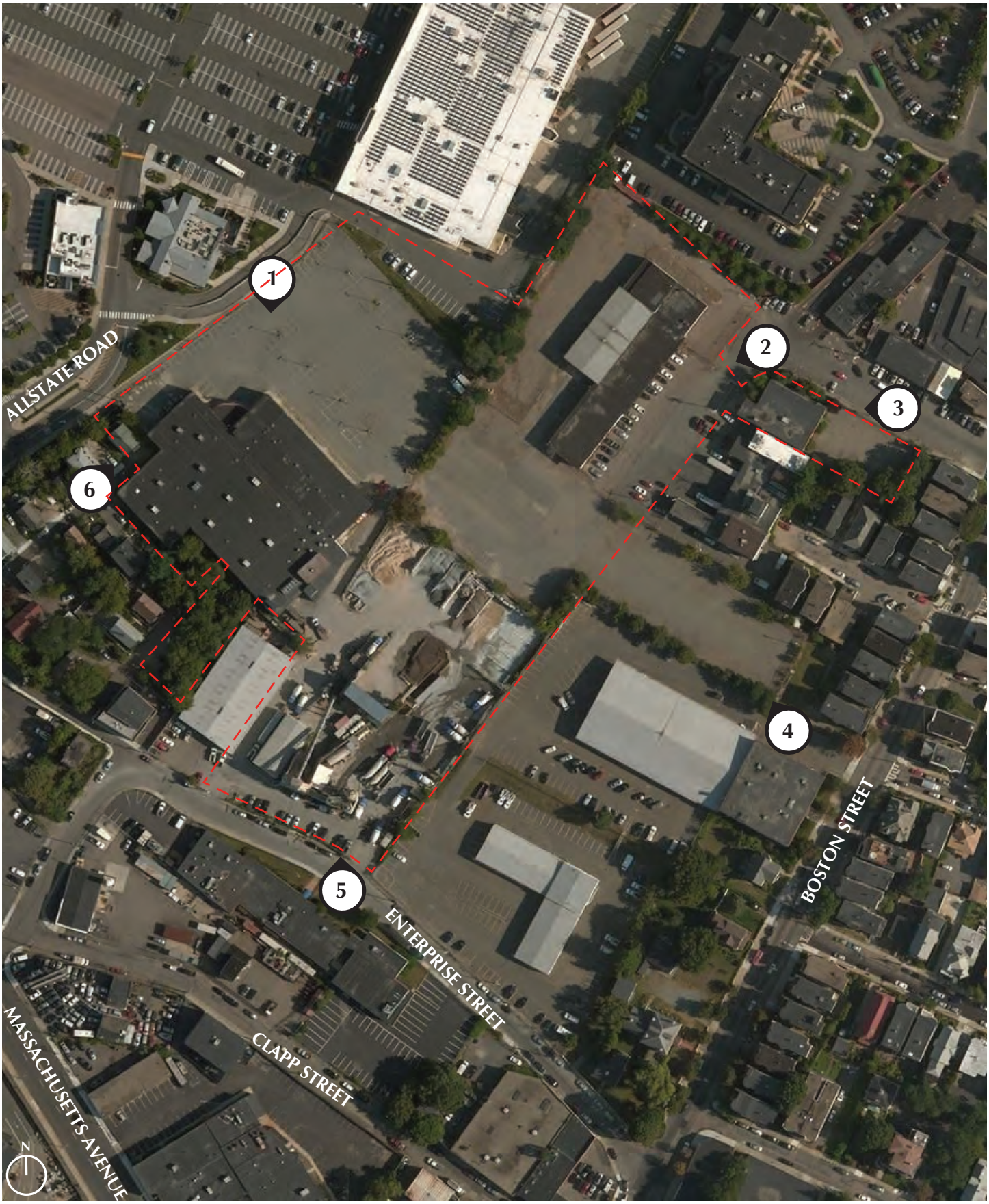


Figure 2-8
Existing Conditions Photographs- Key Plan
Source: Bing Maps, Fort Point Associates, Inc., 2015

Photograph 1: View of the Site looking south from Allstate Road

Photograph 2: View of the Site looking southwest from W. Howell Street

Photograph 3: View of the Site looking west from W. Howell Street

Photograph 4: View of the Site looking north from driveway off Boston Street

Photograph 5: View of the Site looking north from Enterprise Street

Photograph 6: View of the Site looking east from Baker Court

Figure 2-11
Existing Conditions Photographs
Source: Fort Point Associates, Inc., 2015

Figure 2-12
Project Site Plan
Source: ADD Inc, now with Stantec, 2015

Figure 2-13
Perspective Looking East
Source: ADD Inc, now with Stantec, 2015

Dorchester, Massachusetts

Figure 2-14
Perspective Looking South
Source: ADD Inc, now with Stantec, 2015

Dorchester, Massachusetts

Figure 2-15
Perspective Looking Southeast
Source: ADD Inc, now with Stantec, 2015

Dorchester, Massachusetts

Figure 2-16
Perspective Looking East
Source: ADD Inc, now with Stantec, 2015

Figure 2-17
Ground Floor Plan
Source: ADD Inc, now with Stantec, 2015

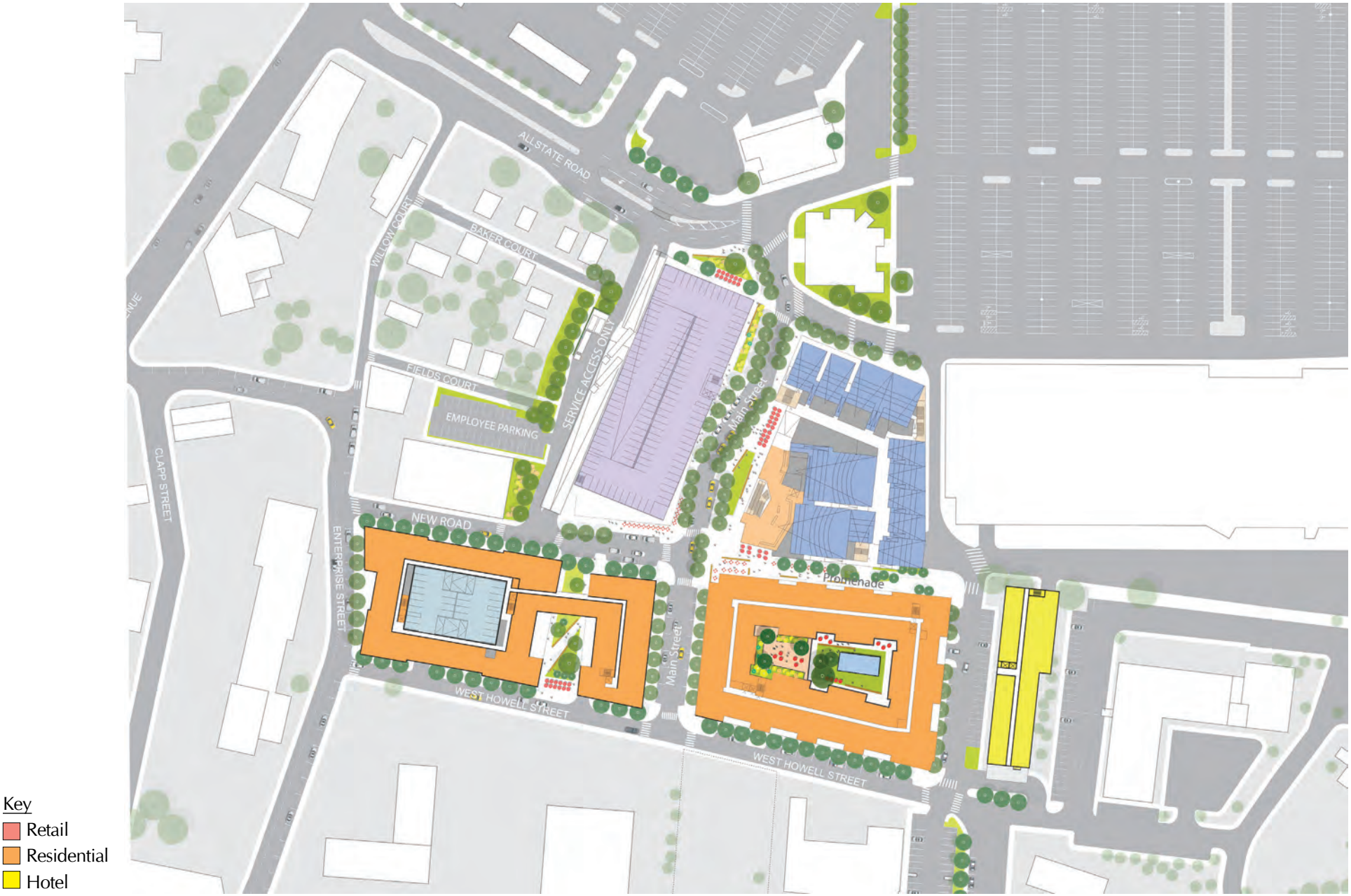


Figure 2-18
Typical Upper Floor Plan
Source: ADD Inc, now with Stantec, 2015

Figure 2-19
Preliminary Landscape Plan
Source: OLIN, 2015

Chapter 3

URBAN DESIGN

CHAPTER 3: URBAN DESIGN

3.1 INTRODUCTION

The Project has been conceived as a network of streets that form a mixed-use neighborhood of retail, restaurants, housing, and structured parking. The streets are laid out in a modified grid pattern and feature landscape, sidewalks, and shared bicycle and vehicular lanes in accordance with Boston's Complete Streets guidelines. See Figure 3-1, Project Site Plan.

Each street has its own unique character in order to develop a variety of pedestrian experiences:

- Main Street runs north-south through the Project Site, and is envisioned to have the most energy and street life with outdoor cafes, a cinema, shops, and several landscaped open spaces along its length.

- New Road runs east-west between retail Building A and the retail/residential Building C, arriving at the cinema entrance and a restaurant, then transforms into a pedestrian promenade between Buildings B and D. The street will be narrower and quieter than Main Street lined with shops, cafes, and apartment stoops characterized by a more intimate scale.

- West Howell Extension runs east-west along Buildings C and D. It will have retail where it intersects with Main Street, and residential lobbies, apartment stoops, and the hotel drop off facing south. To the east, it is aligned to allow for a future connection to the Interstate 93 frontage road.

- A pedestrian-only courtyard running north-south links New Road with West Howell Street. The courtyard contains a landscaped plaza with the residential amenity spaces and outdoor restaurant seating providing activity and interest to the area.

- A service road is planned on the west side of Building A for retail loading and access to a small surface parking lot for employee parking. A landscaped area will buffer the servicing of Building A from the neighboring homes.

- A narrow street running north-south at the eastern edge of the Project (between Buildings D and E, and between Buildings B and the existing Panera Bread), provides pedestrian, vehicular, and truck access to the hotel, residential parking, and cinema/retail service area.

3.2 MASSING

Five new neighborhood blocks have been formed by the streets that will connect the project to the existing South Bay Center and various streets surrounding the site. With a maximum anticipated permissible zoning height of 65 feet, the Project includes:

- Building A– A 6-story parking garage with retail at the ground floor.
- Building B– A 2-story cinema complex including ground floor retail and restaurants. The theaters on the second floor require high ceilings, so the height of this building is similar to the rest of the Project. Building B undulates in plan to frame the landscaped plaza near the cinema entrance.
- Building C– Separated into 2 volumes by a pedestrian courtyard, Building C ranges from 4 stories of residential over 1 story of retail (facing Main Street) to 6 stories of residential. The parking garage is internal to Building C and not visible from the surrounding streets except for its entrance along West Howell Street Extension.
- Building D– This block is also characterized by 4 stories of residential over 1 story of retail (facing Main Street) or 6 stories of residential, Building D includes a courtyard and ground floor parking. Steps leading from the units that face the pedestrian passageway lend scale and activity to the area between Buildings B and D.
- Building E– A 6-story hotel.

The massing strategy is to raise the parapets at the corners of Buildings B, C, and D to provide some height variation, while the ground floor retail of Building A expands beyond the rectangular shape of the garage to provide a 1-story element to the south. To create an interesting pedestrian rhythm, many of the buildings have been designed with various projections (bays or building masses that push in and out toward the sidewalk) along their lengths. See Figures 3-3 and 3-4, Massing.

3.3 CHARACTER AND MATERIALS

The character of the Project will be composed around the pedestrian experience, with buildings designed with variations of textures, patterns, colors, and materials creating a staccato of changing views so that every street is interesting and individual. The Proponent strives to create a unique sense of place, attractive to residents, neighbors, and visitors alike.

Materials and their interface are critical, and the Proponent has experience creating attractive places through careful attention to streetscape and storefront material integration. Building materials will include brick, painted brick, concrete, stone, wood, metal, tile, fiber cement clapboards and panels, glass, and metal and canvas canopies. Sidewalks will include concrete surfaces with flush curbs to enhance accessibility and reinforce the shared-

street concept, artful landscaping, and creative bench and lighting designs. See Figure 3-5 through Figure 3-8, Elevations and Figure 3-9, Proposed Building Materials.

3.4 LANDSCAPE AND STREETSCAPE

The proposed landscape elements are divided into the following areas:

- Streetscapes
- Promenade
- Courtyards

The following subsections provide overviews for each of these elements. See Figure 3-10, Preliminary Landscape Plan.

3.4.1 STREETSCAPES

Main Street between Buildings A and B

The presence of the cinema on this street provides an opportunity to create a very dynamic streetscape. This portion of Main Street is conceived as a linear plaza with a continuous plane of pavements running from building facade to building facade with flush curbs delineating the roadway. There will be some short-term curbside parking. The roadway, contrasting with the pedestrian pavements, makes two bends. These bends are a traffic calming feature that creates a more dramatic view when looking down the length of the street. There are street trees as well as raised planters with shrubs and seasonal colors. There are ample areas for outdoor dining and changeable events. Furnishings include seat walls at the planters, benches, moveable seating, tree grates, trash and recycle containers, and bicycle racks. Street lights in this building will be of a special design to reinforce the uniqueness of the space. See Figure 3-11 through Figure 3-14, Main Street Plans and Section.

Main Street (between Buildings C and D), New Road (between Buildings A and C), West Howell Street, Allstate Road, and Enterprise Street west of Building C

In order to blend into the vernacular of the surrounding neighborhoods, the design of these streets is more conventional than that part of Main Street between Buildings A and B. These streets have raised curbs, with sidewalks and rows of street trees with tree grates. There is parallel parking along the curbs. Furnishings include, benches, trash and recycle containers, bicycle racks, and street lights. See Figure 3-15 through 3-18, Plans and Sections.

East-West Street between Buildings D and E

The design of this street is also restrained. It has raised curbs with sidewalks and rows of street trees. Street Lights are the only furnishings.

Allstate Road north of Buildings A and B

This street will have raised curbs, with sidewalks and rows of street trees with tree grates. There is no parking along the curbs. The area that bends around the existing underground sewer lift station will be heavily planted with trees and shrubs to screen utilities all year. Furnishings include, benches, trash and recycle containers, bicycle racks, and street lights. There is the opportunity to have outdoor dining on the wide sidewalk just north of Building A.

3.4.2 PROMENADE

Pedestrian Promenade between Buildings B and D

The promenade is a pedestrian-friendly space designed to allow for both small and large temporary events. Public café seating, custom seat walls/furnishings, ornamental plant beds, and architectural exterior lighting are place-making features used to create a variety of spaces that are texturally rich and compliment the proposed architecture. Rolled curbs define the vehicular and pedestrian areas and are physically and visually non-restrictive for the pedestrian when accessing the various points of interest. See Figure 3-19, Promenade Plan and Section.

3.4.3 COURTYARDS

There are two mixed-use residential buildings at Building C and D. Both buildings include courtyards, a public courtyard in the case of Building C and private in the case of Building D. The private courtyards include gathering and seating areas, spaces for outdoor grills, built-in shade structures, and planting areas containing a mix of groundcovers, shrubs, and small trees. These spaces are designed to consider multi-seasonal uses through the appropriate deployment of materials and careful understanding of sun exposure. The public courtyards serve as the primary guest entrance for the buildings and also include areas for sitting and lounging, or waiting to meet friends or family. These courtyards will include a mix of both planted areas with ground cover, shrubs, and small trees as well as hardscape areas. Turf will not be permitted within the courtyards.

3.4.4 OFF-SITE IMPROVEMENTS

Enterprise Street

To enhance access/egress to the Project Site for pedestrians and bicycles, Enterprise Street between the Massachusetts Avenue and Boston Street will be re-designed to provide design in accordance with Complete Streets design. Specifically, the design will incorporate pavement markings, signage, and other surface treatments to enhance access/egress for the various travel modes accommodated at the Project Site including but not limited to vehicles, pedestrians, and bicycles.

West Howell Street

To enhance access/egress to the Project Site for pedestrians and bicycles, the section of West Howell Street between the Project Site and Boston Street will be re-designed to provide design in accordance with Complete Streets design. Specifically, the design will incorporate pavement markings, signage, and other surface treatments to enhance access/egress for the various travel modes accommodated at the Project Site including but not limited to vehicles, pedestrians, and bicycles. The roadway cross section is proposed to be modified to include a minimum 6-foot sidewalk connection, parallel parking, and a three lane cross section to accommodate two way traffic and bicycle flow as well as a stacking lane for the exiting car-wash use (Scrub-a-Dub).

Pedestrian Improvements

Sidewalks and ADA compliant crosswalks are recommended where feasible to connect the Site and adjacent properties to accommodate and promote pedestrian activity. The site plan envisions an extensive system of interconnected walkways that achieve this objective, including connections to the sidewalk systems along Massachusetts Avenue, Southampton Street and Boston Street as well as the internal sidewalk system in the South Bay Center.

The proposed re-design of the existing sidewalks along West Howell Street and Enterprise Street will enhance pedestrian access between the Project Site and Massachusetts Avenue and Boston Street which provide connections to the adjacent neighborhood, commercial properties, and to the nearby MBTA stations.

In an effort to enhance pedestrian accessibility and comfort, the Proponent will also evaluate and implement to the maximum extent feasible an enhanced pedestrian connection that is more desirable for pedestrians between the Project Site and Newmarket Station via sidewalk improvements within the South Bay Center.

See Figures 3-20 and 3-21, Off-Site Improvement Plans and Sections.

3.5 CONSISTENCY WITH AREA PLANS

The BRA has undertaken several planning studies in Dorchester, though none covers the Project Site specifically. However, the Project aligns with aspects of the BRA's planning focus, such as the desire for transit-oriented development, the improvement and development of vacant parcels, the creation of new housing, and the restoration of an urban street grid through currently consolidated super-blocks. The Project includes various site amenities for residents and the public at large which will contribute to the transformation of this currently underutilized area.

While the BRA does not have a specific plan for the South Bay area, in 2013 a group of local citizens and planners called Citizens Connect to South Bay developed a master plan framework for the area in and around the Project Site. The Citizens Connect to South Bay master plan framework envisions a mixed-use neighborhood to the south of the existing South Bay Center on land including the Project Site. The framework imagines new roadway connections through the land leading to a central plaza. Along the roadways and the plaza would be commercial buildings, residential housing, and public facilities including open space. The Project achieves the vision of this framework by proposing a mixed-use development of commercial/retail buildings, residential units, and public open space and plazas connected by new pathways and roadways.

Figure 3-1
Project Site Plan
Source: ADD Inc, now with Stantec, 2015

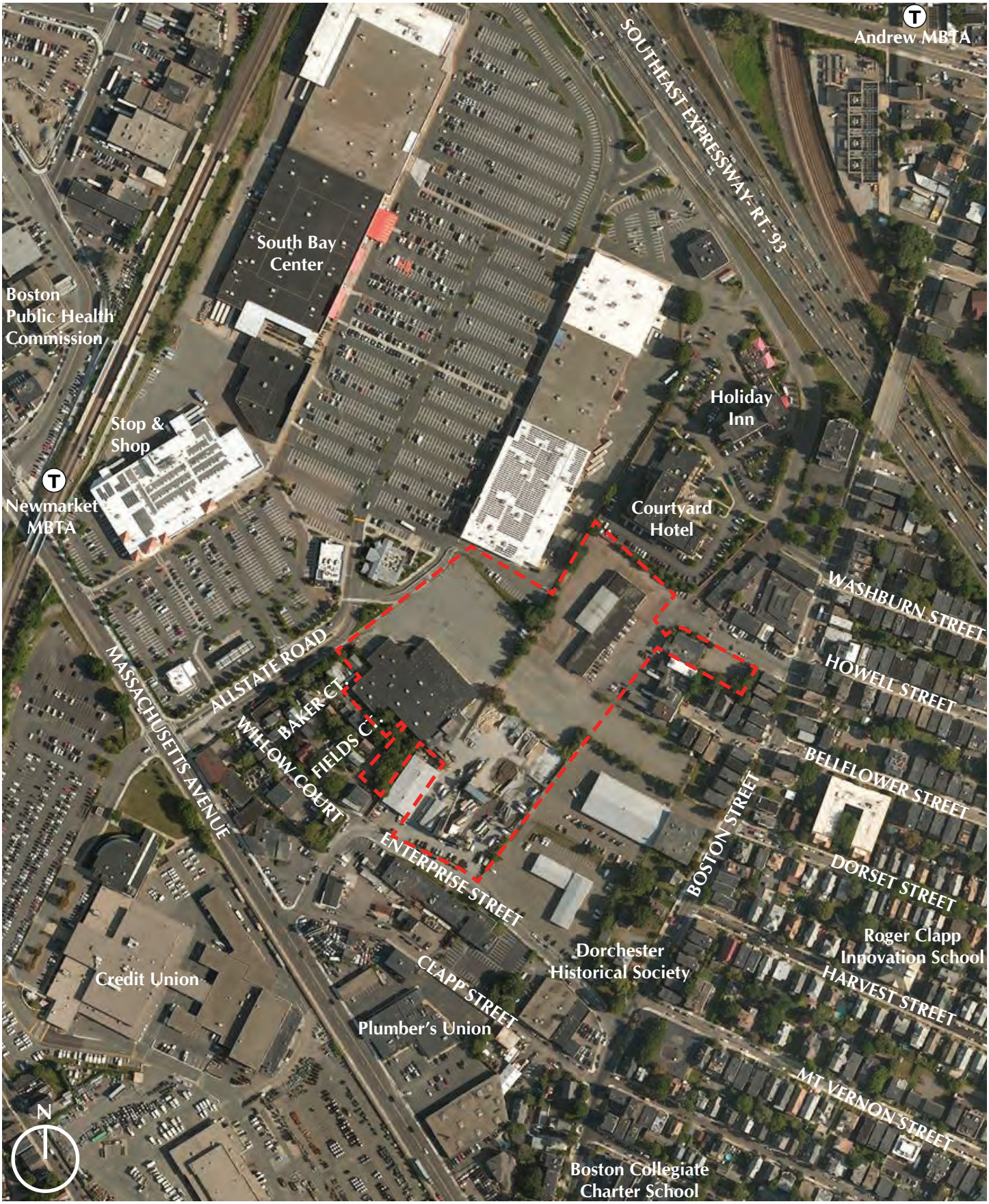
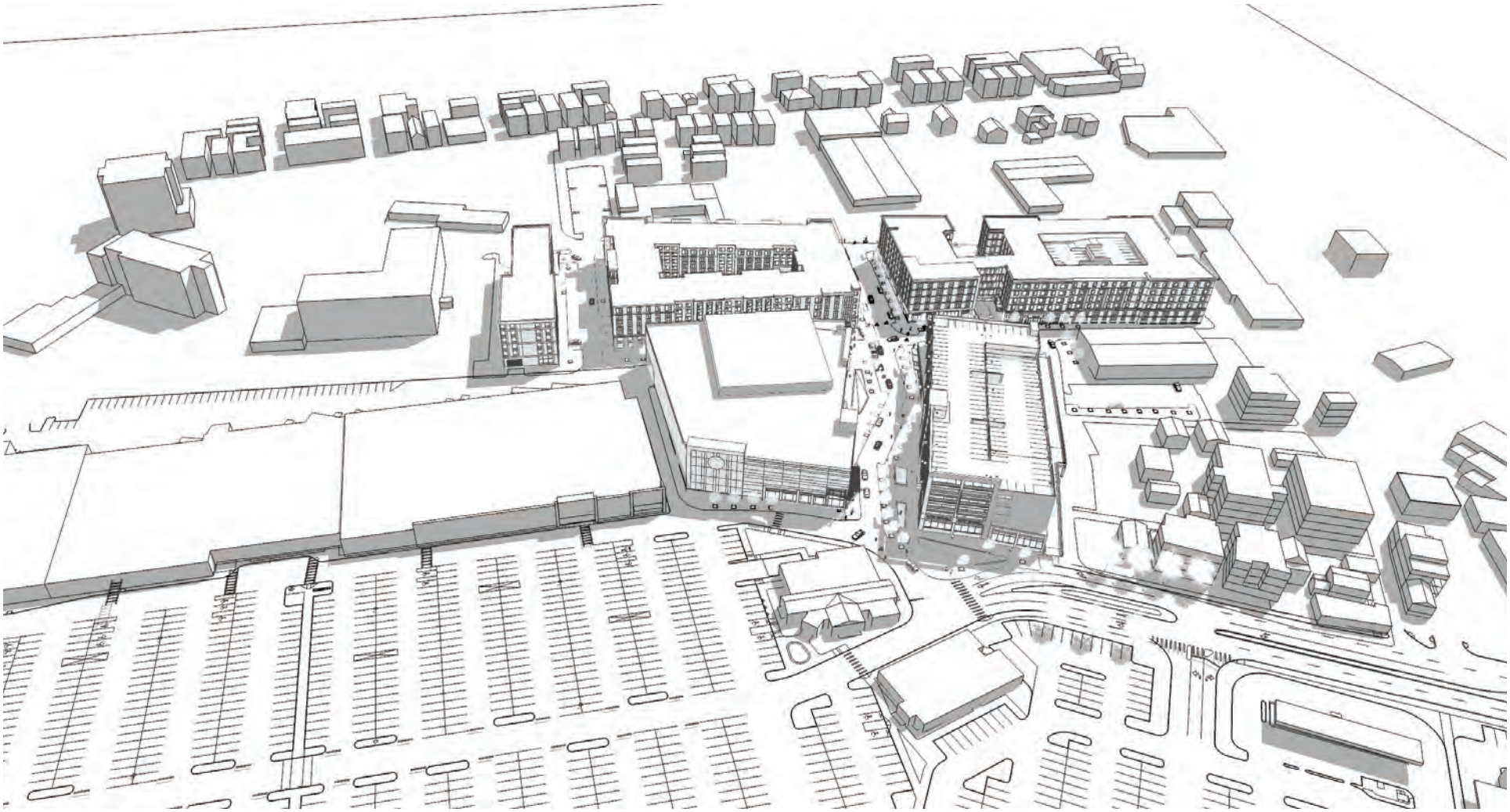


Figure 3-2
Neighborhood Context
Source: Fort Point Associates, Inc., 2015



Dorchester, Massachusetts

Figure 3-3
Massing
Source: ADD Inc, now with Stantec, 2015

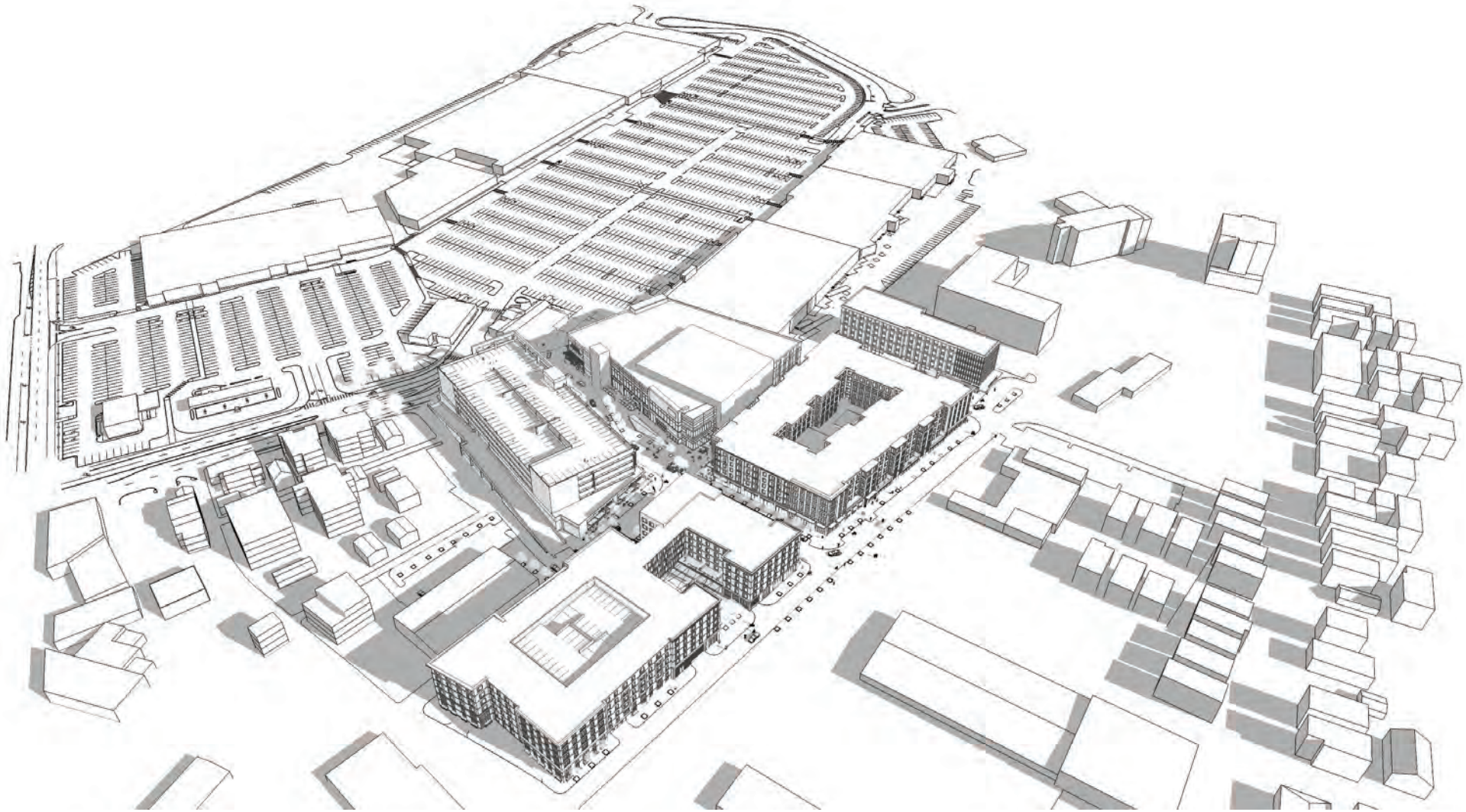


Figure 3-4
Massing
Source: ADD Inc, now with Stantec, 2015

Main Street South Elevation

Main Street North Elevation

Figure 3-5
Elevations
Source: ADD Inc, now with Stantec, 2015

Figure 3-6
Elevations
Source: ADD Inc, now with Stantec, 2015

Figure 3-7
Elevations
Source: ADD Inc, now with Stantec, 2015

Allstate Road West Elevation

New Road East Elevation

Figure 3-8
Elevations
Source: ADD Inc, now with Stantec, 2015

Figure 3-9
Proposed Building Materials
Source: ADD Inc, now with Stantec, 2015

Figure 3-10
Preliminary Landscape Plan
Source: OLIN, 2015

Figure 3-11
Main Street Plan
Source: OLIN, 2015

1. Outdoor Seating/cafe Beyond
2. London Plane Street Trees
3. Raised Plant Bed
4. Street Lights
5. Backed Bench
6. Backless Bench
7. Pedestrian Lights w/ Banner
8. Signage
9. Asphalt Roadway
10. Concrete Pedestrian Paving

Figure 3-12
Main Street Section
Source: OLIN, 2015

1. Outdoor Seating/cafe
2. London Plane Street Trees
3. Raised Plant Bed
4. Street Lights
5. Backed Bench
6. Movable Pots
7. Pedestrian Lights w/ Banner
8. Signage
9. Asphalt Roadway
10. Concrete Pedestrian Paving

Figure 3-13
Main Street Section
Source: OLIN, 2015

1. Outdoor Seating
2. Red Maple
3. Planter Box
4. Outdoor Cafe
5. Littleleaf Linden
6. Concrete Pedestrian Paving

Figure 3-14
Promenade Section
Source: OLIN, 2015

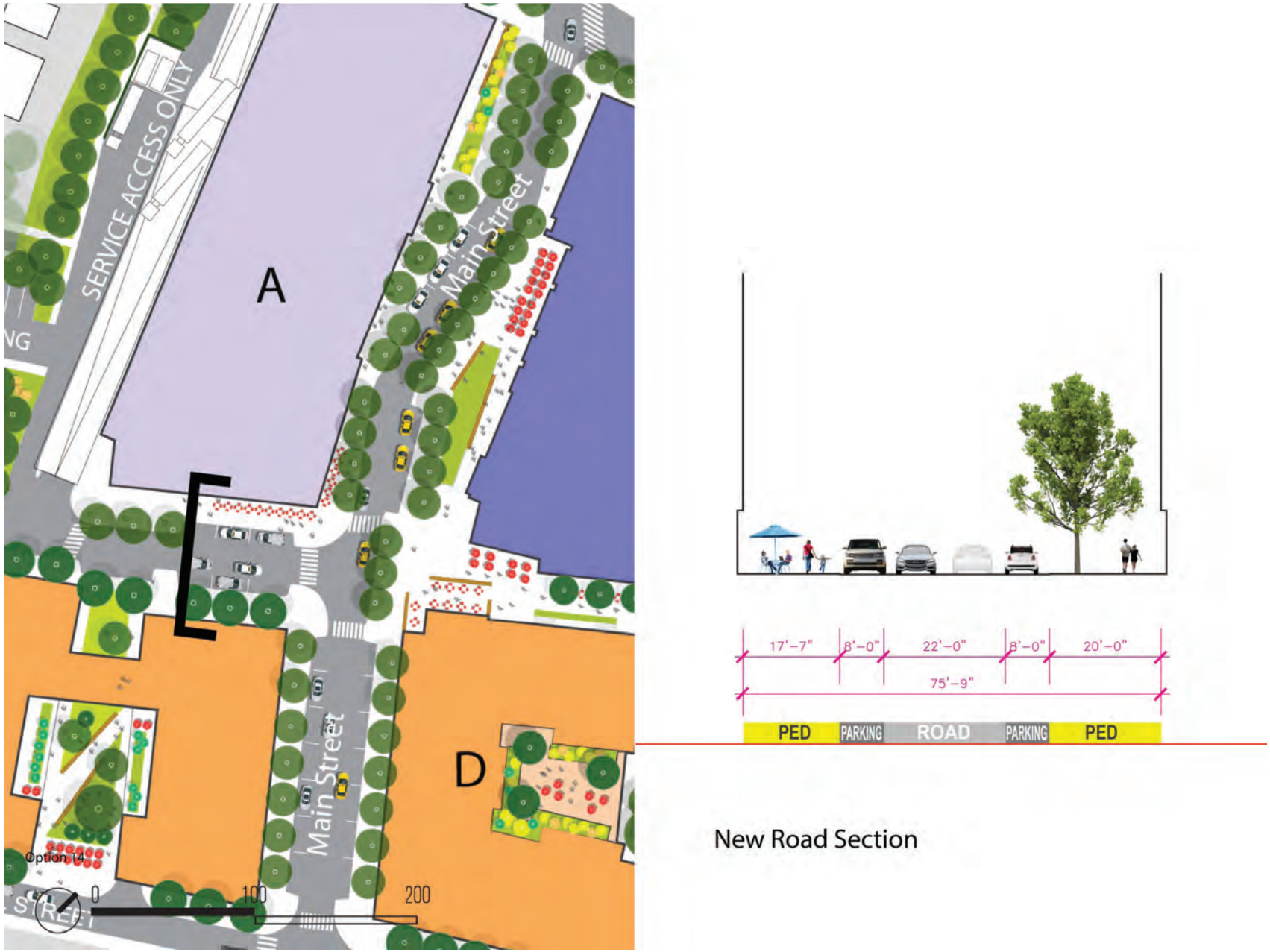
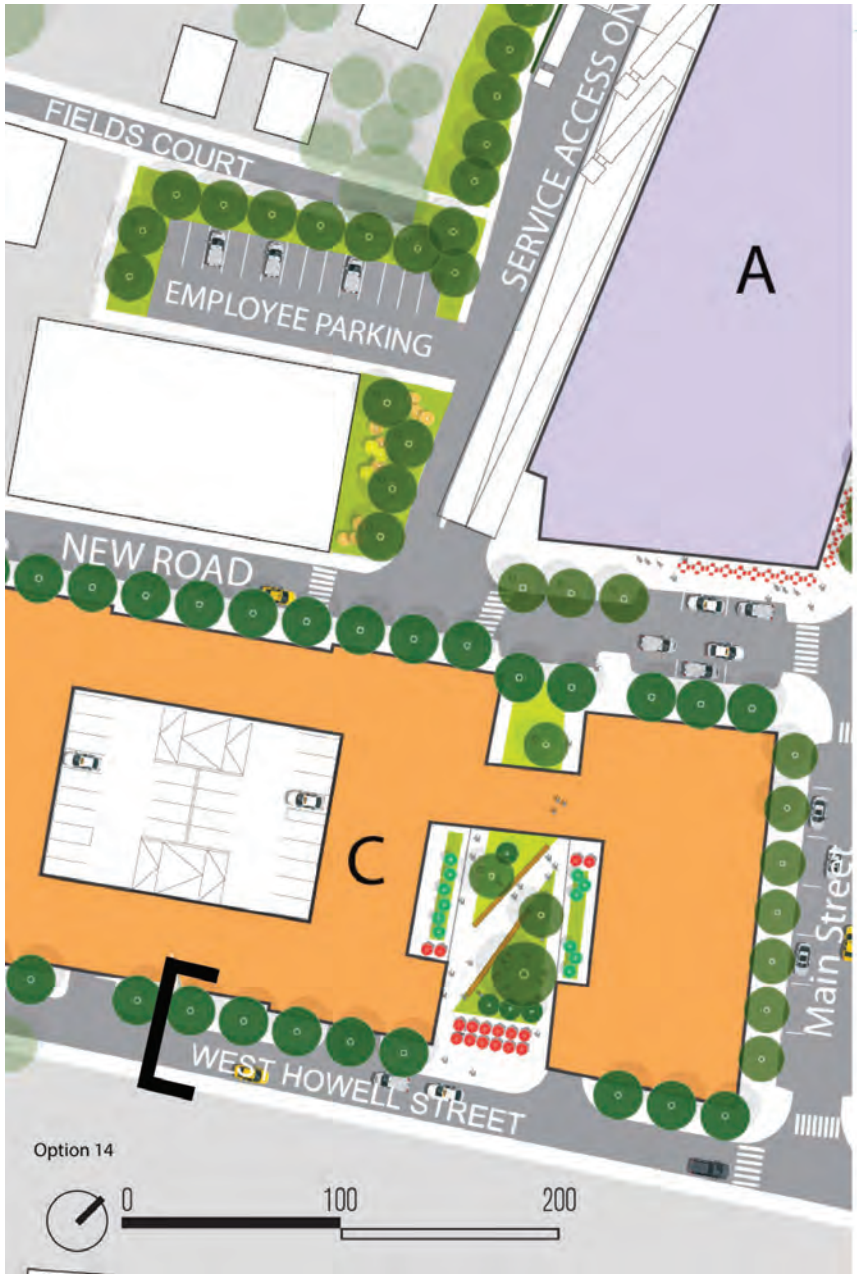
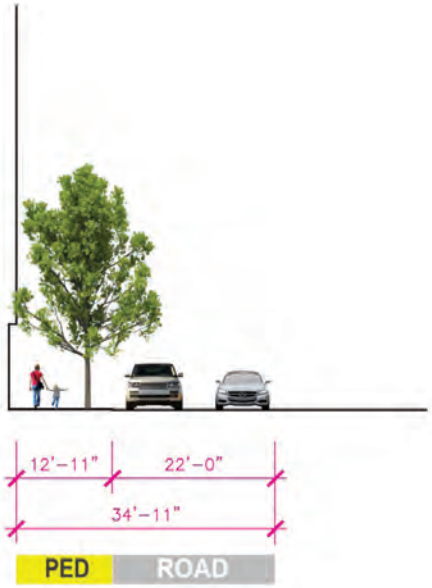


Figure 3-15
New Road Plan and Section
Source: OLIN, 2015

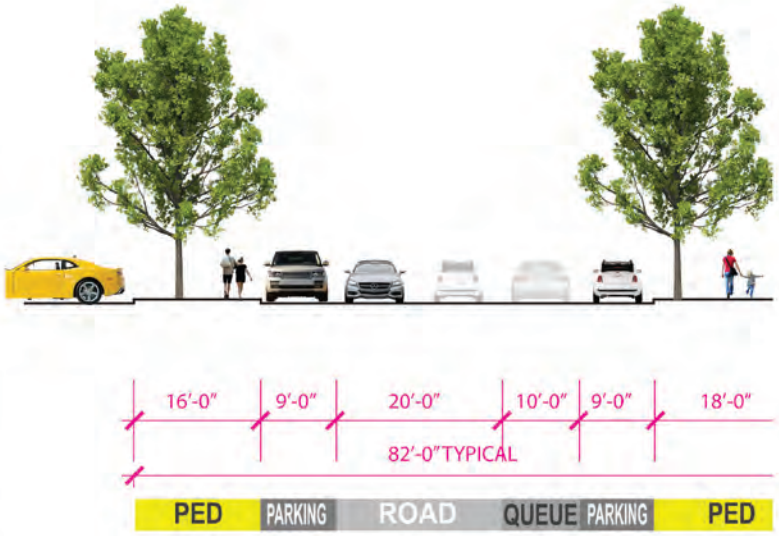




West Howell Street Section

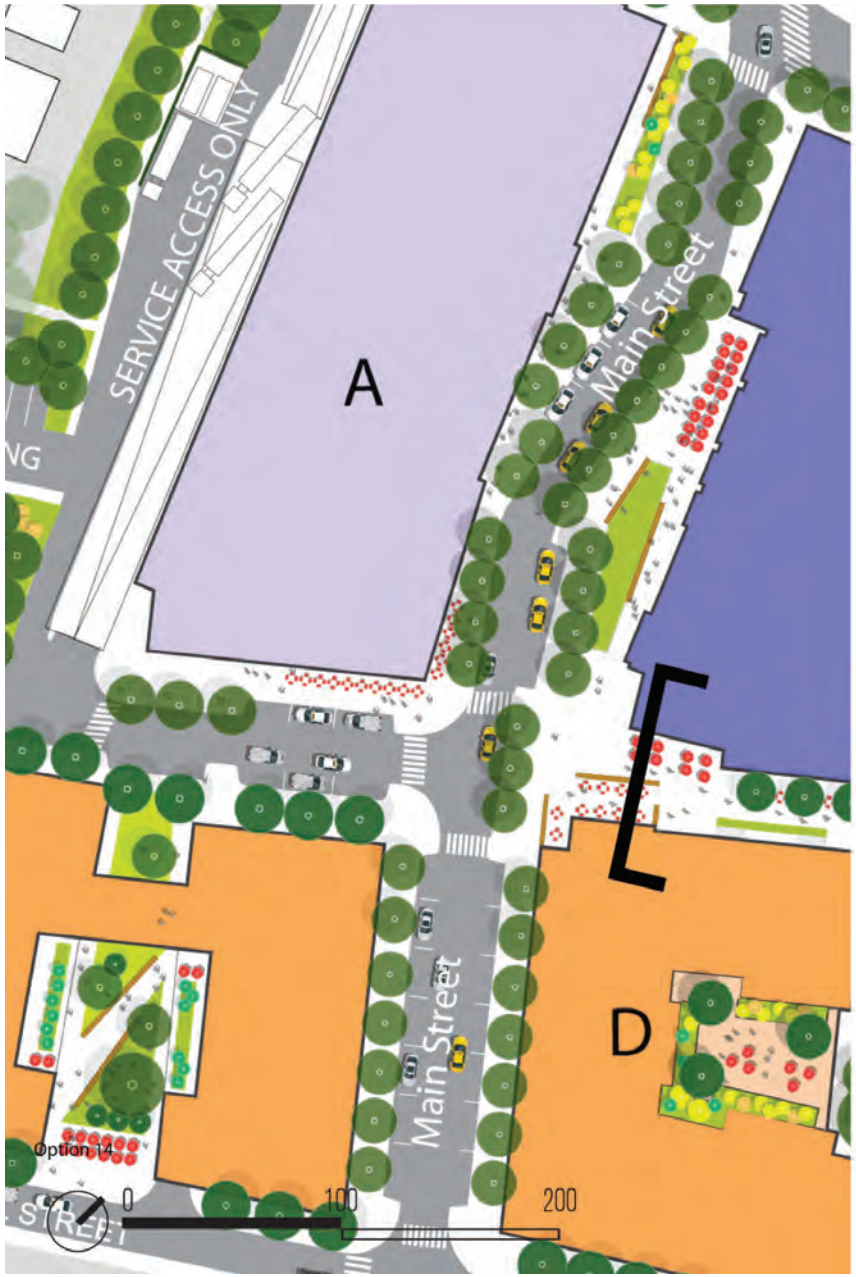
Figure 3-16
West Howell Street Plan and Section
Source: OLIN, 2015

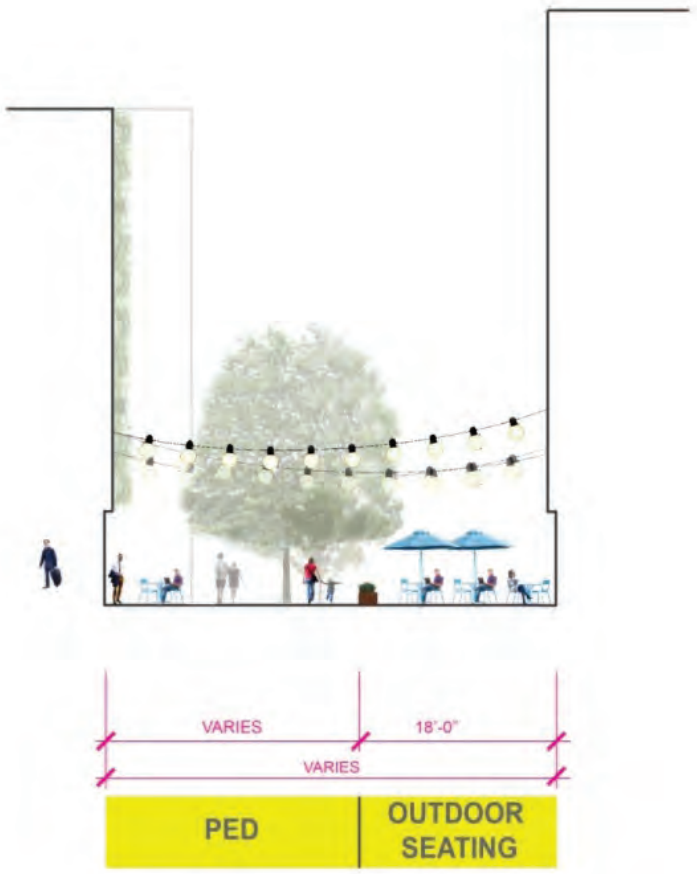
Figure 3-17
West Howell Street Improvements
Source: OLIN, 2015



West Howell Street Section

Figure 3-18
West Howell Street Section
Source: OLIN, 2015





Promenade Section

Figure 3-19
Promenade Plan and Section
Source: OLIN, 2015

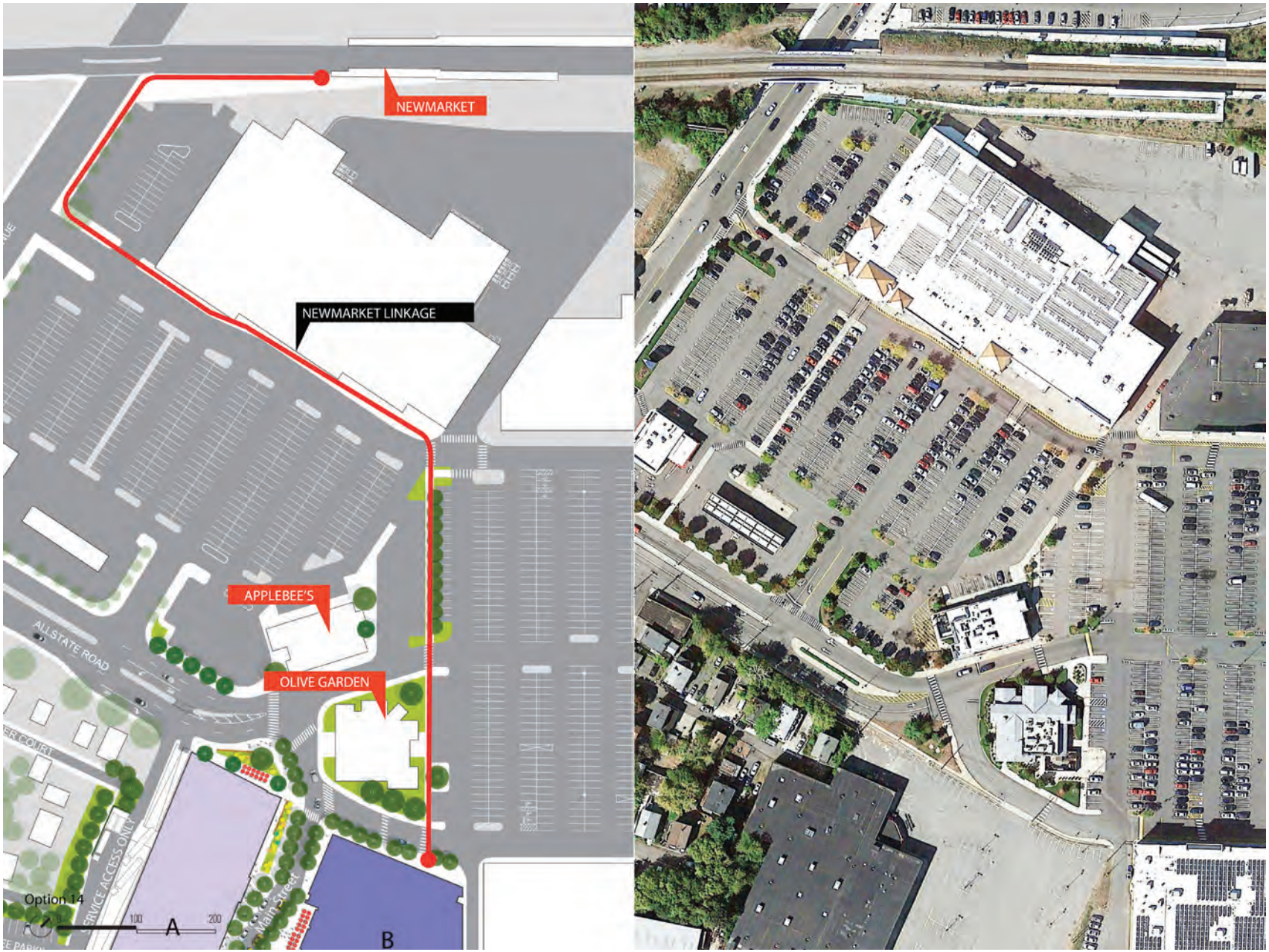
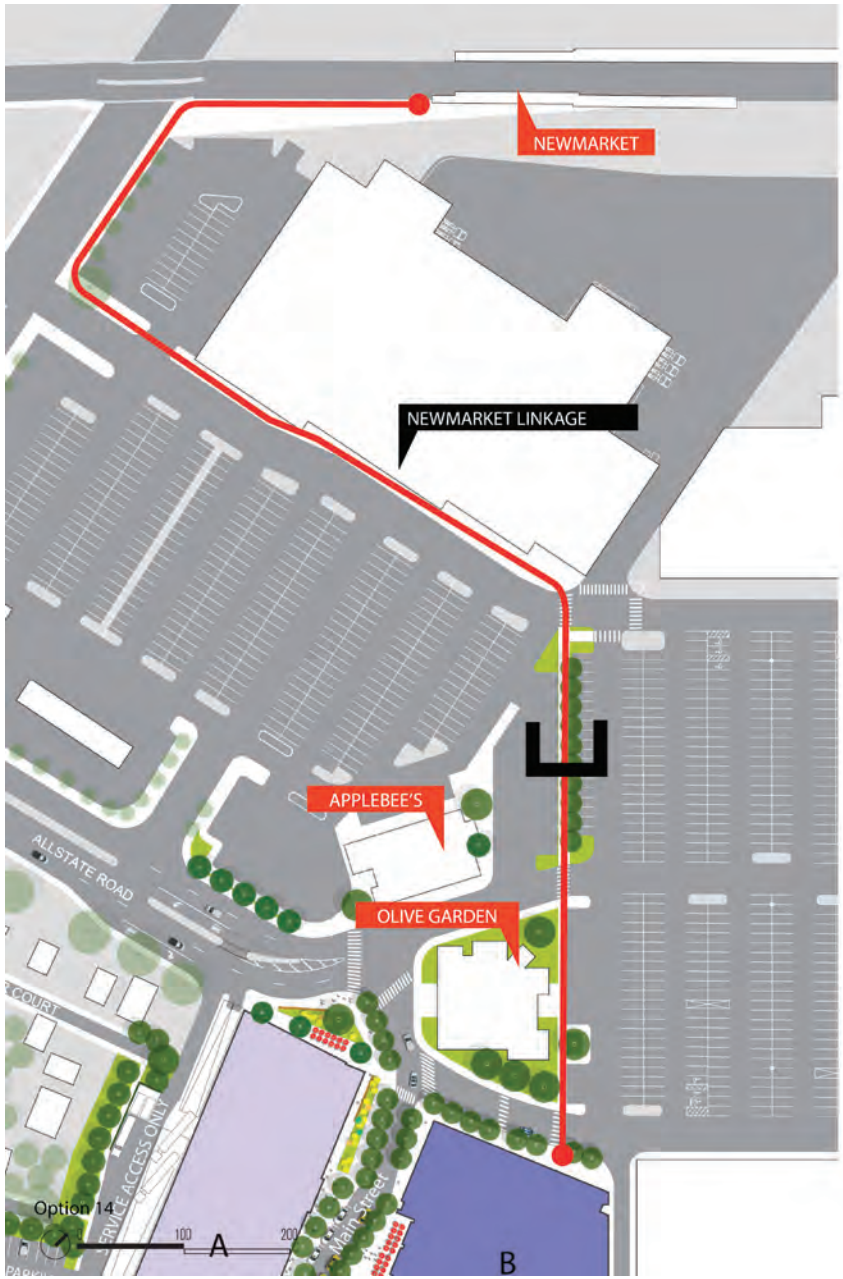
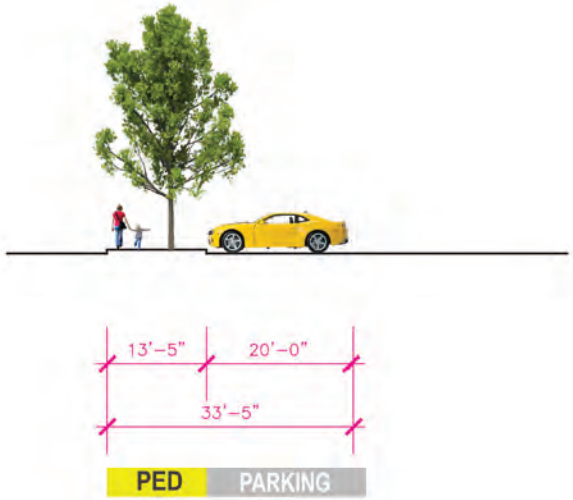


Figure 3-20
Off-Site Improvements
Source: OLIN, 2015





Newmarket Promenade Section

Figure 3-21
Off-Site Improvements Section
Source: OLIN, 2015

Chapter 4

SUSTAINABILITY

CHAPTER 4: SUSTAINABILITY

4.1 SUSTAINABLE DESIGN

Sustainability is an important factor in every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The South Bay Town Center Project embraces the opportunity to positively influence the urban environment. Its urban location takes advantage of existing infrastructure while convenient access to mass transportation will reduce dependence on single occupant vehicle trips and minimize transportation impacts. The Project will reduce the current amount of impervious surfaces and contribute to enhancing stormwater quality and minimizing quantity.

The Proponent and the Project Team are committed to an environmentally sustainable design approach and are using the LEED for New Construction 2009 and LEED for Neighborhood Development 2009 rating systems to track sustainability measures. The LEED rating system tracks the sustainable features of the Project by achieving points in the following categories: Sustainable Sites; Water Efficiency; Energy and Atmosphere; Materials and Resources; Indoor Environmental Quality; and Innovation and Design Process. The Project's proposed LEED rating will exceed Boston's Green Building standard.

4.2 ARTICLE 37/LEED COMPLIANCE

Building A – 5 story Garage over 1 story of Retail- Building A will be over the threshold for LEED Certifiability, however parking areas are ineligible for LEED certification in accordance with USGBC policy. Accordingly, the Project Team will not provide a formal report and checklist but we will provide guide specifications and recommendations for the tenants' fit out of retail space.

Building B – Cinema over 1 story of Retail- A checklist and Green Building Report are provided for this Building.

Buildings C&D – Residential- These residential buildings will have the same systems and materials. Therefore, one common summary and one checklist are provided for both buildings.

Building E – Hotel- A checklist and Green Building Report are included for this Building.

See Figure 4-1 through Figure 4-4, LEED Checklists.

4.2.1 CREDIT NARRATIVES

Sustainable Sites

The development of sustainable sites is at the core of sustainable design. The sustainable sites credit category encourages development on previously developed land, minimizing a building's impact on ecosystems and waterways, regionally appropriate landscaping, smart transportation choices, stormwater runoff management, and reduction of erosion, light pollution, heat island effect, and pollution related to construction and site maintenance.

The previously developed Project Site features connectivity to basic services in the community and is located in an urban setting that is well served by the existing utility infrastructure. The Project Site's adjacency to basic services and the development density of its urban context enable the Project to satisfy available approaches to the Development Density and Community Connectivity credit. Access to the MBTA Franklin Line, Fairmount Line, and Middleborough Line trains and Red Line subway are within a half mile of the project site along with 8 bus lines within a quarter mile of the Project Site. On-site bike storage/rental will be provided and offer residents environmentally sound transportation alternatives.

The Project's public open space and private gardens act to limit stormwater runoff and assist in meeting the Stormwater Design- Quantity credit. To achieve Heat Island Effect credits and minimize the Project's impact on the creation of urban heat islands, a combination of high-albedo roofing membrane and planted areas are employed to maximize solar reflectance and minimize heat gain.

Water Efficiency

Buildings are major users of potable water supply and conservation of water preserves a natural resource while reducing the amount of energy and chemicals used for sewage treatment. The goal of the Water Efficiency credit category is to encourage smarter use of water, inside and out. Water reduction is typically achieved through more efficient appliances and fixtures in addition to water-wise landscaping. To satisfy the requirements of the Water Use Reduction prerequisite and credit, the Project will incorporate water conservation strategies that include low flow plumbing fixtures for water closets and faucets. Further, drought tolerant plant species will be specified in many landscaped areas to reduce the need for irrigation and satisfy the requirements for the Water Efficient Landscaping credit. Where irrigation is employed, drip-line systems will be utilized to maximize efficiency.

Energy and Atmosphere

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

Solar panels installed on the rooftop of Building B will provide the development with on-site, renewable energy and reduce demand on the grid.

The Project will exceed the ASHRAE 90.1-2007 standard for Minimum Energy Performance through a variety of measures. Further, no chlorofluorocarbon (CFC) based refrigerants will be used in the Project to reduce ozone depletion in the atmosphere and satisfy the Fundamental Refrigeration Management prerequisite. Fundamental Commissioning of Building Energy Systems will be performed to ensure that systems are operating at peak efficiency.

Materials and Resources

The Project includes recycling facilities within the building for the convenience of the occupants in accordance with the requirements of the Storage and Collection of Recyclables prerequisite. A Demolition and Construction Waste Management Plan will be implemented to divert construction waste material from landfills in accordance with the Construction Waste Management credit. Various building materials having recycled content and proximate extraction and manufacturing locations will be specified to achieve Recycled Content and Regional Materials credits.

Indoor Environmental Quality

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

During construction, an indoor air quality management plan will be implemented to prevent contamination of mechanical systems and absorptive materials. Material specifications will include only low-emitting interior finishes for paints, flooring, and wood to preserve indoor air quality. Occupants will also have control over lighting and their thermal environment. The Project shall be designed to meet or

exceed the rates as per ASHRAE 62.1-2007 "Ventilation for Acceptable Indoor Air Quality" and will have access to daylight and views.

Innovation and Design Process

The Innovation in Design and Innovation in Operations credit categories provide additional points for projects that use new and innovative technologies, achieve performance well beyond what is required by LEED credits, or utilize green building strategies that are not specifically addressed elsewhere in LEED. This credit category also rewards projects for including a LEED Accredited Professional on the team to ensure a holistic, integrated approach to design, construction, operations and maintenance. The team will determine which Innovation Credits will be pursued for each project as the design progresses. Various members of the team are experienced LEED Accredited Professionals.

LEED for Neighborhood Development

The Project will demonstrate compliance with a minimum of certified for LEED ND 2009. Detailed information on the specific credits will be provided once the Project begins to finalize site plans, however a preliminary checklist is provided to illustrate initial ideas.

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Building B (Cinema/Retail)

Y	?	N			
17	9		**Sustainable Sites**	Possible Points:	**26**
Y			Prereq 1	Construction Activity Pollution Prevention	
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
1			Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation—Public Transportation Access	6
	1		Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
	3		Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
	2		Credit 4.4	Alternative Transportation—Parking Capacity	2
	1		Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
	1		Credit 6.2	Stormwater Design—Quality Control	1
1			Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
	1		Credit 8	Light Pollution Reduction	1
4	4	2	**Water Efficiency**	Possible Points:	**10**
Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
2	2		Credit 3	Water Use Reduction	2 to 4
7	16	12	**Energy and Atmosphere**	Possible Points:	**35**
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
3	6	10	Credit 1	Optimize Energy Performance	1 to 19
3	4		Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
1		2	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2
5	2	7	**Materials and Resources**	Possible Points:	**14**
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

Y	?	N			
			Materials and Resources, Continued		
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1
9	5	1	**Indoor Environmental Quality**	Possible Points:	**15**
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1		Credit 5	Indoor Chemical and Pollutant Source Control	1
	1		Credit 6.1	Controllability of Systems—Lighting	1
	1		Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
1			Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1
1	5		**Innovation and Design Process**	Possible Points:	**6**
	1		Credit 1.1	Innovation in Design: EP Green Power	1
	1		Credit 1.2	Innovation in Design: TBD	1
	1		Credit 1.3	Innovation in Design: TBD	1
	1		Credit 1.4	Innovation in Design: TBD	1
	1		Credit 1.5	Innovation in Design: TBD	1
1			Credit 2	LEED Accredited Professional	1
4			**Regional Priority Credits**	Possible Points:	**4**
1			Credit 1.1	Regional Priority: SS c3	1
1			Credit 1.2	Regional Priority: SS 6.1	1
1			Credit 1.3	Regional Priority: SS 7.1	1
1			Credit 1.4	Regional Priority: SS 7.2	1
47	41	22	**Total**	Possible Points:	**110**

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

Figure 4-1

LEED Checklist- Building B

Source: ADD Inc, now with Stantec, 2015

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Buildings C & D (Residential)

Sustainable Sites — Possible Points: 26

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

Water Efficiency — Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
2	2		Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
5	4	10	Credit 1	Optimize Energy Performance	1 to 19
	1	6	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
1		2	Credit 5	Measurement and Verification	3
2			Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
	1		Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
	1		Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

Y	?	N			
	1		Credit 1.1	Innovation in Design: EP Green Power	1
	1		Credit 1.2	Innovation in Design: TBD	1
	1		Credit 1.3	Innovation in Design: TBD	1
	1		Credit 1.4	Innovation in Design: TBD	1
	1		Credit 1.5	Innovation in Design: TBD	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: SS c3	1
1			Credit 1.2	Regional Priority: SS 6.1	1
1			Credit 1.3	Regional Priority: SS 7.1	1
1			Credit 1.4	Regional Priority: SS 7.2	1

Y	?	N			
48	34	28	**Total**		Possible Points: 110

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

Figure 4-2

LEED Checklist- Buildings C + D

Source: ADD Inc, now with Stantec, 2015

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Building E (Hotel)

Sustainable Sites — Possible Points: 26

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

Water Efficiency — Possible Points: 10

Y			Prereq 1	Water Use Reduction—20% Reduction	
2	2		Credit 1	Water Efficient Landscaping	2 to 4
		2	Credit 2	Innovative Wastewater Technologies	2
4			Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	
Y			Prereq 3	Fundamental Refrigerant Management	
3	6	10	Credit 1	Optimize Energy Performance	1 to 19
	1	6	Credit 2	On-Site Renewable Energy	1 to 7
	2		Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
1		2	Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y			Prereq 1	Storage and Collection of Recyclables	
		3	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		2	Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
1	1		Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
		1	Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
		1	Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
1			Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
	1		Credit 7.1	Thermal Comfort—Design	1
	1		Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

	1		Credit 1.1	Innovation in Design: EP Green Power	1
	1		Credit 1.2	Innovation in Design: EPWater Credit 3	1
	1		Credit 1.3	Innovation in Design: TBD	1
	1		Credit 1.4	Innovation in Design: TBD	1
	1		Credit 1.5	Innovation in Design: TBD	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

1			Credit 1.1	Regional Priority: SS c3	1
1			Credit 1.2	Regional Priority: SS 6.1	1
1			Credit 1.3	Regional Priority: SS 7.1	1
1			Credit 1.4	Regional Priority: SS 7.2	1

45	37	28	**Total**	Possible Points: 110

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

Figure 4-3

LEED Checklist- Building E

Source: ADD Inc, now with Stantec, 2015

LEED 2009 for Neighborhood Development
Project Scorecard

Project Name: South Bay
Date: 15-Jul-15

Yes	?	No			
18	7	2	**Smart Location and Linkage**	27 Points Possible	
Y			Prereq 1	**Smart Location**	Required
Y			Prereq 2	**Imperiled Species and Ecological Communities**	Required
Y			Prereq 3	**Wetland and Water Body Conservation**	Required
Y			Prereq 4	**Agricultural Land Conservation**	Required
Y			Prereq 5	**Floodplain Avoidance**	Required
7	3	0	Credit 1	**Preferred Locations**	10
1	1		Credit 2	**Brownfield Redevelopment**	2
7	0	0	Credit 3	**Locations with Reduced Automobile Dependence**	7
0	1		Credit 4	**Bicycle Network and Storage**	1
2	1	0	Credit 5	**Housing and Jobs Proximity**	3
1			Credit 6	**Steep Slope Protection**	1
0	1		Credit 7	**Site Design for Habitat or Wetland and Water Body Conservation**	1
	0	1	Credit 8	**Restoration of Habitat or Wetlands and Water Bodies**	1
	0	1	Credit 9	**Long-Term Conservation Management of Habitat or Wetlands and Water Bodies**	1
Yes	?	No			
20	17	6	**Neighborhood Pattern and Design**	44 Points Possible	
Y			Prereq 1	**Walkable Streets**	Required
Y			Prereq 2	**Compact Development**	Required
Y			Prereq 3	**Connected and Open Community**	Required
4	4	4	Credit 1	**Walkable Streets**	12
5	1		Credit 2	**Compact Development**	6
2	2		Credit 3	**Mixed-Use Neighborhood Centers**	4
2	2	1	Credit 4	**Mixed-Income Diverse Communities**	7
0	1	0	Credit 5	**Reduced Parking Footprint**	1
0	2		Credit 6	**Street Network**	2
1			Credit 7	**Transit Facilities**	1
0	2		Credit 8	**Transportation Demand Management**	2
1			Credit 9	**Access to Civic and Public Spaces**	1
1			Credit 10	**Access to Recreation Facilities**	1
1			Credit 11	**Visitability and Universal Design**	1
2			Credit 12	**Community Outreach and Involvement**	2
1	1		Credit 13	**Local Food Production**	1
0	1	1	Credit 14	**Tree-Lined and Shaded Streets**	2
	1	0	Credit 15	**Neighborhood Schools**	1
Yes	?	No			
7	15	7	**Green Infrastructure and Buildings**	29 Points Possible	
Y			Prereq 1	**Certified Green Building**	Required
Y			Prereq 2	**Minimum Building Energy Efficiency**	Required
Y			Prereq 3	**Minimum Building Water Efficiency**	Required
Y			Prereq 4	**Construction Activity Pollution Prevention**	Required

Yes	?	No			
			Green Infrastructure and Buildings, Continued		
0	2	3	Credit 1	**Certified Green Buildings**	5
2	0		Credit 2	**Building Energy Efficiency**	2
1			Credit 3	**Building Water Efficiency**	1
0	1	0	Credit 4	**Water-Efficient Landscaping**	1
0	1		Credit 5	**Existing Building Use**	1
	1	0	Credit 6	**Historic Resource Preservation and Adaptive Reuse**	1
1			Credit 7	**Minimized Site Disturbance in Design and Construction**	1
	2	2	Credit 8	**Stormwater Management**	4
1	0		Credit 9	**Heat Island Reduction**	1
0	1		Credit 10	**Solar Orientation**	1
	1	2	Credit 11	**On-Site Renewable Energy Sources**	3
0	2		Credit 12	**District Heating and Cooling**	2
1	0		Credit 13	**Infrastructure Energy Efficiency**	1
	2	0	Credit 14	**Wastewater Management**	2
	1		Credit 15	**Recycled Content in Infrastructure**	1
1			Credit 16	**Solid Waste Management Infrastructure**	1
0	1	0	Credit 17	**Light Pollution Reduction**	1
1	5	0	**Innovation and Design Process**	6 Points	
0	1		Credit 1.1	**Innovation and Exemplary Performance:** Green training	1
0	1		Credit 1.2	**Innovation and Exemplary Performance:** Off-Site Habitat (Riverwalk Area)	1
0	1		Credit 1.3	**Innovation and Exemplary Performance:** Landscape Management	1
0	1		Credit 1.4	**Innovation and Exemplary Performance:** Local Economic Development	1
0	1		Credit 1.5	**Innovation and Exemplary Performance:** Off-site Job Training (Partnerships)	1
1			Credit 2	**LEED® Accredited Professional**	1
Yes	?	No			
4	1	0	**Regional Priority Credit**	4 Points	
1	0		Credit 1.1	**Regional Priority Credit:** Brownfield Redevelopment/ Mixed Income Diverse Comm	1
1	0		Credit 1.2	**Regional Priority Credit:** Transportation Demand	1
1			Credit 1.3	**Regional Priority Credit:** Access to Civic and Public Spaces	1
1	1		Credit 1.4	**Regional Priority Credit:** Building Energy Efficiency	1
Yes	?	No			
50	45	15	**Project Totals (Certification estimates)**	110 Points	

Certified: 40-49 points, **Silver:** 50-59 points, **Gold:** 60-79 points, **Platinum:** 80+ points

Figure 4-4
LEED Checklist- Neighborhood Development
Source: ADD Inc, now with Stantec, 2015

Chapter 5

TRANSPORTATION

CHAPTER 5: TRANSPORTATION

5.1 INTRODUCTION

MDM Transportation Consultants, Inc. (MDM) has prepared an evaluation of transportation impacts for the proposed mixed-use expansion of the South Bay Center located in the Dorchester neighborhood of Boston, Massachusetts. This transportation study is prepared following the Boston Transportation Department (BTD) *Transportation Access Plan Guidelines* as well as traffic study guidelines as jointly issued by the Commonwealth of Massachusetts Executive Office of Energy & Environmental Affairs/Massachusetts Department of Transportation (EEA/MassDOT) in support of the Boston Redevelopment Authority (BRA) Article 80 review process, the MEPA review process, and MassDOT Highway Access Permit process. The evaluation documents existing transportation conditions, future conditions with and without the Project, and describes access and transportation improvements that serve to accommodate Project-related traffic, loading and pedestrian activity including elements of a Transportation Demand Management (TDM) program for the Project.

5.1.1 PROJECT DESCRIPTION

The Project Site comprises approximately 9.9 acres bounded by South Bay Center and Allstate Road to the north, West Howell Street to the south, South Bay Center and Courtyard Hotel to the east, and Enterprise Street to the west in Dorchester, Massachusetts. The Project Site is currently occupied by several commercial, industrial, and retail uses that include a supermarket (formerly the Super 88 Market and more recently Kam Man food market), several commercial buildings, the Aggregate Industries concrete manufacturing facility, and a single-family home. The Project Site currently has approximately 600 surface parking spaces that support this range of uses. The proximity of the Project Site in relation to the regional transportation system and Boston neighborhoods is shown in Figure 5-1, Site Location.

Under the proposed development program, existing uses will be razed and replaced with a range of synergistic uses that include a 12-screen cinema, 130-room hotel, 475 residential apartment units, and 113,000± sf of ground-level retail uses. Parking for 1,066± vehicles (919 spaces in parking structures and 147 in surface lots/street parking) will replace the approximate existing 600-space surface supply for a net increase of 466 spaces to support the Project.

Primary Project Site access will be provided via existing driveways serving South Bay Center along Massachusetts Avenue via Allstate Road, Southampton Street, and the Frontage Road. Additional access connections will include Enterprise Street via Massachusetts Avenue and Boston Street and West Howell Street via Boston Street which are expected to serve as secondary, lower-volume routes serving the Project Site and that will help disperse traffic on local neighborhood streets. See Figure, 5-2, Project Site Plan.

5.1.2 STUDY METHODOLOGY

This transportation evaluation is conducted in accordance with BTD *Transportation Access Plan* guidelines, and consists of several steps. The first step documents existing conditions in the transportation study area including an inventory of roadway geometry, observed traffic volumes, public transportation, parking public transportation, pedestrian facilities, and safety characteristics. Next, future year (7-year horizon) traffic conditions are forecast that account for other planned area developments, normal area growth, and development-related traffic, pedestrian and public transportation demand increases. The third step quantifies operating characteristics of the study intersections under existing and future No-Build and Build conditions to determine the need for traffic mitigation measures. The final step identifies mitigation actions necessary to Project-related impacts and to address traffic, pedestrian, bicycle, transit, safety and construction period needs required to support the Project.

5.1.3 STUDY AREA

This study evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the Site, and that are likely to sustain a measurable level of traffic impact from the Project. The study area includes the following intersections which were identified in consultation with the Boston Transportation Department and as shown on Figure 5-3, Study Locations:

1 - Mass Ave at Melnea Cass Blvd/Southampton St – Signalized
2 - Mass Ave at Magazine Street – Signalized
3 - Mass Ave at Shirley Street/ Newmarket Square – Signalized
4 - Mass Ave at South Bay Shopping Center Driveway – Unsignalized
5 - Mass Ave at Allstate Road – Signalized
6 - Allstate Road at South Bay Center Loop Road – Unsignalized
7 - Mass Ave at Enterprise Street - Unsignalized
8 - Mass Ave at Columbia Road/Boston Street (Everett Square) – Signalized
9 - Dorchester Ave/Columbia Rd – Signalized
10 - Boston Street at Enterprise Street – Unsignalized
11 - Boston Street at West Howell Street – Unsignalized
12 - Boston Street at Frontage Road/ Washburn Street – Signalized
13 - Southampton St at Dorchester Ave/Dorchester St/Boston St – Signalized

14 - Southampton St at I-93 Ramps – Signalized
15 - Frontage Road at South Bay Center – Unsignalized
16 - Frontage Road at South Bay Center/ I-93 SB off-ramp – Signalized
17 - Southampton St at South Bay Center – Signalized
18 - Frontage Road Southbound at South Boston Bypass – Signalized
19 - Frontage Road Northbound at South Boston Bypass – Signalized

5.2 EXISTING CONDITIONS

In order to provide a basis for quantifying the transportation impacts of the development, the existing roadway system and the existing traffic operations of study area roadways were reviewed. This section describes the existing transportation characteristics within the study area including existing traffic volumes, pedestrian and bicycle facilities and volumes, parking and public transportation systems serving the area.

5.2.1 ROADWAY NETWORK

The study area roadways are described briefly in this section. A general description of the physical roadway features is provided in the following sections. The study area includes roadways under local and state (MassDOT) jurisdiction.

Massachusetts Avenue

Massachusetts Avenue is generally a northwest-southeast roadway under local jurisdiction within the study area. Massachusetts Avenue is classified by MassDOT as an Urban Principal Arterial roadway and provides a connection between the Boston neighborhoods to the north and Columbia Road in Dorchester to the south. Massachusetts Avenue varies between 1 and 3 travel lanes in each direction within the study area with additional travel lanes provided at its major intersections. Sidewalks are provided along both sides of Massachusetts Avenue. The posted (regulatory) speed limit on Massachusetts Avenue in the study area is 30 mph. Land use along Massachusetts Avenue is a mix of residential, retail/commercial, office uses, restaurants, and industrial uses.

Southampton Street

Southampton Street is an east-west roadway under local jurisdiction that connects Andrew Square to Massachusetts Avenue. Southampton Street is classified by MassDOT as an Urban Principal Arterial roadway generally provides two travel lanes in each direction separated by a double yellow centerline with additional turn lanes provide at its major intersections. Land uses along Southampton Street include a mix of retail, commercial, warehouse/storage, and industrial properties. Andrews Station provides bus transit service and is a stop on the MBTA Redline subway service. Sidewalks are provided along both roadway edges.

Allstate Road

Allstate Road provides access to the South Bay Center and is under private ownership except for the portion located within approximately 185 feet of Massachusetts Avenue. Allstate Road provides two travel lanes in each direction separated by a raised median and was reconstructed in 2006 as part of a prior South Bay Center expansion program; a separate left-turn lane is also provided for access into a portion of the South Bay Center at the Stop & Shop parking field. While Allstate road principally serves as a driveway for South Bay Center, it also provides access to a small residential neighborhood adjacent the Project Site via Willow Court. Sidewalks are provided along both roadway edges.

I-93 Frontage Road

The I-93 Frontage Road is a north-south roadway under MassDOT jurisdiction that runs parallel to I-93 southbound connecting Albany Street and Boston Street and which provides access to the South Bay Center from I-93. The I-93 Frontage Road is classified by MassDOT as an Urban Principal Arterial roadway between Albany Street and the South Bay Plaza and an urban minor arterial between the South Bay Plaza and Boston Street. The roadway provides access to the local roadway system, South Bay Center, commercial space, a storage facility, and several hotels.

Boston Street

Boston Street is a north-south roadway under local jurisdiction that connects Andrew Square and Massachusetts Avenue. Boston Street is classified by MassDOT as an Urban Minor Arterial roadway provides one travel lane in each direction separated by a double yellow centerline with additional turn lanes provide at its major intersections. Land uses along Boston Street in the study area primarily include residences; access/egress to several industrial and commercial uses occurs in the vicinity of Andrew Square, Enterprise Street and Massachusetts Avenue. Sidewalks are provided along both roadway edges.

5.2.2 INTERSECTION DESCRIPTIONS

1- Mass Ave at Melnea Cass Blvd/Southampton St – Signalized

Melnea Cass Blvd meets Mass Ave and Southampton Street to form a four-way signalized intersection. The Melnea Cass Blvd eastbound approach to the intersection consists two marked through lanes and a marked right-turn lane. The Mass Ave Connector westbound approach to the intersection consists of two marked left-turn lanes, two marked through lanes, and a channelized right-turn lane. The Southampton Street northbound approach to the intersection consists of two marked left-turn lanes, two marked through lanes, and a channelized right-turn lane.

The Mass Ave southbound approach to the intersection consist of two marked left-turn lanes, a marked through lane, and a marked through/right-turn lane. Painted crosswalks are provided across all of the intersection approaches.

2- Mass Ave at Magazine Street – Signalized

Magazine Street meets Mass Ave to form a "T"-type signalized intersection. The Magazine Street eastbound approach to the intersection consists of a single general-purpose travel lane. The northbound approach to the intersection consists of a left-turn lane and a through lane. The southbound approach to the intersection consists of a right-turn lane and a through lane. Painted crosswalks are provided across all three approaches.

3- Mass Ave at Shirley Street/ Newmarket Square – Signalized

Shirley Street meets Mass Ave and Newmarket Square to form a four-way signalized intersection. The Shirley Street eastbound approach to the intersection consists of a single general-purpose travel lane. The Newmarket Square westbound approach to the intersection consists of a marked left-turn lane and an unmarked through/right-turn lane. The northbound approach to the intersection consists of a marked right-turn lane and a through/left-turn lane. The southbound approach to the intersection consists of a right-turn lane and a through lane. Painted crosswalks are provided across the eastbound, westbound, and northbound approaches.

4- Mass Ave at South Bay Shopping Center Driveway – Unsignalized

The South Bay Shopping Center Driveway meets Mass Ave to form a "T"-type unsignalized intersection. The South Bay Shopping Center Driveway westbound approach to the intersection consists of a single right-turn lane under STOP control. The northbound approach to the intersection consists of an unmarked through/right-turn lane and a through lane. The southbound approach to the intersection consists of a marked left-turn lane and a through lane. The South Bay Shopping Center Driveway provides access and egress from the South Bay Center. A painted crosswalk is provided across the westbound approach.

5- Mass Ave at Allstate Road – Signalized

Allstate Road meets Mass Ave to form a four-way signalized intersection. The Allstate Road westbound approach to the intersection consists of a marked left-turn lane and a through/right-turn lane. The northbound approach to the intersection consists of a marked left-turn lane, a through lane, and a through/ right-turn lane. The southbound approach to the intersection consists of a marked left-turn lane and a through/right lane. Allstate Road provides access and egress from the South Bay

Center as well as several commercial and residential properties. Painted crosswalks are provided across the eastbound, westbound, and southbound approaches.

6- Allstate Road at South Bay Center Loop Road – Unsignalized

Allstate Road meets South Bay Center Loop Road to form a private "T"-type all-way STOP unsignalized intersection under the control of the South Bay Center. The Allstate Road eastbound approach consists of a marked through lane and a marked right-turn lane, both under STOP sign control. The westbound South Bay Center Loop Road approach consists of a single general-purpose travel lane under STOP sign control. The northbound South Bay Center Loop Road approach consists of a single general-purpose travel lane under STOP sign control. A painted crosswalk is provided across the eastbound approach.

7- Mass Ave at Enterprise Street – Unsignalized

Enterprise Street meets Mass Ave to form a "T"-type unsignalized intersection. The Enterprise Street westbound approach to the intersection consists of a single general-purpose travel lane under STOP control. The northbound approach to the intersection consists of a through/right-turn lane and a through lane. The southbound approach to the intersection consists of a through/left-turn lane and a through lane.

8- Mass Ave at Columbia Road/Boston Street (Everett Square) – Signalized

Mass Ave meets Columbia Road and Boston Street to form a four-way signalized intersection. The Columbia Road eastbound approach to the intersection consists of two marked left-turn lanes, a marked through lane, and a marked right-turn lane. The westbound Boston Street approach consists of a marked through/right-turn lane and a marked through/left-turn lane. The northbound approach to the intersection consists of two marked left-turn lanes, and a marked through/right-turn lane. The Mass Ave. southbound approach to the intersection consists of a marked through/right-turn lane and a marked through/left-turn lane. Painted crosswalks are provided across all four approaches.

9- Dorchester Ave/Columbia Rd – Signalized

Dorchester Ave meets Columbia Road to form a four-way signalized intersection. The Columbia Road eastbound approach to the intersection consists of a marked left-turn lane, a through lane, and a through/right-turn lane. The westbound Columbia Road approach consists of a marked left-turn lane, two through lanes, and a channelized right-turn lane. The northbound approach to the intersection consists of a through/left-turn lane and a marked right-turn lane. The Dorchester Ave. southbound approach to the intersection consists of a single general-purpose travel lane. Painted crosswalks are provided across the northbound, southbound, and eastbound approaches.

10- Boston Street at Enterprise Street – Unsignalized

Enterprise Street meets Boston Street to form a "T"-type unsignalized intersection. The Enterprise Street eastbound approach to the intersection consists of a single general-purpose travel lane under STOP sign control. The Boston Street northbound and southbound approaches to the intersection consist of single general-purpose travel lanes.

11- Boston Street at West Howell Street – Unsignalized

West Howell Street and Howell Street meet Boston Street to form a four-legged, unsignalized intersection. The West Howell Street approach to the intersection consists of a single general-purpose travel lane under STOP sign control. The Boston Street approaches to the intersection consist of single general-purpose travel lanes. Howell Street is a one-way roadway segment that provides egress from the intersection. Painted crosswalks are provided across the West Howell eastbound approach, as well as the southbound and westbound approaches.

12- Boston Street at Frontage Road/ Washburn Street – Signalized

Frontage Road and Washburn Street meet Boston Street to form a four-legged, signalized intersection. The Frontage Road eastbound approach to the intersection consists of a left-turn lane and a through/right-turn lane. The Boston Street northbound and southbound approaches consist of a single general purpose travel lanes. Washburn Street is a one-way roadway segment that provides egress from the intersection. Painted crosswalks are provided across the eastbound, westbound, and northbound approaches.

13- Southampton St at Dorchester Ave/Dorchester St/Boston St (Andrew Square) – Signalized

Southampton Street meets Boston Street, Dorchester Street, Dorchester Ave, and Preble Street to form a six-way signalized intersection at Andrew Square. The eastbound Southampton Street approach consists if a left-turn lane and a through/right-turn lane. The westbound Preble Street approach consists of a through/left-turn lane and a through/right-turn lane. The northbound Dorchester Ave approach consists of a through/left-turn lane and a through/right-turn lane. The northeastbound Boston Street approach consists of a through/left-turn lane and a through/right-turn lane. The southbound Dorchester Ave approach consists of a through/left-turn lane and a through/right-turn lane. The southwestbound Dorchester Street approach consists of a through/left-turn lane and a through/right-turn lane. Painted crosswalks are provided across all six approaches.

14- Southampton St at I-93 Off-ramp (Exit 16) – Signalized

The I-93 off-ramp (Exit 16) meets Southampton Street to form a four-way, signalized intersection. The Southampton Street eastbound approach to the intersection consists of a marked left-turn lane and a marked left/through lane. The Southampton Street westbound approach consists of two through lanes and a flared right turn lane. The northbound I-93 ramp consists of a marked left-turn lane, a left/through lane, and an exclusive right-turn lane. The Frontage Road southbound approach consists of a single right-turn lane. Painted crosswalks are provided across the northbound and southbound approaches.

15- Frontage Road at South Bay Center – Unsignalized

Frontage Road meets the South Bay Center to form a "T"-type unsignalized intersection. The eastbound approach consists of a single right-turn lane under STOP control. The southbound approach consists of a right-turn lane and a through lane. A painted crosswalk is provided across the eastbound approach.

16- Frontage Road at South Bay Center/ Southampton Connector – Signalized

Frontage Road meets the South Bay Center to form a 3-legged signalized intersection. The eastbound approach consists of dual right-turn lanes. The southbound Frontage Road approach consists of two through travel lanes. The southbound Southampton Connector Road Approach consist of two through travel lanes, one for travel onto I-93 southbound and one for destinations to the south along the Frontage Road. A painted crosswalk is provided across the eastbound South Bay Center approach.

17- Southampton St at South Bay Center – Signalized

The South Bay Center meets Southampton Street to form a four-way signalized intersection. The Southampton Street eastbound approach consists of a left/through lane and a through/right-turn lane. The westbound Southampton Street approach consists of a left/through lane and a through/right-turn lane. The South Bay Center northbound approach consists of a left-turn lane and a through/right-turn lane. The southbound approach consists of a single general-purpose travel lane that provides egress for a Public Storage building. Painted crosswalks are provided across the northbound and westbound approaches.

18- Frontage Road SB at South Boston Bypass

Frontage Road SB meets South Boston Bypass to form a "T"-type signalized intersection. The South Boston Bypass westbound approach consists of two marked left-turn lanes. The Frontage Road southbound approach consists of a left/through lane and a through lane.

19- Frontage Road North at South Boston Bypass

Frontage Road NB meets South Boston Bypass to form a four-way signalized intersection. The eastbound approach consists of a left/ through lane and a through lane. The westbound approach consists of through lane and a through/right-turn lane. The northbound approach consists of a left/through lane, a through lane, and a through/right-turn lane. Painted crosswalks are provided across the westbound approach.

5.2.3 PEDESTRIAN FACILITIES

An inventory of the existing sidewalk system and pedestrian crossings in the study area has been conducted and is documented in Figure 5-4, Existing Pedestrian Facilities. The study area is served by an existing sidewalk system that connects the internal system of sidewalks within the South Bay Center to major area transportation hubs that include the Newmarket commuter rail station and the Andrews Square MBTA Station.

5.2.4 CAR SHARING SERVICES

Car sharing services provide access to short term vehicle transportation. Vehicles can be rented by the hour or day and all standard vehicle costs (gas, maintenance, insurance, etc.) are included in the rental fee. Vehicles are checked out for a period of time and returned to their designated location. There are currently two Zipcar car sharing locations in the immediate vicinity of Andrews Square, with a total of 6 vehicles. The existing Zipcars are located within a 10-minute walk (½ mile) from the

Site. A map of the existing Zipcar locations in the immediate study area is provided in the Appendix.

5.2.5 BICYCLE SHARING SERVICES

Bicycle sharing services provide access to short term bicycle transportation. Hubway is Boston's shared bicycles system which allows members to rent bicycles for a period of time and return them to any Hubway location. The system is designed for quick trips with the first 30 minutes free for members and an incurred user fee thereafter. Membership passes are available for purchase in daily (24 hr), 72 hour, monthly and yearly increments. There are currently 15 bicycle docking stations located at Newmarket Square and fifteen bike docking stations located at Andrew Square. A map of the existing Hubway locations in the immediate study area is provided in the Appendix.

5.2.6 BASELINE TRAFFIC VOLUMES

Traffic-volume data used in this study were obtained in November 2014 and are augmented with supplemental count data collected in February, March, and April 2015. Automatic traffic recorder counts (ATRs) were conducted along Massachusetts Avenue; manual turning movement counts (TMCs) were conducted at the existing study intersections. Traffic data were collected during the weekday morning (7:00 AM to 9:00 AM), weekday evening (4:00 to 6:00 PM), and Saturday midday (11:00 AM – 1:00 PM) peak periods. These hours represent the combination of busiest activity periods of the site and adjacent roadway network. Vehicle classification counts include car, truck, pedestrian and bicycle trips; detailed traffic counts are provided in the Appendix.

Comparison of the traffic count data maintained by MassDOT for nearby permanent count stations indicates the counts months are generally consistent with average traffic conditions; however, a slight seasonal correction (increase) is applied to supplemental data collected in February to represent average traffic conditions. Permanent count station data is provided in the Appendix. The Baseline weekday morning, weekday evening, and Saturday midday peak hour traffic volume networks for study intersections are depicted in Figure 5-5, Figure 5-6, and Figure 5-7.

Daily traffic volumes along Massachusetts Avenue in the Project Site vicinity were collected in November 2014 and are summarized in Table 5-1 and included in the Appendix.

Table 5-1: Baseline Traffic Volume Summary Massachusetts Avenue North of South Bay Center

Time Period	Daily Volume (vpd)[1]	Percent Daily Traffic[2]	Peak Hour Volume (vph)[3]	Peak Flow Direction[4]	Peak Hour Directional Volume (vph)
Weekday Morning Peak Hour	19,630	6%	1,105	68% NB	754
Weekday Evening Peak Hour	19,630	7%	1,332	55% SB	732
Saturday Midday Peak Hour	19,670	6%	1,194	51% SB	606

[1]Two-way daily traffic expressed in vehicles per day without seasonal adjustment.
[2]The percent of daily traffic that occurs during the peak hour.
[3]Two-way peak-hour volume expressed in vehicles per hour.
[4]NB = Northbound, SB = Southbound

As summarized in Table 5-1:

- *Massachusetts Avenue.* The daily traffic volume on Massachusetts Avenue adjacent to the Project Site was approximately 19,630 vehicles per day (vpd) during a typical weekday and 19,670 vpd on a Saturday. Peak hour traffic flow on Massachusetts Avenue ranges from approximately 1,105 to 1,332 vehicles per hour (vph) adjacent to the Project Site which represents 6 to 7 percent of daily traffic flow. The traffic flow on Massachusetts Avenue is generally significantly higher in the northbound direction during the weekday morning peak hour and higher in the southbound direction during the weekday evening peak hour. The travel pattern is consistent with commuter traffic relative to the major interstate in the area (I-93).

5.2.7 PEDESTRIAN AND BICYCLE VOLUMES

Given the highly urban characteristic of the study area and the close proximity to the public transportation services provided near the Site, the pedestrian and bicycle traffic activity was also observed. The resulting weekday morning, weekday evening, and Saturday midday peak hour pedestrian & bicycle traffic volumes at the study intersections are provide in Figure 5-8, Figure 5-9 and Figure 5-10.

Daily and peak hour bicycle volumes along Massachusetts Avenue in the Project Site vicinity were also collected in November 2014 and are summarized in Table 5-2 and included in the Appendix.

Table 5-2: Baseline Bicycle Volume Summary Massachusetts Avenue North of South Bay Center

Time Period	Daily Volume (bpd)[1]	Percent Daily Traffic[2]	Peak Hour Volume (bph)[3]	Peak Flow Direction[4]	Peak Hour Directional Volume (bph)
Weekday Morning Peak Hour	180	8%	15	80% NB	12
Weekday Evening Peak Hour	180	9%	17	53% NB	9
Saturday Midday Peak Hour	220	14%	30	60% NB	18

[1]Two-way daily traffic expressed in bicycles per day without seasonal adjustment.
[2]The percent of daily traffic that occurs during the peak hour.
[3]Two-way peak-hour volume expressed in bicycles per hour.
[4]NB = Northbound, SB = Southbound

As summarized in Table 5-2, the daily bicycle traffic volume on Massachusetts Avenue adjacent to the Project Site was approximately 180 bicycles per day (bpd) within the travel lanes during a typical weekday and 220 bpd on a Saturday. Peak hour bicycle traffic flow on Massachusetts Avenue ranges from approximately 15 to 30 bicycles per hour (bph) adjacent to the Project Site which represents 8 to 14 percent of daily bicycle traffic flow. The bicycle traffic flow on Massachusetts Avenue is generally higher in the northbound direction during all study periods.

5.2.8 PUBLIC TRANSPORTATION

The Massachusetts Bay Transit Authority (MBTA) operates the Fairmount commuter rail service approximately ¼ mile from the Project Site at the Newmarket Station with access from Massachusetts Avenue and the redline subway service at Andrew Station located approximately ½ mile from the Site. Andrew Station also provides connections to various regional transit connections as well as a shuttle connection to the South Bay Plaza which is operated and paid for by the Proponent. Figure 5-11, Public Transportation, presents the existing public transportation facilities in the area with specific route and schedule information for all available services provided in the Appendix.

Specific public transportation services currently operated in the immediate area of the Project Site is as follows:

- **MBTA Commuter Rail:** The Fairmount Commuter Rail runs from Readville Station to South Station with a stop in the immediate area at Newmarket Station with access/egress from Massachusetts Avenue. Service generally runs M-F 7:00 am to 11:00 pm and on weekends (Saturday and Sunday) 7:30 am to 12:00 am with headways of approximately 40 minutes on weekdays and 1 hour on weekends.

- **MBTA Subway Service:** The redline subway runs from Mattapan and Braintree Stations to Alewife Station with a stop in the immediate area at Andrew Station with access/egress from Southampton Street and Dorchester Avenue. Service generally runs Monday through Saturday 5:30 am to 2:30 am and Sunday's 6:00 am to 1:00 am with headways approximately 15 minutes. Andrew Station also provides connections to various regional transit connections including Routes 5, 10, 16, 17, 18, 171, and CT3 as well as a shuttle connection to the South Bay Plaza which is operated and paid for by the Proponent.

- **Route 8:** Bus Route 8 runs from the Harbor Point/UMass Boston to Kenmore Station. The route passes adjacent to the Project Site along Massachusetts Avenue. Service generally runs M-F 5:15 am to 1:00 am and Saturdays and Sundays 6:30am to 1:00 am.

- **Route 10:** Bus Route 10 runs from the City Point to Copley Station. The route passes through the South Bay Center parking lot. Service generally runs M-F 5:00 am to 1:30 am and Saturdays and Sundays 6:00am to 1:15 am.

- **Route 16:** Bus Route 16 runs from the Forest Hills Station to Andrews Station or UMass Boston. The route passes through the South Bay Center parking lot. Service generally runs Monday - Saturday 5:00 am to 1:30 am and Sundays 7:00 am to 1:30 am.

- **Route CT3:** Bus Route CT3 runs from the Beth Israel Medical Center or BU Medical Campus to Andrews Station. The route passes adjacent to the Project Site along Southampton Street. Service generally runs Monday-Friday 6:00 am to 8:30 pm. There is no service on weekends.

- **South Bay Center Shuttle:** The Proponent operates and pays for a public shuttle connection between South Bay Center and Andrew Station. The shuttle service is free for patrons and provides a 1.7± mile route with stops within the South Bay Center at Target, Home Depot, Stop & Shop, Marshalls, and Best Buy. The service is provided Monday through Saturday from 10:30 am to 11:30 pm and Sunday between 11:30 am to 10:00 pm with headway of approximately 18 minutes. Figure 5-12 presents the existing patrons per day using the shuttle on a daily basis broken down by month for the year 2014. As shown in Figure 5-12, on average 580± customers (1,160 trips) utilize the South Bay Center's existing shuttle on weekday basis. The shuttle data also indicates that the daily ridership usage is approximately 10% higher on Saturday and Sunday.

5.3 FUTURE CONDITIONS

Evaluation of the proposed development impacts requires the establishment of a future baseline analysis condition. This section estimates future roadway and traffic conditions with and without the proposed development. To be consistent with BTD and MEPA guidelines, a seven year planning horizon was selected.

To determine the impact of Site-generated traffic volumes on the roadway network under future conditions, baseline traffic volumes in the study area were projected to a future year condition. Traffic volumes on the roadway network at that time, in the absence of the development (that is, the No-Build condition), would include existing traffic, new traffic due to general background traffic growth, and traffic related to specific development by others that is currently under review at the local and/or state level. Consideration of these factors resulted in the development of No-Build traffic volumes. Anticipated Site-generated traffic volumes were then superimposed upon these No-Build traffic-flow networks to develop future Build conditions.

The following sections provide an overview of future No-Build and projected Build transportation conditions in the study area.

5.3.1 BACKGROUND TRAFFIC GROWTH

Background traffic includes demand generated by other planned developments in the area as well as demand increases caused by external factors. External factors are general increases in traffic not attributable to a specific development and are determined using historical data.

Background Growth

Nearby permanent count station data published by MassDOT indicates a declining (-0.2 percent per year) growth rate. For purposes of this evaluation, a 0.43 percent growth rate was used (3.0 percent increase over a 7-year horizon). This growth rate is higher than historic rates, and, as such, is also expected to account for any small fluctuation in hourly traffic as may occur from time to time in the study area and traffic associated with other potential small developments or vacancies in the area. MassDOT permanent count station data and background growth calculations are provided in the Appendix.

Site Specific Projects

Development of future No-Build traffic volumes also considers traffic generated through the study area from other specific area developments. Review of MEPA files and consultation with the City of Boston staff indicates that there are currently seven (7) proposed site-specific development projects in the area.

- ***St. Kevin's Street Redevelopment:*** This development is a proposed 175,000± sf building consisting of 80 units of affordable housing located at 516-530 Columbia Road.

- ***University Place Residences:*** This project is a proposed 6-story residential building located at 150 Mount Vernon Street. The 97,000± sf building is to consist of 184 apartment units and 83 parking spaces.

- ***25 Morrissey Boulevard:*** This development is a proposed 220,000± sf residential building located at 25 Morrissey Boulevard in the Dorchester neighborhood of Boston. The project consists of 278 residential units and 143 parking spaces.

- ***Bayside DoubleTree Hotel Expansion:*** This development is a proposed 63,000± sf building expansion consisting of 86 hotel rooms and 3,000± sf of restaurant use. The development is located at 236 Mount Vernon.

- ***Northampton Square:*** This development is a proposed 371,881± sf building consisting of 211 units located at the corner of Albany and Northampton Streets in the Roxbury neighborhood of Boston. In addition the proposal calls for the rehabilitation of the existing 102 unit building at 860 Harrison Avenue.

- ***367 Neponset Avenue:*** This development is a proposed 31,500± sf building located at 367 Neponset Avenue. The proposed development consists of 22 rental residential units in 26,000± sf as well as a 5,500± sf restaurant.

- ***DOT Block:*** This development is a proposed mixed-use development at the corner of Dorchester Avenue and Hancock Street in Dorchester, MA. The proposed development consists of 420± residential units and 68,000± sf of ground floor retail uses.

Review of these future developments indicates that the trip increases are fully accounted for in the conservative background growth rate used. MDM also notes that to remain conservative no trip credits are included for re-occupancy of former site uses including Kam Man or other commercial uses on the property.

5.3.2 NO BUILD TRAFFIC VOLUMES

To account for future traffic growth in the study area future No-Build traffic volumes are developed by increasing the baseline volumes by approximately 3.0 percent (0.43 percent compounded annually over 7 years). The resulting 2021 No-Build traffic volumes are displayed in Figure 5-13, Figure 5-14 and Figure 5-15.

5.3.3 SITE GENERATED TRAFFIC

Future Build condition traffic volumes were developed by estimating the number of peak-hour trips expected to be generated by the proposed development and distributing this additional traffic onto the local roadway network. These future development-related trips were added to future No-Build traffic volumes to evaluate future traffic operations with the proposed mixed-use development in place. The methodology utilized to estimate the future trip-generation characteristics of the proposed development are summarized below. In accordance with BTD and EEA/MassDOT guidelines, the traffic generated by the proposed development was estimated using trip rates published in ITE's *Trip Generation* for the Land Use Code (LUC) based on trip rates for Apartment (LUC 220), Hotel (LUC 310), Shopping Center (LUC 820), and Multiplex Movie Theatre (LUC 445).

Mode Share

The Boston Transportation Department (BTD) publishes mode split rates for Dorchester (Area 8) including estimates vehicular, transit, and walking/bicycling mode split rates. As outlined above under Public Transportation Facilities, the

Project Site is located within a highly public transportation oriented area of the City with excellent access to an extensive sidewalk system as well as a commuter rail line, subway line, public bus system and South Bay Center shuttle service. The pedestrian and walk/bicycle mode share for the Area 8 section of Dorchester is summarized in Table 5-3.

As summarized in the Table 5-3, walking/bike trips and transit trips account for approximately half of the trips generated throughout Area 8, thus alternative transportation modes significantly reduce the dependence on automobile trips.

Table 5-3: Mode Share Splits (Area 8)

	Apartments			Hotel			Retail/ Theatre		
Period/Direction	Auto	Walk /Bike	Transit	Auto	Walk /Bike	Transit	Auto	Walk /Bike	Transit
Weekday Morning Peak Hour									
Entering	49%	22%	29%	65%	20%	15%	65%	20%	15%
Exiting	44%	30%	26%	45%	30%	25%	45%	30%	25%
Weekday Evening Peak Hour									
Entering	44%	30%	26%	45%	30%	25%	45%	30%	25%
Exiting	49%	22%	29%	65%	20%	15%	65%	20%	15%
Saturday Midday Peak Hour									
Entering	44%	30%	26%	45%	30%	25%	45%	30%	25%
Exiting	49%	22%	29%	65%	20%	15%	65%	20%	15%
Weekday Daily	53%	24%	23%	61%	24%	15%	61%	24%	15%
Saturday Daily	53%	24%	23%	61%	24%	15%	61%	24%	15%

[1]Mode share assumptions per BTD's mode splits for Dorchester (Area 8).

Trip-generation estimates for the proposed development based on ITE methodology and EEA/MassDOT guidelines were first adjusted for mode share splits provided by BTD for Dorchester. The trip estimates for the retail uses were then adjusted to reflect pass-by traffic, which represents the portion of site-generated trips that is drawn from the existing traffic stream and that is not "new" traffic to area roadways. Pass-by data as published by ITE in the *Trip Generation Handbook* indicates average pass-by rates of 26 for the various retail and restaurant uses planned for the site. As a conservative measure, no credit or reduction is taken for trips that may be shared between areas complimentary uses; residential, retail, restaurant, hotel, and cinema (internal trips). Trip generation estimates for the proposed uses are summarized in Table 5-4**.**

Table 5-4: Trip-Generation Summary (Autos)

Period/Direction	PROJECTED SITE TRIPS						
	Apartments[1]	Hotel[2]	Retail[3]	Movie Theatre[4]	Non-Auto Trips[5]	Pass-By[6]	Net New Vehicular Trips
Weekday Morning Peak Hour							
Entering	47	68	71	0	-71	-9	**106**
Exiting	189	49	44	0	-155	-9	**118**
Total	236	117	115	0	-226	-18	**224**
Weekday Evening Peak Hour							
Entering	181	60	186	161	-324	-28	**236**
Exiting	98	63	202	112	-179	-28	**268**
Total	279	123	388	273	-503	-56	**504**
Saturday Midday Peak Hour							
Entering	124	76	284	173	-361	-39	**257**
Exiting	124	76	262	67	-203	-39	**287**
Total	248	152	546	240	-564	-78	**544**
Weekday Daily	3,002	1,562	4,240	3,510	-5,041	-672	**6,601**
Saturday Daily	3,472	1,838	5,556	3,510	-5,882	-882	**7,612**

Source: ITE *Trip Generation*, Ninth Edition; 2009.

[1]Based on ITE LUC 220 (Apartment) trip rates applied to 475 units.

[2]Based on ITE LUC 310 (Hotel) trip rates applied to 130 occupied rooms.

[3]Based on ITE LUC 820 (Shopping Center) trip rates applied to 113,000 sf

[4]Based on ITE LUC 445 (Multiplex Movie Theatre) trip rates applied to 12 screens.

[5]Includes walk/ bike trips, transit trips and other trips per BTD's Dorchester Area 8 mode share statistics.

[6]Based on 26% of retail trips after reduction for mode share.

As summarized in Table 5-4, the proposed development is estimated to generate approximately 224 new vehicle trips during the weekday morning peak hour (106 entering and 118 exiting), 504 new vehicle trips during the weekday evening peak hour (236 entering and 268 exiting), and 544 new vehicle trips during the Saturday midday peak hour (257 entering and 287 exiting). On a daily basis, the development is estimated to generate approximately 6,601 new vehicle trips on a weekday and 7,612 new vehicle trips on a Saturday.

The trips summarized in Table 5-4 have been further broken down into automobile, walk/bike, and transit trips using the mode share splits shown in Table 5-4 and national vehicle occupancy rates for the various land uses and are summarized in Table 5-5. National vehicle occupancy rates indicate on average 1.2 passengers per vehicle (ppv) for Apartments, 2.2 ppv for a Hotel, 1.8 ppv for Retail and 2.0 ppv for a theatre. Detailed trip generation calculations are provided in the Appendix.

Table 5-5: Trip Generation by Mode Share

Period/Direction	Automobile[1]	Walk/Bike[2]	Transit[3]	Total
Weekday Morning Peak Hour				
Entering	115	66	57	238
Exiting	127	122	104	353
Total	242	188	161	591
Weekday Evening Peak Hour				
Entering	264	302	251	817
Exiting	296	168	141	605
Total	560	470	392	1,422
Saturday Midday Peak Hour				
Entering	296	352	291	939
Exiting	326	185	158	669
Total	622	537	449	1,608
Weekday Daily	7,274	5,234	3,510	16,018
Saturday Daily	8,494	6,090	4,078	18,662

[1]Automobile Trips in vehicles
[2]Walk/ Bike Trips in persons
[3]Transit Trips in persons

As summarized in Table 5-5, the proposed development is estimated to generate approximately 349 new non-automobile trips during the weekday morning peak hour, 863 new non-automobile trips during the weekday evening peak hour, and 986 new non-automobile trips during the Saturday midday peak hour. On a daily basis, the development is estimated to generate approximately 9,730 new non-automobile trips on a weekday and 10,168 new non-automobile trips on a Saturday. With enhancements outlined under *Recommendations*, the expanded pedestrian and bicycle volumes will be adequately accommodated.

5.3.4 TRIP DISTRIBUTION AND ASSIGNMENT

The directional distribution of development-generated trips on the roadway network is a function of a number of variables including area population centers and the efficiency of these roadways leading to the Site. Journey to work census data, area population centers, and existing travel patterns serve as the primary basis for determining the trip distribution pattern for the proposed development. The trip distribution patterns for the residential, hotel, and retail/cinema components are shown in Figure 5-16, Figure 5-17, and Figure 5-18, respectively. Trip distribution calculations for the various land uses at the Project Site are provided in the Appendix.

Development-related trips for the Project Site were assigned to the roadway network using the ITE trip-generation estimates shown in Table 5-4 and the distribution patterns for the various land uses as presented in the Figure 5-16, Figure 5-17, and

Figure 5-18. New development-related trips at each intersection for the weekday morning, weekday evening, and Saturday midday peak hours are quantified in Figure 5-19, Figure 5-20 and Figure 5-21.

5.3.5 BUILD TRAFFIC VOLUMES

Future Build condition traffic volumes were arrived at by adding development-specific traffic volumes to the 2021 No-Build conditions. The 2021 Build condition traffic-volume networks for the weekday morning, weekday evening, and Saturday midday peak hours are displayed in Figure 5-22, Figure 5-23 and Figure 5-24.

5.4 TRAFFIC OPERATIONS ANALYSIS

Intersection capacity analyses for the primary study intersections are presented in this section for the Existing, No-Build, and Build traffic-volume conditions. Capacity analyses, conducted in accordance with BTD and EEA/MassDOT guidelines, provide an index of how well the roadway facilities serve the traffic demands placed upon them. The operational results provide the basis for recommended access and roadway improvements in the following section.

5.4.1 CAPACITY ANALYSIS PROCEDURES

Capacity analysis of intersections is developed using the Synchro® computer software, which implements the methods of the 2010 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual intersection movements. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including roadway geometry, speeds, ambient traffic volumes, traffic controls, and driver characteristics. Since the LOS of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of LOS, depending on the time of day, day of week, or period of year. A range of six levels of service are defined on the basis of average delay, ranging from LOS A (the least delay) to LOS F (delays greater than 50 seconds for unsignalized movements and 80 seconds for signalized movements). The specific control delays and associated LOS designations are presented in the Appendix.

5.4.2 INTERSECTION CAPACITY ANALYSIS RESULTS

Capacity analysis results for the weekday morning, weekday evening, and Saturday midday peak hour capacity analysis results for the study intersections are described below, with detailed analysis results presented in the Appendix.

The capacity analysis results for the intersections in the study area are summarized in Table 5-6, Table 5-7, and Table 5-8 for the weekday morning, weekday evening, and Saturday midday peak hours, respectively. Detailed analysis results are presented in the Appendix.

Table 5-6: Intersection Capacity Analysis Results Weekday Morning Peak Hour

		Baseline			2021 No-Build			2021 Build		
Intersection	**Approach**	**v/c[1]**	**Delay[2]**	**LOS[3]**	**v/c**	**Delay**	**LOS**	**v/c**	**Delay**	**LOS**
1 – Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd	Eastbound	>1.0	59	E	>1.0	65	E	>1.0	65	E
	Westbound	0.88	31	C	0.90	32	C	0.92	32	C
	Northbound	0.91	38	D	0.93	40	D	0.94	40	D
	Southbound	0.76	51	D	0.78	52	D	0.78	52	D
	Overall	**>1.0**	**42**	**D**	**>1.0**	**44**	**D**	**>1.0**	**45**	**D**
2 – Massachusetts Ave at Magazine St	Eastbound	0.40	13	B	0.41	14	B	0.41	14	B
	Northbound	0.31	<5	A	0.32	<5	A	0.36	<5	A
	Southbound	0.49	8	A	0.51	8	A	0.54	9	A
	Overall	**0.49**	**6**	**A**	**0.51**	**6**	**A**	**0.54**	**7**	**A**
3 - Massachusetts Ave at Shirley St	Eastbound	0.91	58	E	0.93	61	E	0.93	61	E
	Westbound	0.52	30	C	0.51	29	C	0.51	29	C
	Northbound	0.43	10	B	0.45	11	B	0.45	12	B
	Southbound	0.30	10	B	0.32	11	B	0.32	11	B
	Overall	**0.91**	**23**	**C**	**0.93**	**24**	**C**	**0.93**	**24**	**C**
4 - Massachusetts Ave at South Bay Ctr	WB Exit	0.35	15	B	0.36	15	B	0.37	15	B
	Southbound	0.27	5	A	0.27	5	A	0.28	5	A
5 - Massachusetts Ave at Allstate Rd	Eastbound	>1.0	52	D	>1.0	52	D	>1.0	49	D
	Westbound	0.48	28	C	0.48	28	C	0.49	29	C
	Northbound	0.71	29	C	0.73	30	C	0.76	31	C
	Southbound	0.53	30	C	0.55	30	C	0.55	32	C
	Overall	**>1.0**	**31**	**C**	**>1.0**	**32**	**C**	**>1.0**	**33**	**C**
6 – Allstate Rd at South Bay Ctr Loop Rd	Eastbound	0.27	9	A	0.27	9	A	0.27	9	A
	Westbound	0.17	9	A	0.17	9	A	0.17	9	A
	Northbound	0.06	8	A	0.06	8	A	0.08	8	A
7 - Massachusetts Ave at Enterprise St	WB L/R Exit	0.53	22	C	0.54	24	C	0.62	26	D
	Southbound	0.08	<5	A	0.08	<5	A	0.09	<5	A
8 – Massachusetts Ave at Columbia Rd/ Boston St	Eastbound	>1.0	33	C	>1.0	36	D	>1.0	35	D
	Westbound	0.31	18	B	0.32	18	B	0.37	19	B
	Northbound	>1.0	78	E	>1.0	>80	F	>1.0	>80	F
	Southbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Overall	**>1.0**	**47**	**D**	**>1.0**	**57**	**E**	**>1.0**	**59**	**E**
9 – Columbia Rd at Dorchester Ave	Eastbound	0.37	19	B	0.38	19	B	0.38	19	B
	Westbound	0.90	33	C	0.91	34	C	0.91	34	C
	Northbound	>1.0	40	D	>1.0	46	D	>1.0	49	D
	Southbound	0.88	64	E	0.93	69	E	0.95	71	E
	Overall	**>1.0**	**36**	**D**	**>1.0**	**39**	**D**	**>1.0**	**41**	**D**

[1]Volume-to-capacity ratio

[2]Average control delay per vehicle (in seconds)

[3]Level of service

Table 5-6 (Continued): Intersection Capacity Analysis Results Weekday Morning Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
10 – Boston St at Enterprise St	EB L/R Exit	0.11	20	C	0.11	21	C	0.25	24	C
	Northbound	0.02	< 5	A	0.02	< 5	A	0.03	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.08	16	C	0.08	16	C	0.31	24	C
	Northbound	0.01	< 5	A	0.02	< 5	A	0.02	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.00	< 5	A
12 - Boston St at Frontage Rd/ Washburn St	Eastbound	0.75	19	B	0.75	19	B	0.77	18	B
	Northbound	0.39	6	A	0.40	6	A	0.46	7	A
	Southbound	0.26	5	A	0.27	5	A	0.29	6	A
	Overall	**0.75**	**11**	**B**	**0.75**	**11**	**B**	**0.75**	**11**	**B**
13 – Southampton St at Preble St/ Dorchester Ave/ Dorchester St/ Boston St (Andrew Square)	Eastbound	> 1.0	> 80	F	> 1.0	> 80	F	> 1.0	> 80	F
	Westbound	0.93	> 80	F	0.97	> 80	F	0.98	> 80	F
	Northbound	0.58	53	D	0.61	55	D	0.62	55	D
	Southbound	0.30	39	D	0.32	40	D	0.32	40	D
	Northeastbound	> 1.0	76	E	> 1.0	76	E	> 1.0	76	E
	Southwestbound	0.93	78	E	0.94	79	E	0.93	79	E
	Overall	**> 1.0**	**78**	**E**	**> 1.0**	**> 80**	**F**	**> 1.0**	**> 80**	**F**
14 – Southampton St at I-93 NB Off-ramp/ Frontage Road (Exit 16)	Eastbound	0.99	53	D	> 1.0	60	E	> 1.0	61	E
	Westbound	0.63	26	C	0.64	26	C	0.69	27	C
	Northbound	0.74	44	D	0.75	44	D	0.76	44	D
	Southbound	0.09	< 5	A	0.10	< 5	A	0.10	< 5	A
	Overall	**0.99**	**39**	**D**	**> 1.0**	**41**	**D**	**> 1.0**	**42**	**D**
15 – Frontage Road at South Bay Ctr	EB R Exit	0.04	9	A	0.04	10	A	0.04	10	A
16 – Frontage Road at South Bay Ctr/ Southampton St	Eastbound	0.13	< 5	A	0.13	< 5	A	0.20	< 5	A
	Southbound	0.70	21	C	0.72	22	C	0.78	25	C
	Southeastbound	0.42	31	C	0.43	31	C	0.45	32	C
	Overall	**0.70**	**22**	**C**	**0.72**	**23**	**C**	**0.78**	**25**	**C**
17 – Southampton St at South Bay Ctr/ Public Storage Dwy	Eastbound	0.58	21	C	0.60	21	C	0.61	22	C
	Westbound	0.70	7	A	0.72	7	A	0.74	8	A
	Northbound	0.74	40	D	0.74	40	D	0.75	41	D
	Southbound	0.01	30	C	0.01	30	C	0.01	29	C
	Overall	**0.74**	**18**	**B**	**0.74**	**18**	**B**	**0.74**	**19**	**B**
18 – Frontage Rd SB at South Boston By-pass	Westbound	0.15	15	B	0.14	27	C	0.14	27	C
	Southbound	0.59	8	A	0.55	7	A	0.57	7	A
	Overall	0.59	8	A	0.55	9	A	0.57	9	A
19 – Frontage Rd NB at South Boston By-pass	Eastbound	0.34	37	D	0.49	40	D	0.49	40	D
	Westbound	0.23	21	C	0.37	30	C	0.37	31	C
	Northbound	0.53	7	A	0.46	4	A	0.47	5	A
	Overall	0.53	10	B	0.49	9	A	0.49	9	A

Table 5-7: Intersection Capacity Analysis Results Weekday Evening Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
1 – Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd	Eastbound	0.84	42	D	0.85	42	D	0.84	42	D
	Westbound	1.00	39	D	>1.0	40	D	>1.0	47	D
	Northbound	0.76	33	C	0.77	34	C	0.80	34	C
	Southbound	0.96	61	E	0.99	64	E	0.99	66	E
	Overall	**1.00**	**43**	**D**	**>1.0**	**44**	**D**	**>1.0**	**46**	**D**
2 – Massachusetts Ave at Magazine St	Eastbound	0.76	38	D	0.76	38	D	0.77	39	D
	Northbound	0.19	6	A	0.19	7	A	0.24	7	A
	Southbound	0.54	13	B	0.54	14	B	0.57	15	B
	Overall	**0.76**	**17**	**B**	**0.76**	**18**	**B**	**0.77**	**18**	**B**
3 - Massachusetts Ave at Shirley St	Eastbound	0.84	41	D	0.85	42	D	0.86	42	D
	Westbound	0.62	46	D	0.63	46	D	0.63	46	D
	Northbound	0.40	11	B	0.42	11	B	0.47	12	B
	Southbound	0.36	9	A	0.37	9	A	0.39	9	A
	Overall	**0.84**	**20**	**B**	**0.85**	**20**	**C**	**0.86**	**20**	**C**
4 - Massachusetts Ave at South Bay Ctr	WB Exit	0.40	15	C	0.40	15	C	0.43	17	C
	Southbound	0.35	5	A	0.35	5	A	0.38	5	A
5 - Massachusetts Ave at Allstate Rd	Eastbound	1.00	20	C	1.00	20	C	1.00	20	C
	Westbound	0.70	24	C	0.70	24	C	0.70	24	C
	Northbound	0.39	10	A	0.39	10	A	0.50	11	B
	Southbound	0.66	19	B	0.68	20	B	0.69	23	C
	Overall	**1.0**	**17**	**B**	**1.0**	**17**	**B**	**1.0**	**18**	**B**
6 – Allstate Rd at South Bay Ctr Loop Rd	Eastbound	0.29	9	A	0.29	9	A	0.30	9	A
	Westbound	0.28	10	A	0.28	10	A	0.29	10	A
	Northbound	0.19	10	A	0.19	10	A	0.25	10	A
7 - Massachusetts Ave at Enterprise St	WB L/R Exit	0.33	17	C	0.34	18	C	0.64	28	D
	Southbound	0.08	<5	A	0.08	<5	A	0.09	<5	A
8 – Massachusetts Ave at Columbia Rd/ Boston St	Eastbound	0.72	20	B	0.73	20	B	0.73	20	B
	Westbound	0.32	20	B	0.33	20	C	0.39	21	C
	Northbound	0.95	60	E	0.97	63	E	0.98	66	E
	Southbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Overall	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**
9 – Columbia Rd at Dorchester Ave	Eastbound	0.26	20	B	0.27	20	B	0.29	20	C
	Westbound	>1.0	74	E	>1.0	79	E	>1.0	79	E
	Northbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Southbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Overall	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**

[1]Volume-to-capacity ratio

[2]Average control delay per vehicle (in seconds)

[3]Level of service

Table 5-7 (Continued): Intersection Capacity Analysis Results Weekday Evening Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
10 – Boston St at Enterprise St	EB L/R Exit	0.14	18	C	0.14	18	C	0.33	22	C
	Northbound	0.02	< 5	A	0.02	< 5	A	0.05	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.09	16	C	0.09	17	C	0.42	33	D
	Northbound	0.01	< 5	A	0.01	< 5	A	0.02	< 5	A
	Southbound	0.05	< 5	A	0.05	< 5	A	0.05	< 5	A
12 - Boston St at Frontage Rd/ Washburn St	Eastbound	0.59	18	B	0.59	18	B	0.62	17	B
	Northbound	0.31	5	A	0.32	5	A	0.38	5	A
	Southbound	0.30	5	A	0.31	5	A	0.36	5	A
	Overall	**0.59**	**9**	**A**	**0.59**	**9**	**A**	**0.62**	**9**	**A**
13 – Southampton St at Preble St/ Dorchester Ave/ Dorchester St/ Boston St (Andrew Square)	Eastbound	1.00	> 80	F	> 1.0	> 80	F	> 1.0	> 80	F
	Westbound	0.82	> 80	F	0.83	> 80	F	0.87	> 80	F
	Northbound	0.44	47	D	0.47	48	D	0.54	53	D
	Southbound	0.47	45	D	0.50	47	D	0.57	51	D
	Northeastbound	0.98	71	E	0.98	71	E	> 1.0	77	E
	Southwestbound	0.85	79	E	0.87	> 80	F	0.90	> 80	F
	Overall	**1.00**	**69**	**E**	**> 1.0**	**71**	**E**	**> 1.0**	**71**	**E**
14 – Southampton St at I-93 NB Off-ramp/ Frontage Road (Exit 16)	Eastbound	0.67	34	C	0.70	35	C	0.73	37	D
	Westbound	0.50	30	C	0.51	31	C	0.52	31	C
	Northbound	0.62	52	D	0.68	53	D	0.68	51	D
	Southbound	0.02	< 5	A	0.02	< 5	A	0.02	< 5	A
	Overall	**0.67**	**35**	**C**	**0.70**	**36**	**D**	**0.73**	**37**	**D**
15 – Frontage Road at South Bay Ctr	EB R Exit	0.10	10	A	0.11	10	A	0.11	10	A
16 – Frontage Road at South Bay Ctr/ Southampton St	Eastbound	0.37	7	A	0.37	7	A	0.43	9	A
	Southbound	0.52	19	B	0.54	19	B	0.60	21	B
	Southeastbound	0.83	45	D	0.85	47	D	0.88	51	D
	Overall	**0.83**	**27**	**C**	**0.85**	**28**	**C**	**0.88**	**30**	**C**
17 – Southampton St at South Bay Ctr/ Public Storage Dwy	Eastbound	0.56	12	B	0.58	12	B	0.59	13	B
	Westbound	0.59	7	A	0.60	8	A	0.87	9	A
	Northbound	0.61	29	C	0.61	29	C	0.69	33	C
	Southbound	0.00	32	C	0.00	32	C	0.00	31	C
	Overall	**0.70**	**12**	**B**	**0.70**	**13**	**B**	**0.87**	**14**	**B**
18 – Frontage Rd SB at South Boston By-pass	Westbound	0.12	19	B	0.11	27	C	0.11	27	C
	Southbound	0.33	6	A	0.31	5	A	0.34	6	A
	Overall	0.33	7	A	0.31	7	A	0.34	7	A
19 – Frontage Rd NB at South Boston By-pass	Eastbound	0.14	36	D	0.25	36	D	0.25	36	D
	Westbound	0.26	16	B	0.47	26	C	0.47	28	C
	Northbound	0.44	6	A	0.37	< 5	A	0.39	< 5	A
	Overall	0.44	8	A	0.47	7	A	0.47	7	A

Table 5-8: Intersection Capacity Analysis Results Saturday Midday Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
1 – Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd	Eastbound	>1.0	58	E	>1.0	65	E	>1.0	65	E
	Westbound	0.65	27	C	0.66	27	C	0.71	27	C
	Northbound	0.80	33	C	0.82	33	C	0.85	34	C
	Southbound	0.97	58	E	1.00	61	E	1.00	61	E
	Overall	**0.97**	**42**	**D**	**>1.0**	**44**	**D**	**>1.0**	**44**	**D**
2 – Massachusetts Ave at Magazine St	Eastbound	0.65	27	C	0.66	28	C	0.68	29	C
	Northbound	0.22	<5	A	0.23	<5	A	0.28	<5	A
	Southbound	0.41	9	A	0.42	9	A	0.45	10	A
	Overall	**0.65**	**11**	**B**	**0.66**	**11**	**B**	**0.68**	**11**	**B**
3 - Massachusetts Ave at Shirley St	Eastbound	0.81	30	C	0.82	31	C	0.82	31	C
	Westbound	0.41	36	D	0.42	36	D	0.42	36	D
	Northbound	0.44	10	A	0.45	10	A	0.51	11	B
	Southbound	0.36	9	A	0.37	9	A	0.39	9	A
	Overall	**0.81**	**14**	**B**	**0.82**	**15**	**B**	**0.82**	**15**	**B**
4 - Massachusetts Ave at South Bay Ctr	WB Exit	0.53	19	C	0.54	20	C	0.58	23	C
	Southbound	0.53	8	A	0.53	8	A	0.58	8	A
5 - Massachusetts Ave at Allstate Rd	Eastbound	0.01	10	A	0.01	10	A	0.01	10	A
	Westbound	0.75	23	C	0.75	23	C	0.75	23	C
	Northbound	0.51	13	B	0.52	13	B	0.55	14	B
	Southbound	0.52	20	B	0.53	21	B	0.90	34	C
	Overall	**0.75**	**18**	**B**	**0.75**	**18**	**B**	**0.90**	**21**	**C**
6 – Allstate Rd at South Bay Ctr Loop Rd	Eastbound	0.46	11	B	0.46	11	B	0.49	12	B
	Westbound	0.45	12	B	0.45	12	B	0.49	13	B
	Northbound	0.25	11	B	0.25	11	B	0.36	12	B
7 - Massachusetts Ave at Enterprise St	WB L/R Exit	0.23	14	B	0.24	14	B	0.54	23	C
	Southbound	0.06	<5	A	0.06	<5	A	0.07	<5	A
8 – Massachusetts Ave at Columbia Rd/ Boston St	Eastbound	>1.0	44	D	>1.0	48	D	>1.0	47	D
	Westbound	0.31	18	B	0.32	18	B	0.38	19	B
	Northbound	>1.0	69	E	>1.0	75	E	>1.0	78	E
	Southbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Overall	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**	**>1.0**	**>80**	**F**
9 – Columbia Rd at Dorchester Ave	Eastbound	0.36	18	B	0.37	18	B	0.37	18	B
	Westbound	0.92	30	C	0.94	30	C	0.94	30	C
	Northbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Southbound	>1.0	>80	F	>1.0	>80	F	>1.0	>80	F
	Overall	**>1.0**	**54**	**D**	**>1.0**	**62**	**E**	**>1.0**	**70**	**E**

[1]Volume-to-capacity ratio

[2]Average control delay per vehicle (in seconds)

[3]Level of service

Table 8 (Continued): Intersection Capacity Analysis Results Saturday Midday Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
10 – Boston St at Enterprise St	EB L/R Exit	0.07	14	B	0.07	15	C	0.24	17	C
	Northbound	0.01	< 5	A	0.01	< 5	A	0.04	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.05	13	B	0.06	14	B	0.35	25	C
	Northbound	0.03	< 5	A	0.03	< 5	A	0.04	< 5	A
	Southbound	0.03	< 5	A	0.03	< 5	A	0.03	< 5	A
12 - Boston St at Frontage Rd/ Washburn St	Eastbound	0.51	17	B	0.51	17	B	0.53	16	B
	Northbound	0.25	5	A	0.25	5	A	0.32	5	A
	Southbound	0.17	< 5	A	0.17	< 5	A	0.22	5	A
	Overall	**0.51**	**10**	**A**	**0.51**	**10**	**A**	**0.51**	**9**	**A**
13 – Southampton St at Preble St/ Dorchester Ave/ Dorchester St/ Boston St (Andrew Square)	Eastbound	0.96	79	E	> 1.0	> 80	E	> 1.0	> 80	F
	Westbound	0.94	> 80	F	0.97	> 80	F	> 1.0	> 80	F
	Northbound	0.52	48	D	0.55	50	D	0.59	53	D
	Southbound	0.49	44	D	0.52	45	D	0.57	49	D
	Northeastbound	0.93	71	E	0.94	70	E	> 1.0	72	E
	Southwestbound	> 1.0	77	E	> 1.0	78	E	> 1.0	79	E
	Overall	**> 1.0**	**71**	**E**	**> 1.0**	**73**	**E**	**> 1.0**	**79**	**E**
14 – Southampton St at I-93 NB Off-ramp/ Frontage Road (Exit 16)	Eastbound	0.80	38	D	0.83	39	D	0.88	42	D
	Westbound	0.64	24	C	0.66	24	C	0.66	25	C
	Northbound	0.70	35	C	0.71	35	C	0.72	35	C
	Southbound	0.02	< 5	A	0.02	< 5	A	0.02	< 5	A
	Overall	**0.80**	**30**	**C**	**0.83**	**31**	**C**	**0.88**	**32**	**C**
15 – Frontage Road at South Bay Ctr	EB R Exit	0.19	11	B	0.19	11	B	0.20	11	B
16 – Frontage Road at South Bay Ctr/ Southampton St	Eastbound	0.37	7	A	0.37	7	A	0.41	8	A
	Southbound	0.77	24	C	0.79	25	C	0.87	30	C
	Southeastbound	0.39	31	C	0.40	31	C	0.42	32	C
	Overall	**0.77**	**24**	**C**	**0.79**	**25**	**C**	**0.87**	**29**	**C**
17 – Southampton St at South Bay Ctr/ Public Storage Dwy	Eastbound	0.46	16	B	0.47	16	B	0.51	16	B
	Westbound	> 1.0	12	B	> 1.0	14	B	> 1.0	17	B
	Northbound	0.91	51	D	0.91	51	D	0.98	60	D
	Southbound	0.02	17	B	0.02	17	B	0.02	17	B
	Overall	**> 1.0**	**23**	**C**	**> 1.0**	**23**	**C**	**> 1.0**	**28**	**C**
18 – Frontage Rd SB at South Boston By-pass	Westbound	0.11	19	B	0.11	27	C	0.11	27	C
	Southbound	0.56	7	A	0.55	7	A	0.55	7	A
	Overall	0.56	8	A	0.55	8	A	0.55	8	A
19 – Frontage Rd NB at South Boston By-pass	Eastbound	0.29	37	D	0.45	39	D	0.45	39	D
	Westbound	0.13	18	B	0.21	23	C	0.21	23	C
	Northbound	0.46	6	A	0.42	4	A	0.42	4	A
	Overall	0.46	9	A	0.45	8	A	0.45	8	A

Summary of Traffic Operations Analysis

Under Build conditions, the study intersections will generally continue to operate at the same overall level of service (LOS) as under No-Build conditions. The exceptions being the unsignalized de facto site driveways (Intersection 7: Massachusetts Avenue and Enterprise Street and Intersection 11: Boston Street at West Howell Street). Key findings of capacity analysis presented in Table 5-6, Table 5-7 and Table 5-8 are as follows:

1. *Massachusetts Avenue at Mass Ave Connector/Melnea Cass Blvd:* Traffic operations at this signalized intersection are LOS D during peak hours on weekdays and Saturday under all analysis periods with no material change in intersections delays due to Project-related traffic (2 second delay increase or less overall).

2. *Massachusetts Avenue at Magazine Street:* Traffic operations at this signalized intersection are well below capacity at LOS B or better during peak hours on weekdays and Saturday. There are no material change in intersections delays due to Project-related traffic (no change in delays overall).

3. *Massachusetts Avenue at Shirley Street:* Traffic operations at this signalized intersection are LOS C or better during peak hours on weekdays and Saturday. There are no material change in intersections delays due to Project-related traffic (no change in delays overall).

4. *Massachusetts Avenue at South Bay Center:* Traffic operations at this unsignalized intersection are LOS C or better for vehicles exiting the Project Site onto Massachusetts Avenue during peak hours on weekdays and Saturday. There are no material change in intersections delays due to Project-related traffic (no change in delays overall).

5. *Massachusetts Avenue at Allstate Road:* Traffic operations at this signalized intersection are LOS C or better during peak hours on weekdays and Saturday under all analysis periods with no material change in intersections delays due to Project-related traffic (2 second delay increase or less overall).

6. *Allstate Rd at South Bay Center Loop Road:* Under Build conditions, capacity analyses indicate that the all-way STOP unsignalized intersection will operate at LOS B or better during peak hours on weekdays and Saturday under all analysis periods with no change in intersections delays due to Project-related traffic.

7. *Massachusetts Avenue at Enterprise Street:* The mixed-use development will increase delays for exit movements onto Massachusetts Avenue for this de facto site driveway on up to 10 seconds during the critical weekday evening peak hour; however, operations will continue to operate below capacity at LOS D or better during peak traffic periods for all analysis scenarios.

8. *Massachusetts Avenue at Columbia Rd/Boston Street:* Traffic operations at this signalized intersection are at LOS E/F overall under existing conditions due to long delays on Boston Street and on Columbia Road; a LOS D or better operation is maintained for the Massachusetts Avenue and Columbia Road (east-west) approaches. There are no material change in intersections delays due to Project-related traffic (no change in delays overall).

9. *Columbia Rd at Dorchester Avenue:* Traffic operations at this signalized intersection are at LOS E/F overall under existing conditions during weekday evening and Saturday midday due to long delays on the Dorchester Avenue approaches; a LOS D or better operation is maintained for the Columbia Road (east-west) approaches. There are no material change in intersections delays due to Project-related traffic (no change in delays overall).

10. *Boston Street at Enterprise Street:* Traffic operations at this unsignalized intersection are at LOS C or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (1 second delay increase or less for any movement).

11. *Boston Street at West Howell Street:* This unsignalized intersection currently operates below capacity at LOS B or better and will continue to operate below capacity at LOS D or better during peak hours under Build conditions. Delay increases are limited to the turning movements from West Howell Street; traffic operations on Boston Street will remain unimpeded at LOS A under all analysis scenarios.

12. *Boston Street at Frontage Road and Washburn Street:* Traffic operations at this signalized intersection are at LOS B or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (1 second delay increase or less for any movement).

13. *Andrew Square:* Traffic operations at this signalized intersection are at LOS E/F under existing and/or No Build conditions will continue to operate at these levels under Build conditions. The Project will not materially alter operating conditions compared to No-Build conditions with an increase in delay primarily along the northeastbound approach (Boston Street) to the intersection with an increase in average delay of only 2 to 7 seconds.

14. *Southampton Street at I-93 NB off-ramp/Frontage Rd (Exit 16):* Traffic operations at this signalized intersection are at LOS D or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (3 second delay increase or less for any movement).

15. *Frontage Road at South Bay Center:* Traffic operations at this unsignalized intersection are at LOS B or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (1 second delay increase or less for any movement).

16. *Frontage Road at South Bay Center/Southampton Street:* Traffic operations at this signalized intersection are at LOS C or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (5 second delay increase or less for any movement).

17. *Southampton Street at South Bay Center/ Public Storage Driveway:* Traffic operations at this signalized intersection are at LOS C or better during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic (5 second delay increase or less overall).

18. *Frontage Road Southbound at South Boston By-pass:* Traffic operations at this signalized intersection are at LOS A during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic. Field observations indicate that additional delay occasionally exist at the intersection during the weekday and Saturday peak hours in the form of queue influence along the Frontage Road due to congestion on I-93.

19. *Frontage Road Northbound at South Boston By-pass:* Traffic operations at this signalized intersection are at LOS A during peak hours on weekdays and Saturday for all scenarios with no material change in intersections delays due to Project-related traffic. Field observations indicate that additional delay occasionally exist at the intersection during the weekday and Saturday peak hours in the form of queue influence along the Frontage Road due to congestion on I-93.

5.4.3 VEHICLE QUEUE ANALYSIS RESULTS

Vehicle queue results are presented for the signalized study intersections. These vehicle queues are compared to available storage lengths, which are defined as lengths of exclusive turn lanes or the distance to the nearest major intersection for through lanes. Vehicle queue results from the capacity analysis are summarized in Table 5-9, Table 5-10 and Table 5-11. Detailed worksheets of the queuing analysis are provided in the Appendix.

As presented in Table 5-9, Table 5-10 and Table 5-11, under Existing and No-Build conditions the average and 95th percentile vehicle queues at the signalized study intersections are generally contained within available storage lanes during the weekday morning, weekday evening and Saturday midday peak hours. The exceptions being the northbound Columbia Road through/ right travel lane at the Massachusetts Ave/Columbia St/Boston Street intersection during the weekday morning and Saturday midday peak hours, the southbound Dorchester Ave left turn lane at the Columbia Road/Dorchester Ave intersection during the weekday morning, weekday evening and Saturday midday peak hour, and the westbound Southampton St right turn lane at the Southampton St/I-93 NB off-ramp/Frontage Rd.

Under Build condition the mixed-use development generally results in similar vehicle queues compared to No-Build conditions.

Table 5-9: Vehicle Queue Analysis Summary Weekday Morning Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
1-Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd					
Eastbound T	830±	471	606	471	606
Eastbound R	450±	98	168	102	173
Westbound L	425±	130	213	135	223
Westbound T	>1000	356	436	356	436
Westbound R	375±	247	362	248	363
Northbound L	>1000	142	233	144	237
Northbound T	>1000/125±	246	317	248	320
Northbound R	>1000	<25	<25	<25	<25
Southbound L	400±	114	162	114	162
Southbound T/R	400±	177	236	180	238
2-Massachusetts Ave at Magazine St					
Eastbound L/T/R	>1000	<25	53	<25	54
Northbound L	475±	<25	<25	<25	<25
Northbound T/R	475±	<25	58	35	47
Southbound L/T	>1000	126	209	129	216
Southbound R	>1000	<25	<25	<25	<25
3-Massachusetts Ave at Shirley St					
Eastbound L	300±	<25	33	<25	33
Eastbound T/R	>1000	183	346	183	346
Westbound L	145±	25	51	25	51
Westbound T/R	>1000	43	88	43	88
Northbound L	115±	37	91	37	92
Northbound T	750±	126	241	139	265
Northbound R	750±	26	65	26	64
Southbound L/T & T/R	425±	36	76	37	78
5-Massachusetts Ave at Allstate Rd					
Eastbound L/T & T/R	200±/>1000	27	86	27	85
Westbound L	585±	57	124	58	124
Westbound T/R	585±	<25	<25	<25	<25
Northbound L	240±	<25	32	<25	32
Northbound T	>1000	226	435	247	462
Northbound T/R	450±	226	435	247	462
Southbound L	765±	<25	40	<25	61
Southbound T/R	765±	136	287	141	300

[1] Average and 95th percentile queue lengths are reported in feet per lane.

Table 5-9 (Continued): Vehicle Queue Analysis Summary Weekday Morning Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
8-Massachusetts Ave at Columbia St/ Boston St					
Eastbound L	205±	143	238	143	238
Eastbound T	800±	200	291	204	297
Eastbound R	325±	<25	<25	<25	<25
Westbound L/T & T/R	>1000	73	107	80	117
Northbound L	200±/405±	119	189	119	189
Northbound T/R	405±	410	625	424	639
Southbound L/T & T/R	>1000	92	188	93	189
9-Columbia Road at Dorchester Avenue					
Eastbound L	130±	33	71	33	71
Eastbound T/R	>1000	105	142	108	146
Westbound L	750±	122	252	122	252
Westbound T/R	750±	80	115	80	115
Northbound L/T	670±	198	359	204	366
Northbound R	175±	<25	30	<25	30
Southbound L	125±	96	219	96	220
Southbound T/R	>1000	<25	205	125	205
12-Boston St at Frontage Rd/ Washburn St					
Eastbound L	>1000	31	66	31	66
Eastbound T/R	>1000	31	106	33	114
Northbound T/R	875±	57	156	70	198
Southbound L/T	>1000	34	96	38	110
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)					
Eastbound L	800±	185	357	190	361
Eastbound T/R	800±	158	238	164	246
Westbound L/T & T/R	>1000	222	336	224	340
Northbound L/T & T/R	480±/280±	179	242	180	243
Southbound L/T & T/R	245±/>1000	67	108	70	110
Northeastbound L/T & T/R	200±/>1000	232	298	232	298
Southwestbound L/T & T/R	>1000	172	231	175	235
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)					
Eastbound L	600±	317	568	318	566
Eastbound T	600±	294	531	295	531
Westbound T	815±	164	218	164	218
Westbound R	100±	157	266	177	297
Northbound L	815±	131	197	133	202
Northbound T	815±	135	205	136	207
Northbound R	815±	<25	34	<25	39
Southbound R	515±	<25	<25	<25	<25

Table 5-9 (Continued): Vehicle Queue Analysis Summary Weekday Morning Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
16-Frontage Road at South Bay Center/ Southampton Rd					
Eastbound R	>1000	<25	<25	<25	<25
Southbound T	600±	277	361	296	385
Southeastbound	>1000	72	113	72	113
17-Southampton St at South Bay Center/ Public Storage Dwy					
Eastbound L/T & T/R	>1000	200	313	203	318
Westbound L/T & T/R	625±	65	68	63	69
Northbound L	650±	94	148	96	151
Northbound T/R	>1000	83	159	86	161
Southbound L/T/R	100±	<25	<25	<25	<25
18-Frontage Road Southbound at South Boston By-pass					
Westbound L	175±	22	42	22	170
Southbound T	800±	161	207	170	219
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	47	79	47	79
Westbound T/R	200±	35	64	35	65
Northbound T/R	>1000	106	156	110	161

Table 5-10: Vehicle Queue Analysis Summary Weekday Evening Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
1-Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd					
Eastbound T	830±	299	377	299	377
Eastbound R	450±	276	409	289	430
Westbound L	425±	191	296	221	328
Westbound T	>1000	296	366	296	366
Westbound R	375±	193	284	195	286
Northbound L	>1000	119	168	127	178
Northbound T	>1000/125±	209	273	218	283
Northbound R	>1000	<25	<25	<25	<25
Southbound L	400±	178	287	178	287
Southbound T/R	400±	293	398	305	415
2-Massachusetts Ave at Magazine St					
Eastbound L/T/R	>1000	116	190	121	195
Northbound L	475±	<25	<25	<25	<25
Northbound T/R	475±	55	75	72	84
Southbound L/T	>1000	170	322	187	355
Southbound R	>1000	<25	<25	<25	<25
3-Massachusetts Ave at Shirley St					
Eastbound L	300±	<25	40	<25	40
Eastbound T/R	>1000	115	204	117	208
Westbound L	145±	86	141	86	141
Westbound T/R	>1000	64	115	64	115
Northbound L	115±	60	148	65	164
Northbound T	750±	108	209	138	259
Northbound R	750±	<25	<25	<25	<25
Southbound L/T & T/R	425±	58	117	61	116
5-Massachusetts Ave at Allstate Rd					
Eastbound L/T & T/R	200±/>1000	<25	<25	<25	<25
Westbound L	585±	83	258	83	258
Westbound T/R	585±	<25	25	<25	25
Northbound L	240±	<25	<25	<25	<25
Northbound T	>1000	46	128	63	171
Northbound T/R	450±	46	128	63	171
Southbound L	765±	<25	56	<25	120
Southbound T/R	765±	107	361	108	364

[1] Average and 95th percentile queue lengths are reported in feet per lane.

Table 5-10 (Continued): Vehicle Queue Analysis Summary Weekday Evening Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
8-Massachusetts Ave at Columbia St/ Boston St					
Eastbound L	205±	115	165	115	165
Eastbound T	800±	119	172	130	187
Eastbound R	325±	<25	<25	<25	<25
Westbound L/T & T/R	>1000	106	145	122	165
Northbound L	200±/405±	163	235	163	244
Northbound T/R	405±	274	355	285	377
Southbound L/T & T/R	>1000	504	635	524	655
9-Columbia Road at Dorchester Avenue					
Eastbound L	130±	<25	<25	<25	<25
Eastbound T/R	>1000	144	130	153	136
Westbound L	750±	275	449	275	449
Westbound T/R	750±	85	115	85	115
Northbound L/T	670±	287	453	308	477
Northbound R	175±	<25	25	<25	25
Southbound L	125±	146	283	152	287
Southbound T/R	>1000	198	340	197	337
12-Boston St at Frontage Rd/ Washburn St					
Eastbound L	>1000	43	87	43	86
Eastbound T/R	>1000	<25	66	<25	69
Northbound T/R	875±	45	94	55	121
Southbound L/T	>1000	45	93	54	117
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)					
Eastbound L	800±	208	318	251	366
Eastbound T/R	800±	211	306	225	325
Westbound L/T & T/R	>1000	144	211	148	228
Northbound L/T & T/R	480±/280±	125	184	132	185
Southbound L/T & T/R	245±/>1000	160	225	171	230
Northeastbound L/T & T/R	200±/>1000	215	267	285	380
Southwestbound L/T & T/R	>1000	204	284	219	311
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)					
Eastbound L	600±	88	157	100	177
Eastbound T	600±	357	538	377	614
Westbound T	815±	187	244	187	244
Westbound R	100±	102	181	137	228
Northbound L	815±	102	162	104	164
Northbound T	815±	102	164	105	166
Northbound R	815±	<25	34	<25	49
Southbound R	515±	<25	<25	<25	<25

Table 5-10 (Continued): Vehicle Queue Analysis Summary Weekday Evening Peak Hour

Approach	Storage Length (feet)	2021 No-Build		2021 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
16-Frontage Road at South Bay Center/ Southampton Rd					
Eastbound R	>1000	<25	<25	<25	36
Southbound T	600±	182	238	200	267
Southeastbound	>1000	171	272	170	275
17-Southampton St at South Bay Center/ Public Storage Dwy					
Eastbound L/T & T/R	>1000	178	276	187	292
Westbound L/T & T/R	625±	62	107	67	117
Northbound L	650±	50	94	62	110
Northbound T/R	>1000	<25	78	38	107
Southbound L/T/R	100±	<25	<25	<25	<25
18-Frontage Road Southbound at South Boston By-pass					
Westbound L	175±	18	36	18	36
Southbound T	800±	73	98	81	107
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	19	40	19	40
Westbound T/R	200±	31	62	33	64
Northbound T/R	>1000	66	99	70	105

Table 5-11: Vehicle Queue Analysis Summary Saturday Midday Peak Hour

Approach	Storage Length (feet)	2020 No-Build		2020 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
1-Massachusetts Ave at Mass Ave Connector/ Melnea Cass Blvd					
Eastbound T	830±	388	517	388	517
Eastbound R	450±	105	179	117	195
Westbound L	425±	76	114	88	129
Westbound T	>1000	282	341	277	341
Westbound R	375±	179	253	176	256
Northbound L	>1000	122	186	130	204
Northbound T	>1000/125±	205	274	216	285
Northbound R	>1000	<25	<25	<25	<25
Southbound L	400±	159	264	159	264
Southbound T/R	400±	168	231	179	241
2-Massachusetts Ave at Magazine St					
Eastbound L/T/R	>1000	60	125	65	131
Northbound L	475±	<25	<25	<25	<25
Northbound T/R	475±	41	47	51	50
Southbound L/T	>1000	119	226	134	252
Southbound R	>1000	<25	<25	<25	<25
3-Massachusetts Ave at Shirley St					
Eastbound L	300±	<25	36	<25	36
Eastbound T/R	>1000	78	164	79	167
Westbound L	145±	27	60	27	60
Westbound T/R	>1000	35	78	35	78
Northbound L		54	125	61	167
Northbound T	750±	125	253	157	310
Northbound R	750±	<25	26	<25	26
Southbound L/T & T/R	425±	66	97	72	103
5-Massachusetts Ave at Allstate Rd					
Eastbound L/T & T/R	200±/>1000	<25	<25	<25	<25
Westbound L	585±	91	453	91	453
Westbound T/R	585±	<25	26	<25	26
Northbound L	240±	<25	<25	<25	<25
Northbound T	>1000	63	300	70	360
Northbound T/R	400±	63	300	70	360
Southbound L	765±	<25	153	31	240
Southbound T/R	765±	57	291	59	313

[1] Average and 95th percentile queue lengths are reported in feet per lane.

Table 5-11 (Continued): Vehicle Queue Analysis Summary Saturday Midday Peak Hour

Approach	Storage Length (feet)	2025 No-Build		2025 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
8-Massachusetts Ave at Columbia St/ Boston St					
Eastbound L	205±	162	259	162	259
Eastbound T	800±	85	130	96	145
Eastbound R	325±	<25	<25	<25	<25
Westbound L/T & T/R	>1000	81	116	95	135
Northbound L	200±/405±	134	219	148	221
Northbound T/R	405±	326	465	337	518
Southbound L/T & T/R	>1000	255	372	277	395
9-Columbia Road at Dorchester Avenue					
Eastbound L	130±	29	46	30	45
Eastbound T/R	>1000	117	123	122	125
Westbound L	750±	152	298	152	298
Westbound T/R	750±	105	143	105	143
Northbound L/T	670±	239	399	257	420
Northbound R	175±	<25	<25	<25	<25
Southbound L	125±	106	220	112	227
Southbound T/R	>1000	116	215	116	215
12-Boston St at Frontage Rd/ Washburn St					
Eastbound L	>1000	48	95	48	94
Eastbound T/R	>1000	<25	51	<25	55
Northbound T/R	875±	34	75	46	105
Southbound L/T	>1000	<25	50	28	67
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)					
Eastbound L	800±	183	304	225	353
Eastbound T/R	800±	167	250	179	265
Westbound L/T & T/R	>1000	173	277	181	290
Northbound L/T & T/R	480±/280±	161	232	168	232
Southbound L/T & T/R	245±/>1000	106	166	117	174
Northeastbound L/T & T/R	200±/>1000	213	263	245	308
Southwestbound L/T & T/R	>1000	181	240	191	255
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)					
Eastbound L	600±	96	151	109	154
Eastbound T	600±	245	397	261	389
Westbound T	815±	158	216	158	216
Westbound R	100±	79	161	110	207
Northbound L	815±	104	166	107	171
Northbound T	815±	104	167	107	172
Northbound R	815±	<25	<25	<25	27
Southbound R	515±	<25	<25	<25	<25

[1] Average and 95th percentile queue lengths are reported in feet per lane.

Table 5-11 (Continued): Vehicle Queue Analysis Summary Saturday Midday Peak Hour

Approach	Storage Length (feet)	2025 No-Build		2025 Build	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length
16-Frontage Road at South Bay Center/ Southampton Rd					
Eastbound R	>1000	<25	<25	<25	31
Southbound T	600±	322	412	350	457
Southeastbound	>1000	69	108	69	110
17-Southampton St at South Bay Center/ Public Storage Dwy					
Eastbound L/T & T/R	>1000	111	158	117	166
Westbound L/T & T/R	625±	<25	44	<25	60
Northbound L	650±	85	151	97	170
Northbound T/R	>1000	160	311	186	361
Southbound L/T/R	100±	<25	<25	<25	<25
18-Frontage Road Southbound at South Boston By-pass					
Westbound L	175±	16	34	16	34
Southbound T	800±	161	207	161	207
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	41	71	41	71
Westbound T/R	200±	13	35	13	35
Northbound T/R	>1000	88	128	88	128

[1] Average and 95th percentile queue lengths are reported in feet per lane.

5.5 PARKING

This section identifies existing parking characteristics associated with, South Bay Center, the adjacent roadway sections along West Howell Street and Enterprise Street and outlines the proposed parking supply to accommodate the Site. The evaluation includes an inventory of the existing parking supply; a manual survey of peak parking demands (parking accumulation counts); and summary of proposed parking supply. The Project will provide approximately 1,066 on-site parking spaces primarily provided in parking structures, small surface lots, and street parking and as such is not expected to rely on or result in any off-site parking to accommodate Project demands.

5.5.1 EXISTING AREA PARKING SUPPLY

The existing parking supply within the study area includes 2,513± parking spaces with the following breakdown:

- South Bay Center Parking Lots – 2,409± spaces
- Enterprise Street (Mass Ave to Boston St) – 55± spaces
- West Howell Street (Project Site to Boston St) – 49± spaces

MDM notes that given the existing tenant lease requirements at the South Bay Center, the proposed Project cannot rely upon on any existing parking provided at South Bay Center to accommodate its own tenant and resident needs.

5.5.2 OBSERVED PEAK PARKING DEMAND

A parking accumulation survey was conducted to identify parking trends within South Bay Center on Thursday, November 13, 2014 and Saturday, November 15, 2014 between 9:00 AM and 8:00 PM. The study period represents the highest level of parking activity for retail uses based on the Institute of Transportation Engineers (ITE) *Parking Generation*[1] and was selected to document peak parking demands for the South Bay Center. Additional inventory of peak parking demand was conducted along Enterprise Street and West Howell Street during the critical weekday and Saturday peak parking periods in spring 2015 to provide an understanding of existing demands to facilitate planning of street grid improvements by the Proponent.

[1] *Parking Generation,* 4th Edition; Institute of Transportation Engineers; Washington, DC; 2004.

Key findings of the parking surveys are as follows:

- *South Bay Center*. The South Bay Center is currently fully tenanted and was observed to have a peak demand of 1,102 and 1,307 during a weekday and a Saturday, respectively. The resulting parking utilization is approximately 65% resulting in a reserve parking supply of at least approximately 1,102 spaces.

- *Enterprise Street*. Enterprise Street was observed to have a peak demand of 26 spaces resulting in a parking utilization of approximately 47% resulting in a reserve parking supply of at least approximately 29 spaces. Field observations indicate that parking along Enterprise Street were primarily from commercial properties including the Aggregate Industries property.

- *West Howell Street*. West Howell Street was observed to have a peak demand of 43 spaces resulting in a parking utilization of approximately 89% resulting in a reserve parking supply of at least approximately 6 spaces.

In summary there is ample parking in the study area to accommodate the existing needs of the South Bay Center, abutting neighborhood and commercial properties.

5.5.3 PROPOSED PARKING SUPPLY

The proposed Project will meet zoning requirements for parking and will provide approximately 1,066± on-site parking spaces primarily in structures, small surface lots, and street parking and is not expected to rely on any off-site parking supply to accommodate demands. The proposed parking supply will adequately accommodate all parking demands from the Project and with the removal of Aggregate Industries will likely result in a reduced parking demand along Enterprise Street.

5.6 RECOMMENDATIONS

Roadway improvements that support projected traffic increases associated with the proposed development are identified that minimize or offset Project-related traffic impacts and address access needs for the Site. The Proponent will continue to work with the City of Boston (BTD) to create a project that efficiently serves vehicle trips, improves the pedestrian environment, and encourages transit and bicycle use. The Proponent is responsible for the 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. Since the TAPA must incorporate the results of the technical analysis, it must be executed after these other processes have been completed. The proposed measures listed below and any additional transportation improvements to be undertaken as part of this Project will be defined and documented in the TAPA.

Recommended improvements include (a) access-related improvements, (b) off-site improvements, (c) pedestrian improvements, (d) transportation demand management (TDM). 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.

5.6.1 ACCESS AND CIRCULATION IMPROVEMENTS

The Proponent sponsored and MDM recommended access-related improvements aimed at enhancing traffic operations and/or travel safety including the following:

- *Signage and Pavement Markings*. STOP signs (R1-1) and STOP line pavement markings are recommended on the driveway approaches to the South Bay Center Loop Road, Enterprise Street and West Howell Street. The signs and pavement markings shall be compliant with the Manual on Uniform Traffic Control Devices (MUTCD).

- *Sight Lines*. Plantings (shrubs, bushes) and structures (walls, fences, etc.) should be maintained at a height of 2 feet or less within the sight lines in vicinity of the Sites external and internal intersections to provide unobstructed sight lines. Furthermore, the existing vegetation and structures within the sight lines should be cleared when the new roadways are constructed and the terrain shall be graded as required to ensure minimum recommended sight line requirements are met or exceeded.

- *Enhanced Access/Grid Network*. The Proponent will improve access/egress to the Project Site via an enhanced roadway grid network with direct

connections to the adjacent hotel uses, Enterprise Street, West Howell Street, Boston Street, and the existing South Bay Center. The Proponent will also enhance access/egress to the adjacent neighborhood Baker Court and Fields Court to the maximum extent feasible via a new one-way connection from Allstate Road to Enterprise Street, if deemed appropriate by residential abutters.

The parking garage access/egress points are being designed to reduce impacts to Boston Street by providing a more convenient access/egress through the Allstate and Massachusetts Avenue connections for the commercial components of the Site. The proposed roadway grid network is being designed in coordination with the City in an effort to not preclude existing and future planning efforts in the neighborhood.

- *Loading and Service Activity*. On-site loading and service areas will occur on-site in designated back of house loading zones. All delivery vehicles will access and egress the Project Site via the Frontage Road and Southampton Street. AutoTurn® outlining the proposed delivery vehicle on-site circulation patterns is provided in the Appendix. Trash and recycle in operations will also occur in designed on-site areas. With the removal of the existing Aggregate Industries use of the property and proposed internal connections to South Bay Center the Project will eliminate heavy vehicle use generate by the Project Site along Boston Street which currently consists of Box Trucks, Articulated Trucks and Cement Mixer Trucks. The majority if not all of the truck trips will occur during off-peak hours and the proposed loading areas will be sufficient to handle the loading demands of the Project.

- *Allstate Road at Proposed Commercial Garage Access* To enhance access to the proposed commercial parking garage via Allstate Road, the intersection of Allstate Road and proposed Commercial Garage Access Site Driveway will be expanded to include an exclusive right-turn lane, an exclusive U-turn/left turn lane and a mountable apron island to accommodate delivery vehicle access to the rear of the commercial building. The Proponent will also enhance access to the adjacent neighborhood Baker Court and Fields Court to the maximum extent feasible via a new one-way connection from Allstate Road, if deemed appropriate by residential abutters.

  The intersection, including lane geometry and curb radii will be designed to accommodate the Site's design vehicles using AutoTurn® analysis software. A conceptual plan outlining the improvements is shown graphically in Figure 5-25.

5.6.2 OFF-SITE IMPROVEMENTS

MDM recommends off-site improvements aimed at enhancing traffic operations, travel safety, and pedestrian/ bicycle accommodations including the following improvements along Enterprise Street and West Howell Street:

Enterprise Street

To enhance access/egress to the Project Site for pedestrians and bicycles, Enterprise Street between the Massachusetts Avenue and the project site will be re-designed to provide design in accordance with Complete Streets design. Specifically, the design will incorporate pavement markings, signage, and other surface treatments to enhance access/egress for the various travel modes accommodated at the Project Site including but not limited to vehicles, pedestrians, and bicycles. A conceptual plan outlining the improvements is shown graphically in Figure 5-26.

West Howell Street

To enhance access/egress to the Project Site for pedestrians and bicycles, the section of West Howell Street between the Project Site and Boston Street will be re-designed to provide design in accordance with Complete Streets design. Specifically, the design will incorporate pavement markings, signage, and other surface treatments to enhance access/egress for the various travel modes accommodated at the Project Site including but not limited to vehicles, pedestrians, and bicycles. The roadway cross section is proposed to be modified to include a minimum 6-foot sidewalk connection, parallel parking, and a three lane cross section to accommodate two way traffic and bicycle flow as well as a stacking lane for the exiting car-wash use (Scrub-a-Dub). A conceptual plan outlining the improvements is shown graphically in Figure 5-27.

5.6.3 PEDESTRIAN IMPROVEMENTS

Sidewalks and ADA compliant crosswalks are recommended where feasible to connect the Site and adjacent properties to accommodate and promote pedestrian activity. The site plan envisions an extensive system of interconnected walkways that achieve this objective, including connections to the sidewalk systems along Massachusetts Avenue, Southampton Street and Boston Street as well as the internal sidewalk system in the South Bay Center.

The proposed re-design of the existing sidewalks along West Howell Street and Enterprise Street will enhance pedestrian access between the Project Site and Massachusetts Avenue and Boston Street which provide connections to the adjacent neighborhood, commercial properties, and to the nearby MBTA stations.

In an effort to enhance pedestrian accessibility and comfort, the Proponent will also evaluate and implement to the maximum extent feasible an enhanced pedestrian connection that is more desirable for pedestrians between the Project Site and Newmarket Station via sidewalk improvements within the South Bay Center.

5.6.4 TRANSPORTATION DEMAND MANAGEMENT

The Proponent is committed to reduce auto dependency by employees, patrons and residents by implementing a robust TDM program. These elements are also consistent with the Massachusetts Department of Environmental Protection (MADEP) directive to use all reasonable and feasible mitigation actions to reduce auto emissions. It should be noted that the mixed-use nature of the proposed development in itself allows for reduced traffic by promoting internal shared trips. A preliminary list of potential TDM program elements may include the following:

- *Shuttle Bus Expansion*. The Proponent will expand the existing South Bay Center Shuttle bus loop service to accommodate stops adjacent to the proposed expansion area and will evaluate the need to expand capacity and adjust stop locations as required at the nearby Andrew Station (redline subway) and Newmarket Station(commuter rail).

- *On-Site Employee Transportation Coordinator*. The Proponent will require that each tenant designate an on-site employee transportation coordinator. The employee transportation coordinator will be responsible for disseminating relevant TDM information to employees including posting TDM information at appropriate locations within the buildings and on relevant webpages.

- *Public Transit Service*. The Proponent currently provides dedicated MBTA and Shuttle bus stops in the South Bay Center and will provide a bus stop in the immediate vicinity of the expanded Project Site as applicable.

- *Bus Shelter/Taxi area*. The Proponent will provide a bus shelter/taxi area for patrons.

- *MassRIDES*. MassRIDES is the Executive Office of Transportation's statewide travel options program providing free assistance to commuters, employers, students, and other traveler markets. MassRIDES programs may encourage workers to use alternative forms of transportation such as carpooling, vanpooling, and to utilize a large database for rideshare matching. The Proponent will promote commuter assistance programs available through MassRIDES by encouraging tenants to incorporate information on MassRIDES as part of the employee orientation programs. MassRIDES information will also be posted in each residential building.

- *Public Transportation Information & Promotion*. Posting of service and schedule information for employees, patrons and residents; on-site sale of transit passes to promote the use of public transportation by employees, patrons, and residents.

- *Bicycle Facilities & Promotion*. In accordance with BTD guidelines, bicycle racks will be provided on-site in close proximity to the building entrances for use by employees, patrons, and residents. Including 475± covered resident spaces and exterior racks. The location and number of racks will be identified more specifically during the local site plan review and approval process. Additionally, the on-site transportation coordinator can disseminate maps of on-site bicycle storage locations and maps of area bicycle routes. A bicycle sharing program to promote the use of bicycles as an alternative commuting method will also be evaluated.

- *Pedestrian Infrastructure/Walking Incentives*. The proposed site layout will include additional sidewalks and/or designated pathways to proposed buildings that connect to the existing sidewalk system along Massachusetts Avenue and Boston Street. The Proponent will install sidewalks with connections to adjacent roadways to encourage walking on-site and to and from the Project Site from the residential and commercial properties in the area as well as the nearby MBTA stations.

- *Tenant Manual for Employee Services*. The Proponent will be leasing retail space and thus there are a number of TDMs that can only be implemented by the tenant-employers. The Proponent will prepare a Tenant Manual that will encourage tenant-employers to offer their employees: 1) direct deposit of paychecks; 2) alternative work schedules to reduce peak hour traffic volumes; 3) transit pass subsidies; and 4) a guaranteed ride home program for employees who van/carpool.

- *Electric Vehicle Charging Stations and Preferential Parking for Low-Emission Vehicles*. Preferential parking locations for those who use low-emission vehicles will be provided on-site and electric vehicle charging stations will be provided.

- *Vehicle Sharing Services*. The proponent will providezip-car spaces on-site to provide shared vehicle service for on-site employees, patrons, and residents as well as to the local neighborhood. The number of shared vehicle spaces will be monitored and adjusted as needed to meet demands.

- *Preferential Parking for Carpools and Vanpools*. Preferential parking locations for employees within the employee parking area who use carpools and vanpools.

- *No Idling Signage*. Installation of "No Idling" signs at the Site's commercial vehicle parking areas to reduce the amount of greenhouse gasses emitted.

5.6.5 CONSTRUCTION MANAGEMENT PLAN

Details of the overall construction schedule, working hours, number of construction workers, worker transportation, and parking, number of construction vehicles, and routes will be addressed in detail in a Construction Management Plan (CMP) to be filed with BTD in accordance with the City's transportation maintenance plan requirements. The CMP will also address the need for pedestrian detours, lane closures, and/or parking restrictions, if necessary to accommodate a safe and secure work zone.

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

- Construction workers will be encouraged to use public transportation and/or carpool;
- A subsidy for MBTA passes will be considered for full-time employees; and
- Secure spaces will be provided on-site for workers' supplies and tools so they do not need to be brought to the Project Site each day.

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

Dorchester, Massachusetts

Figure 5-1
Site Location
Source: MDM Transportation Consultants, Inc. , 2015

Figure 5-2
Study Locations
Source: MDM Transportation Consultants, Inc. , 2015

Figure 5-3
Project Site Plan
Source: ADD Inc, now with Stantec, 2015

Figure 5-4
Existing Pedestrian Facilities
Source: MDM Transportation Consultants, Inc. , 2015

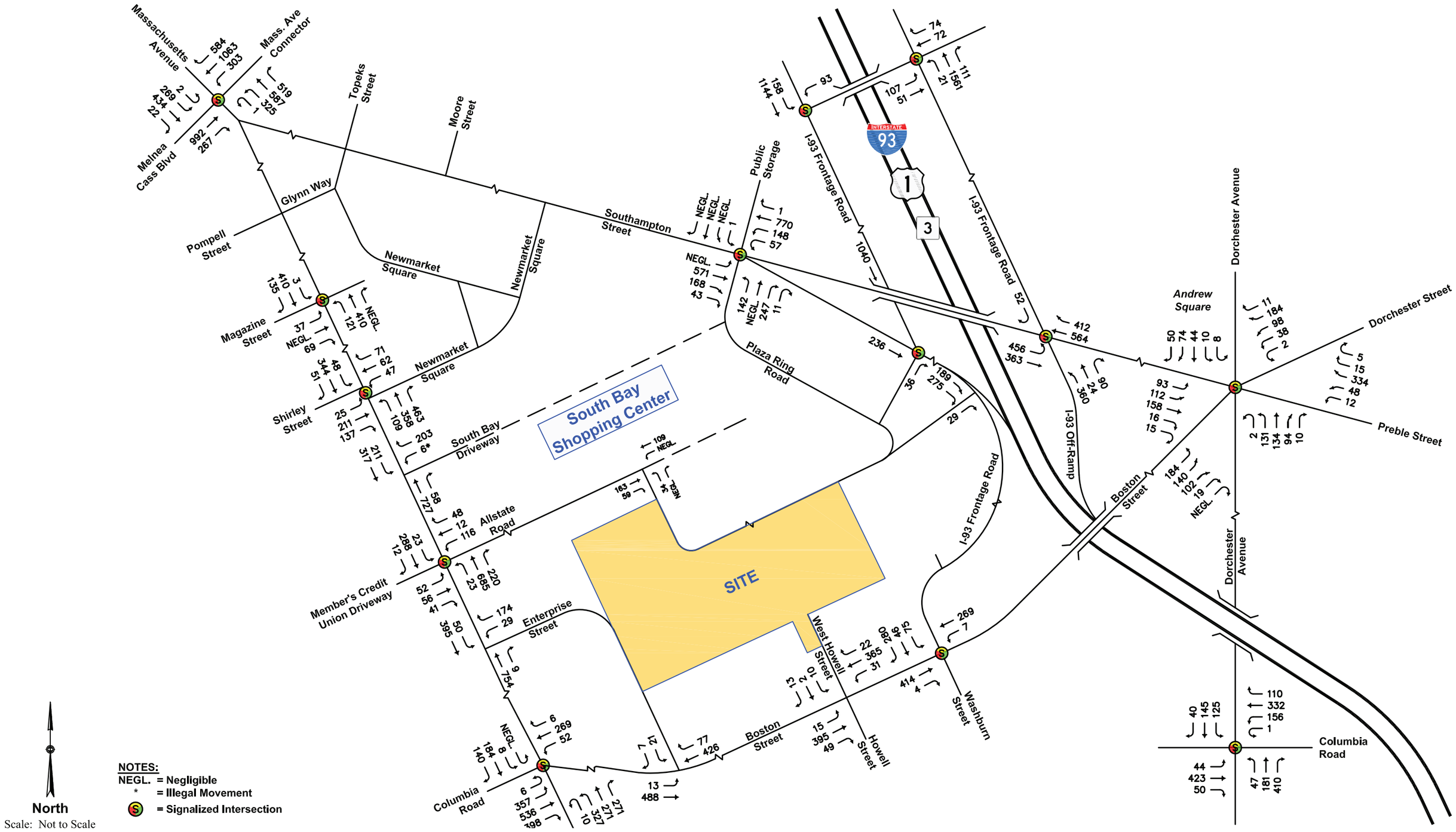
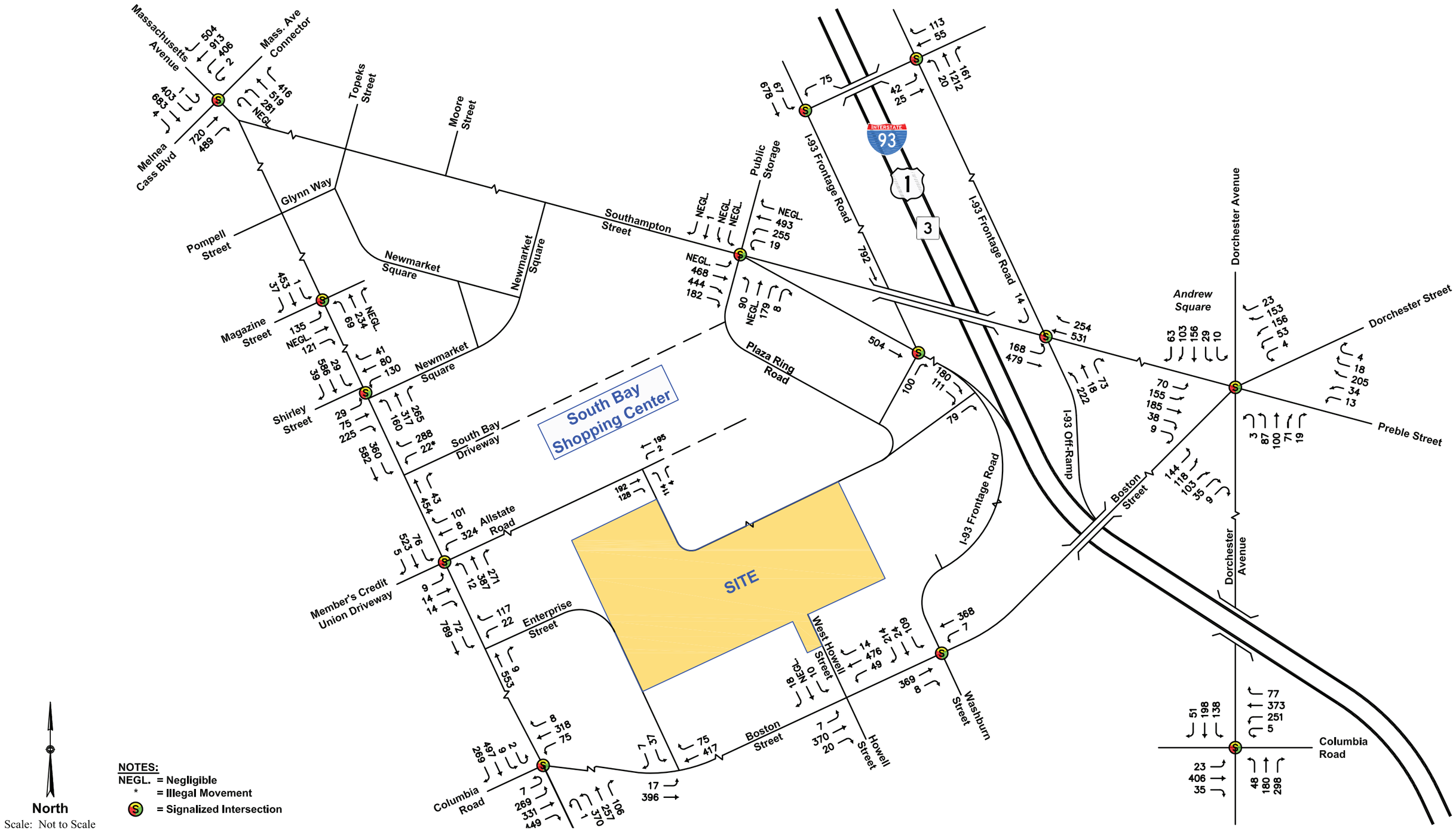
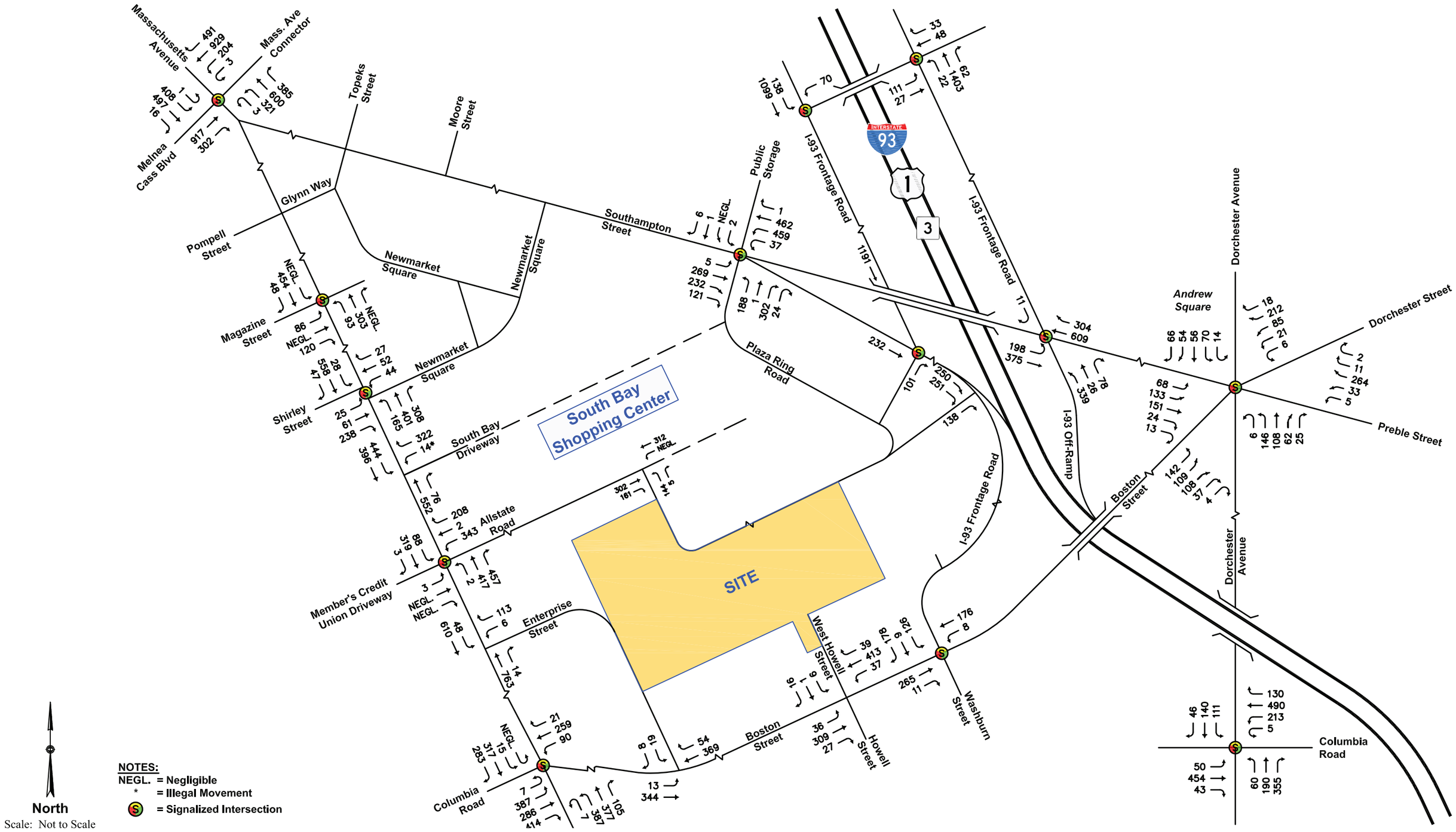


Figure 5-5
Baseline Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc. , 2015



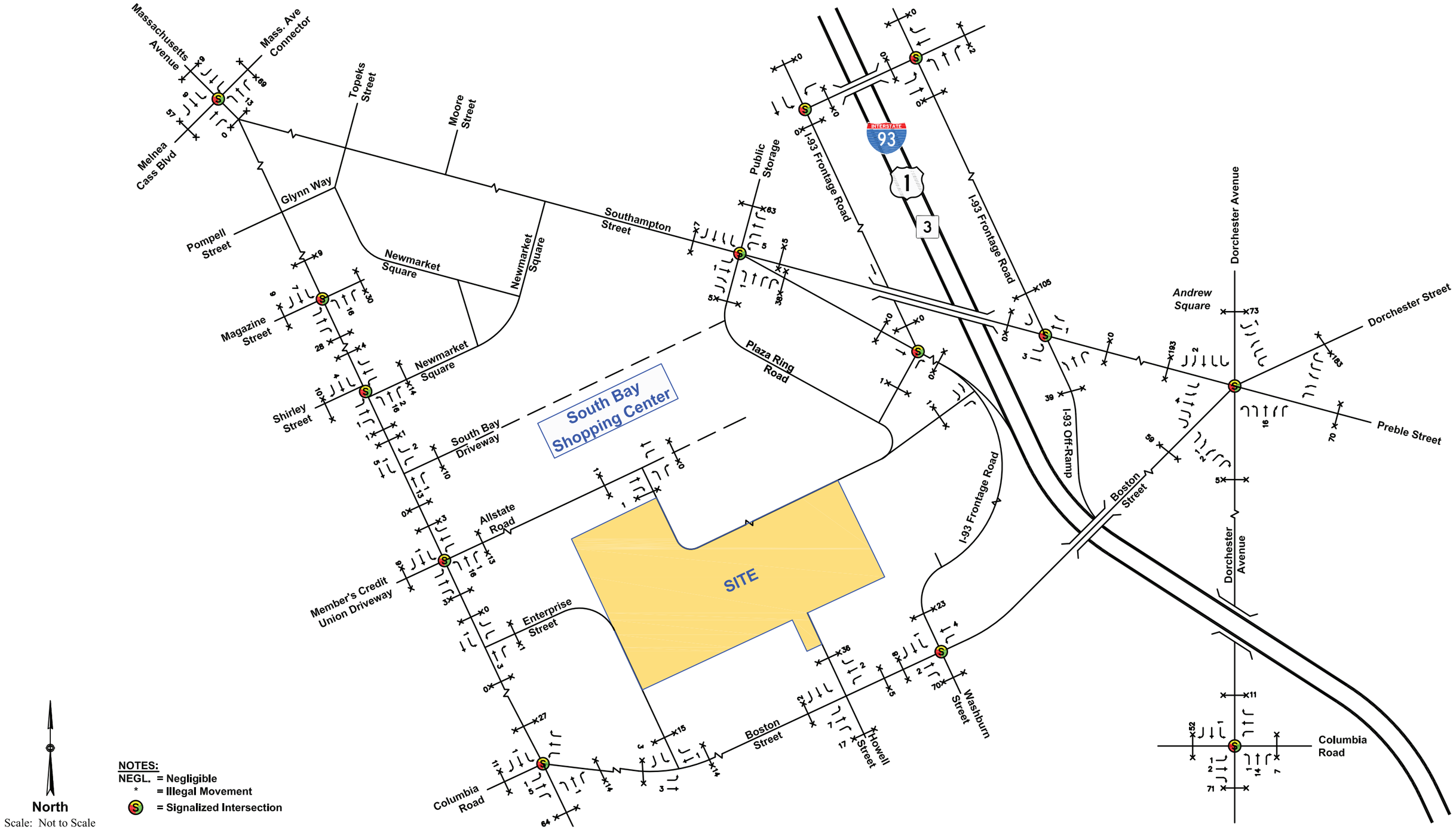
Dorchester, Massachusetts

Figure 5-6
Baseline Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc. , 2015



Dorchester, Massachusetts

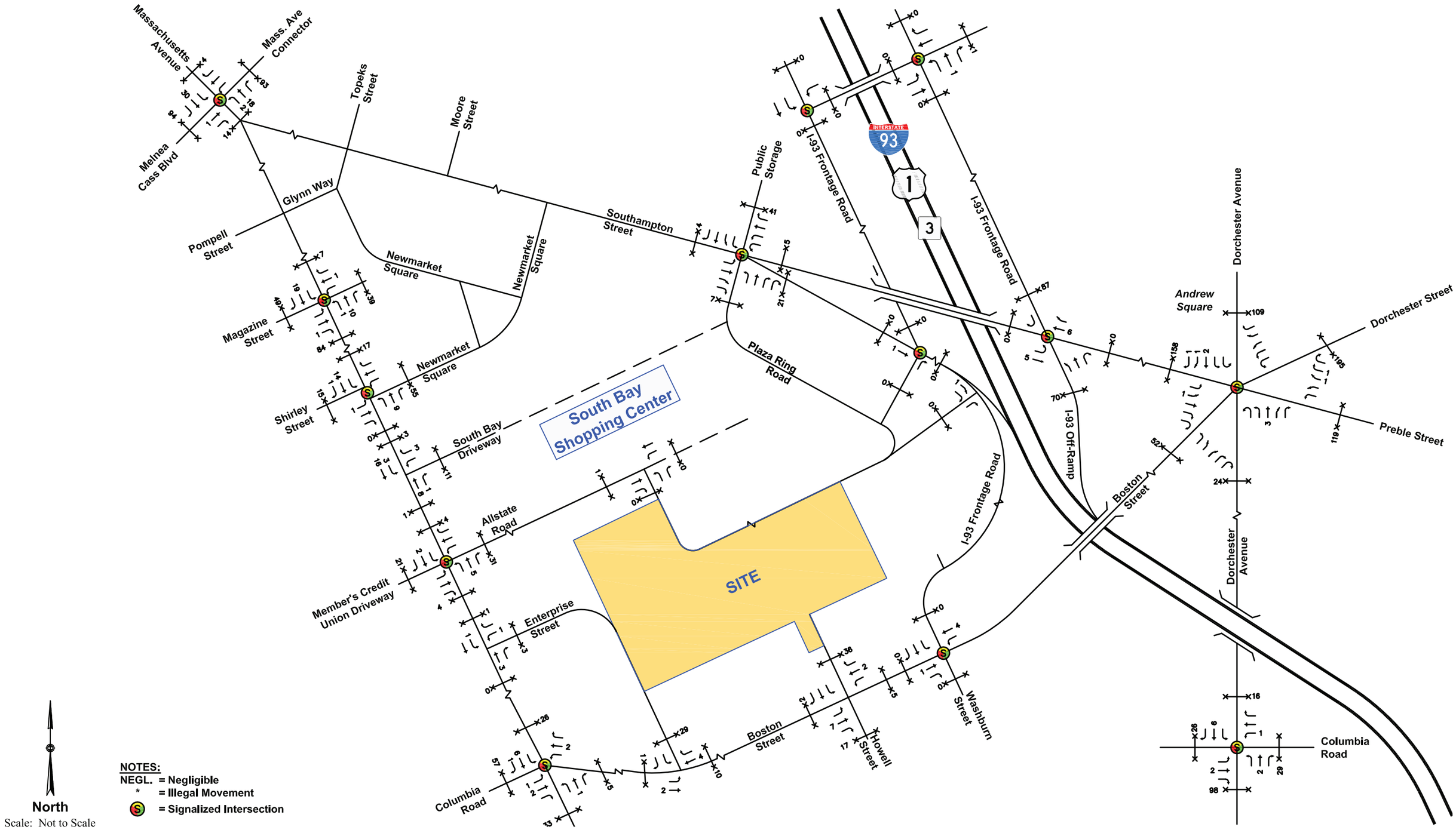
Figure 5-7
Baseline Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc. , 2015



North
Scale: Not to Scale

NOTES:
NEGL. = Negligible
* = Illegal Movement
(S) = Signalized Intersection

Figure 5-8
Baseline Weekday Morning Peak Hour Pedestrian and Bicycle Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc. , 2015



Dorchester, Massachusetts

Figure 5-9
Baseline Weekday Evening Peak Hour Pedestrian and Bicycle Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc. , 2015

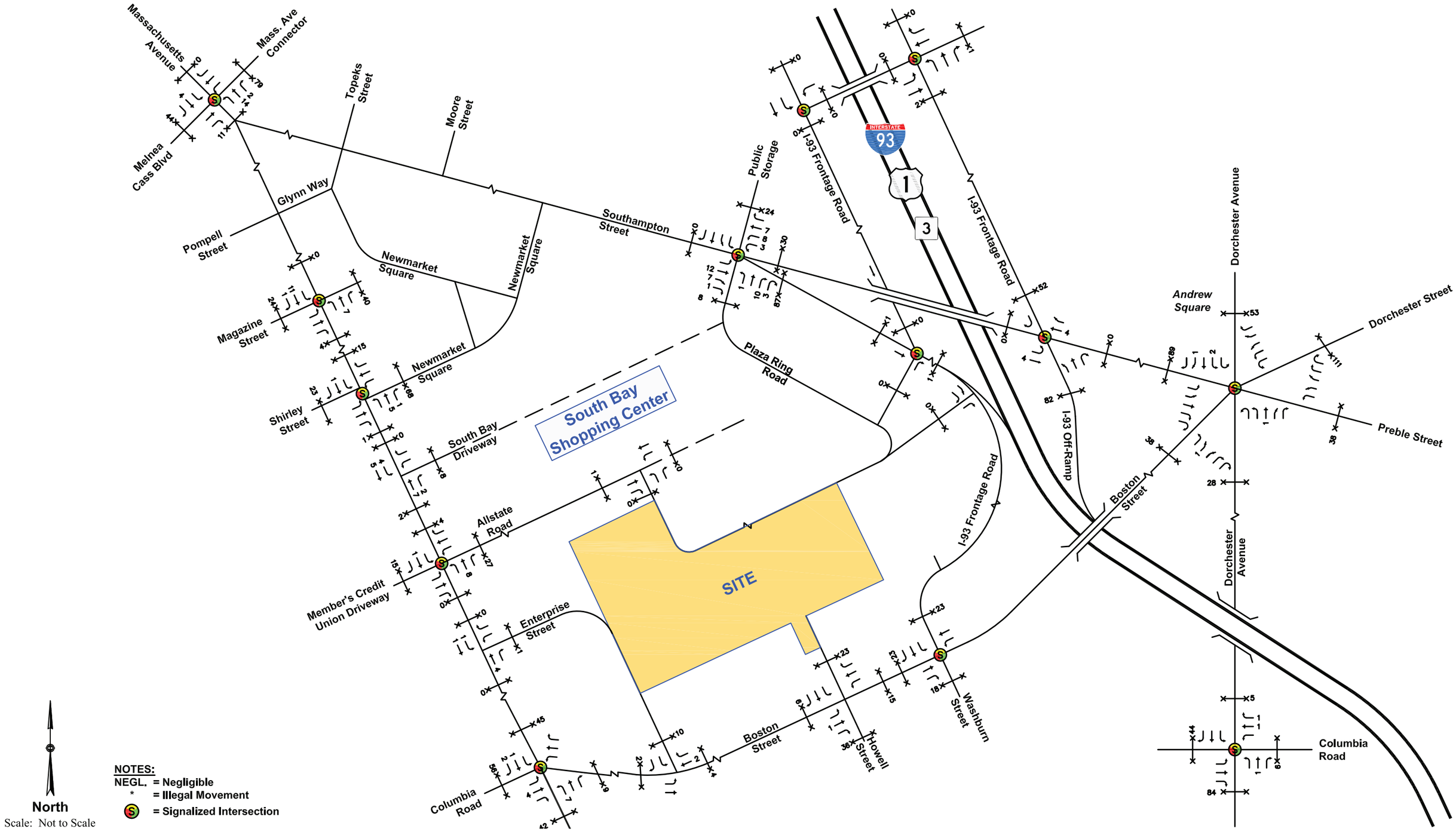


Figure 5-10
Baseline Saturday Midday Peak Hour Pedestrian and Bicycle Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc. , 2015

Dorchester, Massachusetts

Figure 5-11
South Bay Center Bus Routes
Source: MDM Transportation Consultants, Inc. , 2015

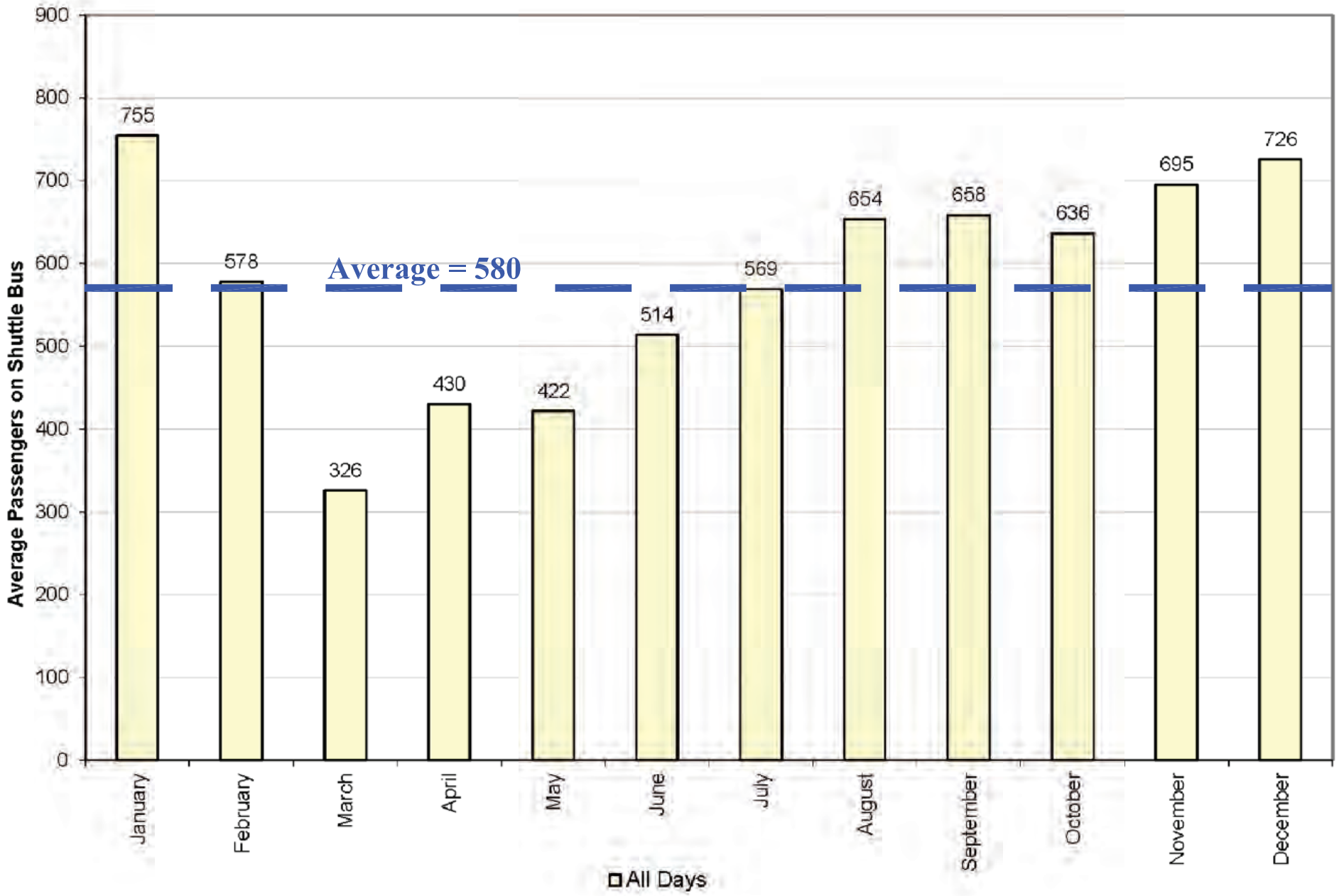
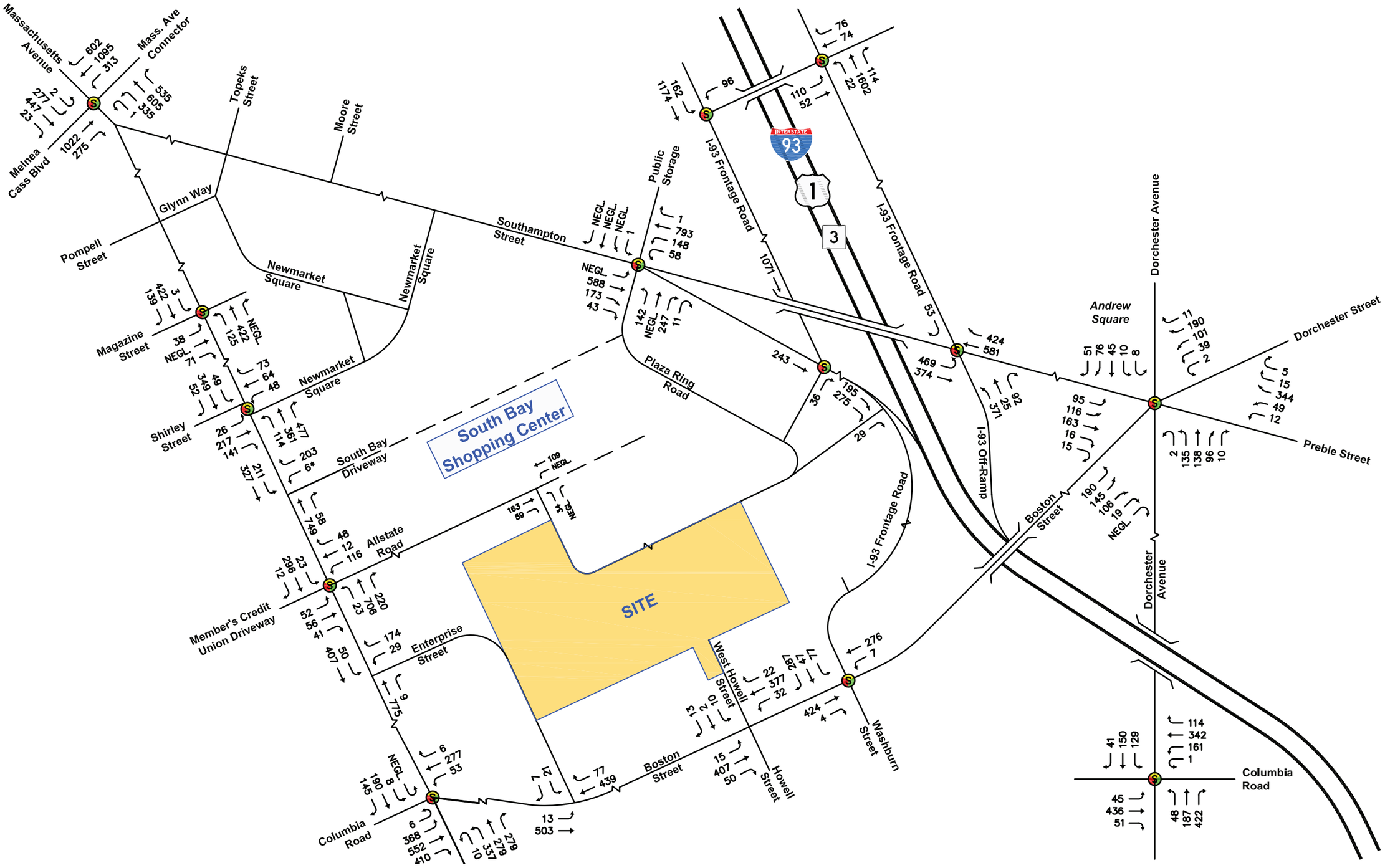


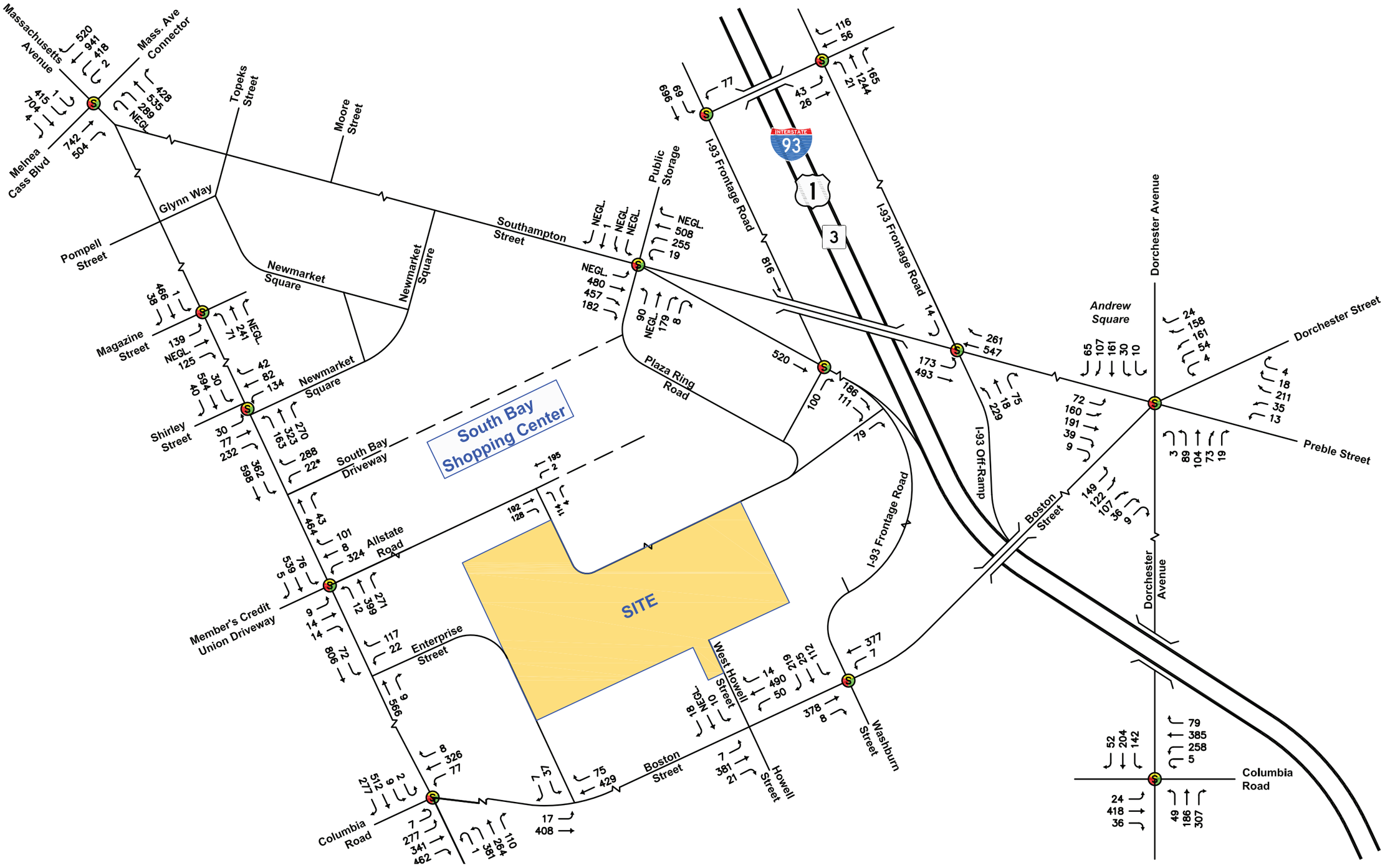
Figure 5-12
2014 Shuttle Bus Passengers
Source: MDM Transportation Consultants, Inc. , 2015



North
Scale: Not to Scale

Dorchester, Massachusetts

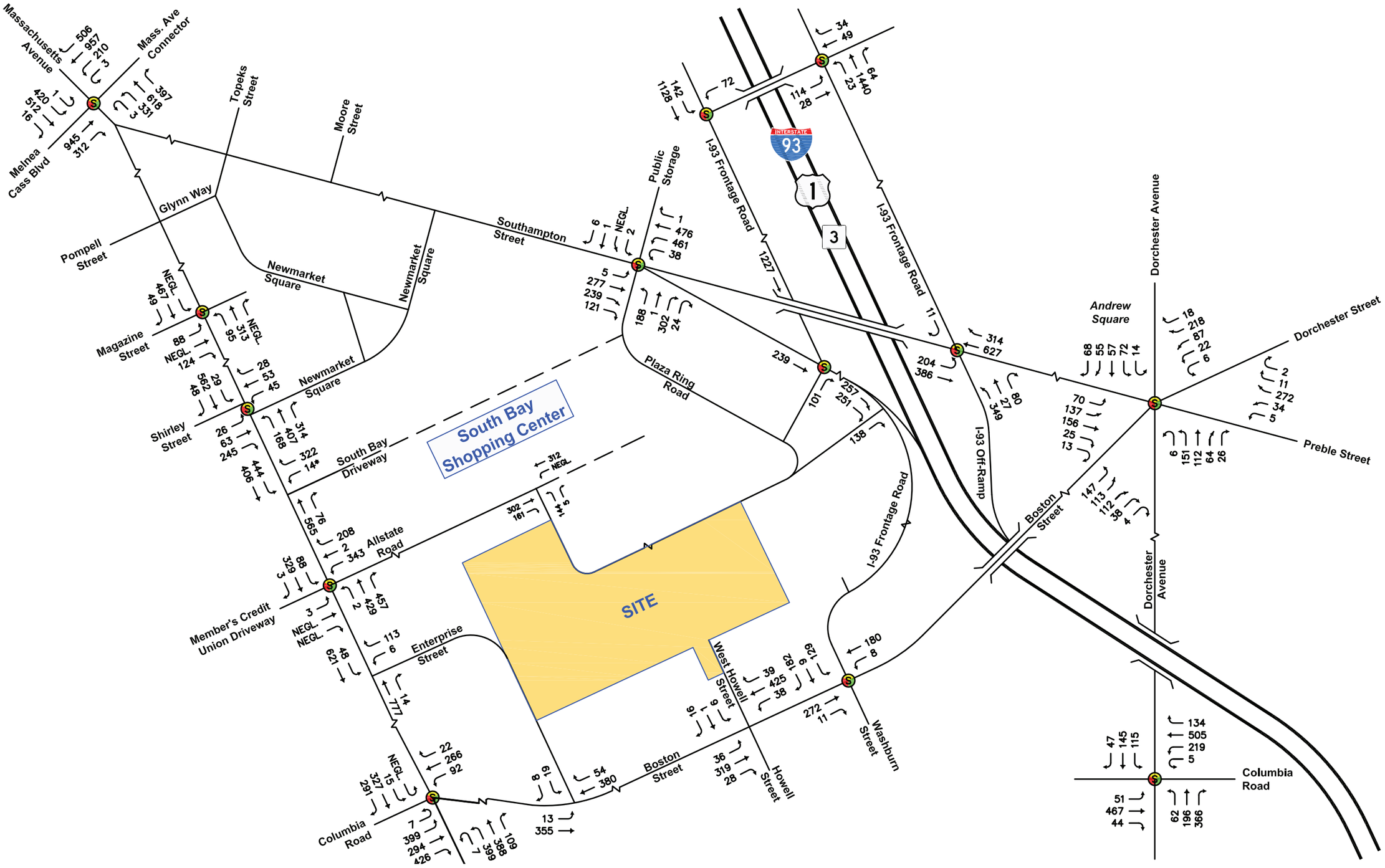
Figure 5-13
2021 No-Build Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc. , 2015



North
Scale: Not to Scale

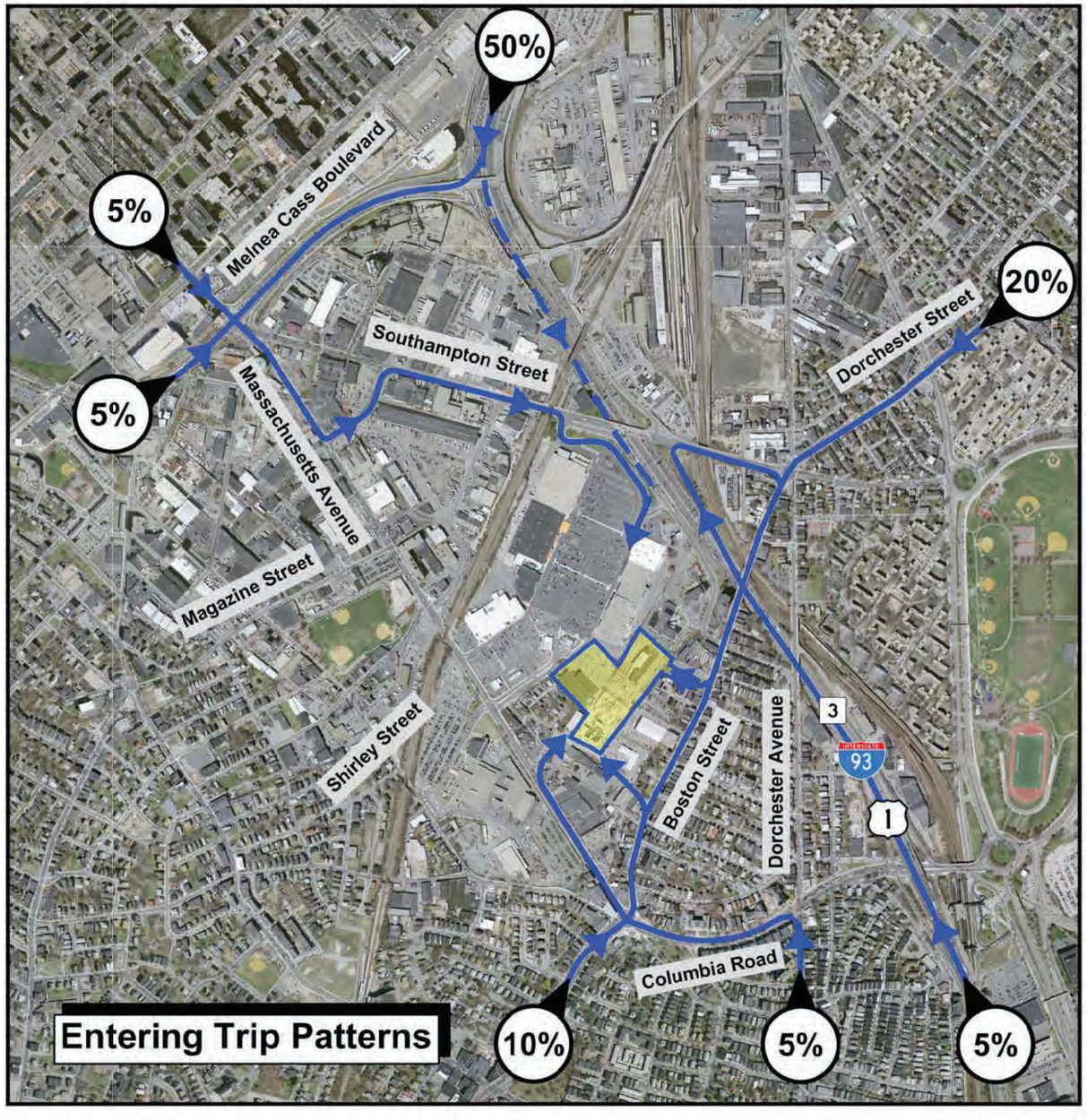
Dorchester, Massachusetts

Figure 5-14
2021 No-Build Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc. , 2015



Dorchester, Massachusetts

Figure 5-15
2021 No-Build Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc. , 2015



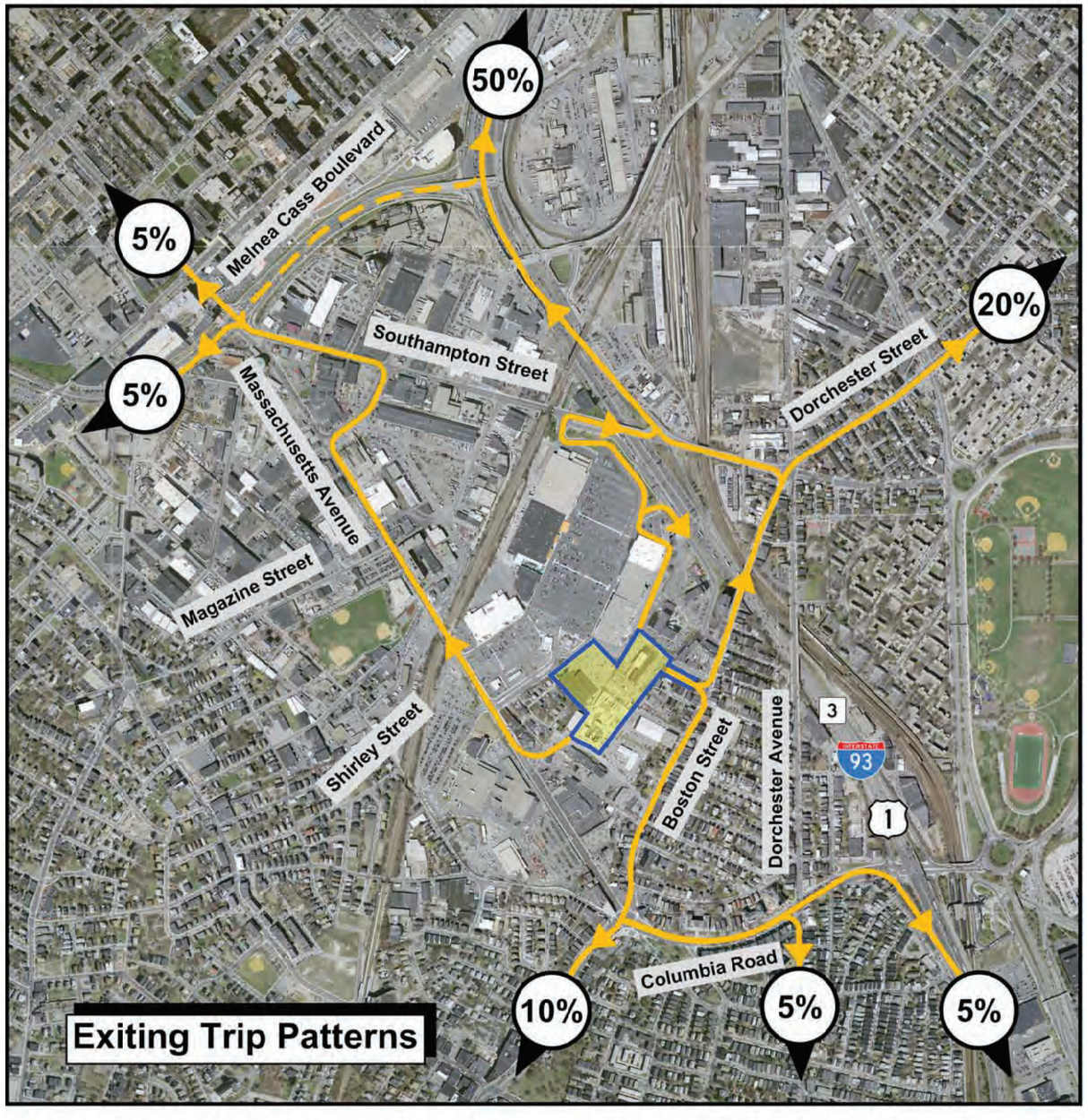
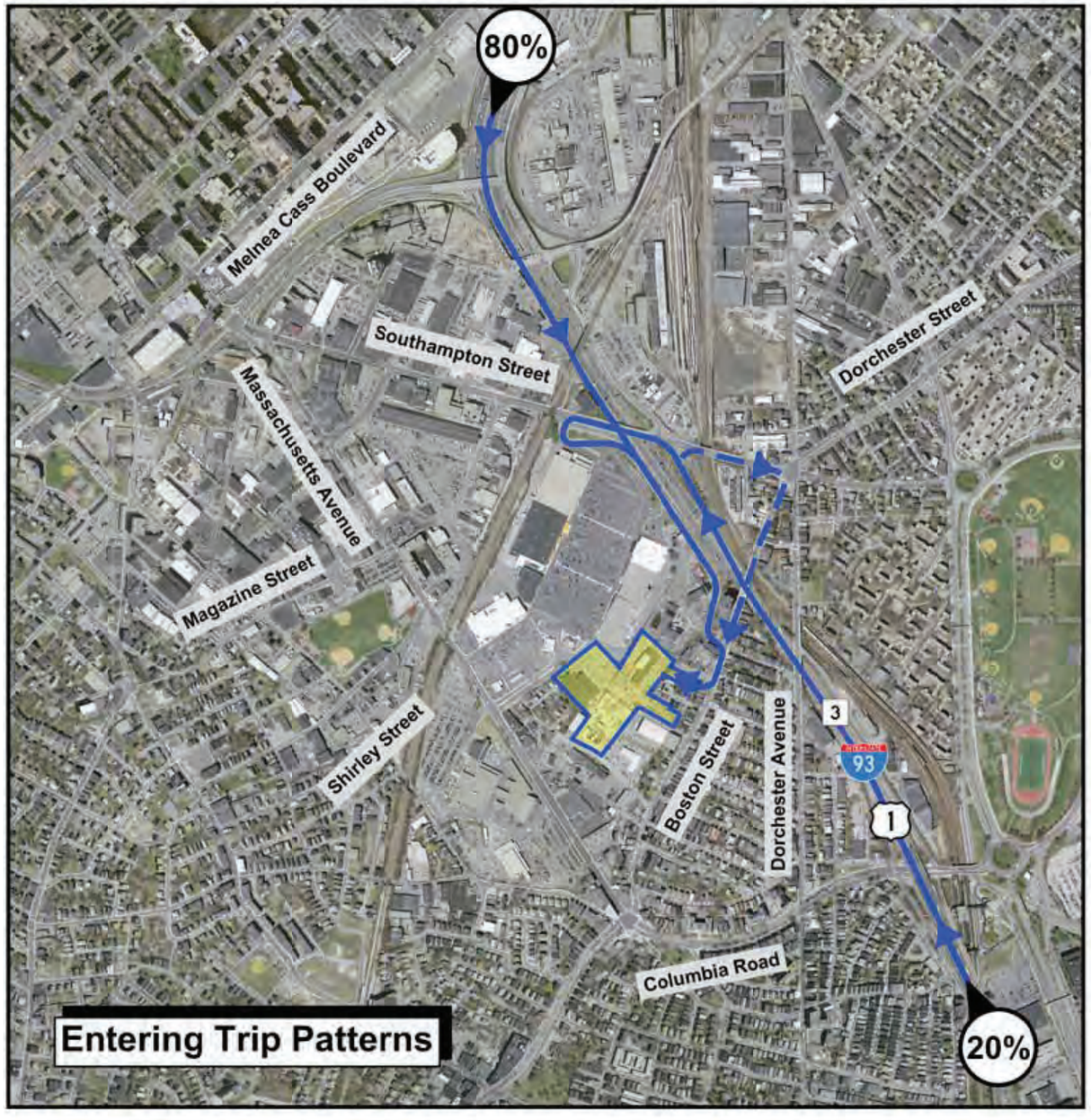


Figure 5-16

Residential Trip Distribution

Source: MDM Transportation Consultants, Inc. , 2015



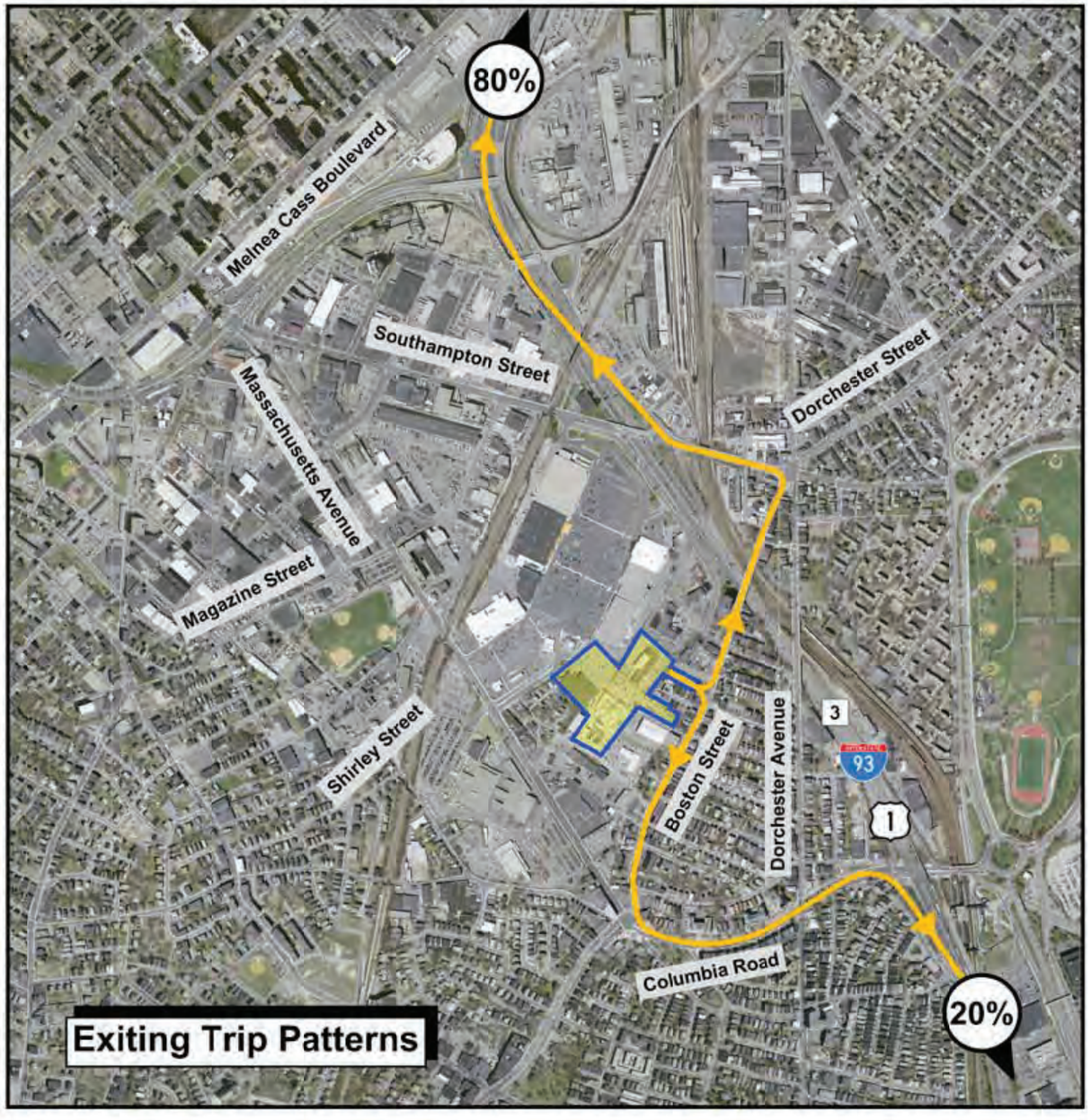
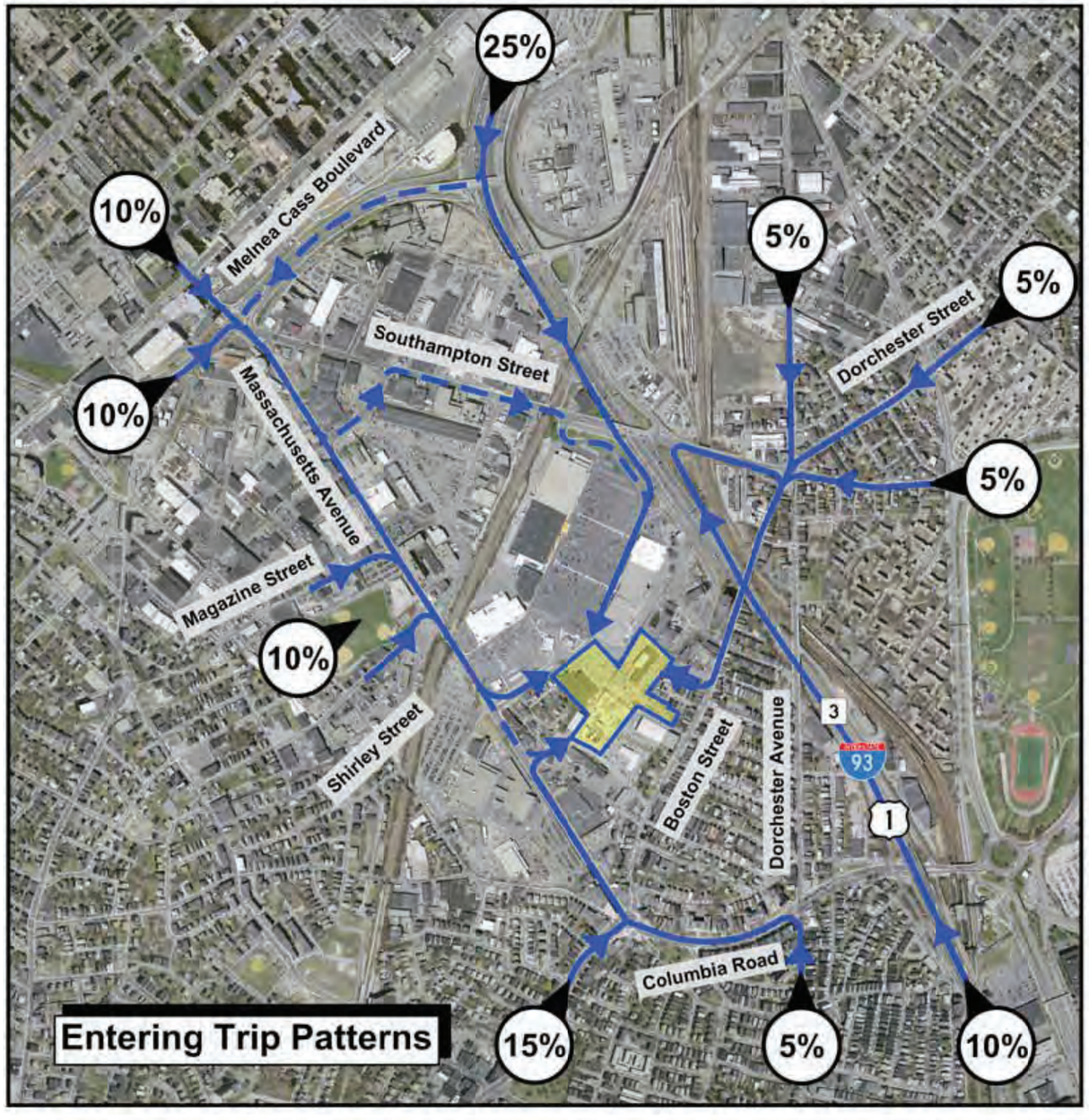


Figure 5-17
Hotel Trip Distribution
Source: MDM Transportation Consultants, Inc. , 2015



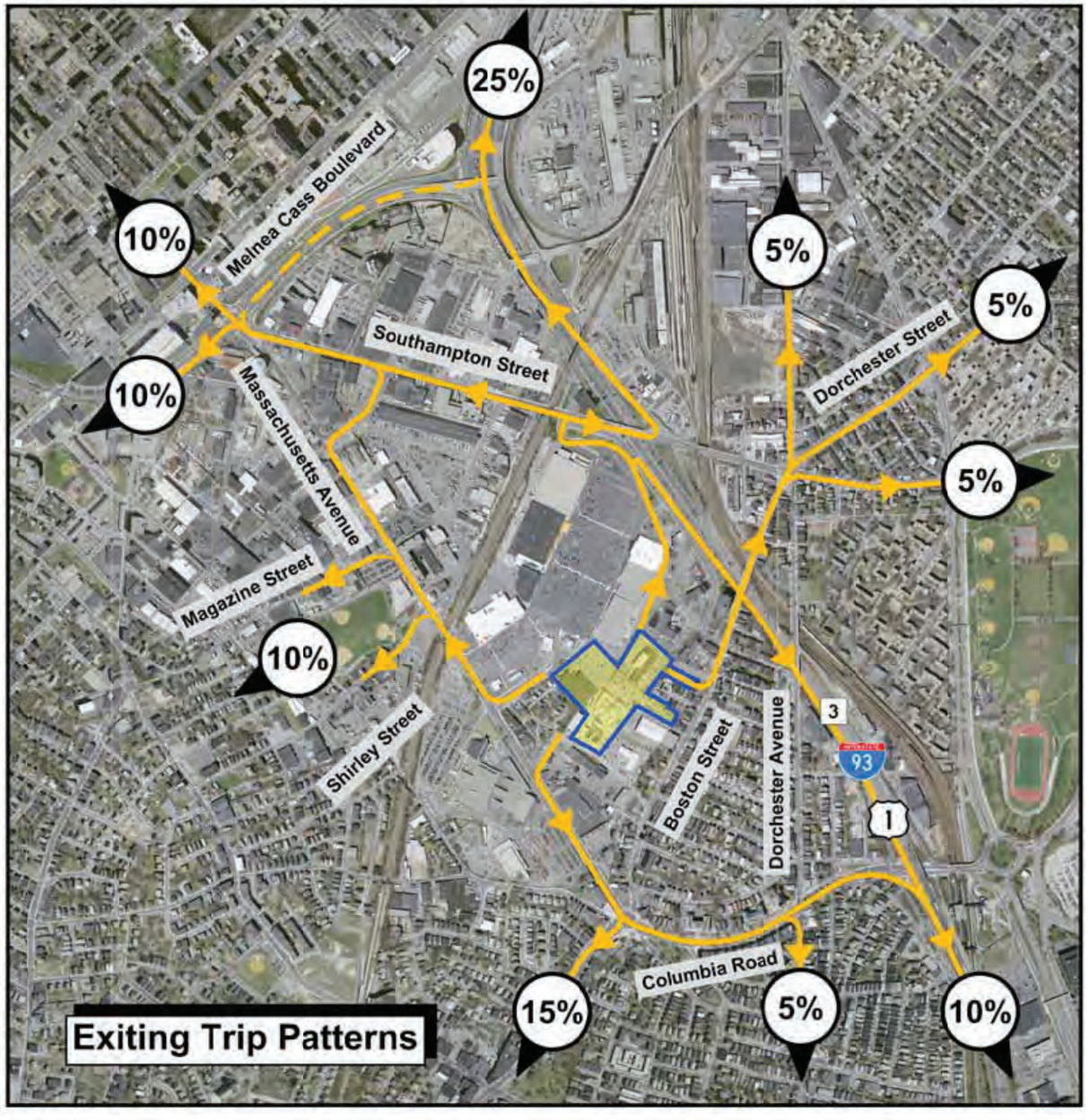


Figure 5-18
Retail/Cinema Trip Distribution
Source: MDM Transportation Consultants, Inc. , 2015

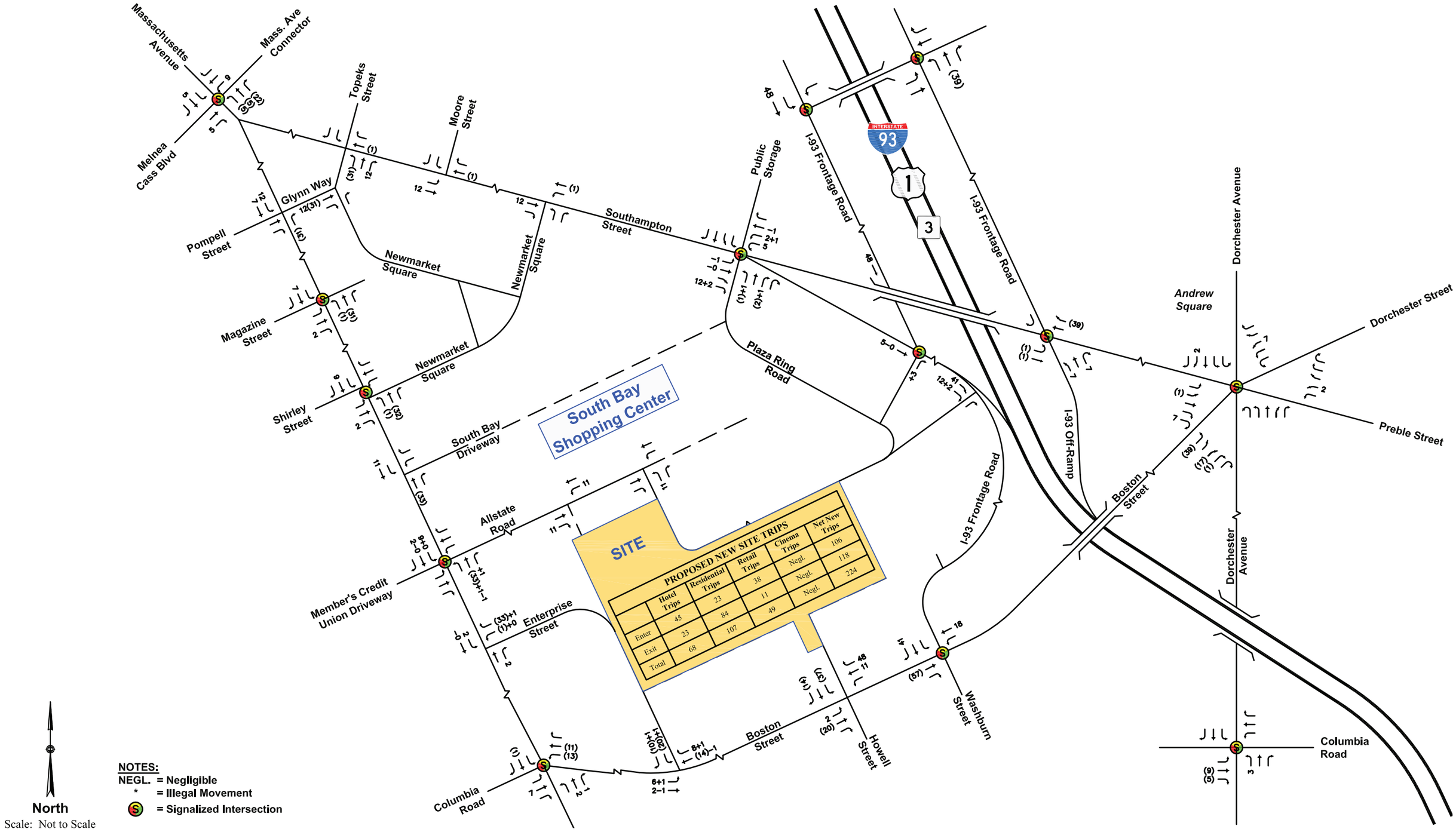


Figure 5-19
Site Generated Trips- Weekday Morning Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc. , 2015

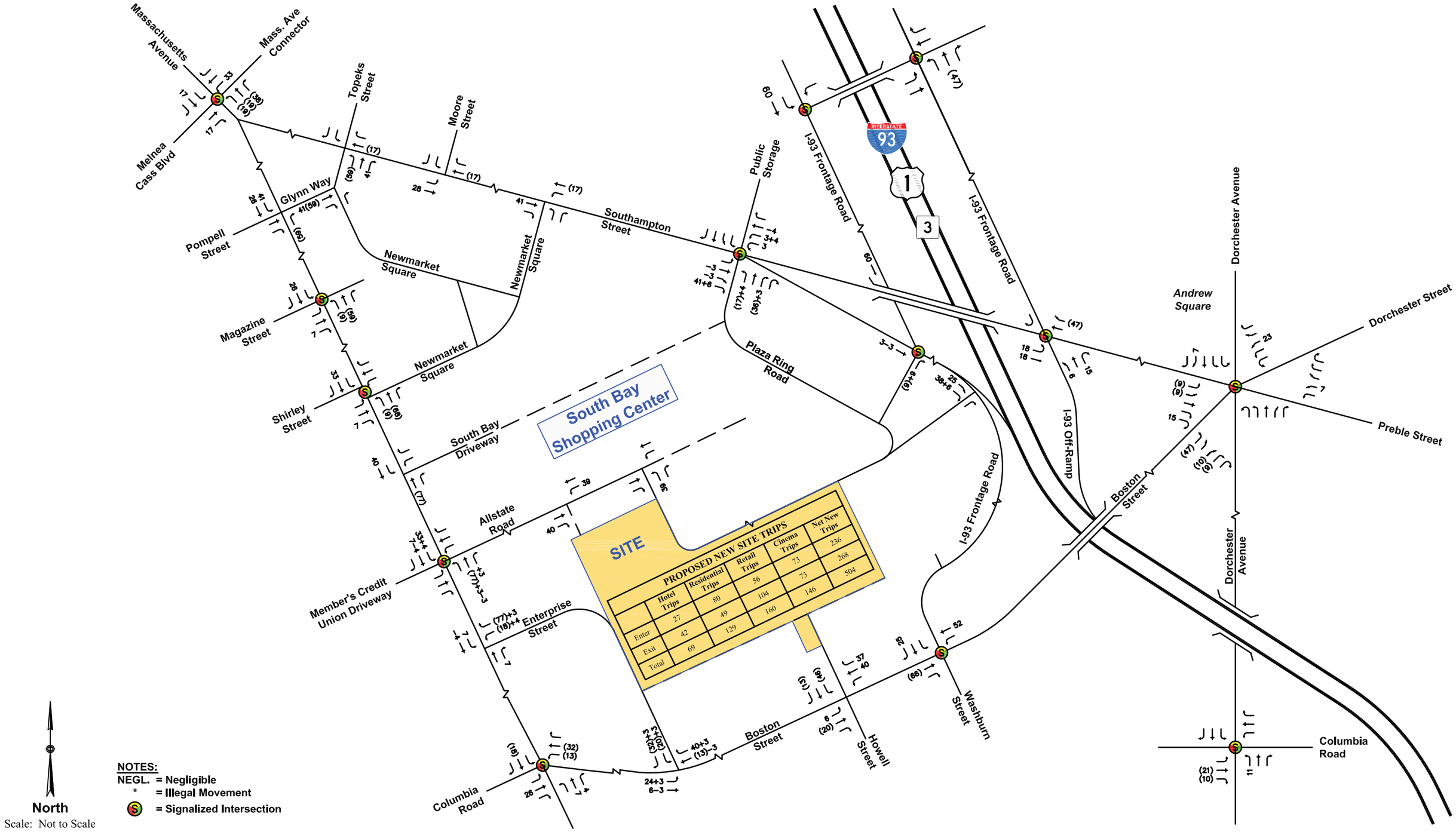


Figure 5-20
Site Generated Trips- Weekday Evening Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc. , 2015

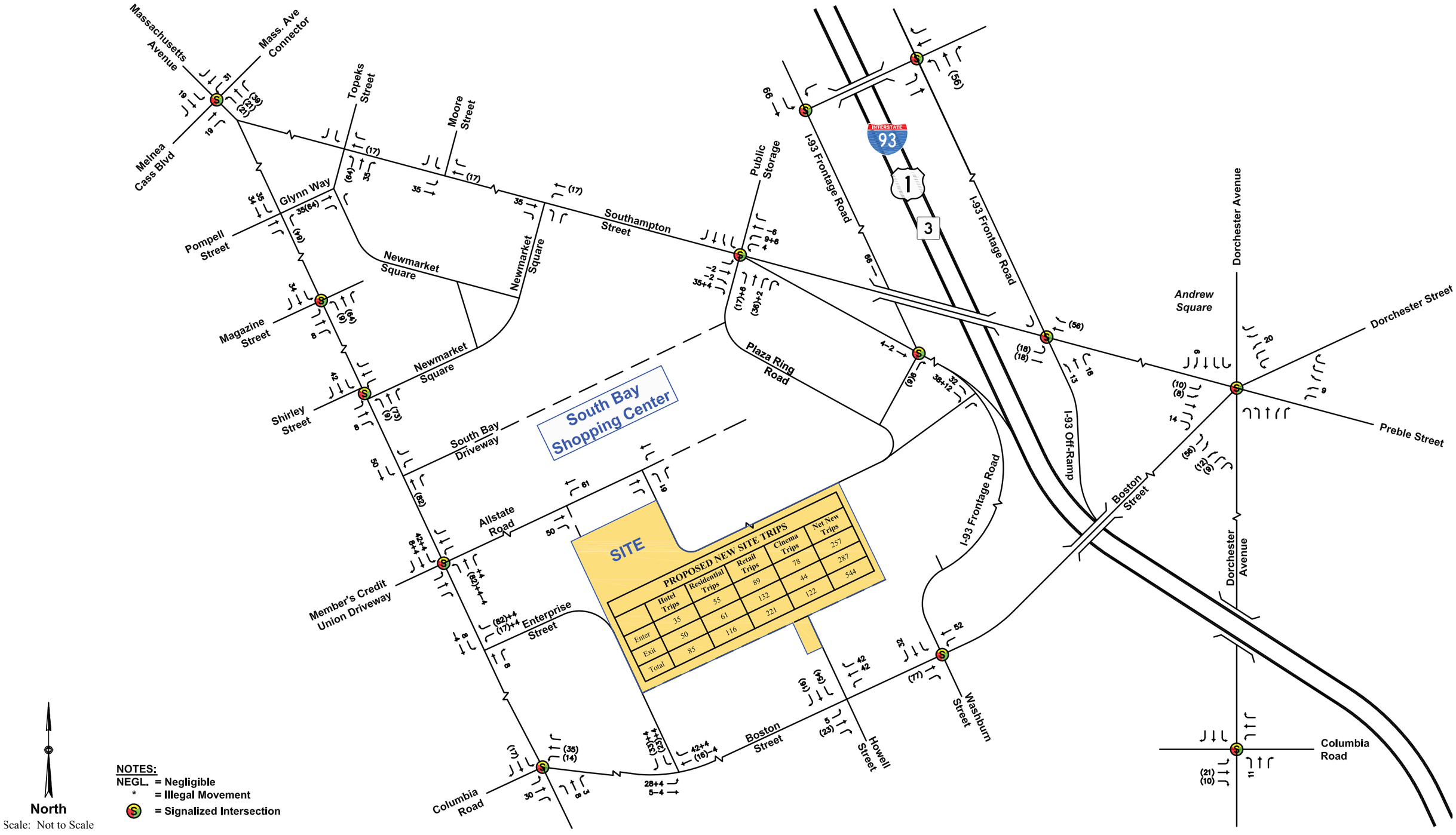
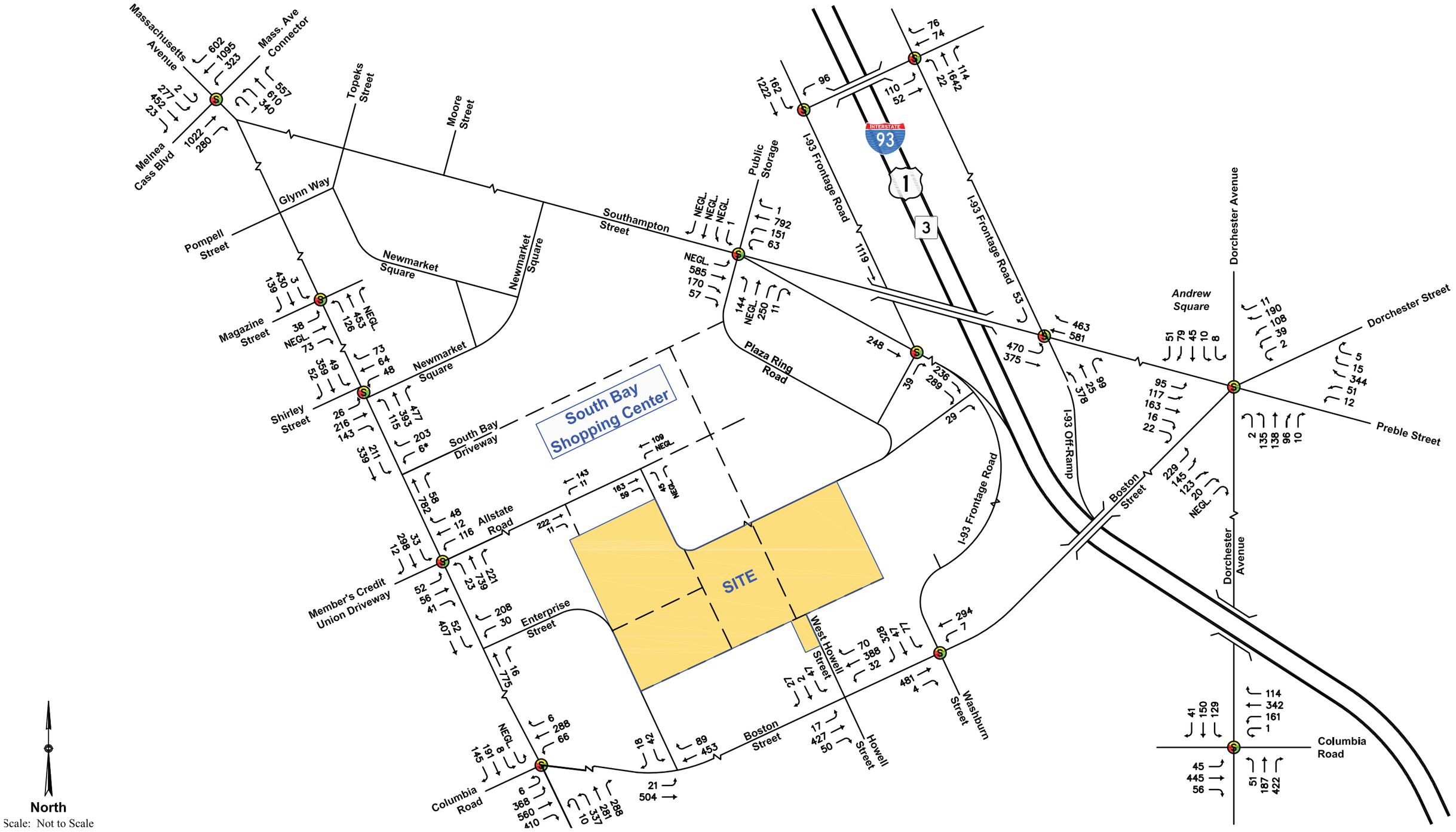
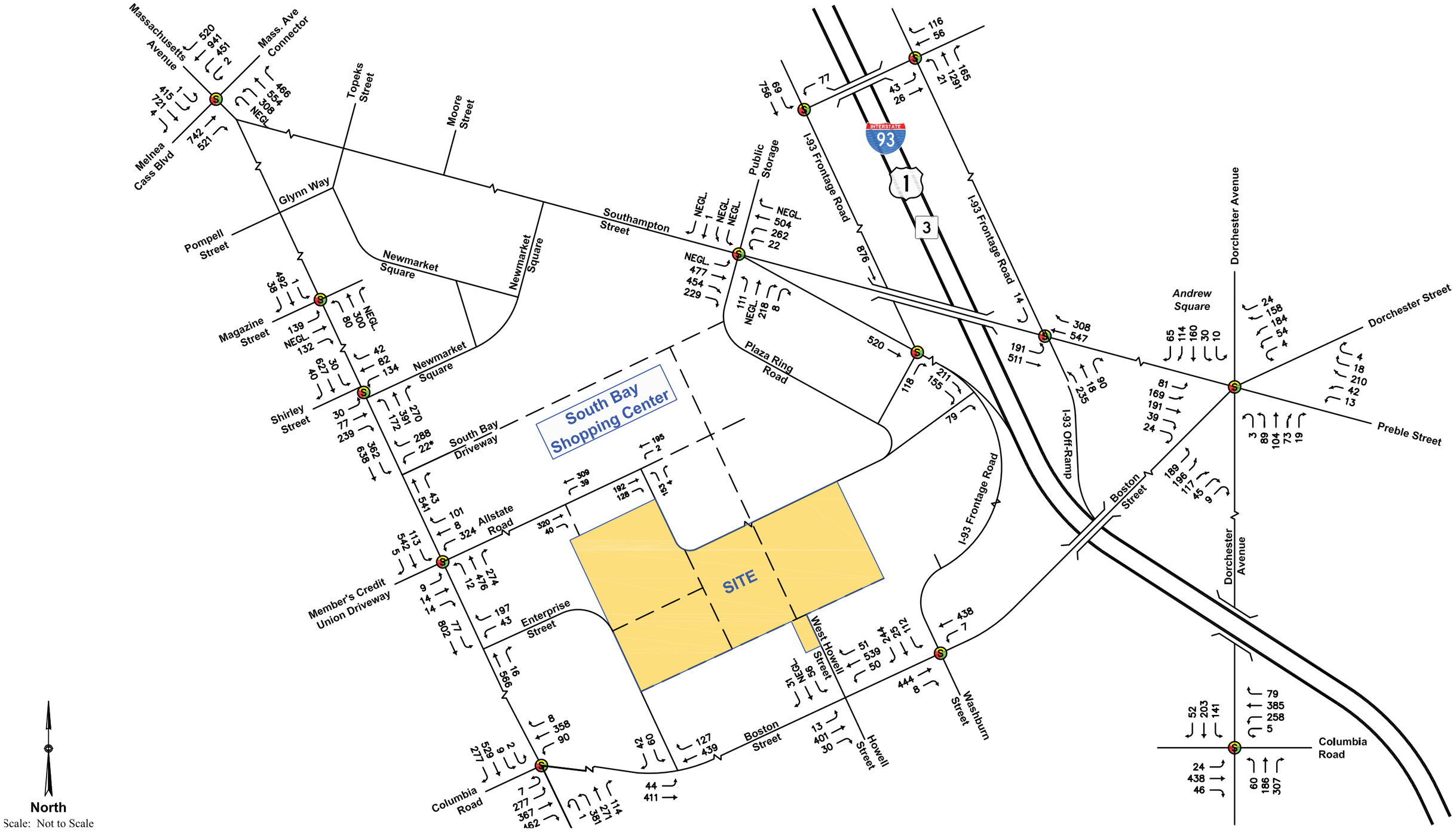


Figure 5-21
Site Generated Trips- Saturday Midday Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc. , 2015



Dorchester, Massachusetts

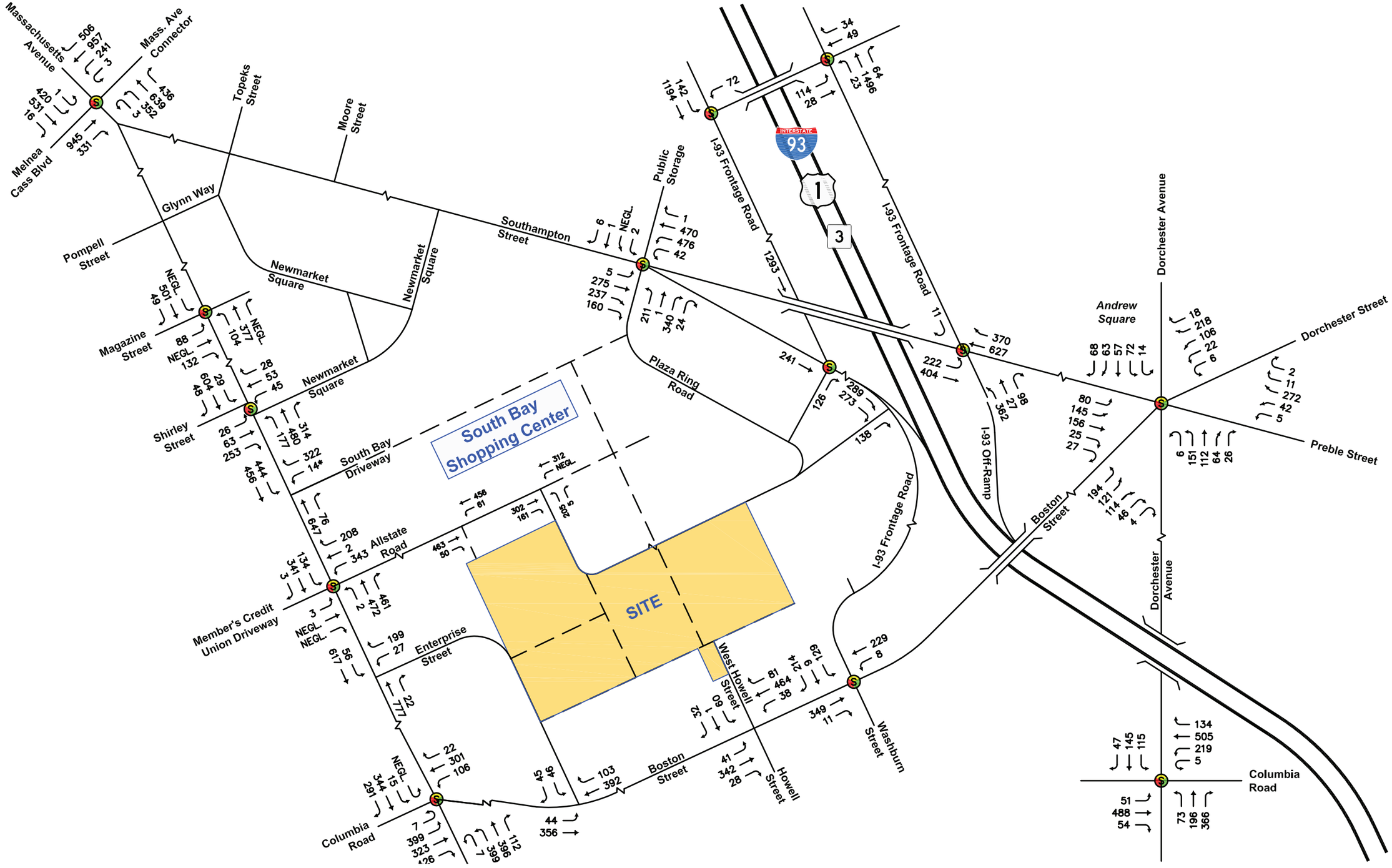
Figure 5-22
2021 Build Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc. , 2015



North
Scale: Not to Scale

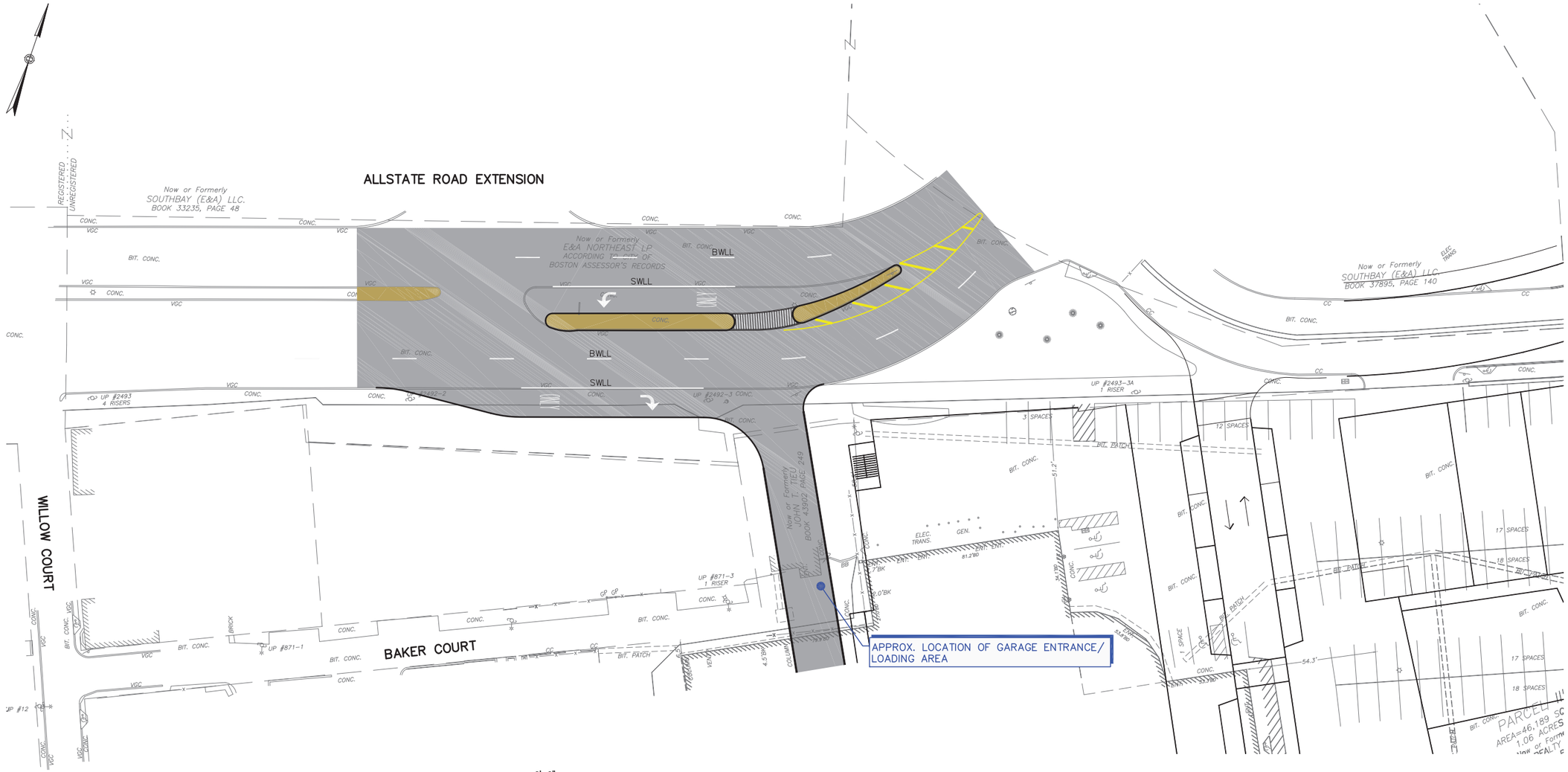
Dorchester, Massachusetts

Figure 5-23
2021 Build Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 am)
Source: MDM Transportation Consultants, Inc. , 2015



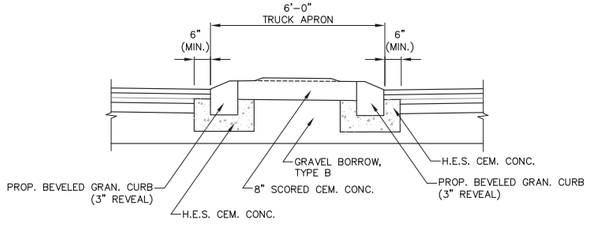
Dorchester, Massachusetts

Figure 5-24
2021 Build Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc. , 2015

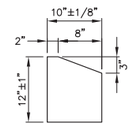


NOTES

1. THIS PLAN INTENDED FOR DISCUSSION PURPOSES ONLY; IT IS NOT FOR CONSTRUCTION.
2. FINAL DESIGN IS SUBJECT TO ADDITIONAL FIELD SURVEY BY OTHERS.
3. PROPERTY LINES AND ACCESS LINE LOCATIONS ARE APPROXIMATE ONLY.
4. BASE PLAN SOURCE: BOHLER ENGINEERING



DETAIL FOR SCORED CONCRETE TRUCK APRON AT ISLAND
NOT TO SCALE



DETAIL FOR BEVELED GRANITE CURB
NOT TO SCALE

LEGEND

DYCL	DOUBLE YELLOW CENTER LINE
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
BWLL	BROKEN WHITE LANE LINE

SCALE

0 10 20 40 60 FEET

Figure 5-26
Conceptual Roadway Improvements Plan
Source: MDM Transportation Consultants, Inc., 2015

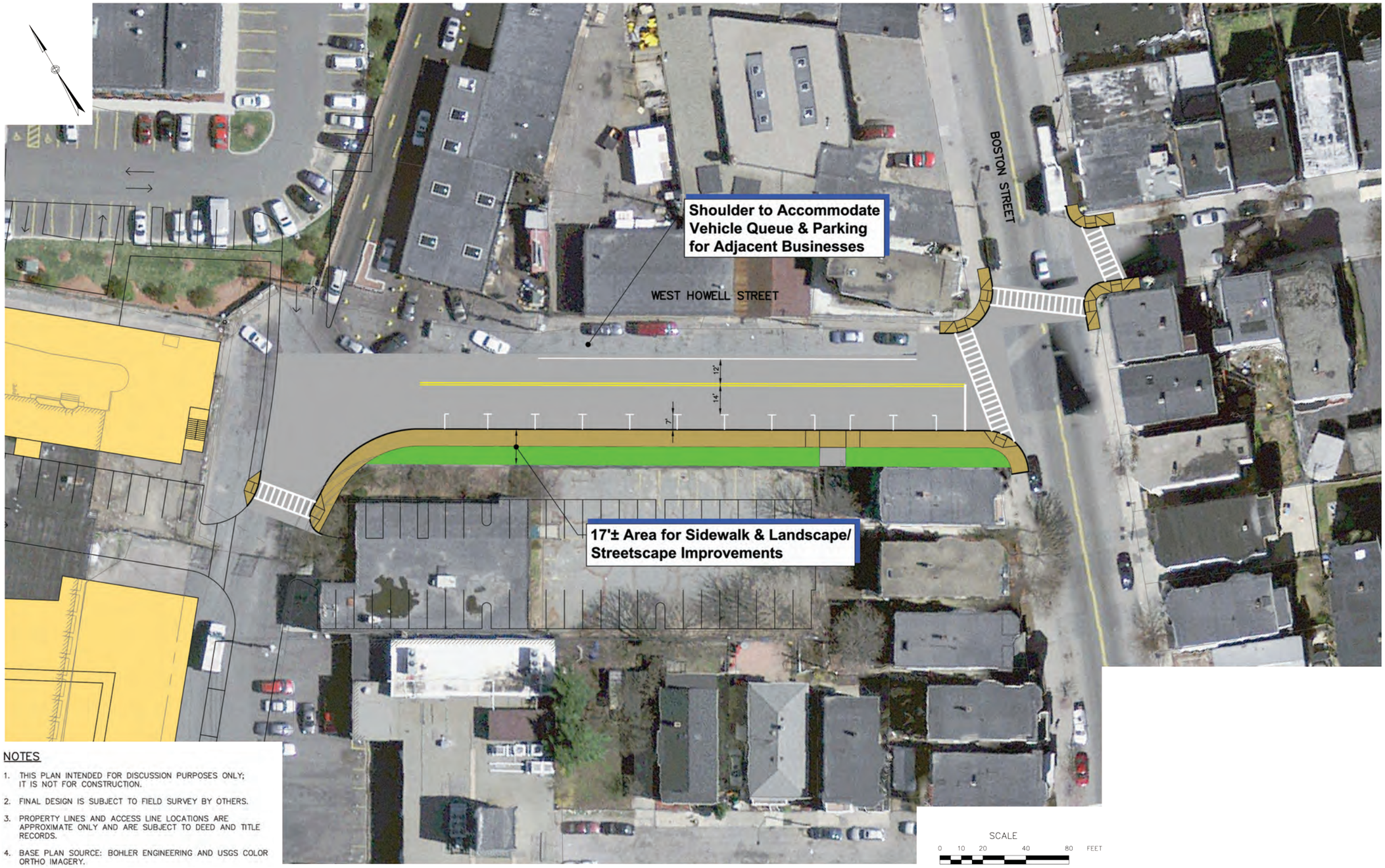


Figure 5-27

Conceptual Roadway Improvements Plan

Source: MDM Transportation Consultants, Inc., 2015

Chapter 6

ENVIRONMENTAL PROTECTION

CHAPTER 6: ENVIRONMENTAL PROTECTION

6.1 INTRODUCTION

The Project will be built in full compliance with federal, state, and City environmental regulations. An appropriate construction management plan to avoid and mitigate construction period impacts will be strictly followed.

6.2 WIND

The Project is not expected to have adverse pedestrian-level wind impacts adjacent to or in the vicinity of the Project Site due to its modest building heights and proximity to neighboring buildings. As a result of the placement of the proposed new buildings in the existing context, pedestrian level winds along adjacent sidewalks are not anticipated to exceed the BRA guidelines for wind speeds of 31 miles per hour.

6.3 SHADOW

A shadow analysis was conducted for the Project to ensure the proposed buildings would not create adverse shadow impacts. Table 6-1, Shadow Study Dates and Times, identifies the dates and times for which shadow conditions have been simulated.

Table 6-1: Shadow Study Dates and Times

Date	Time
Vernal Equinox - March 21st	9:00 a.m., 12:00 p.m., 3:00 p.m.
Summer Solstice - June 21st	9:00 a.m., 12:00 p.m., 3:00 p.m.
Autumnal Equinox - September 21st, EDT	9:00 a.m., 12:00 p.m., 3:00 p.m.
Winter Solstice - December 21st, EST	9:00 a.m., 12:00 p.m., 3:00 p.m.

The analysis is focused on the impact to the neighboring residential properties, proposed pedestrian areas and sidewalks, and how the proposed five buildings of the Project will affect each other on the Project Site. It should be noted, that the analysis was completed using a general massing of the Project. As the design of the buildings evolves, it is anticipated that the additional architectural features such as setbacks and tactile facades will be incorporated, resulting in a decrease in the net new shadows as they are presented in the analysis. Shadows have been determined using the applicable altitude and azimuth data for the City of Boston.

Currently, the Project Site consists of an assortment of low-density abandoned/vacant buildings, the Aggregate Concrete plant, and expanses of parking lots. The Project will therefore result in net new shadow in excess of the existing conditions. In most cases, the Project's shadow impact to the surrounding residential neighborhood is minimal. Of note is that in all cases of the analysis, there is no net shadow impact on the structures along Baker Court, Willow Court, and Enterprise Street. The existing structures on Fields Court would be marginally impacted as would be a small portion of the buildings along West Howell Street. Overall, the majority of the shadow impact falls on either the Project Site, the southern portion of the existing South Bay Center, and at the adjacent building north of the Project Site (the Courtyard Hotel). The Project has been designed so that its public and pedestrian open space provides both sun and shade. In summary, shadow impacts to surrounding areas outside the Project Site are minor. See Figure 6-1 through Figure 6-4, Shadow Study.

6.4 DAYLIGHT

The Project will be constructed in a developed urban area. Adequate daylight will be ensured by siting the proposed buildings interspersed with pedestrian walkways, roadways, and open space to create separation.

6.5 SOLAR GLARE

A solar glare analysis is intended to measure potential reflective glare from the building onto streets, public open spaces, and sidewalks in order to determine the likelihood of visual impairment or discomfort due to reflective spot glare. As a result of the design and the use of generally non-reflective materials, it is not anticipated the Project will have adverse solar glare impacts or create solar heat buildup in nearby buildings. Site landscaping and street trees will further absorb sunlight to minimize reflection from the buildings onto the street, sidewalk, and neighboring properties.

6.6 AIR QUALITY

This section provides a qualitative review of air quality sources and impacts as a result of the Project from traffic, parking, and heating and mechanical ventilation systems. Impacts from construction and operations are addressed in Section 6.12, Construction Impacts.

6.6.1 TRAFFIC SOURCES

Due to the modest number of new vehicle trips contributed to the local roadway network by the Project, the impact of Project trips on the performance of the transportation study area intersections relative to air quality is modest. The BRA typically requires a future air quality CO analysis for any intersection where the level of service (LOS) is expected to fall to a D or lower and the proposed Project

causes a 10% increase in traffic; or where the LOS is E or F and the project contributes to a reduction in LOS.

As shown in Chapter 5, Transportation, all intersections under the 2020 Build scenario will continue to operate at acceptable LOS during AM and PM peak hours. Most individual approaches to area intersections will operate at LOS D or better, with the exception of a few intersections that will operate at LOS E or F under both the 2020 No-Build and Build scenarios. For this reason, no mesoscale air quality analysis was performed for the Project.

Transportation Demand Management strategies are a significant component of this Project and are anticipated to assist in minimizing traffic impacts and, by extension, air quality impacts. The following measures aim to keep traffic levels at acceptable volumes, promoting alternative means of transportation that have lesser impacts on overall air quality for the Project:

- Shuttle Bus Expansion
- On-Site Employee Transportation Coordinator
- Public Transit Service
- Bus Shelter/Taxi Stand
- MassRIDES
- Public Transportation Information & Promotion
- Bicycle Facilities & Promotion
- Pedestrian Infrastructure/Walking Incentives
- Tenant Manual for Employee Services
- Electric Vehicle Sharing Services
- Preferential Parking for Carpools and Vanpools
- No Idling Signage

6.6.2 PARKING SOURCES

The Site is currently covered with commercial and retail buildings and surface parking lots. The Project will improve and enliven the Site with commercial, retail, and residential buildings, public open space, and will include space for covered bicycle parking for 475 residential units plus additional exterior bicycle parking for visitors, and 919 structured vehicle parking spaces and 147 surface vehicle parking spaces overall.

In keeping with Boston's Complete Streets Guidelines, a high bicycle to vehicle/parking ratio will be used to encourage bicycle use and help reduce parking demand. Combined with the Project's proximity to transit, these factors will minimize air pollution from vehicle sources associated with the Project.

6.6.3 BUILDING OPERATION SOURCES

Emergency generator(s) will be located on the Project Site. It would be selected and sited in compliance with Department of Environmental Protection standards, and its noise would be abated appropriately. Heating and cooling systems will be highly-efficient and centralized for each building. In combination, these building operation factors are not expected to contribute to changes in air quality.

6.7 NOISE

The Proponent does not anticipate an increase in noise impacts associated with the residential or commercial uses at the Site. The Boston Air Pollution Control Commission regulates noise in the City of Boston based on zoning and land use classification. The regulations set fixed noise limits for daytime and nighttime use of equipment serving the building (for residential areas, a maximum level of 60 dBA for daytime use, and 50 dBA for nighttime use is required). These levels are limits for equipment sound assessed at the property lines of the Project. The limits apply to equipment that operates on a significant basis to serve the building, such as climate control equipment and fans. In addition to the overall sound level requirements, the regulations list specific octave band frequency limits for daytime and night time periods.

The primary sources of exterior sound for the Project will include heating, cooling, and ventilation systems. Based on the systems design and location, the equipment is not expected to produce significant sound levels at the building property lines, though noise control measures will be provided if required.

Intermittent increases in noise levels will occur in the short-term during construction. Construction work will comply with the requirements of the City of Boston Noise Ordinance. Noise impacts will be controlled during construction, as appropriate, through the use of mufflers on heavy equipment, construction hour restrictions, and other noise mitigation.

6.8 FLOOD ZONES

In the past decade, climate change adaptation has gained national attention as a critical environmental factor that must be addressed in new development projects. In Boston, sea level rise has become a serious concern as recent weather patterns and future modeling are demonstrating that storms impacting the City are likely to continue to intensify.

As part of its administration of the National Flood Insurance Program, the Federal Emergency Management Agency (FEMA) publishes flood hazard maps, called Flood Insurance Rate Maps (FIRM). The purpose of a FIRM is to show the areas in a community that are subject to flooding and the risk associated with these flood hazards. The latest map

was published in 2009 and updated the flood zones for this area. According to FEMA, the Project Site is not located within a flood zone.

6.9 WATER QUALITY

During construction, best management practices (BMPs) will be used to limit the transportation of sediment off-site. The contractor will obtain a National Pollution Discharge Elimination System (NPDES) stormwater permit and implement BMPs to minimize pollutant runoff. The Contractor will also follow these measures:

- Comply with all federal, state, and City codes, ordinances, and regulations governing the on-site discharge of construction dewatering effluent
- Use hay bales and silt fencing to prevent silt or soil from entering existing catch basins
- Use temporary wheel wash areas within the Site
- Use temporary gravel entrance berms at the main exits from the Project Site
- Isolate and protect stockpiled materials
- Monitor the proper use of tarpaulin-covered trucks
- Prevent/control truck spillage
- Clean the adjacent portions of City streets entering and exiting the Project Site

6.10 GEOTECHNICAL

This section discusses existing geotechnical conditions on the Project Site and potential impacts from development of the Project.

6.10.1 SUBSURFACE SOIL CONDITIONS

Surface treatments across the Site generally consist of a 3 to 6-inch thick layer of asphalt. Below the asphalt is a layer of fill material which typically varies from a loose to dense, gray-black silty sand, and gravel, which also contains some brick, ash, and cinder. The fill typically ranges from 12 to 17 feet in thickness across most of the Site. However, along the southern edge of the Site the fill ranges from 4 to 7.5 feet in thickness.

The soil directly below the fill material varies across the Site. In some areas the fill is underlain by a discontinuous organic deposit consisting of gray-brown organic silt and dark brown fibrous peat. The organic deposit, where encountered, ranges from 2 to 9 feet in thickness. An intermittent marine clay deposit consisting of stiff to very stiff, mottled yellow-brown silty clay is located below the fill material across portions of the Site. The marine clay deposit, where encountered, ranges from 1 to 9 feet in thickness.

Underlying the fill material and/or organic and marine clay deposits, an outwash deposit is present at depths ranging from 5 to 24 feet below existing grade. The outwash deposit typically consists of a compact to dense, brown to orange-brown sand with trace to some gravel and trace silt. The outwash deposit extends to depths of more than 100 feet below the existing ground surface. Underlying the outwash deposit are successive deposits of glacial till and bedrock.

6.10.2 GROUNDWATER CONDITIONS

The observation wells installed at the Site indicate the groundwater level ranges from about Elevation +7.2 to Elevation +10.3. It is anticipated that future groundwater levels across the Site may vary from those reported herein due to factors such as normal seasonal changes, runoff particularly during or following periods of heavy precipitation, and alterations of existing drainage patterns.

The Project Site is not located within the Groundwater Conservation Overlay District as defined by Article 32 of the Boston Zoning Code.

6.10.3 FOUNDATION DESIGN AND CONSTRUCTION

Foundation support for the proposed buildings will likely consist of conventional spread footings. The footings will bear directly on the outwash deposit, on soil improved with rammed aggregate piers (RAPs), and/or on compacted structural fill or lean concrete placed directly over the outwash deposit up to the design bottom of footing elevation. It is recommended that the lowest level slabs be designed as conventional slabs-on-grade bearing on proof compacted fill material and/or RAP-improved soil.

RAPs are a ground improvement technique that are installed to "improve" the existing unsuitable fill and organic materials which would allow for a conventional footing foundation to be constructed at the normal footing depth. In general, the RAP cavity is created by driving a mandrel and tamper foot to the surface of the marine clay or outwash deposits. Aggregate is then placed inside the mandrel as the mandrel is lifted and then driven and vibrated back down, forming a compacted lift of aggregate. This process is repeated to the top of the cavity, forming the RAP. The compaction densifies the aggregate and increases the lateral stress in the soil matrix beneath the proposed building. Thus, the potential for large settlements is reduced by improving the unsuitable soils to a stiffer composite soil matrix.

Ground vibrations will be produced as a result of the RAP installation procedures. Based on experience, impacts from these vibrations are not anticipated to result in structural damage to existing, adjacent structures. Vibration monitoring with seismographs will be performed during the RAP installation activities.

The proposed structures do not include any below-grade space. The lowest level slabs are planned to be located essentially coincident with the exterior finished grade, with exterior grade rising slightly above the slab on grade elevation in some cases. No perimeter or underslab drainage is planned to be installed and little to no impact to groundwater is anticipated as the water table is below the design subgrade elevations.

6.11 SOLID AND HAZARDOUS WASTE

This section discusses existing environmental conditions on the Project Site and potential impacts from development of the Project.

6.11.1 SITE HISTORY AND COMPLIANCE WITH MA CONTINGENCY PLAN

A Phase I Environmental Site Assessment (ESA) has been prepared by McPhail Associates, LLC. The Project Site is the location of three Massachusetts Contingency Plan (MCP) disposal sites. Two of the sites, referenced as Release Tracking Numbers (RTN) 3-4151 and 3-32596, are understood to consist of petroleum hydrocarbon releases to soil and groundwater which were identified during the removal of underground storage tanks (USTs) from the property. The third release site, referenced as RTN 3-32724, was identified during a recent subsurface exploration program. Contaminants in the soil from this release are understood to consist of arsenic, lead, and polycyclic aromatic hydrocarbons (PAHs).

Various response actions were previously completed at the Site to address the releases to soil and groundwater. RTN 3-4151 has achieved a Permanent Solution in the form of a Class A-3 Response Action Outcome (RAO) which included the implementation of an Activity and Use Limitation (AUL). The AUL applies to the area under the footprint of the building located at 30 West Howell Street and extends to the northeast property boundary and to the northwest property line. Among other restrictions, the AUL prohibits residential property or hotels from being constructed within the impacted area. Based upon on-going assessment activities it is anticipated that the AUL will be revised to permit the use of the property for residential and/or hotel purposes.

RTN 3-32596 was filed with the DEP after headspace screenings of samples obtained from the limits of a UST excavation indicated elevated levels of total volatile organic compounds (TVOC). The petroleum impacted soil was subsequently removed from the subject site. A Permanent Solution has been achieved for the release site in the form of a Permanent Solution Statement (PSS) with No Conditions. An Activity and Use Limitation (AUL) was not recorded for this release.

RTN 3-32724 has not yet achieved a Permanent Solution. Excavation of the impacted soil will be completed under a Release Abatement Measure (RAM) Plan in conjunction with the foundation excavation for the new building as described in Section 6.10.3. Upon completion of the RAM, a RAM Completion Report and a Permanent Solution Statement (PSS) will be prepared and submitted to the DEP indicating that a Permanent Solution was achieved and that a Condition of No Significant Risk exists at the site.

Should excess excavated soil be generated during construction it will be managed in accordance with Massachusetts Department of Environmental Protection (DEP) policy and the MCP.

6.12 CONSTRUCTION IMPACTS

This section discusses potential construction impacts from the construction of the Project.

6.12.1 CONSTRUCTION MANAGEMENT PLAN

A Construction Management Plan, in compliance with the City of Boston's Construction Management Program, will be submitted to the Boston Transportation Department. The plan will include detailed information about construction activities, specific construction mitigation measures, and construction materials access and staging area plans to minimize impact on the surrounding neighborhood.

Construction methodologies that ensure public safety and protect nearby residents will be employed. Techniques such as barricades, walkways, and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting, routing plans for trucking and deliveries, and control of noise and dust. Although the design of the proposed buildings are in process, the Proponent has begun to develop a plan for how traffic, parking, and construction staging will be managed during construction.

6.12.2 CONSTRUCTION ACTIVITY SCHEDULE

The construction period for the Project is expected to last approximately 48 months, beginning in early 2016 and reaching completion by late-2019. Normal work hours will be from 7:00 AM to 6:00 PM, Monday through Friday, along with any approved exceptions.

6.12.3 CONSTRUCTION TRAFFIC IMPACTS

Designated truck routes will be established to govern where construction trucks access and egress the Project Site. The primary, regional construction truck

access/egress routes will be via Interstate 93 and Massachusetts Avenue. A detailed Construction Management Plan (CMP) will be developed and submitted under separate cover. The Proponent will work closely with the BTD in developing the CMP and will include more detail on construction phasing, number of trips, haul routes, and hours of operation.

Truck traffic will be heaviest during the excavation and concrete foundation work. During this period, it is expected that fewer than ten trucks, varying in size from small delivery trucks to 18-wheelers, will arrive and leave the Site each construction day. Thereafter, truck traffic will vary throughout the construction period, depending upon the activity.

6.12.4 CONSTRUCTION WORKER PARKING AND STAGING

The number of workers required for the construction of the Project will vary depending upon the stage of construction. Construction workers will typically arrive and depart prior to peak traffic conditions and the construction trips are not expected to substantially impact traffic conditions.

The general contractor will be responsible for educating all construction workers about public transit options and encouraging the use of high occupancy vehicles. All construction workers will be encouraged to utilize mass transit and ridesharing options to access the construction site and to minimize vehicle traffic and parking on the local streets. As part of the program to promote public transportation, the following will be implemented:

- Providing on-site secured space for workers' tool storage
- Posting transit schedules and maps at the Project Site
- Distributing informational brochures regarding public transportation
- Notifying all subcontractors and suppliers of worker access/parking restrictions

The Proponent will submit a Boston Residents Construction Employment Plan in accordance with the Boston Jobs Policy. The Plan will provide that the Proponent make good faith efforts to employ local trades people from the City of Boston. In this effort, the Proponent will meet with local agencies prior to the start of construction to establish a community outreach program.

6.12.5 CONSTRUCTION AIR QUALITY

Short-term air quality impacts from fugitive dust may be expected in demolition and the removal of soil materials and during the early phases of the Site preparation activities. The construction contract for the Project will require the contractor to reduce potential emissions and minimize air quality impacts. Mitigation measures

are expected to include the use of wetting agents where needed on a scheduled basis, covered trucks, minimizing exposed construction debris stored on-site, monitoring construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized, locating aggregate storage piles away from areas having the greatest pedestrian activity when possible, and periodic cleaning of streets and sidewalks to reduce dust accumulations.

6.12.6 CONSTRUCTION NOISE IMPACTS

Intermittent increases in noise levels will occur in the short term during the construction of the new buildings. Work will comply with the requirements of the City of Boston Noise Ordinance. Efforts will be made to minimize the noise impact of construction activities, including appropriate mufflers on all equipment such as air compressors and welding generators, maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations and techniques with less noisy ones, and scheduling equipment operations to synchronize the noisiest operations with times of highest ambient noise levels.

6.12.7 SEDIMENT CONTROL MEASURES

During demolition and construction, erosion and sediment control measures will be implemented to minimize the transport of Project Site soils to off-site areas and BWSC storm drain systems. The existing catch basins will be protected with filter fabric or silt sacks to remove sediment from runoff. These controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

Other sediment controls, which will be implemented as needed during construction, will include the following:

- Stacked hay bales and/or silt fence barriers will be installed at the base of stockpiled soils and at erosion-prone areas throughout the construction phase of the Project.
- Erosion controls will be maintained and replaced as necessary to ensure their effectiveness.
- Where necessary, temporary sedimentation basins will be constructed to prevent the transport of sediment off-site.
- Measures to control dust will be implemented during renovations— all debris will be properly contained on the Site.
- Erosion controls will be maintained and replaced as necessary until the installation of pavement and the establishment of stabilized vegetation at the Site.

6.12.8 RODENT CONTROL

The contractor will file a rodent extermination certificate with the building permit application to the City. 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. Rodent extermination prior to commencing work will treat areas throughout the Site, including building interiors. During the construction process, regular service visits will be made to maintain effective rodent control.

6.13 WILDLIFE HABITAT

The Site is fully developed with urban landscape materials and the Project will not impact important wildlife habitat. According to the latest Natural Heritage & Endangered Species Program maps, no Priority or Estimated Habitats are located on or near the Project Site.

6.14 HISTORIC AND ARCHAEOLOGICAL RESOURCES

The Site does not contain any known structure, site, or building listed or potentially eligible for listing on the National Register of Historic Places or State Register of Historic Places. This Site is not within a National Register Historic District or within a historic district that has been identified as potentially eligible for the National Register. An area of potential effect (APE) of one-quarter mile has been analyzed for the purposes of identifying historic resources and assessing potential project-related impacts. A review of the Massachusetts Historical Commission (MHC) Inventory revealed 24 extant inventoried historic properties (including two structures on the National Register of Historic Places) and all or part of five MHC inventoried districts within the APE. Among these five districts, The Saint Margaret Area is recommended by MHC as a potential National Register and/or Conservation District.

The project is proposing residential and commercial uses. No adverse impacts to the historic structures in the surrounding area will result from the proposed project.

6.14.1 HISTORIC AND ARCHEOLOGICAL RESOURCES ON THE PROJECT SITE

The MHC inventoried district BOS-IH overlaps the Project Site. This district is a cluster of small-scale residential buildings and one-story concrete block garages. Though the residential buildings generally date from the 1870s and 1880s, many have been significantly modified and are in moderate to poor condition. This area includes the property at 20 Baker Court, which is to be demolished as part of the Project. This property, as well as a warehouse building on an adjacent parcel will be reviewed under and will comply with Article 85 prior to demolition. Activating the adjacent industrial and vacant parcels will be a positive impact on this area.

6.14.2 HISTORIC RESOURCES IN THE VICINITY OF THE PROJECT SITE

Historic resources within approximately one quarter mile of the study area are described in Table 6-2 and shown on Figure 6-5, Historic Resources.

Table 6-2: Historic Resources

#	Name/ Location	Description of Resource	Impact of Project on Resource
1	Lemuel Clapp House 195 Boston St.	House built for prominent Clapp family, dating to 1665 but rebuilt in 1765- listed on the National Register for Historic Places	No Impact
2	William Clapp House 195 Boston St.	House built for prominent Clapp family, dating to 1806- listed on the National Register for Historic Places, current home of the Dorchester Historical Society	No Impact
3	68 Willow Court	Side hall mansard three story single family dating to the early 1870s, possibly the earliest prototype triple decker example in Dorchester	No Impact
4	Clapp Street Passageway	Arched passageway through granite retaining wall dating to 1907	No Impact
5	Roger Clapp School 35 Harvest St.	Classical Revival brick school building dating to 1896	No Impact
6	H. Barnes House 8 Mt. Vernon St.	Single family mansard roofed house with unique plan layout, dating to 1865	No Impact
7	20 Mt. Vernon St.	Bracketed double house dating to 1870, served as a prototype triple decker	No Impact
8	749-771 Dorchester Ave. Streetscape	Row of early Queen Anne style triple deckers dating to 1886-1889	No Impact
9	796-798 Dorchester Ave.	Well preserved early Queen Anne style double triple decker dating to 1886-1889	No Impact
10	819-821 Dorchester Ave.	A pair of well preserved Queen Anne style triple decker dating to 1892	No Impact
11	91 Roseclair St./857 Dorchester Ave.	Well preserved rounded corner 3 story colonial revival commercial block with residences above, dating to 1898	No Impact
12	Mary C. Weiss House 50 St. Margaret St.	Greek revival style single family house dating to 1850	No Impact
13	Mary A. Gorham Three-Decker 4-6 Mayhew St.	Queen-Anne style triple deckers dating to the early 1890s	No Impact
14	Clapp House 8 Mayhew St.	Greek Revival style single-family house dating to 1840 or earlier	No Impact
15	William Channing Clapp House 16 Mayhew St.	Farm house built for prominent Clapp family, first house built on Mayhew St. dating to 1828	No Impact
16	Frederick Weiss House 38 Mayhew St.	Greek Revival house dating to the 1860s	No Impact
17	Saint Margaret Roman Catholic Church Convent 17 Mayhew St.	Brick Georgian Revival convent building dating to 1914	No Impact

#	Name/ Location	Description of Resource	Impact of Project on Resource
18	R. Clapp House 31 Mayhew St.	Well-preserved Italianate single family house dating to 1845	No Impact
19	70-74 Roseclair St.	Three Queen Anne Style two family houses dating to the 1890s	No Impact
20	59-69 Roseclair St.	Streetscape of Queen Anne style two family houses dating to the 1890s, including towered mirror image houses at 61 and 63	No Impact
21	South Boston Harbor Academy Charter School 244 Boston St.	Brick school building, originally constructed in 1923 as the Msgr. Ryan Memorial Roman Catholic High School	No Impact
22	235-245 Boston St.	Queen Anne style brick rowhouses dating to 1885, this area's only masonry row housing	No Impact
23	174 Boston St.	Early triple decker dating to 1886-1889 featuring Queen Anne and Stick Style features	No Impact
24	Elder Streetscape 6-14 Elder St.	An early streetscape characterized by colonial revival triple-deckers dating to 1904.	No Impact
25	Saint Margaret Roman Catholic Church	Brick and granite Romanesque Revival style church building dating to 1899	No Impact
26	Our Lady of Czestochowa Roman Catholic Church 655 Dorchester Ave.	Complex of religious buildings, dating to the late 19th century that have been significantly altered/rebuilt	No Impact
27	Whitman, O.M. and Company Building 82 Boston St.	Art Deco building dating to 1905, now used as the Polish-American Citizens' Clubhouse	No Impact
28	Henry D. Holden Houses 131-135 East Cottage St.	Queen Anne style multifamily houses dating to 1890	No Impact
29	Edward Holden House 121 East Cottage St.	Italianate single family house dating to 1850, one of the most intact houses of its style in Dorchester	No Impact

6.15 TIDELANDS

6.15.1 OVERVIEW

The Project Site is considered landlocked tidelands and is not subject to Chapter 91 licensing by the Massachusetts Department of Environmental Protection (DEP) pursuant to 310 CMR 9.04(2). It is within the Secretary of Energy and Environmental Affairs' discretion to conduct a public benefit review of the Project. This section provides a description of the nature of the tidelands affected and the Project's public benefits.

6.15.2 JURISDICTION

The location of the DEP Presumptive Line reveals that much of the Project Site was at one time below the Historic High Water Mark (HHWM) and has since been filled (see Figure 6-6, Tidelands). DEP's Presumptive Line is based on the HHWM from the Chesbrough map of 1852.

According to historic records, a portion of the Site appears to have been filled under license number 3819, issued by the Department of Public Works in 1956 to Banquer Realty Company, Inc. Over time, between this license and perhaps others, the Project Site and most of the South Bay was filled and developed.

As a result of these activities, the Project Site is considered to be landlocked tidelands because it is more than 250 feet from the existing high water mark and is separated by a public right-of-way.

6.15.3 PUBLIC BENEFIT REVIEW AND DETERMINATION

In accordance with the requirements of the 310 CMR 11.05(4)(b) and 310 CMR 13.03, this section provides the following information regarding a Public Benefits Determination for projects in landlocked tidelands.

Nature of Tidelands Affected by the Project

Most of the Project Site is seaward of the historic high water mark as defined by the DEP Presumptive Line. The Project Site, which is considered landlocked tidelands, is exempt from Chapter 91 licensing. Fill was authorized in the 1900s and since then the Project Site has been used for non-water dependent purposes such as retail and commercial spaces, office space, industrial facilities, and surface parking.

Public Benefits of the Project

The purpose of the Project is to create a new mixed-use neighborhood comprised of retail/commercial spaces, residential units, a hotel, a cinema, and public open space. Approximately 61 of the residential units will be affordable. The Project contains substantial public benefits including the following:

- improved energy efficiency of buildings on the Project Site;
- reduced impervious cover across the Project Site; and
- landscape improvements and public open space.

Impact on Abutters and the Surrounding Community

There will be impacts on the abutters and surrounding community. The Project will add approximately 720,000 gross square feet of new space, which will be mostly for commercial and residential uses. After the Project is built, pedestrians will have greatly enhanced access to and through the Project Site that currently exists.

Traffic will increase relatively little due to the high amount of existing traffic on the adjacent roads and the proximity to transit, which has frequent stops in the area. The Project will remove up to 100 construction trucks a day from in and around the Project Site due to the closure of the concrete plant. There is no expected decrease in the level of service on roads leading to the Site as a result of the project.

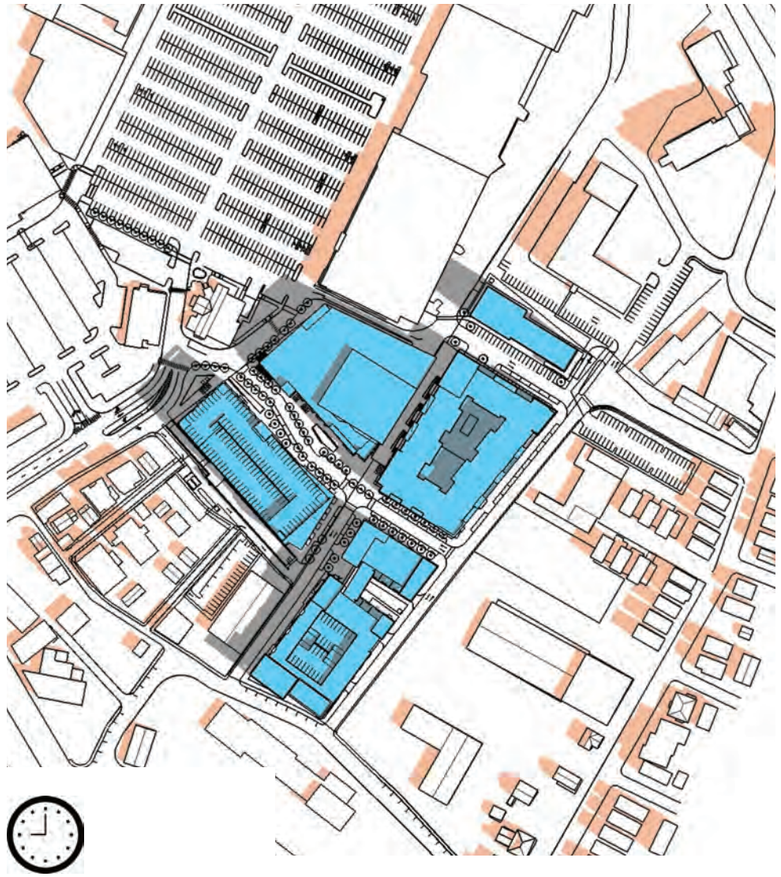
Benefits to the Public Trust Rights in Tidelands and Other Associated Rights

The Project will provide benefits to the public. However, these benefits are not related to the water-dependent uses since the Site is approximately 0.7 miles from tidal waters. Regardless, the Project will provide job opportunities, affordable and mid-market rate housing, and open space for passive recreation.

The environmental impacts to the public will be reduced as a result of the installation of a stormwater recharge system that minimizes the impacts of stormwater runoff to the local waters. This recharge system will also help improve the health of the receiving waters.

General Welfare

The Project will not result in adverse impacts to the public's general welfare.



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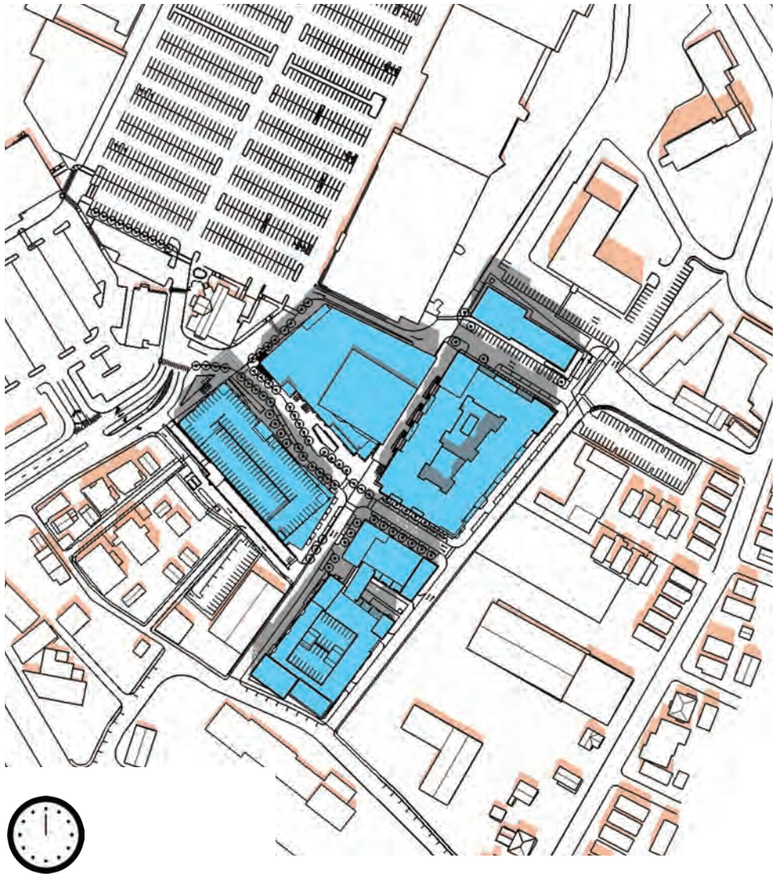

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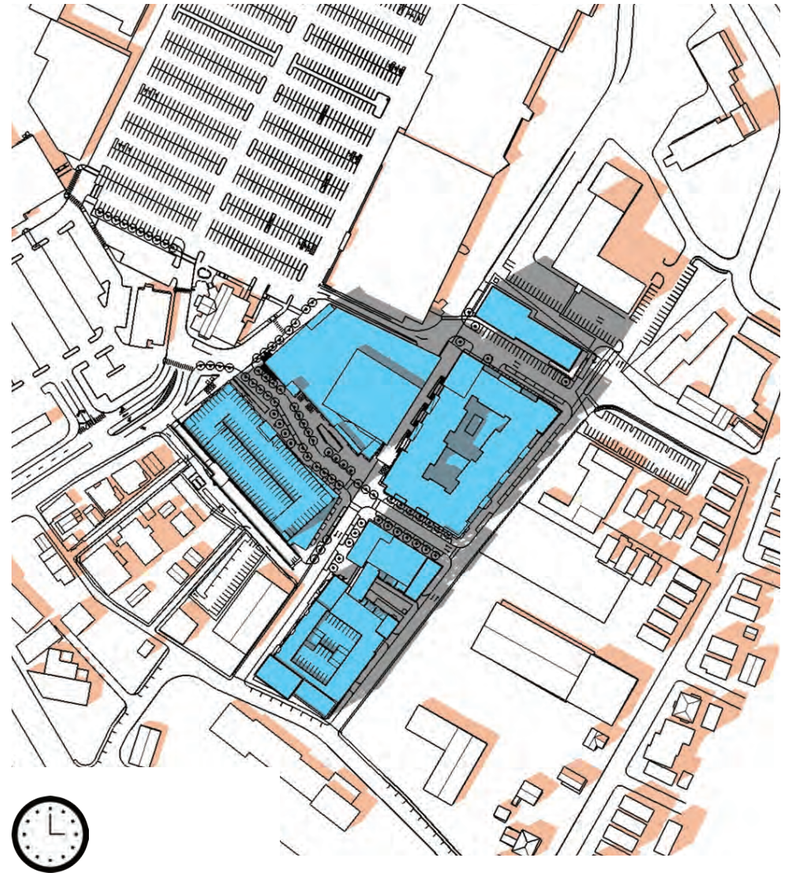


3:00 p.m.

EXISTING SHADOW

NEW SHADOW

PROPOSED BUILDINGS

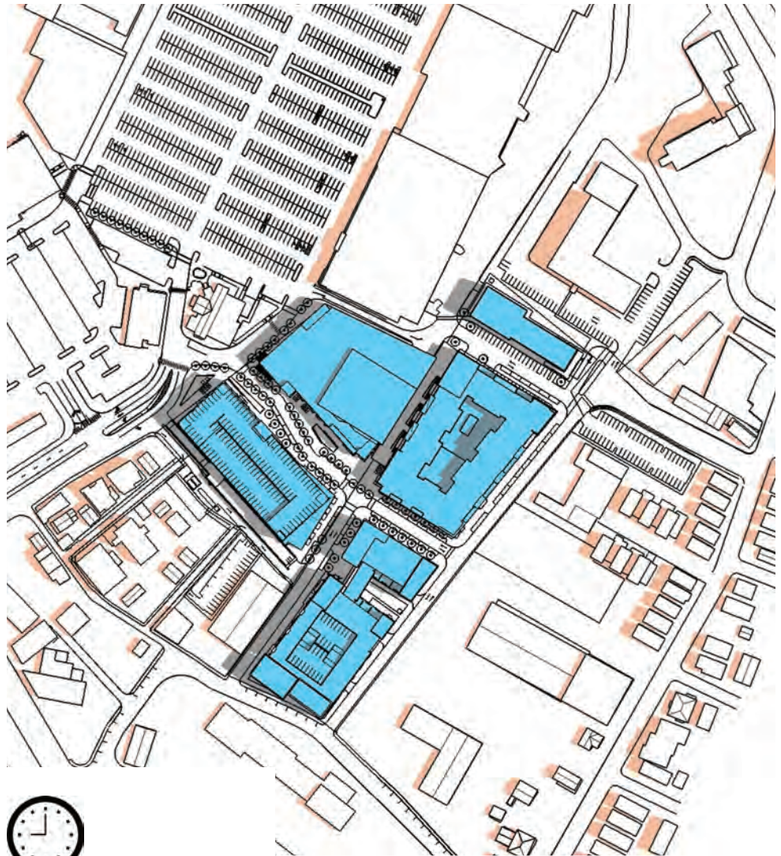
N

0 100' 200' 400'

Figure 6-1

Shadow Study - March 21

Source: ADD Inc, now with Stantec, 2015



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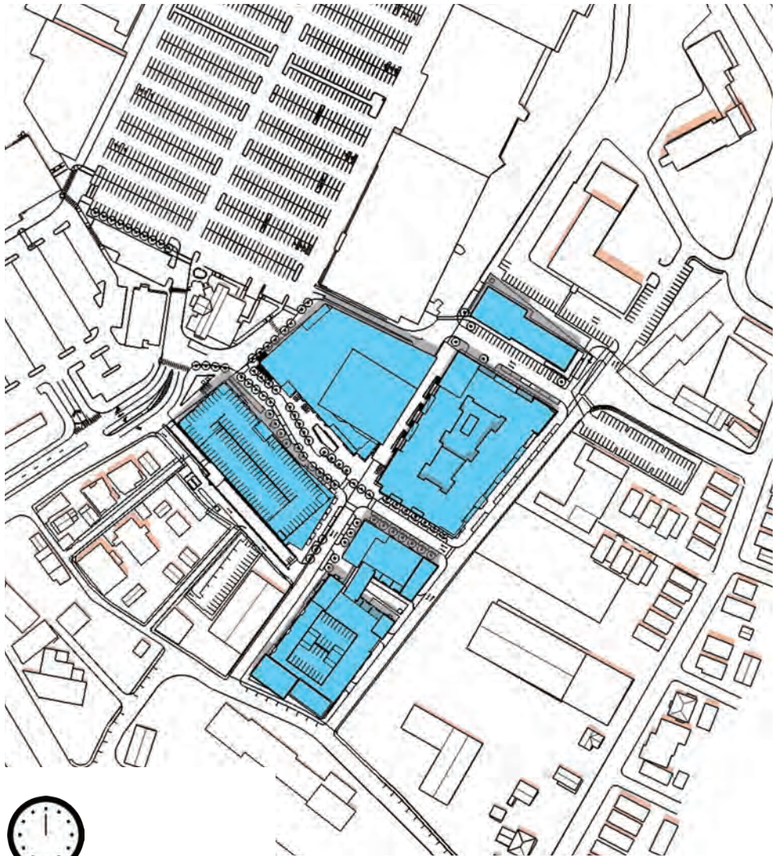

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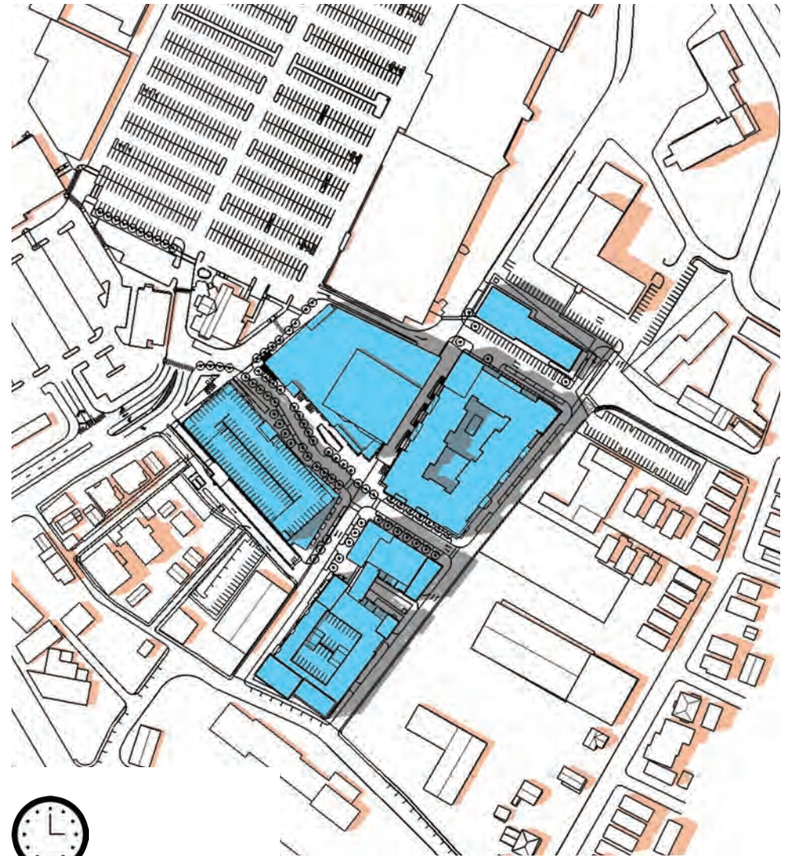


3:00 p.m.

EXISTING SHADOW

NEW SHADOW

PROPOSED BUILDINGS

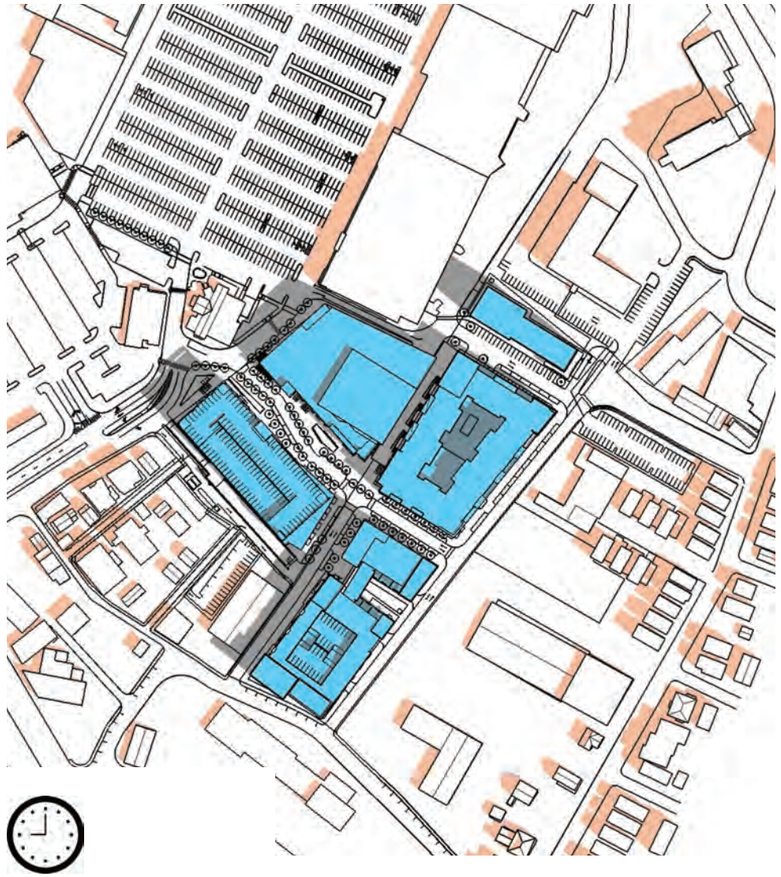
N

0 100' 200' 400'

Figure 6-2

Shadow Study - June 21

Source: ADD Inc, now with Stantec, 2015



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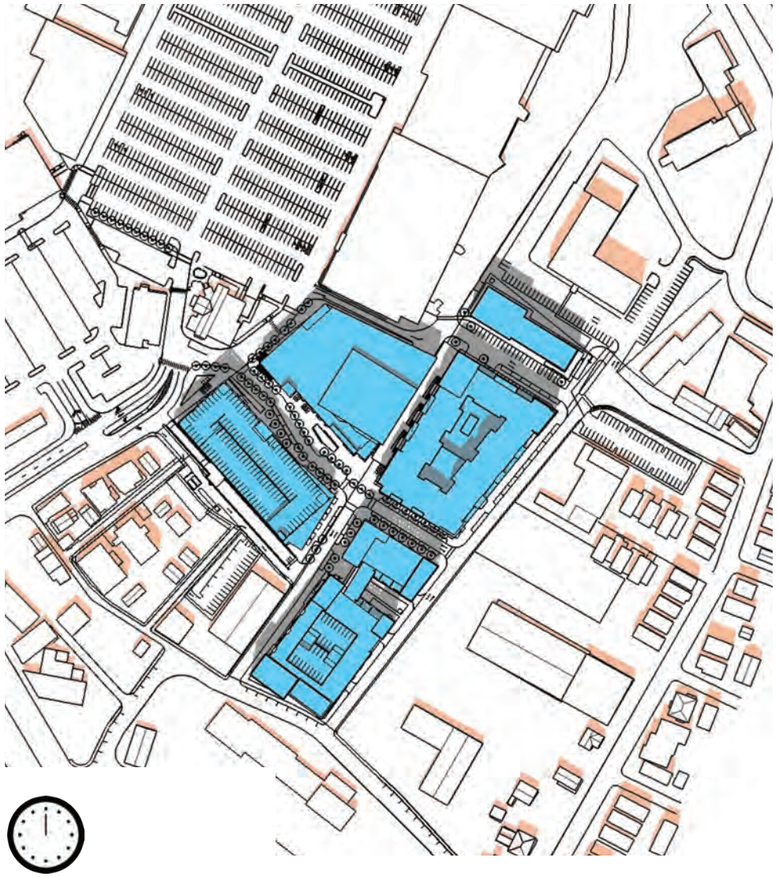

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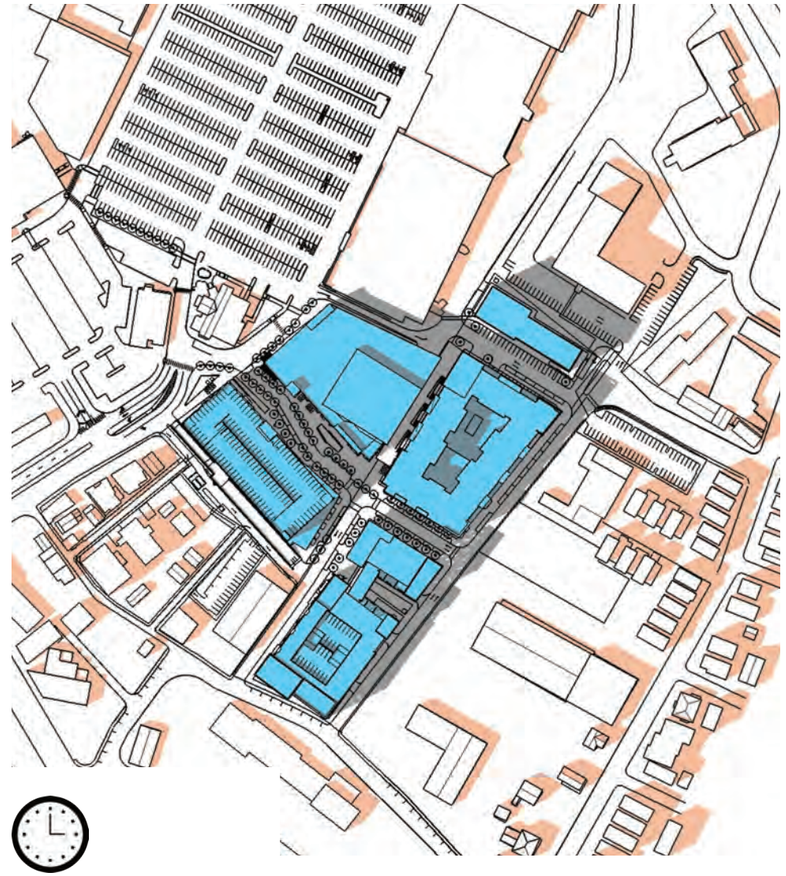

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EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

N

0 100' 200' 400'

Figure 6-3
Shadow Study - September 21
Source: ADD Inc, now with Stantec, 2015

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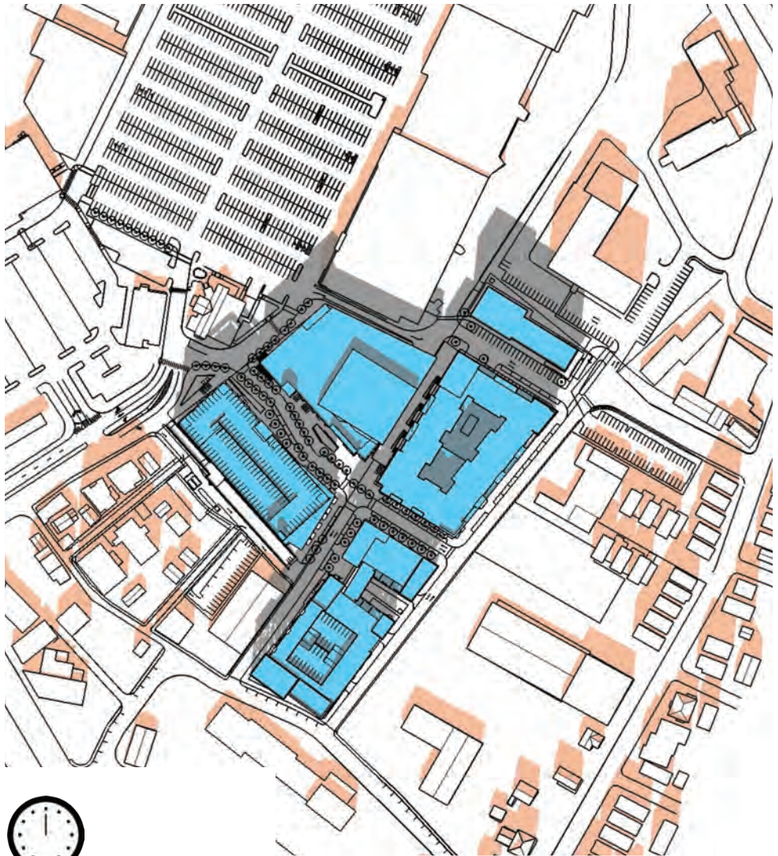

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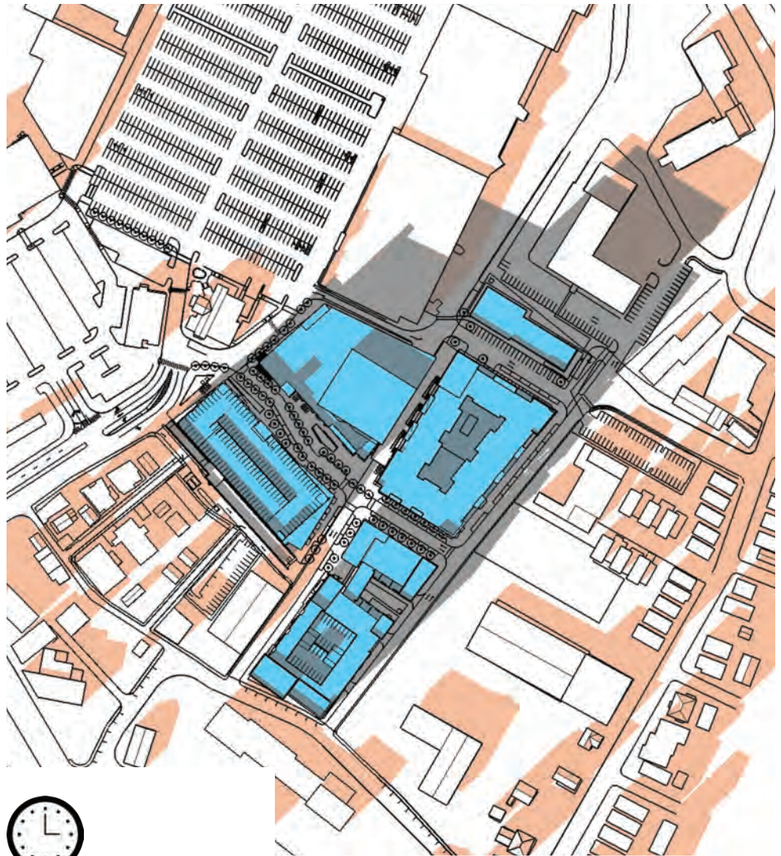


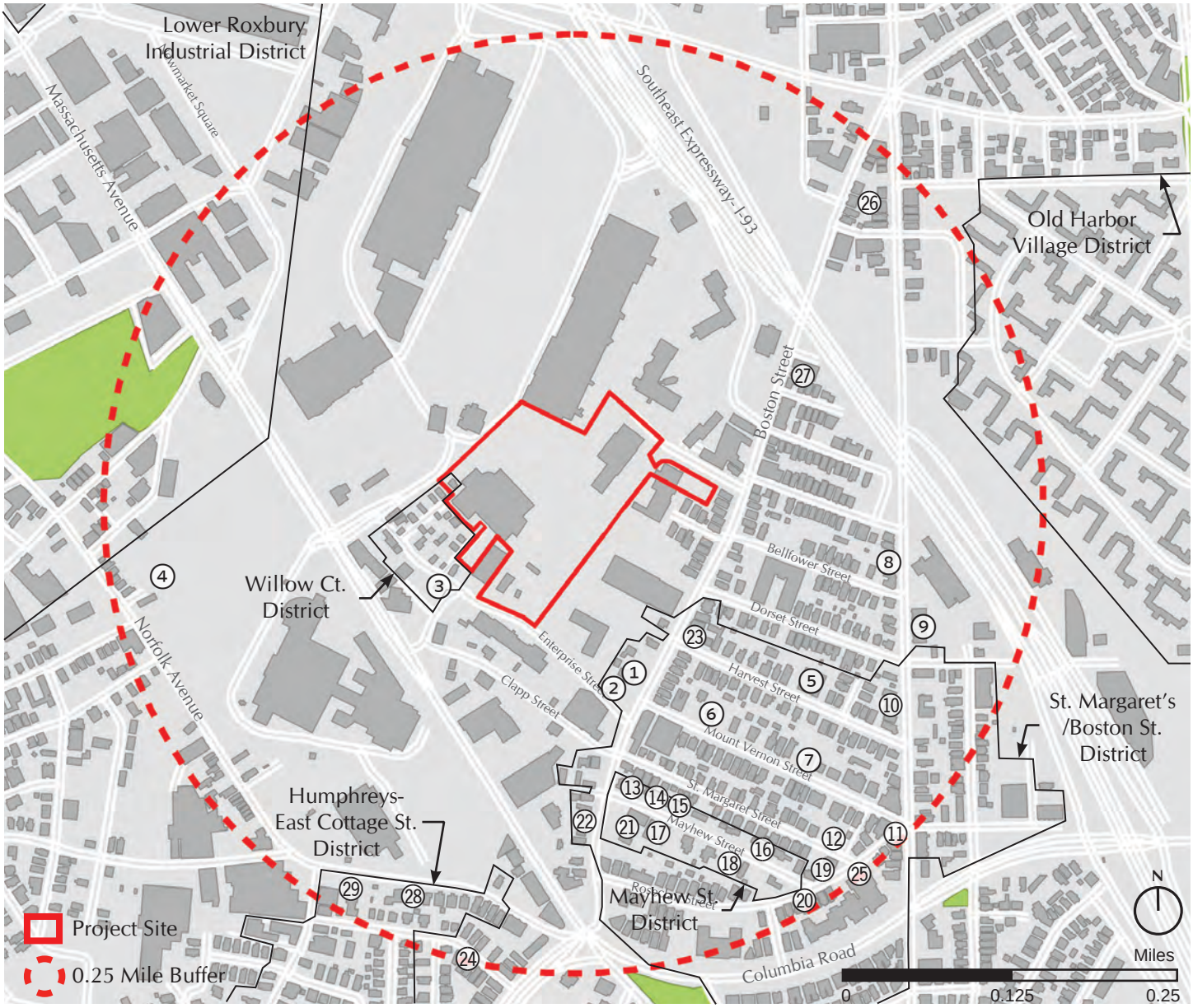
3:00 p.m.

EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

N

0 100' 200' 400'

Figure 6-4
Shadow Study - December 21
Source: ADD Inc, now with Stantec, 2015



1 Lemuel Clapp House/Dorchester Historical Society
2 William Clapp House
3 68 Willow Court
4 Clapp Street Passageway
5 Roger Clapp School
6 8 Mount Vernon Street
7 20 Mount Vernon Street
8 749-771 Dorchester Avenue Streetscape
9 796-798 Dorchester Avenue
10 819-821 Dorchester Avenue
11 91 Roseclair Street
12 50 St. Margaret Street
13 4-6 Mayhew Street, Mary A. Gorham Three-Decker
14 8 Mayhew Street, Clapp House
15 16 Mayhew Street, William Channing Clapp House
16 38 Mayhew Street, Frederick Weiss House
17 Saint Margaret Roman Catholic Church Convent
18 31 Mayhew Street, R. Clapp House
19 70-74 Roseclair Street
20 59-71 Roseclair Street
21 South Boston Harbor Academy Charter School
22 235-245 Boston Street
23 174 Boston Street
24 6-14 Elder Street
25 Saint Margaret Roman Catholic Church
26 Our Lady of Czestochowa Roman Catholic Church
27 Whitman, O.M. and Company Building
28 131-135 East Cottage Street, Henry D. Holden Houses
29 121 East Cottage Street, Edward Holden House

Figure 6-5
Historic Resource Inventory
Source: Fort Point Associates, Inc., 2015

Dorchester, Massachusetts

Figure 6-6
Tidelands
Source: Fort Point Associates, Inc., 2015

Chapter 7

INFRASTRUCTURE

CHAPTER 7: INFRASTRUCTURE

7.1 INTRODUCTION

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

- Wastewater System
- Water System
- Storm Drainage System
- Electrical Services
- Telecommunication System
- Natural Gas System

The Project Site comprises approximately 9.9 acres bounded by South Bay Center and Allstate Road to the north, West Howell Street to the south, South Bay Center and a Courtyard Hotel to the east and Enterprise Street, and residential dwellings along Baker Court and Fields Court to the west in Dorchester. The Project Site is currently occupied by several commercial, industrial, and retail uses that include a supermarket (formerly the Super 88 Market and more recently Kam Man food market), several commercial buildings, the Aggregate Concrete plant, and a single family home as well as associated surface parking lots.

Under the proposed program, existing uses will be razed and replaced with a range of synergistic uses that include a 12-screen cinema, 130-room hotel, approximately 475 residential apartment units, and approximately 113,000 sf of ground-level retail uses. Structured and on-street parking will replace the existing surface lots and support the above uses. There are existing utilities in each of the adjacent streets. In West Howell Street, there are existing combined sewer, water, gas, electric and telecommunications lines. In Allstate Road, there are existing sanitary sewer, storm drainage, water, gas, electric and telecommunications lines. In Enterprise Street and Willow Court, there are existing sanitary sewer, storm drainage, water, gas, electric, and telecommunications lines. In Baker Court and Fields Court there are sanitary sewer, storm drainage, and water and gas lines. See Figure 7-1 through Figure 7-3, Existing Sanitary Sewer, Water Main, and Storm Drain Maps.

Approval of Site Plans and a General Service Application are required from Boston Water and Sewer Commission (BWSC) for construction and activation of sewer, water, and storm drainage service connections. The sewer and water connections, as well as the Project's stormwater management systems, will be designed in conformance with BWSC's design standards, Requirements for Site Plans, Regulations Governing the Use of Sanitary and

Combined Sewers and Storm Drains, and Regulations Governing the Use of the Water Distribution Facilities of the Boston Water and Sewer Commission.

7.2 WASTEWATER SYSTEM

This section describes existing and proposed wastewater conditions on the Project Site.

7.2.1 EXISTING SEWER SYSTEM

There is an existing private separated sanitary sewer system on-site and BWSC owns and operates a network of combined sewers and separated sanitary sewer mains in the streets adjacent to the Project Site as outlined below. The existing sanitary sewer main information is based on available record information from BWSC, as well as on-site utility as-built plans. In addition, BWSC has recently installed storm drain, water and sewer improvements in the Project area as a part of the '2012 Capital Improvement Program Contract No. 12-309-008 for Installation of Storm Drains, Sanitary Sewer and Water Mains in Mass Ave–Dorchester'. Improvements separated combined sewers in Baker Court, Willow Court, Enterprise Street, and Massachusetts Avenue.

- A 12-inch BWSC combined sewer main beneath West Howell Street flows east to a 12-inch BWSC combined sewer main beneath Boston Street.
- An 8-inch private separated sewer main beneath the service drive between TJ Maxx and the Courtyard hotel flows south to Allstate Road. A private lift station pumps sewer discharge via a 4-inch private force main to a newly installed 12-inch BWSC separated gravity sewer main beneath Willow Court at the corner of Allstate Road.
- A newly installed 12-inch BWSC separated sanitary sewer main beneath Baker Court flows southwest to a newly installed 12-inch BWSC sanitary sewer main beneath Willow Court.
- A 12-inch BWSC combined sewer main beneath Fields Court flows southwest to a newly installed 15-inch BWSC separated sanitary sewer main beneath Willow Court.
- Sewer flows from Willow Court and a portion of Enterprise Street connect at a junction manhole and travel southwest cross-country via an 18-inch BWSC combined sewer main connecting to a newly installed 18-inch BWSC sanitary sewer main beneath Massachusetts Avenue, which flows south to north.
- Sewer discharges east of BWSC manhole 130 beneath Enterprise Street flow east directly to the Boston-Main Interceptor, which then flows west to east down Mount Vernon Street.

Table 7-1 below details the size and slopes of each receiving main and includes corresponding hydraulic capacity in million gallons per day (MGD).

Table 7-1: Existing Sewer System Capacity

Manhole (BWSC Number)	Distance (ft)	Invert Up	Invert Down	Slope	Diameter (in)	Capacity (MGD)
87 to 85	360	13.12	9.47	1.0%	12	2.31
133 to 132	215	12.22	8.64	1.7%	12	3.00
130 to 128	333	8.86	5.15	1.1%	12	2.42

Note: 1. Manhole numbers taken from BWSC Sewer System Map
2. Flow calculations based on Manning Equation
3. All pipes assumed to be vitrified clay (n = 0.013)

Table 7-2 below describes the estimated existing sewer generation.

Table 7-2: Existing Sewer Generation

Existing Use	Program	Sewer Generation Rate*	Sewage flow (gpd)
Residential	5 bedrooms**	110 gpd/bedroom	550 gpd
Supermarket	40,657 sf**	97 gpd/1000 sf	3,944 gpd
Retail	20,000 sf	50 gpd/1000 sf	1,000 gpd
Office	10,300 sf**	75 gpd/1000 sf	773 gpd
Industrial Plant	-	-	4,868 gpd***
Total			11,134 gpd

* Estimated sewer flows are based on 310 CMR 15.203.
**Program based on City of Boston Assessor's reports.
***Per CMR 15.203(6), sewage flow (gpd) based on 200% of average water meter readings provided by BWSC.

The sanitary sewer discharge to each of the above described discharge points ultimately flow to the Massachusetts Water Resources Authority's (MWRA's) Deer Island Wastewater Treatment Plan, where it is treated and discharged to Massachusetts Bay.

The existing sewer system is illustrated in Figure 7-1, Existing Sanitary Sewer Map.

7.2.2 PROJECTED SANITARY SEWER FLOW

The Project's sewerage generation rates were estimated using the Massachusetts Department of Environmental Protection 310 CMR 15.00 Title 5 regulations. 310 CMR 15.00 lists typical generation values for the sources listed in Table 7-1 for the Project. Typical generation values are generally conservative values for estimating the sewage flows from new construction. 310 CMR 15.00 sewage generation values are used to evaluate new sewage flows or the increase in flows to existing connections. Of the approximate 113,000 sf of retail/restaurant space, up to 80,000

sf has been allocated for retail uses and the remainder is allocated for up to 1,500 restaurant seats. The Project also anticipates seasonal outdoor seating in association with the restaurant spaces. No additional sewer generation has been assigned for the seasonal seats. Table 7-3 describes the proposed sewage generation anticipated from this Project.

Table 7-3: Estimated Sewage Flow

Proposed Use	Program	Sewer Generation Rate*	Sewage flow (gpd)
Residential	637 bedrooms**	110 gpd/bedroom	70,070 gpd
Hotel	130 bedrooms	110 gpd/bedroom	14,300 gpd
Retail	80,000 sf	50 gpd/1000 sf	4,000 gpd
Restaurant	1,500 seats***	35 gpd/seat	52,500 gpd
Cinema	1,100 seats	5 gpd/seat	5,500 gpd
Total			146,370 gpd

* Estimated sewer flows are based on 310 CMR 15.203.
**Based on (475) apartments with a mix of studio, one, two, and three bedroom units.

7.2.3 SANITARY SEWER CONNECTION

The Project will likely have multiple connections to the existing sewer infrastructure in the adjacent streets. Figure 7-4, Conceptual Sanitary Sewer Map, shows the proposed sanitary sewer connections. Sewer discharge from a portion of the retail/residential component and the entire 130-room hotel will connect to the 12-inch BWSC sanitary sewer main beneath West Howell Street. Sewer discharge from the retail and residential buildings bounded by Main Street to the north, New Road to the west, Enterprise Street to the south and West Howell Street to the east will connect to the 15-inch BWSC sanitary sewer main beneath Enterprise Street. Sewer discharge from the 1,100-seat cinema and adjacent retail will connect to the private sewer collection system in Allstate Road which ultimately discharges to the BWSC sanitary sewer main beneath Willow Court. This portion of the private system flows through the existing private pump station, which will be reviewed for capacity and any modifications, if required, will be made to accommodate the additional flow. Sewer discharge from the retail building bounded by Main Street to the north, Allstate Road to the west, and New Road to the east will connect to the 12-inch BWSC sanitary sewer main in Fields Court.

The Proponent will continue to coordinate with BWSC on the design and capacity of the proposed connections to the sanitary sewer system. The Project is expected to generate approximately 146,370 gallons of sewage per day. The Project's flows to each of these existing sanitary sewer systems in West Howell Street, Fields Court, and Enterprise Street were analyzed below.

The proposed sewer discharges to each discharge point are presented below in Table 7-4 and indicate the existing hydraulic capacity of the mains where connections are proposed.

Table 7-4: Proposed Sewer System Capacity

Street Name	Existing Capacity (MGD)*	Proposed Sewer Discharge (MGD)
West Howell Street	2.31	0.04
Fields Court	3.00	0.04
Enterprise Street	2.42	0.04

* Estimated sewer flows from table 7-1.

Since the Project proposed sewer generation exceeds 15,000 gpd, it is anticipated that the Project will be subject to BWSC inflow and infiltration (I/I) requirements, at a rate of 4-gallons for every 1-gallon of new sewer flow, initially calculated at 135,236 gallons/day. Through the Site Plan Approval process, the Project's Proponent and engineer will work with BWSC to identify if any existing sources of I/I that may be eliminated.

The Project will be LEED certifiable in accordance with the BRA's Article 37 Green Building program. As such, various measures for water conservation and wastewater reduction such as low-flow toilets and urinals, restricted flow faucets, and sensor operated sinks, toilets, and urinals may be incorporated in order to meet the LEED requirements. Specific water conservation and wastewater reduction measures to be included in the Project will be more fully defined as the building designs develop.

In accordance with revisions to 314 CMR 7.00 Sewer Extension and Connection Permitting regulations, promulgated June 20, 2014, the Project is no longer required to obtain a DEP Sewer Connection Permit for a sanitary sewer discharge greater than 50,000 gpd, therefore the sanitary sewer service connection approval and notification of completion will be through BWSC.

Based on preliminary calculations and discussions with BWSC, there are no expected sewer capacity problems in the vicinity of the Project Site. The Proponent's engineer will coordinate final, proposed sewer flows and available capacity with BWSC during the Site Plan Review.

7.3 WATER SYSTEM

This section describes existing and proposed water conditions on the Project Site.

7.3.1 EXISTING WATER SYSTEM

Similar to the sanitary sewer system, there are private water mains on-site and BWSC water mains in the streets adjacent to the Project Site as summarized below. The private system is equipped with master meters at each end of the system where it connects to the BWSC system. One meter is located in Allstate Road and the other is near the South Hampton Street entrance. Between the two meters, the system is looped around the Project Site and provides both domestic and fire protection flows to each of the existing buildings within the South Bay Shopping Center. The existing water distribution system information in the vicinity of the Project Site was provided by available record plans from BWSC. In addition, BWSC has recently installed storm drain, water and sewer improvements in the Project area as a part of the '2012 Capital Improvement Program Contract No. 12-309-008 for Installation of Storm Drains, Sanitary Sewer and Water Mains in Mass Ave – Dorchester'. The improvement project installed new 6-inch water main in Fields Court and a new 8-inch water main in a portion of Willow Court and Enterprise Street.

- An 8-inch BWSC Southern Low and a 12-inch BWSC Southern High water main beneath West Howell Street.
- A 10-inch Private Southern High water main located beneath Allstate Road.
- An 8-inch BWSC Southern Low water main located beneath Baker Court.
- A newly installed 6-inch BWSC Southern Low water main located beneath Fields Court.
- An 8-inch BWSC Southern Low water main located beneath Willow Court.
- An 8-inch BWSC Southern Low water main located beneath Enterprise Street.

Water service for the existing buildings within the Project limits are connected to the water mains in West Howell Street, Allstate Road, Baker Court, and Enterprise Street. The existing water system is illustrated in Figure 7-2, Existing Water Main Map.

Using the existing sewer generation described in Table 7-2 and applying a conservative factor of 1.1 to the 310 CMR 15.00 values to account for consumption, system losses and other usages, we can approximate existing water consumption from the Project area of 12,250 gpd.

7.3.2 ANTICIPATED WATER CONSUMPTION

The estimated water demand for the Project is based on the estimated sewer generation, described in Table 7-3. Applying the same factor of 1.1 as described above, the Project will require approximately 161,010 gpd of domestic water. The water for the Project will be supplied by BWSC.

Based on initial discussions with BWSC, there are no expected water capacity problems in the vicinity of the Project Site. Prior to full design, this will be confirmed by flow testing by BWSC. The Project's engineer will coordinate water demand and availability with BWSC during the Site Plan Approval process to ensure the Project needs are met while maintaining adequate water flows to the surrounding neighborhood.

7.3.3 PROPOSED WATER SERVICE

It is anticipated that the Project will be served from existing BWSC mains in West Howell Street and Enterprise Street and a private main in Allstate Road. Figure 7-5, Conceptual Water Main Map, shows the proposed water main connections. The domestic service for a portion of the retail/residential component and the 130-room hotel will connect to the eight-inch BWSC Southern Low water main in West Howell Street. Fire protection services will connect to the 12-inch BWSC Southern High water main in West Howell Street. The domestic and fire protection services for the retail and residential buildings bounded by Main Street to the north, New Road to the west, Enterprise Street to the south and West Howell Street to the east will connect to the 8-inch BWSC Southern Low water main in Enterprise Street. The domestic and fire protection services for the 1,100-seat cinema and adjacent retail will connect to the 10-inch private Southern High water main in Allstate Road. The domestic and fire protection services for the retail building bounded by Main Street to the north and Allstate Road to the west will connect to the 10-inch private Southern High water main in Allstate Road.

The size and location of service connections will be coordinated between the Project's engineer and the BWSC. All new water services will be installed in accordance with the latest local, state, and federal codes and standards. Appropriate gate valves and backflow prevention devices will be installed at both domestic and fire protection service connections. New meters will be installed with Meter Transmitter Units (MTU) as part of the BWSC's Automatic Meter Reading (AMR) system. Proposed connections to the existing private water service in Allstate Road will not require new meters since the private main was previously master metered as a part of the South Bay Center infrastructure improvements. If required, the Project will include internal booster pumps to ensure adequate water pressure to all standpipes and sprinkler systems.

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 includes, but is not limited to, sizing of domestic water and fire protection services, calculation of meter size, backflow prevention design, and location of hydrants and Siamese connections that conform to BWSC and Boston Fire Department requirements.

7.3.4 WATER SUPPLY CONSERVATION AND MITIGATION MEASURES

As previously stated, the Project will be LEED certifiable in accordance with the BRA's Article 37 Green Building program. As such, various water conservation measures such as low-flow toilets and urinals, restricted flow faucets, and sensor operated sinks, toilets, and urinals may be incorporated in order to meet the LEED water conservation requirements. Specific water conservation measures to be included in the Project will be more fully described as the building designs develop.

7.4 STORM DRAINAGE SYSTEM

This section describes the existing and proposed storm drainage system on the Project Site.

7.4.1 EXISTING STORM DRAINAGE SYSTEM

Similar to the sanitary sewer system, there is an existing private separated storm drain system on-site and BWSC owns and operates a network of combined sewers and separated storm drain mains in the streets adjacent the Project Site as summarized below. The existing storm drain main information is based on available record information from BWSC, as well as on-site utility as-built plans. In addition, BWSC has recently installed storm drain, water and sewer improvements in the Project area as a part of the '2012 Capital Improvement Program Contract No. 12-309-008 for Installation of Storm Drains, Sanitary Sewer and Water Mains in Mass Ave–Dorchester'. Improvements separated combined sewers in Baker Court, Willow Court, Enterprise Street, and Massachusetts Avenue.

- A 12-inch BWSC combined sewer located in West Howell Street.
- A 12-inch private storm drain located in Allstate Road.
- A newly installed 12-inch BWSC storm drain located in Baker Court.
- A newly installed 12-inch BWSC storm drain located in Willow Court.
- A newly installed 36-inch BWSC storm drain located in Enterprise Street.

The Project Site is almost 100% impervious, covered by buildings, associated parking lots, and the Aggregate Concrete plant. There is some small landscaped

buffers and perimeter vegetation along the edges of the existing parking lots. Stormwater runoff from the existing buildings and associated parking lots flow to the storm drain systems in West Howell Street, Allstate Road, Baker Court, and Enterprise Street. Ultimately, the storm drainage system discharges to the Massachusetts Bay. The existing storm drainage system is illustrated in Figure 7-3, Existing Storm Drain Map.

7.4.2 PROPOSED DRAINAGE CONDITIONS

BWSC requires a new project to provide an infiltration system with a volume equal to 1-inch of rainfall over the property. Stormwater runoff will be collected and treated, as necessary, on-site, and will be routed to infiltration systems to the maximum extent practicable in an effort to reduce the impact on the surrounding drainage system. Appropriate stormwater best management practices (BMP's) will be included in the Project to improve the quality of stormwater runoff discharged from the Project Site, to promote infiltration to groundwater, and to reduce the peak flows to be at or below existing levels. Overflow from the underground infiltration areas due to larger, less frequent storm events will be routed to the BWSC drain system. Specific BMPs proposed for the Project will be described in more detail in the Site Plan application to BWSC.

Figure 7-6, Conceptual Storm Drain Map, shows the proposed storm drain infrastructure and connections. Overflow pipes from the site closed drainage system will connect to either the 12-inch combined sewer system in West Howell Street, the 12-inch private storm drain in Allstate Road, the newly installed 12-inch storm drain in Baker Court or to the newly installed 36-inch storm drain in Enterprise Street. Any connections to combined sewer systems will be constructed, per BWSC details, in a manner to facilitate further connections to separated storm drainage systems as they become available.

All improvements and connections to BWSC infrastructure will be reviewed as part of the BWSC Site Plan Review process. This process includes a comprehensive design review of the proposed service connections, assessment of Project demands and system capacity and establishment of service accounts.

7.4.3 MITIGATION MEASURES

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, hay bales and/or crushed stone to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until all areas

of disturbance have been stabilized through the placement of pavement, structure, or vegetative cover.

The Project Site does not fall within the City's defined Groundwater Conservation Overlay District; therefore the proposed stormwater management system will be designed to comply with BWSC design requirements.

7.5 ELECTRICAL SERVICES

The City of Boston receives electricity from Eversource (formerly NSTAR Electric). Currently, there are overhead electric service lines in West Howell Street, Allstate Road, Baker Court, and Enterprise Street. The existing Kam Man building currently receives electric service from the overhead service in Allstate Road. The existing Aggregate Concrete plant receives electric service from the overhead service in Enterprise Street. The existing parking lots and buildings located off of West Howell Street currently receive electric service from overhead service in West Howell Street.

Proposed electric service is initially anticipated to be installed underground from overhead services in West Howell Street, Enterprise Street and Allstate Road. Electric power supply design will be further coordinated with Eversource as the design process continues.

7.6 TELECOMMUNICATION SYSTEM

Verizon New England, Comcast, and RCN provide telephone and cable television services in the Project area. Overhead telephone service lines in West Howell Street, Enterprise Street and Allstate Road service the Project area. It is anticipated that the new telephone services will be installed underground from Allstate Road to serve the entire Project Site. The Proponent will continue to work with each of these providers to determine the appropriate services and connection locations to support the proposed development.

7.7 NATURAL GAS SYSTEM

National Grid provides natural gas service in the Project area. There is a 4-inch low pressure gas main in West Howell Street, a 6-inch low pressure gas main in Baker Court, a 4-inch low pressure gas main in Fields Court, a 6-inch low pressure gas main in Willow Court/ Enterprise Street, and a 4-inch intermediate pressure gas main in Allstate Road. Based on initial meetings and discussions with National Grid, it is anticipated that the new gas services will connect to the main in Allstate Road to serve the entire Project. This 4-inch intermediate pressure gas main is initially anticipated to have adequate pressure and capacity to service the proposed development.

7.8 UTILITY PROTECTION DURING CONSTRUCTION

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

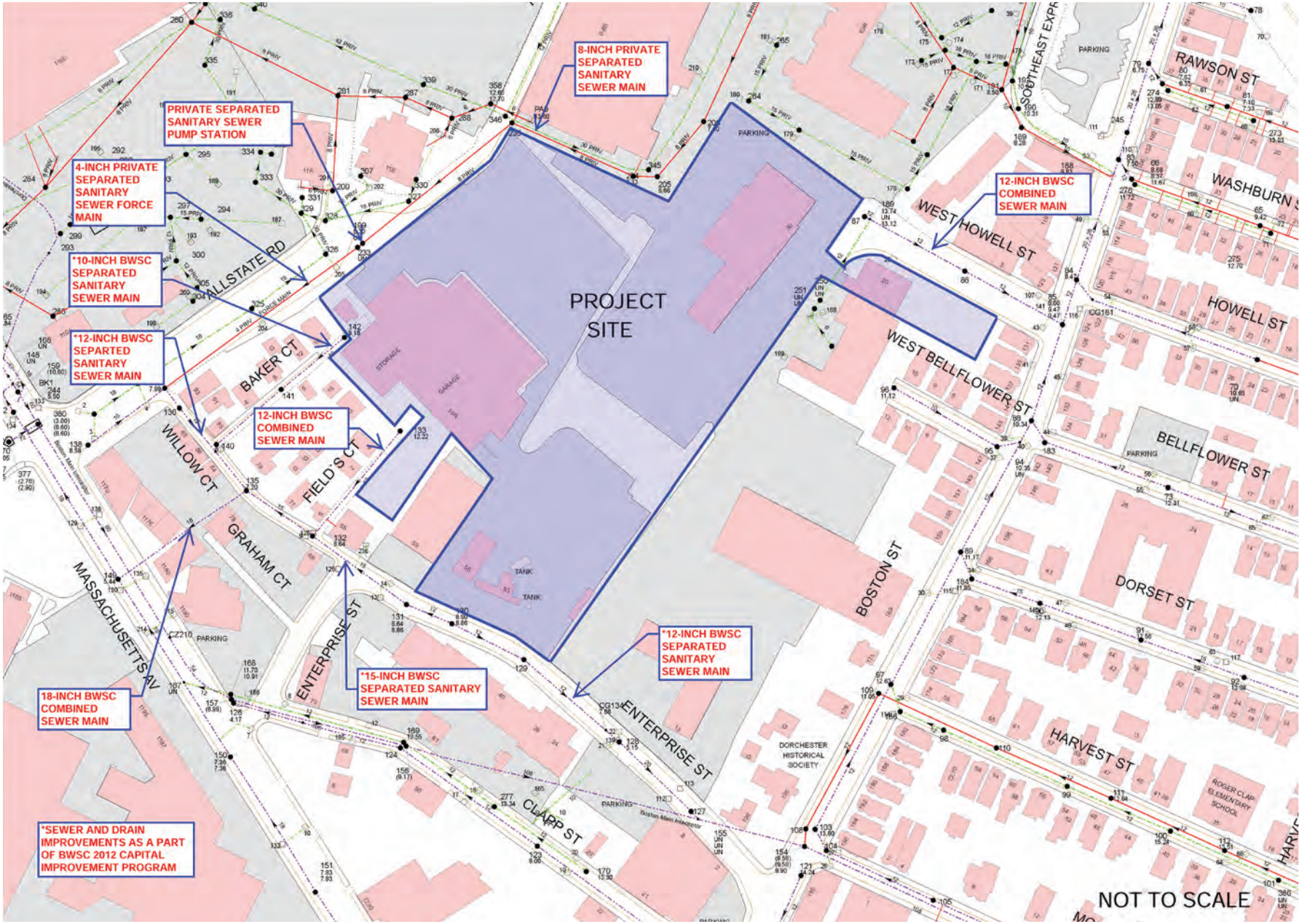
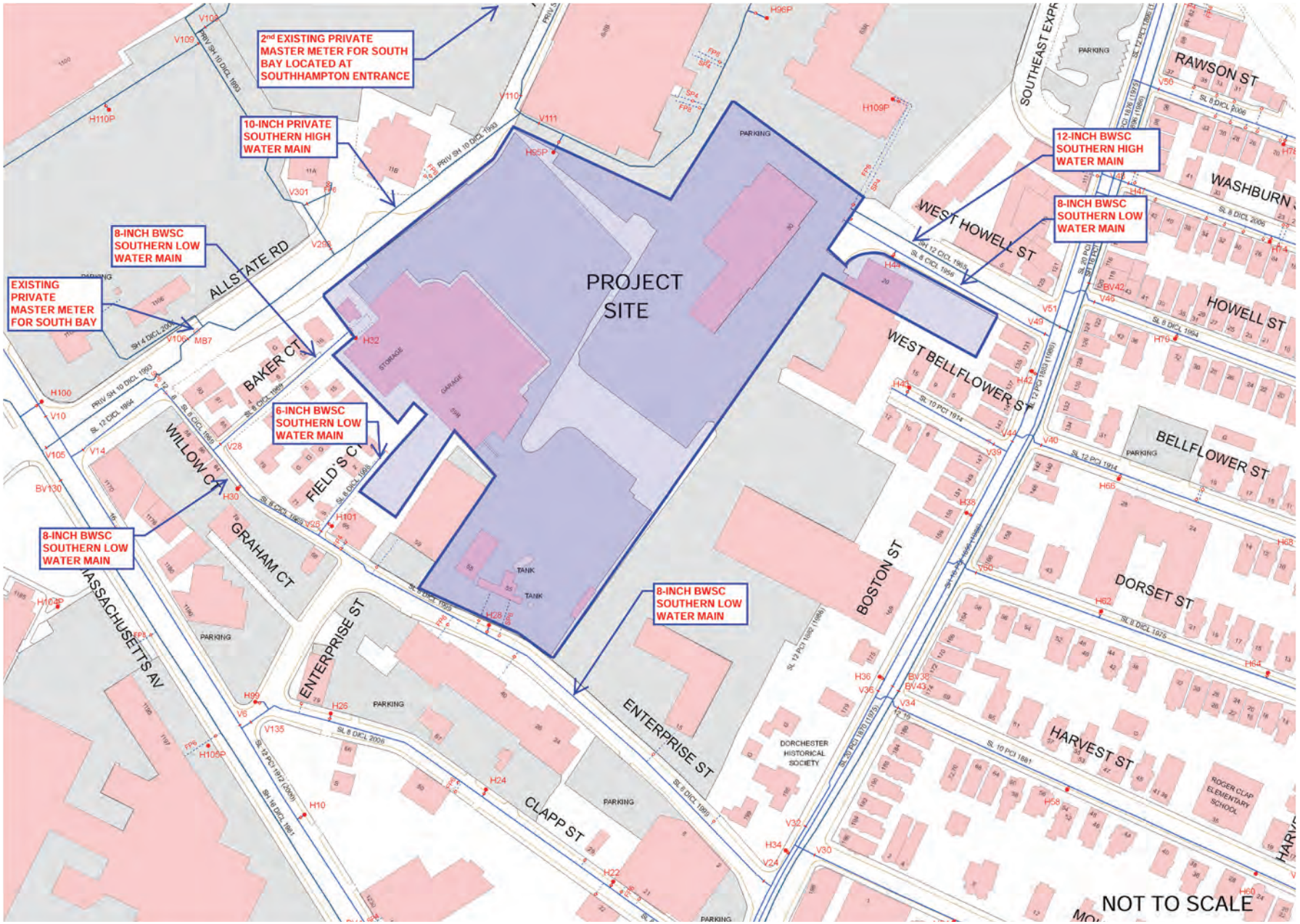


Figure 7-1
Existing Sanitary Sewer Map
Source: Bohler Engineering, 2015



Dorchester, Massachusetts

Figure 7-2
Existing Water Main Map
Source: Bohler Engineering, 2015

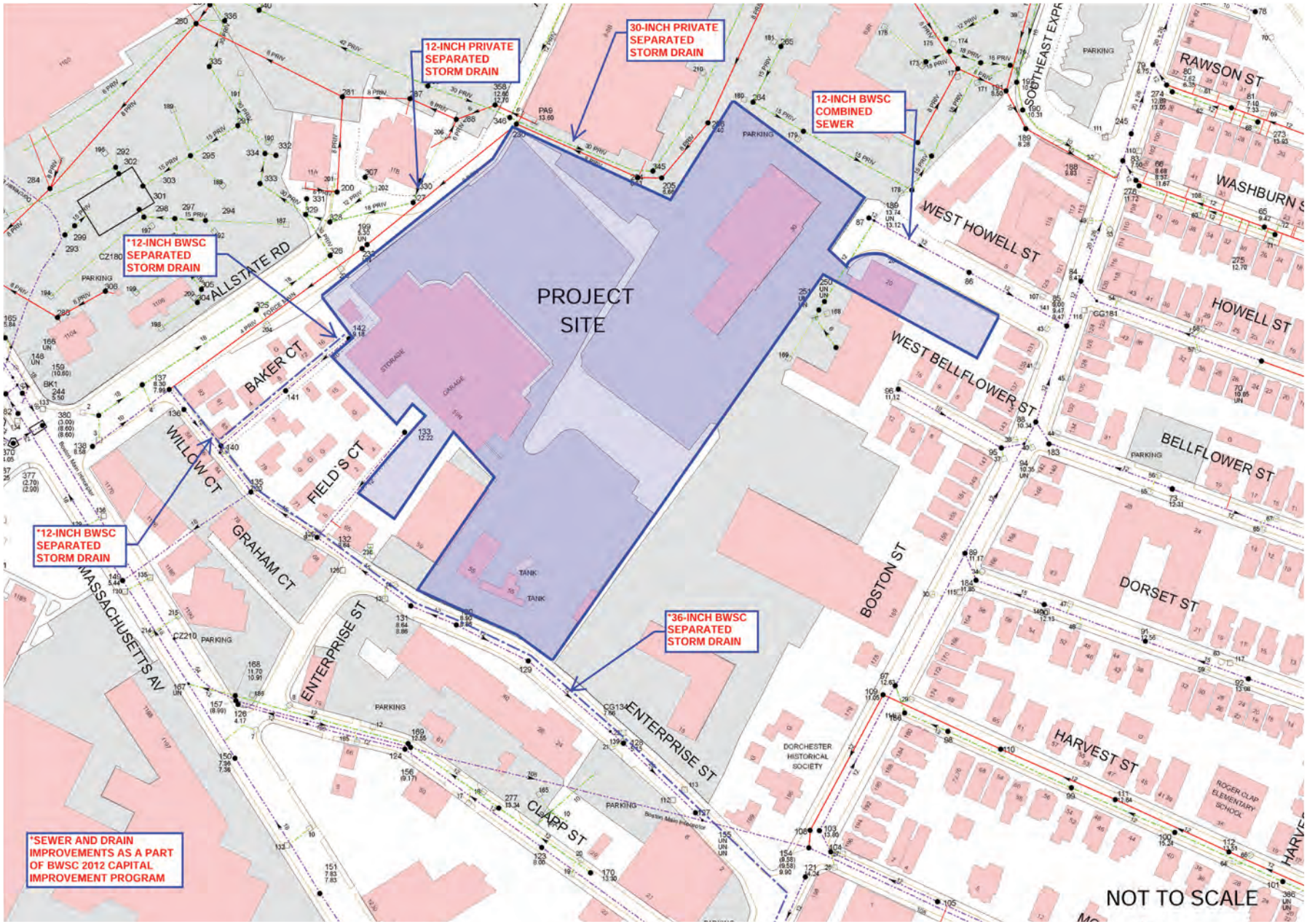


Figure 7-3
Existing Storm Drain Map
Source: Bohler Engineering, 2015

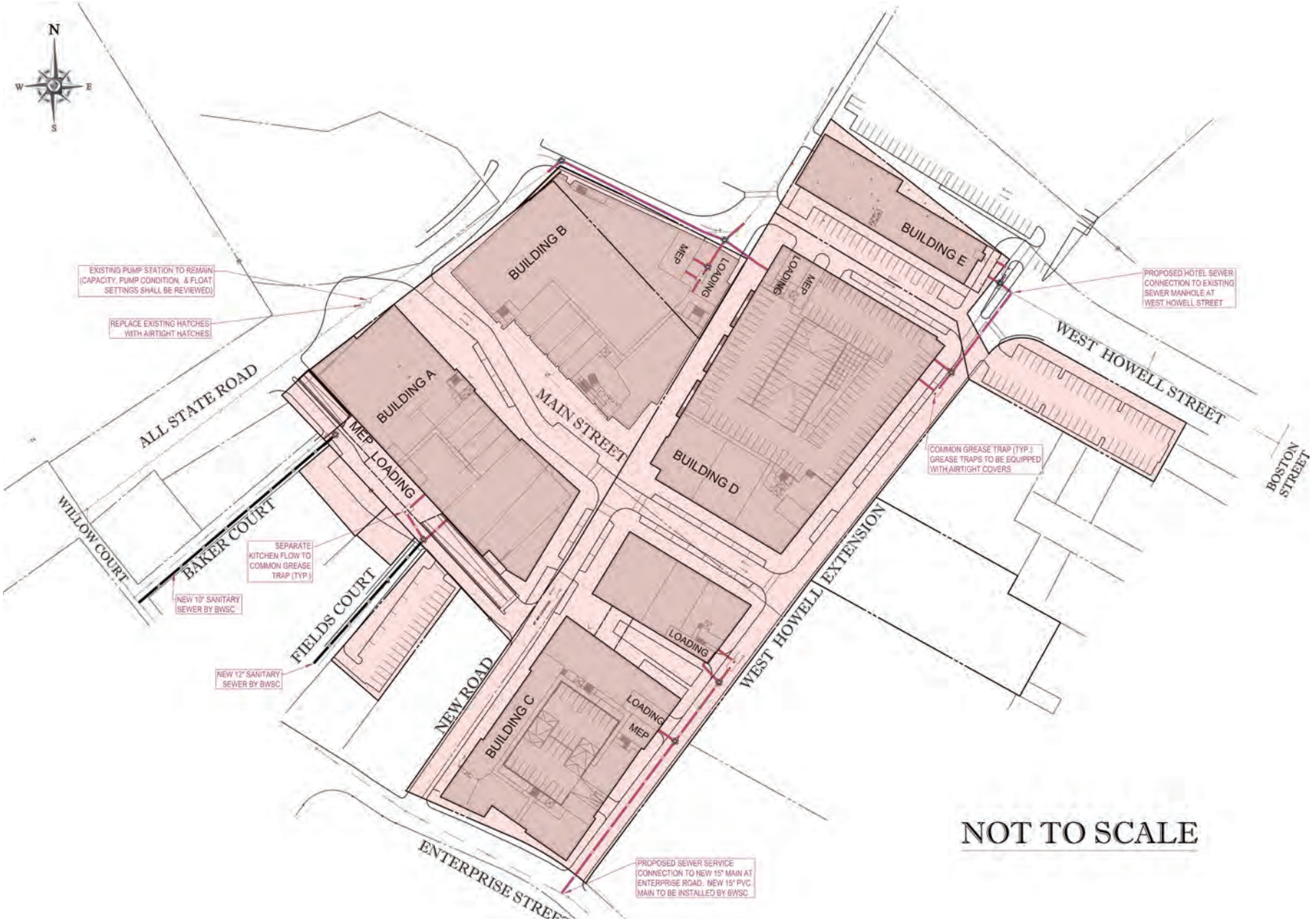


Figure 7-4
Conceptual Sanitary Sewer Map
Source: Bohler Engineering, 2015

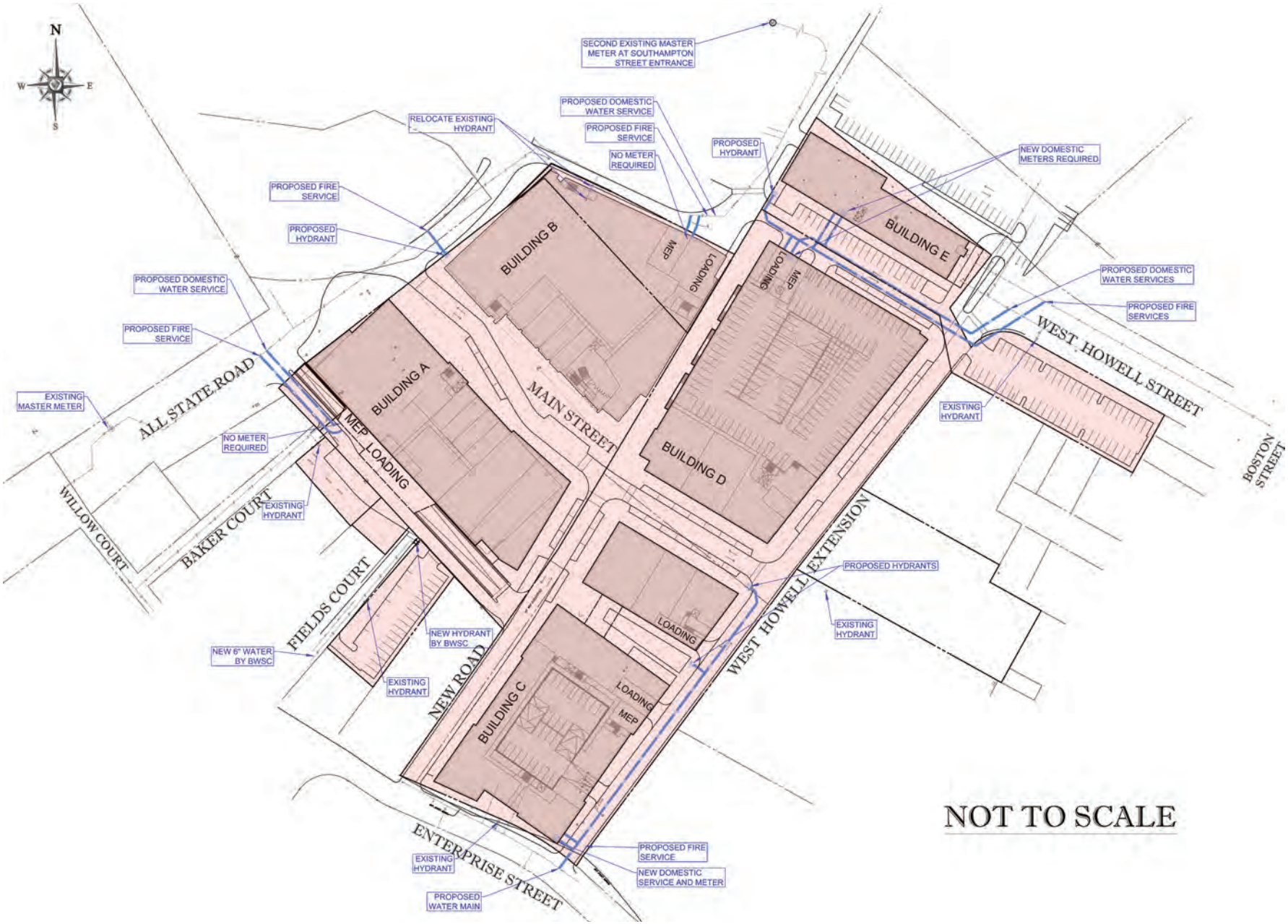


Figure 7-5
Conceptual Water Main Map
Source: Bohler Engineering, 2015

Figure 7-6
Conceptual Storm Drain Map
Source: Bohler Engineering, 2015

Appendix

TRANSPORTATION TECHNICAL APPENDIX

TRANSPORTATION TECHNICAL APPENDIX

The Transportation Technical Appendix is available under separate cover.