

South Bay
Dorchester, Massachusetts

Draft Project Impact Report
Volume 1

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submitted to the **Boston Redevelopment Authority**
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Chapter 1

PROJECT SUMMARY

CHAPTER 1: PROJECT SUMMARY

1.1 PROJECT IDENTIFICATION

Project Name: South Bay

Address/Location: 101 Allstate Road, Dorchester

Assessor's Parcels: The Project Site is comprised of some or all of 11 parcels including:

- 0703498000 (101 Allstate Road)
- 0703497000 (95 Allstate Road)
- 0703501045 (1 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)
- 0703460001 (Boston Street)

1.2 PROJECT PROPONENT

The Project Proponent is Allstate Road (Edens), LLC (the "Proponent"), a South Carolina limited liability company, and a wholly-owned affiliate of EDENS, the owner of the neighboring South Bay Center. EDENS is a private real estate investment trust and has a large existing investment in Dorchester and endeavors to build an exciting mixed use, transit-oriented development that respects its neighbors, increases public amenities, and adds new economic activity to the City of Boston.

1.2.1 ABOUT EDENS

EDENS was founded nearly 50 years ago and works to enrich communities by creating relationships, enhancing places, and cultivating community engagement. EDENS strives to develop centers that reflect the values of their communities and differentiate themselves through design, merchandising, and engagement.

Design

The design objective of EDENS' centers is one of warmth, intimacy, and familiarity, naturally fostering meaningful social interaction. EDENS' approach to design is

reflected in all aspects of the Project; in storefronts, landscape, furnishings, materiality, lighting, signage, and amenities. All are designed with consideration of local character.

Merchandising

EDENS' centers offer a customer experience thoughtfully crafted by combining the best of local independent retailers with regional and national retailers. Local "characters" (shopkeepers, owners, and operators) foster a sense of belonging and uniqueness that result in customer loyalty and a communal sense of ownership.

Engagement

Individuals and groups who are a part of the communities and neighborhoods surrounding EDENS' centers view them as the hubs of everyday life. This physical and social interaction over time creates a special relationship between EDENS, its retail partners, shoppers, and communities.

1.2.2 TAX HISTORY

The Proponent does not have a history of tax arrears on any property owned within the City of Boston.

1.2.3 LEGAL JUDGMENTS

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

1.2.4 PROJECT PARTNERS

The Proponent does not have project partners.

1.3 PROJECT SITE

The Proponent proposes to construct a mixed-use, transit-oriented development called South Bay (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 11 parcels and totaling approximately 10.6 acres or 463,110 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; Figure 1-2, Aerial View of Existing Site; Figure 1-3, Oblique View of Existing Site; Figure 1-4, Project Area; Figures 1-5 through 1-11, Existing Conditions Surveys; and Figures 1-12 through 1-15, Existing Conditions Photographs.

1.3.1 SITE CONTROL

The Proponent has fee simple control of the parcels constituting the northern half of the Project Site and a 99-year ground lease on the parcels constituting the southern half of the Project Site. The Proponent is permitted to proceed with the Project without further approvals from the ground landlord. The Project Site is affected by certain restrictive covenants in favor of the existing South Bay Center, and the Project as designed is fully compliant.

1.3.2 EASEMENTS

The Proponent will seek approval from the City of Boston Public Improvement Commission to layout the new roadway and sidewalks that comprise the future West Howell Extension, a private way open to public travel. This roadway will create a vehicular and pedestrian connection between the existing dead-end West Howell Street, a public way, and Enterprise Street, a public way.

Within the future West Howell Extension, the Proponent will grant an easement to Eversource to maintain Eversource's existing connection between West Howell Street and Enterprise Street, which provides a necessary redundant power source feeding properties along both Enterprise Street, West Howell Street, and beyond. Other typical utility easements required to service the Project with power, gas, and telecommunications will be granted as needed.

1.4 PROJECT DESCRIPTION AND ALTERNATIVES

This section describes the Project as the Preferred Alternative, the No Build alternative, a Decreased Build Alternative, and an Increased Build Alternative considered for redevelopment of the Project Site.

1.4.1 PREFERRED ALTERNATIVE

The Proponent proposes to redevelop the Project Site into a vibrant, economically-feasible, mixed-use commercial and residential destination within walking distance of the MBTA's Newmarket and Andrew Stations. The Project will create approximately 113,000 square feet of retail and dining space, a 12-screen cinema, approximately 475 apartment units, a hotel with approximately 130 rooms, and

associated structured parking. The proposed design is based on five main buildings, A through E, each containing mixed uses with the exception of Building E, the proposed hotel. The Project would provide new public facilities and amenities on previously developed urban parcels that are predominately vacant, inaccessible, and of poor environmental quality. Construction of the Preferred Alternative could begin in spring 2016.

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 apartment stoops on the pedestrian promenade. The goal of the Project is to provide a high quality pedestrian-oriented experience similar to other shopping districts such as Somerville's Assembly Row, where ground floor uses activate streets with sidewalk cafes, signage, canopies, lighting, and a variety of materials, plantings, benches, and trees. The hotel lobby, drop-off, and hotel rooms will be at the base of building E.

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 62 affordable units, spread between both buildings. Amenities such as a fitness room, pool, and lounges will also be provided.

Parking for the Project is designed to be primarily tucked away from view in structures with retail spaces and residences wrapped around them. Approximately 910 spaces will be in three garages, 49 spaces will be in a surface lot to serve the proposed hotel, 65 spaces will initially be in a surface lot southeast of Building D, and 27 spaces will be in a surface lot south of Building A for employee parking. New internal roadways will contain approximately 44 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 approximately 1,095 parking spaces provided for the Project.

Main vehicular access to the Project Site will be provided from the west on Massachusetts Avenue by way of Allstate Road and Enterprise Street and from 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. The full impact of the Project's traffic and parking strategies are discussed in more detail in Chapter 4, Transportation.

The Project will incorporate multiple green building measures and will be LEED-certifiable as required by the City of Boston with an overall goal of LEED Silver. The

full scope of sustainability strategies is discussed in more detail in Chapter 6, Sustainability, and includes new green spaces, new street trees, energy and water consumption efficiency measures, modernized stormwater treatment systems, and transportation demand management strategies among other features. See Figure 1-15, Project Site Plan; Figure 1-16, Ground Floor Plan; Figure 1-17, Upper Floor Plan; and Figures 1-18 through 1-19, Project Views.

1.4.1.1 IMPACT SUMMARY

The Preferred Alternative will generate an estimated 146,350 gpd of sewer discharge and use approximately 161,000 gpd of water. Based on consultation with the Boston Water and Sewer Commission (BWSC), the City's infrastructure has the capacity to meet the needs of Preferred Alternative. The Proponent will pay the City additional water and sewer fees, as well as a substantial inflow and infiltration fee to upgrade infrastructure.

The Preferred Alternative will greatly improve upon the existing stormwater management system by utilizing stormwater best management practices to meet current stormwater quality standards, increase groundwater recharge and control the quantity of stormwater runoff over existing conditions.

The Preferred Alternative is estimated to generate a weekday daily traffic generation of 11,680 vehicle-trips using unadjusted ITE trip rates and 6,886 daily vehicle-trips when adjusted to reflect transit and other non-auto mode share credits. This represents a net change of 3,062 weekday daily trips over a No Build program taking into account adjustments to reflect transit and other non-auto mode share credits.

In addition, the Preferred Alternative achieves the vision of the planning framework developed by the Citizens Connect to South Bay community group by proposing a development of commercial/retail buildings, residential units, and public open space and plazas connected by new pathways and roadway connections. The urban design characteristics and environmental conditions of the Project Site would be improved by creating street edges, decreasing the amount of paved surfaces, adding new green spaces and street trees, and mitigating stormwater flows.

1.4.2 NO BUILD ALTERNATIVE

The Project Site would remain as is, dominated by surface parking lots, obsolete vacant structures, and the Aggregate Concrete plant. This would yield no increase in retail space or housing units, no new open spaces, no improved roadway

connectivity, and no expansion of pedestrian access to public transportation. Under the No Build Alternative, the Project Site would remain largely inaccessible. There would be no medium-density transit-oriented development of the area, and no positive benefits would be provided to the surrounding neighborhood or the City of Boston.

The Project Site would maintain its large amount of impermeable paving, have no improvements to stormwater treatment or soil conditions, and local streets would continue to be impacted by industrial truck traffic from the Aggregate Concrete plant.

1.4.2.1 IMPACT SUMMARY

Under the No Build Alternative, the existing sewer and water generation rates would remain the same, an estimated 11,134 gpd of sewer discharge and approximately 12,250 gpd of water.

The stormwater management system would remain as it currently exists today. The Project Site is almost 100% impervious, covered by buildings, parking lots, and the Aggregate Concrete plant with the exception of some small landscaped associated buffers and perimeter vegetation along the edges of existing parking lots. Stormwater runoff from the existing buildings and associated parking lots flows untreated to the storm drain systems in West Howell Street, Allstate Road, Baker Court, and Enterprise Street. There are currently no stormwater detention or recharge systems on the Project Site.

Under the No Build Alternative, uses on the Project Site would remain operational (Aggregate Concrete) or be re-activated to historical uses (supermarket, office, and retail uses). This program is estimated to generate a weekday daily traffic generation of 6,178 vehicle-trips using unadjusted ITE trip rates and 3,824 daily vehicle-trips when adjusted to reflect transit and other non-auto mode share credits.

In summary, the No Build Alternative would maintain existing conditions and yield no dynamic urban development, no community benefits, and no environmental improvements to the Project Site, the neighborhood, or the City of Boston.

1.4.3 DECREASED BUILD ALTERNATIVE

A low-density alternative called the Decreased Build Alternative was developed prior to the completion of all acquisitions and agreements that formed the current Project Site. This alternative was developed without the input of the Citizens

Connect to South Bay Master Plan and did not meet the community vision outlined in that plan. The program included the 52,530 sf of retail/restaurant, a 10-screen cinema, 26,995 sf of grocery, and 104 hotel rooms. The Decreased Build Alternative was determined to be economically infeasible due to final land costs.

A smaller program with no residential units, fewer hotel rooms, fewer cinema screens, and less retail/commercial space could contain fewer buildings and/or smaller footprints and perhaps create a smaller impact on traffic, parking, and environmental factors. However, it would not contain the critical mass of retail density and residential units necessary for commercial viability. The Decreased Build Alternative would also have less open space, fewer street trees, fewer new housing units, and fewer economic opportunities and would not satisfy plans to create vibrant mixed-use, transit-oriented developments in the area.

1.4.3.1 IMPACT SUMMARY

The Decreased Build Alternative would generate an estimated 35,900 gpd of sewer discharge and use approximately 39,400 gpd of water. It is estimated to generate weekday daily traffic generation of 8,542 vehicle-trips using unadjusted ITE trip rates and 5,210 daily vehicle-trips when adjusted to reflect transit and other non-auto mode share credits. This represents a net change of 1,386 weekday daily trips over the No Build program taking into account adjustments to reflect transit and other non-auto mode share credits.

In summary, the Decreased Build Alternative would not be economically feasible to construct or operate and would yield a less dynamic urban development with fewer community benefits to the Project Site, the neighborhood, or the City of Boston.

1.4.4 INCREASED BUILD ALTERNATIVE

Prior to the filing of the Letter of Intent with the BRA, an increased build alternative was considered. The Increased Build Alternative would include additional residential units and commercial space, more hotel rooms, and would require increased building height of Buildings C and D. This alternative would not comply with local zoning regulations and would yield additional transportation impacts such as increased traffic and parking needs, and increased water, sewer, and energy impacts. The Increased Build Alternative would be more economically desirable for the Proponent and would create more housing units and job opportunities for the City of Boston, but it could conflict with community planning goals and take longer to construct. The program would include 550 residential units, 150,000 sf of retail (120,000 sf retail plus 30,000 sf restaurants), a 12-screen cinema, and 200 hotel rooms.

1.4.4.1 IMPACT SUMMARY

The Increased Build Alternative would generate an estimated 167,800 gpd of sewer discharge and use approximately 184,580 gpd of water. The Increased Build Alternative is estimated to generate a weekday daily traffic generation of 13,966 vehicle-trips using unadjusted ITE trip rates and 8,245 daily vehicle-trips when adjusted to reflect transit and other non-auto mode share credits. This represents a net change of 4,421 weekday daily trips over the No Build program taking into account adjustments to reflect transit and other non-auto mode share credits.

In summary, while a larger development project would be more economically feasible and might yield more community benefits, it would have a greater impact on the surrounding neighborhood.

1.5 AFFORDABLE HOUSING

The Project will contain 62 new affordable housing units on-site, or 13% of its proposed 475 residential units. The incomes of the households to be selected for affordable units and the unit sizes and unit mix will be consistent with BRA policies on affordable housing.

1.6 PROJECT SECURITY

The Proponent will enhance and expand its current security plan for the Project with a combination of new technology and security details. A system of video cameras will be installed throughout the Building A garage and will be monitored by employees and vendors of the Proponent. The Proponent will implement an extensive, state-of-the-art GPS based on-site security operation, including additional video cameras and blue light security stations across the Project Site, and security officers equipped with body cameras. The Proponent will hire security staff to monitor the property and will hire Boston Police details for certain events.

1.7 PROJECT PHASING

This section summarizes the Proponent's construction and phasing plan.

1.7.1 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.

1.8 PROJECT ZONING

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 will 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 January 2016. 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.

1.9 DEVELOPMENT IMPACT PROJECT AGREEMENT

The Proponent understands the Project is subject to a Development Impact Project (DIP) Agreement based on its program and expects to make contributions based upon the following calculations.

Housing Linkage:	
DIP Uses:	265,183 sf
Exclusion:	-100,000 sf
	165,186 sf
	x $8.34
	$1,377,626
Jobs Linkage:	
DIP Uses:	265,183 sf
Exclusion:	-100,000 sf
	165,186 sf
	x $1.67
	$275,861

1.10 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 (Expanded Environmental Notification Form filed on 9/15/15, Draft Environmental Impact Report to be filed in February 2016) • Public Benefits Determination (Tidelands)
Massachusetts Department of Transportation	• Access Permit
Department of Environmental Protection	• Application for Non-Traditional Asbestos Abatement Work Practice Approval • Notification Prior to Construction or Demolition • Source Registration for Emergency Generator • Elevator Permit
Department of Public Safety	• Building Code Variances

Federal	
Environmental Protection Agency	• NPDES Construction/Stormwater General Permit • NPDES Remediation General Permit

1.10.1 MEPA PROCESS

The Project is subject to review under the Massachusetts Environmental Policy Act (MEPA). On September 15, 2015, the Proponent filed an Expanded Environmental Notification Form with the MEPA office and on October 30, 2015, received a Certificate summarizing MEPA's review and request for a Draft Environmental Impact Report (DEIR). The Proponent and its Project Team is preparing the DEIR and expects to file with MEPA in January 2016 and receive a Certificate by March 2016, completing the MEPA process. A copy of the DEIR will be sent to the BRA.

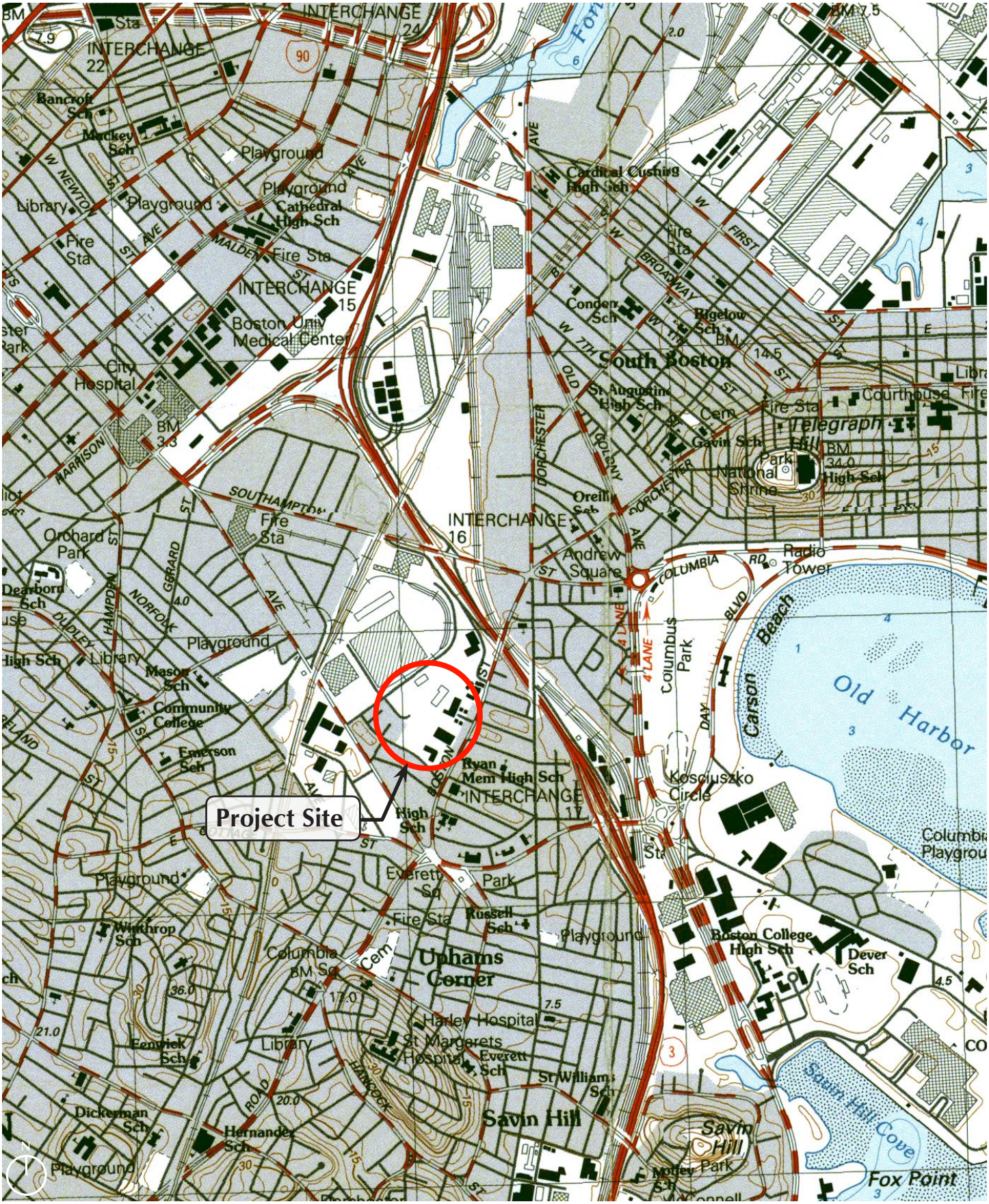
1.11 PROJECT TEAM

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
Architect	Stantec 311 Summer Street Boston, MA 02110

	Contact: Larry Grossman, AIA Senior Principal 617-234-3139 larry.grossman@stantec.com
Landscape Architect	OLIN Public Ledger Building, Suite 1123 150 South Independence Mall West Philadelphia, PA 19106 Contact: Dennis McGlade Partner 215-440-0030 dmcglade@theolinstudio.com
Legal	DLA Piper 33 Arch Street, 26th Floor Boston, MA 02110 Contact: John Rattigan Managing Partner, Boston Office 617-406-6057 john.rattigan@dlapiper.com
Transportation	MDM Transportation 28 Lord Road, Suite 280 Marlborough, MA 01752 Contact: Robert Michaud, PE Managing Principal 508-303-0370 rmichaud@mdmtrans.com
Civil Engineering	Bohler Engineering 75 Federal Street Boston, MA 02110 Contact: Stephen Martorano, PE Senior Project Manager 617-849-8040 smartorano@bohlereng.com

Geotechnical	McPhail Associates, Inc. 2269 Massachusetts Avenue Cambridge, MA 02140 Contact: Ambrose Donovan, PE Principal 617-868-1420 ajd@mcphailgeo.com
MEP	RW Sullivan Engineering 529 Main Street, Suite 203 Boston, MA 02129 Contact: Alireza Heidari 617-337-9337 arh@rwsullivan.com
Air Quality	Tech Environmental, Inc. 303 Wyman Street, Suite 295 Waltham, MA 02451 Contact: Marc Wallace, QEP Principal 781-890-2220 mwallace@techenv.com
Wind	Novus Environmental 150 Research Lane, Suite 105 Guelph, ON, N1G 4T2 Canada Contact: Jenny Vesely, P.Eng. Air Quality Engineer 226-706-8080 x216 jennyv@novusenv.com

Noise	Cerami Associates 2000 L Street N.W., Suite 600 Washington, DC 20036 Contact: Robby Deem Associate 202-580-6312 rdeem@ceramiassociates.com
Sustainability	Soden Sustainability Consulting 19 Richardson Street Winchester MA, 01890 Contact: Colleen Ryan Soden Director 617-372-7857 colleen@sodensustainability.com



Dorchester, Massachusetts

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

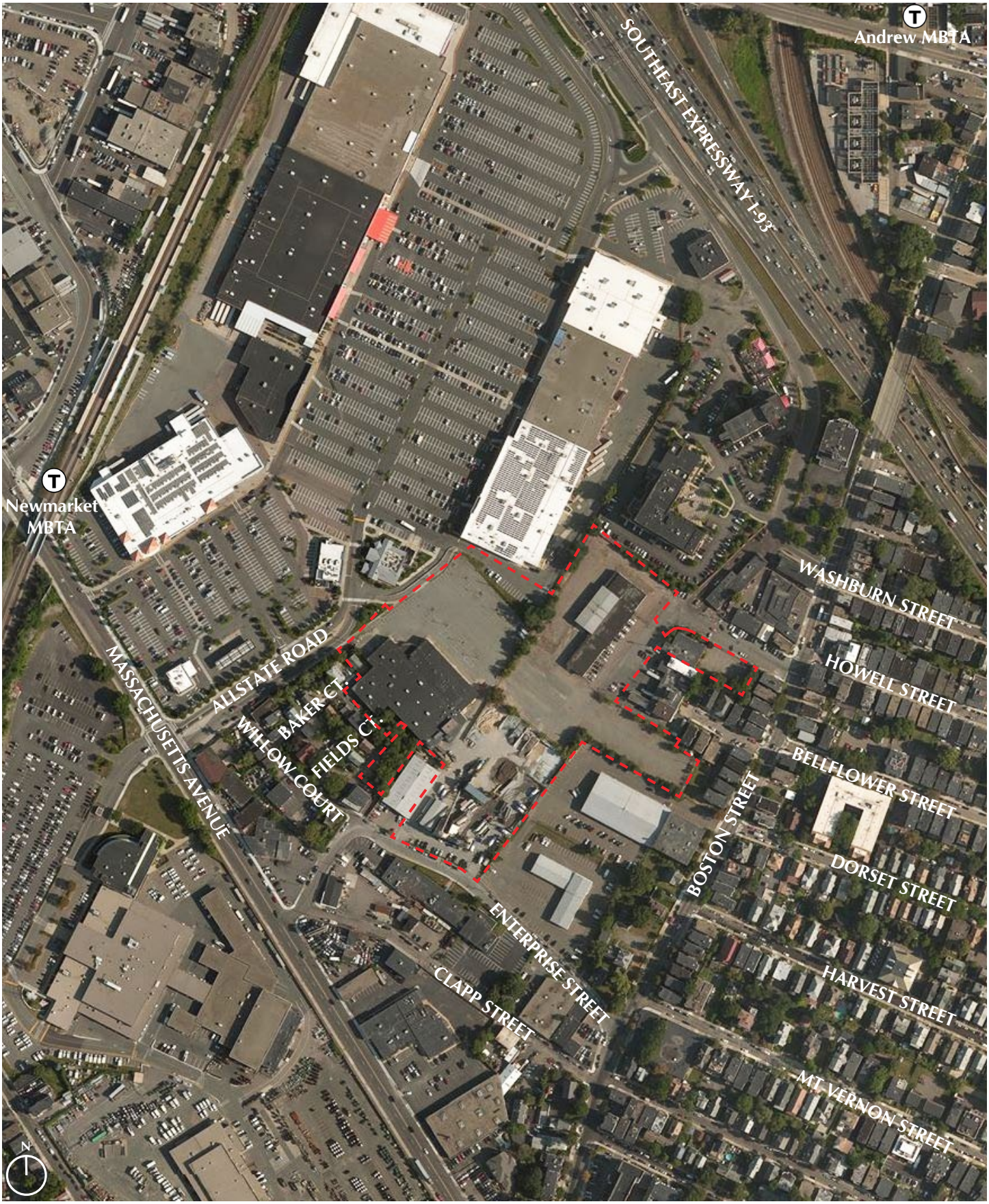


Figure 1-2
Aerial View of Existing Site
Source: Bing Maps, Fort Point Associates, Inc., 2015

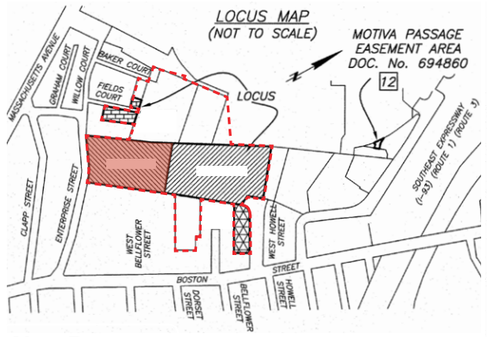


Dorchester, Massachusetts

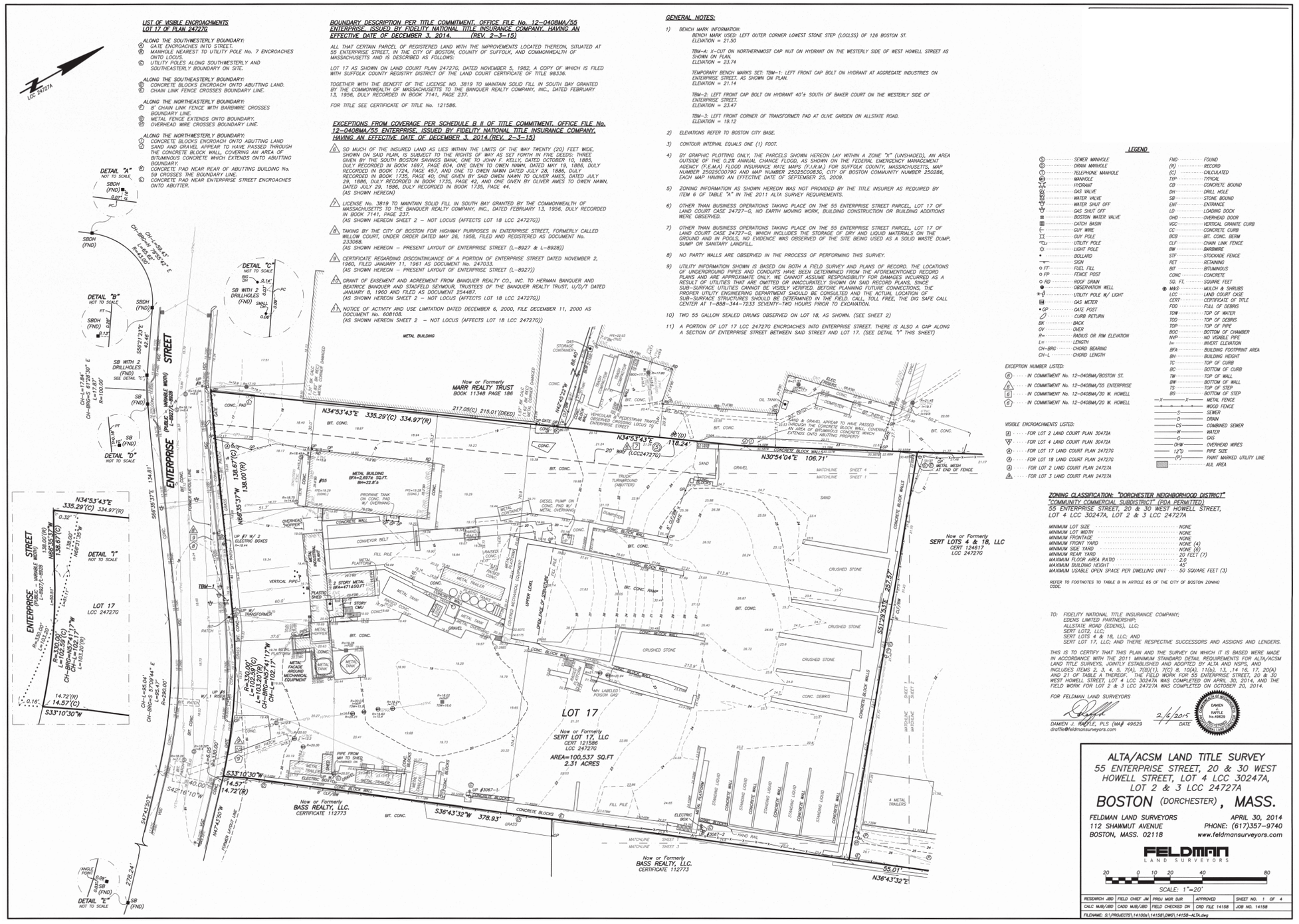
Figure 1-3
Oblique View of Existing Site
Source: Bing Maps, Fort Point Associates, Inc., 2015



Figure 1-4
Project Area
Source: Bohler Engineering, 2016

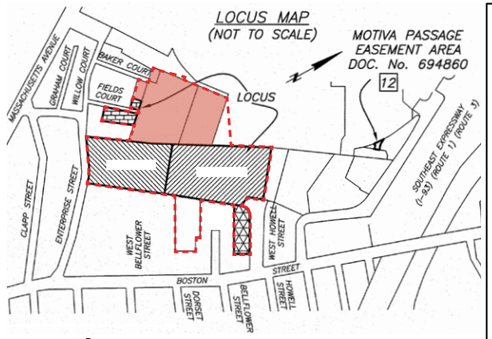


Key Plan

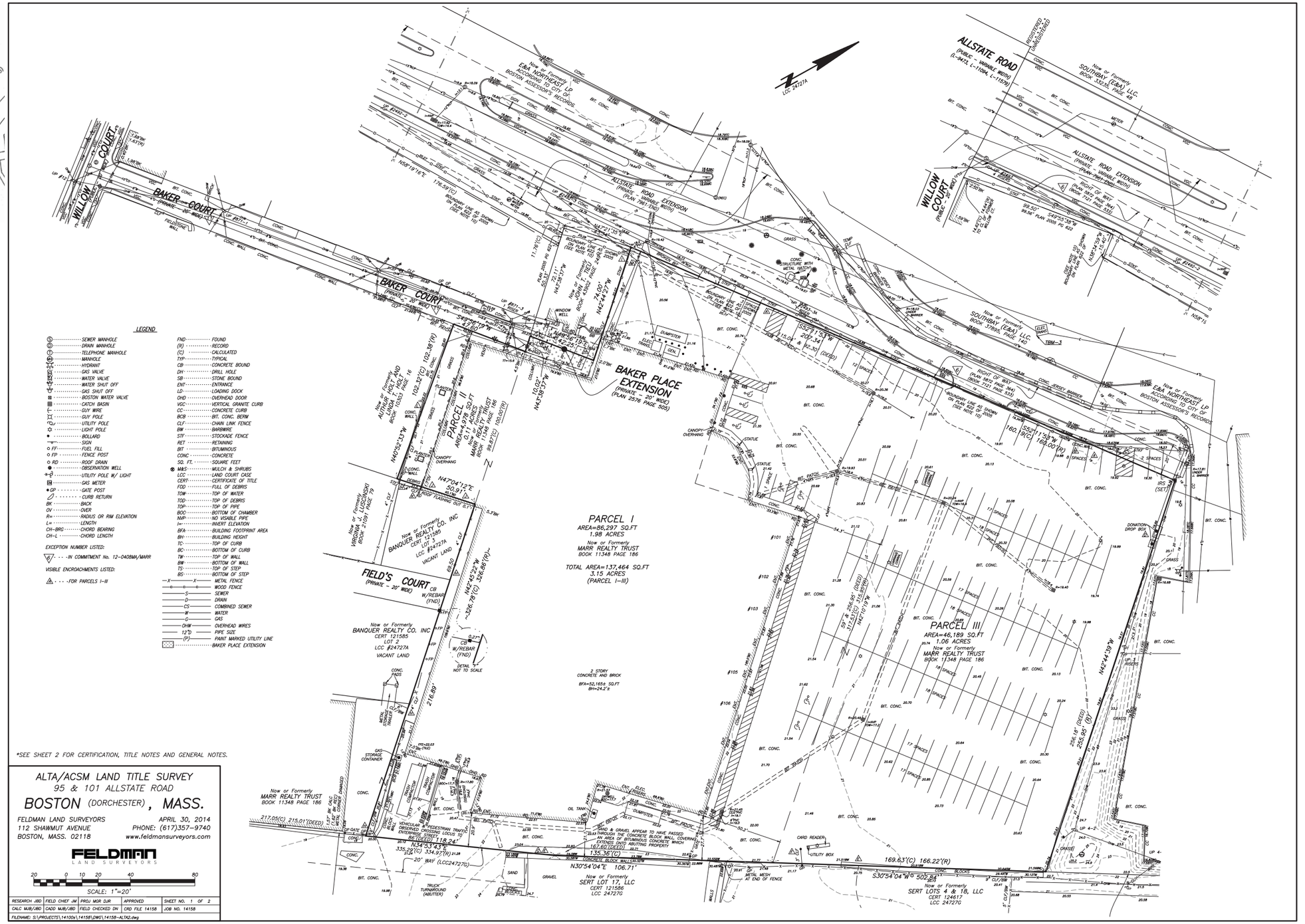


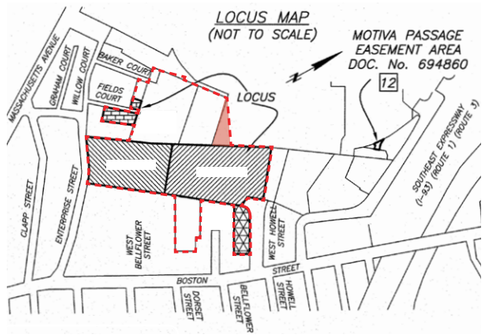
Dorchester, Massachusetts

Figure 1-5
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015

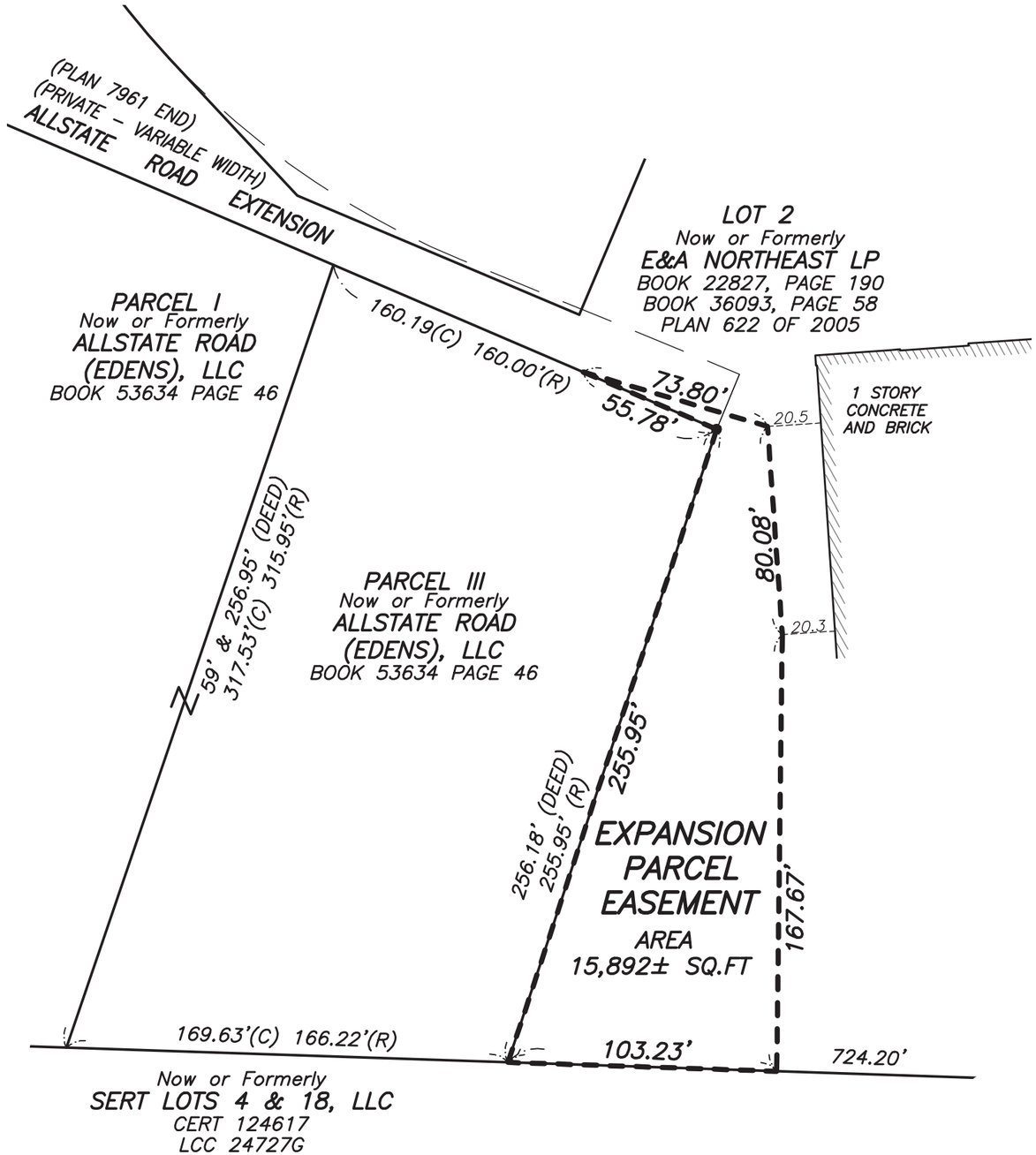


Key Plan


LEGEND
SEWER MANHOLE
DRAIN MANHOLE
TELEPHONE MANHOLE
MANHOLE
HYDRANT
GAS VALVE
WATER VALVE
WATER SHUT OFF
GAS SHUT OFF
BOSTON WATER VALVE
CATCH BASIN
GUY WIRE
GUY POLE
UTILITY POLE
LIGHT POLE
BOLLARD
SIGN
FF FUEL FILL
FP FENCE POST
RD ROOF DRAIN
OBSERVATION WELL
UTILITY POLE W/ LIGHT
GAS METER
GP GATE POST
CURB RETURN
BK BACK
OV OVER
R= RADIUS OR RIM ELEVATION
L= LENGTH
CH-BRG CHORD BEARING
CH-L CHORD LENGTH
EXCEPTION NUMBER LISTED:
7 IN COMMITMENT No. 12-0408MA/MARR
VISIBLE ENCROACHMENTS LISTED:
1 FOR PARCELS I-III
FND FOUND
(R) RECORD
(C) CALCULATED
TYP TYPICAL
CB CONCRETE BOUND
DH DRILL HOLE
SB STONE BOUND
ENT ENTRANCE
LD LOADING DOCK
OHD OVERHEAD DOOR
VGC VERTICAL GRANITE CURB
CC CONCRETE CURB
BCB BIT. CONC. BERM
CLF CHAIN LINK FENCE
BW BARBWIRE
STF STOCKADE FENCE
RET RETAINING
BIT BITUMINOUS
CONC CONCRETE
SQ. FT. SQUARE FEET
M&S MULCH & SHRUBS
LCC LAND COURT CASE
CERT CERTIFICATE OF TITLE
FOD FULL OF DEBRIS
TOW TOP OF WATER
TOD TOP OF DEBRIS
TOP TOP OF PIPE
BOC BOTTOM OF CHAMBER
NVP NO VISIBLE PIPE
Inv INVERT ELEVATION
BFA BUILDING FOOTPRINT AREA
BH BUILDING HEIGHT
TC TOP OF CURB
BC BOTTOM OF CURB
TW TOP OF WALL
BW BOTTOM OF WALL
TS TOP OF STEP
BS BOTTOM OF STEP
METAL FENCE
WOOD FENCE
SEWER
DRAIN
COMBINED SEWER
WATER
GAS
OHW OVERHEAD WIRES
12"D PIPE SIZE:
(P) PAINT MARKED UTILITY LINE
BAKER PLACE EXTENSION
WILLOW COURT
(PRIVATE - 20' WIDE)
BAKER COURT
(PRIVATE - 20' WIDE)
FIELD'S COURT
(PRIVATE - 20' WIDE)
ALLSTATE ROAD
(PUBLIC - VARIABLE WIDTH)
(L=947.5, L=1164, L=1079)
ALLSTATE ROAD EXTENSION
(PRIVATE - VARIABLE WIDTH)
(PLAN 2576 PAGE 505)
BAKER PLACE EXTENSION
(PRIVATE - 21' WIDE)
(PLAN 2576 PAGE 505)
PARCEL I
AREA=86,297 SQ.FT
1.98 ACRES
Now or Formerly
MARR REALTY TRUST
BOOK 11348 PAGE 186
TOTAL AREA=137,464 SQ.FT
3.15 ACRES
(PARCEL I-III)
PARCEL II
AREA=4,978 SQ.FT
0.11 ACRES
Now or Formerly
MARR REALTY TRUST
BOOK 11348 PAGE 186
PARCEL III
AREA=46,189 SQ.FT
1.06 ACRES
Now or Formerly
MARR REALTY TRUST
BOOK 11348 PAGE 186
Now or Formerly
E&A NORTHEAST LP
ACCORDING TO CITY OF
BOSTON ASSESSOR'S RECORDS
Now or Formerly
SOUTHBAY (E&A) LLC.
BOOK 37894, PAGE 142
Now or Formerly
SOUTHBAY (E&A) LLC.
BOOK 37894, PAGE 138
Now or Formerly
BANQUER REALTY CO. INC
CERT 121585
LOT 2
LCC #24727A
VACANT LAND
Now or Formerly
BANQUER REALTY CO. INC
CERT 121585
LOT 3
LCC #24727A
VACANT LAND
Now or Formerly
AUTUA HOTEL AND
LANDS, LLC
BOOK 10581, PAGE 16
Now or Formerly
J. LUSCINSKI
BOOK 07081 PAGE 79
Now or Formerly
MARR REALTY TRUST
BOOK 11348 PAGE 186
Now or Formerly
SERT LOT 17, LLC
CERT 121586
LCC 24727G
Now or Formerly
SERT LOTS 4 & 18, LLC
CERT 124617
LCC 24727G
2 STORY
CONCRETE AND BRICK
BFA=52,165± SQ.FT
BH=24.2'±
GAS
STORAGE
CONTAINER
OIL TANK
SAND & GRAVEL APPEAR TO HAVE PASSED
THROUGH THE CONCRETE BLOCK WALL, COVERING
AN AREA OF BITUMINOUS CONCRETE WHICH
EXTENDS ONTO ABUTTING PROPERTY
167.60'(DEED)
155.36'(C)
N30°54'04"E 106.71'
S30°54'04"W 502.84'
169.63'(C) 166.22'(R)
N47°04'12"E 30.47'
N42°45'22"W 326.78'(C) 324.88'(R)
N42°44'59"W 276.89'
N42°24'39"W 256.85'
S52°11'38"W 160.00'(R)
N47°10'19"W 256.85'(DEED)
S47°49'38"W 99.50'
N47°45'37"W 72.11'
N47°45'37"W 10.02'
N43°52'13"W 102.32'(C) 102.38'(R)
N40°52'13"W 217.05'(C) 215.01'(DEED)
N34°53'43"E 336.26'(C) 334.27'(R)
20' WAY (LCC24727G)
N68°19'16"E 176.59'(C)
S48°56'19"W 47.60'
S47°56'19"W 47.60'
S52°11'38"W 160.00'(R)
S47°49'38"W 99.50'
N42°24'39"W 256.85'(R)
N47°10'19"W 256.85'(DEED)
N42°44'59"W 74.05'
N47°45'37"W 72.11'
N43°52'13"W 102.32'(C) 102.38'(R)
N40°52'13"W 217.05'(C) 215.01'(DEED)
N34°53'43"E 336.26'(C) 334.27'(R



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

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

FELDMAN LAND SURVEYORS
112 SHAWMUT AVENUE
BOSTON, MASS. 02118
MARCH 4, 2015
PHONE: (617)357–9740
www.feldmansurveyors.com

FELDMAN LAND SURVEYORS

SCALE: 1"=50'

50 0 25 50 100

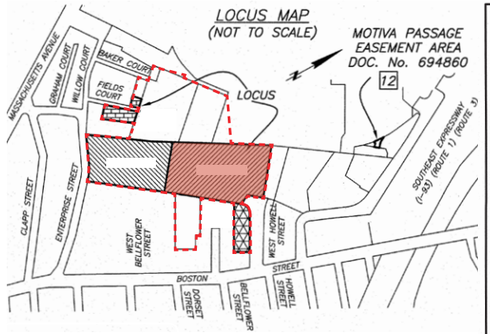
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FILENAME: S:\PROJECTS\14100s\14158\DWG\14158B–EXBT.dwg

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.*

Figure 1-7
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015



Key Plan

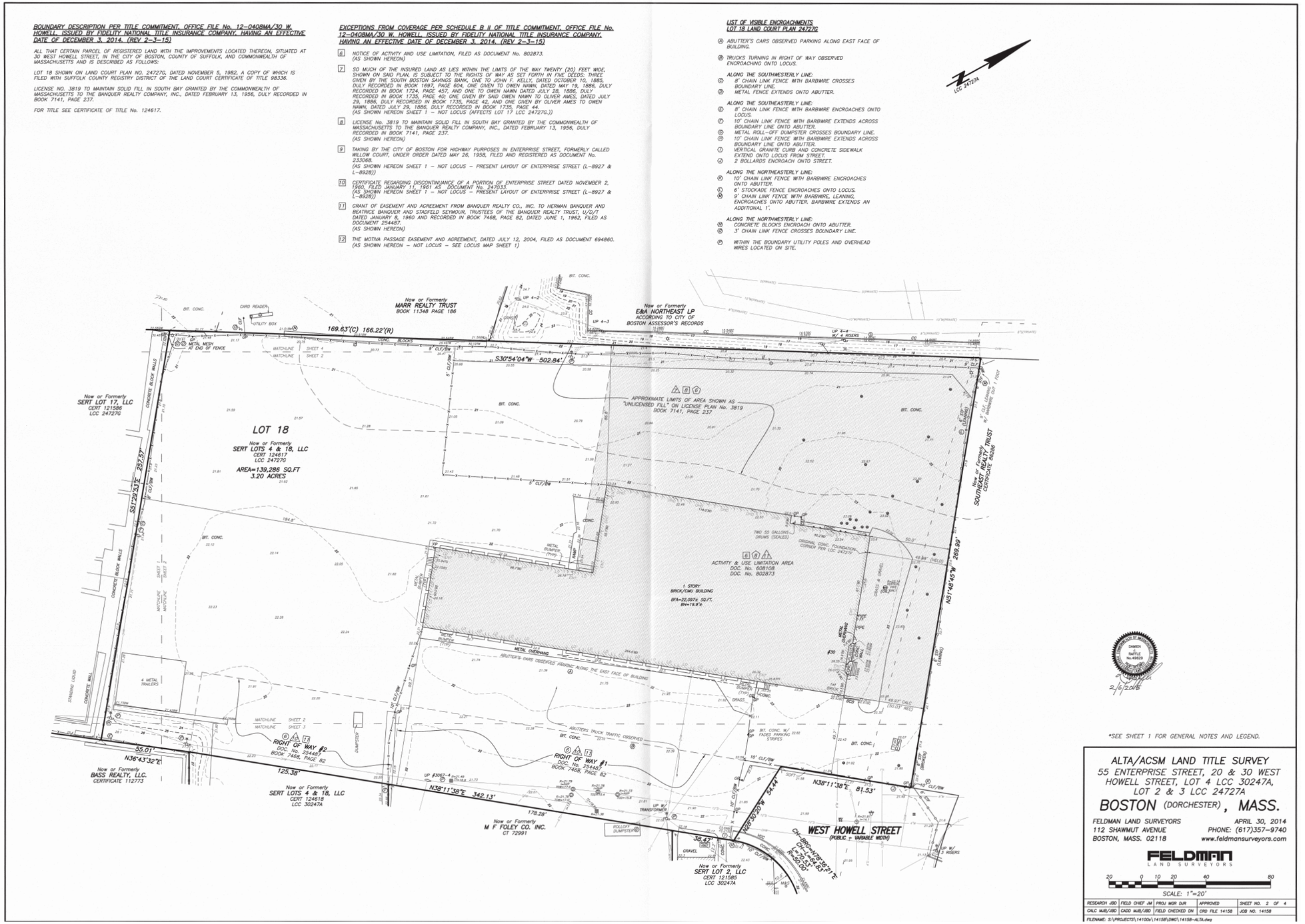
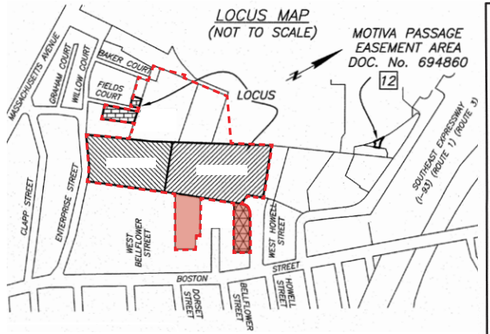
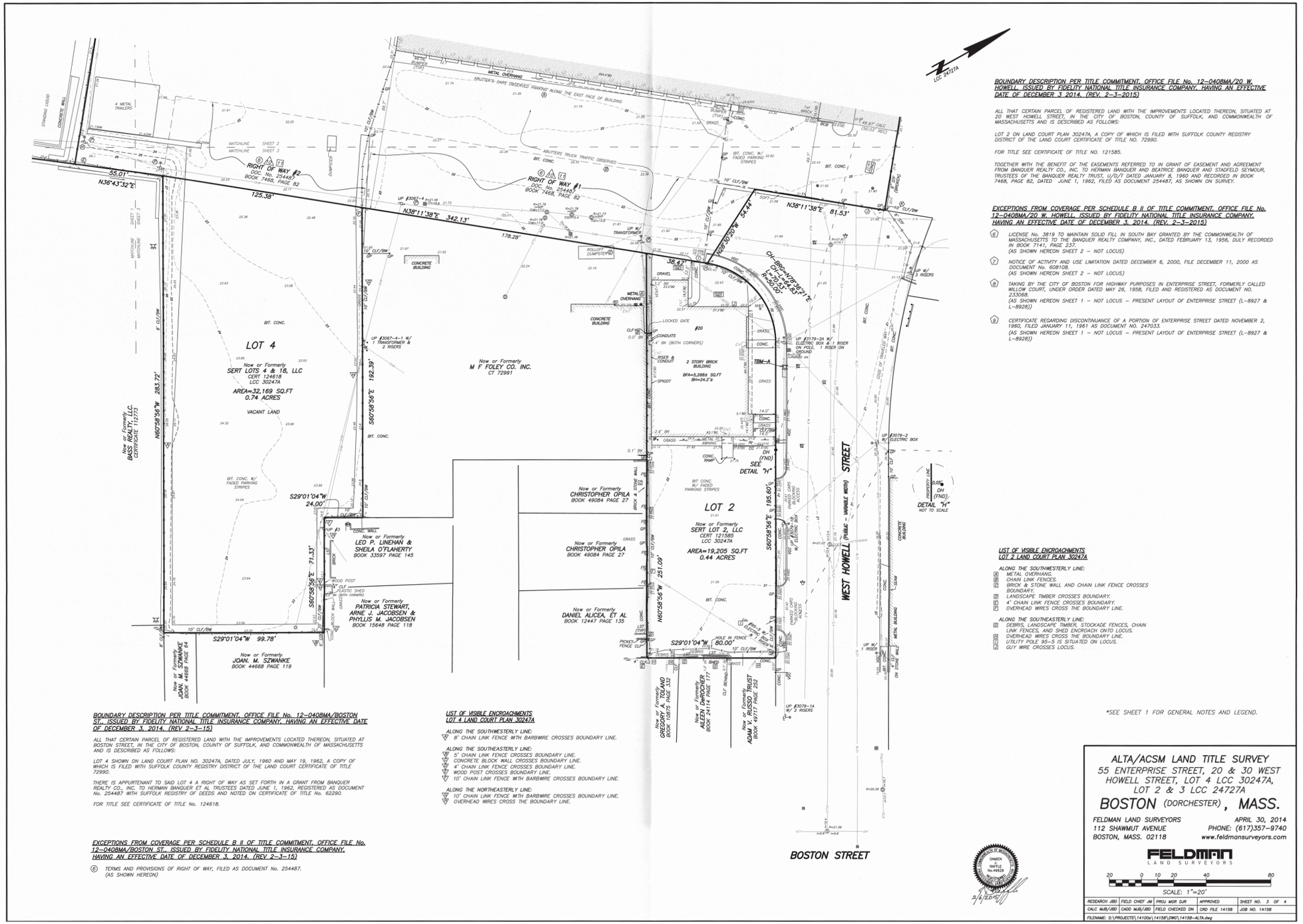


Figure 1-8
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015



Key Plan



BOUNDARY DESCRIPTION PER TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/20 W. HOWELL, ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV. 2-3-2015)

ALL THAT CERTAIN PARCEL OF REGISTERED LAND WITH THE IMPROVEMENTS LOCATED THEREON, SITUATED AT 20 WEST HOWELL STREET, IN THE CITY OF BOSTON, COUNTY OF SUFFOLK, AND COMMONWEALTH OF MASSACHUSETTS AND IS DESCRIBED AS FOLLOWS:

LOT 2 ON LAND COURT PLAN 30247A, A COPY OF WHICH IS FILED WITH SUFFOLK COUNTY REGISTRY DISTRICT OF THE LAND COURT CERTIFICATE OF TITLE NO. 72990.

FOR TITLE SEE CERTIFICATE OF TITLE NO. 121585.

TOGETHER WITH THE BENEFIT OF THE EASEMENTS REFERRED TO IN GRANT OF EASEMENT AND AGREEMENT FROM BANQUER REALTY CO., INC. TO HERMAN BANQUER AND BEATRICE BANQUER AND STADFELD SEYMOUR, TRUSTEES OF THE BANQUER REALTY TRUST, U/D/T DATED JANUARY 8, 1960 AND RECORDED IN BOOK 7468, PAGE 82, DATED JUNE 1, 1962, FILED AS DOCUMENT 254487, AS SHOWN ON SURVEY.

EXCEPTIONS FROM COVERAGE PER SCHEDULE B II OF TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/20 W. HOWELL, ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV. 2-3-2015)

(6) LICENSE No. 3819 TO MAINTAIN SOLID FILL IN SOUTH BAY GRANTED BY THE COMMONWEALTH OF MASSACHUSETTS TO THE BANQUER REALTY COMPANY, INC., DATED FEBRUARY 13, 1956, DULY RECORDED IN BOOK 7141, PAGE 237.
(AS SHOWN HEREON SHEET 2 – NOT LOCUS)

(7) NOTICE OF ACTIVITY AND USE LIMITATION DATED DECEMBER 6, 2000, FILE DECEMBER 11, 2000 AS DOCUMENT No. 608108.
(AS SHOWN HEREON SHEET 2 – NOT LOCUS)

(8) TAKING BY THE CITY OF BOSTON FOR HIGHWAY PURPOSES IN ENTERPRISE STREET, FORMERLY CALLED WILLOW COURT, UNDER ORDER DATED MAY 26, 1958, FILED AND REGISTERED AS DOCUMENT NO. 233058.
(AS SHOWN HEREON SHEET 1 – NOT LOCUS – PRESENT LAYOUT OF ENTERPRISE STREET (L-8927 & L-8928))

(9) CERTIFICATE REGARDING DISCONTINUANCE OF A PORTION OF ENTERPRISE STREET DATED NOVEMBER 2, 1960, FILED JANUARY 11, 1961 AS DOCUMENT NO. 247033.
(AS SHOWN HEREON SHEET 1 – NOT LOCUS – PRESENT LAYOUT OF ENTERPRISE STREET (L-8927 & L-8928))

LIST OF VISIBLE ENCROACHMENTS
LOT 2 LAND COURT PLAN 30247A

ALONG THE SOUTHWESTERLY LINE:
- (A) METAL OVERHANG.
- (B) CHAIN LINK FENCES.
- (C) BRICK & STONE WALL AND CHAIN LINK FENCE CROSSES BOUNDARY.
- (D) LANDSCAPE TIMBER CROSSES BOUNDARY.
- (E) 4' CHAIN LINK FENCE CROSSES BOUNDARY.
- (F) OVERHEAD WIRES CROSS THE BOUNDARY LINE.

ALONG THE SOUTHEASTERLY LINE:
- (G) DEBRIS, LANDSCAPE TIMBER, STOCKADE FENCES, CHAIN LINK FENCES, AND SHED ENCROACH ONTO LOCUS.
- (H) OVERHEAD WIRES CROSS THE BOUNDARY LINE.
- (I) UTILITY POLE 95-5 IS SITUATED ON LOCUS.
- (J) GUY WIRE CROSSES LOCUS.

*SEE SHEET 1 FOR GENERAL NOTES AND LEGEND.

BOUNDARY DESCRIPTION PER TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/BOSTON ST., ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV 2-3-15)

ALL THAT CERTAIN PARCEL OF REGISTERED LAND WITH THE IMPROVEMENTS LOCATED THEREON, SITUATED AT BOSTON STREET, IN THE CITY OF BOSTON, COUNTY OF SUFFOLK, AND COMMONWEALTH OF MASSACHUSETTS AND IS DESCRIBED AS FOLLOWS:

LOT 4 SHOWN ON LAND COURT PLAN NO. 30247A, DATED JULY, 1960 AND MAY 19, 1962, A COPY OF WHICH IS FILED WITH SUFFOLK COUNTY REGISTRY DISTRICT OF THE LAND COURT CERTIFICATE OF TITLE 72990.

THERE IS APPURTENANT TO SAID LOT 4 A RIGHT OF WAY AS SET FORTH IN A GRANT FROM BANQUER REALTY CO., INC. TO HERMAN BANQUER ET AL TRUSTEES DATED JUNE 1, 1962, REGISTERED AS DOCUMENT No. 254487 WITH SUFFOLK REGISTRY OF DEEDS AND NOTED ON CERTIFICATE OF TITLE No. 62290.

FOR TITLE SEE CERTIFICATE OF TITLE No. 124618.

EXCEPTIONS FROM COVERAGE PER SCHEDULE B II OF TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/BOSTON ST., ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV 2-3-15)

(6) TERMS AND PROVISIONS OF RIGHT OF WAY, FILED AS DOCUMENT No. 254487.
(AS SHOWN HEREON)

LIST OF VISIBLE ENCROACHMENTS
LOT 4 LAND COURT PLAN 30247A

ALONG THE SOUTHWESTERLY LINE:
- 6' CHAIN LINK FENCE WITH BARBWIRE CROSSES BOUNDARY LINE.

ALONG THE SOUTHEASTERLY LINE:
- 5' CHAIN LINK FENCE CROSSES BOUNDARY LINE.
- CONCRETE BLOCK WALL CROSSES BOUNDARY LINE.
- 4' CHAIN LINK FENCE CROSSES BOUNDARY LINE.
- WOOD POST CROSSES BOUNDARY LINE.
- 10' CHAIN LINK FENCE WITH BARBWIRE CROSSES BOUNDARY LINE.

ALONG THE NORTHEASTERLY LINE:
- 10' CHAIN LINK FENCE WITH BARBWIRE CROSSES BOUNDARY LINE.
- OVERHEAD WIRES CROSS THE BOUNDARY LINE.

ALTA/ACSM LAND TITLE SURVEY
55 ENTERPRISE STREET, 20 & 30 WEST HOWELL STREET, LOT 4 LCC 30247A, LOT 2 & 3 LCC 24727A
BOSTON (DORCHESTER), **MASS.**

FELDMAN LAND SURVEYORS
112 SHAWMUT AVENUE
BOSTON, MASS. 02118

APRIL 30, 2014
PHONE: (617)357-9740
www.feldmansurveyors.com

FELDMAN LAND SURVEYORS

SCALE: 1"=20'

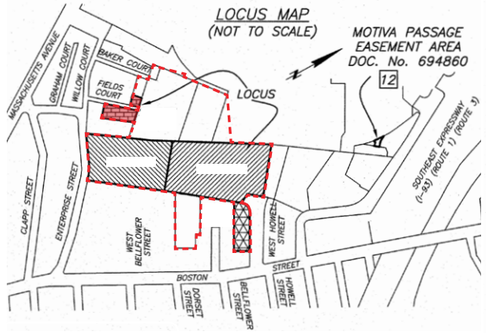
RESEARCH JBD	FIELD CHIEF JM	PROJ MGR DJR	APPROVED	SHEET NO. 3 OF 4
CALC MJB/GBD	CADD MJB/GBD	FIELD CHECKED DN	CRD FILE 14158	JOB NO. 14158

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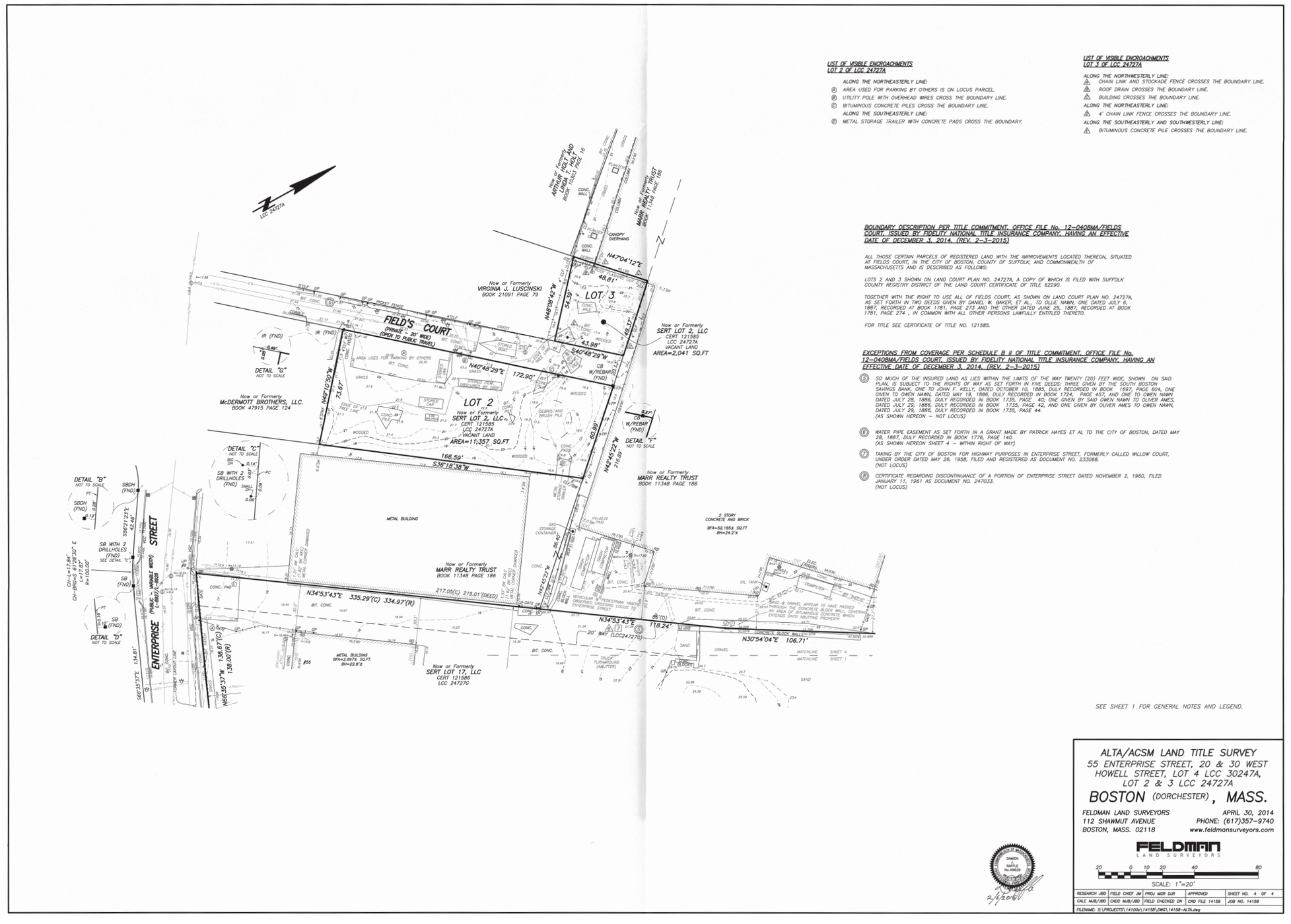
DAMIEN N. RATTLE No. 49829 REGISTERED LAND SURVEYOR

5/4/2015

Figure 1-9
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015



Key Plan



LIST OF VISIBLE ENCROACHMENTS
LOT 2 OF LCC 24727A

ALONG THE NORTHEASTERLY LINE:
- (A) AREA USED FOR PARKING BY OTHERS IS ON LOCUS PARCEL.
- (B) UTILITY POLE WITH OVERHEAD WIRES CROSS THE BOUNDARY LINE.
- (C) BITUMINOUS CONCRETE PILES CROSS THE BOUNDARY LINE.

ALONG THE SOUTHEASTERLY LINE:
- (D) METAL STORAGE TRAILER WITH CONCRETE PADS CROSS THE BOUNDARY.

LIST OF VISIBLE ENCROACHMENTS
LOT 3 OF LCC 24727A

ALONG THE NORTHWESTERLY LINE:
- (A) CHAIN LINK AND STOCKADE FENCE CROSSES THE BOUNDARY LINE.
- (A) ROOF DRAIN CROSSES THE BOUNDARY LINE.
- (A) BUILDING CROSSES THE BOUNDARY LINE.

ALONG THE NORTHEASTERLY LINE:
- (A) 4' CHAIN LINK FENCE CROSSES THE BOUNDARY LINE.

ALONG THE SOUTHEASTERLY AND SOUTHWESTERLY LINE:
- (A) BITUMINOUS CONCRETE PILE CROSSES THE BOUNDARY LINE.

BOUNDARY DESCRIPTION PER TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/FIELDS COURT, ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV. 2-3-2015)

ALL THOSE CERTAIN PARCELS OF REGISTERED LAND WITH THE IMPROVEMENTS LOCATED THEREON, SITUATED AT FIELDS COURT, IN THE CITY OF BOSTON, COUNTY OF SUFFOLK, AND COMMONWEALTH OF MASSACHUSETTS AND IS DESCRIBED AS FOLLOWS:

LOTS 2 AND 3 SHOWN ON LAND COURT PLAN NO. 24727A, A COPY OF WHICH IS FILED WITH SUFFOLK COUNTY REGISTRY DISTRICT OF THE LAND COURT CERTIFICATE OF TITLE 62290.

TOGETHER WITH THE RIGHT TO USE ALL OF FIELDS COURT, AS SHOWN ON LAND COURT PLAN NO. 24727A, AS SET FORTH IN TWO DEEDS GIVEN BY DANIEL W. BAKER, ET AL., TO OLLIE HAHN, ONE DATED JULY 6, 1887, RECORDED AT BOOK 1781, PAGE 273 AND THE OTHER DATED JUNE 25, 1887, RECORDED AT BOOK 1781, PAGE 274 , IN COMMON WITH ALL OTHER PERSONS LAWFULLY ENTITLED THERETO.

FOR TITLE SEE CERTIFICATE OF TITLE NO. 121585.

EXCEPTIONS FROM COVERAGE PER SCHEDULE B II OF TITLE COMMITMENT, OFFICE FILE No. 12-0408MA/FIELDS COURT, ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, HAVING AN EFFECTIVE DATE OF DECEMBER 3, 2014. (REV. 2-3-2015)

(5) SO MUCH OF THE INSURED LAND AS LIES WITHIN THE LIMITS OF THE WAY TWENTY (20) FEET WIDE, SHOWN ON SAID PLAN, IS SUBJECT TO THE RIGHTS OF WAY AS SET FORTH IN FIVE DEEDS: THREE GIVEN BY THE SOUTH BOSTON SAVINGS BANK, ONE TO JOHN F. KELLY, DATED OCTOBER 10, 1885, DULY RECORDED IN BOOK 1697, PAGE 504, ONE GIVEN TO OWEN NAWN, DATED MAY 19, 1886, DULY RECORDED IN BOOK 1724, PAGE 457, AND ONE TO OWEN NAWN, DATED JULY 28, 1886, DULY RECORDED IN BOOK 1735, PAGE 40; ONE GIVEN BY SAID OWEN NAWN TO OLIVER AMES, DATED JULY 29, 1886, DULY RECORDED IN BOOK 1735, PAGE 42, AND ONE GIVEN BY OLIVER AMES TO OWEN NAWN, DATED JULY 29, 1886, DULY RECORDED IN BOOK 1735, PAGE 44.
(AS SHOWN HEREON – NOT LOCUS)

(6) WATER PIPE EASEMENT AS SET FORTH IN A GRANT MADE BY PATRICK HAYES ET AL TO THE CITY OF BOSTON, DATED MAY 28, 1887, DULY RECORDED IN BOOK 1776, PAGE 140.
(AS SHOWN HEREON SHEET 4 – WITHIN RIGHT OF WAY)

(7) TAKING BY THE CITY OF BOSTON FOR HIGHWAY PURPOSES IN ENTERPRISE STREET, FORMERLY CALLED WILLOW COURT, UNDER ORDER DATED MAY 26, 1958, FILED AND REGISTERED AS DOCUMENT NO. 233068.
(NOT LOCUS)

(8) CERTIFICATE REGARDING DISCONTINUANCE OF A PORTION OF ENTERPRISE STREET DATED NOVEMBER 2, 1960, FILED JANUARY 11, 1961 AS DOCUMENT NO. 247033.
(NOT LOCUS)

SEE SHEET 1 FOR GENERAL NOTES AND LEGEND.

ALTA/ACSM LAND TITLE SURVEY
55 ENTERPRISE STREET, 20 & 30 WEST HOWELL STREET, LOT 4 LCC 30247A, LOT 2 & 3 LCC 24727A
BOSTON (DORCHESTER), MASS.

FELDMAN LAND SURVEYORS
112 SHAWMUT AVENUE
BOSTON, MASS. 02118
APRIL 30, 2014
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FELDMAN LAND SURVEYORS

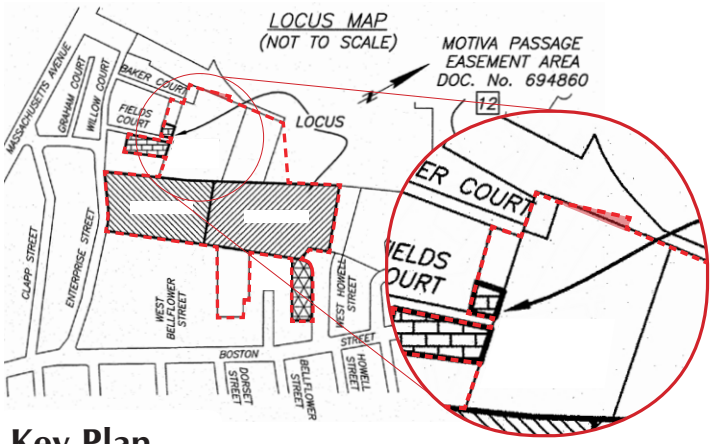
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RESEARCH JBD	FIELD CHIEF JM	PROJ. MGR DJR	APPROVED	SHEET NO. 4 OF 4
CALC MJB/JBD	CADD MJB/JBD	FIELD CHECKED DN	CRD FILE 14158	JOB NO. 14158

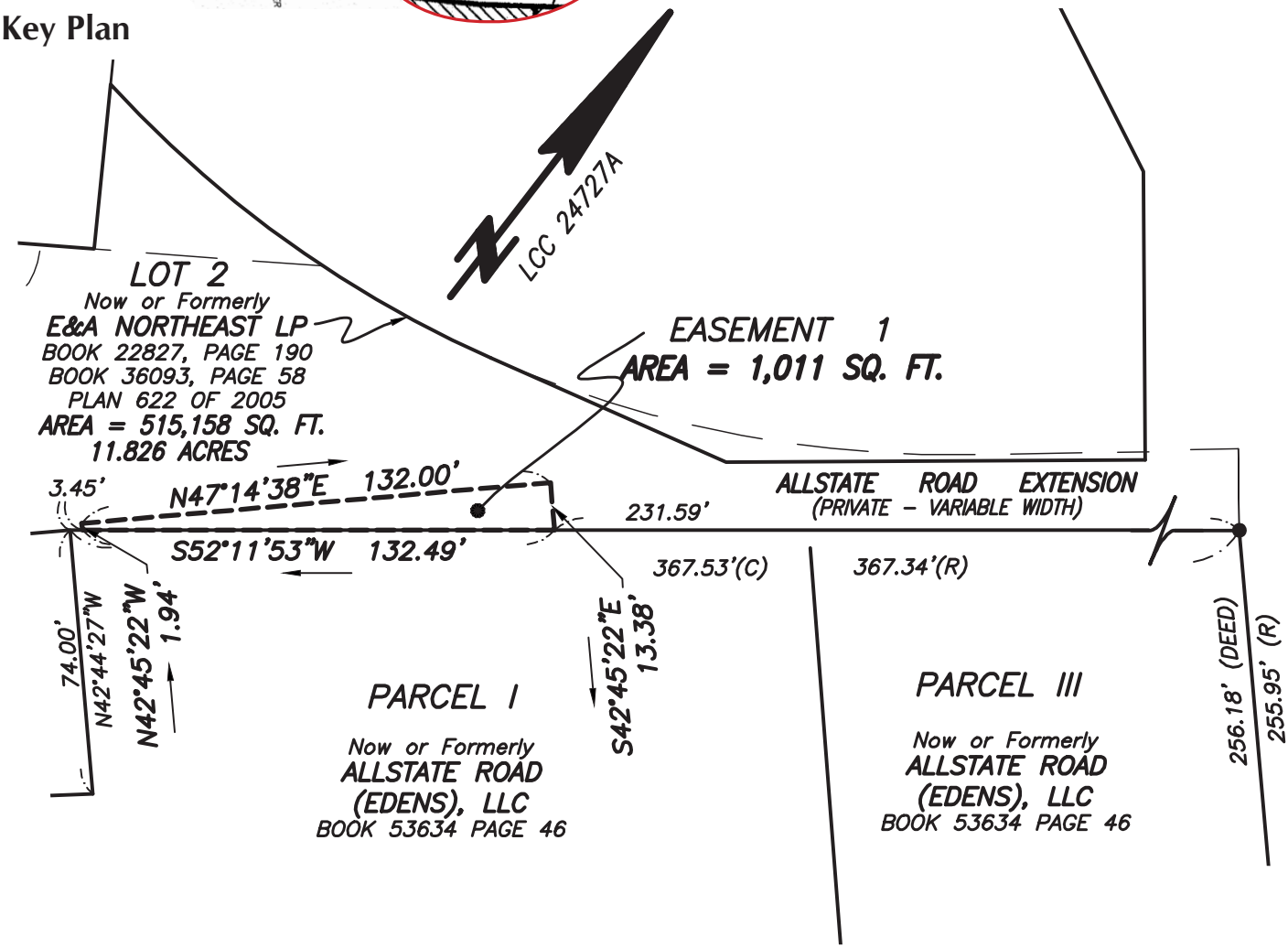
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2/6/2015

Figure 1-10
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015



Key Plan



NOTE:

1) THE PURPOSE OF THIS PLAN IS TO CREATE EASEMENT 1 OVER LOT 2.

SCALE: 1"=40'

40 0 20 40 80 120

Figure 1-11
Existing Conditions Survey
Source: Feldman Land Surveyors, 2015

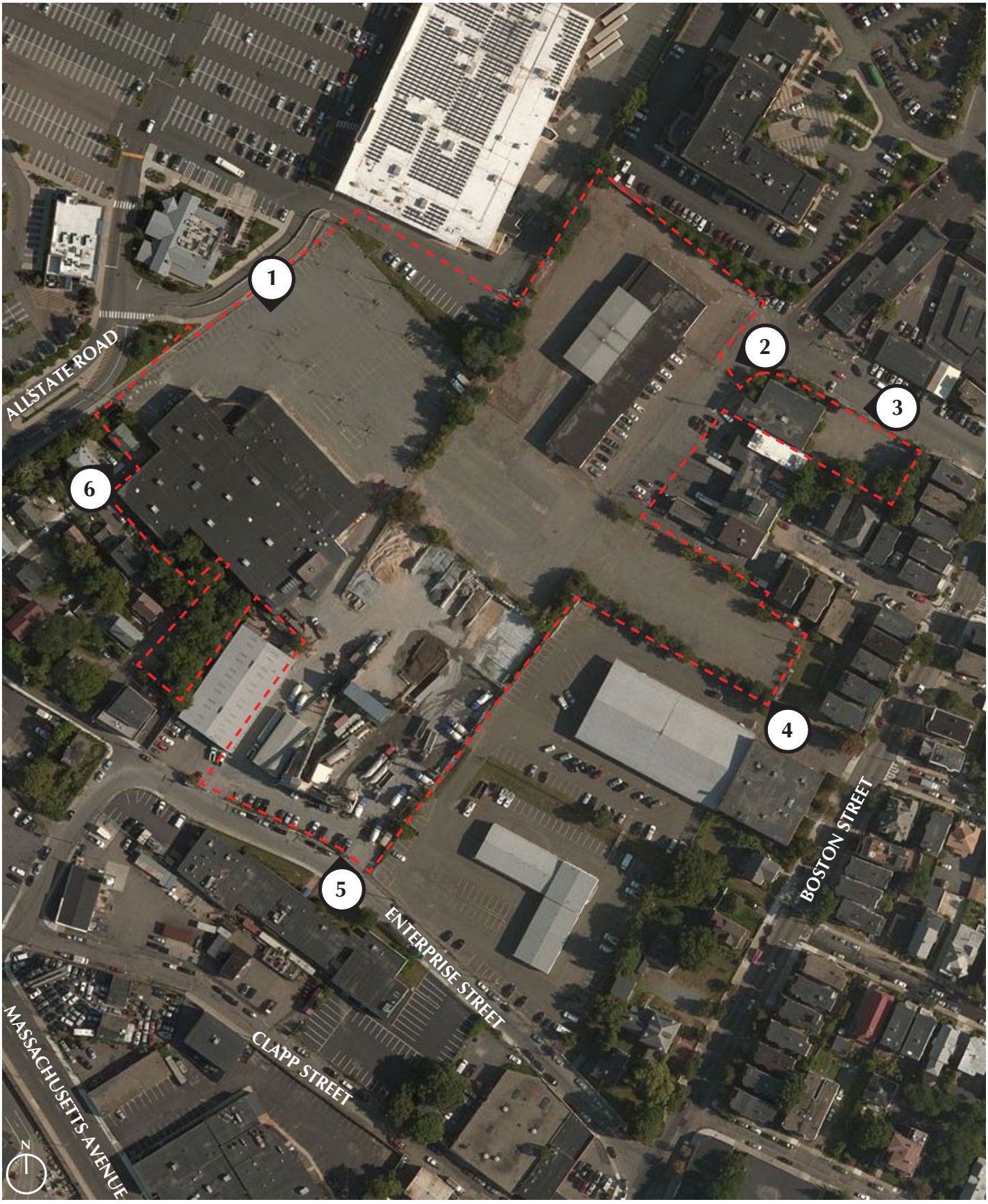


Figure 1-12
Existing Conditions Photographs- Key Plan
Source: Bing Maps, Fort Point Associates, Inc., 2015



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



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

Figure 1-13
Existing Conditions Photographs
Source: Fort Point Associates, Inc., 2015



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



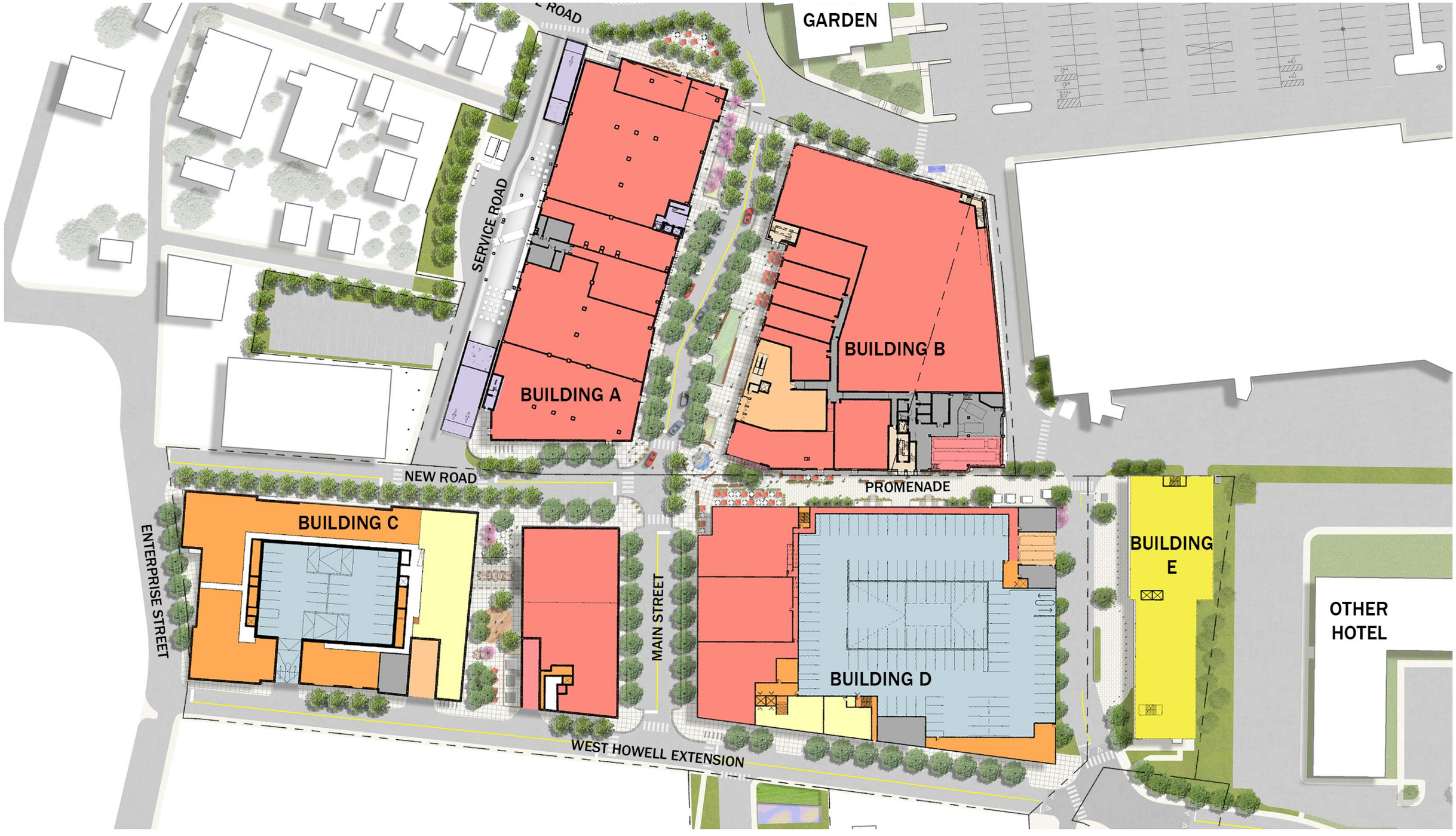
Photograph 5: View of the Site looking north from Enterprise Street



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



Figure 1-16
Site Plan
Source: OLIN, 2015



Dorchester, Massachusetts

Figure 1-17
Ground Floor Plan
Source: OLIN, 2015

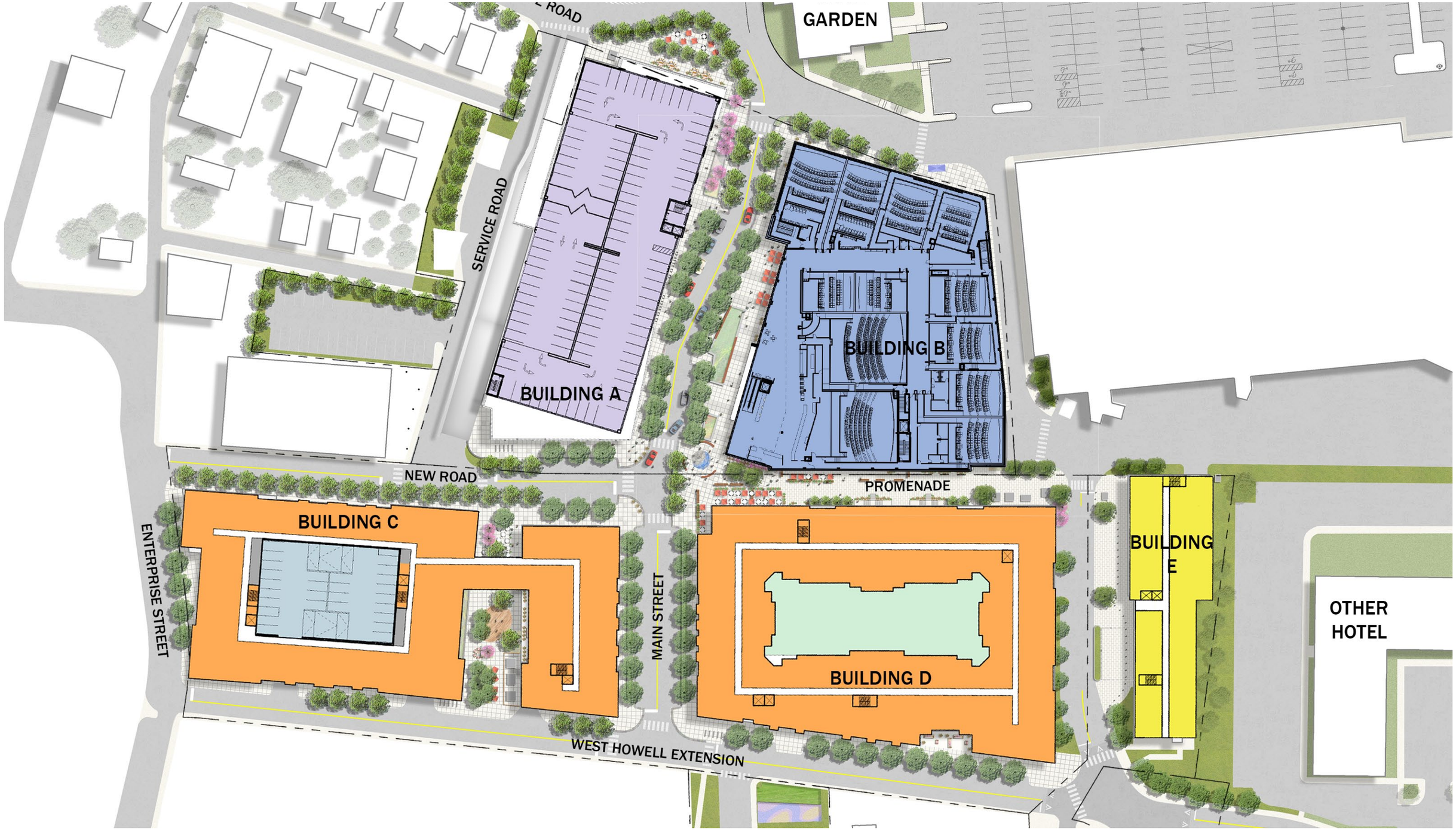


Figure 1-18
Upper Floor Plan
Source: OLIN, 2015



Project View - Main Street Looking South



Project View - Main Street Looking North

Figure 1-20
Project Views
Source: Stantec, 2015

Chapter 2

PUBLIC BENEFITS

CHAPTER 2: PUBLIC BENEFITS

2.1 INTRODUCTION

This chapter addresses the Project's public benefits arising from construction employment, future full-time and part-time job opportunities, on and off-site improvements, programs, and tax and fee payments.

2.2 ANTICIPATED EMPLOYMENT

The number of workers required for the construction of the Project will vary depending upon the stage of construction. The Proponent will submit a Boston Residents Construction Employment Plan in accordance with the Boston Residents Jobs Policy. The plan will detail how the Proponent will make good faith efforts to employ local tradespeople who reside in Boston. In this effort, the Proponent will meet with local agencies prior to the start of construction to establish a community outreach program. The Project will create approximately 1,600 construction-related jobs, approximately 450 permanent jobs, and will stimulate the economy of Dorchester and the Greater Boston area.

2.3 PROPOSED PROGRAMS

The Proponent commits to establish a yearly fund of $10,000 to be managed by the Proponent and used for donations to a pre-established list of organizations within a one mile radius of South Bay. A “miscellaneous” category will be included in this list to capture any new organizations or events on a yearly basis. This fund will remain in perpetuity.

2.4 ON-SITE IMPROVEMENTS

The Project entails multiple new planning, infrastructure, and programmatic improvements across the Project Site including:

- 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 62 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 while eliminating a few vacant and blighted properties from the neighborhood;
- Elimination of industrial truck traffic (currently more than 100 trucks per day) from local streets such as Boston Street as well as the noise and dust associated with the Aggregate concrete plant operation;
- Landscape and site improvements such as enhanced lighting and increased security to provide a safe and secure shopping, dining, and residential experience;
- Construction of a dog park and tot lot adjacent to new residential buildings for the benefit of new and existing neighborhood residents;
- 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;
- Construction of new roadways, new plazas, green spaces, and streetscapes for the use, benefit, and enjoyment of the public;
- Installation of stormwater treatment upgrades, improving the quantity and quality of stormwater runoff;
- New street and sidewalk maintenance commitments;
- Providing 50 spaces for Snow Emergency Parking to residents of the Polish Triangle neighborhood;
- Increased on-site security and Boston Police Department details; and
- Enhancement of the existing South Bay shuttle, a free, accessible bus linking South Bay to Newmarket and Andrew Stations, to include service to the Project Site and extended hours of operation.

2.5 OFF-SITE IMPROVEMENTS

The Project entails multiple new infrastructure and programmatic improvements adjacent to and beyond the Project Site including:

West Howell Street

Following extensive consultation and working sessions with City staff, the Impact Advisory Group, and conversations with neighboring residents, businesses, and other area stakeholders, the Proponent commits to redesigning and upgrading West Howell Street to enhance access/egress to the Project Site for pedestrians and bicycles and to promote safe vehicular travel with a one-way direction away from Boston Street. West Howell Street will be reconstructed to meet the City's Complete Streets design standards including a raised intersection where West Howell Street meets the proposed West Howell Extension. A conceptual plan outlining the improvements is shown graphically in Section 4, Figure 4-37, and Figure 4-38, which includes the following key features that are to be built within existing available public right-of-way and property controlled by the Proponent:

- A raised table intersection at West Howell Street/West Howell Extension to facilitate pedestrian movements within the intersection and reduce vehicular speeds though the intersection;
- Bicycle accommodation with sharrow markings;
- A new sidewalk with shade trees and ADA-compliant crossings on the south side of West Howell Street;
- Accommodation for commercial vehicle queue activity and parking spaces along the north side of West Howell Street in a designated shoulder area outside of travel lanes; and
- Angled parking along the south side of the street to maximize parking for existing commercial businesses, residents, and public use.

Boston Street Bypass Road

The traffic signal at the Boston Street/Washburn Street intersection was updated by the City in 2013 and will continue to operate at a very efficient overall level of service B without any further modification; however, the Proponent recognizes the benefit to the Project and neighborhood of having a direct connection from the Boston Street off-ramp into the Project, as well as an enhanced access point to the existing hotels, without having to travel on Boston Street. This connection, currently referred to as the Boston Street Bypass Road, has been incorporated into the design of the Project, and will include a sidewalk to promote access to the development from the hotels and existing sidewalk networks. There are several related items such as private and public easements, MassDOT permits, and funding issues beyond the Proponent's control that need to be finalized before this roadway can be constructed. In the event these items are not resolved prior to Project completion, West Howell Street may be temporarily opened as two-way and converted to one-way travel (westbound) once all outstanding issues are resolved. West Howell Street has been designed to accommodate this conversion without the requirement of further construction work. The conversion can be completed with line striping only.

Massachusetts Avenue at Newmarket Square

Following initial consultation with BTD, the northbound Massachusetts Avenue approach to the signalized intersection of Massachusetts Avenue at Newmarket Square has been evaluated to determine feasibility and operational benefits to alternative lane assignments. Detailed analysis and results can be found in Section 4.6.2 of the Transportation chapter. The results of this analysis conclude that the best option for the intersection is to be marked as a shared left/through travel lane and a shared through/right turn lane. See Figure 4-42 of the Transportation chapter.

- Massachusetts Avenue improvements including a left turn lane onto Enterprise Street and relocation of MBTA bus stop at Eversource farther away from intersection to improve operations;
- Enterprise Street improvements including Sidewalks, landscaping, traffic flow restrictions to Boston Street, and right turn lane onto Massachusetts Avenue (see Figure 4-36);
- Pedestrian improvements including a sidewalk connection to Newmarket Station through the South Bay Center parking lot and a relocated bus shelter, and sidewalk installation between Southampton Street and Target for an improved pedestrian access to South Bay from Southampton Street and the MBTA bus stop;

- Adaptive traffic control system (ATCS) connections and traffic monitoring integration into the Boston Transportation Department's network at Allstate Road and Boston Street at Frontage Road traffic signals; and
- South Bay Center landscape and signage upgrades for improved wayfinding to Interstate 93;

Columbia Road at Dorchester Avenue

Following consultation with BTD and BRA, the Columbia Road approaches to the signalized intersection of Columbia Road at Dorchester Avenue have been evaluated at a conceptual level to determine the potential benefits of intersection improvements. The Proponent has committed to providing a conceptual plan as shown in Figure 4-43 that would improve the intersections alignment and vehicular capacity. The Proponent also commits to conducting a Road Safety Audit (RSA) to identify potential safety/operational improvements that would be implemented by others in the future.

Monitoring

The Proponent will complete a post-construction monitoring study to evaluate traffic conditions and compare those to estimates in the DPIR to determine if adjustments need to be made. This data will be shared with BTD for use in their ATCS to make any necessary changes based on actual future conditions. The monitoring study shall include Project driveways serving the Project and the ten (10) impacted signalized intersections included in the DPIR. Monitoring shall be conducted six months after initial project occupancy and annually thereafter for a period of five (5) years.

2.6 COMMUNITY BENEFITS AND MITIGATION

The following is a tabular summary of the work the Proponent agrees to complete in an effort to mitigate the construction and development impacts the Project may have on the community.

COMMUNITY BENEFITS AND MITIGATION

1. 1,600 Construction jobs over a 2 year period
2. 450 permanent jobs
3. $5,000,000 per year additional tax revenues
4. New streets/infrastructure for public access
5. 62 affordable housing units
6. New greenspace and community gathering areas
7. Redevelopment of blighted and abandoned properties.
8. Elimination of concrete plant and 100+ trucks per day from local streets.

DIRECT FINANCIAL COMMUNITY INVESTMENT

1. West Howell St. Renovation	$ 350,000
2. West Howell Extension (land & construction cost)	$2,400,000
3. Boston Street Bypass Road Construction	$ 375,000
4. Enterprise/Massachusetts Ave Improvements	$ 510,000
5. Enterprise StreetTraffic Flow Restrictions	$ 25,000
6. I-93 Access Improvements	$ 15,000
7. Boston/Washburn Street ATCS Connection	$ 250,000
8. Mass Ave/Shirley Street Lane Designation Analysis	$ 10,000
9. Dorchester Street/Columbia Road Conceptual Design	$ 15,000
10. ATCS at Allstate Traffic Signal	$ (by BTD)
11. Post Construction 5yr Traffic Monitoring	$ 75,000
12. Pedestrian Improvement at Southampton Street	$ 30,000
13. Main Street Design Elements for Pedestrian Access & Programming	$ 336,000
14. Boston Parks Department Donation	$ 10,000
15. Pedestrian Connection to Newmarket Station	$ 100,000
16. Housing Contribution Grant	$1,378,000
17. Jobs Contribution Grant	$ 275,000
18. Finger Lot Parking & Dog/Tot Park Construction	$ 275,000
19. "Blue Light"/Video Camera Security System	$ 225,000
20. Acquisition of 20 Baker for access improvements	$ 550,000
	TOTAL: $7,204,000

YEARLY COMMUNITY INVESTMENT

1. Snow Emergency Parking for Local Community	$ 15,000/year
2. Yearly Community Donation Fund	$ 10,000/year
3. Extension of Existing Shuttle Service Hours	$ 50,000/year
4. New Shuttle Service to Newmarket	$ 295,000/year
	TOTAL: $370,000/year

2.7 TAXES AND FEES

The Project will generate approximately $5,000,000 in new annual tax revenues for the City of Boston. In addition, the Proponent expects to contribute approximately $1,653,487 in exaction fees to the City of Boston for new housing and jobs programs.

Chapter 3

COMMUNITY PROCESS

CHAPTER 3: 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 past year, 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.

3.1 COMMUNITY OUTREACH MEETINGS

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

3.1.1 COMMUNITY ASSOCIATIONS

- Citizens Connect to South Bay Committee
  - February 25, 2015

- John W. McCormack Civic Association
  - March 3 and 11, 2015
  - June 16, 2015
  - July 8, 2015
  - August 12, 2015
  - October 20, 2015

- Columbia-Savin Hill Civic Association
  - March 2, 2015
  - July 14, 2015

- Andrew Square Civic Association
  - June 10, 2015

- Jones Hill Civic Association
  - September 9, 2015
  - October 14, 2015

- Hancock Civic Association
  - August 20, 2015
- Dorchester Historical Society
  - February 25, 2015

- Annapolis Neighborhood Association
  - June 24, 2015 (BRA Community Meeting)
  - August 19, 2015 (BRA Community Meeting)

- Eastman/Elder Neighborhood Association
  - June 24, 2015 (BRA Community Meeting)
  - August 19, 2015 (BRA Community Meeting)

- Groom-Humphreys Neighborhood Association
  - February 25, 2015

- Upham's Corner Association
  - Invited to Community Meetings

3.1.2 BUSINESS ASSOCIATIONS

- Boston Collegiate School
  - January 7, 2015
  - October 26, 2015

- South Bay Tenants/Owners Business Association
  - March 5, 2015

- Newmarket Business Association
  - March 11, 2015
  - December 2, 2015

- Fairmont/Indigo CDC Collaborative
  - March 18, 2015

3.1.3 ELECTED OFFICIALS

- Meeting with State Representatives Dan Hunt and Nick Collins; and City Councilor Frank Baker
  - March 5, 2015

- Meeting with State Senator Linda Dorcena Forry
  - July 8, 2015

3.1.4 COMMUNITY MEETINGS

- BRA Community Meeting
  - June 24, 2015
  - August 19, 2015

- Impact Advisory Group (IAG) Meeting
  - July 9, 2015
  - September 29, 2015
  - October 8, 2015
  - January 6, 2016
  - January 14, 2016

3.1.5 COMMERCIAL ABUTTER MEETINGS

The Proponent had held meetings with the following abutters during different times over the past year.

- Foley Fish
- Marriott Courtyard
- Holiday Inn Express
- Falvey Refining Company
- Scrub-a-Dub
- Fortress

3.1.6 OTHER MEETINGS

In addition, the Project Team has also discussed the Project with abutting residential property owners, representatives from the Boston City Council; Mayor Walsh's office; the BRA; other City of Boston agencies/departments; state agencies; and individual members of the community. The input gathered from the community, regulators, and officials has been incorporated into the Project and this DPIR.

3.2 AFFECTED PARTIES

The following table lists the names and addresses of Project area owners, abutters, and community or business groups the Proponent believes may be substantially interested in or affected by the Project.

Project Site (partial owner)	SERT Lot 2, LLC SERT Lot 4, LLC SERT Lot 17, LLC SERT Lot 8, LLC c/o Elinor Banquer 51 Saxon Road Westwood, MA 02090-3226
Abutters	Pipefitters Association 40 Enterprise Street Dorchester, MA 02125 Bass Realty LLC (15 Enterprise Street, Boston Street) PO Box 171073 Boston, MA 02116 Joan Szwanke 159 Boston Street Dorchester, MA 02125 Yan Chung H TS 8 W. Bellflower Street Dorchester, MA 02125 Patricia Stewart 10 W Bellflower Street Dorchester, MA 02125 O'Flaherty Sheila/ Leo Linehan 12 W Bellflower Street Dorchester, MA 02125 M F Foley Co Inc (Foley Fish) 24 W Bellflower Street Boston, MA 02125 Banquer Elinor TS (20 W Howell Street) 160 Federal Street, 11th Floor Boston, MA 02110 E&A Northeast LP (1 Allstate Road) PO Box 528 Columbia, SC 29202

	Zhang Wen Long 16 Baker Court Dorchester, MA 02125 Arthur J Holt ETAL 7 Baker Court Dorchester, MA 02125 Virginia J Luscinski 4 Fields Court Dorchester, MA 02125 Banquer Realty Co Inc (Fields Court) 160 Federal Street, 11th Floor Boston, MA 02110 Seventy One Willow LLC (71 Willow Court) 7 Whitelawn Avenue Milton MA 02186 McDermott Brothers LLC (65 Willow Court) 7 Whitelawn Avenue Milton, MA 02186 Daniel F Marr TS (Enterprise Street) 1 D Street South Boston MA 02127
Local Organizations	John W. McCormack Civic Association 72 Roseclair Street Dorchester, MA 02125 Annapolis Neighborhood Association Annapolis Street, Upham's Corner Dorchester, MA 02125 Citizens Connect to South Bay Columbia/Savin Hill Civic Association Eastman/Elder Neighborhood Association 636 Columbia Road Dorchester, MA 02125 Andrew Square Civic Association P.O. Box 455 South Boston, MA 02127

	Hancock Civic Association c/o Robert Mickiewicz, President 7 Whittemore Terrace Dorchester, MA 02125 Newmarket Business Association 225 Southampton Street Boston, MA 02118 Dorchester Historical Society 195 Boston Street Dorchester, MA 02125 Groom-Humphreys Neighborhood Association Upham's Corner Association

Chapter 4

TRANSPORTATION

CHAPTER 4: TRANSPORTATION

4.1 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. The Transportation evaluation presents an expanded technical analysis that responds to the Scoping Determination issued under Article 80.

4.1.1 PROJECT DESCRIPTION

The Project Site comprises approximately 10.6 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 4-1, 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 1,095± vehicles (910 spaces in parking structures and 185 in surface lots/street parking) will replace the approximate existing 600-space surface supply for a net increase of 495 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 4-2, Project Site Plan.

4.1.2 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.

4.1.3 STUDY AREA

This study evaluates transportation characteristics of roadways and intersections that provide a primary means of access to the Project 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 MassDOT and as shown on Figure 4-3, Study Locations:

1 - Massachusetts Ave at Melnea Cass Blvd/Southampton St – Signalized
2 - Massachusetts Ave at Magazine Street – Signalized
3 - Massachusetts Ave at Shirley Street/ Newmarket Square – Signalized
4 - Massachusetts Ave at South Bay Shopping Center Driveway – Unsignalized
5 - Massachusetts Ave at Allstate Road – Signalized
6 - Allstate Road at South Bay Center Loop Road – Unsignalized
7 - Massachusetts Ave at Enterprise Street - Unsignalized
8 - Massachusetts 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

4.2 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.

4.2.1 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 one and three 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 and 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 Center 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 near Andrew Square, Enterprise Street and Massachusetts Avenue. Sidewalks are provided along both roadway edges.

4.2.2 INTERSECTION DESCRIPTIONS

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

Melnea Cass Blvd meets Massachusetts 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 Massachusetts 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 Massachusetts 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- Massachusetts Ave at Magazine Street – Signalized

Magazine Street meets Massachusetts 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- Massachusetts Ave at Shirley Street/ Newmarket Square – Signalized

Shirley Street meets Massachusetts 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- Massachusetts Ave at South Bay Shopping Center Driveway – Unsignalized

The South Bay Shopping Center Driveway meets Massachusetts 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- Massachusetts Ave at Allstate Road – Signalized

Allstate Road meets Massachusetts 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- Massachusetts Ave at Enterprise Street – Unsignalized

Enterprise Street meets Massachusetts 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- Massachusetts Ave at Columbia Road/Boston Street (Everett Square) – Signalized

Massachusetts 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 Massachusetts 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.

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.

9- 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.

10- 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.

11- 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.

12- 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.

13- 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.

14- 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.

15- 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.

16- 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.

17- 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.

18- 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.

4.2.3 PEDESTRIAN FACILITIES

An inventory of the existing sidewalk system and pedestrian crossings in the study area connecting the Project Site to the nearby public transportation centers has been conducted and is documented in Figure 4-4, 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. A more detailed inventory of the existing sidewalk system and pedestrian crossings was also prepared for primary pedestrian paths, which are depicted in Figure 4-5 connecting the proposed development to Newmarket Station, Andrew Station, and area transit bus stops. The review indicated the following existing characteristics as summarized below and shown graphically in Figure 4-6:

- *Boston Street*. The sidewalk system along the western side of Boston Street between West Howell Street and Andrew Square is the primary walking route to Andrew Station, which is located approximately ½ mile northeast of the Project Site. This section of sidewalk varies between 6 and 12 feet with a minimum effective width of approximately 4 feet. The sidewalk is generally in good shape with minimal cracking or deterioration. The sidewalk system along the eastern side of Boston Street varies between 5 and 12 feet and is generally in good shape with minimal cracking or deterioration. Signalized marked pedestrian crossings are provided at the Frontage Road and at Andrew Square. The handicapped ramps all appear to be ADA compliant within the study area.

- *Massachusetts Avenue*. The sidewalk system along the eastern side of Massachusetts Avenue between Enterprise Street and Newmarket Square is the primary walking route to Newmarket Station, which is located approximately ¼ mile northwest of the Project Site. This section of sidewalk varies between 8 and 12 feet with a minimum effective width of approximately 6.5 feet. The sidewalk is in generally in good shape with minimal cracking or deterioration. The sidewalk system along the western side of Massachusetts Avenue varies between 8 and 12 feet and is generally in good shape with minimal cracking or deterioration. A signalized marked pedestrian crossing is provided at Allstate Road. The handicapped ramps all appear to be ADA compliant within the study area, including to the Newmarket Station platforms.

- *Enterprise Street*. The sidewalk system along the north side of Enterprise Street between Massachusetts Avenue and the Project Site is a secondary walking route to Newmarket Station, which is located approximately ¼ mile northwest of the Project Site. This section of sidewalk varies between 3 and 6 feet with a minimum effective width of less than 1 foot in some areas due to overgrown vegetation, debris or other sidewalk obstructions such as utility poles, fences, and bollards. The sidewalk widths and handicapped ramps do not all appear to be ADA compliant. The Proponent is proposing enhancements to bring the section of Enterprise Street between the Project Site and Massachusetts Avenue into compliance with City standards as outlined under *Recommendations,* requiring removal of utility poles and relocation of above ground utilities to underground to achieve adequate sidewalk width. The section of Enterprise Street between the Project Site and Boston Street would require land not under control of the Proponent to bring sidewalks into compliance and is assumed to be the responsibility of others as future development of properties that abut Enterprise Street.

4.2.4 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 and returned to their designated location. There are currently two Zipcar car-sharing locations in the immediate vicinity of Andrews Square, with 6 vehicles. The existing Zipcars are located within a 10-minute walk (½ mile) from the Project Site. A map of the existing Zipcar locations in the immediate study area is provided in the Appendix.

4.2.5 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 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, 15 bicycle-docking stations located at Andrew Square, and 19 bicycle-docking stations at Edward Everett Square (E. Cottage Street). A map of the existing Hubway locations in the immediate study area is provided in the Appendix. Review of available online utilization reports for Hubway (www.thehubway.com) indicates that the Newmarket Hubway has regular availability with approximate 60 percent utilization rate.

4.2.6 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 4-7, Figure 4-8, and Figure 4-9.

Daily traffic volumes along Massachusetts Avenue in the Project Site vicinity were collected in November 2014 and are summarized in Table 4-1 and included in the Appendix.

Table 4-1: Baseline Traffic Volume Summary
Massachusetts Ave 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 4-1, *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).

4.2.7 PEDESTRIAN AND BICYCLE VOLUMES

Given the urban characteristic of the study area and the close proximity to the public transportation services provided near the Project 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 4-10, Figure 4-11 and Figure 4-12.

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 4-2 and included in the Appendix.

Table 4-2: Baseline Bicycle Volume Summary
Massachusetts Ave 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 4-2, 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.

4.2.8 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 Project Site. Andrew Station also provides connections to various regional transit connections as well as a shuttle connection to the South Bay Center, which is operated and paid for by the Proponent. Figure 4-13, 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 Center 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 4-14 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 4-14, 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.

4.3 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. While BTD guidelines require a 5-year horizon, to be consistent with EEA/MassDOT guidelines a seven-year planning horizon was selected.

To determine the impact of Project-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 Project-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.

4.3.1 PLANNED AREA IMPROVEMENTS

Consultation with BTD indicates the following planned area improvements that are assumed in the No Build conditions for this DPIR:

- *Massachusetts Avenue at Allstate Avenue Signal Improvements*. BTD is currently designing and implementing a signal improvement at Allstate Road that includes conduit connection to the nearby signal at Newmarket Square to incorporate the Allstate signal into the City's Advanced Traffic Control System (ATCS). The signal timing will be modified for coordinated operation with the Newmarket signal, resulting in improved traffic efficiency and reduced delays on the Allstate Road approach to the intersection, which under existing conditions operates, with longer delays due to signal timing inefficiencies and loop detector malfunction. The proposed signal timing/phasing plan is included in the Attachments and is assumed to be in place by summer 2016.

- *Massachusetts Avenue at Newmarket Square and Shirley Street*. The Newmarket Square intersection is being coordinated with the signal at Allstate Road (as described above) which is expected to improve progressive traffic flow along Massachusetts Avenue. Additional intersection improvements currently under consideration by the City have been identified by the Proponent to include re-striping the Massachusetts Avenue northbound lanes to two general-purpose lanes with associated signal phasing modifications that will enhance traffic flow and safety at the intersection as described in more detail under *Recommendations*.

4.3.2 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 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.

4.3.3 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 4-15, Figure 4-16 and Figure 4-17.

4.3.4 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, a proposed (enhanced) sidewalk connecting the Project Site to Newmarket Square through South Bay Center, as well as a commuter rail line, subway line, public bus system and South Bay Center shuttle service. Review of US Census Tract data and empirical traffic data for South Bay Center and adjoining hotels also support these mode share assumptions, which were reviewed with MassDOT and BTD staff at a scoping meeting held in November 2015. The pedestrian and walk/bicycle mode share for the Area 8 section of Dorchester is summarized in Table 4-3.

Table 4-3: Mode Share Splits (Area 8)

Period/Direction	Apartments			Hotel			Retail/ Theatre		
	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).

As summarized in the Table 4-3, 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.

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 4-4**.**

Table 4-4: 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	50	67	0	-64	-8	**92**
Exiting	189	37	41	0	-147	-8	**112**
Total	236	87	108	0	-211	-16	**204**
Weekday Evening Peak Hour							
Entering	181	45	176	161	-309	-27	**227**
Exiting	98	46	191	112	-170	-27	**250**
Total	279	91	367	273	-479	-54	**477**
Saturday Midday Peak Hour							
Entering	124	57	268	173	-342	-39	**243**
Exiting	124	57	248	67	-192	-39	**267**
Total	248	114	516	240	-534	-78	**510**
Weekday Daily	3,002	1,160	4,008	3,510	-4,794	-636	**6,250**
Saturday Daily	3,472	1,366	5,254	3,510	-5,581	-834	**7,187**

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 4-4, the proposed development is estimated to generate approximately 204 new vehicle trips during the weekday morning peak hour (92 entering and 112 exiting), 477 new vehicle trips during the weekday evening peak hour (227 entering and 250 exiting), and 510 new vehicle trips during the Saturday midday peak hour (243 entering and 267 exiting). On a daily basis, the development is estimated to generate approximately 6,250 new vehicle trips on a weekday and 7,187 new vehicle trips on a Saturday.

The trips summarized in Table 4-4 have been further broken down into automobile, walk/bike, and transit trips using the mode share splits shown in Table 4-3 and national vehicle occupancy rates for the various land uses and are summarized in Table 4-5. 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 4-5: Trip Generation by Mode Share

Period/Direction	Automobile[1]	Walk/Bike[2]	Transit[3]	Total
Weekday Morning Peak Hour				
Entering	100	57	50	207
Exiting	120	113	97	330
Total	220	170	147	537
Weekday Evening Peak Hour				
Entering	254	285	238	777
Exiting	277	158	133	568
Total	531	443	371	1,345
Saturday Midday Peak Hour				
Entering	280	331	274	885
Exiting	304	172	148	624
Total	584	503	423	1,509
Weekday Daily	6,886	4,921	3,316	15,123
Saturday Daily	8,021	5,707	3,846	17,574

[1]Automobile Trips in vehicles
[2]Walk/ Bike Trips in persons. Walking trips are primarily assumed to be internal on-site trip and trips between the Project Site and the adjacent South Bay Center.
[3]Transit Trips in persons

As summarized in Table 4-5, the proposed development is estimated to generate approximately 317 new non-automobile trips during the weekday morning peak hour, 814 new non-automobile trips during the weekday evening peak hour, and 926 new non-automobile trips during the Saturday midday peak hour. On a daily basis, the development is estimated to generate approximately 8,237 new non-automobile trips on a weekday and 9,553 new non-automobile trips on a Saturday. With enhancements outlined under *Recommendations*, the projected increase in pedestrian and bicycle volumes will be adequately accommodated well within available capacity.

4.3.5 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 Project 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 4-18, Figure 4-19, and Figure 4-20, 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 4-4 and the distribution patterns for the various land uses as presented in the Figure 4-18, Figure 4-19, and Figure 4-20. New development-related trips at each intersection for the weekday morning, weekday evening, and Saturday midday peak hours are quantified in Figure 4-21, Figure 4-22, and Figure 4-23.

4.3.6 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 4-24, Figure 4-25 and Figure 4-26.

The Build condition traffic volume networks were broken down further to include the internal roadway system. The 2021 Build condition internal traffic-volume networks for the weekday morning, weekday evening, and Saturday midday peak hours are displayed in Figure 4-27, Figure 4-28 and Figure 4-29.

4.3.7 TRAFFIC VOLUME INCREASES

The traffic volume increases between future No-Build and Build conditions for the study intersections and are summarized in Table 4-6, Table 4-7, and Table 4-8 for the weekday morning peak hour, weekday evening peak hour and Saturday midday peak hour, respectively.

Table 4-6: Traffic Volume Increases[1] – Weekday Morning Peak Hour

Intersection	2021 No-Build	2021 Build	Δ	%
1-Massachusetts Ave at Massachusetts Ave Connector/ Melnea Cass Blvd				
	5532	5583	51	0.9%
2-Massachusetts Ave at Magazine St				
	1220	1262	42	3.4%
3-Massachusetts Ave at Shirley St				
	1971	2015	44	2.2%
4-Massachusetts Ave at South Bay Ctr				
	1554	1599	45	2.9%
5-Massachusetts Ave at Allstate Rd				
	1605	1651	46	2.9%
6-Allstate Road South Bay Ctr Loop Road				
	365	376	11	3.0%
7-Massachusetts Ave at Enterprise St				
	1444	1498	54	3.7%
8-Massachusetts Ave at Columbia St/ Boston St				
	2920	2961	41	1.4%
9-Columbia Road at Dorchester Avenue				
	2127	2142	15	0.7%
10-Boston Street at Enterprise Street				
	1060	1025	-35	-3.3%[2]
11-Boston Street at West Howell Street				
	928	931	3	0.3%[2]
12-Boston St at Frontage Rd/ Washburn St				
	1122	1202	80	7.1%[2]
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)				
	2204	2275	71	3.2%
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)				
	2389	2432	43	1.8%
15-Frontage Road at South Bay Ctr				
	499	543	44	8.8%
16-Frontage Road at South Bay Center/ Southampton Rd				
	1350	1395	45	3.3%
17-Southampton St at South Bay Center/ Public Storage Dwy				
	2205	2221	16	0.7%
18-Frontage Road Southbound at South Boston By-pass				
	1432	1471	39	2.7%
19- Frontage Road Northbound at South Boston By-pass				
	2052	2086	34	1.7%

[1]Vehicles per hour (vph).

[2]Assumes one-way West Howell Street, completion of Boston Street Bypass Road and turn restrictions on Enterprise Street; refer to Section 4.6.2 for detailed discussion of road network.

Table 4-7: Traffic Volume Increases[1] – Weekday Evening Peak Hour

Intersection	2021 No-Build	2021 Build	Δ	%
1-Massachusetts Ave at Massachusetts Ave Connector/ Melnea Cass Blvd				
	5503	5643	140	2.5%
2-Massachusetts Ave at Magazine St				
	1081	1177	96	8.9%
3-Massachusetts Ave at Shirley St				
	2017	2130	113	5.6%
4-Massachusetts Ave at South Bay Ctr				
	1777	1890	113	6.4%
5-Massachusetts Ave at Allstate Rd				
	1772	1888	116	6.5%
6-Allstate Road South Bay Ctr Loop Road				
	635	674	39	6.1%
7-Massachusetts Ave at Enterprise St				
	1592	1731	139	8.7%
8-Massachusetts Ave at Columbia St/ Boston St				
	3052	3148	96	3.1%
9-Columbia Road at Dorchester Avenue				
	2145	2181	36	1.7%
10-Boston Street at Enterprise Street				
	973	981	8	0.8%[2]
11-Boston Street at West Howell Street				
	991	1025	34	3.4%[2]
12-Boston St at Frontage Rd/ Washburn St				
	1126	1246	120	10.7%[2]
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)				
	2237	2428	191	8.5%
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)				
	1810	1902	92	5.1%
15-Frontage Road at South Bay Ctr				
	376	439	63	16.8%
16-Frontage Road at South Bay Center/ Southampton Rd				
	1436	1508	72	5.0%
17-Southampton St at South Bay Center/ Public Storage Dwy				
	2179	2287	108	5.0%
18-Frontage Road Southbound at South Boston By-pass				
	842	897	55	6.5%
19- Frontage Road Northbound at South Boston By-pass				
	1671	1708	37	2.2%

[1]Vehicles per hour (vph).

[2]Assumes one-way West Howell Street, completion of Boston Street Bypass Road and turn restrictions on Enterprise Street; refer to Section 4.6.2 for detailed discussion of road network.

Table 4-8: Traffic Volume Increases[1] – Saturday Midday Peak Hour

Intersection	2021 No-Build	2021 Build	Δ	%
1-Massachusetts Ave at Massachusetts Ave Connector/ Melnea Cass Blvd				
	5231	5378	147	2.8%
2-Massachusetts Ave at Magazine St				
	1136	1249	113	9.9%
3-Massachusetts Ave at Shirley St				
	1988	2117	129	6.5%
4-Massachusetts Ave at South Bay Ctr				
	1827	1956	129	7.1%
5-Massachusetts Ave at Allstate Rd				
	1864	1966	102	5.5%
6-Allstate Road South Bay Ctr Loop Road				
	924	985	61	6.6%
7-Massachusetts Ave at Enterprise St				
	1579	1731	152	9.6%
8-Massachusetts Ave at Columbia St/ Boston St				
	3042	3144	102	3.4%
9-Columbia Road at Dorchester Avenue				
	2355	2398	43	1.8%
10-Boston Street at Enterprise Street				
	829	868	39	4.7%[2]
11-Boston Street at West Howell Street				
	908	959	51	5.6%[2]
12-Boston St at Frontage Rd/ Washburn St				
	791	933	142	17.9%[2]
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)				
	2115	2247	132	6.2%
14-Southampton St at I-93 NB off-ramp/ Frontage Road (Exit 16)				
	1998	2121	123	6.2%
15-Frontage Road at South Bay Ctr				
	646	700	54	8.4%
16-Frontage Road at South Bay Center/ Southampton Rd				
	1567	1667	100	6.4%
17-Southampton St at South Bay Center/ Public Storage Dwy				
	2142	2252	110	5.1%
18-Frontage Road Southbound at South Boston By-pass				
	1342	1408	66	4.9%
19- Frontage Road Northbound at South Boston By-pass				
	1752	1808	56	3.2%

[1]Vehicles per hour (vph).

[2]Assumes one-way West Howell Street, completion of Boston Street Bypass Road and turn restrictions on Enterprise Street; refer to Section 4.6.2 for detailed discussion of road network.

4.4 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. In addition, a pedestrian level of service analysis was conducted to determine existing operating conditions for critical pedestrian crosswalks and walkways in the immediate study area, as well as potential project-related impacts to these facilities. Finally, this section presents a discussion of loading and service operations for the area public transportation and the South Bay Centers free shuttle service. Capacity analyses, conducted in accordance with BTD and EEA/MassDOT guidelines, provide an index of how well the facilities serve the demands placed upon them. The operational results provide the basis for recommended improvements in the subsequent section.

4.4.1 TRAFFIC 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.

4.4.2 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 4-9, Table 4-10, and Table 4-11 for the weekday morning, weekday evening, and Saturday midday peak hours, respectively. Detailed analysis results are presented in the Appendix.

Table 4-9: Intersection Capacity Analysis Results Weekday Morning Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build[4]		
		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**	**6**	**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	11	B
	Southbound	0.30	10	B	0.32	11	B	0.33	11	B
	Overall	**0.91**	**23**	**C**	**0.93**	**24**	**C**	**0.93**	**22**	**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	53	D	0.39	25	C	0.39	25	C
	Westbound	0.81	51	D	0.63	37	D	0.63	37	D
	Northbound	0.68	23	C	0.35	<5	A	0.36	<5	A
	Southbound	0.51	24	C	0.26	<5	A	0.26	<5	A
	Overall	**>1.0**	**29**	**C**	**0.63**	**10**	**A**	**0.63**	**10**	**A**
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	0.70	33	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	0.34	18	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**	**61**	**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

[4]Build conditions represent roadway network prior to proposed improvements; refer to Section 4.6.2 (Off-Site Improvements) for Build Mitigated conditions analysis including One Way West Howell Street, Boston Street Bypass Road, and Mass Ave/Enterprise Street improvements.

Table 4-9 (Continued): Intersection Capacity Analysis Results Weekday Morning Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build[4]		
		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	0.02	12	B
	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	0.38	27	D
	Northbound	0.01	< 5	A	0.02	< 5	A	0.02	< 5	A
	Southbound	0.00	< 5	A	0.00	< 5	A	0.03	< 5	A
12 - Boston St at Frontage Rd/ Washburn St	Eastbound	0.75	19	B	0.75	19	B	0.76	18	B
	Northbound	0.39	6	A	0.40	6	A	0.44	7	A
	Southbound	0.26	5	A	0.27	5	A	0.28	6	A
	Overall	**0.75**	**11**	**B**	**0.75**	**11**	**B**	**0.76**	**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	0.64	56	E
	Southbound	0.30	39	D	0.32	40	D	0.34	41	D
	Northeastbound	> 1.0	76	E	> 1.0	76	E	> 1.0	81	F
	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	60	E
	Westbound	0.63	26	C	0.64	26	C	0.68	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**	**41**	**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	0.14	< 5	A
	Southbound	0.70	21	C	0.72	22	C	0.75	23	C
	Southeastbound	0.42	31	C	0.43	31	C	0.44	31	C
	Overall	**0.70**	**22**	**C**	**0.72**	**23**	**C**	**0.75**	**23**	**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	0.73	8	A
	Northbound	0.74	40	D	0.74	40	D	0.75	40	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	0.26	24	C	0.26	23	C	0.26	23	C
	Southbound	0.49	< 5	A	0.46	< 5	A	0.47	< 5	A
	Overall	0.49	5	A	0.46	5	A	0.47	5	A
19 – Frontage Rd NB at South Boston By-pass	Eastbound	0.31	29	C	0.28	29	C	0.28	29	C
	Westbound	0.21	25	C	0.21	26	C	0.21	26	C
	Northbound	0.59	11	B	0.56	11	B	0.58	11	B
	Overall	0.59	13	B	0.56	13	B	0.58	13	B

Table 4-10: Intersection Capacity Analysis Results Weekday Evening Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build4		
		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	46	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	<4	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**	**17**	**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	17	B	0.05	21	C	0.05	21	C
	Westbound	>1.0	66	E	0.98	64	E	0.98	64	E
	Northbound	0.35	7	A	0.28	6	A	0.31	7	A
	Southbound	0.59	13	B	0.47	15	B	0.48	15	B
	Overall	**>1.0**	**24**	**C**	**0.98**	**24**	**C**	**0.98**	**23**	**C**
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	0.87	>50	F
	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	0.36	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

[4]Build conditions represent roadway network prior to proposed improvements; refer to Section 4.6.2 (Off-Site Improvements) for Build Mitigated conditions analysis including One Way West Howell Street, Boston Street Bypass Road, and Mass Ave/Enterprise Street improvements.

Table 4-10 (Continued): Intersection Capacity Analysis Results Weekday Evening Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build[4]		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
10 – Boston St at	EB L/R Exit	0.14	18	C	0.14	18	C	0.01	12	B
Enterprise St	Northbound	0.02	<5	A	0.02	<5	A	0.05	<5	A
11 – Boston St at	EB L/R Exit	0.09	16	C	0.09	17	C	0.47	35	D
West Howell St/	Northbound	0.01	<5	A	0.01	<5	A	0.02	<5	A
Howell St	Southbound	0.05	<5	A	0.05	<5	A	0.05	<5	A
12 - Boston St at	Eastbound	0.59	18	B	0.59	18	B	0.61	18	B
Frontage Rd/	Northbound	0.31	5	A	0.32	5	A	0.37	5	A
Washburn St	Southbound	0.30	5	A	0.31	5	A	0.36	5	A
	Overall	0.59	9	A	0.59	9	A	0.61	9	A
13 – Southampton St at	Eastbound	1.00	>80	F	>1.0	>80	F	>1.0	>80	F
Preble St/	Westbound	0.82	>80	F	0.83	>80	F	0.87	>80	F
Dorchester Ave/	Northbound	0.44	47	D	0.47	48	D	0.54	53	D
Dorchester St/	Southbound	0.47	45	D	0.50	47	D	0.57	51	D
Boston St	Northeastbound	0.98	71	E	0.98	71	E	>1.0	76	E
(Andrew Square)	Southwestbound	0.85	79	E	0.87	>80	F	0.90	>80	F
	Overall	1.00	69	E	>1.0	71	E	>1.0	78	E
14 – Southampton St at	Eastbound	0.67	34	C	0.70	35	C	0.73	36	D
I-93 NB Off-ramp/	Westbound	0.50	30	C	0.51	31	C	0.51	31	C
Frontage Road	Northbound	0.62	52	D	0.68	53	D	0.68	51	D
(Exit 16)	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	EB R Exit	0.10	10	A	0.11	10	A	0.11	10	A
South Bay Ctr										
16 – Frontage Road at	Eastbound	0.37	7	A	0.37	7	A	0.44	10	A
South Bay Ctr/	Southbound	0.52	19	B	0.54	19	B	0.60	21	C
Southampton St	Southeastbound	0.83	45	D	0.85	47	D	0.89	52	D
	Overall	**0.83**	**27**	**C**	**0.85**	**28**	**C**	**0.89**	**30**	**C**
17 – Southampton St at	Eastbound	0.56	12	B	0.58	12	B	0.61	13	B
South Bay Ctr/	Westbound	0.59	7	A	0.60	8	A	0.91	9	A
Public Storage Dwy	Northbound	0.61	29	C	0.61	29	C	0.68	33	C
	Southbound	0.00	32	C	0.00	32	C	0.00	31	C
	Overall	**0.70**	**12**	**B**	**0.70**	**13**	**B**	**0.91**	**15**	**B**
18 – Frontage Rd SB at	Westbound	0.22	58	E	0.21	59	C	0.21	64	E
South Boston By-pass	Southbound	0.28	<5	A	0.26	<5	A	0.28	<5	A
	Overall	0.28	8	A	0.26	8	A	0.28	8	A
19 – Frontage Rd NB at	Eastbound	0.13	35	D	0.12	34	C	0.12	35	D
South Boston By-pass	Westbound	0.24	20	C	0.24	21	C	0.26	29	C
	Northbound	0.48	10	A	0.47	9	A	0.77	14	B
	Overall	0.48	12	B	0.47	12	B	0.77	16	B

Table 4-11: Intersection Capacity Analysis Results Saturday Midday Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build[4]		
		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	28	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	7	A	0.01	27	C	0.01	27	C
	Westbound	0.99	48	D	>1.0	74	E	>1.0	74	E
	Northbound	0.47	10	B	0.36	<5	A	0.38	<5	A
	Southbound	0.43	16	B	0.28	6	A	0.43	7	A
	Overall	**0.99**	**23**	**C**	**>1.0**	**25**	**C**	**>1.0**	**25**	**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	0.48	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	0.79	45	E
	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	0.34	18	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

[4]Build conditions represent roadway network prior to proposed improvements; refer to Section 4.6.2 (Off-Site Improvements) for Build Mitigated conditions analysis including One Way West Howell Street, Boston Street Bypass Road, and Mass Ave/Enterprise Street improvements.

Table 4-11 (Continued): Intersection Capacity Analysis Results Saturday Midday Peak Hour

Intersection	Approach	Baseline			2021 No-Build			2021 Build[4]		
		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	0.08	11	B
	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	0.49	30	D
	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**	**0.53**	**9**	**A**
13 – Southampton St at Preble St/ Dorchester Ave/ Dorchester St/ Boston St (Andrew Square)	Eastbound	0.96	79	E	> 1.0	> 80	F	> 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	0.47	11	B
	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	0.18	22	C	0.17	21	C	0.17	22	C
	Southbound	0.48	< 5	A	0.47	< 5	A	0.47	< 5	A
	Overall	0.48	5	A	0.47	< 5	A	0.47	< 5	A
19 – Frontage Rd NB at South Boston By-pass	Eastbound	0.24	28	C	0.21	27	C	0.21	27	C
	Westbound	0.10	20	B	0.10	20	C	0.10	20	C
	Northbound	0.56	11	B	0.55	12	B	0.55	12	B
	Overall	0.56	13	B	0.55	13	B	0.55	14	B

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, excepting Massachusetts Avenue and Enterprise Street (Intersection 7) and Boston Street at West Howell Street (Intersection 11) where improvements are proposed to better accommodate traffic. Key findings of capacity analysis presented in Table 4-9, Table 4-10 and Table 4-11 are as follows:

1. *Massachusetts Avenue at Massachusetts 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 Newmarket Square and 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). Although operations are quantified as having acceptable delays, observations indicate high vehicle conflicts within the intersection that are the result of motorists using the right-only lane to bypass left-turn vehicles. Accordingly, the Proponent has identified possible solutions as described in more detail under Recommendations that are currently under consideration by the BTD that include designating two general purpose travel lanes northbound and associated signal phasing modifications.

4. *Massachusetts Avenue at South Bay Center:* Traffic operations at this unsignalized intersection are LOS C or better and will continue at this level with Project-related traffic.

5. *Massachusetts Avenue at Allstate Road:* Traffic operations at this signalized intersection are LOS C or better; however, observations of existing conditions indicate that delays for vehicles exiting South Bay Center (via Allstate Road) onto Massachusetts Avenue during peak hours are long due to short phase time and occasional blockage by MBTA bus operations along Massachusetts Avenue at the Eversource driveway stop. Signal timing/phasing improvements currently under design and implementation by the BTD will improve operations and reduce delays for the Allstate Road approach. In addition, as described under *Recommendations*, the Proponent has consulted with the MBTA and anticipates relocation of the Massachusetts Avenue bus stop at Eversource further south of the signal to reduce potential lane blockage exiting Allstate Road. There is no material change in intersection delays due to Project-related traffic and the signal will continue to operate below capacity at LOS C or better.

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:* Project-related traffic will increase delays for left-turn exit movements onto Massachusetts Avenue as a result of restricting left-turn movements from the Project Site onto Enterprise Street; however, proposed intersection improvements as described under *Recommendations* will provide separate turn lanes that will adequately accommodate these anticipated trips during peak hours with operations of LOS D or better during peak hours.

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 is no material change in intersections delays due to Project-related traffic (no change in delays overall) as site-related trip increases at this intersection represent less than a 2 percent change. The Proponent is nevertheless committed to identifying conceptual improvements as part of a Road Safety Audit (RSA) process with MassDOT to assist the City and MassDOT in planning future operational and safety enhancements at this location. A preliminary improvement concept is described in more detail under *Recommendations*.

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). The Proponent commits to restricting left-turns from the Project Site onto Enterprise Street to ensure that traffic activity onto Boston Street at Enterprise Street due to the Project is restricted as described in more detail under Section 4.6 *Recommendations*.

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. Following completion of the Boston Street Bypass Road and conversion of West Howell Street to one-way operation (away from Boston Street) operations will be further improved by eliminating turn conflicts exiting West Howell Street entirely as described in more detail in Section 4.6.2.

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). This finding also holds following completion of the Boston Street Bypass Road and conversion of West Howell Street to one-way operation (away from Boston Street) as described and evaluated in more detail in Section 4.6.2.

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.

4.4.3 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 4-12, Table 4-13, and Table 4-14. Detailed worksheets of the queuing analysis are provided in the Appendix.

As presented in Table 4-12, Table 4-13 and Table 4-14, 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 4-12: 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	30	54	30	54
Westbound L	585±	66	112	66	112
Westbound T/R	585±	<25	37	<25	37
Northbound L	240±	<25	<25	<25	<25
Northbound T	>1000	75	143	80	151
Northbound T/R	450±	75	143	80	151
Southbound L	765±	<25	<25	<25	<25
Southbound T/R	765±	26	63	<25	58

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

Table 4-12 (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	205	298
Eastbound R	325±	<25	<25	<25	<25
Westbound L/T & T/R	>1000	73	107	80	116
Northbound L	200±/405±	119	189	119	189
Northbound T/R	405±	410	625	422	638
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	145
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	112
Northbound T/R	875±	57	156	70	192
Southbound L/T	>1000	34	96	37	107
13-Southampton St at Preble St/ Dorchester Ave/Dorchester St/ Boston St (Andrew Square)					
Eastbound L	800±	185	357	189	360
Eastbound T/R	800±	158	238	163	245
Westbound L/T & T/R	>1000	222	336	223	338
Northbound L/T & T/R	480±/280±	179	242	181	243
Southbound L/T & T/R	245±/>1000	67	108	70	110
Northeastbound L/T & T/R	200±/>1000	232	298	262	361
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	320	568
Eastbound T	600±	294	531	295	532
Westbound T	815±	164	218	164	218
Westbound R	100±	157	266	172	291
Northbound L	815±	131	197	133	201
Northbound T	815±	135	205	136	207
Northbound R	815±	<25	34	<25	38
Southbound R	515±	<25	<25	<25	<25

Table 4-12 (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	293	381
Southeastbound	>1000	72	113	73	115
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	85	161
Southbound L/T/R	100±	<25	<25	<25	<25
18-Frontage Road Southbound at South Boston By-pass					
Westbound L	175±	29	54	29	54
Southbound T	800±	118	150	124	156
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	45	76	45	76
Westbound T/R	200±	34	62	35	62
Northbound T/R	>1000	205	244	211	252

Table 4-13: 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	288	430
Westbound L	425±	191	296	220	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	304	414
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	36	67
Southbound L/T	>1000	170	322	186	352
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	163
Northbound T	750±	108	209	137	258
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±	212	390	212	390
Westbound T/R	585±	<25	46	<25	46
Northbound L	240±	<25	<25	<25	<25
Northbound T	>1000	61	85	82	111
Northbound T/R	450±	61	85	82	111
Southbound L	765±	28	54	43	83
Southbound T/R	765±	229	351	234	354

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

Table 4-13 (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	121	164
Northbound L	200±/405±	163	235	163	244
Northbound T/R	405±	274	355	285	377
Southbound L/T & T/R	>1000	504	635	522	653
9-Columbia Road at Dorchester Avenue					
Eastbound L	130±	<25	<25	<25	<25
Eastbound T/R	>1000	144	130	152	135
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	68
Northbound T/R	875±	45	94	54	118
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	279	368
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	198	175
Eastbound T	600±	357	538	377	613
Westbound T	815±	187	244	187	244
Westbound R	100±	102	181	129	217
Northbound L	815±	102	162	104	164
Northbound T	815±	102	164	104	165
Northbound R	815±	<25	34	<25	49
Southbound R	515±	<25	<25	<25	<25

Table 4-13 (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	37
Southbound T	600±	182	238	198	266
Southeastbound	>1000	171	272	171	277
17-Southampton St at South Bay Center/ Public Storage Dwy					
Eastbound L/T & T/R	>1000	178	276	197	307
Westbound L/T & T/R	625±	62	107	67	117
Northbound L	650±	50	94	62	110
Northbound T/R	>1000	<25	78	37	105
Southbound L/T/R	100±	<25	<25	<25	<25
18-Frontage Road Southbound at South Boston By-pass					
Westbound L	175±	25	50	26	46
Southbound T	800±	54	71	58	76
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	<25	41	<25	41
Westbound T/R	200±	32	61	45	75
Northbound T/R	>1000	150	182	347	410

Table 4-14 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	116	195
Westbound L	425±	76	114	87	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	215	285
Northbound R	>1000	<25	<25	<25	<25
Southbound L	400±	159	264	159	264
Southbound T/R	400±	168	231	178	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	26	50
Southbound L/T	>1000	119	226	133	251
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	60	165
Northbound T	750±	125	253	157	309
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±	235	405	235	405
Westbound T/R	585±	<25	56	<25	56
Northbound L	240±	<25	<25	<25	<25
Northbound T	>1000	63	90	72	102
Northbound T/R	400±	63	90	72	102
Southbound L	765±	<25	28	<25	55
Southbound T/R	765±	47	76	48	88

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

Table 4-14 (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	93	132
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	29	46
Eastbound T/R	>1000	117	123	124	126
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	352
Eastbound T/R	800±	167	250	179	265
Westbound L/T & T/R	>1000	173	277	178	289
Northbound L/T & T/R	480±/280±	161	232	168	232
Southbound L/T & T/R	245±/>1000	106	166	116	173
Northeastbound L/T & T/R	200±/>1000	213	263	245	308
Southwestbound L/T & T/R	>1000	181	240	191	254
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 4-14 (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	43
Southbound T	600±	322	412	350	483
Southeastbound	>1000	69	108	69	112
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±	<25	<25	<25	<25
Southbound T	800±	118	153	118	153
19- Frontage Road Northbound at South Boston By-pass					
Eastbound L/T	175±	36	65	36	65
Westbound T/R	200±	<25	33	<25	33
Northbound T/R	>1000	174	240	180	250

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

4.4.4 SIDEWALK AND CROSSWALK CAPACITY ANALYSIS PROCEDURES

Capacity analysis of critical pedestrian crosswalks and walkways in the immediate study area, as well as potential project-related impacts to these facilities was quantified based on methods of the 2010 Highway Capacity Manual (HCM). The resulting analysis presents a level-of-service (LOS) designation for individual sidewalk and crosswalk sections based on pedestrian density. The LOS is a letter designation that provides a qualitative measure of operating conditions based on several factors including sidewalk/crosswalk geometry, walk speeds, ambient pedestrian volumes, traffic controls, and pedestrian density. Since the LOS of a pedestrian facility is a function of the pedestrian 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 based on density, ranging from LOS A (the ability to move in desired path, no need to alter movements) to LOS F (speed severely restricted, frequent contact with other users). The specific delays and associated LOS designations are presented in the Appendix.

Sidewalk Analysis

The Analysis evaluated sidewalks along Massachusetts Avenue, Boston Street, and Southampton Street that provide direct connections to the Project Site that will be impacted by project-generated pedestrian activity. Primary pedestrian pathways are shown on Figure 4-5 which represent the likely walking paths to South Bay Center and nearby transit stations at Andrew Square and Newmarket Square. The analysis also calculates the maximum pedestrian volume that could be accommodated for each sidewalk to achieve the LOS D or better conditions (15 ped/ft/min), defined here as the "unconstrained capacity" based on the minimum effective width for each sidewalk. Volumes below these limits would operate at unconstrained conditions. Observed 2014 peak-hour pedestrian volumes serve as the basis for Baseline conditions. The analysis clearly indicates that pedestrian volumes are well within acceptable volume limits, and that there is ample capacity to readily accommodate project-generated pedestrian increases. The results of the sidewalk analysis are presented in Table 4-15.

Table 4-15: Sidewalk Pedestrian Analysis Results

Location	Pedestrian Volume[1]	Unconstrained Capacity[2]	Remaining Unconstrained Capacity[1]	Percent Utilization
Massachusetts Ave between Enterprise St and Newmarket Square				
East Sidewalk	70±	5,850	5,780	1%
Enterprise St between Massachusetts Ave and the Project Site				
North-east Sidewalk	< 5	450	445	1%
Boston Street between West Howell St and Andrew Square				
West Sidewalk	90±	3,303	3,213	2%

[1]Pedestrians per hour

[2]Defined as the maximum flow rate for the minimum effective sidewalk width for LOS D or better operations in pedestrians per hour.

As presented in Table 4-15, projected maximum pedestrian volumes on sidewalks along the primary pedestrian pathways are estimated to be 1 to 2 percent of the unconstrained capacity volume at any location, and as a result sidewalks are expected to operate satisfactorily even under substantial fluctuations in pedestrian flow. The existing facilities (and those proposed to be improved by the Proponent as described under *Recommendations*) will easily accommodate projected pedestrian increases associated with the proposed Project within acceptable conditions. Total additional Project Site walk/bike/transit trips are estimated at fewer than 1,000 per hour as summarized in Table 4-5, of which fewer than 500 are expected to walk (rather take a shuttle or bus) to an area transit center, which is accommodated well within available reserve sidewalk capacity. It is anticipated that a substantial number of patrons/residents will utilize existing transit and shuttle route options in the immediate area for these connections rather than walking, particularly during colder months or during inclement weather conditions. Accordingly, with enhancements outlined under *Recommendations*, the additional projected pedestrian volumes will be adequately accommodated along the primary pedestrian pathways.

Crosswalk Analysis

Capacity analysis was conducted for the crosswalks at each of the signalized intersections along the primary pedestrian pathways. Capacity Analysis was conducted for 2022 Build conditions for the crosswalk corner space, crosswalk space and intersection crosswalk score with results presented in Table 4-16.

Table 4-16: Crosswalk (CW) Pedestrian Capacity Analysis

Intersection	Time Period	2025 Build					
		Corner Space[1]	LOS[2]	Crosswalk Space[1]	LOS[2]	Intersection CW Score[3]	LOS[2]
5 - Massachusetts Ave at Allstate Rd (Allstate Rd CW)	Weekday AM	1,327	A	290	A	2.3	B
	Weekday PM	563	A	110	A	2.4	B
	Saturday Midday	522	A	87	A	2.4	B
12 - Boston St at Frontage Rd (Frontage Rd CW)	Weekday AM	483	A	125	A	2.1	B
	Weekday PM	198	A	55	B	2.2	B
	Saturday Midday	167	A	50	B	2.2	B
13 – Andrew Square (Southampton St West CW)	Weekday AM	177	A	23	D	2.7	B
	Weekday PM	95	A	17	D	2.7	B
	Saturday Midday	123	A	30	C	2.7	B

[1]Square feet per pedestrian.

[2]Level of service defined by HCM2010.

[3]Intersection crosswalk score.

As presented in Table 4-16, with projected maximum pedestrian volumes on crosswalks along the desired pathways the area crosswalks will continue to have adequate corner space, crosswalk space and operate with an overall crosswalk LOS B or better during the peak hours. As shown, the crosswalks are expected to operate satisfactorily even under substantial fluctuations in pedestrian flow. The existing facilities will easily accommodate projected pedestrian increases associated with the proposed Project within acceptable conditions.

4.4.5 PUBLIC TRANSPORTATION CAPACITY ANALYSIS PROCEDURES

The proposed development is projected to generate 147 and 371 public transportation trips during the weekday morning peak hour and weekday evening peak hour, respectively.

As previously indicated, several MBTA and the South Bay Shuttle bus stops are located within a short walking distance of the Project Site with the closest stops within the South Bay Center. The majority of the area bus routes travel through Andrew Station including the South Bay Shuttle. The Newmarket Station and Andrew Station are located approximately ¼ mile and ½ mile from the Project Site, respectively. An inventory of the Public Transportation Capacity is summarized in Table 4-17 for the peak weekday morning period and Table 4-18 for the peak weekday evening period. Hourly ridership characteristics of the South Bay Shuttle are shown graphically in Figure 4-30 and Figure 4-31 for a typical weekday and Saturday.

Table 4-17: Public Transportation Capacity: Morning Peak Hour (7:30-8:30 am)

Transit Route	Peak Hour Ridership[1]	Hourly Trains or Buses	Headway	Hourly Capacity[2]	v/c[3]	Reserve Capacity[4]
Redline (Andrew Station):						
Ashmont Train (Inbound)	4,122	8	8 minutes	8,160	0.51	4,038
Braintree Trains (Inbound)	5,970	8	8 minutes	8,160	0.73	2,190
Total at Andrew Station	**10,092**	**16**	**4 minutes**	**16,320**	**0.62**	**6,228**
Newmarket Station :	**218**	**2**	**40 minutes**	**1,464**	**0.15**	**1,246**
Bus Routes (Inbound):						
8**	84	4	14 minutes	300	0.28	216
10**	75	3	20 minutes	225	0.33	150
16**	160	4	17 minutes	300	0.53	140
17	120	4	16 minutes	300	0.40	180
18	19	2	30 minutes	150	0.13	131
171	n/a	0	n/a	n/a	n/a	n/a
708	16	3	20 minutes	225	0.07	209
South Bay Shuttle**	n/a	0	n/a	n/a	n/a	n/a
Total Bus (Inbound)	**474**	**20**	**n/a**	**1,500**	**0.32**	**1,026**
Bus Routes (Outbound):						
8**	291	5	14 minutes	375	0.78	84
10**	226	5	13 minutes	375	0.60	149
16**	182	4	17 minutes	300	0.61	118
17	230	4	18 minutes	300	0.77	70
18	138	2	30 minutes	150	0.92	12
171	n/a	0	n/a	n/a	n/a	n/a
708	294	6	10 minutes	450	0.65	156
South Bay Shuttle**	n/a	0	n/a	n/a	n/a	n/a
Total Bus (Outbound)	**1,361**	**26**	**n/a**	**1,950**	**0.70**	**589**

**Bus/Shuttle Route travels through and stops within the South Bay Shopping Center.

[1]Ridership statistics are based on peak hour data provided by the MBTA, the South Bay Center and observations collected by MDM in November 2015.

[2]Capacity is based on MBTA operating capacity in pedestrians per hour (not the higher crush capacity).

[3]Volume to capacity.

[4]Reserve capacity is based on MBTA operating capacity (not the higher crush capacity) less ridership in pedestrians per hour.

Table 4-18: Public Transportation Capacity: Evening Peak Hour (4:45-5:45 pm)

Transit Route	Peak Hour Ridership[1]	Hourly Trains or Buses	Headway	Hourly Capacity[2]	v/c[3]	Reserve Capacity[4]
Redline (Andrew Station):						
Ashmont Train (Inbound)	4,208	7	9 minutes	7,140	0.59	2,932
Braintree Trains (Inbound)	5,611	7	10 minutes	7,140	0.79	1,529
Total at Andrew Station	**9,820**	**14**	**5 minutes**	**14,280**	**0.69**	**4,461**
Newmarket Station :	**166**	**1**	**30 minutes**	**732**	**0.23**	**566**
Bus Routes (Inbound):						
8**	113	2	30 minutes	150	0.75	37
10**	168	3	24 minutes	225	0.75	57
16**	80	2	25 minutes	150	0.53	70
17	222	4	14 minutes	300	0.74	78
18	68	1	45 minutes	75	0.91	7
171	n/a	0	n/a	n/a	n/a	n/a
708	231	5	10 minutes	375	0.62	144
South Bay Shuttle**	48	4	20 minutes	300	0.16	252
Total Bus (Inbound)	**930**	**21**	**n/a**	**1,575**	**0.59**	**645**
Bus Routes (Outbound):						
8**	40	2	27 minutes	150	0.27	110
10**	81	2	24 minutes	150	0.54	69
16**	90	3	20 minutes	225	0.40	135
17	194	4	14 minutes	300	0.65	106
18	65	1	40 minutes	75	0.87	10
171	n/a	0	n/a	n/a	n/a	n/a
708	185	3	25 minutes	225	0.82	40
South Bay Shuttle**	39	4	20 minutes	300	n/a	261
Total Bus (Outbound)	**654**	**19**	**n/a**	**1,425**	**0.46**	**731**

**Bus/Shuttle Route travels through and stops within the South Bay Shopping Center.

[1]Ridership statistics are based on peak hour data provided by the MBTA, the South Bay Center and observations collected by MDM in November 2015.

[2]Capacity is based on MBTA operating capacity in pedestrians per hour (not the higher crush capacity).

[3]Volume to capacity.

[4]Reserve capacity is based on MBTA operating capacity (not the higher crush capacity) less ridership in pedestrians per hour.

As presented in Table 4-17 and Table 4-18, the MBTA's redline subway at Andrew Station, Commuter Rail line at Newmarket Square, Bus Service through/adjacent to the South Bay Center, and the South Bay shuttle are currently operating below capacity during the critical weekday morning and weekday evening peak hours. These transit services each have reserve capacity that notably exceeds projected peak hour ridership generated by the Project. The area public transportation services can adequately accommodate the projected peak demand from the Project Site. The Proponent will also increase the hours of the South Bay shuttle and implement a van shuttle to Newmarket Station for the residential development during the peak hours as outlined under *Recommendations* to ensure that ample services and capacity is available to accommodate projected ridership.

4.5 PARKING

This section identifies the parking supply and demand relationships for a study within ¼ mile of the Project Site. This section also contains a project-related parking demand analysis. This analysis is based upon the uses proposed and non-auto mode shares for the Dorchester "Area 8" as documented under *Trip Generation*. The analysis also incorporates a "shared parking" concept based up on the Urban Land Institute (ULI) methodology. The evaluation was conducted in accordance with BTD's Transportation Access Plan Guidelines.

4.5.1 EXISTING AREA PARKING SUPPLY

The existing parking supply within ¼ mile of the Project Site includes 3,842± parking spaces. The study area is shown in Figure 4-32 was color coded based on parking type with detailed data sheets included in the Appendix and included the following parking space breakdown:

- South Bay Center Parking Lots – 2,409± 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. A detail parking inventory broken down by parking zones for South Bay Center is provided in the Appendix.

- Public On-Street Parking - 1,433 ± spaces

  The public on-street parking supply within ¼ mile of the Project Site includes 439 time-limit restricted spaces (1 to 2 hour parking limit), 663 resident-only parking spaces (resident permit required), and 331 unregulated spaces as summarized in Table 4-16. Although observations indicate that parking activity along West Howell Street often exceeds 30 vehicles as documented under the following section, this level of activity is only accommodated by parking "head-in", in front of driveways and garages or on private property not within public way. For purposes of this inventory, the effective parking supply along West Howell Street is assumed to be approximately 20 vehicles to reflect "head-in" parking that does not block driveways or garages and that is not located on private property. A parking plan exhibit for West Howell Street assuming striping for standard size City spaces is included in the Appendix which identified a parking supply of 18 spaces on the west side of the street and 2 spaces on the east side of the street. As described under *Recommendations*, proposed modification of West Howell Street to allow one-way travel (away from Boston Street) will result in an effective parking supply that is approximately equal to this existing effective parking supply.

Table 4-19: On-Street Parking Supply – ¼ ± Mile Radius

	Parking Supply[1]			
Location	**1 Hour Parking**	**2 Hour Parking**	**Resident Permit Only Parking**	**Unrestricted Parking[2]**
Dorchester Avenue	-	176 (1)	-	-
Boston Street	12	11 (1)	<66>	[96]
Rawson Street	-	-	<24>	-
Washburn Street	-	12 (1)	<44>	-
Howell Street	2	6	<42 (1)>	-
Bellflower Street	-	4	<46 (5)>	-
Dorset Street	-	15	<57 (2)>	-
Harvest Street	-	4	<70 (2)>	-
Mt. Vernon Street	-	18	<81>	-
St. Margaret Street	-	12(1)	<75>	-
Mayhew Street	-	4	<71>	-
Roseclair Street	-	24	<74 (3)>	-
W. Howell Street	-	-	-	[20][4]
W. Bellflower Street	-	-	-	[22]
Enterprise Street	-	-	-	[50]
Clapp Street	-	-	-	[42]
Willow Court	-	-	-	-
Massachusetts Ave	-	53 (4)	-	[71]
Newmarket Square	-	76 (2)	-	[30]
Total	**14**	**415(10)**	**<650 (13)>**	**[331]**

[1] (#) = Handicapped Parking Space

[2] [#] = Unrestricted Parking Space

[3] <#> = Resident Permit Parking Space

[4] Non-Standard Parking occurs on West Howell Street.

4.5.2 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. An on-street parking accumulation survey was also conducted to identify parking trends within a ¼ ± mile radius of the Project Site on Thursday, November 19, 2015 and Monday, December 21, 2015. The inventory included parking observations of the weekday midday parking demand (12:00 PM) and weekday evening parking demand (8:00 PM) which is summarized in Table 4-20 and Table 4-21.

Table 4-20: On-Street Parking Demand – Weekday Midday (12:00 PM) – ¼ ± Mile Radius

	Observed Parking Demand		
Roadway	**Occupied Spaces**	**Total**	**Percent Occupied**
Dorchester Avenue	89	89	50%
Boston Street	10 [73] <9>	92	49%
Rawson Street	<9>	9	38%
Washburn Street	9 <22>	31	54%
Howell Street	7 <20>	27	53%
Bellflower Street	<25>	25	45%
Dorset Street	10 <18>	28	38%
Harvest Street	<24>	24	32%
Mt. Vernon Street	3 <29>	32	32%
St. Margaret Street	3 <27>	30	34%
Mayhew Street	3 <32>	35	47%
Roseclair Street	14 <50>	64	63%
W. Howell Street	[20]	20	100%
W. Bellflower Street	[7]	7	32%
Enterprise Street	[37]	37	74%
Clapp Street	[12]	12	29%
Willow Court	-	-	-
Massachusetts Ave	17 [48]	65	51%
Newmarket Square	79 [20]	99	92%
Total	**234 [217] <265>**	**716**	**51%**

[1] (#) = Handicapped Parking Space
[2] [#] = Unrestricted Parking Space
[3] <#> = Resident Permit Parking Space

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

Table 4-21: On-Street Parking Demand – Weekday Evening (8:00 PM) – ¼ ± Mile Radius

	Parking Demand		
Roadway	**Occupied Spaces**	**Total**	**Percent Occupied**
Dorchester Avenue	76	76	43%
Boston Street	13[58]<38>	109	59%
Rawson Street	<19>	19	79%
Washburn Street	12(1)<33>	46	81%
Howell Street	6(2)<26>	34	67%
Bellflower Street	4(1)<31>	36	65%
Dorset Street	10<38>	48	65%
Harvest Street	4(2)<40>	46	61%
Mt. Vernon Street	13<62>	75	76%
St. Margaret Street	10(1)<55>	66	75%
Mayhew Street	5<27>	32	43%
Roseclair Street	18<64>	82	81%
W. Howell Street	[34]	34	100%
W. Bellflower Street	[12]	12	55%
Enterprise Street	[13]	13	26%
Clapp Street	[5]	5	12%
Willow Court	-	-	-
Massachusetts Ave	16 [10]	26	20%
Newmarket Square	1	1	1%
Total	**169 [132]<433>**	**734**	**60%**

[1] (#) = Handicapped Parking Space

[2] [#] = Unrestricted Parking Space

[3] <#> = Resident Permit Parking Space

Key findings of the area 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% (2.5 spaces per 1,000 sf) resulting in a reserve parking supply of at least approximately 1,102 spaces. The vast majority of reserve spaces are located centrally within the parking field furthest from store entrances. A detailed parking inventory is provided in the Appendix.

- *On-Street Parking– Weekday Midday (12:00 pm) Parking Demand*. The parking demand during the weekday midday period was observed to be 716 spaces. The resulting parking utilization is approximately 51% resulting in a reserve supply of at least 717 vacant spaces (including 205 time-restricted spaces), 398 resident spaces, and 114 unregulated spaces.

- *On-Street Parking Weekday Evening (8:00 pm) Parking Demand*. The parking demand during the weekday evening period was observed to be 734 spaces. The resulting parking utilization is approximately 60% resulting in a reserve supply of at least 699 spaces (including 270 time-restricted spaces), 230 resident spaces, and 199 unregulated spaces.

In summary the total supply of public parking located within a ¼ mile of the Project Site accommodates existing parking needs of the abutting neighborhood; parking supply within the existing South Bay Center also meets commercial needs but is observed to have surplus capacity in portions of the center that are located furthest from retail buildings.

4.5.3 PROPOSED PARKING SUPPLY

The Project Site has been designed as a standalone project and has been designed to satisfy its own parking needs without any additional off-site parking. The Project Site will be redeveloped to expand the existing 600-space surface lot supply to include a total supply of 1,095 spaces consisting of the following components:

- Residential Parking – 374 spaces
  - 309 in dedicated residential garages
  - 65 spaces held in reserve within the commercial garage

- Commercial Parking – 721 spaces
  - 601 garage spaces
  - 141 surface lot spaces
  - 44 on-street spaces

Commercial parking spaces will be primarily located within a garage structure that provides 601 spaces; additional surface parking will include 44 on-street spaces and 141 surface lot spaces. The largest surface lots will be comprised of a 65-space lot for general retail use referred to as the "finger lot", and a 49-space lot adjacent to West Howell Street for use by the hotel.

The parking allocation of parking to the residential component of the Project Site will be available to residents for a fee and cannot be used for commercial public purposes. Accordingly, these residential spaces are provided in separate garage structures totaling 309 spaces, providing an effective parking ratio of 0.65 spaces per unit. The parking supply for the residential component is designed to be 0.65 spaces per unit which complies with the City's parking goal of between 0.5 and 1.0 space per unit for the Dorchester neighborhood as outline in BTD's *Parking Boston* and is highly consistent with vehicle ownership ratios for the neighborhood as documented by the US Census. Despite market research that indicates this parking supply ratio will be adequate to support likely rental demographics for Project

residents, the neighborhood has expressed concern that this parking supply ratio may result in parking impacts to existing resident-only spaces on public way. Accordingly, the Proponent also proposes to hold 65 additional parking spaces within the commercial garage "in reserve" for potential residential use for a fee. If it is determined that this reserved parking is not required after one year from construction of the residential component, then those reserved parking spaces will be converted back to retail use and the Project Site's surface "finger lot" will cease as a parking lot and become developable property.

4.5.4 SHARED PARKING ANALYSIS

The mixed-use Project will allow the on-site commercial parking to be shared between the different users. For example, cinema related parking demand is highest on weekend evenings while retail-related parking demand is highest during the day. This allows some spaces to be used by retail patrons during the day and cinema patrons at night. The concept of parking for mixed-use facilities is presented in Urban Land Institute's (ULI's) *Shared Parking*[2], which provides peak parking characteristics, and hourly breakdown of the parking demands for various land uses. The following analysis is based on procedures outline in that study.

The first step in shared parking analysis is the determination of appropriate parking demand rates for the various Project components. The standard parking rates published in *Shared Parking* for these uses have been adjusted to reflect the auto mode share and vehicle occupancy assumptions specific to the Project Site. Since the residential parking must be reserved, they are not included in the shared parking calculations, as these spaces will not be available for commercial public parking.

The analysis that follows is based on "shared use" concepts and assumes reasonable transit and pedestrian assumptions described under Trip Generation that are reinforced by enhanced conditions (expanded South Bay shuttle service and enhanced sidewalk connections) that will promote the use of these modes of travel. The shared parking analysis assessed each components hourly variation to identify critical periods of overlapping peak parking demands for the Project Site uses.

[2]*Shared Parking*, 2nd Edition; Urban Land Institute; Washington, DC; 2005.

Table 4 22 presents the calculation of peak parking demand for the hotel, retail, and cinema components of the Project based on ULI methodology and presents the peak parking demand for the combined (i.e. shared) use of the commercial parking areas based on the specific parking rates for the Project Site. The estimated parking accumulation, for the Build scenario for a typical weekday and typical Saturday, with hourly parking accumulation patterns are also shown graphically in Figure 4-33 and Figure 4-34, respectively. Detailed shared parking calculations are provided in the Appendix.

Table 4-22: Shared Parking Summary – Commercial

	Shared Parking Rates[1]			South Bay Rates[2]			Parking Demand	
Land Use	**Rate**	**% Auto**	**VOR[3]**	**% Auto**	**VOR[3]**	**Rate**	**Stand Alone**	**Shared Use**
Weekday								
Hotel (130 rooms)	1.25	100%	2.2	61%	2.2	0.76	99	**79**
Retail (113,000 sf)	3.60	100%	1.8	61%	1.8	2.20	248	**204**
Theatre	0.20	100%	2.0	61%	2.0	0.12	152	**152**
						Total	499	**435**
Saturday								
Hotel	1.08	100%	2.2	61%	2.2	0.66	86	**96**
Retail (113,000 sf)	4.00	100%	1.8	61%	1.8	2.44	276	**185**
Theatre	0.27	100%	2.0	61%	2.0	0.16	205	**205**
						Total	567	**486**

[1] Standards published by Urban Land Institute.

[2] Based on data provided by the City for Dorchester Area 8.

[3] National VOR rate.

As summarized in Table 4-22 the parking evaluation indicates a peak shared-parking demand of approximately 486 occupied spaces under Build conditions relative to a proposed parking supply of 721 commercial parking spaces. This results in a projected surplus of approximately 32 percent (235 parking spaces) which will accommodate day-to-day, monthly and seasonal fluctuation in parking demands and allow for increased flexibility in future tenant accommodation while also satisfying the lease agreements with the adjacent South Bay Center's tenants. As seen the peak shared use peak demand is expected to be lower than the (cumulative) individual use peak demands, and is projected to occur in the evening at approximately 8:00 pm on weekdays and Saturdays.

4.6 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 Project 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 and circulation-related improvements, (b) off-site improvements, (c) pedestrian improvements, (d) and 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.

4.6.1 ACCESS AND CIRCULATION IMPROVEMENTS

The Proponent-sponsored access and circulation improvements are aimed at minimizing commercial vehicle impacts to public streets, maximizing the use of existing "gateways" serving South Bay Center for general vehicular access, and encouraging pedestrian and bicycle connections to the Project Site from the adjoining neighborhood. Key features of Project Site access and circulation improvements include the following:

- *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. As presented in more detail in the Site Plans, this street grid system will be designed to meet the City's Complete Streets design standards including wide sidewalks and shared street bicycle accommodation with ADA compliant crossings at intersections. West Howell Extension is being designed to also meet the City's Complete Streets design standards to the extent feasible within

available property under the Proponent's control; however, full compliance to include a sidewalk on the south side of the street will require additional property that is under private control by others. Based on consultation with the City the West Howell Street alignment will be subject to an easement for public use that includes the travel way, sidewalks, ADA crossings and ramps and street lighting. All other portions of the street grid network within the Project Site will be private.

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 Road and Massachusetts Avenue connections for the commercial components of the Project 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*. 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. All delivery vehicles for the Project will access and egress the Project Site via the Frontage Road and Southampton Street, consistent with existing commercial truck patterns for South Bay Center. AutoTurn® analysis and exhibits outlining the proposed delivery vehicle routes and on-site circulation patterns are provided in the Attachments and shall include the following key management practices:

    - Commercial vehicles including single-unit (SU) and smaller WB-40 articulated tractors will access the Project Site via Allstate Road and/or the South Bay Center rear (southerly) loading dock area;

    - Larger (WB-50 and larger) tractors will be restricted from using the Allstate Road entry point; these larger vehicle types will be limited to accessing the Project Site via South Bay Center rear (southerly) loading dock area and will not be allowed to circulate within the site's street grid network.

  Trash and recycle in operations will also occur in designed on-site loading and service areas. The majority if not all of the truck trips will occur during off-peak hours and the proposed loading areas will be sufficient of sufficient dimension 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 intersection, including lane geometry and curb radii will be designed to accommodate the Project Site's design vehicles using AutoTurn® analysis software. A conceptual plan outlining the improvements is shown graphically in Figure 4-35.

- *Hotel Porte Cochere*. The proposed hotel will have a centralized pick-up/drop-off area (Porte Cochere). The Porte Cochere will accommodate up to four (4) concurrently parked vehicles to facilitate patrons and visitors arriving/departing via various shuttle and taxi services. The Porte Cochere will also serve as a patron, baggage, and vehicle "transfer" area and where vehicles will be released to hotel staff and valet-parked at the nearby surface lot adjacent to West Howell Street. The Porte Cochere will be actively managed by hotel staff to ensure maximum short-term parking throughput.

  The location and layout and of the proposed Porte Cochere as shown on the Site Plan and has been tested to ensure proper vehicle maneuvering area is provided to reverse travel direction to the surface parking lot (see Attachments for AutoTurn® vehicle turn exhibit). Up to four (4) concurrently parked vehicles may be parked and processed at any time, with an average vehicle layover of 5 minutes or less. This processing time will allow for approximately 40 to 50 vehicles to process through the Porte Cochere per hour if necessary, although actual projected peak demand is only 15 vehicles per hour based on observations of actual Porte Cochere operations at the adjoining Marriott and Holiday Inn Express hotels. Vehicle queue analysis under this demand scenario is presented in the Attachments and indicates average queuing of two vehicles at the Porte Cochere, which is consistent with observations noted at adjacent hotels.

4.6.2 OFF-SITE IMPROVEMENTS

MDM recommends off-site improvements aimed at enhancing traffic operations, travel safety, and pedestrian/bicycle accommodations including improvements along Enterprise Street and at West Howell Street. The Proponent has also evaluated potential improvements at the intersection of Massachusetts Avenue and Newmarket Square to augment ongoing signal improvements by the City. At the request of the City the Proponent has also prepared a conceptual intersection improvement plan for the signalized intersection of Columbia Road at Dorchester Avenue and proposes to incorporate the Boston Street/Frontage Road signalized intersection into the City's ATCS pending permits/approvals of MassDOT for conduit construction along Frontage Road and interconnection with the traffic signal at Southampton 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 enhance sidewalks for compliance with current City standards and ADA compliance. Specifically, the design will incorporate a two lane departure to Massachusetts Avenue, 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. Per discussions with the neighborhood groups and the City a design element will also be incorporated at the intersection of Enterprise Street and West Howell Street extension to restrict southbound vehicular movements. A conceptual plan outlining the improvements is shown graphically in Figure 4-36. Capacity analysis results under Build Mitigated conditions are presented in Table 4-23 which indicates LOS D or better operations at the intersection once improvements are implemented.

Table 4-23: Intersection Capacity Analysis Results Massachusetts Avenue at Enterprise Street

Time Period	Approach	2021 No-Build			2021 Build			2021 Build Mitigated		
		v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
Weekday Morning Peak Hour	WB L/R Exit	0.54	24	C	0.70	33	D	0.41	19	C
	Southbound	0.08	< 5	A	0.09	< 5	A	0.86	< 5	A
Weekday Evening Peak Hour	WB L/R Exit	0.34	18	C	0.87	> 50	F	0.56	25	D
	Southbound	0.08	< 5	A	0.09	< 5	A	0.09	< 5	A
Saturday Midday Peak Hour	WB L/R Exit	0.24	14	B	0.79	45	E	0.44	22	C
	Southbound	0.06	< 5	A	0.07	< 5	A	0.07	< 5	A

[1]Volume-to-capacity ratio

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

[3]Level of service

At the request of the City, the Massachusetts Avenue intersection with Enterprise Street has been evaluated for a traffic signal based on the Manual of Uniform Traffic Control Devices (MUTCD) for a four hour and peak hour signal warrant. A review of the signal warrants indicate the traffic volumes under Build conditions will not satisfy the peak hour or four hour traffic signal warrant criteria for the number of left turns and traffic volume along Massachusetts Avenue. The detail signal warrant data is provided in the Appendix.

West Howell Street

Following extensive consultation and working sessions with City staff, the Proponent commits to redesigning and upgrading West Howell Street to enhance access/egress to the Project Site for pedestrians and bicycles and to promote safe vehicular travel with a one-way direction away from Boston Street. West Howell Street will be reconstructed to incorporate the City's Complete Streets design standards including a raised intersection where West Howell Street meets the proposed West Howell Street Extension. A conceptual plan outlining the improvements is shown graphically in Figure 4-37 which includes the following key features that are to be built within existing available public right-of-way and property controlled by the Proponent:

- A raised table intersection at West Howell Street/West Howell Street Extension to facilitate pedestrian movements within the intersection and reduce vehicular speeds though the intersection;

- Bicycle accommodation with "sharrow" bike markings;
- A new 10-foot wide sidewalk with street trees and ADA-compliant crossings on the south side of West Howell Street;
- Accommodation for commercial vehicle queue activity and parking spaces along the north side of West Howell Street in a designated shoulder area outside of travel lanes;
- Curbside parallel parking to City standard to accommodate existing commercial businesses and public use;
- Geometric design that accommodates required turning area for commercial vehicles generated by Foley Fish (WB-50 type design) and the proposed Project (single-unit design vehicles and WB-40 design vehicles).

Boston Street Bypass Road

The traffic signal at the Boston Street/Washburn Street intersection was updated by the City in 2013 and will continue to operate at a very efficient overall level of service B without any further modification; however, the Proponent recognize the benefit of having a direct connection from the Boston Street off-ramp into the development, as well as an enhanced access to the existing hotels, without having to enter Boston Street. This connection, currently referred to as the Boston Street Bypass Road, has been incorporated into the design of this project, and will include a sidewalk to promote access to the property from the hotels and other existing sidewalk networks. The Proponent will construct the Boston Street Bypass Road. There are several related items such as private and public easements, DOT permits, and funding issues beyond the Proponent's control funding that need to be finalized before this road can be constructed. In the event these items are not resolved prior to Project completion, West Howell Street may be temporarily opened as two-way and converted to one way once all outstanding issues are resolved. West Howell Street has been designed to accommodate this conversion without the requirement of further construction work. The conversion can be completed with line striping only.

Evaluation of this design is presented below; the associated Build traffic volume networks with the cross-connection roadway are shown in Figure 4-39, Figure 4-40, and 4-41 for the weekday morning, weekday evening, and Saturday midday peak hours.

The capacity analysis results for the intersections impacted by the proposed and alternative (one-way) design of West Howell Street under No-Build, Build, and Build with cross connection conditions are summarized in Table 4-24, Table 4-25, and Table 4-26 for the weekday morning, weekday evening, and Saturday midday peak hours, respectively. Detailed analysis results are presented in the Appendix.

Table 4-24: **Intersection Capacity Analysis Results Weekday Morning Peak Hour With Cross Connection**

Intersection	Approach	2021 No-Build			2021 Build			2021 Build w/ Cross Connection		
		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	21	C	0.02	12	B	0.01	12	B
	Northbound	0.02	< 5	A	0.03	< 5	A	0.02	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.08	16	C	0.38	27	D	n/a	n/a	n/a
	Northbound	0.02	< 5	A	0.02	< 5	A	0.02	<5	A
	Southbound	0.00	< 5	A	0.03	< 5	A	0.03	<5	A
12 - Boston St at Frontage Rd/ Washburn St	Eastbound	0.75	19	B	0.76	18	B	0.73	20	C
	Northbound	0.40	6	A	0.44	7	A	0.40	7	A
	Southbound	0.27	5	A	0.28	6	A	0.29	6	A
	Overall	**0.75**	**11**	**B**	**0.76**	**11**	**B**	**0.73**	**12**	**B**
20 - West Howell St at Cross Connection	Eastbound	n/a	n/a	n/a	0.02	7	A	0.10	8	A
	Westbound	n/a	n/a	n/a	n/a	n/a	n/a	0.06	8	A
	Northbound	n/a	n/a	n/a	0.05	7	A	0.05	7	A
	Southbound	n/a	n/a	n/a	0.05	7	A	0.09	7	A

[1]Volume-to-capacity ratio

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

[3]Level of service

Table 4-25: Intersection Capacity Analysis Results Weekday Evening Peak Hour With Cross Connection

Intersection	Approach	2021 No-Build			2021 Build			2021 Build w/ Cross Connection		
		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	0.01	12	B	0.01	11	B
	Northbound	0.02	< 5	A	0.05	< 5	A	0.04	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.09	17	C	0.47	35	D	n/a	n/a	n/a
	Northbound	0.01	< 5	A	0.02	< 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	0.61	18	B	0.61	20	C
	Northbound	0.32	5	A	0.37	5	A	0.38	6	A
	Southbound	0.31	5	A	0.36	5	A	0.37	6	A
	Overall	**0.59**	**9**	**A**	**0.61**	**9**	**A**	**0.61**	**11**	**B**
20 - West Howell St at Cross Connection	Eastbound	n/a	n/a	n/a	0.02	7	A	0.11	8	A
	Westbound	n/a	n/a	n/a	n/a	n/a	n/a	0.06	8	A
	Northbound	n/a	n/a	n/a	0.04	0.04	A	0.11	7	A
	Southbound	n/a	n/a	n/a	0.03	0.03	A	0.03	7	A

[1]Volume-to-capacity ratio

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

[3]Level of service

Table 4-26: Intersection Capacity Analysis Results Saturday Midday Peak Hour With Cross Connection

Intersection	Approach	2021 No-Build			2021 Build			2021 Build w/ Cross Connection		
		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	15	C	0.08	11	B	0.07	11	B
	Northbound	0.01	< 5	A	0.04	< 5	A	0.04	< 5	A
11 – Boston St at West Howell St/ Howell St	EB L/R Exit	0.06	14	B	0.49	30	D	n/a	n/a	n/a
	Northbound	0.03	< 5	A	0.04	< 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	0.53	16	B	0.67	20	C
	Northbound	0.25	5	A	0.32	5	A	0.32	7	A
	Southbound	0.17	< 5	A	0.22	5	A	0.23	7	A
	Overall	**0.51**	**10**	**A**	**0.53**	**9**	**A**	**0.67**	**13**	**B**
20 - West Howell St at Cross Connection	Eastbound	n/a	n/a	n/a	0.04	7	A	0.16	8	A
	Westbound	n/a	n/a	n/a	n/a	n/a	n/a	0.03	8	A
	Northbound	n/a	n/a	n/a	0.05	7	A	0.04	8	A
	Southbound	n/a	n/a	n/a	0.03	7	A	0.13	8	A

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service

As presented in Table 4-18, Table 4-19, and Table 4-20, the signalized intersection of Boston Road at Frontage Road has ample capacity to accommodate the cross connection roadway between the Frontage Road and West Howell Street. With the conversion of the all-way-stop control intersection of West Howell Street at West Howell Street Extension/ Boston Street Bypass Road the unsignalized intersection will continue to operate at LOS A.

Massachusetts Avenue at Newmarket Square

Following initial consultation with BTD, the northbound Massachusetts Avenue approach to the signalized intersection of Massachusetts Avenue at Newmarket Square has been evaluated to determine feasibility and operational benefits to alternative lane assignments. The analysis included the following lane assignments for the northbound Massachusetts Avenue approach to Newmarket Square:

- *Current Lane Configuration:* Under this lane option, the northbound approach would continue to be marked as a shared left/thru travel lane and an exclusive right turn lane onto Newmarket Square. Under the lane configuration it was observed that northbound through traffic often use the exclusive right turn lane to by-pass vehicles waiting to turn left onto Shirley Street.

- *Alternative A – Left/Thru and Thru/Right Configuration:* Under this lane option the northbound approach would be marked as a shared left/thru travel lane and a shared thru/right travel lane. This alternative would require the loss of

approximately four parking spaces on the northbound departure from the intersection to properly provide two northbound travel lanes and a lane drop.

- *Alternative B – Exclusive Left and Thru/Right Configuration:* Under this lane option the northbound approach would be marked as an exclusive left turn lane and a shared thru/right travel lane.

Capacity and Queue Analysis

Intersection capacity analyses for the signalized intersection of Massachusetts Avenue at Newmarket Square are presented in Table 4-27 for 2021 Build traffic conditions for the weekday morning, weekday evening and Saturday midday peak hours for the three lane assignment alternatives. Vehicle queue analysis results are presented in Table 4-28. The capacity analysis worksheets and queue diagrams for each alterative are provided in the Appendix.

Table 4-27: Intersection Capacity Analysis Results – 2021 Build Conditions
Massachusetts Avenue at Shirley Street/Newmarket Square

	Current Lanes (L/T & R)			Alternative A (L/T & T/R)			Alternative B (L & T/R)		
Approach	v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
Weekday Morning Peak Hour									
Eastbound	0.93	61	E	0.93	61	E	0.93	61	E
Westbound	0.58	34	C	0.58	34	C	0.58	34	C
Northbound	0.69	19	B	0.66	20	B	0.95	45	D
Southbound	0.32	10	A	0.36	10	A	0.44	11	B
Overall	**0.93**	**26**	**C**	**0.93**	**27**	**C**	**0.93**	**39**	**D**
Weekday Evening Peak Hour									
Eastbound	0.86	42	D	0.86	42	D	0.86	42	D
Westbound	0.65	48	D	0.65	47	D	0.65	48	D
Northbound	0.93	37	D	0.65	22	C	0.64	24	C
Southbound	0.39	9	A	0.40	9	A	0.40	9	A
Overall	**0.93**	**30**	**C**	**0.85**	**24**	**C**	**0.86**	**25**	**C**
Saturday Midday Peak Hour									
Eastbound	0.82	31	C	0.82	31	C	0.82	31	C
Westbound	0.43	37	D	0.43	37	D	0.43	37	D
Northbound	>1.0	41	D	0.73	17	B	0.76	19	B
Southbound	0.38	8	A	0.39	8	A	0.42	9	A
Overall	**>1.0**	**29**	**C**	**0.82**	**18**	**B**	**0.82**	**19**	**B**

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service

Table 4-28: Vehicle Queue Analysis – 2021 Build Conditions
Massachusetts Avenue at Shirley Street/Newmarket Square

Approach	Storage Length (feet)	Current Lanes (L/T & R)		Alternative A (L/T & T/R)		Alternative B (L & T/R)	
		Average Queue Length	95th Percentile Queue Length[1]	Average Queue Length	95th Percentile Queue Length	Average Queue Length	95th Percentile Queue Length
Weekday Morning Peak Hour							
Eastbound L	300±	<25	33	<25	33	<25	33
Eastbound T/R	>1000	183	346	183	346	183	346
Westbound L	145±	26	56	26	56	26	56
Westbound T/R	>1000	43	97	43	97	43	97
Northbound L	115±	n/a	n/a	n/a	n/a	36	109
Northbound T	750±	209	425	n/a	n/a	424	786
Northbound L/T & T/R	750±	n/a	n/a	153	323	n/a	n/a
Northbound R	750±	<25	174	n/a	n/a	n/a	n/a
Southbound L/T & T/R	425±	37	57	37	57	37	57
Weekday Evening Peak Hour							
Eastbound L	300±	<25	40	<25	40	<25	40
Eastbound T/R	>1000	117	208	117	208	117	208
Westbound L	145±	86	142	86	142	86	142
Westbound T/R	>1000	64	115	64	115	64	115
Northbound L	115±	n/a	n/a	n/a	n/a	81	179
Northbound T	750±	373	670	n/a	n/a	337	544
Northbound L/T & T/R	750±	n/a	n/a	215	336	n/a	n/a
Northbound R	750±	<25	75	n/a	n/a	n/a	n/a
Southbound L/T & T/R	425±	61	113	62	116	62	116
Saturday Midday Peak Hour							
Eastbound L	300±	<25	36	<25	36	<25	36
Eastbound T/R	>1000	79	167	79	167	79	167
Westbound L	145±	27	60	27	60	27	60
Westbound T/R	>1000	35	79	35	79	35	79
Northbound L	115±	n/a	n/a	n/a	n/a	47	165
Northbound T	750±	456	759	n/a	n/a	338	719
Northbound L/T & T/R	750±	n/a	n/a	141	417	n/a	n/a
Northbound R	750±	<25	32	n/a	n/a	n/a	n/a
Southbound L/T & T/R	425±	72	102	72	102	72	103

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

Operational analysis results for current configuration, Alternative A and Alternative B lane arrangements are summarized in Table 4-27 and Table 4-28 and are described as follows:

- *Current Lane Configuration:* Under the existing lane option, the northbound approach currently operates at level of service (LOS) D or better during the peak hours. At times, the, specifically during the weekday evening peak hour and Saturday midday peak hour that traffic turning left into Shirley Street blocks through traffic resulting in long queues in the shared left/through travel lane which extend near or to the downstream signalized intersection with Allstate Road. Field observations indicate that under periods with moderate left turn volume onto Shirley Street northbound through vehicles use the exclusive right turn lane as a shared through/right turn lane.

- *Alternative A – Left/Thru and Thru/Right Configuration:* Under this lane option the northbound approach would operate at LOS C or better during the peak hours which is an improvement over existing conditions. As shown the lane configuration would allow flexibility to accommodate the various travel patterns that occur during the day and would result in improved queue management through-out a typical day.

- *Alternative B – Exclusive Left and Thru/Right Configuration:* Under this lane option the northbound approach would operate at LOS D or better during the peak hours. At times, the, specifically during the weekday morning peak hour and Saturday midday peak hour that traffic traveling straight onto Massachusetts Avenue and turning right onto Newmarket Square would cause a lane distribution imbalance which would result in long queues in the shared through/right turn lane which would extend near or to the downstream signalized intersection with Allstate Road.

In summary, the northbound Massachusetts Avenue approach to Newmarket Square would benefit from being marked as an exclusive left turn lane and a shared through/right turn lane during the weekday evening and Saturday midday peak hours, but would benefit from being marked as a shared left/through travel lane and an exclusive right turn lane during the weekday morning peak hour. Therefore, as shown in the analysis results, the best option for the intersection is to be marked as designated as a shared left/through travel lane and a shared through/right turn lane (Alternative A as conceptually shown in Figure 4-42).

Columbia Road at Dorchester Avenue

Following consultation with BTD and BRA, the Columbia Road approaches to the signalized intersection of Columbia Road at Dorchester Avenue have been evaluated at the conceptual level to determine the benefits to intersection improvements. The Proponent has committed to providing a conceptual plan as shown in Figure 4-43 that would improve the intersections alignment and vehicular capacity. The Proponent will also commit to doing a Road Safety Audit (RSA) to identify potential safety/ operational improvements that will be implemented by others.

Boston Street at Frontage Road Signal Interconnect to City ATCS

Following request and consultation with BTD, the Proponent has evaluated options to connect the Boston Street/Frontage Road signal to the City's Advanced Traffic Control System (ATCS). The Proponent commits to providing a conduit interconnection between the signalized intersection of Frontage Road at South Bay Center/I-93 Southbound On-Ramp and Boston Street at Frontage Road within property under the control of MassDOT as conceptually shown in Figure 4-44. This interconnect will allow the Boston Street signal to be included as part of the City's ATCS; no modification of the signal equipment is necessary as the signal was upgraded by the City in 2013 to allow this interconnect. The signal will be equipped with video to allow real-time monitoring of the intersection and remote signal timing adjustments by BTD operations staff. Implementation of this improvement is subject to approval by MassDOT under the Access Permit process; however, initial consultation with MassDOT suggests that this improvement is feasible.

Boston Street at Frontage Road/ Washburn Street

During the community outreach process a pre-existing condition was identified at the intersection of Boston Street at Frontage Road/Washburn Street as it relates to truck turning movements onto Boston Street from Frontage Road. The Proponent commits to working with the City's Public Works Department to adjust the STOP bar position and any adjustment to on-street parking on Boston Street to provide the proper maneuvering area for trucks to make a left turn onto Boston Street from Frontage Road.

4.6.3 PEDESTRIAN IMPROVEMENTS

Sidewalks and ADA compliant crosswalks are recommended where feasible to connect the Project 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 implement 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 as shown in Figure 4-45. This enhanced sidewalk connection will include raised crosswalks at intersecting ways that will serve as traffic calming devices within South Bay Center that slow traffic and further enhance pedestrian travel.

4.6.4 TRANSIT IMPROVEMENTS AND SHUTTLE EXPANSION

In an effort to enhance the usage of nearby public transit routes, the Proponent proposed expansion of shuttle service it provides through South Bay Center and will coordinate with the MBTA to provide new and relocated stops as shown in Figure 4-46 as follows:

- Following initial consultation with MBTA, the Proponent will work with the MBTA to relocate several bus stops. Specifically, the bus stop near TJ Max will be relocated near Best Buy, the bus Stop near Panera will be relocated adjacent to the proposed expansion area/ Olive Garden, the bus stop and shelter along the internal South Bay Center Driveway will be relocated closer to Southampton Street near the sidewalk connection to the Target and the Massachusetts Avenue/Allstate Road bus stop on the southbound side will be relocated further along Massachusetts Avenue. Based on initial consultation with MBTA operations staff, relocation of these stops will not impact current service.

- Relocated bus stops (shuttle and MBTA service) will be provided adjacent to the proposed expansion area and existing Olive Garden restaurant. These relocated stops will require MBTA buses to slightly adjust the existing route within the South Bay Center (to circulate around the Olive Garden restaurant); however, ample circulation area is available for this adjusted route as confirmed by AutoTurn® analysis presented in the Attachments. Specific route assignment and bus stop layout will be refined based on further in-field review with MBTA operations staff.

- The existing South Bay Shuttle hours will be adjusted to accommodate stops adjacent to the proposed expansion area and will expand service hours to accommodate the restaurant and theatre users.

- To promote ridership at the underutilized Newmarket Station, a van shuttle loop between the residential apartments and Newmarket Station will be operated by the Proponent on a trial basis. Should the ridership be present the service will remain or be expanded as needed.

4.6.5 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:

- *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.

- *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).

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

- *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.

- *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. The Project will include areas within the residential buildings to accommodate up to 475 bicycle parking spaces and exterior racks to serve visitors. 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 provide zip-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 Project Site's commercial vehicle parking areas to reduce the amount of greenhouse gasses emitted.

- *Hubway Accommodation*. Hubway Stations currently exists at Newmarket Square, Andrew Station, and Andrew Everett Square within a 10-minute walk of the Project Site. The Proponent will promote access to these existing Hubway Stations by improving pedestrian connections from the Project Site to Newmarket Square via South Bay Center. The Proponent will also reserve an area for possible placement of a future Hubway Station on the property subject to demonstrated demand and sponsorship by surrounding businesses.

4.6.6 MONITORING

The Proponent will complete a post-construction monitoring study to evaluate the traffic and compare to that estimated in the DPIR to determine if adjustments need to be made. This data will be shared with BTD for use with their ATCS to make any necessary adjustments based on actual build conditions. The monitoring study shall include Project driveways serving the Town Center and the ten (10) impacted signalized intersections included in the DPIR. Monitoring shall be conducted 6 months after initial Project occupancy and annually thereafter for a period of 5 years in accordance with MassDOT Section 61 Finding protocols.

4.6.7 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.

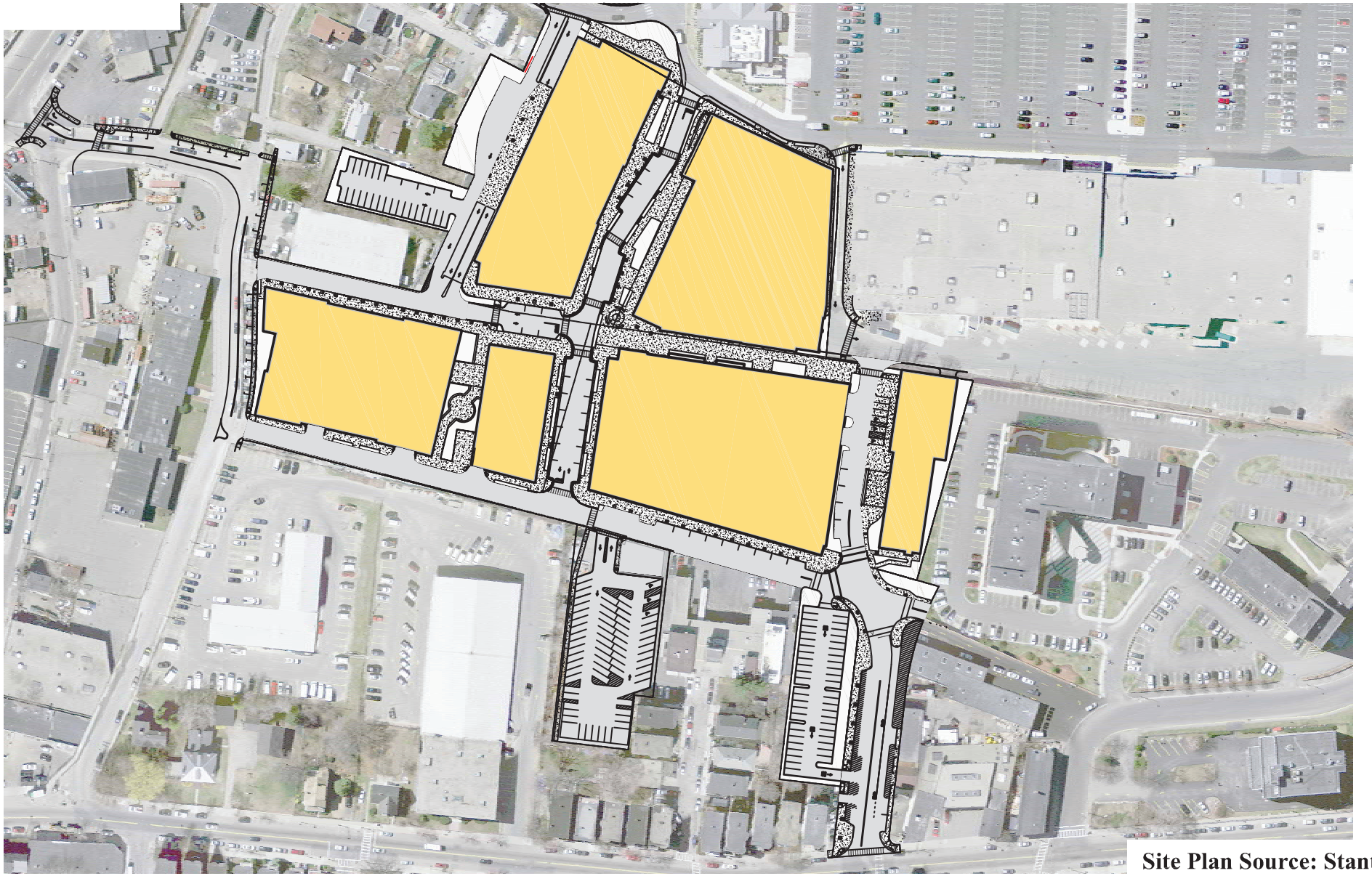
To minimize transportation impacts during the construction period, the following measures will be considered for the CMP:

- 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.



Figure 4-1
Site Location
Source: MDM Transportation Consultants, Inc., 2015



Site Plan Source: Stantec

Figure 4-2
Preliminary Site Plan
Source: MDM Transportation Consultants, Inc., 2015

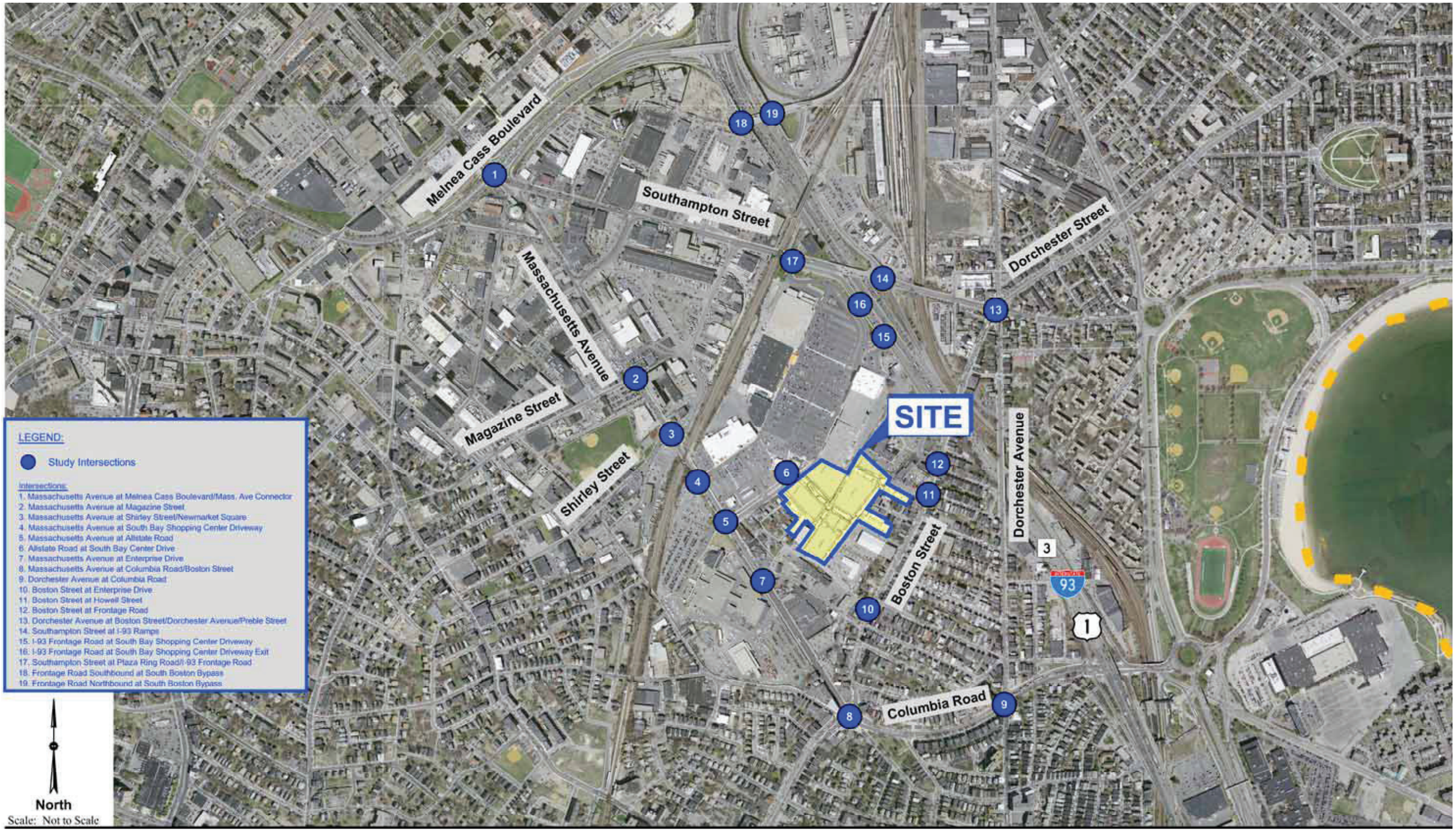
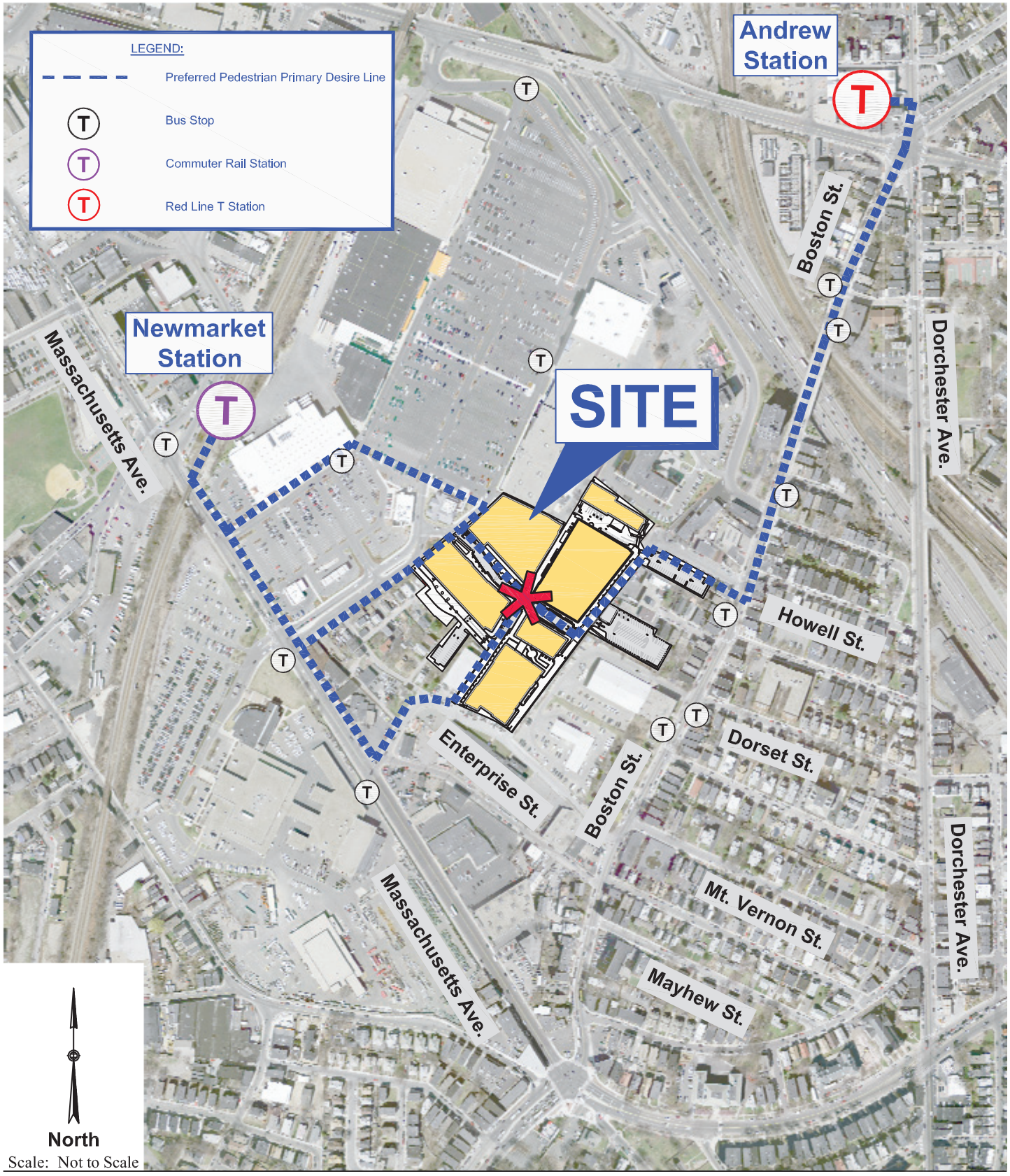


Figure 4-3
Study Locations
Source: MDM Transportation Consultants, Inc., 2015



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



Dorchester, Massachusetts

Figure 4-5
Primary Pedestrian Desire Lines
Source: MDM Transportation Consultants, Inc., 2015



Figure 4-6
Sidewalk Study- Primary Pedestrian Desire Lines
Source: MDM Transportation Consultants, Inc., 2015

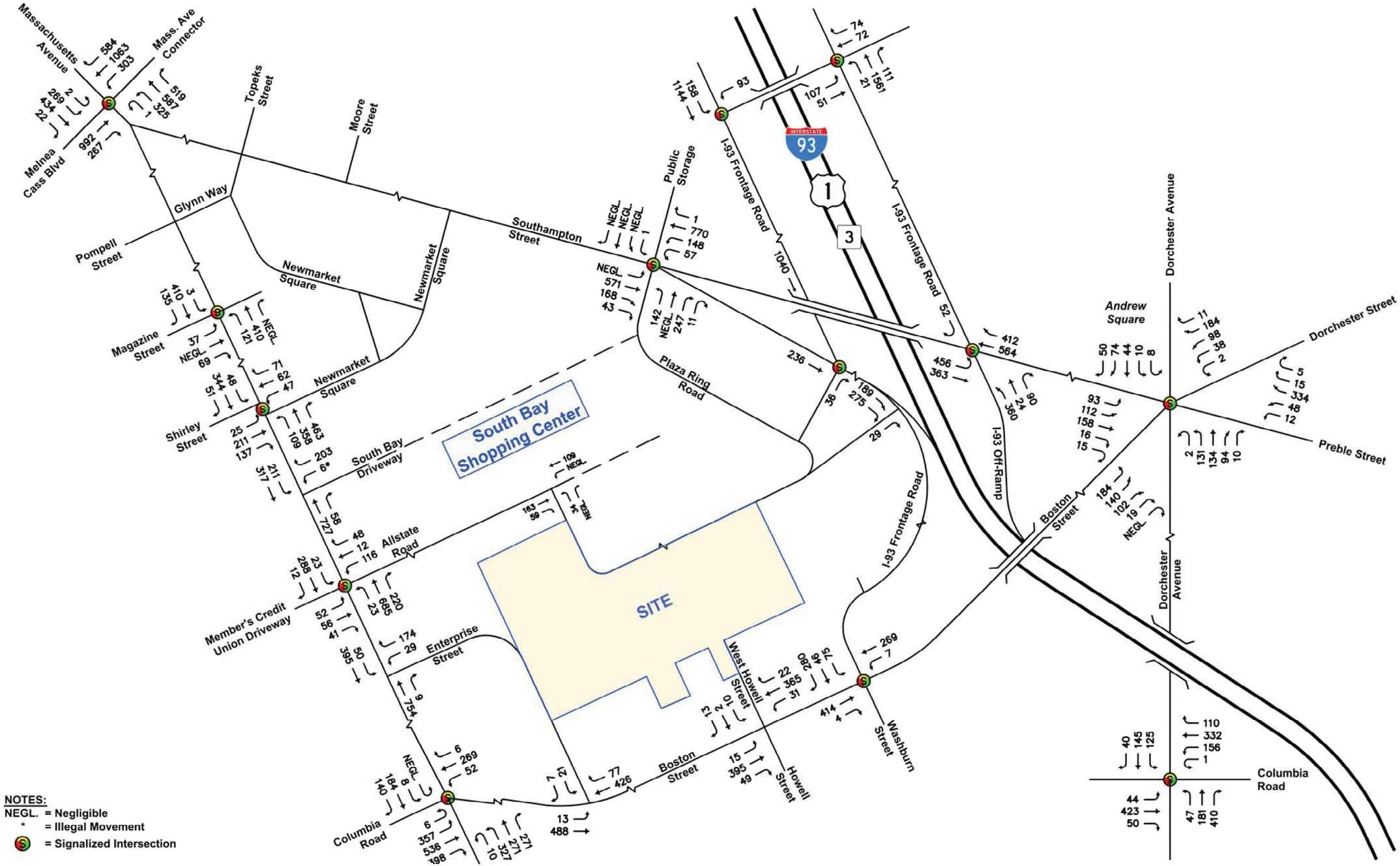
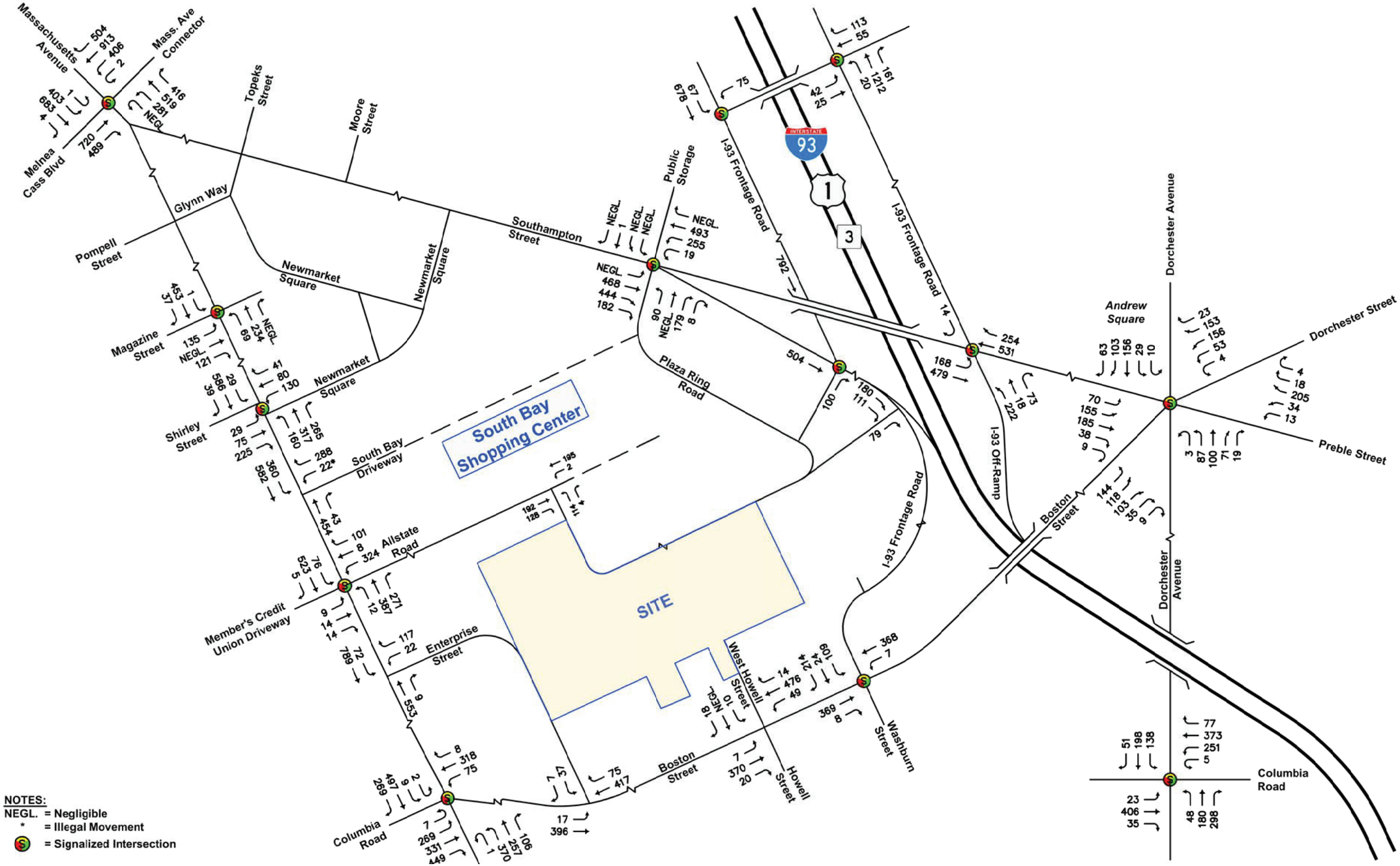
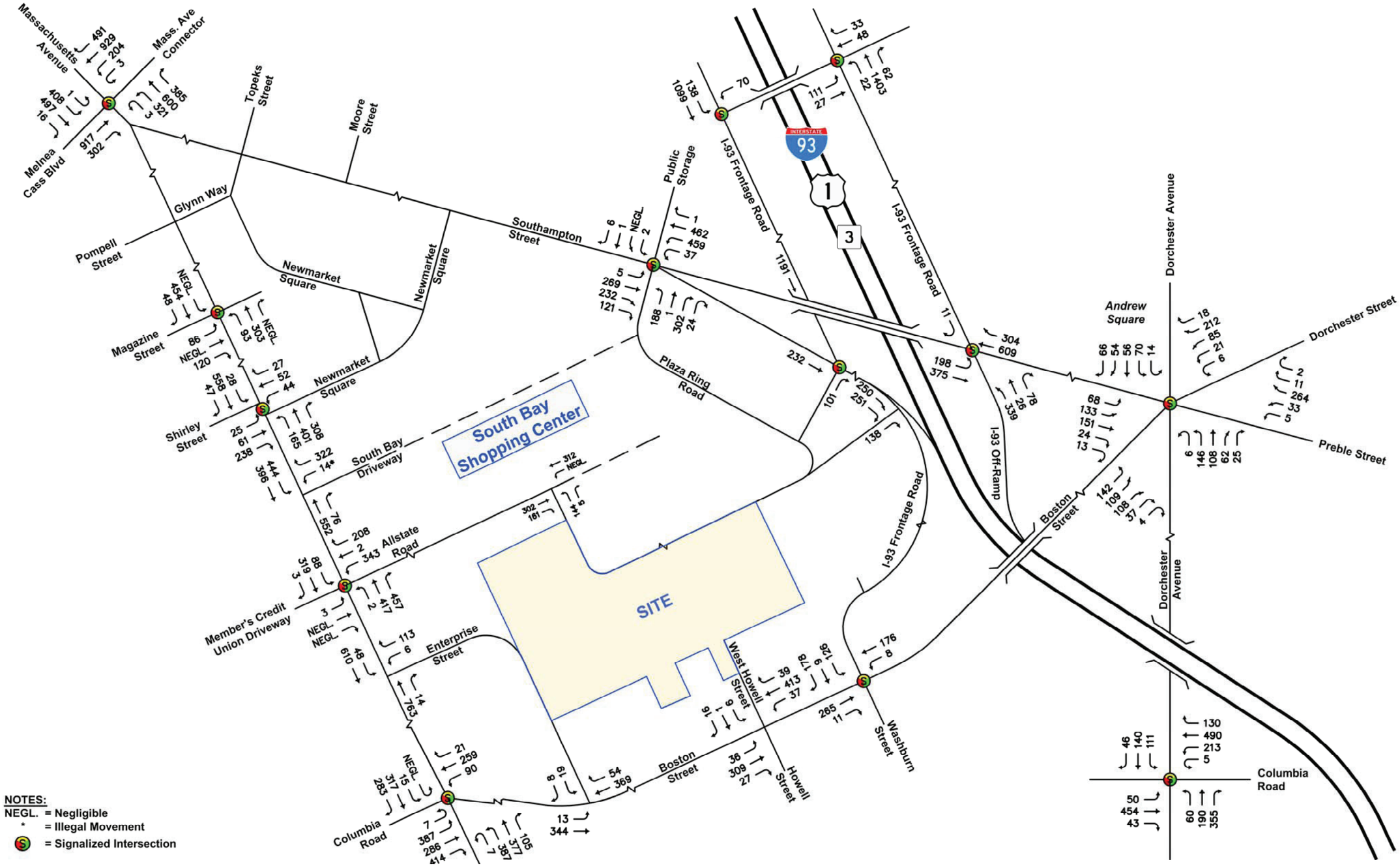


Figure 4-7
Baseline Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-8
Baseline Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-9
Baseline Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc., 2015

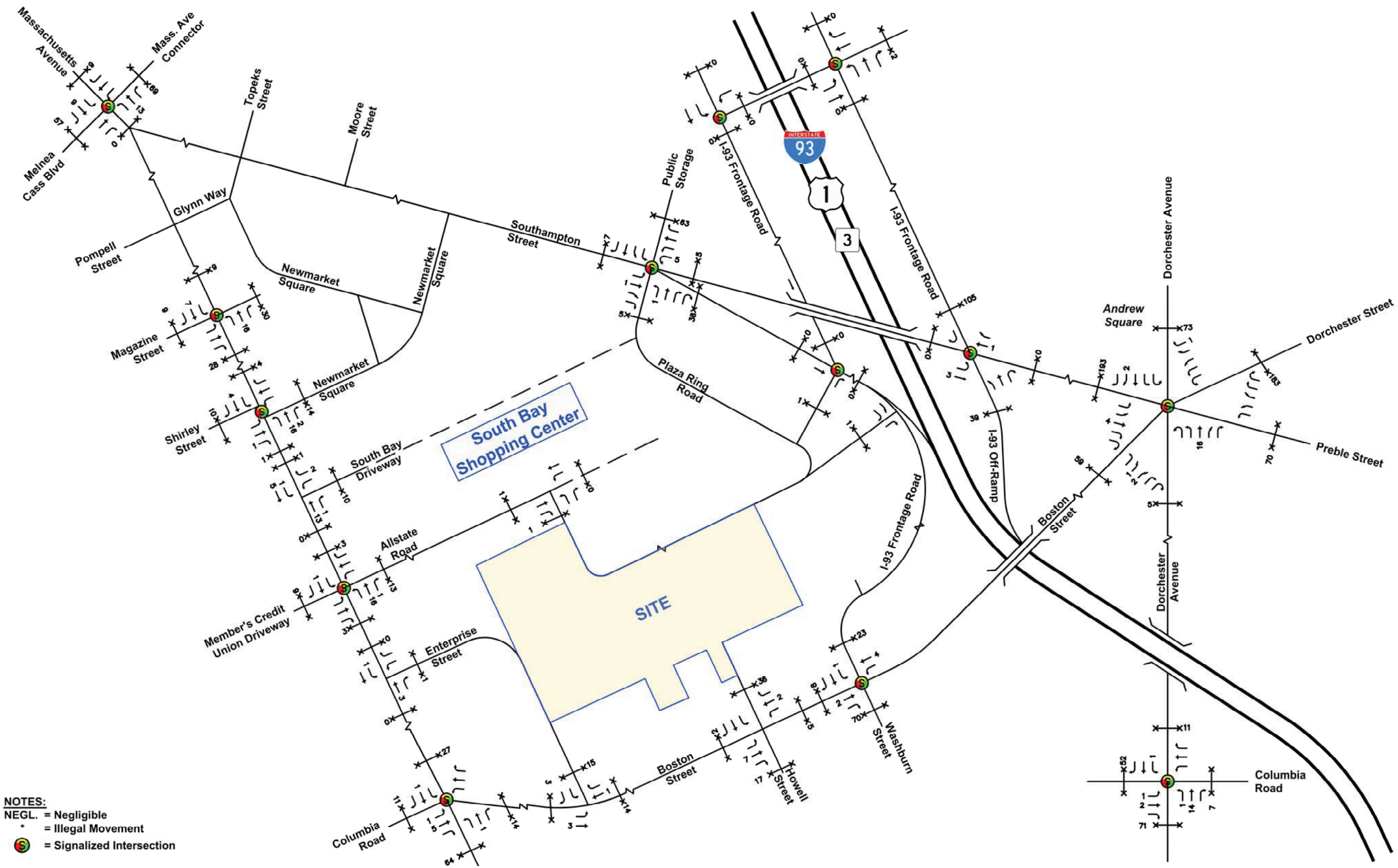


Figure 4-10
Baseline Weekday Morning Peak Hour Pedestrian and Bicycle Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc., 2015

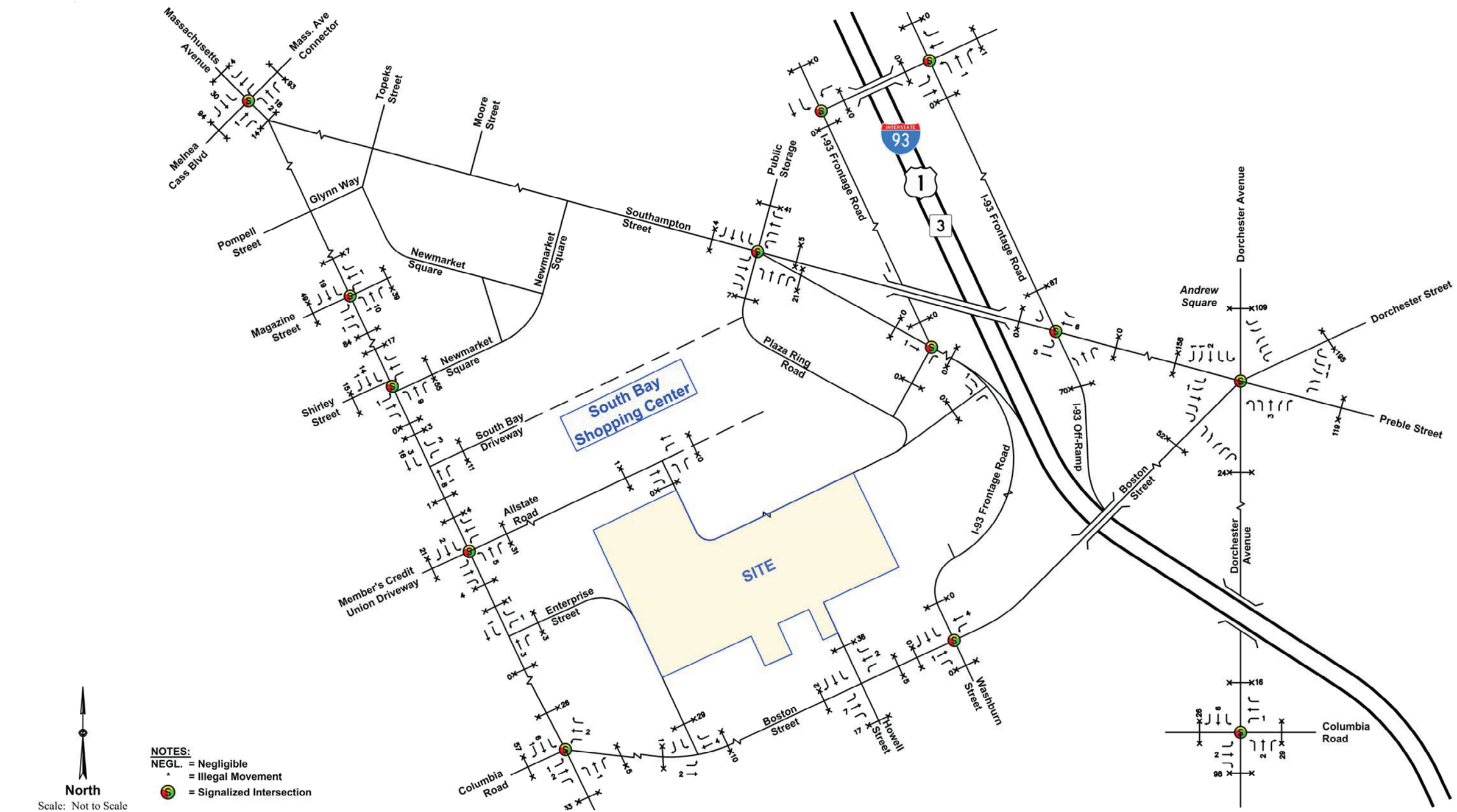


Figure 4-11
Baseline Weekday Evening Peak Hour Pedestrian and Bicycle Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc., 2015

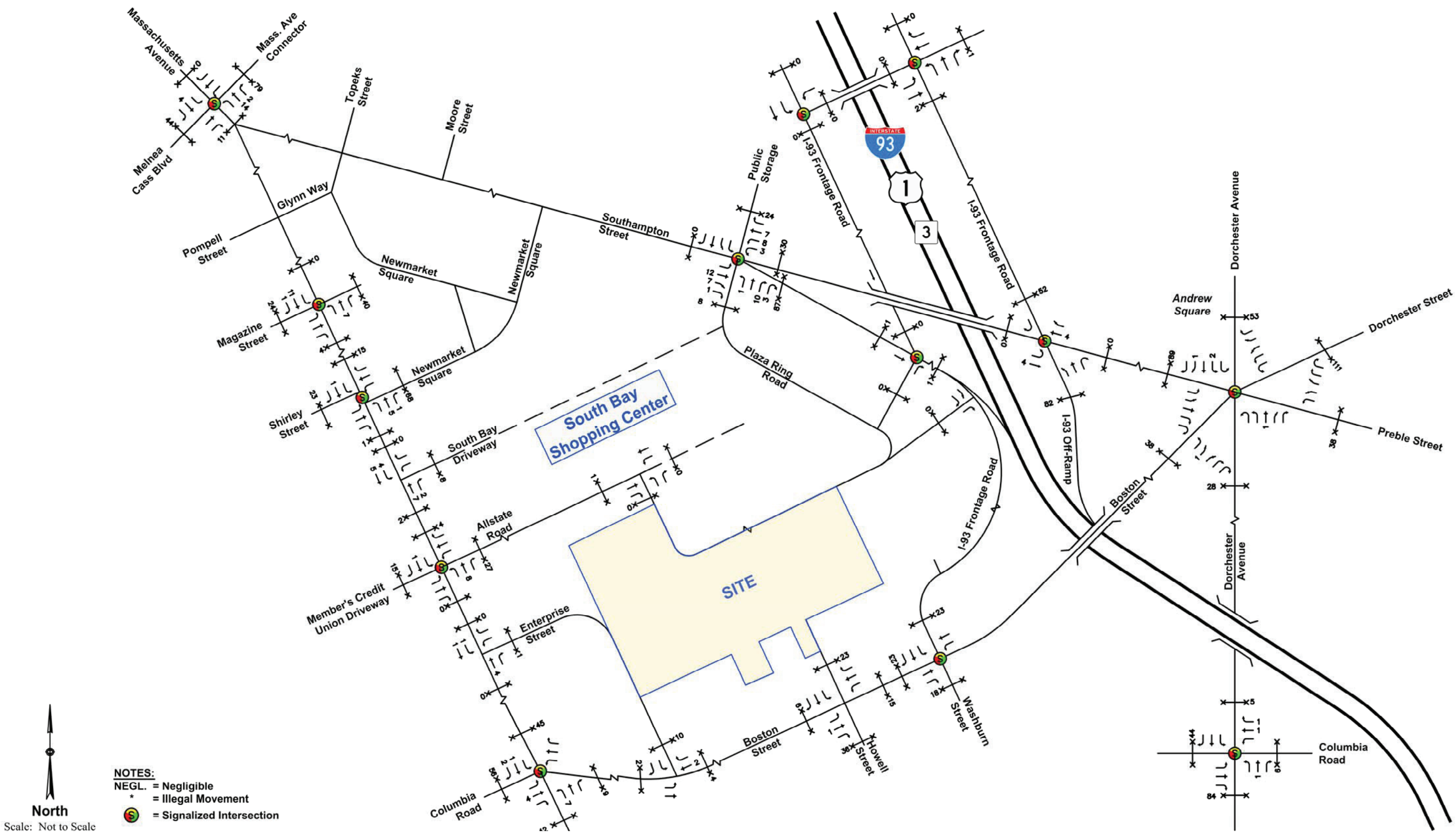


Figure 4-12
Baseline Saturday Midday Peak Hour Pedestrian and Bicycle Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc., 2015



Figure 4-13
South Bay Center Bus Routes
Source: MDM Transportation Consultants, Inc., 2015

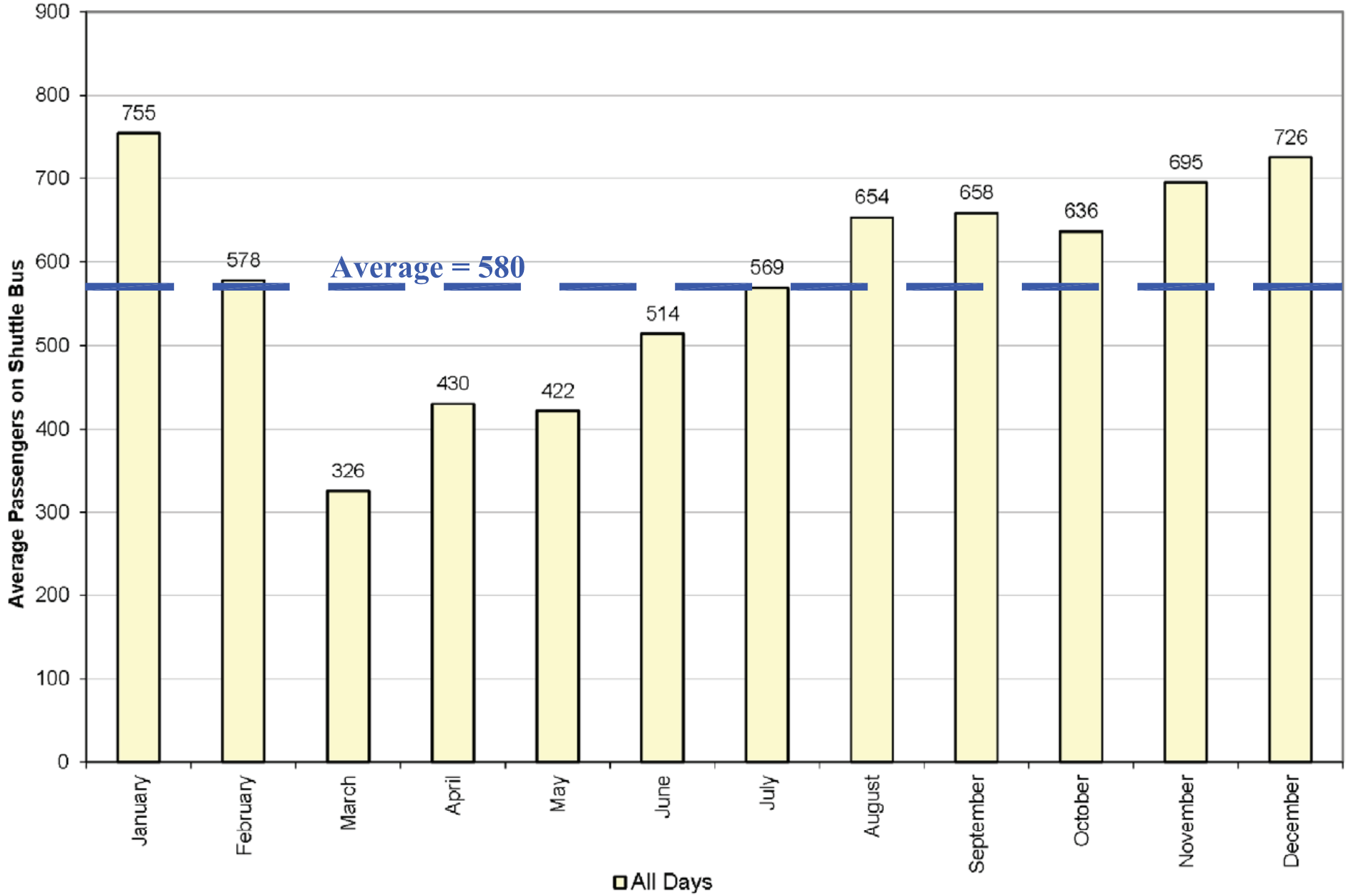
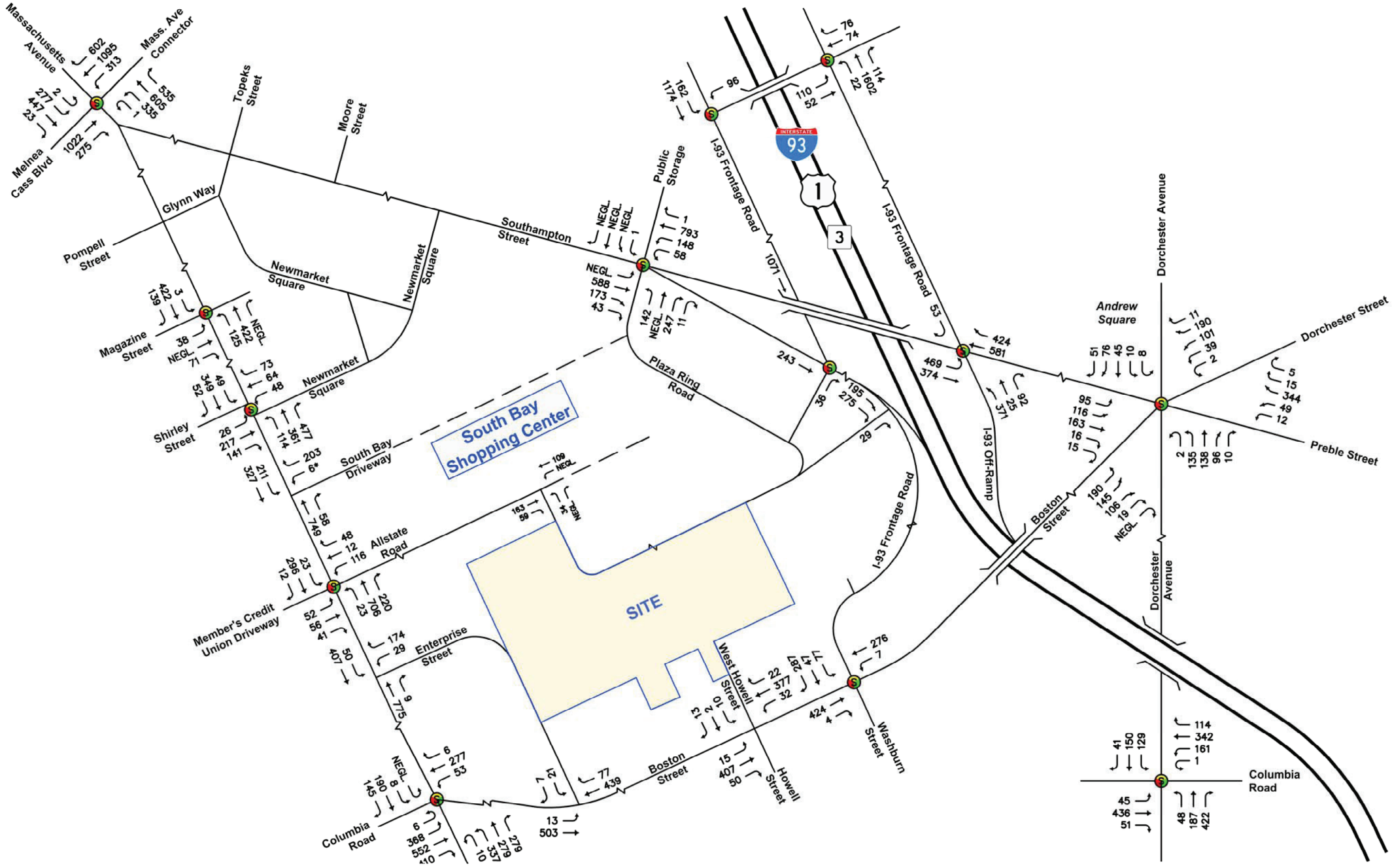


Figure 4-14
2014 Shuttle Bus Passengers
Source: MDM Transportation Consultants, Inc., 2015

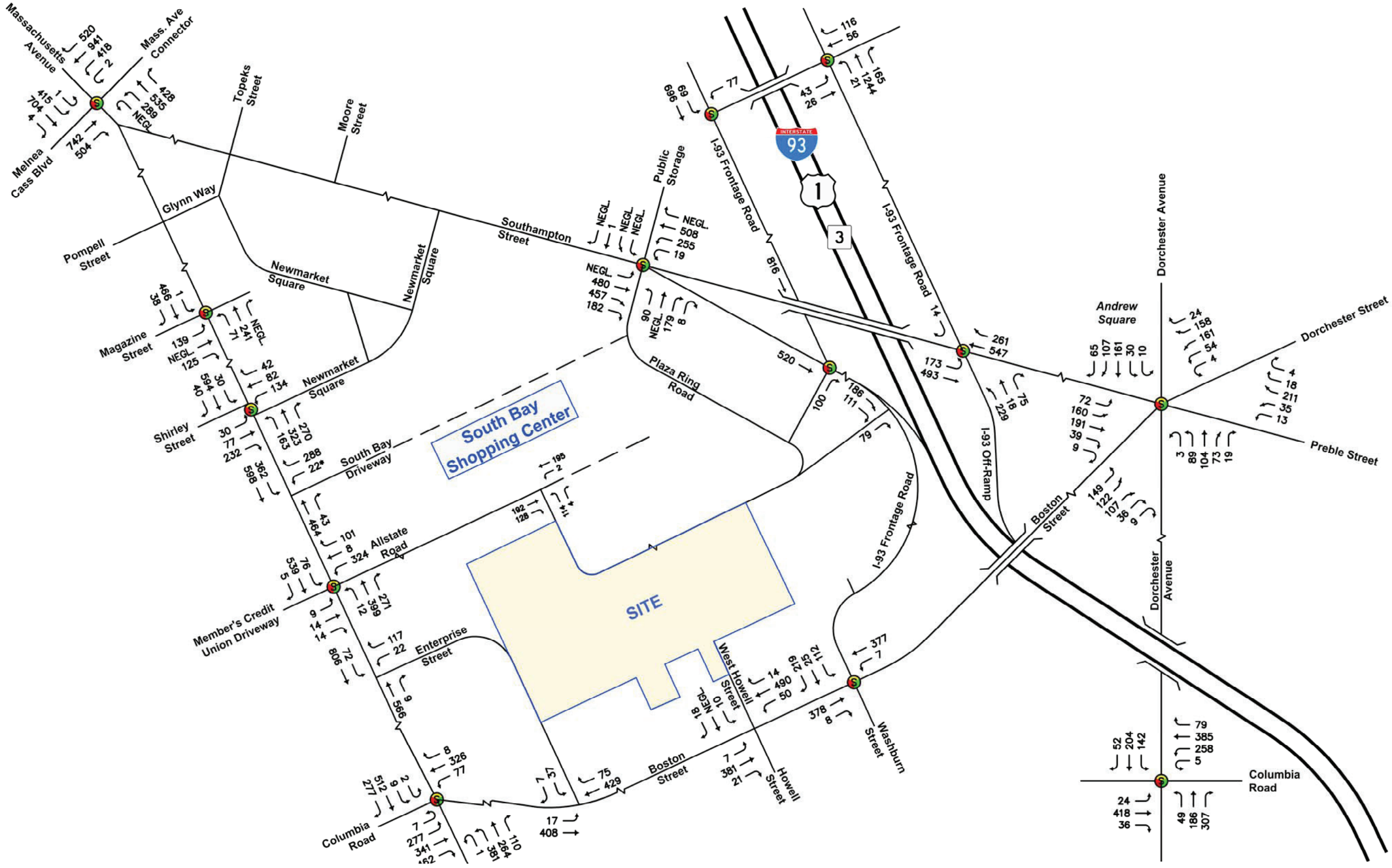


Dorchester, Massachusetts

Figure 4-15

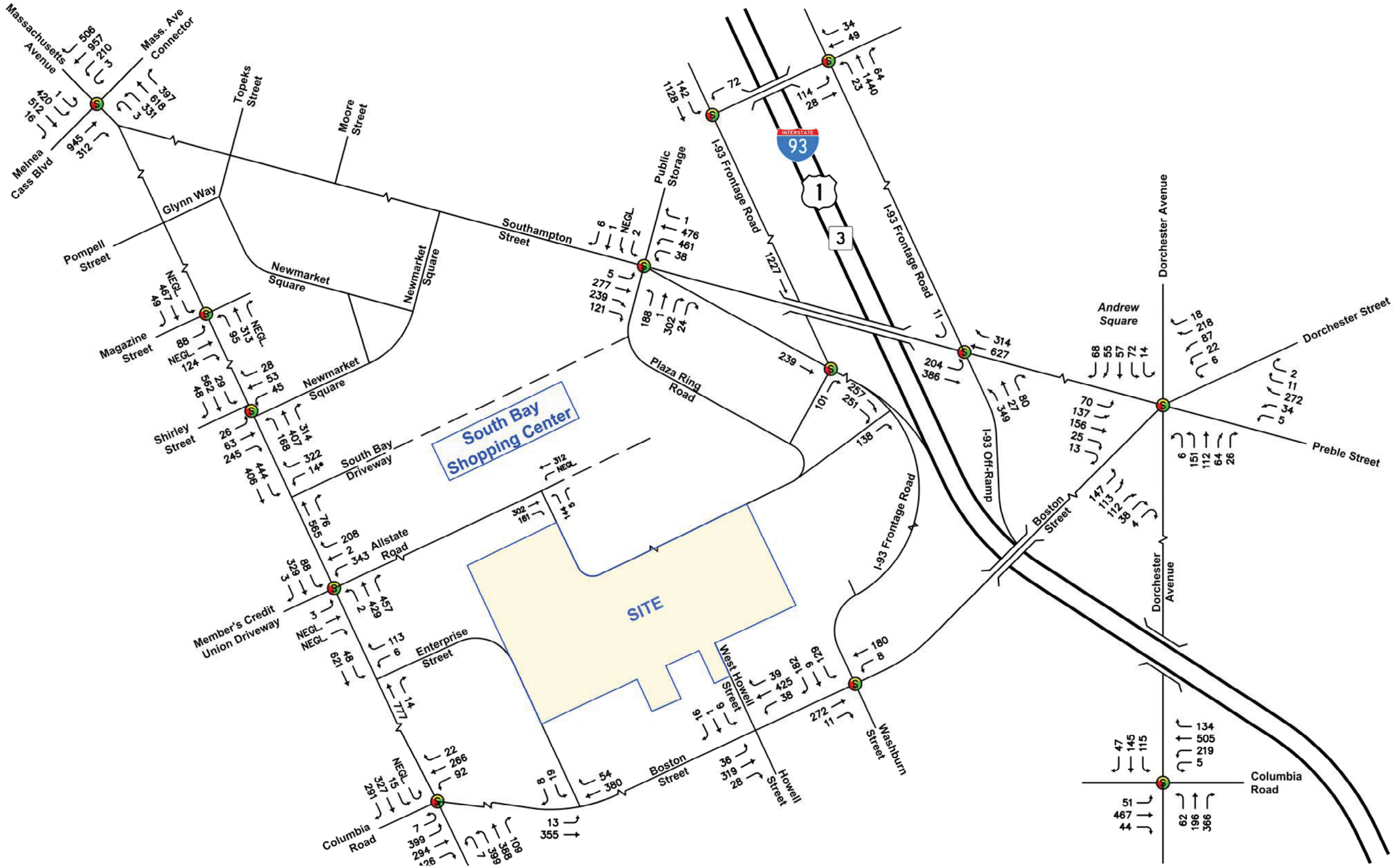
2021 No-Build Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)

Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-16
2021 No-Build Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc., 2015

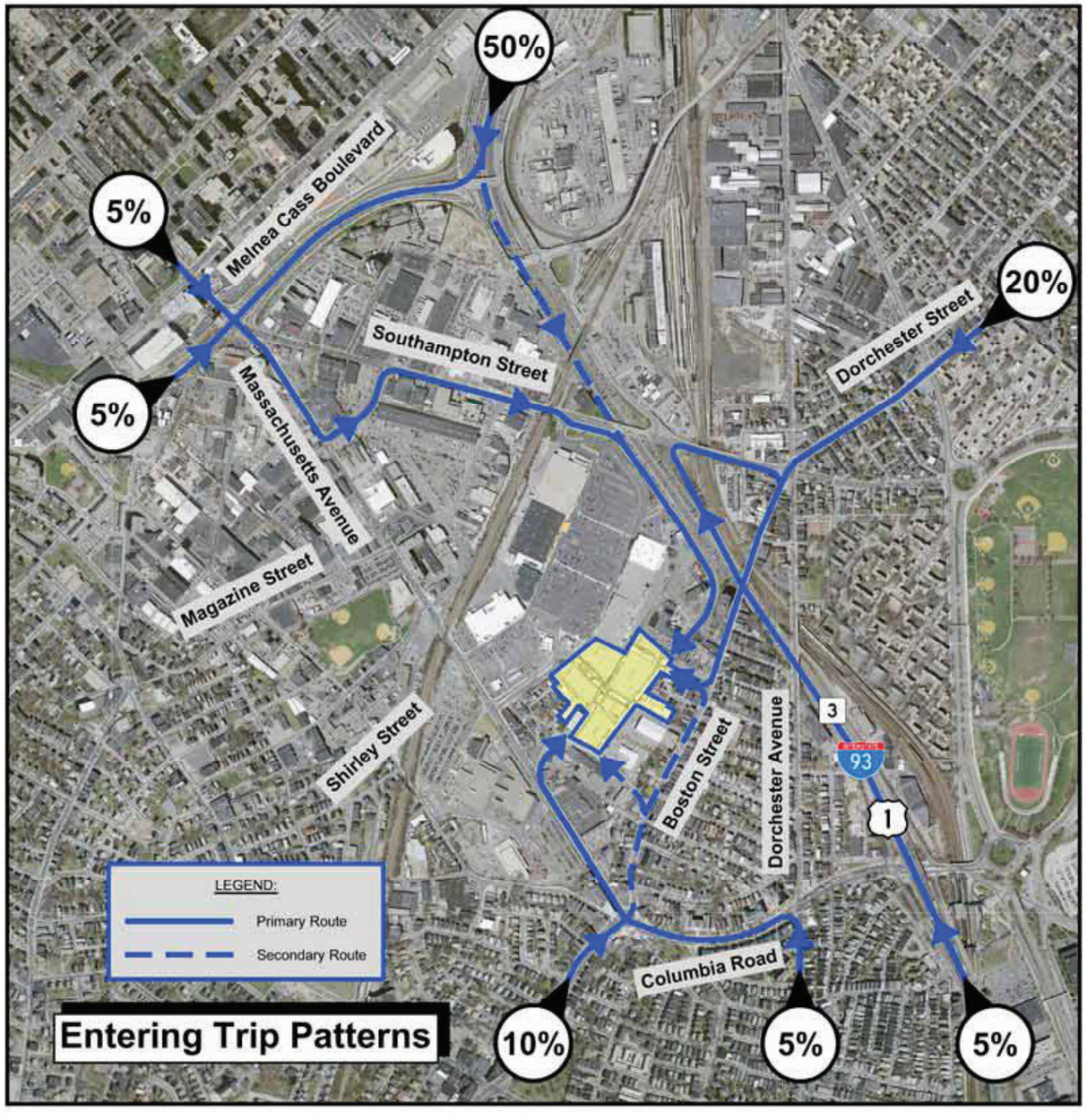


Dorchester, Massachusetts

Figure 4-17

2021 No-Build Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)

Source: MDM Transportation Consultants, Inc., 2015



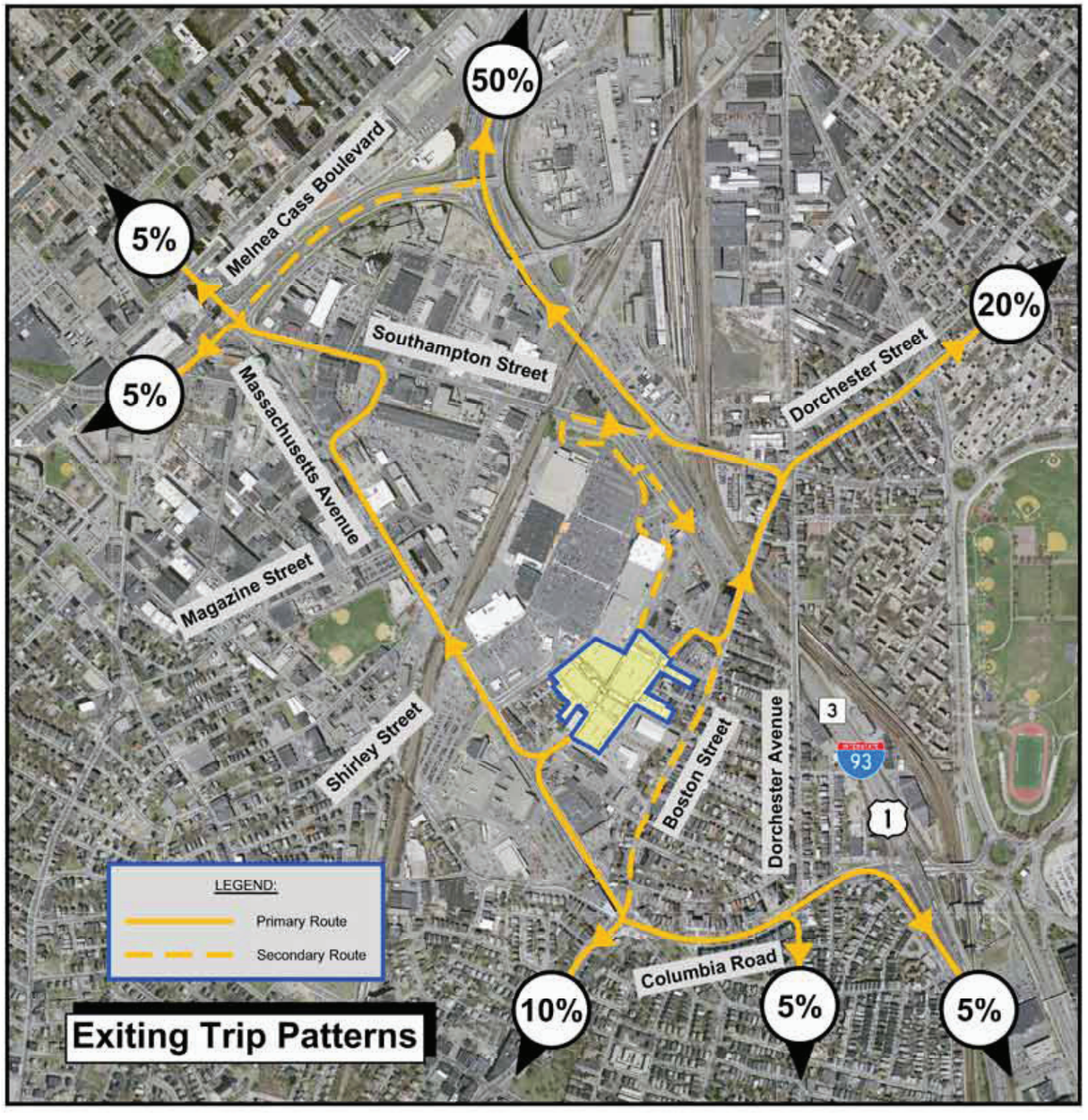
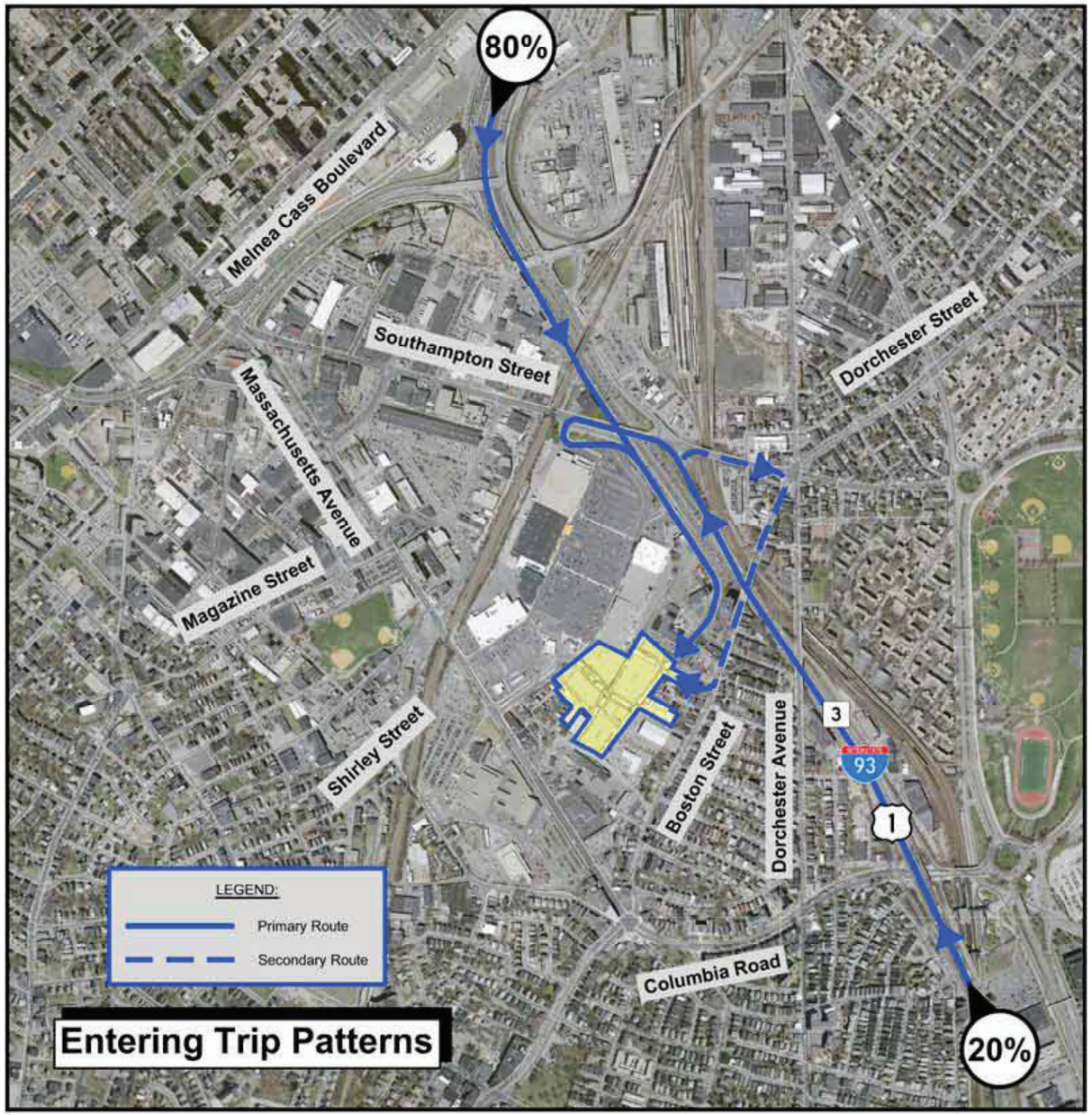


Figure 4-18
Residential Trip Distribution
Source: MDM Transportation Consultants, Inc., 2015



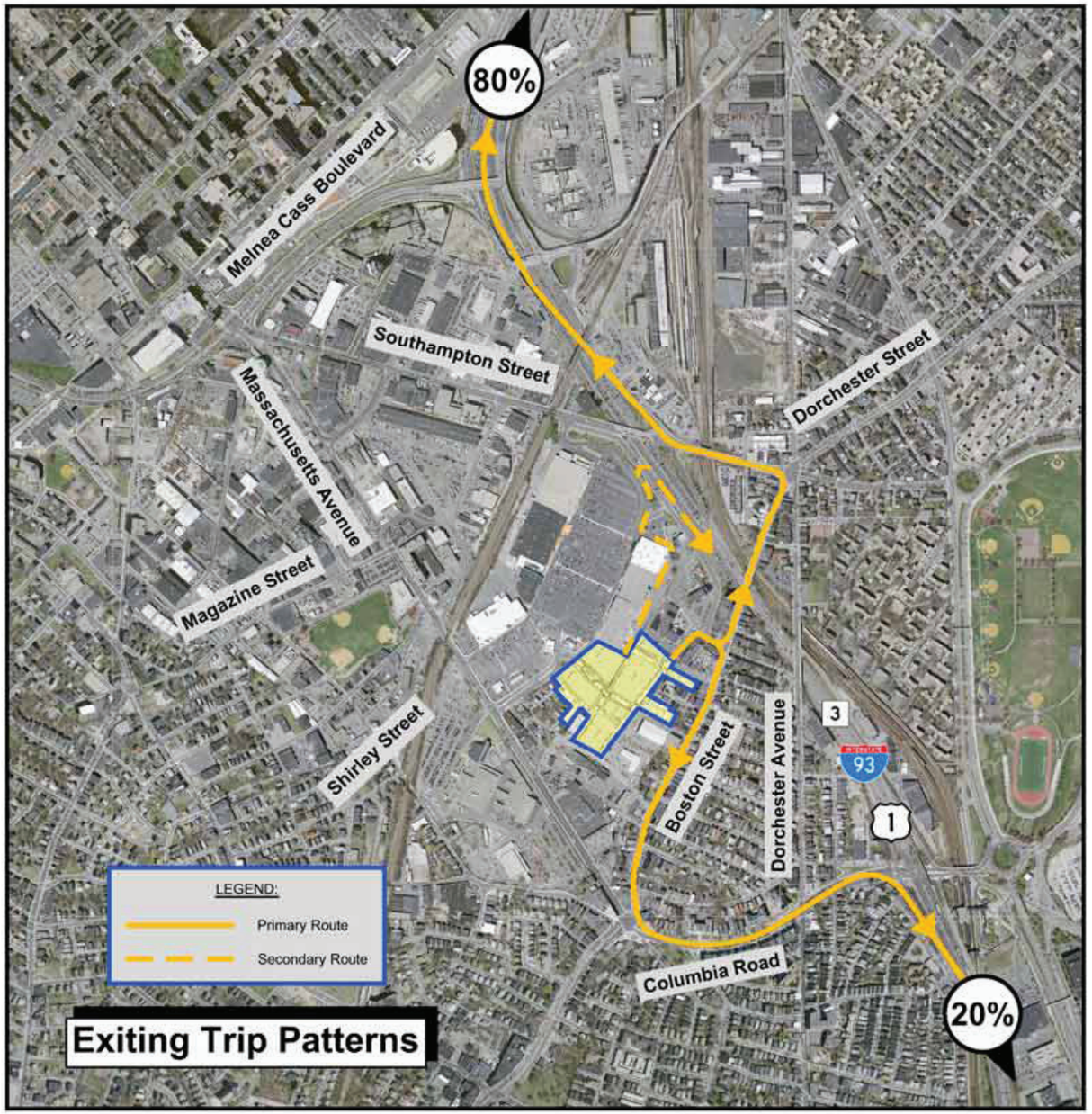
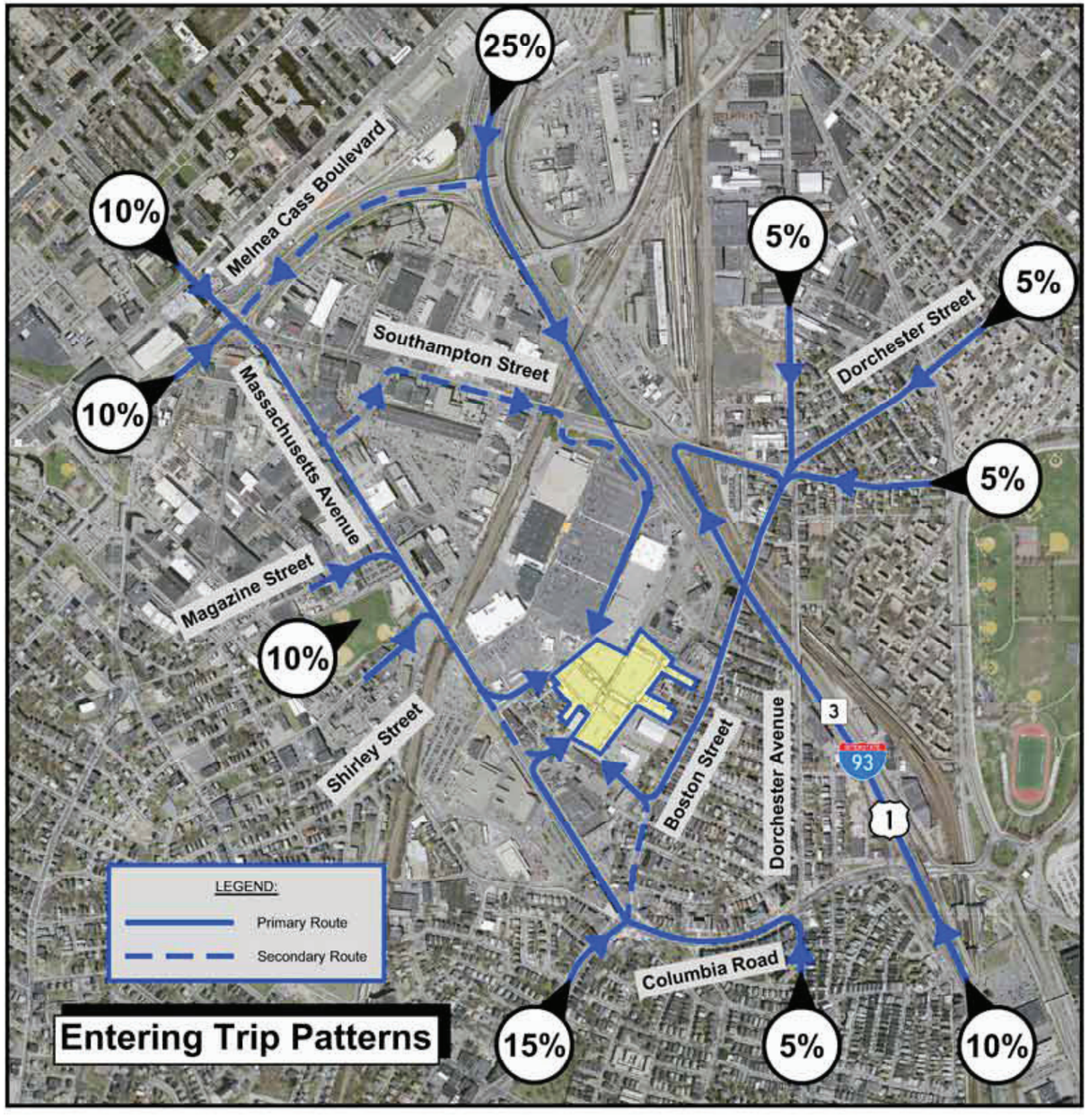


Figure 4-19
Hotel Trip Distribution
Source: MDM Transportation Consultants, Inc., 2015



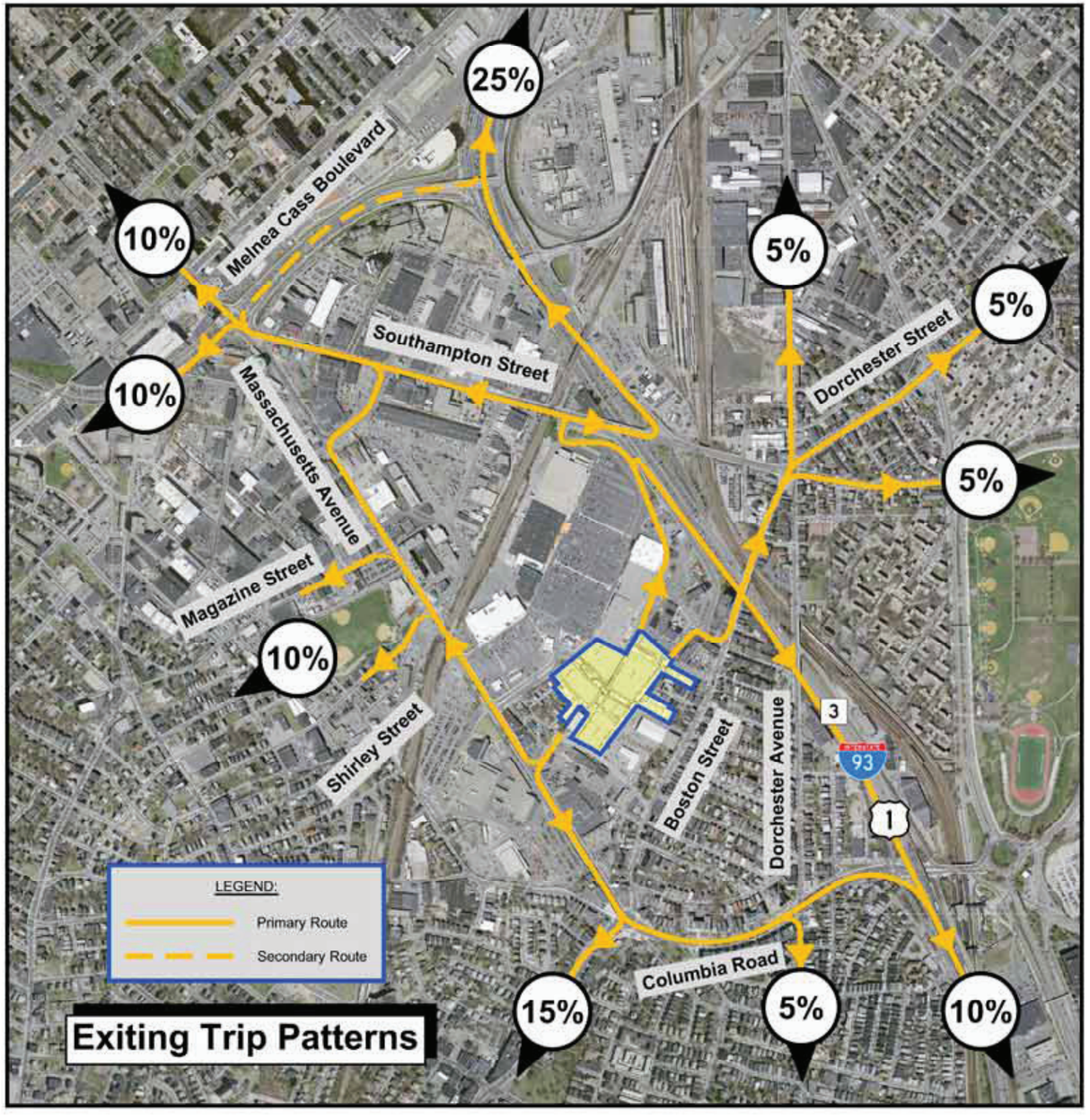


Figure 4-20
Retail/Cinema Trip Distribution
Source: MDM Transportation Consultants, Inc., 2015

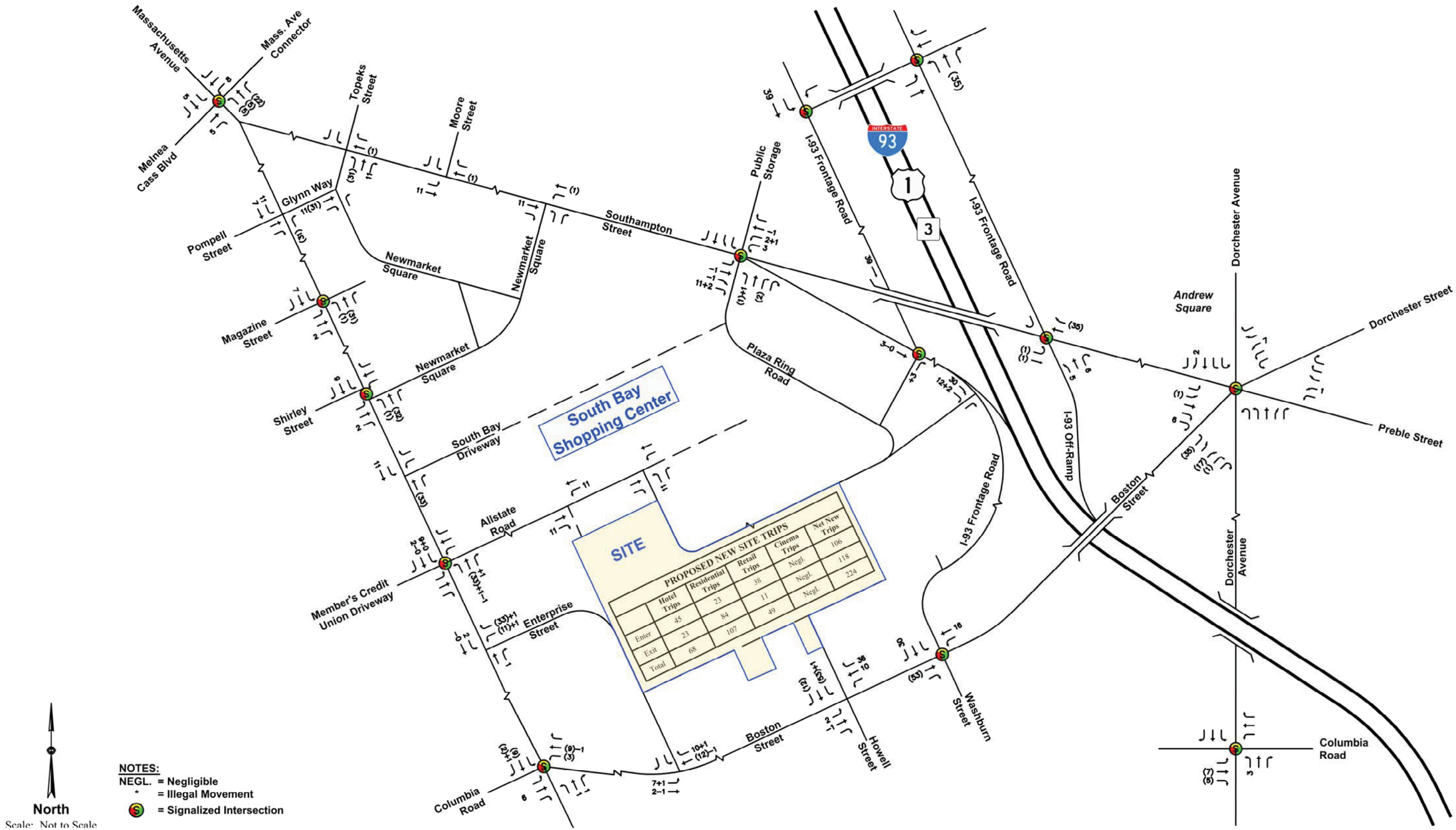


Figure 4-21
Site Generated Trips- Weekday Morning Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc., 2015

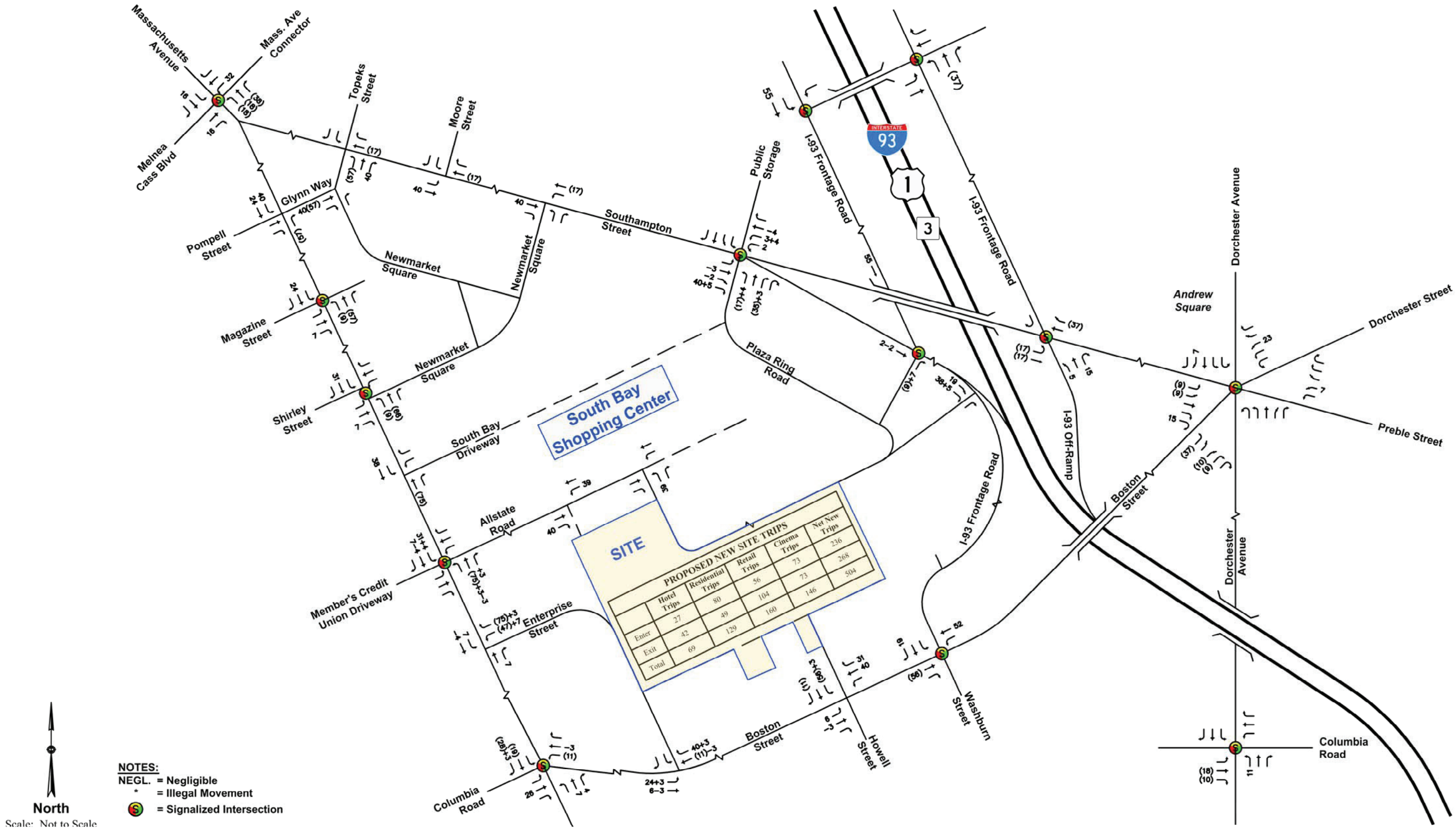


Figure 4-22
Site Generated Trips- Weekday Evening Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc., 2015

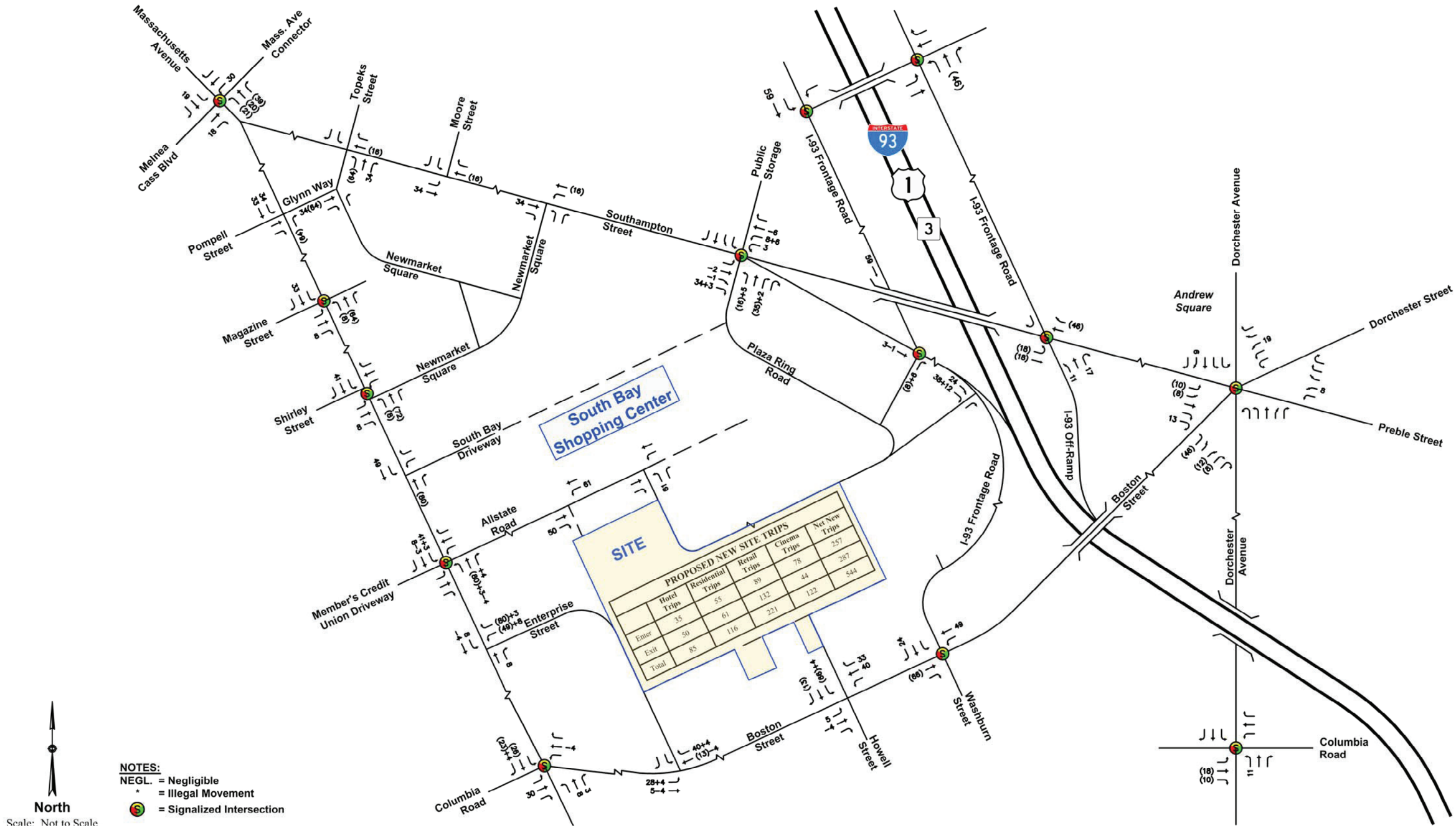
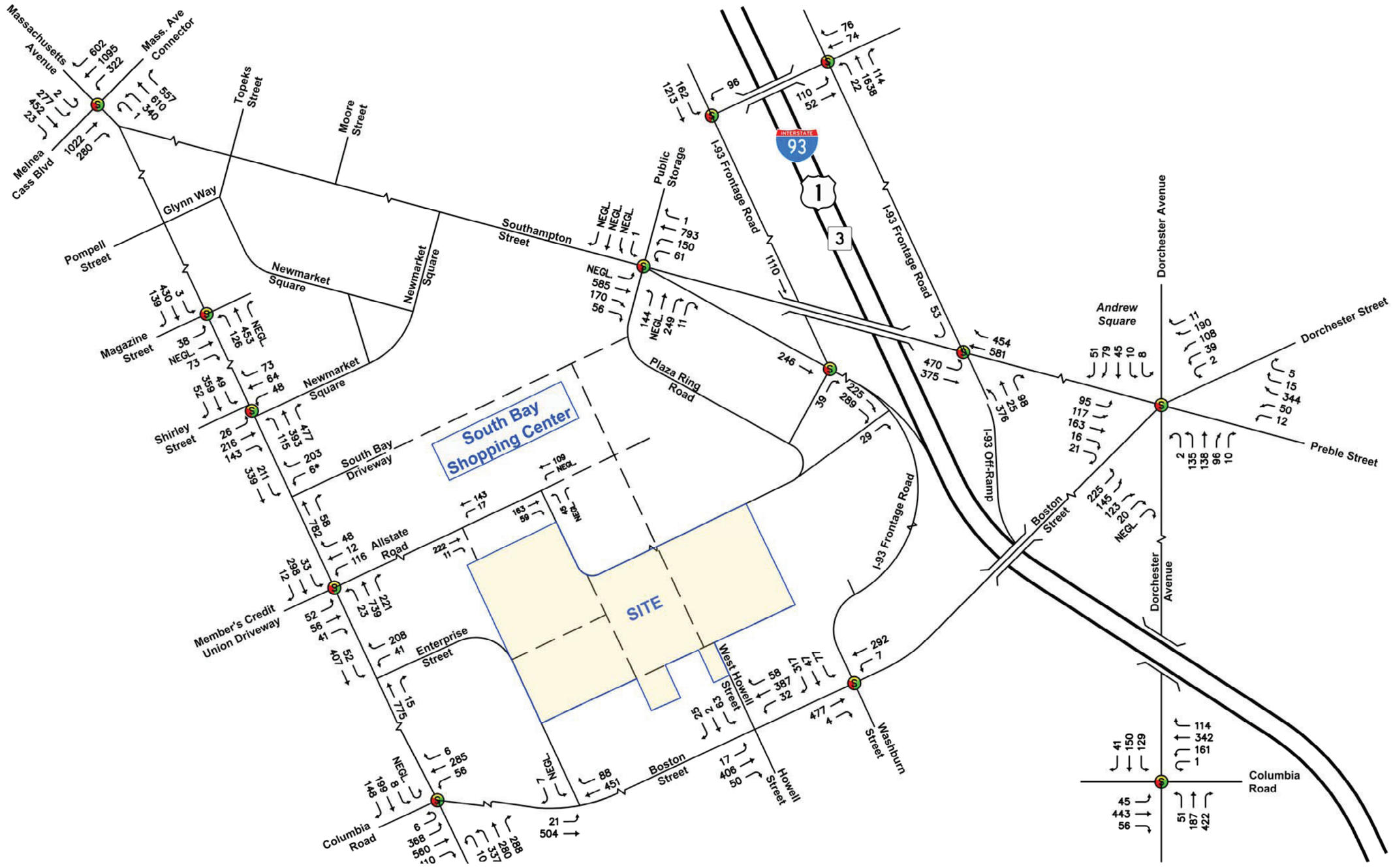


Figure 4-23
Site Generated Trips- Saturday Midday Peak Hour Traffic Volumes
Source: MDM Transportation Consultants, Inc., 2015

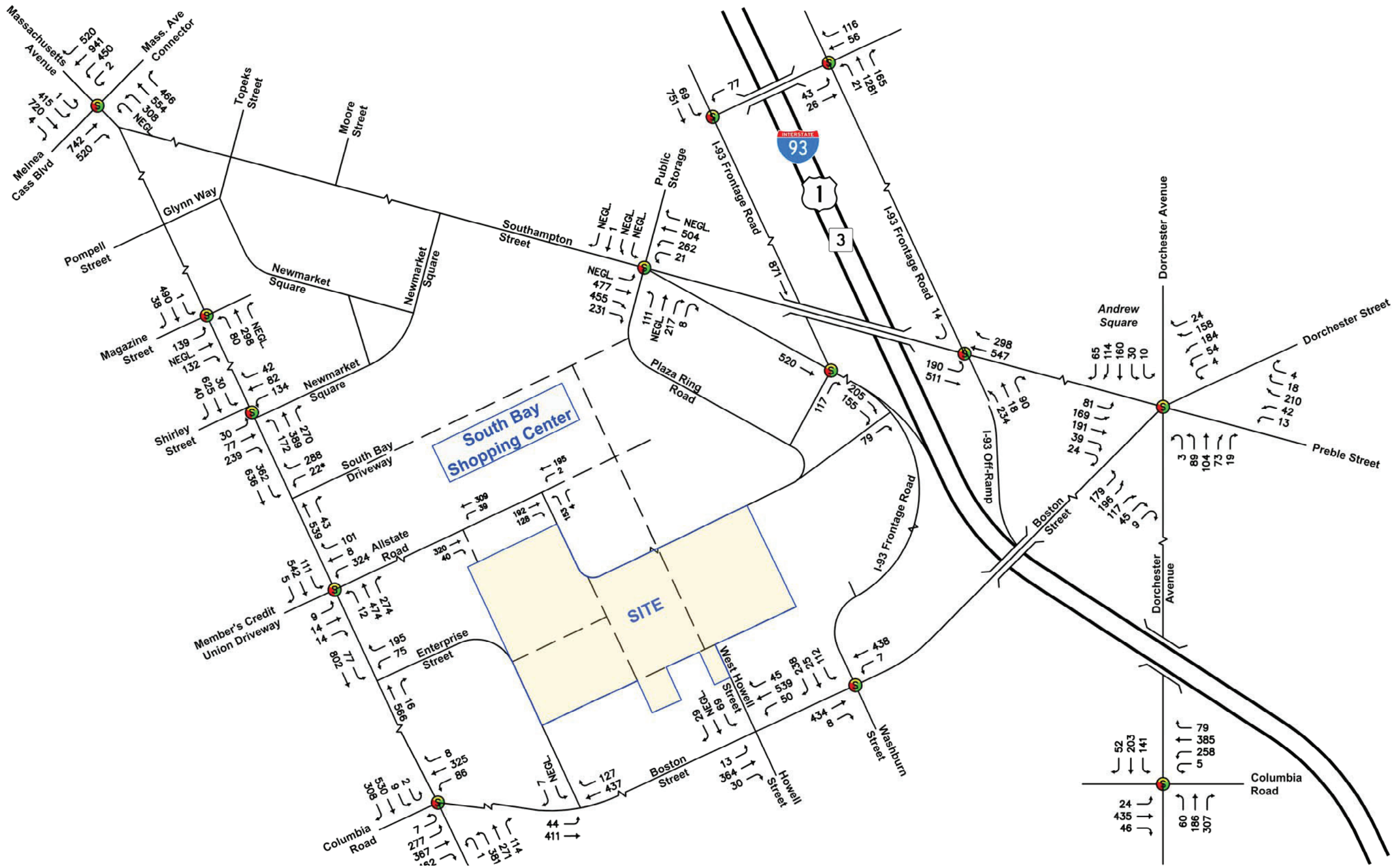


Dorchester, Massachusetts

Figure 4-24

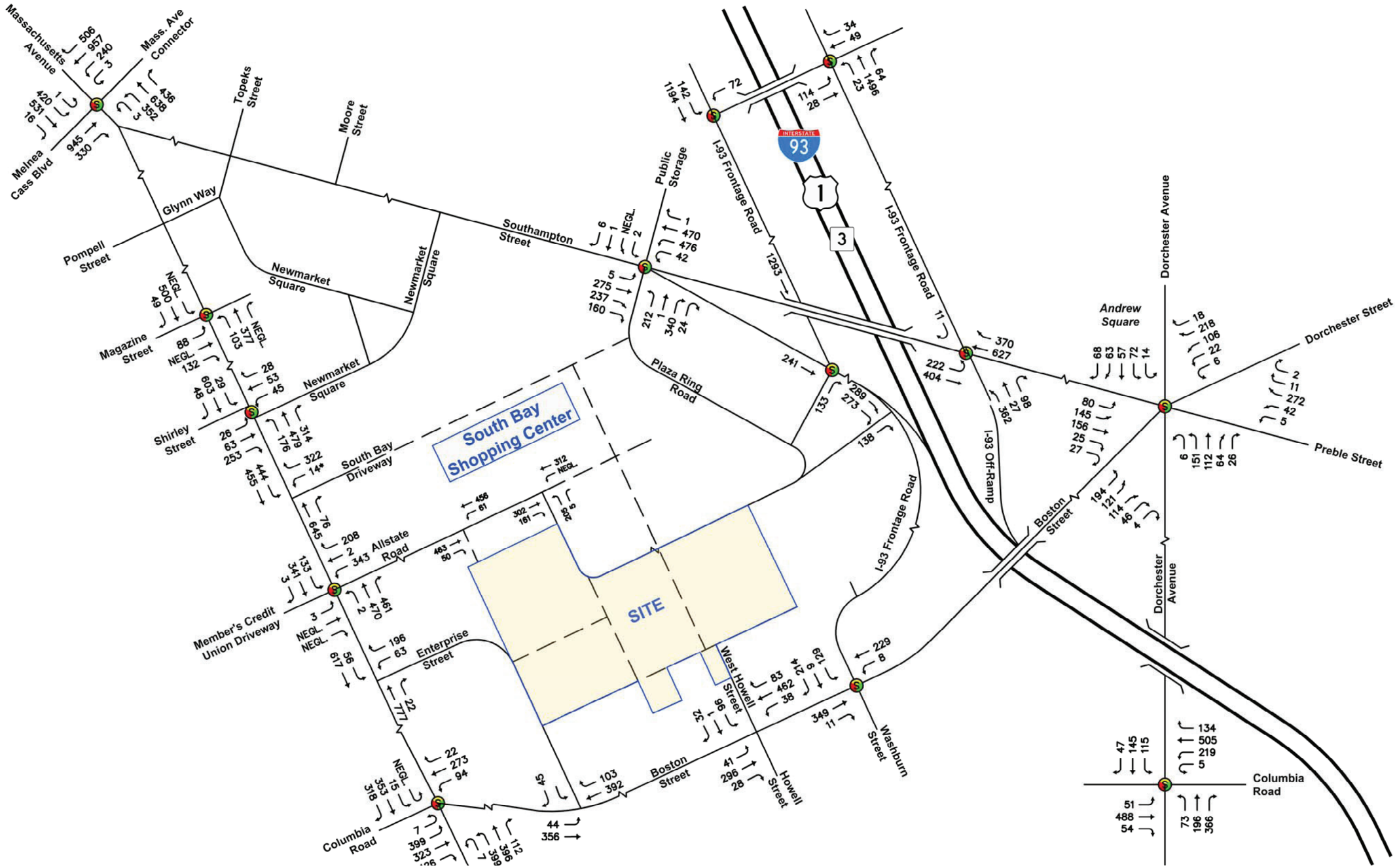
2021 Build Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)

Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-25
2021 Build Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-26
2021 Build Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc., 2015

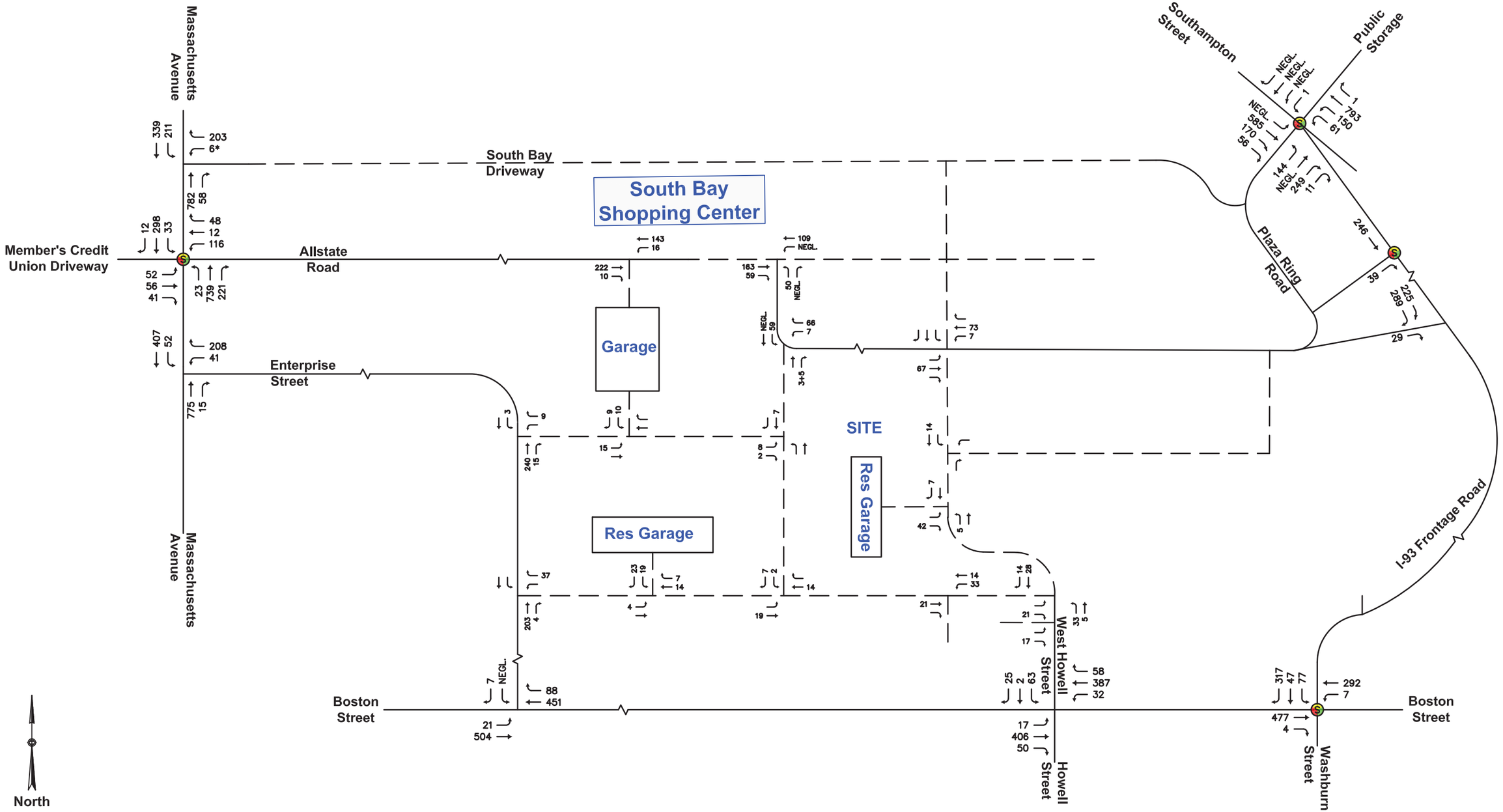
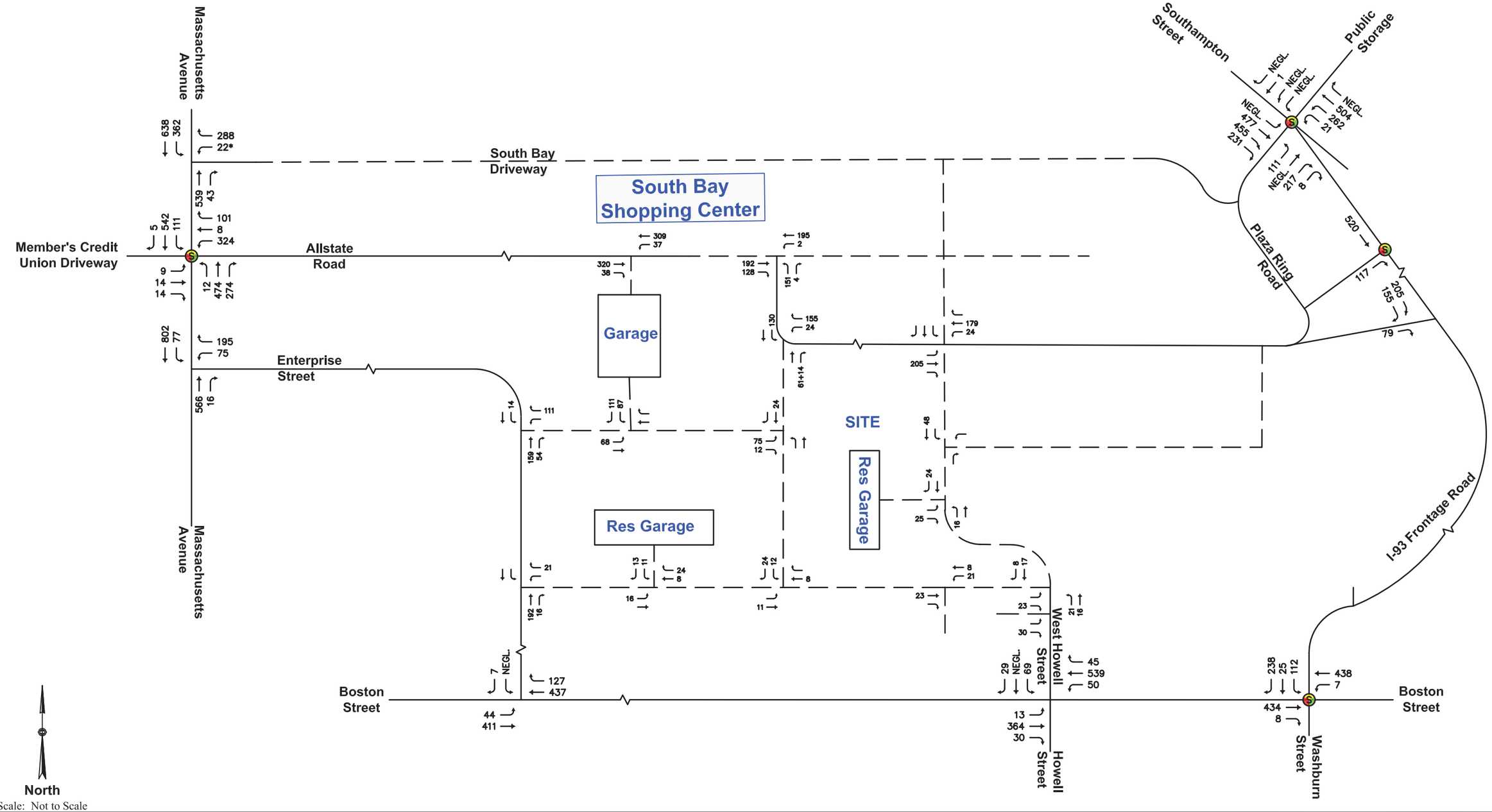


Figure 4-27
Build Internal Weekday Morning Peak Hour Traffic Volumes (7:30-8:30 am)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-28
Build Internal Weekday Evening Peak Hour Traffic Volumes (4:45-5:45 pm)
Source: MDM Transportation Consultants, Inc., 2015

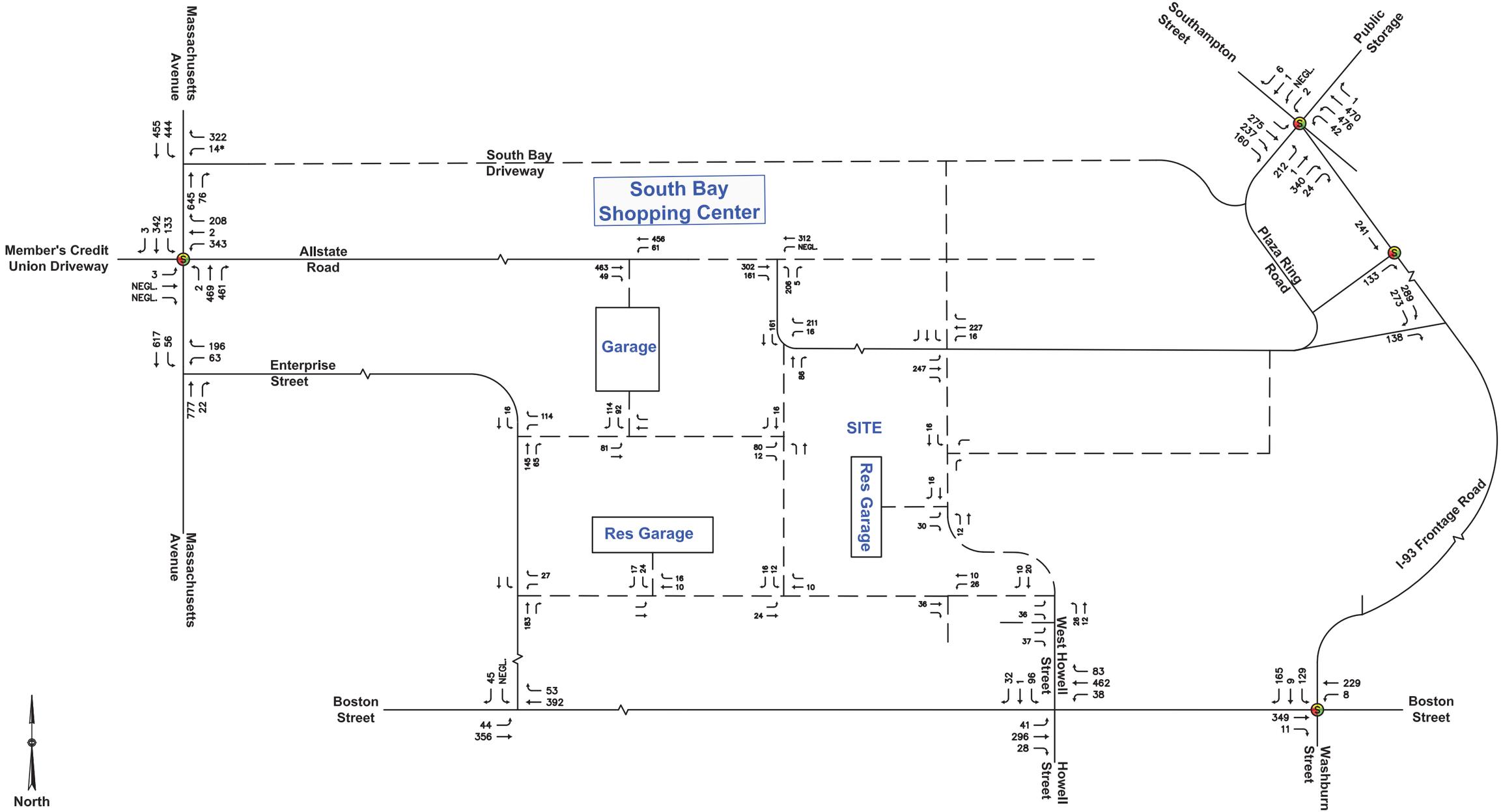
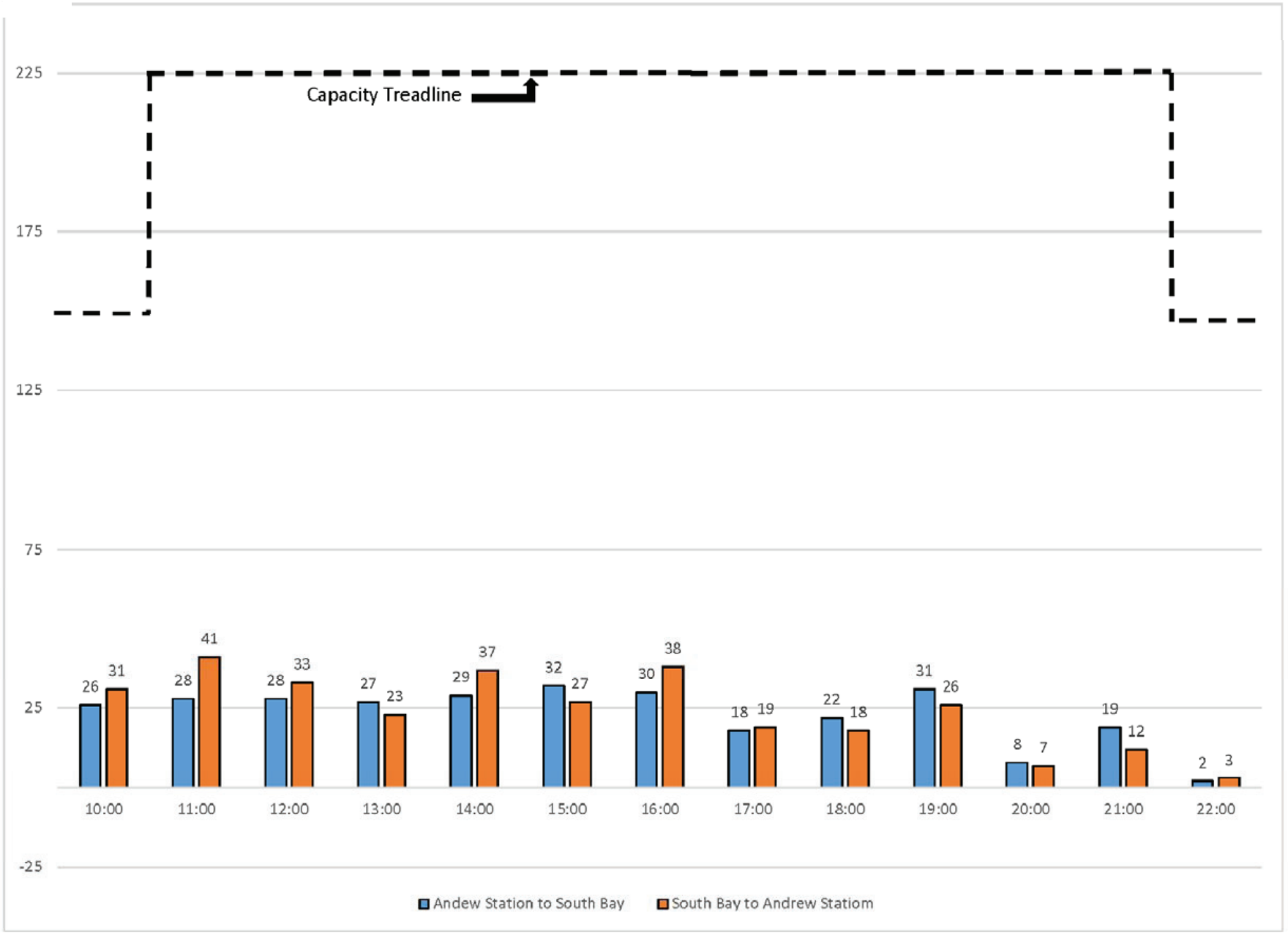


Figure 4-29
Build Internal Saturday Midday Peak Hour Traffic Volumes (12:00-1:00 pm)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-30
Weekday South Bay Shuttle Ridership
Source: MDM Transportation Consultants, Inc., 2015

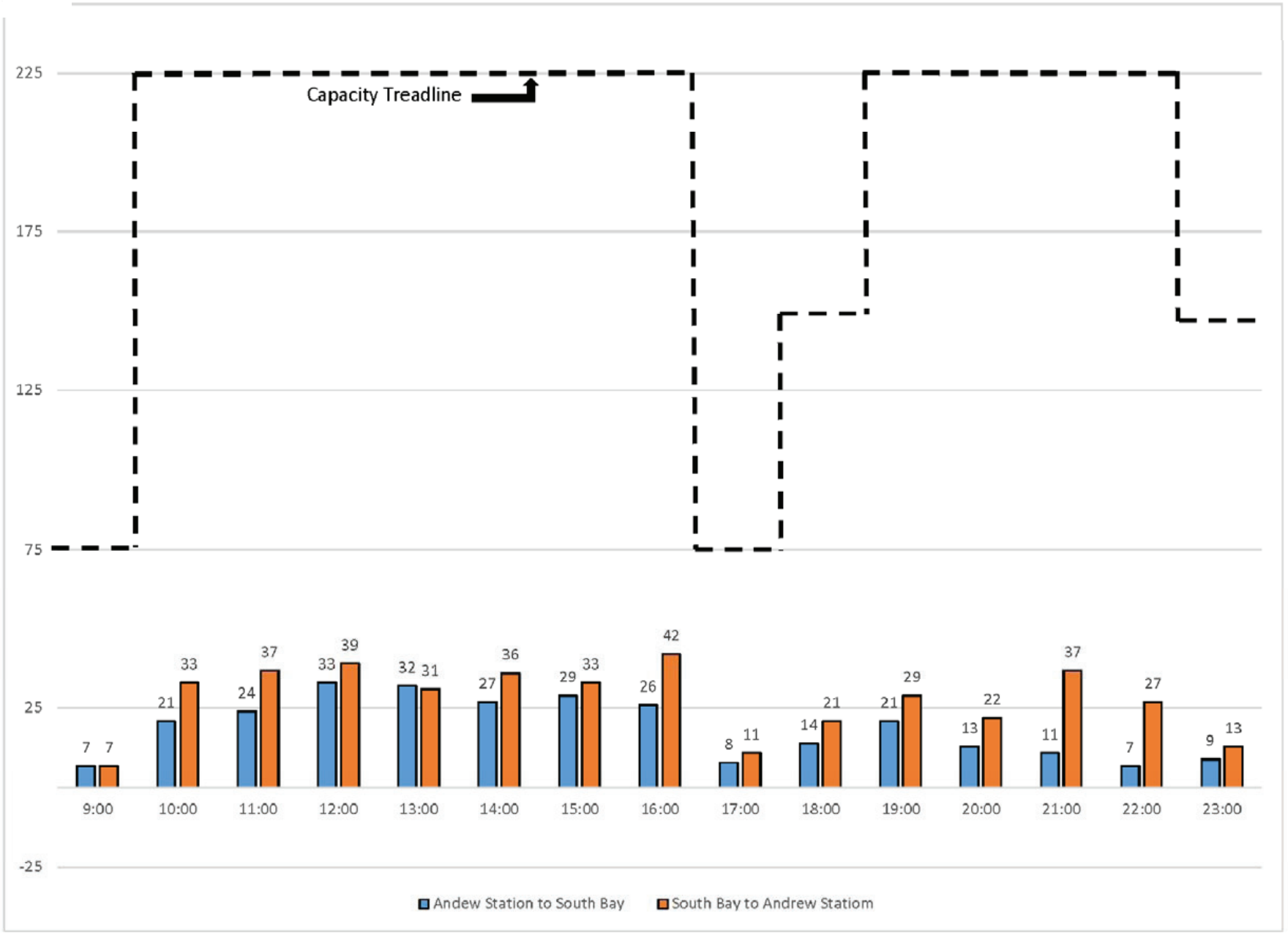


Figure 4-31
Saturday South Bay Shuttle Ridership
Source: MDM Transportation Consultants, Inc., 2015

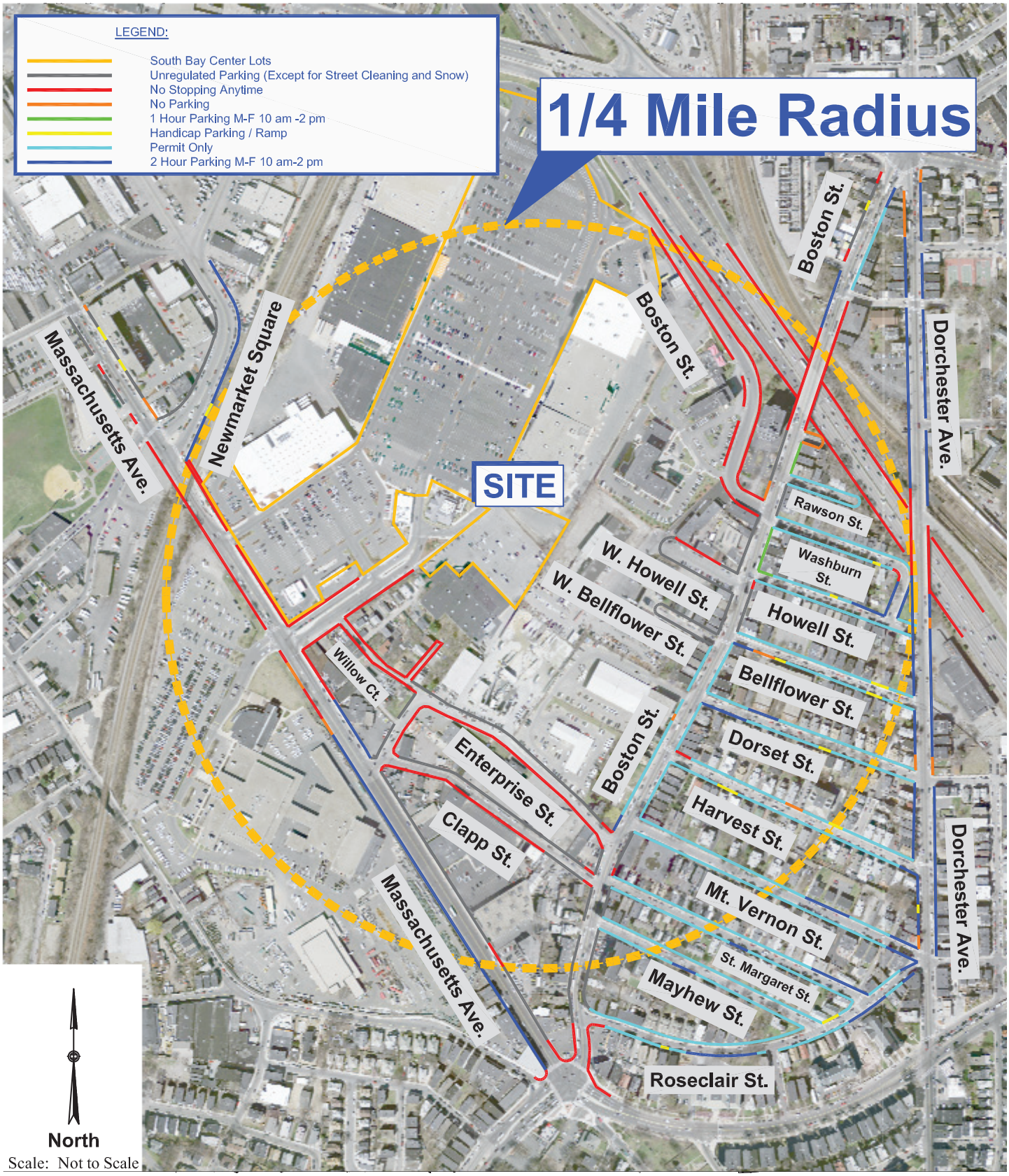


Figure 4-32
Parking Inventory
Source: MDM Transportation Consultants, Inc., 2015

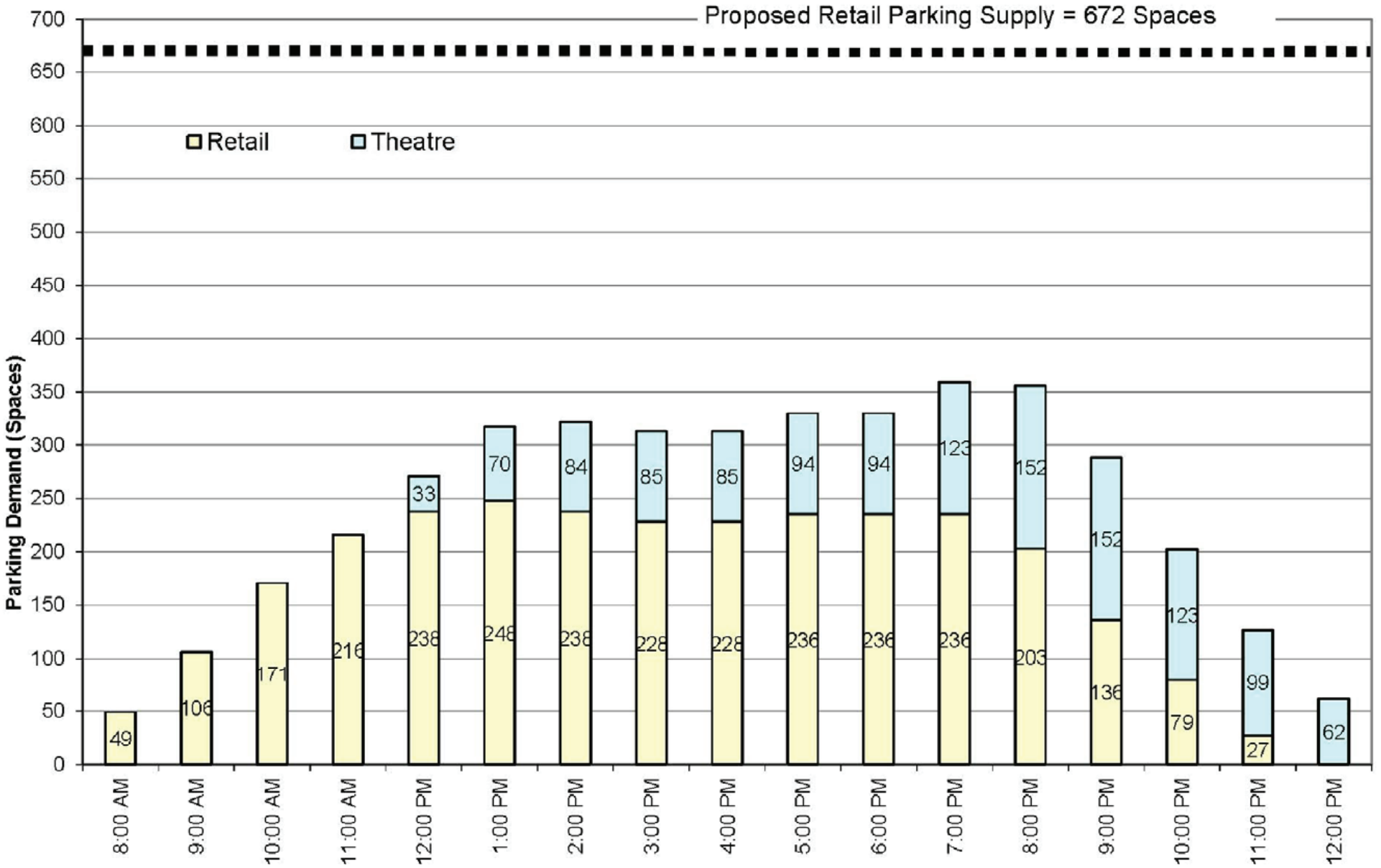


Figure 4-33
Weekday Hourly Shared Parking Characteristics
Source: MDM Transportation Consultants, Inc., 2015

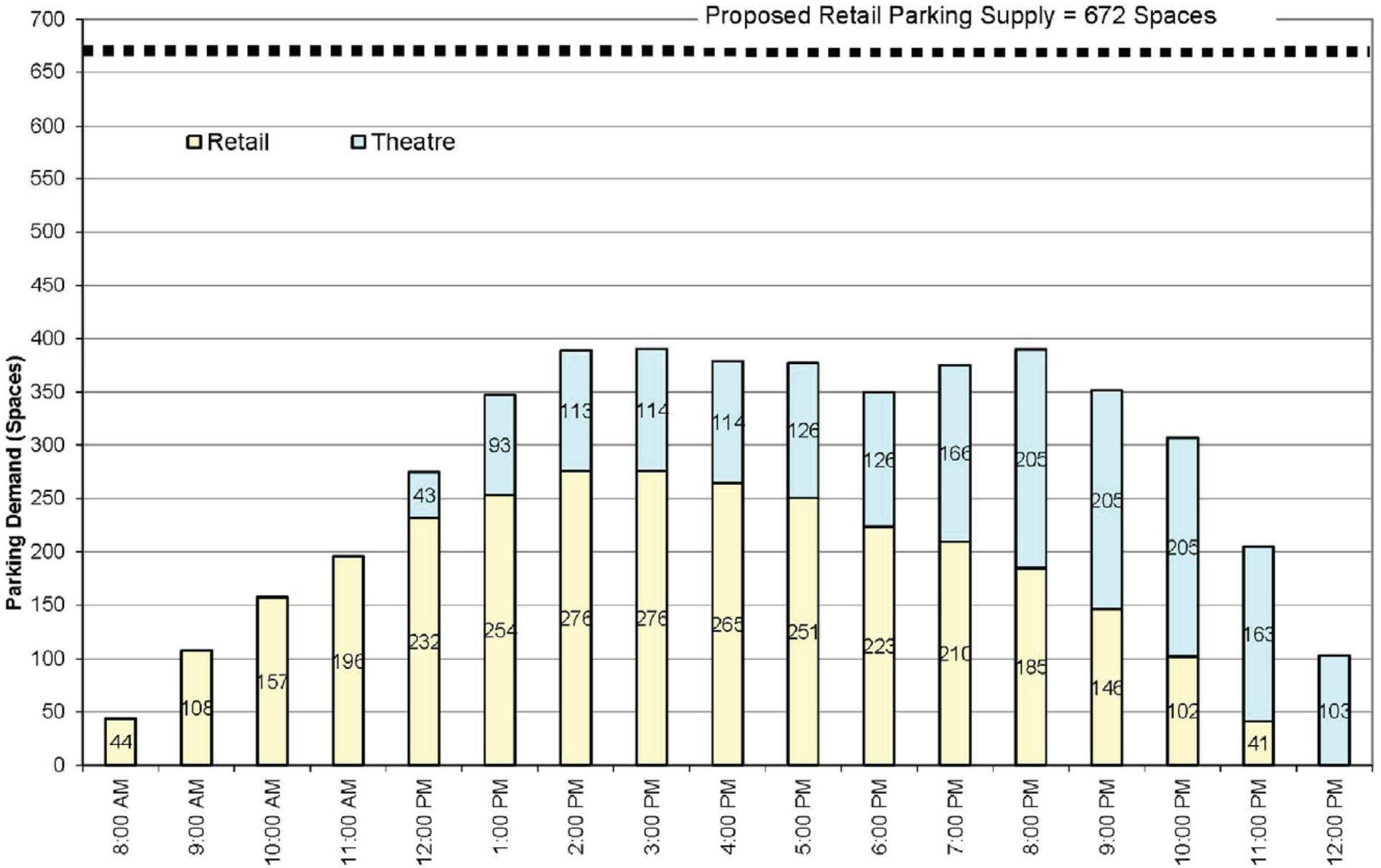
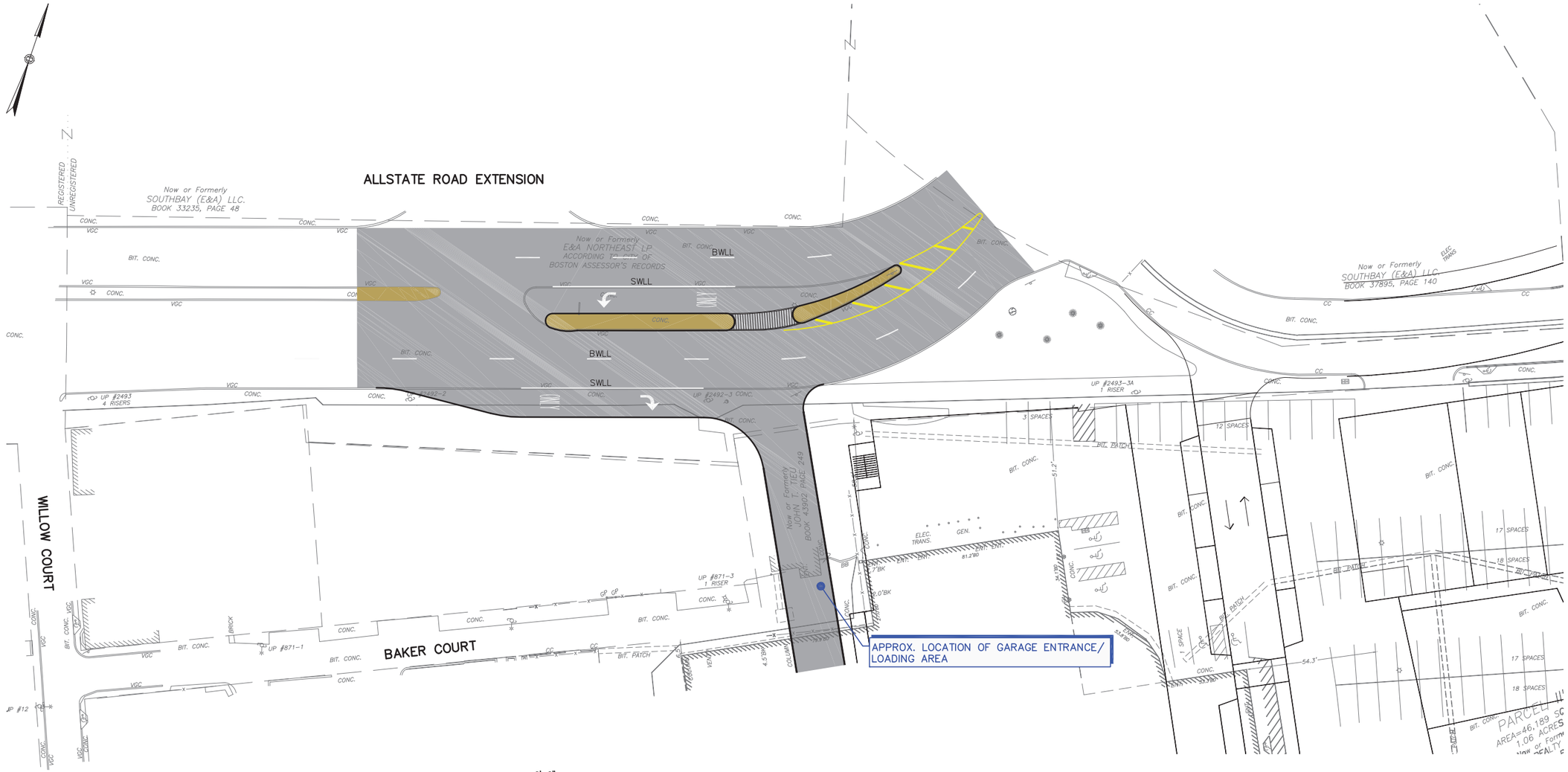


Figure 4-34

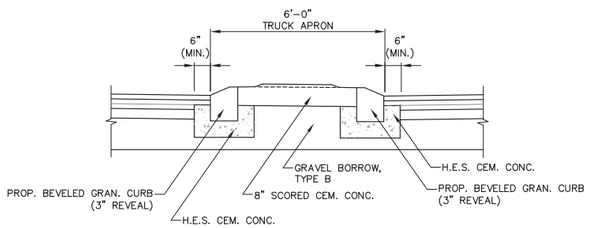
Saturday Hourly Shared Parking Characteristics

Source: MDM Transportation Consultants, Inc., 2015

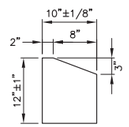


NOTES

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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 4-35
Conceptual Access Plan
Source: MDM Transportation Consultants, Inc., 2015



PROPOSED SIGNS

STOP R1–1

ONLY R–7

ONE WAY R–2

DO NOT ENTER R–10

R–5

SCALE

0 15 30 60 90 FEET

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4. BASE PLAN SOURCE: BOHLER ENGINEERING AND USGS COLOR ORTHO IMAGERY.

Figure 4-36
Conceptual Roadway Improvements Plan
Source: MDM Transportation Consultants, Inc., 2015



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PROPOSED SIGNS

STOP R1-1

SCALE
0 10 20 40 80 FEET

Figure 4-37
Conceptual Roadway Improvements Plan
Source: MDM Transportation Consultants, Inc., 2015



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4. BASE PLAN SOURCE: BOHLER ENGINEERING AND USGS COLOR ORTHO IMAGERY.

PROPOSED SIGNS

R1–1

R–5

R–2

R–10

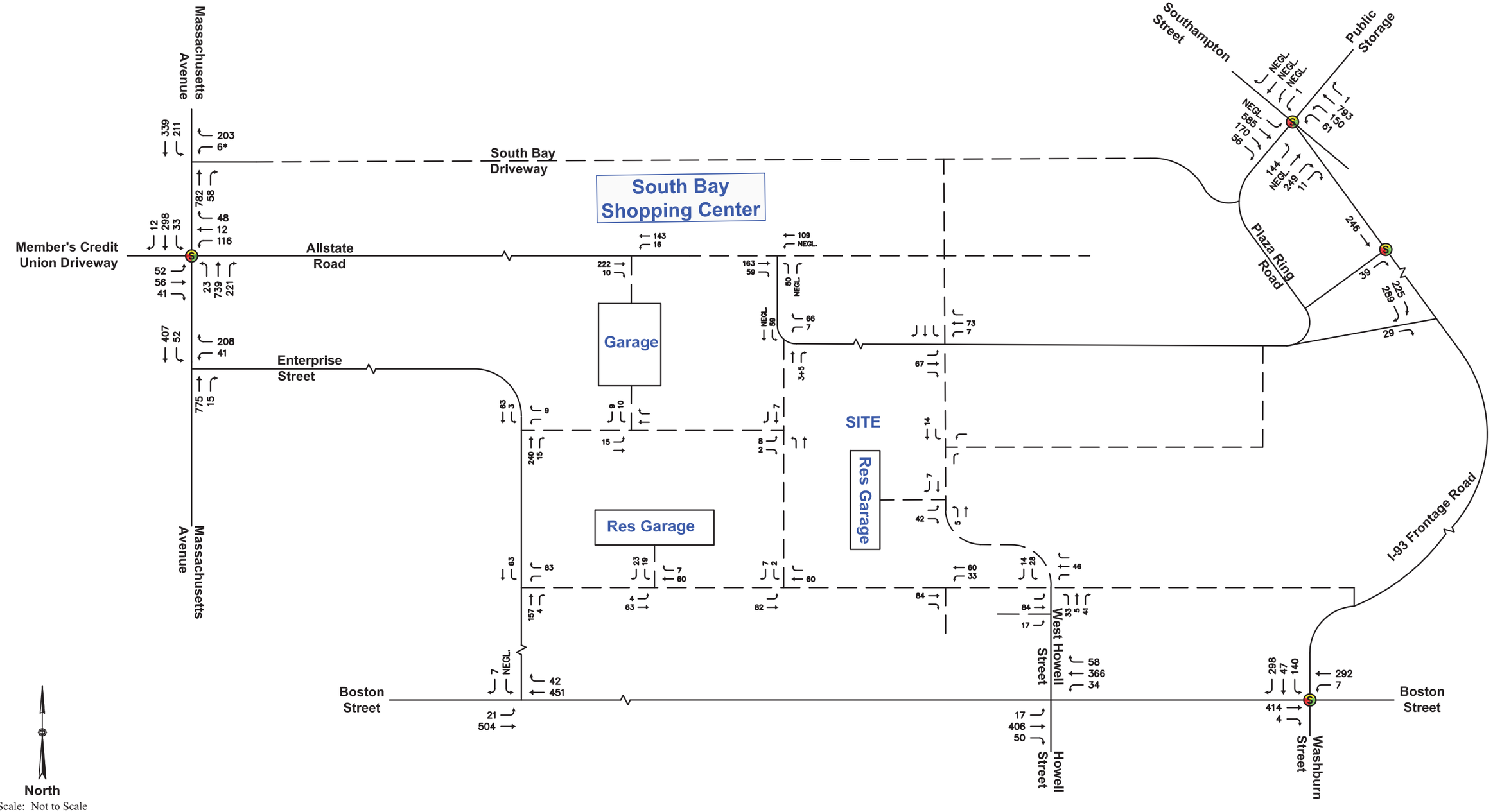
SCALE

0 10 20 40 80 FEET

Figure 4-38

Conceptual Roadway Improvements Plan

Source: MDM Transportation Consultants, Inc., 2015

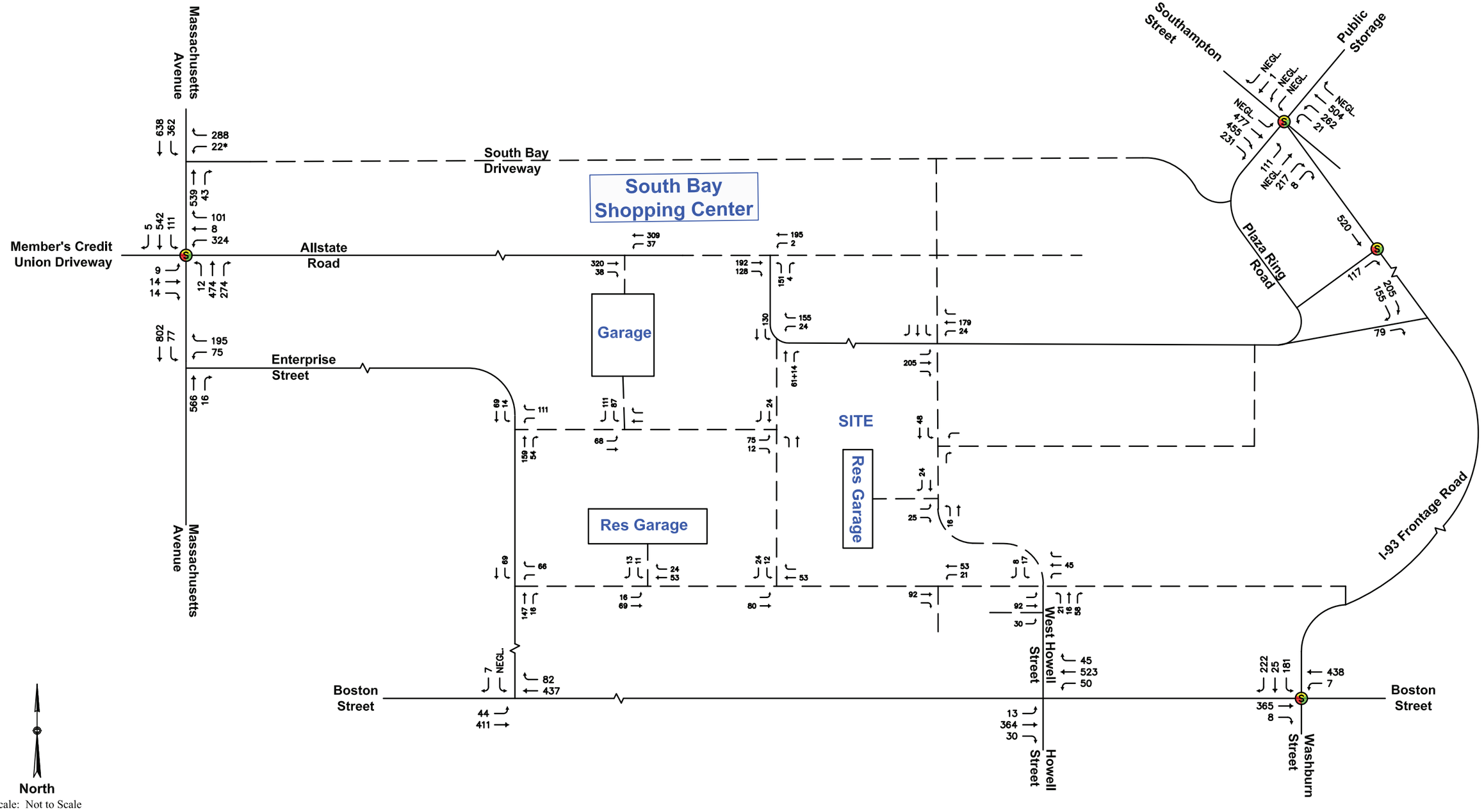


Dorchester, Massachusetts

Figure 4-39

One-Way with Cross Connection Build Weekday Morning Peak Hour Traffic Volumes (7:30 - 8:30 AM)

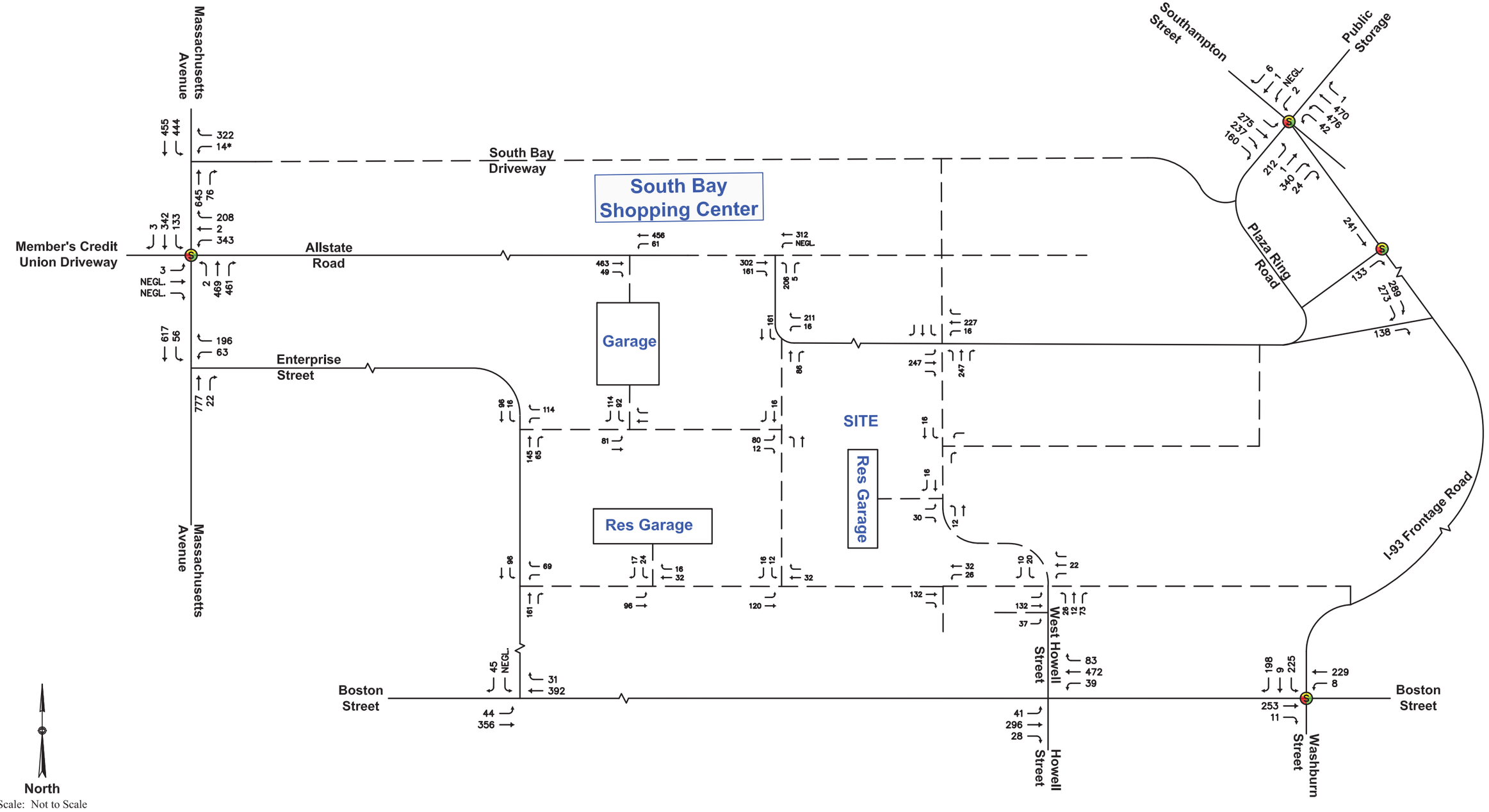
Source: MDM Transportation Consultants, Inc., 2015



North
Scale: Not to Scale

Dorchester, Massachusetts

Figure 4-40
One-Way with Cross Connection Build Weekday Evening Peak Hour Traffic Volumes (7:30 - 8:30 AM)
Source: MDM Transportation Consultants, Inc., 2015



Dorchester, Massachusetts

Figure 4-41

One-Way with Cross Connection Build Saturday Midday Peak Hour Traffic Volumes (7:30 - 8:30 AM)

Source: MDM Transportation Consultants, Inc., 2015



NOTES

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4. BASE PLAN SOURCE: USGS COLOR ORTHO IMAGERY.

SCALE

0 15 30 60 90

PROPOSED SIGNS

W4–2

R3–7D

Figure 4-42

Conceptual Roadway Improvements Plan- Alternative A

Source: MDM Transportation Consultants, Inc., 2015



NOTES

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4. BASE PLAN SOURCE: USGS COLOR ORTHO IMAGERY.

Figure 4-43
Conceptual Roadway Improvements Plan
Source: MDM Transportation Consultants, Inc., 2015



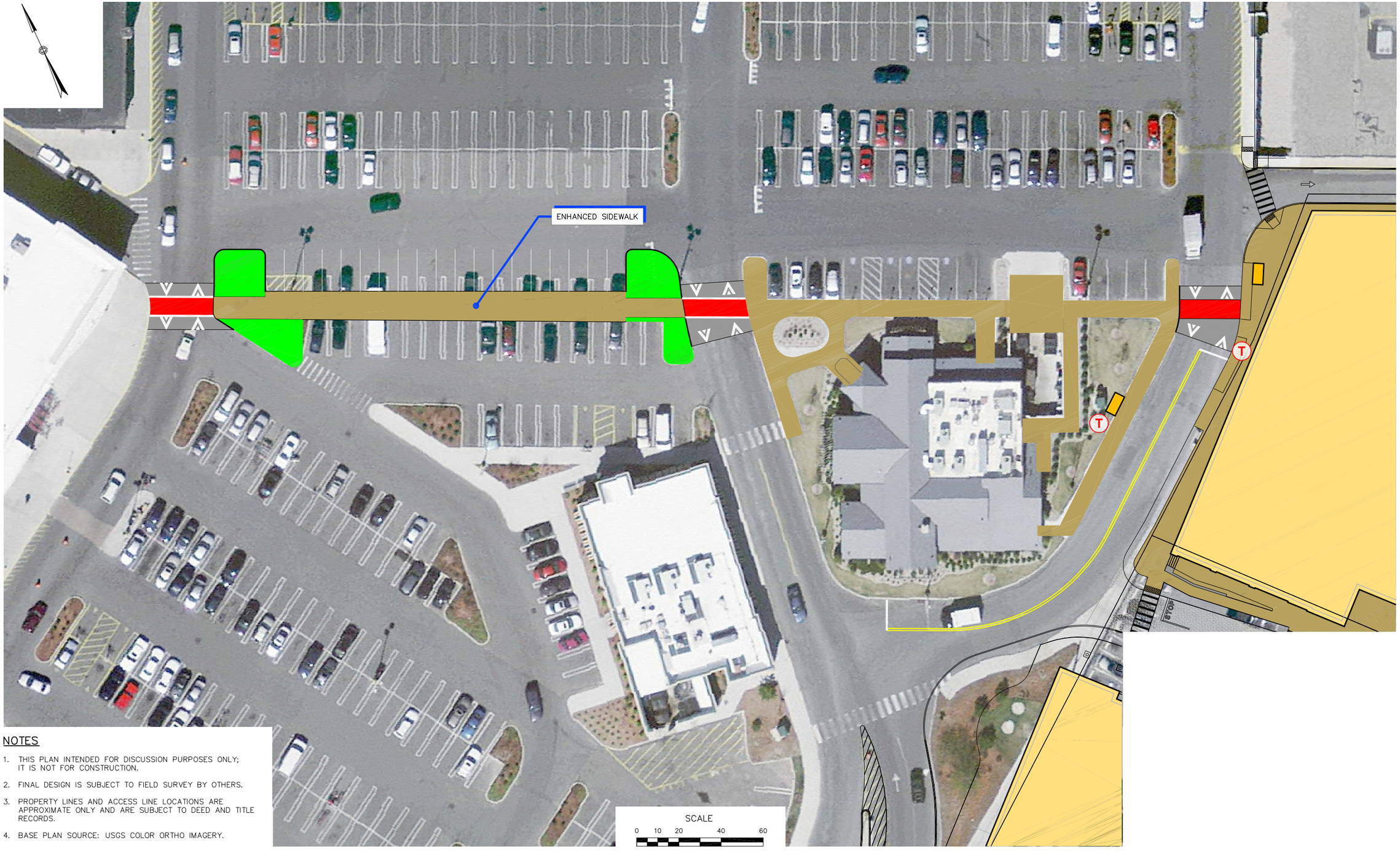
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4. BASE PLAN SOURCE: USGS COLOR ORTHO IMAGERY.

Figure 4-44

Conceptual Signal Interconnect

Source: MDM Transportation Consultants, Inc., 2015



NOTES

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4. BASE PLAN SOURCE: USGS COLOR ORTHO IMAGERY.

Figure 4-45

Conceptual Sidewalk Improvements Plan

Source: MDM Transportation Consultants, Inc., 2015

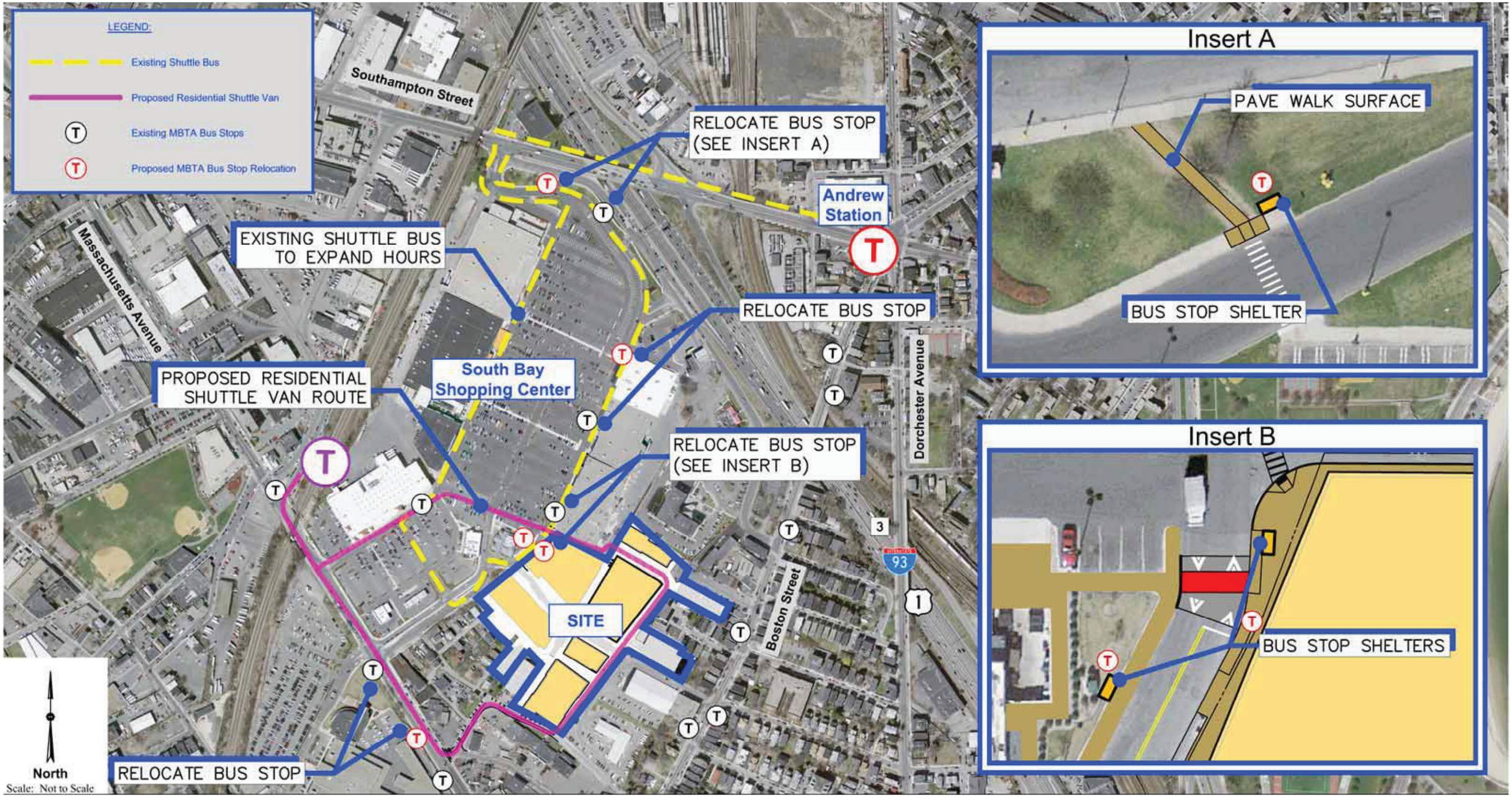


Figure 4-46
South Bay Center Publ.ic Transportation Improvements
Source: MDM Transportation Consultants, Inc., 2015

Chapter 5

ENVIRONMENTAL PROTECTION

CHAPTER 5: ENVIRONMENTAL PROTECTION

5.1 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.

5.2 WIND

A qualitative pedestrian wind assessment was conducted for the Project. The objective of the study was to assess the effect of the proposed development on local wind conditions in pedestrian areas on and around the study site and provide recommendations for minimizing adverse effects, if any. The study involved computer simulations, using computational fluid dynamics and a 3D model of the proposed development and surroundings. The wind criteria and guidelines recommended by the BRA were applied in this assessment. The study results of the CFD simulations are provided below. The detailed methodology and results of the wind assessment are presented in Appendix D. Generally, the study showed that the Project (Build Configuration) improves existing wind conditions and effective gust conditions characterizing the Project Site under its existing conditions (No-Build Configuration). See Figure 5-1, Wind Study.

5.2.1 NO-BUILD CONFIGURATION

On an annual basis, winds along Baker Court and Fields Court are generally suitable for walking or better along the sidewalks. Along Willow Court and Enterprise Street, wind conditions range from comfortable for standing on the west end Willow Court, to uncomfortable along Enterprise Street near the aggregate plant. Along Allstate Road, to the west of the development, wind conditions are uncomfortable along the north section of the road. At the southeast corner of the Olive Garden, wind conditions are dangerous as defined by the BRA.

5.2.2 BUILD CONFIGURATION

The main entrances to each of the buildings are generally suitable for the intended usage. Wind conditions at the various retail entrances to the buildings are suitable for retail activities on an annual basis. Wind conditions at sidewalks throughout the site are generally appropriate for the café seating and promenading environments the Project intends to create. Uncomfortable wind conditions are dispersed to some building corners, in particular on Building B and Building C, and in the courtyard, beneath the underpass at Building C. The presence of street trees as proposed by the Project throughout all streetscape environments will aid in disrupting wind flow

along pedestrian walkways. Wind conditions on the sidewalks surrounding the site show negligible differences between the two configurations, in terms of comfort. Dangerous wind conditions, as defined by the BRA, occur along a small area of Enterprise Street near Building C. The BRA effective gust guideline is exceeded in both the No Build and Build Configurations. The total area that exceeds the guideline is reduced significantly in the Build Configuration, as the new development provides blockage from the previously open exposure in the No Build Configuration.

5.2.3 RECOMMENDATIONS

At the southwest corner of Building C where dangerous wind conditions as defined by the BRA occur, it is recommended that the design team locate building entrances away from the corner to ensure transient pedestrian use of the area. Additionally, dense landscaping and trees along the west façade of Building B is recommended to disrupt the channeling of northwesterly and southwesterly winds between Building B and the existing building. Along the walkway at Building C, beneath the underpass, wind mitigation features such as dense landscaping and measures to ensure a transient pedestrian environment are recommended. Similar measures are recommended at the southeast corner of the south building of Building C.

5.3 SHADOW

A shadow analysis was conducted for the Project to ensure the proposed buildings would not create adverse shadow impacts. Table 5-1, Shadow Study Dates and Times, identifies the dates and times for which shadow conditions have been simulated.

Table 5-1: 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. The Project's shadow impact to the surrounding residential neighborhood is generally 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 5-2 through Figure 5-7, Shadow Study.

5.4 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.

This section outlines the methodology and analysis of daylight obstruction from the Project. The amount of daylight reaching the streets and the sidewalks after development of the Project will be reduced compared to the existing conditions. This change is because the existing conditions are comprised mostly of vacant lots, surface parking, and single-story buildings more typical of an industrial zone, while the Project seeks to create a vibrant, urban, transit-oriented neighborhood development.

5.4.1 METHODOLOGY

The daylight analysis was performed utilizing the Boston Redevelopment Authority Daylighting Analysis (BRADA) computer program. Using BRADA, a silhouette view of the building is taken at ground level from the middle of the adjacent city streets centered on the proposed building. The façade of the building facing the viewpoint, including heights, setbacks, corners, and other features, is plotted onto a base map using lateral and elevation dimensions. The two-dimensional base graphic generated by BRADA represents a figure of the building in the "sky dome" from the viewpoint chosen. The BRADA program calculates the percentage of daylight that will be obstructed on a scale of 0 percent to 100 percent. BRADA calculates this obstruction value based on the width of view, the distance between the viewpoint and the building, and the massing and setbacks incorporated into the design of the

building. The lower the number, the lower the percentage of obstruction of daylight from any given viewpoint.

The potential daylight impacts were analyzed from Allstate Road, Enterprise Street, and West Howell Street for the existing conditions and Allstate Road, Enterprise Street, West Howell Street, West Howell Street Extension, New Road, and the service road behind Building A. See Figure 5-8 and 5-9, Daylight Analysis Location Key.

5.4.2 RESULTS

The results of the daylight analysis are presented in Table 1 below. The graphic results of the existing condition and the build condition are shown in Figure 5-10 through Figure 5-20, Daylight Impact Analysis.

Table 5-2: Daylight Analysis Results (percentage obstructed)

Location (see key plan)	NB1	NB2	NB3	1	2	3	4	5	6	7	8
New Daylight Obstruction	5.5%	14.3%	11.8%	70%	79.6%	77%	72%	18.3%	75.7%	37.2%	79.6%

5.4.3 CONCLUSIONS

With a maximum anticipated permissible zoning height of 65 feet, and the proposed buildings' location immediately at the street edge, the daylight obstruction values are higher than under the existing condition. The Project is composed of longer and taller buildings than the existing condition and result in a daylight obstruction level more typical for a medium density urban area.

5.5 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.

5.6 AIR QUALITY

An air quality study was completed for the Project per the BRA scope. The following section is a summary of the methodology and results. The full text of the study is located in Appendix F.

5.6.1 INTRODUCTION

Air quality impact analyses were performed for the South Bay, a mixed-use development between Massachusetts Avenue and the Southeast Expressway in the South Bay section of Boston. The Project consists of approximately 170,000 square feet (sf) of new commercial building space (retail and cinema), a 90,000 sf hotel, and 475 multi-family residential units. The use and size of the five buildings are as follows:

Table 5-3: Project Program

Building	Size	Primary Uses
Building A	41,000 sf	Retail
Building B	105,100 sf	Cinema, Retail
Building C	232,070 sf	Multi-family residential, Retail
Building D	259,950 sf	Multi-family residential, Retail
Building E	90,000 sf	Hotel

These analyses consisted of 1) an evaluation of existing air quality; 2) an evaluation of potential carbon monoxide (CO) impacts from the operation of the Project's fuel combustion and parking garages, and 3) a microscale CO analysis for intersections in the Project area that meet the BRA criteria for requiring such an analysis.

5.6.2 STATIONARY SOURCES

The Project will include rooftop fuel combustion equipment that will emit air pollutants to the atmosphere when operating. Fuel combustion equipment for the Project will include gas-fired boilers, furnaces, and hot water heaters. The objective of this analysis was to determine the maximum CO concentrations from fuel combustion equipment and parking garages at the closest sensitive receptors surrounding the Project. These closest sensitive receptors include nearby existing buildings and pedestrians at ground level anywhere near the Project. CO emissions from motor vehicles operating inside the garage were calculated and the CO concentrations inside the garage and surrounding the Project were based on Saturday morning peak traffic periods. CO emissions from fuel combustion equipment and garages were modeled using a US EPA-approved air model.

Worst-case concentrations of CO from the fuel combustion equipment and parking garages were predicted for locations around the building with using AERMOD model (Version 15181) in screening-mode. The AERMOD model in screening-mode was used to predict the maximum concentration of CO by modeling the fuel combustion equipment and parking garages emissions as a volume using worst-case meteorological conditions for an urban area. The screening-mode option simulates modeling results predicted by AERSCREEN. The predicted concentrations presented here represent the worst-case air quality impacts from the fuel combustion equipment and garages at all locations on and around the Project. AERMOD predicted one-hour average concentrations of air pollutants.

AERMOD predicted that the maximum one-hour CO concentration from the fuel combustion equipment and parking garages will be 0.022 ppm (24.77 µg/m3). This concentration represents the maximum CO concentration at any location surrounding the Project. The maximum predicted eight-hour CO concentration was determined to be approximately 0.02 ppm. With the background concentration added, the peak, total, one-hour and eight-hour CO impacts from the fuel combustion equipment, at any location around the building, will be no larger than 2.22 ppm and 1.62 ppm, respectively. These maximum predicted total CO concentrations (fuel combustion equipment and parking garage plus background) are safely in compliance with the NAAQS. This analysis demonstrates that the operation of the fuel combustion equipment will not have an adverse impact on air quality.

5.6.3 MICROSCALE ANALYSIS

The BRA and DEP typically require a microscale air quality analysis for any intersection in the Project study area where the level of service (LOS) is expected to deteriorate to D and the proposed project causes a 10% increase in traffic or where the level of service is E or F and the project contributes to a reduction in LOS. For such intersections, a microscale air quality analysis is required to examine the carbon monoxide (CO) concentrations at sensitive receptors near the intersection.

A microscale CO air quality analysis was performed for three intersections to predict the maximum one-hour and eight-hour CO concentrations for sensitive receptors at the two intersections in the Project area that meet the BRA selection criteria. The analysis was performed for three cases: 2015 Existing, 2021 No-Build, and 2021 Build using the latest version of the U.S. EPA CAL3QHC model1 (Version 2.0, dated October 1995). Estimation of CO levels at the intersections that meet the BRA/DEP selection criteria under the 2021 Build scenario provides a good indication of

[1] U.S. EPA, User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollution Concentrations Near Roadway Intersections, Office of Air Quality Planning and Standards, September 1995.

whether the project will interfere with the maintenance of the NAAQS for CO. Since CO levels are highest near intersections where the worst traffic congestion occurs, compliance with the NAAQS at these intersections and receptors protects public health elsewhere in the community.

The maximum predicted CO impacts for the 2021 No-Build and Build cases are less than those predicted for the 2015 Existing Case. This is a result of the lower CO emission rates for motor vehicles predicted by the MOVES2014 model for 2021, compared to 2015. The reduction in motor vehicle CO emission rates is primarily a result of the improved motor vehicle emission controls and occurs as newer vehicles with lower CO emissions replace older vehicles on the road. The maximum predicted CO impacts for the 2021 Build case is less than those predicted for the 2021 No-Build Case due to proposed Travel Demand Management (TDM) measures provided by MDM Transportation Consultants, Inc. The results show that the project will not have a significant impact on the air quality at the analyzed intersections.

The maximum predicted one-hour and eight-hour CO concentrations, including background concentrations of CO, for the 2015 Existing case are 2.60 ppm and 1.96 ppm, respectively. For the 2021 No-Build case, the maximum predicted one-hour and eight-hour CO concentrations, including background concentrations of CO, are 2.50 ppm and 1.87 ppm, respectively For the 2021 Build case, the maximum predicted one-hour and eight-hour CO concentrations, including conservative background concentrations of CO, are 2.40 and 1.78 ppm, respectively.

These maximum air quality impacts are predicted to occur at receptor #5 near Southampton St at Preble St/Dorchester Ave/Dorchester St/Boston St (Andrew Square) intersection for all modeling scenarios. These results demonstrate that the project will not have an adverse impact on air quality at the most congested intersections in the project area.

5.6.4 TOTAL PROJECT AIR QUALITY RESULTS

The worst-case air quality impacts at the Project site can be conservatively represented by the highest predicted CO concentration at the intersection of Southampton Street at Preble Street/Dorchester Avenue, which is adjacent to the Project site. Adding in the impacts from the fuel combustion equipment and parking garages to the background concentration, the conservative estimate of the worst-case total one-hour, and eight-hour CO impacts at the Project site will be 2.42 ppm and 1.80 ppm, respectively. These values are safely in compliance with the NAAQS for CO and indicate that the Project will not have an adverse impact on local air quality.

5.7 NOISE

An analysis of the existing conditions and future conditions was conducted per BRA instructions to determine whether the development will meet the Massachusetts Department of Environmental Protection (DEP) criteria, Boston Noise Code, and House and Urban Development (HUD) code.

Based on the stringent conditions designed for the noise model, it can be concluded that the development of the Project will meet the overall A-weighted noise levels required by the Boston Noise Code, the DEP criteria, and HUD code, with mitigation recommendations.

5.7.1 INTRODUCTION

The existing Project Site measurements were conducted between November 10-12, 2015 to establish the current noise levels within and along the property lines during daytime and nighttime hours. The measured existing conditions meet the Boston Noise Code for overall A-weighted levels in most instances. There were individual measurements taken on Project Site where the lower octave band noise levels caused the overall noise level to exceed the nighttime maximum noise levels set by the Boston Noise Code; however, it is not expected this is a normal occurrence based on the data collected. The measured noise levels at the Project Site meet the Housing and Urban Development (HUD) code, and the Massachusetts Department of Environmental Protection (DEP) criteria. Figure 5-21, Existing Conditions Survey Measurement Locations, shows the seven (7) locations where existing conditions were measured for reference.

5.7.2 PREDICTION OF FUTURE NOISE CONDITIONS

The additional sources of noise due to mechanical equipment and sources such as diesel trucks in the loading dock that will be added to the area are of concern to the neighboring communities. An environmental noise model was created to determine the impact on the environment using the following sources of Project noise:

- Dedicated Outdoor Air Supply units on all buildings
- Garage intake and exhaust fans for Buildings C and D
- Emergency generators on Buildings C, D, and E with sound enclosures rated for 65dBA at 23 feet
- Cooling condenser units for retail fit-outs
- Up to three idling trucks in the Loading Dock of Building A

The modeled mechanical equipment and diesel truck locations are illustrated in Figure 5-22, Modeled Noise Locations.

5.7.3 MODEL ANALYSIS

With the modeled mechanical equipment operating on assumed design conditions and three diesel trucks idling in the Building A loading dock, it is anticipated noise levels will be in compliance with Boston Noise Code in all locations except for the property line at the Service Road where the Building A mechanical equipment and loading dock are located. This is due to the minimal distance from the noise sources to the property line. With one of the following mitigation measures, the environmental noise model outputs noise levels in compliance with the Boston Noise Code:

- Two truck capacity for the Building A loading dock during daytime hours and "No Idle" signage for trucks in the Building A loading dock during nighttime hours (except when trucks arrive and depart, code will be exceeded for a brief period of time)
- A minimum 13-foot in height solid barrier wall that extends the distance

Because the Proponent views a large, solid wall as a security concern, potential surface for graffiti vandalism, and because of its immediate proximity to neighbors, the Proponent will mitigate noise with "No Idle" signage and policy and capacity limitations enforced by management operations. Proposed trees and landscaping along the property line will help to further shield neighbors from impacts of loading dock operations.

Table 5-4 provides the Boston Noise Code noise level requirements and the environmental model outputs with the following modeled scenarios:

- Scenario 1: No mitigation provided and all modeled sources operational
- Scenario 2: No mitigation provided. Mechanical equipment is operational. "No Idle" signage in the Loading Dock for diesel trucks
- Scenario 3: 13-foot tall solid barrier wall constructed to mitigate noise levels intrusive noise levels highlighted in Scenario 1

Table 5-4: Environmental Noise Model Outputs

Receiver Location	Maximum Noise Level[1]		Scenario 1	Scenario 2	Scenario 3
	Day	Night			
Willow/Fields Ct	60 dBA	50 dBA	56 dBA[2]	50 dBA	46 dBA
Baker Ct	60 dBA	50 dBA	55 dBA[2]	50 dBA	42 dBA
Service Rd	60 dBA	50 dBA	61 dBA[3]	50 dBA	45 dBA
Hotel	60 dBA	50 dBA	31 dBA	-[4]	-[4]
Boston St	60 dBA	50 dBA	33 dBA	-[4]	-[4]
Allstate Rd	60 dBA	50 dBA	38 dBA	-[4]	-[4]

[1]Set by Boston City Noise Code
[2]Exceed night time maximum permissible noise levels
[3]Exceed both day time and night time maximum permissible noise levels
[4]Locations not affected by noise mitigation measures

5.7.4 CONCLUSION

Based on standard mechanical equipment specifications, and assumed noise source locations modeled, it is anticipated the Project noise levels to meet the overall A-weighted levels of the Boston Noise Code, the Massachusetts DEP criteria, and the HUD design noise level regulation with the enactment of the loading dock noise mitigation measures at Building A as previously described.

5.8 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 affecting 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 2015 and updated the flood zones for this area. According to FEMA, the Project Site is not located within a flood zone.

5.9 GEOTECHNICAL

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

5.9.1 SUBSURFACE SOIL CONDITIONS

Surface treatments across the Project 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 Project Site. However, along the southern edge of the Project Site the fill ranges from 4 to 7.5 feet in thickness.

The soil directly below the fill material varies across the Project 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.

5.9.2 GROUNDWATER CONDITIONS

The observation wells installed at the Project Site indicate the groundwater level ranges from about Elevation +7.2 to Elevation +10.3. It is anticipated that future groundwater levels across the Project 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.

5.9.3 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 that 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.

5.10 SOLID AND HAZARDOUS WASTE

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

5.10.1 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 that 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.

5.11 CONSTRUCTION IMPACTS

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

5.11.1 CONSTRUCTION METHODOLOGY

An extensive survey has been completed throughout the Project Site, throughout all connecting street right-of-ways and along abutting property lines to understand the existing utilities so these can be marked for protection during construction. In addition to this survey and the measures that will be outlined in the Construction Management Plan (CMP), construction fencing and signage will be installed and maintained along the perimeter of the work areas to protect adjacent properties and pedestrians during construction.

Excavation and grading activities will be conducted throughout the Project Site to accommodate the proposed improvements. The Project is anticipated to generate some excess soil. Based on soil testing performed on the Project Site, with the

exception of a limited amount of soil located at the 30 West Howell Street property, the excess soil will likely be suitable for disposal at an in-state unlined landfill.

The soil at the 30 West Howell Street property, which was encountered during a subsurface soil investigation, contains reportable concentrations of metals and polycyclic aromatic hydrocarbons (PAHs) and was reported to the DEP under a Release Notification Form (RNF). This soil, estimated to be less than 100 cubic yards, will be excavated and removed under a Release Abatement Measure (RAM) plan during site excavation and grading activities for the project. This soil will likely require off-site disposal at either an in-state unlined landfill and/or an asphalt batch plant.

Asbestos survey test results indicate the presence of asbestos containing materials within the buildings located at 20 and 30 West Howell Street, 95 Allstate Road, and 20 Baker Court. The asbestos material found at 20 West Howell and 20 Baker Court buildings will be abated prior to demolition. Given the dilapidated condition of the 30 West Howell building and the material at 95 Allstate Road being coated onto the building roof deck, the Proponent is seeking approval from DEP for a non-traditional work permit for removal of these materials during the demolition process.

Groundwater levels range between 8 and 11 feet below grade and are not expected to pose any impacts on construction except during limited instances where excavation for deep foundations is required or during prolonged rain events. Limited dewatering with containment and proper treatment will be incorporated if these events do occur.

Both the existing concrete foundations and asphalt pavement will be crushed on site for reuse as subsurface bearing material. The Proponent will develop and implement a construction waste management plan that, at a minimum, will recycle 75% of construction waste.

5.11.2 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.

5.11.3 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.

5.11.4 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 separately. 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, hours of operation, plans to minimize any impacts on the neighborhood and avoid any conflicts with other construction activities being undertaken at the same time.

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.

5.11.5 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 affect 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.

5.11.6 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.

5.11.7 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.

5.11.8 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.

5.12 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.

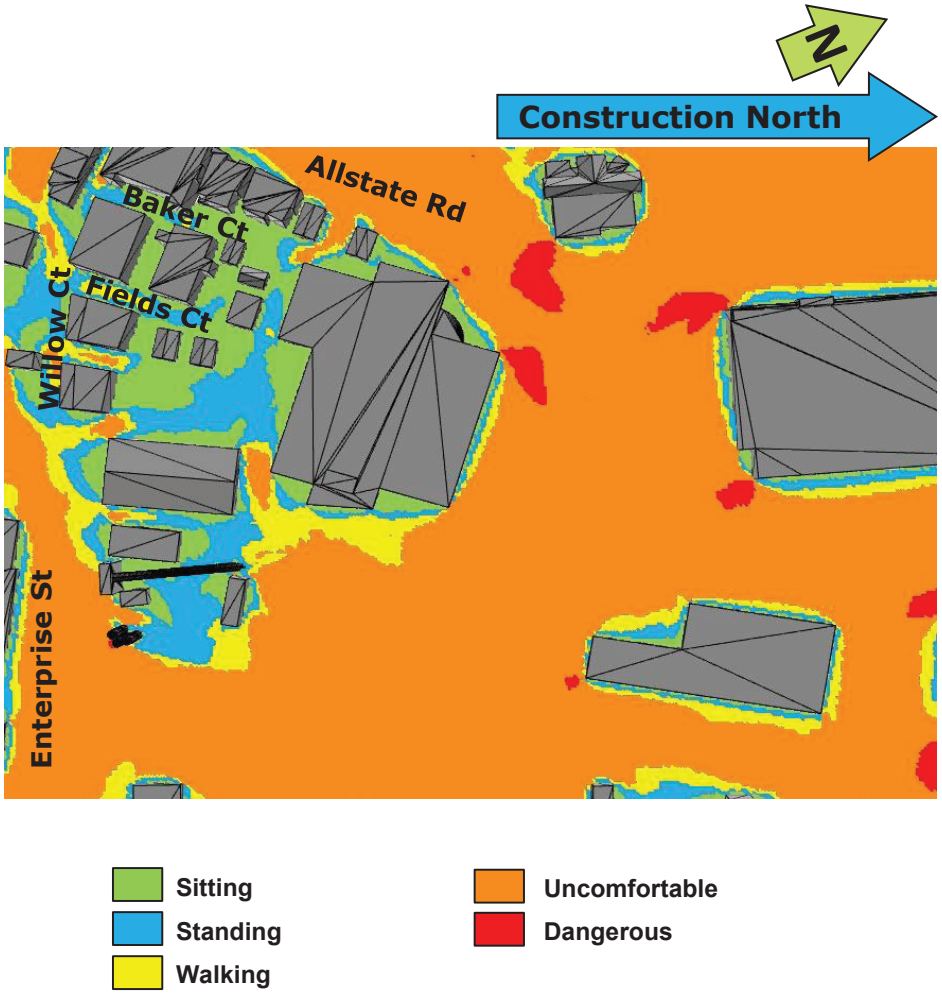


Figure 1a: No Build Configuration – Grade Level – Annual

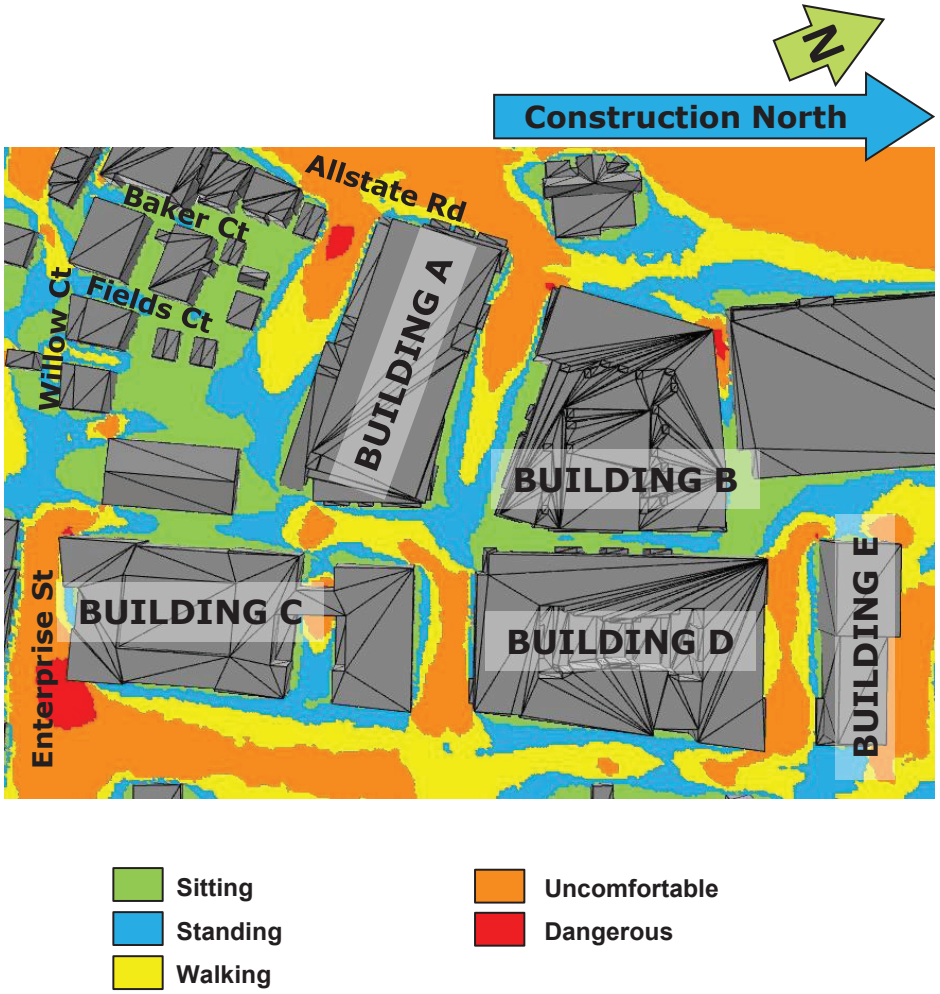
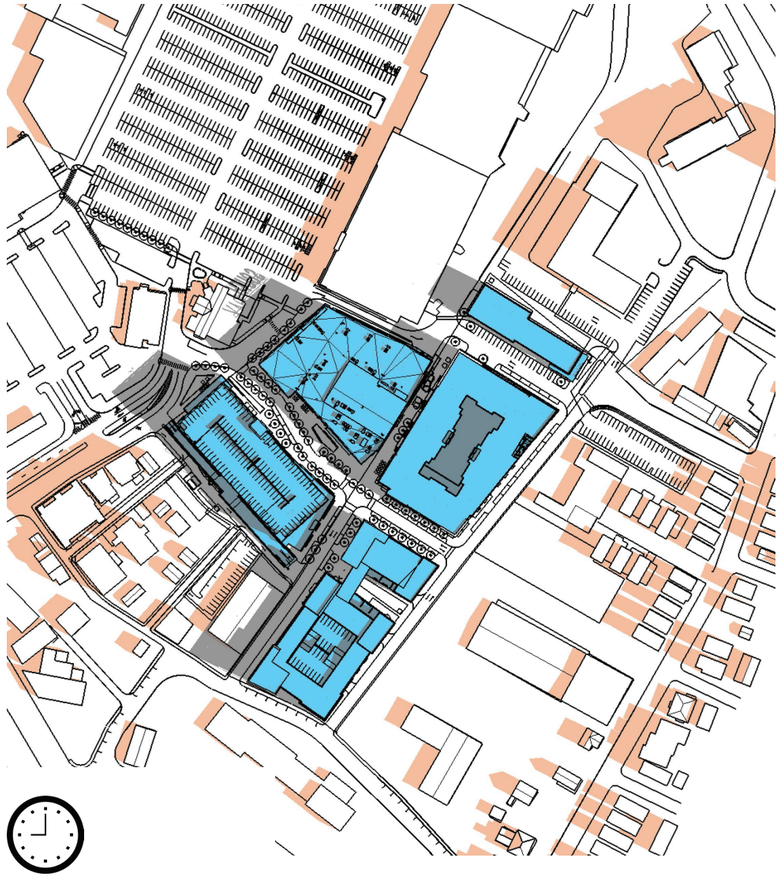
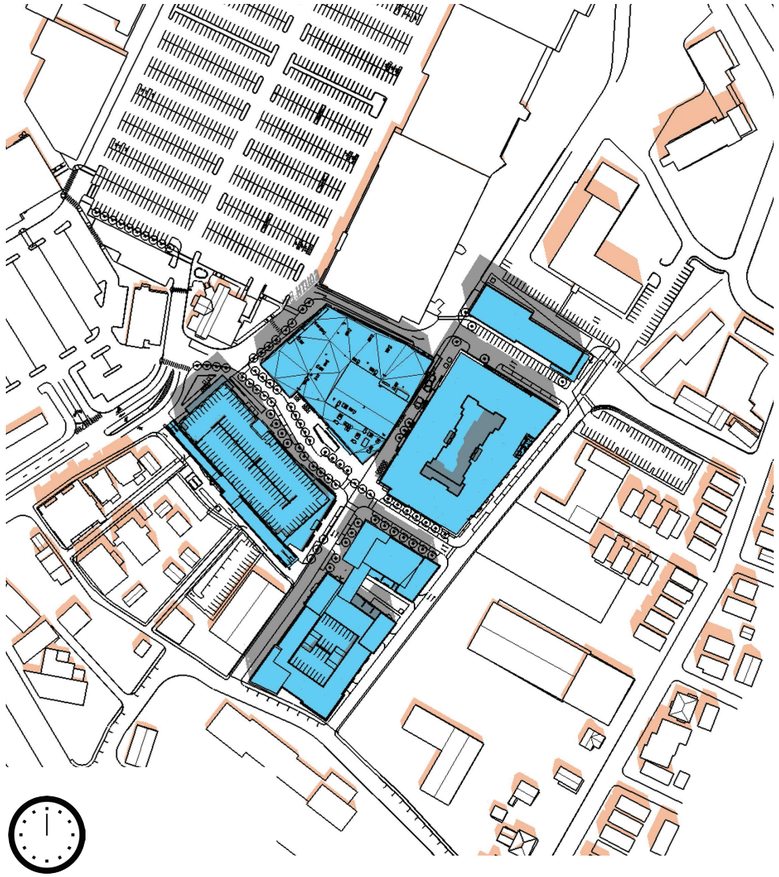


Figure 1b: Build Configuration – Grade Level – Annual

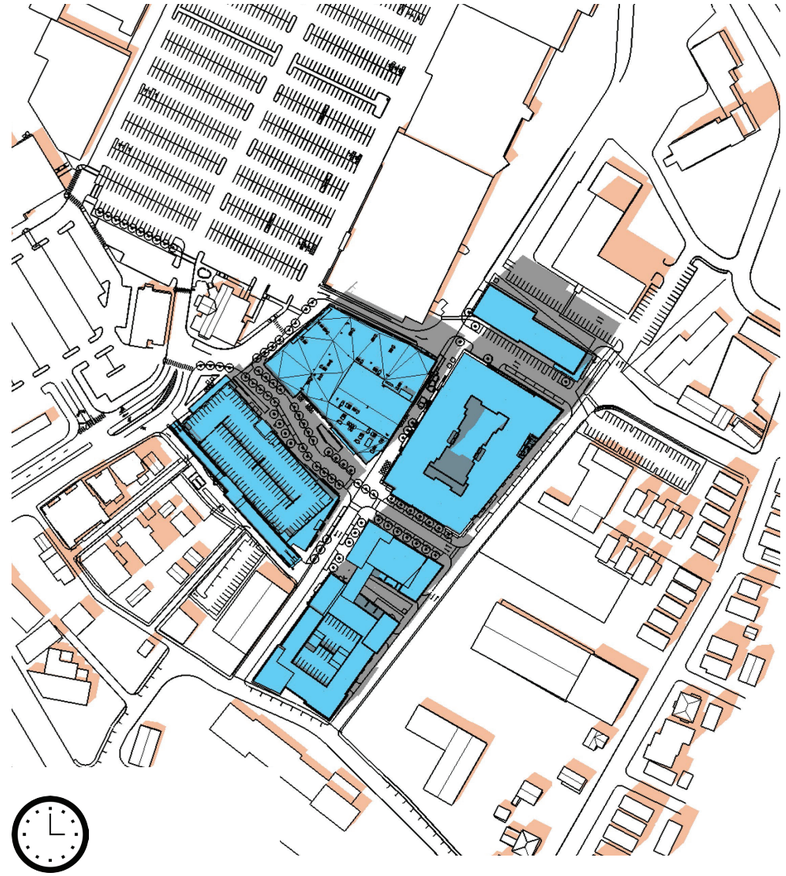
Figure 5-1
Wind Study
Source: Novus Environmental, 2015



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12:00 p.m.



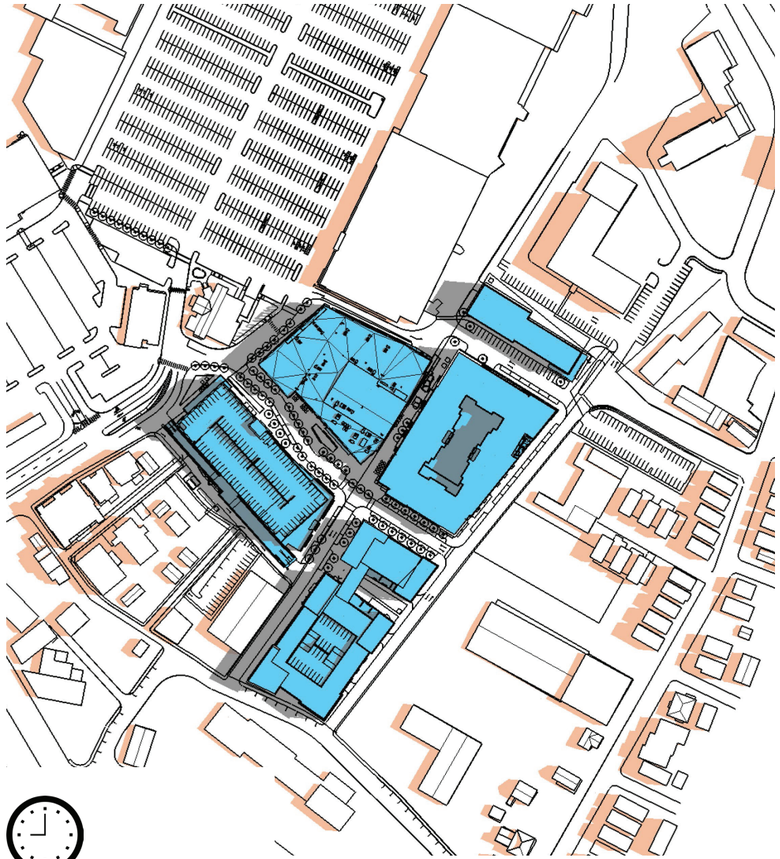
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EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

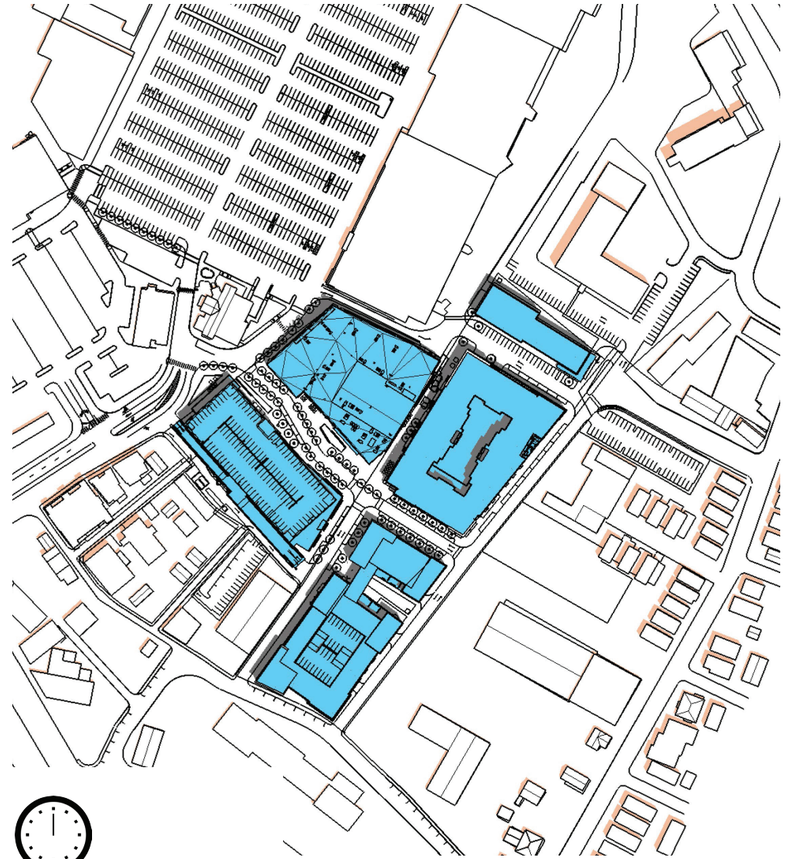
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Figure 5-2
Shadow Study - Vernal Equinox, March 21
Source: ADD Inc, now with Stantec, 2015



9:00 a.m.



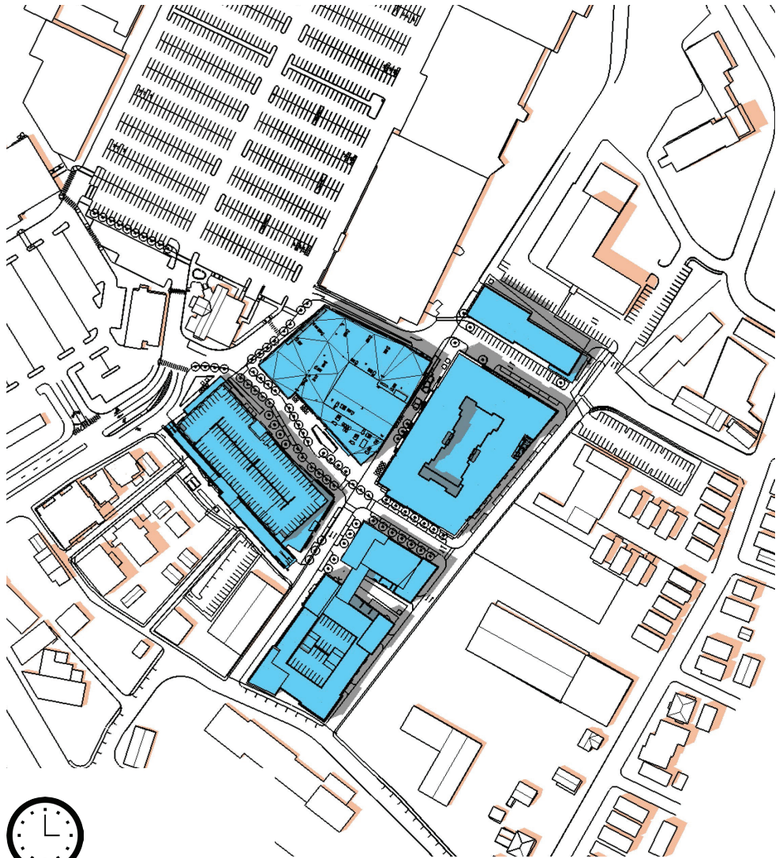
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EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

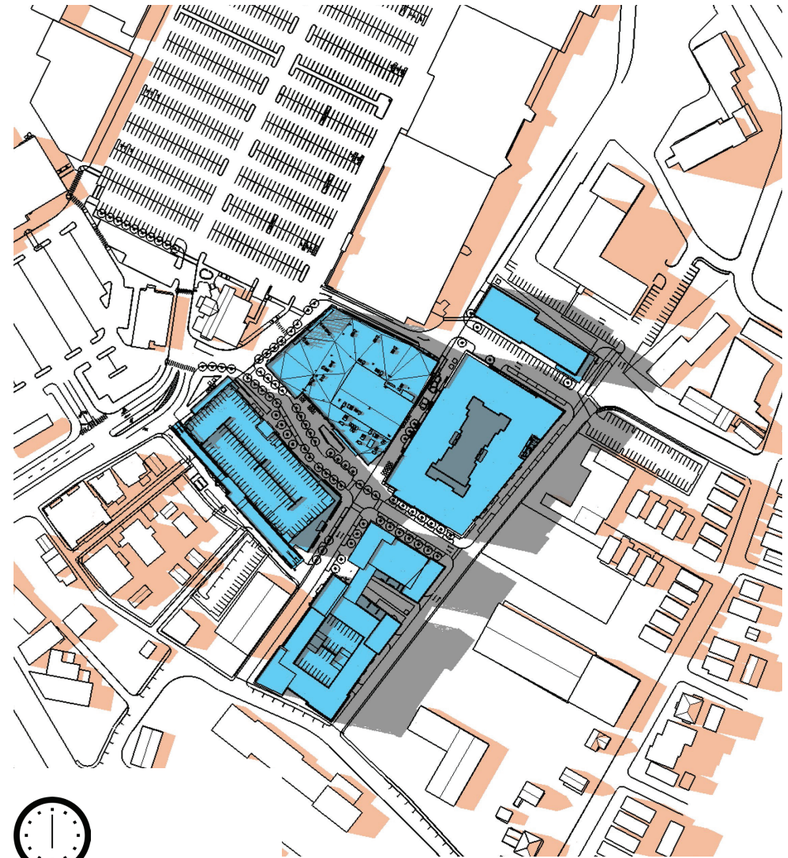
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Figure 5-3
Shadow Study - Summer Solstice, June 21
Source: ADD Inc, now with Stantec, 2015



3:00 p.m.



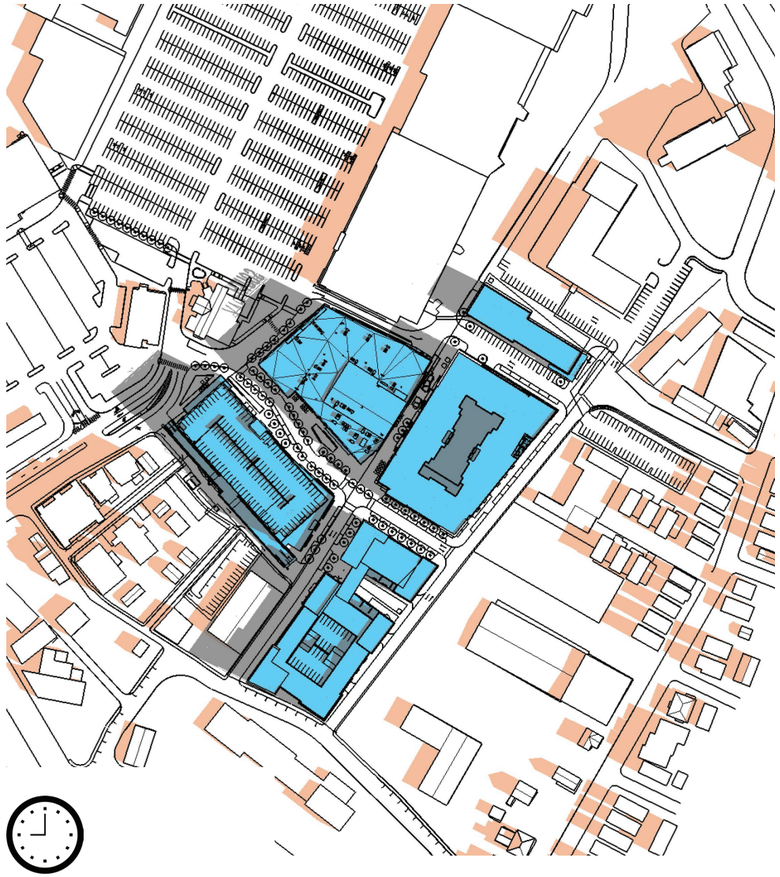
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EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

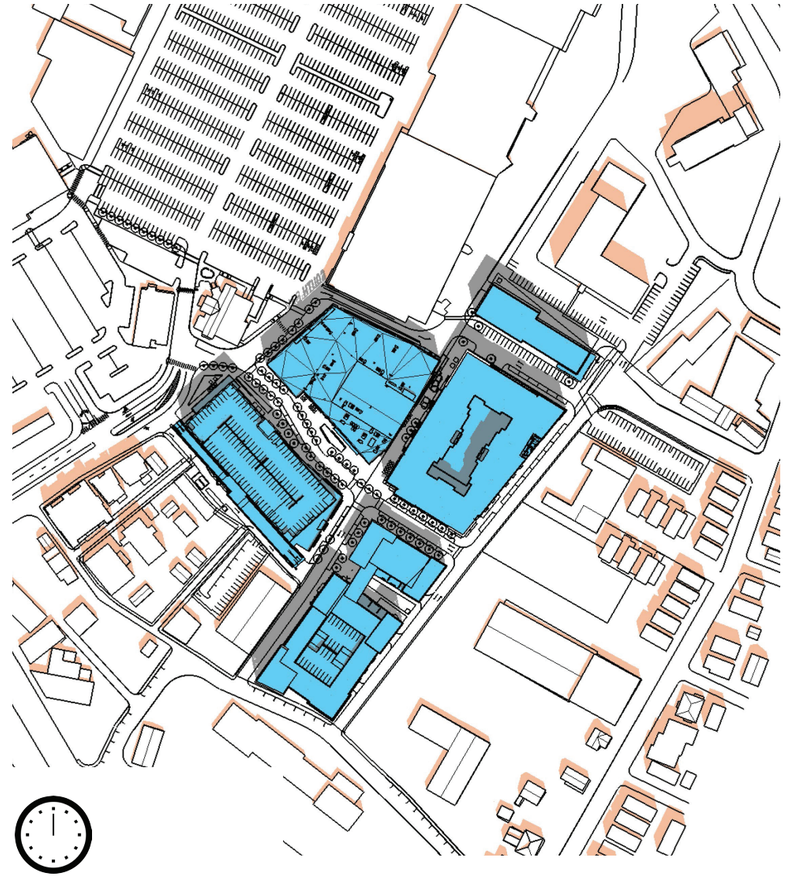
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0 100' 200' 400'

Figure 5-4
Shadow Study - Summer Solstice, June 21
Source: ADD Inc, now with Stantec, 2015



9:00 a.m.



12:00 p.m.

EXISTING SHADOW

NEW SHADOW

PROPOSED BUILDINGS

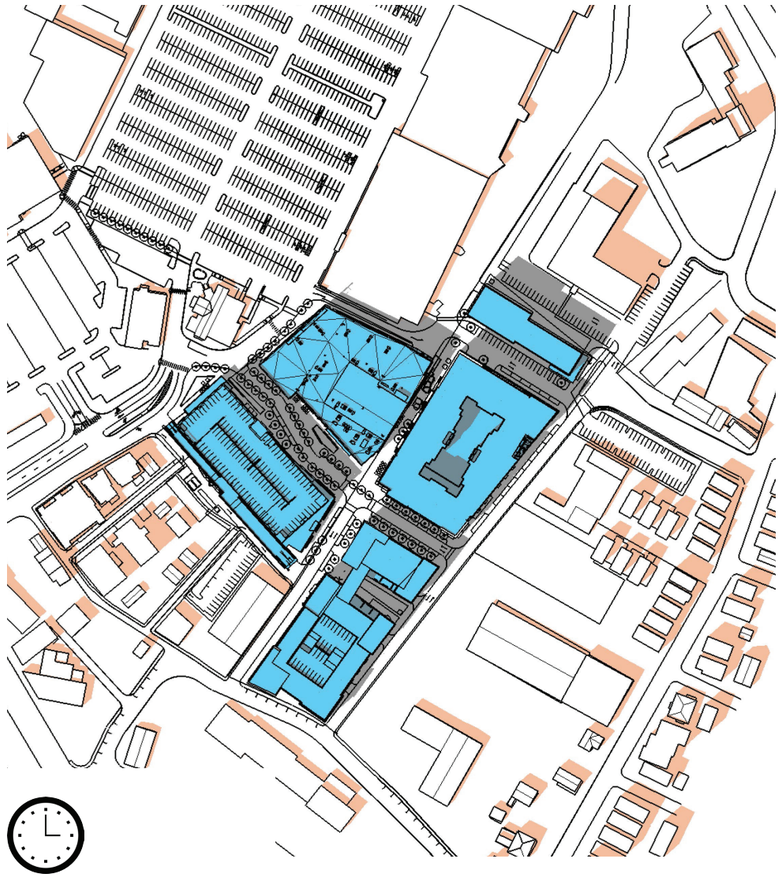
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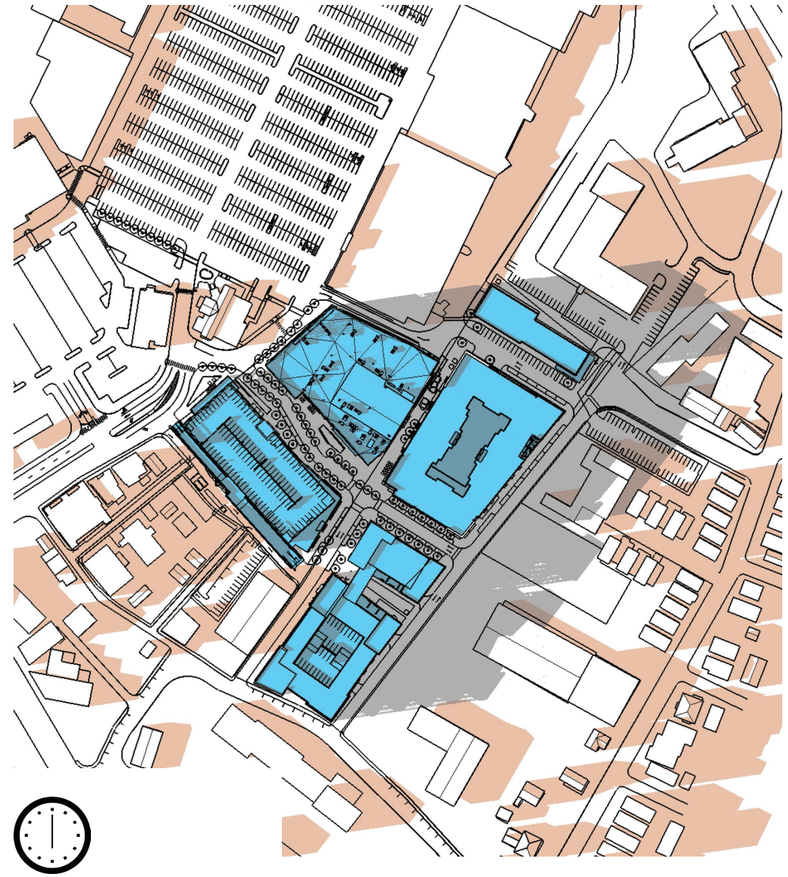
Figure 5-5

Shadow Study - Autumnal Equinox, September 21

Source: ADD Inc, now with Stantec, 2015



3:00 p.m.



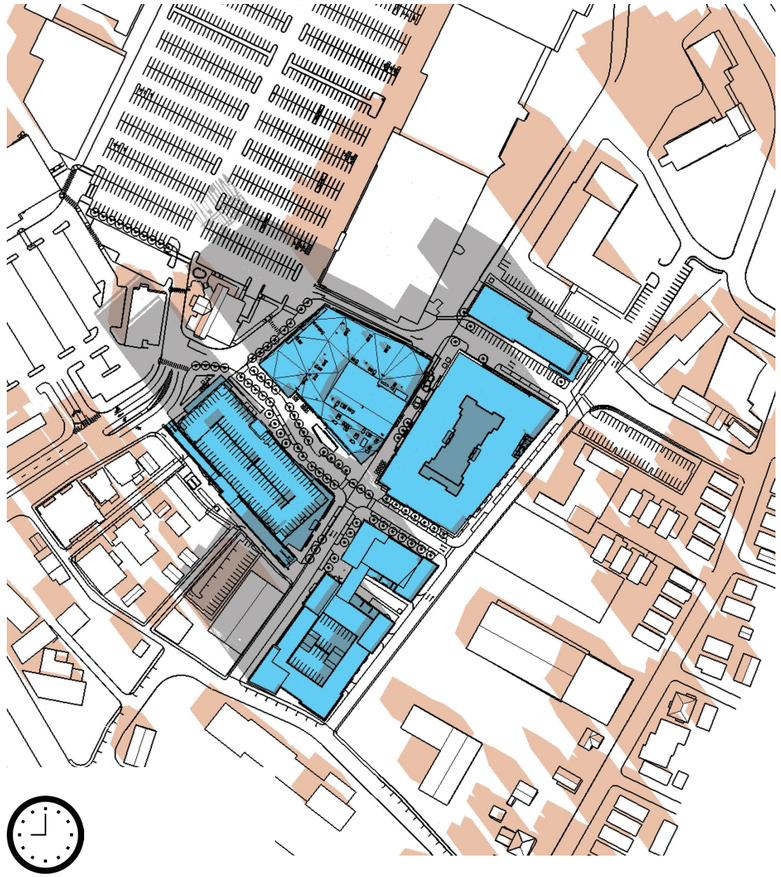
6:00 p.m.

EXISTING SHADOW
NEW SHADOW
PROPOSED BUILDINGS

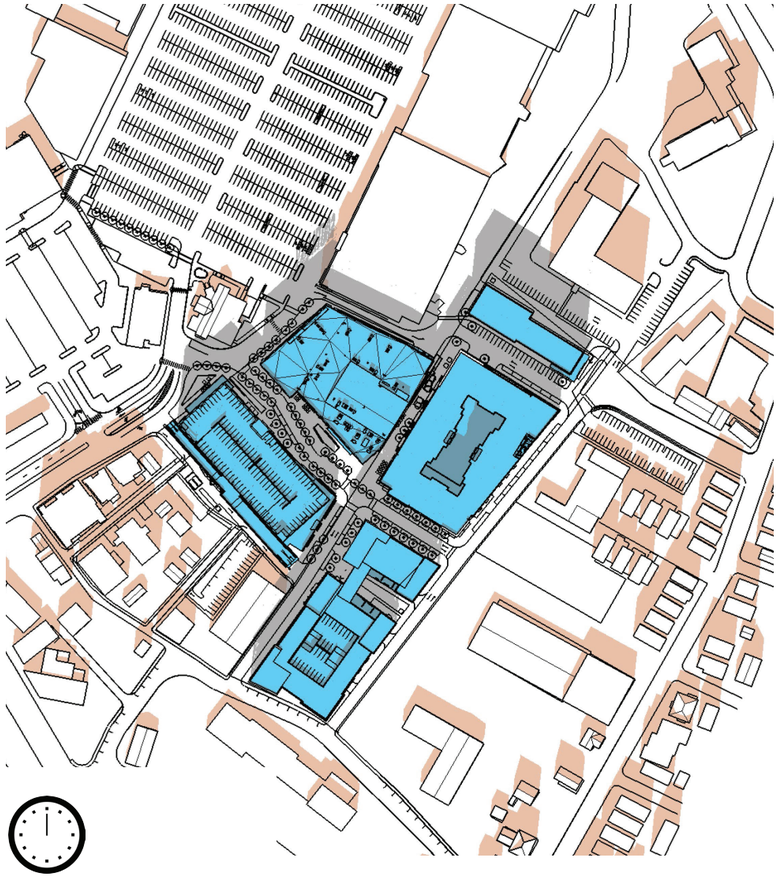
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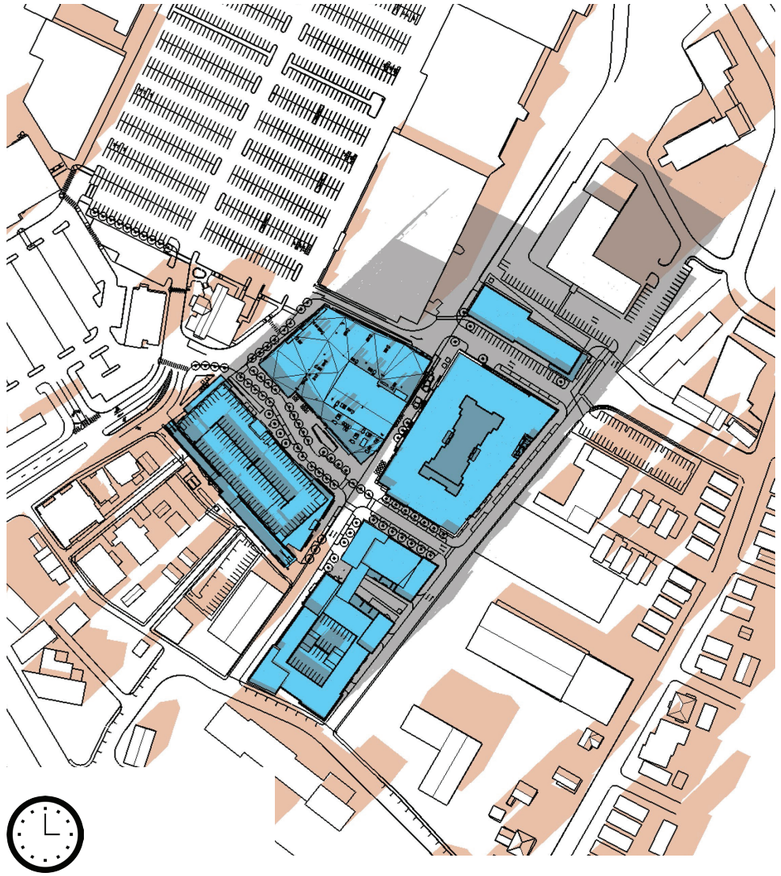
Figure 5-6
Shadow Study - Autumnal Equinox, September 21
Source: ADD Inc, now with Stantec, 2015



9:00 a.m.



12:00 p.m.



3:00 p.m.

EXISTING SHADOW

NEW SHADOW

PROPOSED BUILDINGS

N

0 100' 200' 400'

Figure 5-7

Shadow Study - Winter Solstice, December 21

Source: ADD Inc, now with Stantec, 2015



Dorchester, Massachusetts

Figure 5-8
Daylight Analysis Location Key- No Build Condition
Source: Fort Point Associates, Inc., 2015



Figure 5-9
Daylight Analysis Location Key- Build Condition
Source: Fort Point Associates, Inc., 2015

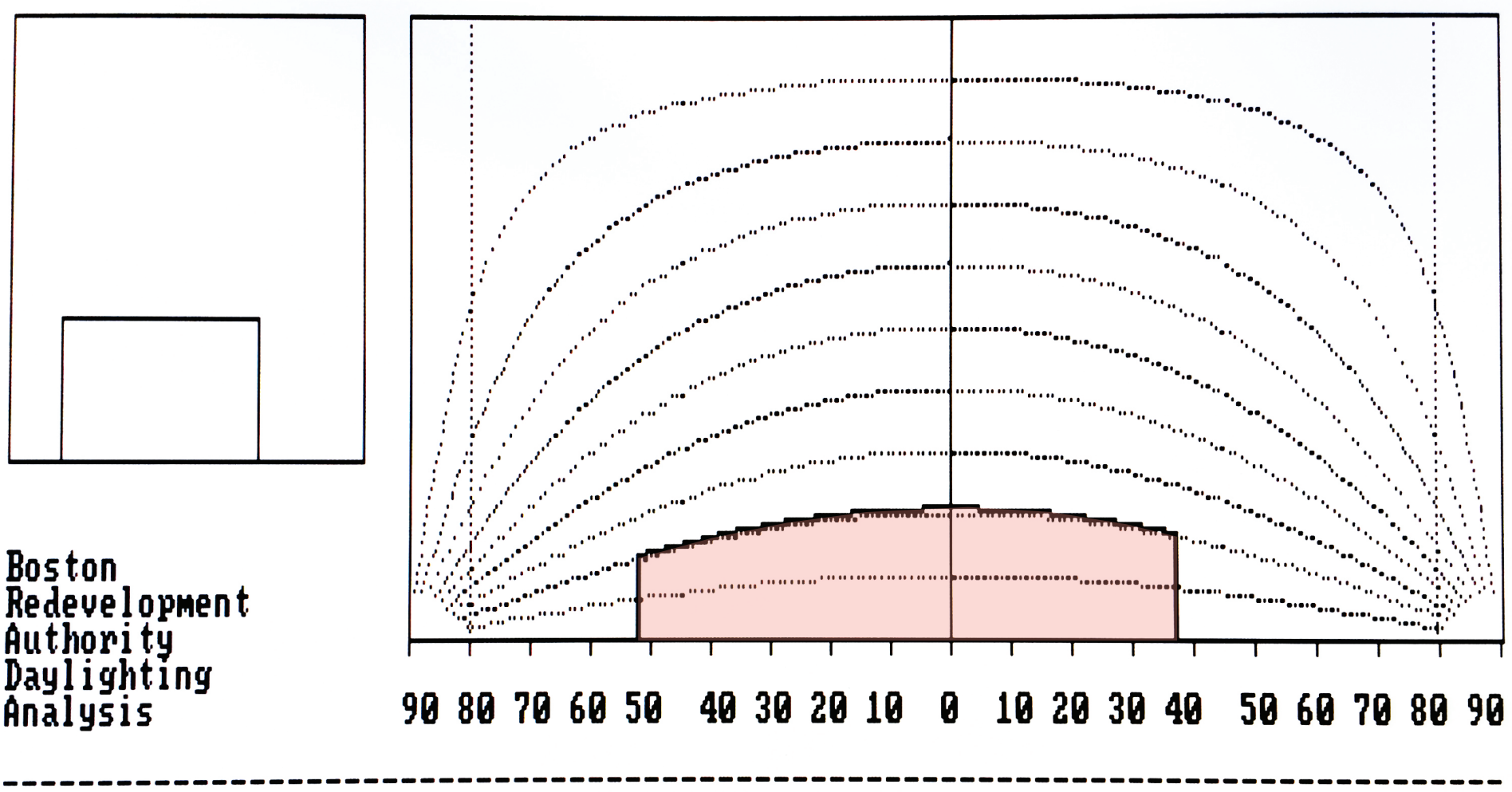


Figure 5-10
Daylight Analysis - Existing Conditions at Location NB1
Source: Fort Point Associates Inc., 2015

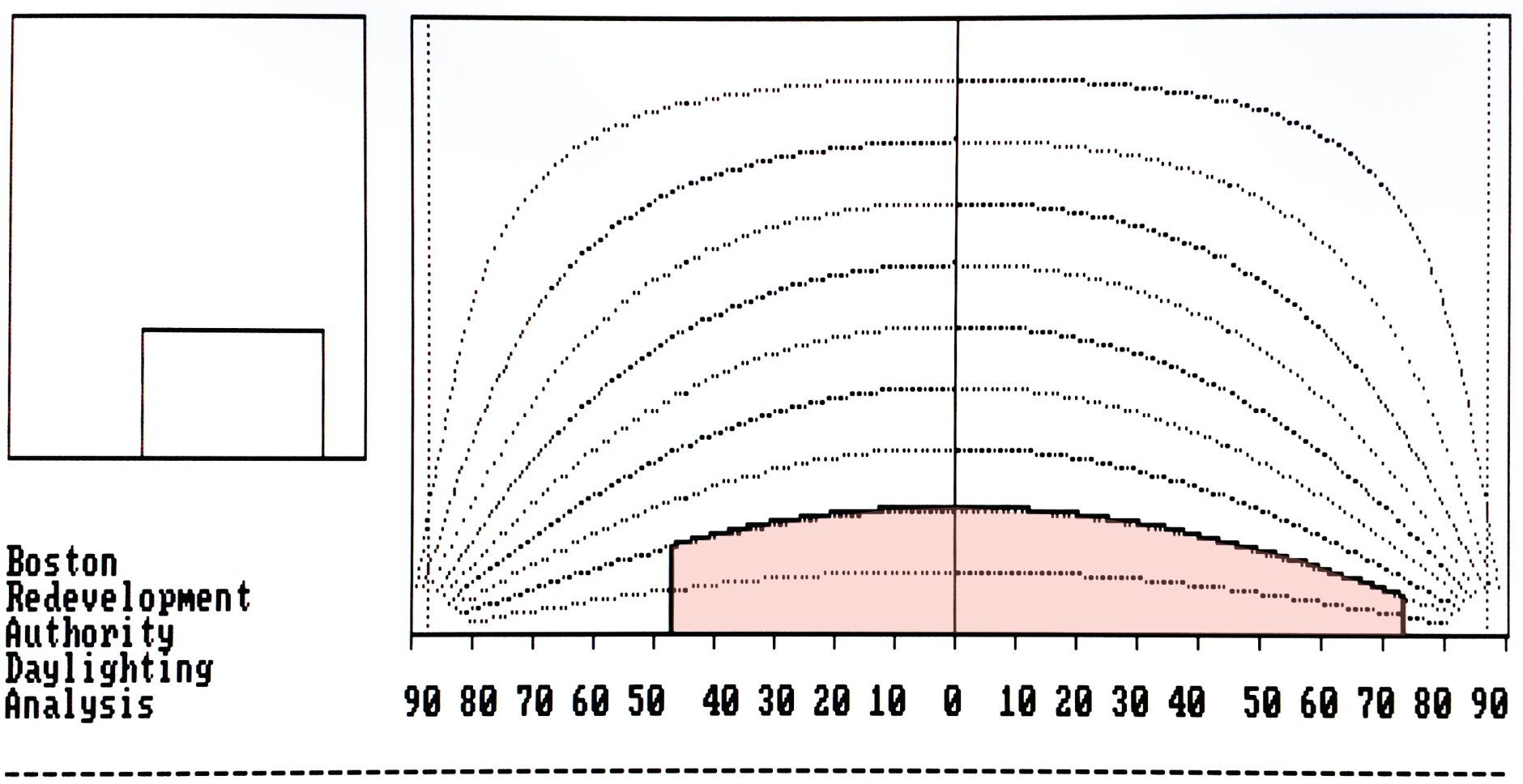


Figure 5-11
Daylight Analysis - Existing Conditions at Location NB 2
Source: Fort Point Associates Inc., 2015

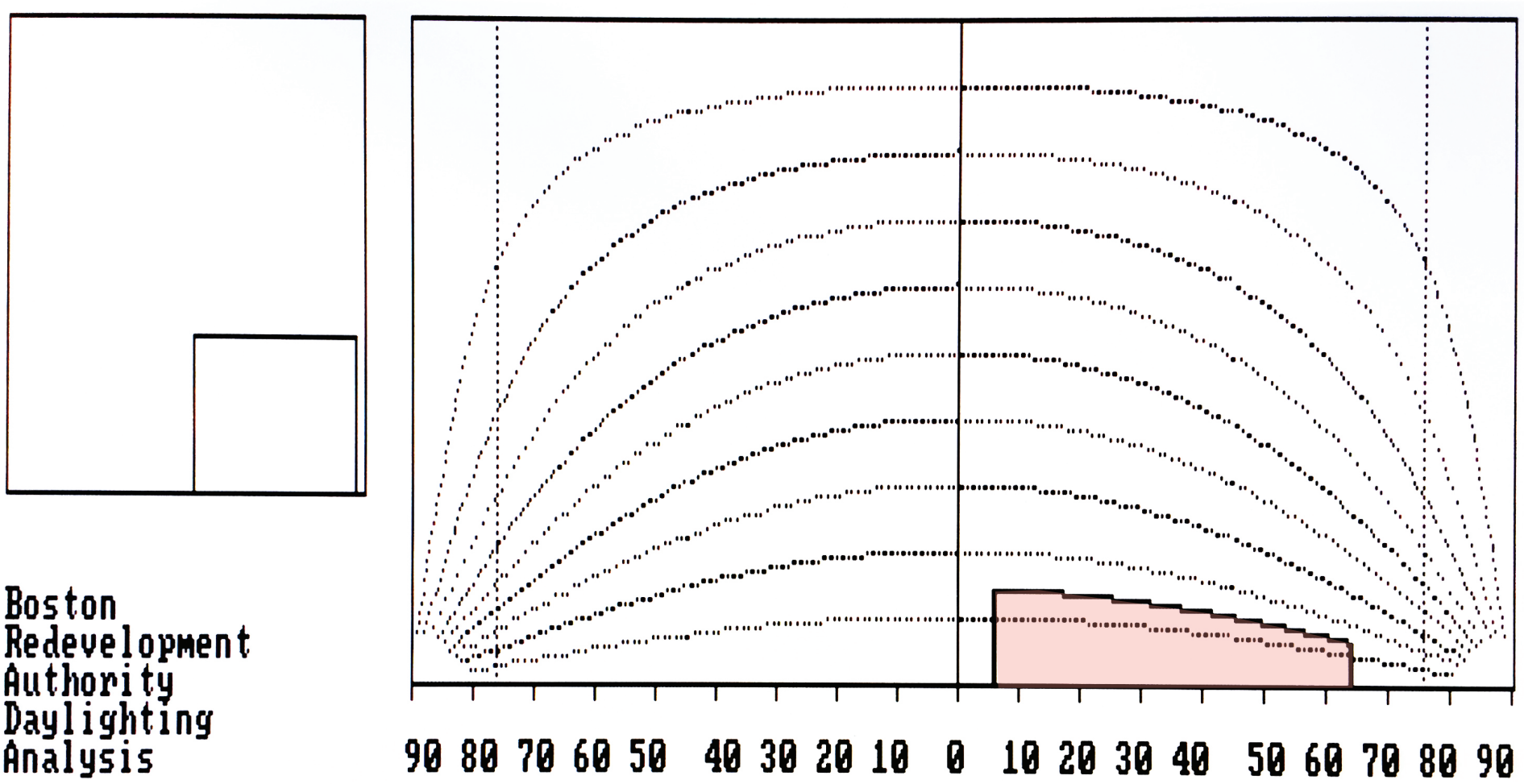


Figure 5-12
Daylight Analysis - Existing Conditions at Location NB 3
Source: Fort Point Associates Inc., 2015

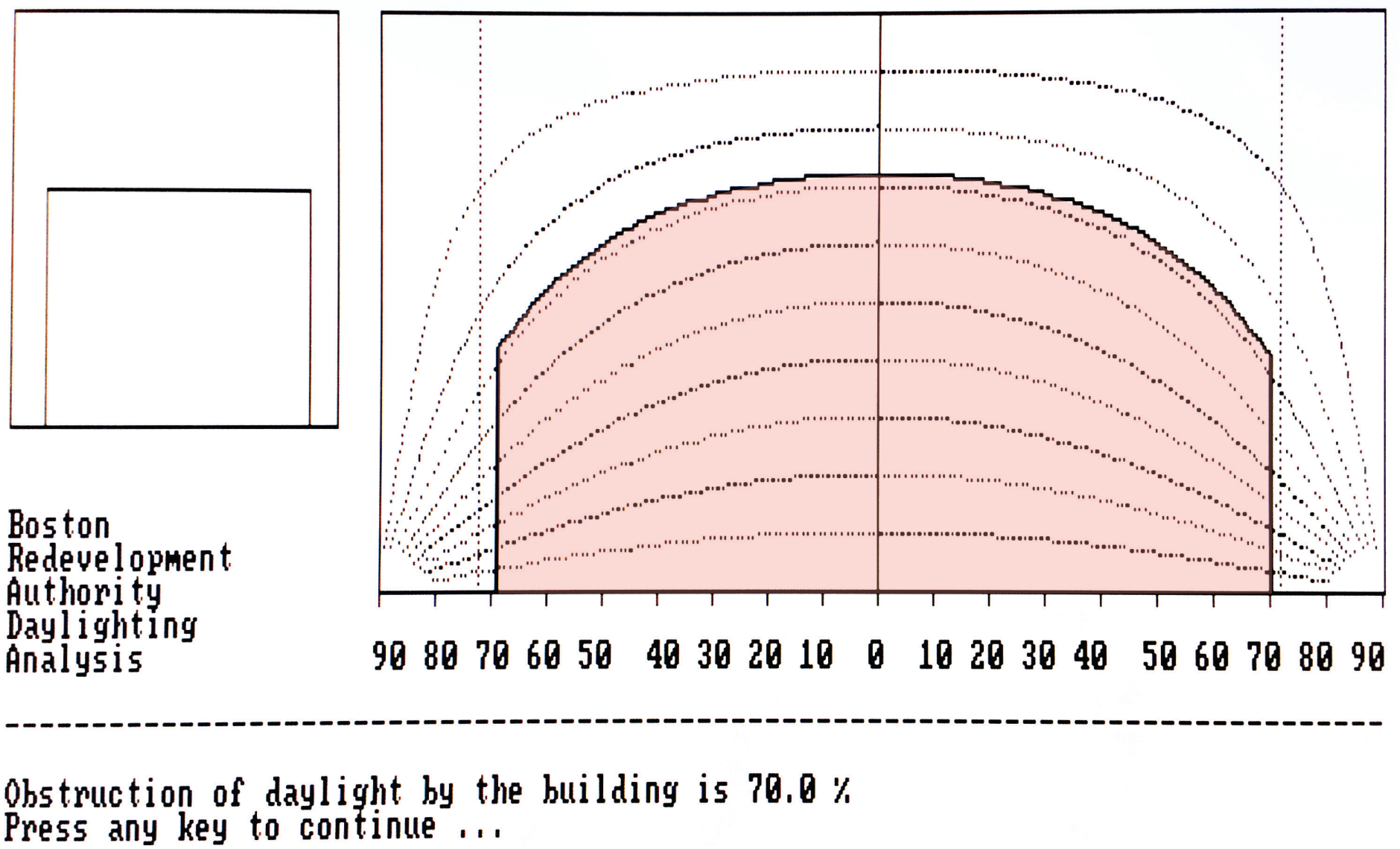


Figure 5-13
Daylight Analysis at Location 1
Source: Fort Point Associates Inc., 2015

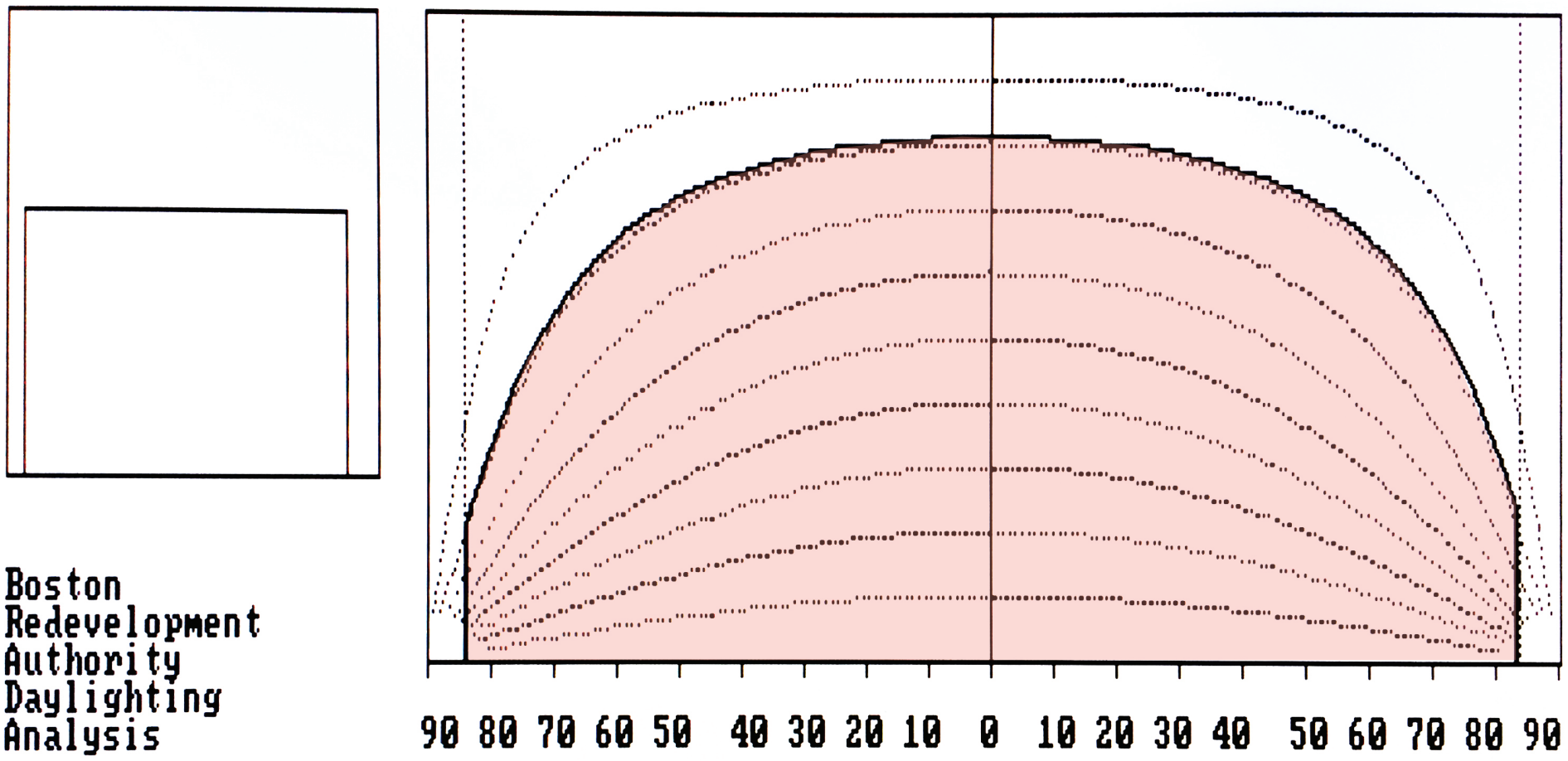


Figure 5-14
Daylight Analysis at Location 2
Source: Fort Point Associates Inc., 2015

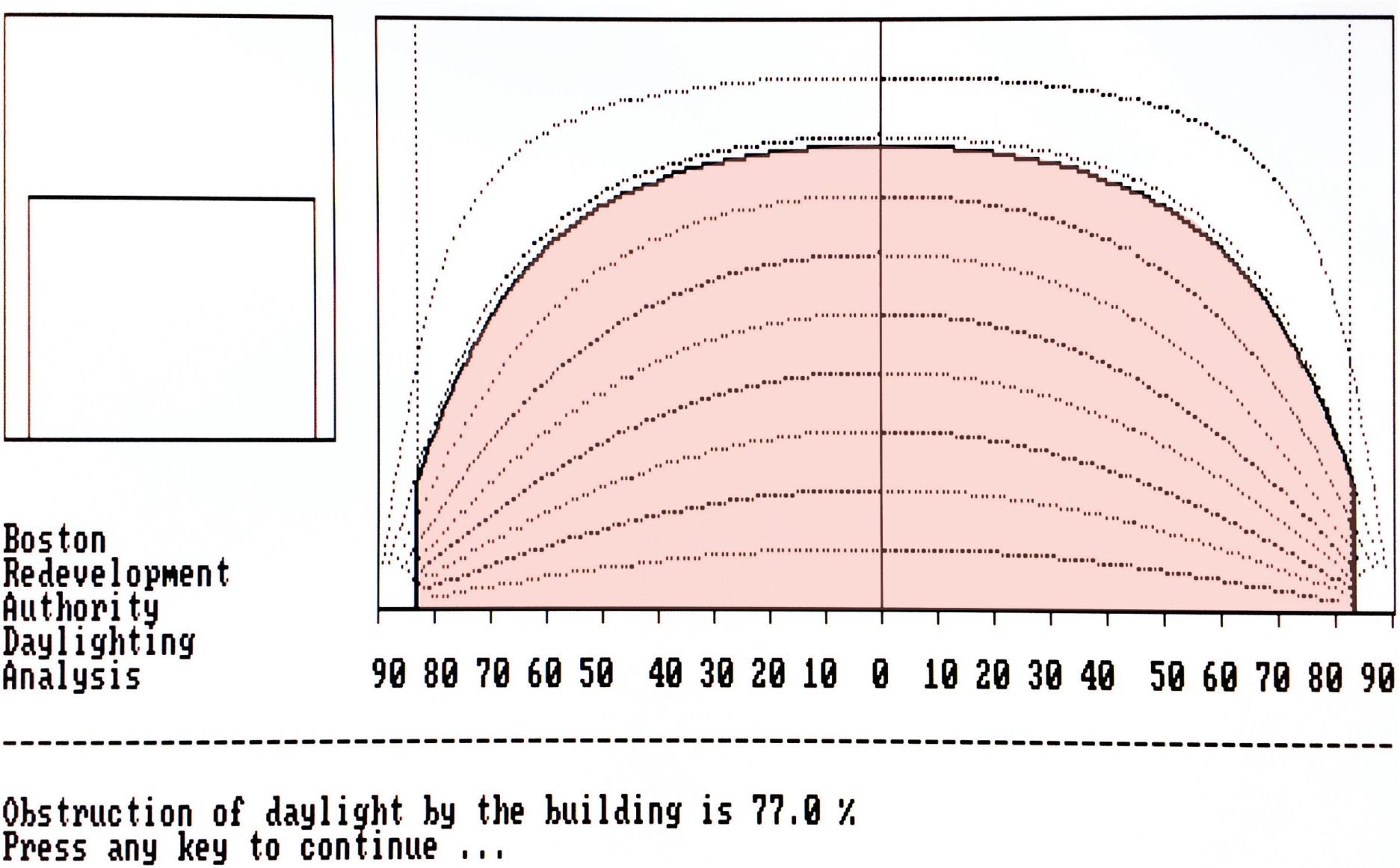


Figure 5-15
Daylight Analysis at Location 3
Source: Fort Point Associates Inc., 2015

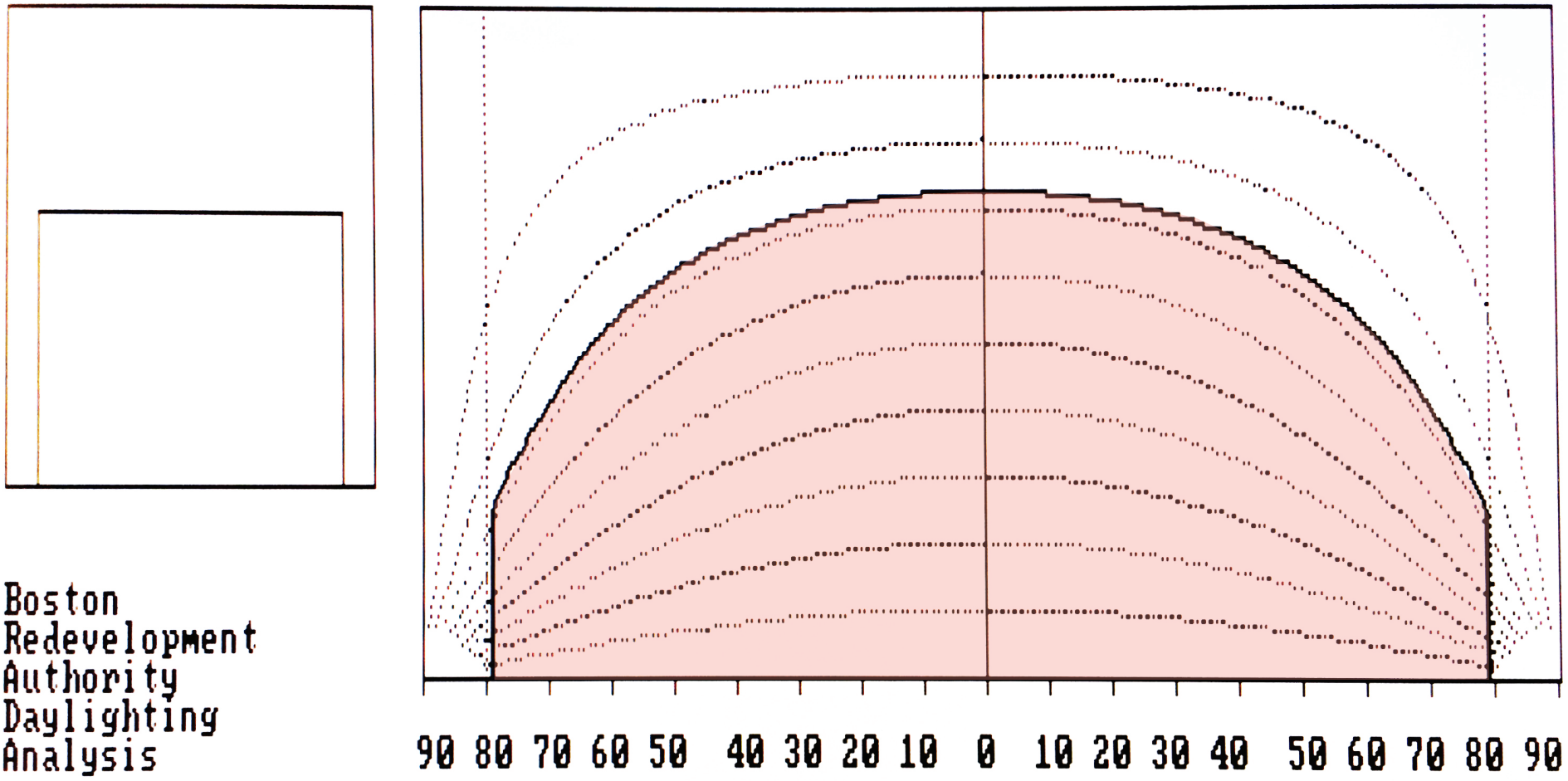


Figure 5-16
Daylight Analysis at Location 4
Source: Fort Point Associates Inc., 2015

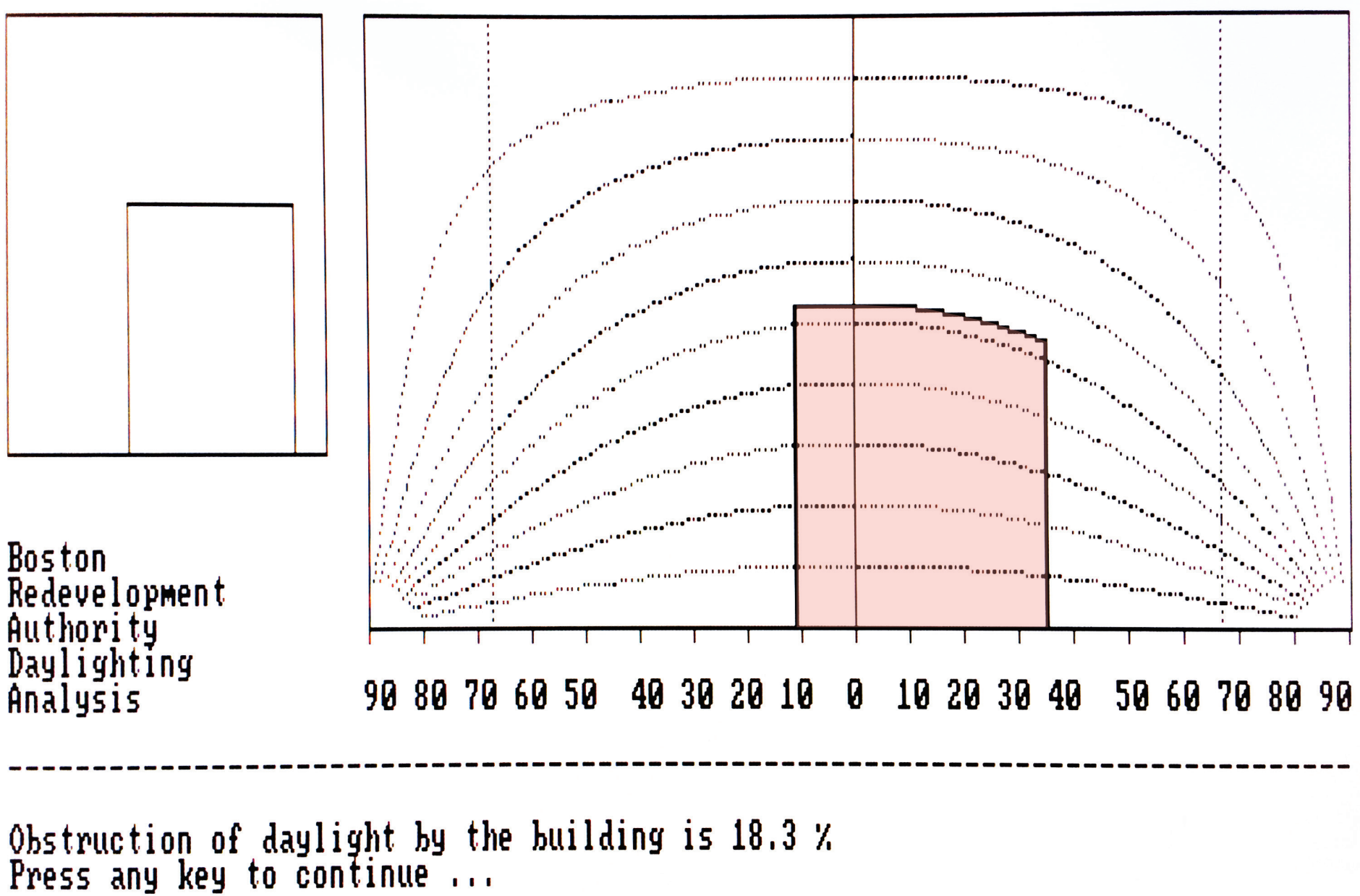


Figure 5-17
Daylight Analysis at Location 5
Source: Fort Point Associates Inc., 2015

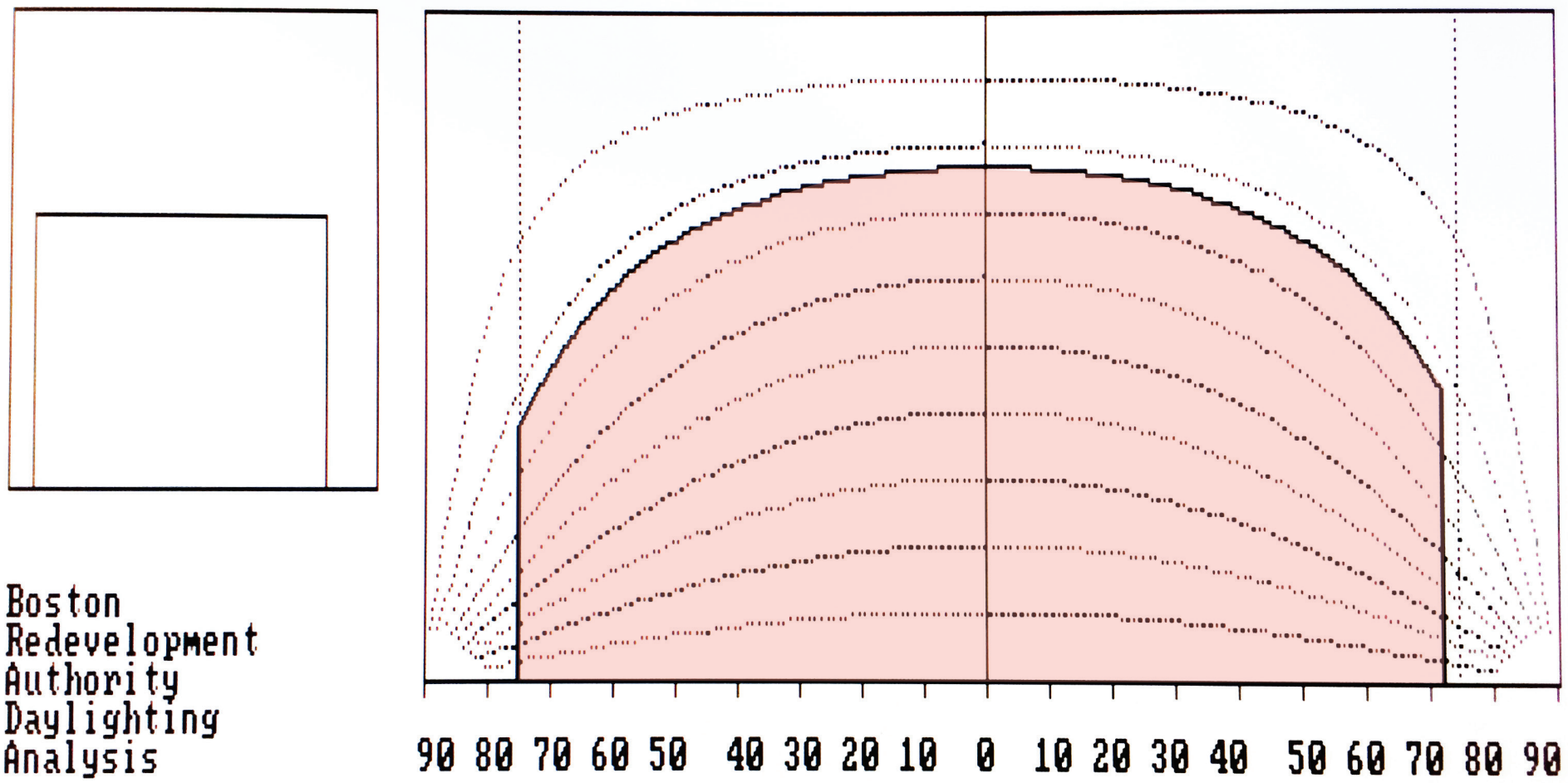


Figure 5-18
Daylight Analysis at Location 6
Source: Fort Point Associates Inc., 2015

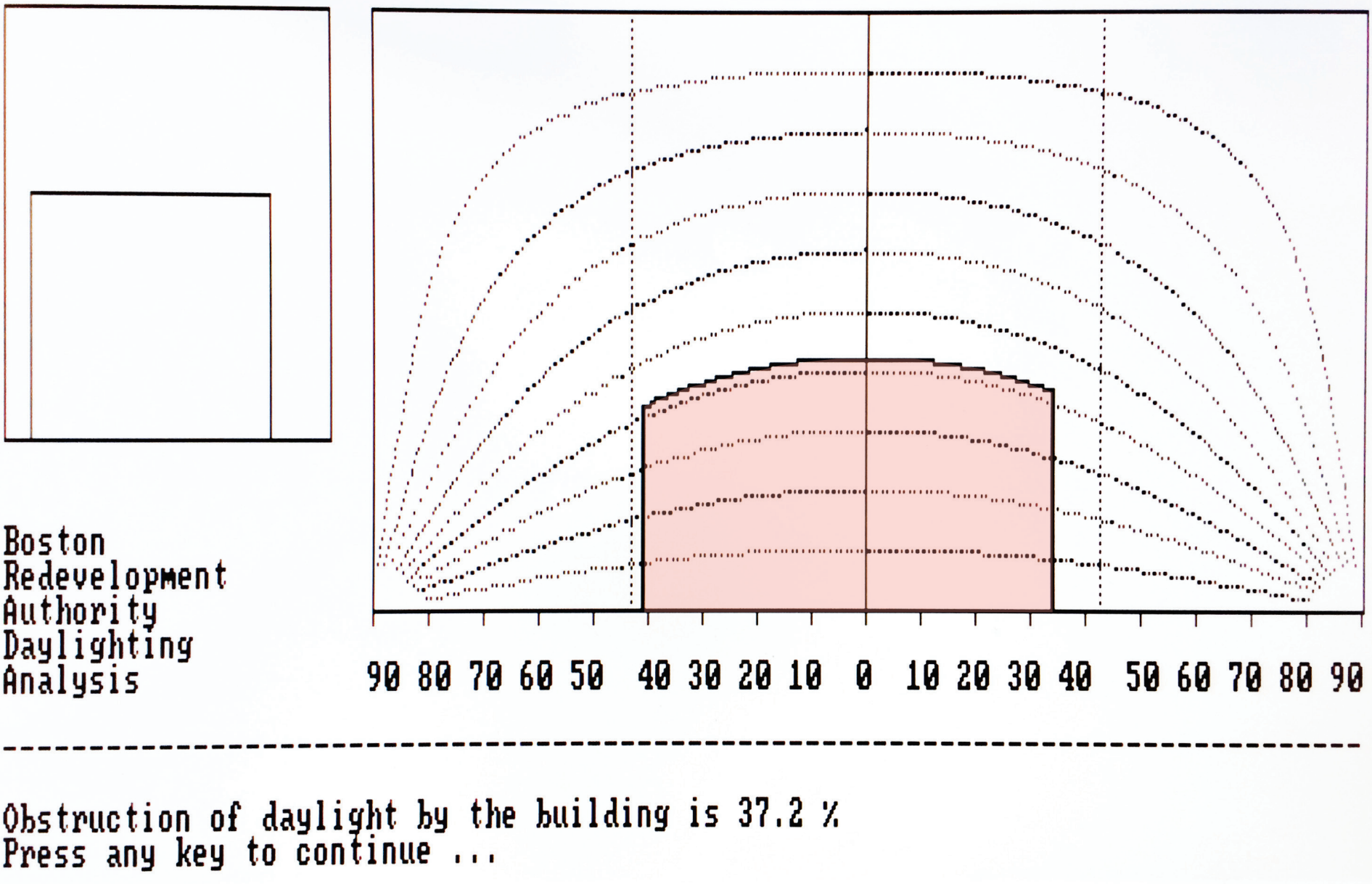


Figure 5-19
Daylight Analysis at Location 7
Source: Fort Point Associates Inc., 2015

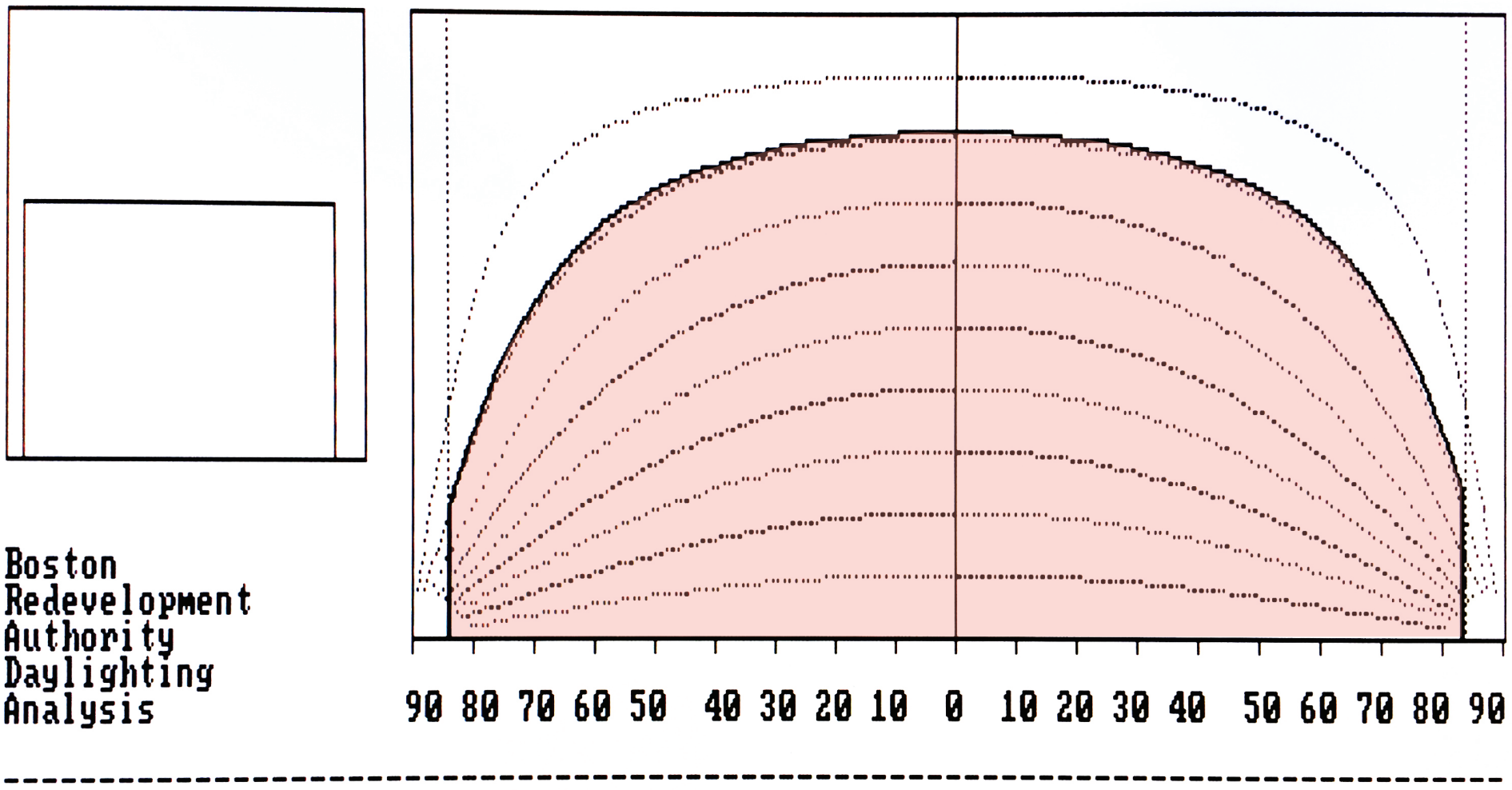


Figure 5-20
Daylight Analysis at Location 8
Source: Fort Point Associates Inc., 2015

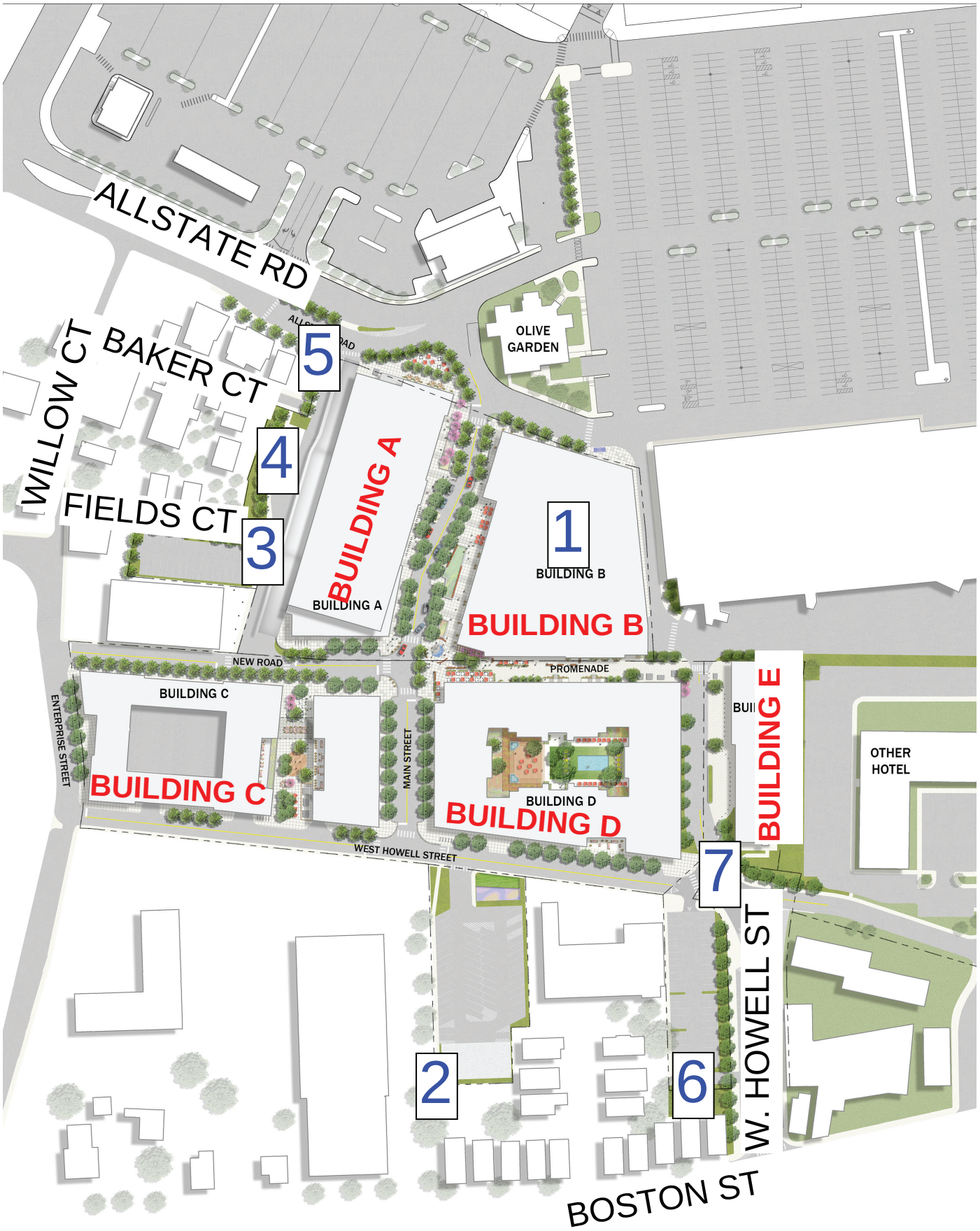


Figure 5-21
Existing Conditions Survey Measurement Locations
Source: Cerami & Associates, 2015

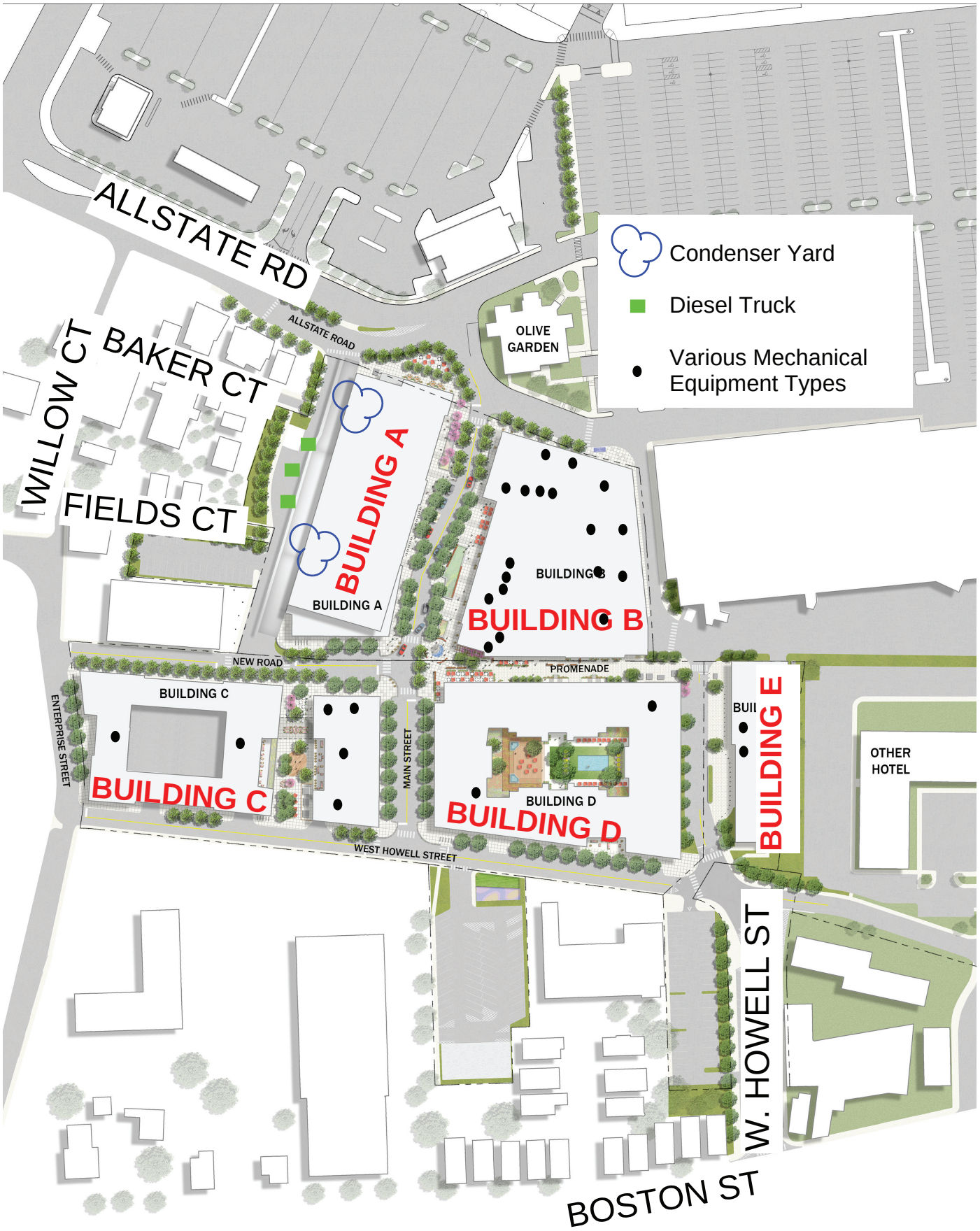


Figure 5-22
Modeled Noise Source Locations
Source: Cerami & Associates, 2015

Chapter 6

SUSTAINABILITY

CHAPTER 6: SUSTAINABILITY

6.1 SUSTAINABLE DESIGN

The Proponent uses a holistic approach to sustainability that includes social, economic, and environmental considerations. Through the design of the South Bay Project, the Project Team seeks to create an extension of the project's neighborhood that is physically enduring and environmentally conscious while instilling stable economic performance over the long term.

To enable such success, South Bay is designed with a vision that is community-centric, market-based, and flexible, able to accommodate change throughout its existence. Design focus on the public realm, in addition to shop spaces and residences, is an essential consideration. The public space is planned as an extension of the surrounding community with an adaptable social fabric that creates a comfortable place and memorable experience that the community will want to return to often. Promoting flexibility, adaptability, and continued use and patronage will help sustain a thriving neighborhood center.

Environmental sustainability is an important factor in every design decision. Enduring and efficient buildings conserve embodied energy and preserve natural resources. The South Bay Project embraces the opportunity to positively influence the urban environment. Its infill, urban location is a prominent characteristic, utilizing existing infrastructure and convenient access to mass transportation. The infill development reduces the burden on jurisdictional utilities and helps to minimize dependence on automobile trips, minimizing transportation impacts. The Project will also reduce the existing amount of impervious surfaces and contribute to enhancing stormwater quality and minimizing quantity, additional benefits of its infill characteristic.

The Proponent and 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.

6.2 ARTICLE 37/LEED COMPLIANCE

This section outlines the Project's LEED compliance by LEED category under the New Construction checklist and then an overview of the Project Team's approach to the

Neighborhood Development checklist. See Figure 6-1 through Figure 6-5, LEED Checklists. See Appendix G for the draft Green Building Report.

6.2.1 INTRODUCTION

Table 6-1 presents the Project Program.

Table 6-1: Project Program

Building	Size	Primary Uses
Building A	41,000 sf	Retail
Building B	105,100 sf	Cinema, Retail
Building C	232,070 sf	Multi-family residential, Retail
Building D	259,950 sf	Multi-family residential, Retail
Building E	90,000 sf	Hotel

6.2.2 SUSTAINABLE SITES

SS P1 CONSTRUCTION ACTIVITY POLLUTION PREVENTION

- The Project will comply with this credit.

SS C1 SITE SELECTION

- The Project will not be developed on any of the restricted sites.

SS C2 DEVELOPMENT DENSITY AND COMMUNITY CONNECTIVITY

- Restaurant- Classic Restaurant Concepts, 0.1 miles
- Restaurant- Olive Garden, 0.2 miles
- Pharmacy- Target, .07 miles
- Bank- Citizens, 0.2 miles
- Hardware- Home Depot, .06 miles
- Convenience market- Costas Provisions, 0.2 miles
- Supermarket- Stop & Shop, 0.2 miles
- Park- Eustis Playground, 0.4 miles
- School- St Mary's, 0.2 miles
- Laundry- Lazybones, 0.4 miles

SS C3 BROWNFIELD REDEVELOPMENT

- The Proponent anticipates achieving this credit.

SS C4.1 ALTERNATIVE TRANSPORTATION, PUBLIC TRANSPORTATION ACCESS

- Three train lines are provided within 0.3 miles of the Project Site in addition to many bus lines.
- The Project will reserve an innovation and design credit for exemplary performance for 4.1 in the ID credit category.

SS C4.2 ALTERNATIVE TRANSPORTATION, BICYCLE STORAGE AND CHANGING ROOMS

- Project plans to comply for all building, final calculations will be provided once occupancy is confirmed.

SS C4.3 ALTERNATIVE TRANSPORTATION, LOW-EMITTING AND FUEL-EFFICIENT VEHICLES

Project plans to comply for all buildings, required spots below:

- Building A- Retail 41,000 sf- 610 parking spaces, 14 ADA (31 low emitting required).
- Building B- 105,100 sf- No parking.
- Building C- 299,456 sf, 169 spaces, 6 ADA (26 low emitting required).
- Building D- 259,950 sf, 140 spaces, 5 ADA (21 low emitting required).
- Building E- 90,000 sf, 71 spaces, 3 ADA (4 low emitting required).

SS C4.4 ALTERNATIVE TRANSPORTATION, PARKING CAPACITY

- Retail/Cinema: 172,570 GSF- 690 spaces required, 688 spaces provided
- Residential: 465,550 GSF- 310 spaces required, 309 spaces provided
- Hotel: 90,000 GSF- 65 spaces required, 71 spaces provided

SS C5.2 – SITE DEVELOPMENT, MAXIMIZE OPEN SPACE

- Green area- total of 34,086 sf
- Pedestrian hardscape- total of 69,505 sf
- Project Site (total sf) – 429,267 sf
- Total open space provided- 103,591 sf
- Total open space required – 85,853 sf
-

SS 6.1 STORMWATER DESIGN—QUANTITY CONTROL

- The Project anticipates achieving this credit.

SS 6.2 STORMWATER DESIGN—QUALITY CONTROL

- The Project anticipates achieving this credit.

SS C7.1 HEAT ISLAND EFFECT, NON-ROOF

- A minimum of 50% of parking spaces are under a SRI complaint roof.

SS C7.2 HEAT ISLAND EFFECT, ROOF

- All roofing will be compliant.

SS C8 LIGHT POLLUTION REDUCTION

- The Project Team will investigate possible compliance during the construction document stage.

6.2.3 WATER EFFICIENCY

WE P1 & WE C3- WATER USE REDUCTION

- Building A Retail 41,000 SF–Anticipated 35% reduction
- Building B- Retail & Cinema- Anticipated 35% reduction
- Building C- Retail and Residential - Anticipated 40% reduction
- Building D Retail & Residential Anticipated 40% reduction
- Building E Hotel- Anticipated 40% reduction

WE C1 WATER EFFICIENT LANDSCAPING

- Option 1: Reduce By 50% - The Project Site will reduce 50% of potable water use for irrigation at a minimum, every effort will be made to eliminate irrigation where possible.

6.2.4 ENERGY AND ATMOSPHERE

EA P2 MINIMUM ENERGY PERFORMANCE & EAC1 - OPTIMIZE ENERGY PERFORMANCE

- Building A Retail 41,000 sf- Anticipated 25% reduction
- Building B- Retail & Cinema- Anticipated 25% reduction
- Building C- Retail and Residential- Anticipated 20% reduction
- Building D Retail & Residential- Anticipated 20% reduction
- Building E Hotel- Anticipated 25% reduction

EA P1 FUNDAMENTAL BUILDING SYSTEMS COMMISSIONING (CONSTRUCTION CREDIT) ALL BUILDINGS

- Commissioning process activities will be completed for all buildings.

EA P3 FUNDAMENTAL REFRIGERANT MANAGEMENT

- All buildings will be designed without the use of CFC or HCFC refrigerants, all new mechanical equipment uses R-410A refrigerant.

EA C3 ENHANCED COMMISSIONING (CONSTRUCTION CREDIT)

Enhanced Commissioning will be performed for the following buildings.

- Building B- Retail & Cinema
- Building E Hotel

Enhanced Commissioning will be considered for the following buildings.

- Building A Retail & Garage
- Building C- Retail and Residential
- Building D Retail & Residential

EA C4 ENHANCED REFRIGERANT MANAGEMENT

- This will be calculated once the final equipment is selected.

EA C5 MEASUREMENT AND VERIFICATION

- The Project will comply under option 3.

EA C6 GREEN POWER (CONSTRUCTION CREDIT)

- The Project will consider pursuing Green Power.

6.2.5 MATERIALS AND RESOURCES

MR P1 STORAGE & COLLECTION OF RECYCLABLES

- The Project will have a dedicated recycling area as a part of the trash collection for the buildings.

MR C2 CONSTRUCTION WASTE MANAGEMENT

- The Project will develop and implement a construction waste management plan that, at a minimum will recycle 75% of construction waste.

MR C4 RECYCLED CONTENT (CONSTRUCTION CREDIT)

- The Project Team plans to use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% and possibly 20%, based on cost, of the

total value of the materials in the project. Total materials cost and manufacturer's cut sheets showing recycled content will be included in the construction submission.

MR C5 REGIONAL MATERIALS

- The Project Team plans plan to use building materials or products that have been extracted, harvested or recovered, and manufactured, within 500 miles of the project site, for 10%-20% of the total materials value.

MR C7 CERTIFIED WOOD

- Certified wood will be specified for Buildings A, B, and E.

6.2.6 INDOOR ENVIRONMENTAL QUALITY

EQ P1 MINIMUM IAQ PERFORMANCE

- Building A Retail & Garage- Will meet for retail through mechanical ventilation, garage will be open air.
- Building B Retail & Cinema- Will meet with mechanical ventilation.
- Building C Retail and Residential- Will meet for retail with mechanical ventilation, residential will be mixed mode.
- Building D Retail & Residential- Will meet for retail with mechanical ventilation, residential will be mixed mode.
- Building E Hotel- Will meet with mechanical ventilation.

EQ P2 ENVIRONMENTAL TOBACCO SMOKE (ETS) CONTROL

- Smoking is not permitted in any building. There will be no dedicated exterior smoking areas.

EQ C2 INCREASED VENTILATION

- Option 1 will be selected. Calculations for mechanically ventilated buildings will be provided in the forthcoming Green Building Report.

EQ C3.1 CONSTRUCTION IAQ MANAGEMENT PLAN

- The Project will follow all of the requirements for implementing and documentation of SMACNA, and installation and replacement of filtration media prior to occupancy.

EQ C3.2 CONSTRUCTION IAQ MANAGEMENT PLAN, PRE-OCCUPANCY

- The Project will be flushed out prior to occupancy.

EQ C4.1 LOW-EMITTING MATERIALS, ADHESIVES & SEALANTS

- The Project will comply with the requirements for adhesives and sealants.

EQ C4.2 LOW-EMITTING MATERIALS, PAINTS (CONSTRUCTION CREDIT)

- The Project will plan to comply with the above requirements for paints.

EQ C4.3 LOW-EMITTING MATERIALS, FLOORING SYSTEMS

- The Project will plan to comply with the requirements for flooring systems.

EQ C4.4 LOW-EMITTING MATERIALS, COMPOSITE WOOD & AGRIFIBER PRODUCTS

- The Project will plan to prioritize use of no added urea formaldehyde, but cannot commit to achieving this for all wood products.

EQ C5 INDOOR CHEMICAL & POLLUTANT SOURCE CONTROL

- Building A Retail & Garage- Will meet requirement.
- Building B Retail & Cinema- Will meet requirements.
- Building C Retail and Residential- Will evaluate requirement.
- Building D Retail & Residential- Will evaluate requirement.
- Building E Hotel- Will meet requirements.

EQ C6.1 CONTROLLABILITY OF SYSTEMS, LIGHTING

- Building A Retail & Garage- Will not meet requirement.
- Building B Retail & Cinema- Will not meet requirements.
- Building C Retail and Residential- Will comply with requirements.
- Building D Retail & Residential- Will comply with requirements.
- Building E Hotel- Will comply with requirements.

EQ C6.2 CONTROLLABILITY OF SYSTEMS, THERMAL COMFORT

- Building A Retail & Garage- Will not meet requirement.
- Building B Retail & Cinema- Will not meet requirements.
- Building C Retail and Residential - Will comply with requirements.
- Building D Retail & Residential- Will comply with requirements.
- Building E Hotel- Will comply with requirements.

EQ C7.1 THERMAL COMFORT, DESIGN

- Building A Retail & Garage- Will meet requirement.
- Building B Retail & Cinema- Will meet requirements.

- Building C Retail and Residential- Will evaluate requirements.
- Building D Retail & Residential- Will evaluate requirements.
- Building E Hotel- Will meet requirements.

EQ C7.2 THERMAL COMFORT VERIFICATION

- Building A Retail & Garage- Will meet requirement.
- Building B Retail & Cinema- Will meet requirements.
- Building C Retail and Residential- Will evaluate based on 7.1.
- Building D Retail & Residential- Will evaluate based on 7.1.
- Building E Hotel- Will meet requirements.

EQ C8.2 DAYLIGHT AND VIEWS- VIEWS 95% OF SPACES

- Building A Retail & Garage- Will meet requirement.
- Building E Hotel- Will meet requirement.

INNOVATION AND DESIGN PROCESS

- Innovation in Design: EP Green Power
- Innovation in Design: EP Alternative Transportation
- Innovation in Design: Education Plan
- Innovation in Design: Energy Star Appliances
- Innovation in Design: TBD by Project Team

6.2.7 LEED FOR NEIGHBORHOOD DEVELOPMENT

COMPLIANCE NARRATIVE

- The Project will demonstrate compliance with a minimum of LEED Certified for LEED ND. Detailed information on the specific credits will be provided once the Project begins to finalize construction documents and will be documented in the future Green Building Report.

SLL P1 SMART LOCATION

- South Bay is an infill site and is a prime example of redevelopment of underused and vacant commercial and industrial property within an existing urban fabric. The redevelopment will make use of existing infrastructure, utilities, and is proximate to existing public transit lines. The Project is designed to be walkable as will be linked to surrounding residential neighborhoods through improved pedestrian connections.

SLL P2 IMPERILED SPECIES AND ECOLOGICAL COMMUNITIES CONSERVATION

- The Project Site meets Option 1- Sites without Affected Species or Ecological Community.

SLL P3 WETLAND AND WATERBODY CONSERVATION

- The Project Site meets Option 1- Sites with No Wetlands, Water Bodies, Land within 50 Feet of Wetlands, or Land within 100 feet of Water Bodies.

SLL P4 AGRICULTURAL LAND CONSERVATION

- The Project Site meets the requirements and three of the options. The Project is not located within a state or locally designated agricultural preservation district, does not disturb prime soils, unique soils, or soils of state significance as identified in a state Natural Resources Conservation Service soil survey, is located on an infill site, and is served by transit.

SLL P5 FLOODPLAIN AVOIDANCE

- The Project Site meets Option 1. Sites without Floodplains and does not contain any land within a 100-year high- or moderate-risk floodplain per FEMA mapping.

SLL C1 PREFERRED LOCATIONS

- The Project claims 5 points under Option 1 as a previously developed infill site. The Project Site is 100% bordered by developed parcels, the site itself is already entirely developed, at least 75% of the land area within ½ mile is previously developed, and there exist more than 140 intersections per square mile within a ½ mile of the Project boundary.

SLL C2 BROWNFIELD REDEVELOPMENT

- The Project Site is partially contaminated as documented by ASTM E1903-97 Phase II Environmental Site Assessments. Construction of the Project will involve necessary remediation measures.

SLL C3 LOCATIONS WITH REDUCED AUTOMOBILE DEPENDENCE

- The Project is within ½ mile of two rail stations and is within ¼ mile of numerous bus stops, permitting a reduction in automobile trips and dependence. Each bus line and rail line offers numerous trips on weekdays and weekends.

- MBTA Bus 8
- MBTA Bus 10
- MBTA Bus 16
- MTBA Bus 17
- MBTA Bus CT3
- South Bay Shuttle
- MBTA Fairmount Train Line – Newmarket Station
- MBTA Red Line – Andrew Station

SLL C5 HOUSING AND JOBS PROXIMITY

- The Project will achieve two points via Option 2. The residential component of the Project exceeds 30 percent of the total building floor area, exclusive of parking structures. Residents of the Project will be within ½ mile of greater than 475 full-time-equivalent job opportunities at nearby South Bay Center, at businesses along Massachusetts Avenue, and at the cinema and retail components constructed as a part of the Project.

SLL C6 STEEP SLOPE PROTECTION

- The Project is located on a site that does not have existing natural or constructed slopes greater than 15 percent.

NPD P1 WALKABLE STREETS

- The Project complies with this prerequisite, promoting walkability through the implementation of safe, comfortable pedestrian environments. At least 90 percent of new building frontage faces a street accessible to the public. All buildings in the Project surpass the minimum 1:3 building-height-to-street-width ratio. Sidewalks are provided along at least 90 percent of streets within and bordering the project. All sidewalks exceed the minimum width requirements and are 10 feet minimum on retail and mixed-use blocks, 5 feet minimum at other blocks. Finally, less than 20 percent of street frontages are faced by loading docks and garage entries.

NPD P2 COMPACT DEVELOPMENT

- Livability, walkability, transportation efficiency, and reduced vehicle trips are key objectives of the Project and are characteristic of compact development. The residential entrances of the project are within the ½-mile walk to Newmarket Station. The dwelling unit density exceeds the 12 per acre minimum and the non-residential FAR exceeds the 0.80 minimum.

NPD P3 CONNECTED AND OPEN COMMUNITY

The Project Team has made efforts, in conjunction with and guidance of the local planning authority, to implement a logical street grid through what is currently vast parking fields and large land parcels. The new street grid,

developed as a part of the Project by the Proponent, enhances connectivity to the surrounding neighborhoods, provides a means of passage through the site, and will be an impetus for future compact redevelopment and the extension of the grid. New street grids are more densely located than 140 intersections per mile and through-streets abut existing roads at least every 80 feet.

NPD C1 WALKABLE STREETS

- The Project achieves 9 points through its walkable street character, designed in accordance with the following.
- At least 80 percent of the total linear feet of street-facing building facades in the Project are no more than 25 feet from a property line.
- At least 50% of the total linear feet of street-facing building facades in the project is no more than 18 feet from property line
- At least 50% of the total linear feet of mixed-use and nonresidential street-facing building facades in the Project are within 1 foot of a sidewalk.
- Functional entries to the building occur at an average of 75 feet (23 meters) or less along nonresidential/ mixed-use buildings or blocks.
- All ground-level retail, service, and trade uses that face a public space have clear glass on at least 60 percent of their facades between 3 and 8 feet above grade.
- Ground-level retail, service, or trade windows shall be kept visible at night and shall be required as such in covenants.
- Sidewalks are provided along both sides of all streets within the Project and are minimum 10 feet wide on retail/ mixed-use streets and 5 feet wide at other streets.
- The Project's residential buildings include ground floor units directly accessible from the exterior. The ground floor units' floor is elevated greater than 24 inches above sidewalk grade.
- All mixed-use buildings in the Project include ground-floor retail, live-work spaces, and ground-floor dwelling units along greater than 60 percent of the street-level façade.
- At least 40% of all street frontages within the Project have a minimum building-height-to-street-width ratio of 1:3.
- All nonresidential/ mixed-use streets within the Project are designed for a target speed of no more than 25 mph.
- At-grade crossings with driveways account for no more than 10 percent of the length of sidewalks within the Project.

NPD C2 COMPACT DEVELOPMENT

For a non-residential density of approximately 2.0 and a residential of 47.5 dwelling units per acre, the Project is able to achieve four points its compact development.

NPD C3 MIXED-USE NEIGHBORHOOD CENTERS

- Residents of the Project will be within ¼-mile walk of at least seven diverse uses, earning the project two points. Such uses include soft goods retail, restaurants, grocery, health and fitness club, the Dorchester Historical Society, a farmers market, programmed festivals on Main Street, fast-casual dining, public parking, and a hotel.

NPD C3 MIXED-INCOME DIVERSE COMMUNITIES

- The Project enhances housing diversity, with rental units of varying sizes from studios through three-bedroom units. The diversity and percentage of affordable units earn two points.

NPD C5 STREET NETWORK

- The Project promotes a high level of connectivity to the surrounding neighborhoods and implements a dense, new street grid. New through-streets terminate at the project boundary at least every 400 feet. New intersections occur at a density of 300 to 400 per square mile, earning the project one point.

NPD C8 TRANSPORTATION DEMAND MANAGEMENT

- The Project reduces energy consumption and motor vehicle pollution through the proposed implementation of a vehicle-sharing program per Option 4 and unbundled multi-family residential parking per Option 5, achieving one point.

NPD C10 ACCESS TO RECREATION FACILITIES

- The Project is within ½ mile of Clifford Playground providing access to open space, ball fields, and other recreational opportunities.

NPD C12 COMMUNITY OUTREACH

- The Project Team has engaged extensively with numerous surrounding neighborhood associations, including business owners and residents, to gain feedback and help shape the design into one in which the community would be proud.

NPD C13 LOCAL FOOD PRODUCTION

- The Proponent will organize a farmer's market in the publicly accessible space of the Project, with locally sourced agricultural goods.

NPD C14 TREE-LINED AND SHADED STREETS

- The Project includes the extensive implementation of shade trees along all sidewalks to ensure comfort, enhance pedestrian activity, improve air quality, and reduce heat island effect. Trees front all new streets associated with the Project, which shade, at minimum, 40 percent of sidewalk surface. Planting details and species are appropriate to their location.

NPD C15 NEIGHBORHOOD SCHOOLS

- The Project includes a residential component greater than the minimum 30 percent of the Project's floor area. The residences are within ½ mile of the existing William E. Russell Elementary School, Saint Margaret Elementary School, Pope John Paul II Catholic Academy, and the Boston Collegiate Charter School, all of which can be accessed via a continuous network of sidewalks from the site. Proximity to existing schools promotes community engagement and interaction, reduces bus demand, and encourages walking and bicycling.

GIB P1 CERTIFIED GREEN BUILDING

- All Project Buildings will be LEED Certifiable to a minimum level of Silver.

GIB P2 MINIMUM BUILDING ENERGY EFFICIENCY

- The Project will meet a minimum of 20% energy cost reduction from the code-stipulated baseline.

GIB P3 MINIMUM BUILDING WATER EFFICIENCY

- The Project will meet and exceed the 20% reduction requirement.

GIB P4 CONSTRUCTION ACTIVITY POLLUTION PREVENTION

- The Project will meet the requirement through LEED BD&C.

GIB C2 BUILDING ENERGY EFFICIENCY

- All new buildings are designed to surpass code-stipulated baseline energy usage by at least 20 percent.

GIB C3 BUILDING WATER EFFICIENCY

- All new buildings will reduce water by 40 percent less than the baseline through the implementation of water efficient fixtures.

GIB C7 MINIMIZED SITE DISTURBANCE IN DESIGN AND CONSTRUCTION

- The Project achieves one point through Option 1 as the entire footprint is on previously developed land.

GIB C9 HEAT ISLAND REDUCTION

- The Project will be incompliance with both Options 1 and 2 in effort to significantly reduce heat island and minimize the impact on the microclimate and wildlife.

GIB C11 ON-SITE RENEWABLE ENERGY SOURCES

- The Project will incorporate a solar array on Building A to generate on-site electricity.

GIB C16 SOLID WASTE MANAGEMENT INFRASTRUCTURE

- The Project will include a recycling/reuse station, available to all occupants, one drop-off point, available to all occupants, for potentially hazardous office or household wastes, one compost station, and will implement recycling containers adjacent to other receptacles. The Project will include a construction waste management plan that will divert a minimum of 75% of non-hazardous construction and demolition debris from landfills.

GIB ID C1.1

- The Project will exhibit exemplary performance in heat island reduction by meeting both Options 1 and 2 of GIB c9 by high albedo roof membranes, solar panels, tree cover, and sidewalk paving of compliant SRI value.

GIB ID C1.2

- The Project will exhibit exemplary performance in construction waste management required by GIB c16 and will divert greater than 60 percent of nonhazardous construction and demolition debris from landfill.

GIB ID C1.3

- The Project will exhibit exemplary performance in sidewalk shade cover dictated by NPD c14.

GIB ID C1.4

The Project will exhibit exemplary performance in walkable streets, NPD c1, through the Proponent's implementation of a façade and public space program that encourages each retail tenant to design its own storefront in a

unique manner within the general confines of the Proponent's guidelines. This approach enhances the visual and experiential uniqueness and excitement of the varied storefronts, creating a memorable neighborhood character that greatly enhances walkability.

GIB ID C1.5

- The Project exhibits exemplary performance in NPD c5 for its implementation of a street network on site in addition to the Proponent's improvement of offsite streets and sidewalks adjacent to the site. These offsite improvements further enhance project and neighborhood connectivity, accessibility, and safety.

GIB ID C2

- Numerous members of the Project Team are LEED Accredited Professionals, including representatives of the Proponent, the architect, engineers, and the Proponent's sustainability consultant.

GIB ID C1.5

- The Project will meet all applicable regional priority credits.

LEED 2009 for New Construction and Major Renovations

Project Checklist

Retail over Garage Building A

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
3	1		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	
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			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: EP Alternative Transportation	1
1			Credit 1.3	Innovation in Design: Education Plan	1
1			Credit 1.4	Innovation in Design: Appliances	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

59	23	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 6-1

LEED Checklist- Building A

Source: Soden Sustainability Consulting, 2015

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Cinema/Retail Building B

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
3	1		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

?	N			
		Credit 1.1	Innovation in Design: EP Green Power	1
		Credit 1.2	Innovation in Design: EP Alt Transportation	1
		Credit 1.3	Innovation in Design: Education Plan	1
		Credit 1.4	Innovation in Design: Appliances	1
1		Credit 1.5	Innovation in Design: TBD	1
		Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

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

Total — Possible Points: 110

Y	?	N	
61	21	28	Total

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

Figure 6-2
LEED Checklist- Building B
Source: Soden Sustainability Consulting, 2015

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Residential

Y	?	N			
20	**6**		**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
6	**2**	**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
4			Credit 3	Water Use Reduction	2 to 4
8	**9**	**18**	**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	
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
4	**2**	**8**	**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
8	**6**	**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
4	**2**		**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: EP Open Space	1
1			Credit 1.3	Innovation in Design: Education Plan	1
1			Credit 1.4	Innovation in Design: Appliances	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
54	**27**	**29**	**Total**	**Possible Points:**	**110**

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

Figure 6-3

LEED Checklist- Buildings C + D

Source: Soden Sustainability Consulting, 2015

LEED 2009 for New Construction and Major Renovations

Project Checklist

South Bay Hotel Building E

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
4			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: EP Alternative Transportation	1
1			Credit 1.3	Innovation in Design: Education Plan	1
1			Credit 1.4	Innovation in Design: Appliances	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

Total — Possible Points: 110

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

Figure 6-4

LEED Checklist- Building E

Source: Soden Sustainability Consulting, 2015

LEED 2009 For Neighborhood Development

Project Checklist

Project Name

Date

Smart Location and Linkage — Possible Points: 27

Y	?	N			
Y			Prereq 1	Smart Location	Req
Y			Prereq 2	Imperiled Species and Ecological Communities	Req
Y			Prereq 3	Wetland and Water Body Conservation	Req
Y			Prereq 4	Agricultural Land Conservation	Req
Y			Prereq 5	Floodplain Avoidance	Req
7		3	Credit 1	Preferred Locations	10
1		1	Credit 2	Brownfield Redevelopment	2
7			Credit 3	Locations with Reduced Automobile Dependence	7
		1	Credit 4	Bicycle Network and Storage	1
2		1	Credit 5	Housing and Jobs Proximity	3
1			Credit 6	Steep Slope Protection	1
		1	Credit 7	Site Design for Habitat or Wetland and Water Body Conservation	1
		1	Credit 8	Restoration of Habitat or Wetlands and Water Bodies	1
		1	Credit 9	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

Neighborhood Pattern and Design — Possible Points: 44

Y			Prereq 1	Walkable Streets	Req
Y			Prereq 2	Compact Development	Req
Y			Prereq 3	Connected and Open Community	Req
9		3	Credit 1	Walkable Streets	12
4		2	Credit 2	Compact Development	6
2	2		Credit 3	Mixed-Use Neighborhood Centers	4
2	2	3	Credit 4	Mixed-Income Diverse Communities	7
		1	Credit 5	Reduced Parking Footprint	1
1	1		Credit 6	Street Network	2
		1	Credit 7	Transit Facilities	1
1	1		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
1		1	Credit 12	Community Outreach and Involvement	2
1			Credit 13	Local Food Production	1
2			Credit 14	Tree-Lined and Shaded Streets	2
1			Credit 15	Neighborhood Schools	1

Green Infrastructure and Buildings — Possible Points: 29

Y	?	N			
Y			Prereq 1	Certified Green Buiding	Req
Y			Prereq 2	Minimum Building Energy Efficiency	Req
Y			Prereq 3	Minimum Building Water Efficiency	Req
Y			Prereq 4	Construction Activity Pollution Prevention	Req
	2	3	Credit 1	Certified Green Buildings	5
1		1	Credit 2	Building Energy Efficiency	2
1			Credit 3	Building Water Efficiency	1
	1		Credit 4	Water-Efficient Landscaping	1
		1	Credit 5	Existing Building Use	1
		1	Credit 6	Historic Resource Preservation and Adaptive Reuse	1
1			Credit 7	Minimized Site Disturbance in Design and Construction	1
	4		Credit 8	Stormwater Management	4
1			Credit 9	Heat Island Reduction	1
		1	Credit 10	Solar Orientation	1
	1	2	Credit 11	On-Site Renewable Energy Sources	3
		2	Credit 12	District Heating and Cooling	2
	1		Credit 13	Infrastructure Energy Efficiency	1
		2	Credit 14	Wastewater Management	2
	1		Credit 15	Recycled Content in Infrastructure	1
1			Credit 16	Solid Waste Management Infrastructure	1
		1	Credit 17	Light Pollution Reduction	1

Innovation and Design Process — Possible Points: 6

1			Credit 1.1	Innovation in Design: Specific Title	1
1			Credit 1.2	Innovation in Design: Specific Title	1
1			Credit 1.3	Innovation in Design: Specific Title	1
1			Credit 1.4	Innovation in Design: Specific Title	1
1			Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

1			Credit 1.1	Regional Priority: Specific Credit	1
1			Credit 1.2	Regional Priority: Specific Credit	1
1			Credit 1.3	Regional Priority: Specific Credit	1
1			Credit 1.4	Regional Priority: Specific Credit	1

58	17	35	**Total**	Possible Points: 110

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

Figure 6-5
LEED Checklist- ND
Source: EDENS, 2015

Chapter 7

URBAN DESIGN

CHAPTER 7: URBAN DESIGN

7.1 INTRODUCTION

The Project has been conceived as a network of streets that form a mixed-use neighborhood of retail, restaurants, a cinema, housing, a hotel, 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 7-1, Expanded Site Plan and Figure 7-2, 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 I-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.

7.2 PROJECT PROGRAM

The following table outlines the Project program by building and use.

Table 7-1: Project Program

Building	A	B	C	D	E	Total
Gross Area (sf)	230,121	110,557	291,918	303,055	90,000	1,025,651
Floor Area (sf)	228,588	107,713	272,054	260,945	87,750	957,050
Retail (sf)	41,239	50,040	12,772	15,709	0	119,760 (12%)
Residential (sf)	0	0	208,768	245,236	0	454,004 (45%)
Cinema (sf)	0	57,673	0	0	0	57,673 (6%)
Hotel (sf)	0	0	0	0	87,750 130 keys	87,750 (9%)
Unit Count	0	0	220	255	0	475
Garage Area (sf)	187,349	0	63,401	37,231	0	287,981 (28%)
Garage Spaces	601	0	169	140	0	910

7.3 CHANGES SINCE THE PNF

Since the PNF was filed, in meetings with the BRA, community, and Boston Civic Design Commission (BCDC), the Proponent was asked to study the way pedestrians, bicycles, and vehicles approach the Project within a larger site context. The future development was superimposed on photographs of existing views from I-93, Massachusetts Avenue, Enterprise Street, West Howell Street, West Dorset Street, Allstate Road, and the Newmarket MBTA station. The study resulted in several landscape and streetscape improvements and new signage, as well as building design adjustments on facades to reinforce the pedestrian scale and establish architectural harmony with the surrounding neighborhood.

Furthermore, the BCDC and the BRA also asked the Proponent to contemplate how the Project could positively affect South Bay Center in the future if and when the leases and other agreements expire for some of the large tenants and retailers. The Proponent explained that when they purchased the property, tenants and retail owners had lengthy leases and covenants that control their store's visibility, parking, servicing, etc., making short term change nearly impossible. However, planning for longer term evolution into a more walkable, pedestrian-friendly district is possible, and one potential idea was proposed that introduces a central green space into the existing parking lot. Future development could grow in stages around that green space, knitting the current proposed project into a street pattern of neighborhood blocks toward the Stop & Shop and the Newmarket MBTA station beyond. The Project is envisioned to be an impetus for positive future change. For rendered views of the Project from multiple points of approach in the neighborhood context, see Figures 7-3 through 7-15, Project Approach Views.

7.4 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 Project Site. With a maximum anticipated permissible building height of 65 feet, the Project includes:

- Building A– A 6-story parking garage with retail at the ground floor. During the design review process of the PNF, Building A has been reconceived as two volumes, one that has a front toward Applebee's and Stop & Shop and the future open space, and the other facing Main Street and New Road.

- 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 two volumes by a pedestrian courtyard, Building C ranges from four stories of residential over one story of retail (facing Main Street) to six 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.

- Building D– This building is also characterized by four stories of residential over one story of retail (facing Main Street) or six stories of residential. Building D includes an internal courtyard and ground floor parking. Steps leading from the units that face the pedestrian promenade lend scale and activity to the area between Buildings B and D. During the design review process of the PNF, Building D was shaped to appear more like two volumes along West Howell Street.

- Building E– A 6-story hotel to the northeast of Building D.

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 one-story element to the south and north. 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 Figure 7-16 and Figure 7-17, Project Views.

7.5 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.

See Figures 7-18 through 7-24, Precedents, for images of comparable developments that have influenced the design of the Project.

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. As the Project has proceeded through PNF design review with the BRA and BCDC, the character and materials of the buildings has been further refined. See Figure 7-25, Proposed Materials.

7.6 PERSPECTIVES AND ELEVATIONS

As the buildings' massing, character, and materials have been refined, the Project Team has developed a new set of perspectives and elevations for the Project. See Figure 7-26 through Figure 7-53 for Building Perspectives and Elevations.

7.7 LANDSCAPE AND STREETSCAPE

The proposed landscape elements are divided into the following areas:

- Streetscapes
- Promenade
- Courtyards
- Off-Site Improvements

The following subsections provide overviews for each of these elements.

7.7.1 STREETSCAPES

Main Street

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, occasionally flanked by some short-term curbside parking. The roadway, contrasting with the pedestrian pavements, makes two bends. These bends are a traffic calming feature that creates more dramatic, shifting views when looking down the length of the street. There are street trees adorned with raised planters with shrubs and seasonal color and ample areas for outdoor dining and programmed 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 7-54 through Figure 7-58, Main Street Plans and Streetscapes Sections.

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 Main Street. These streets have raised curbs, with sidewalks and rows of street trees with tree grates and planting strips. There is parallel parking along the curbs. Furnishings include, benches, trash and recycle containers, bicycle racks, and street lights. See Figure 7-59, Streetscape Sections.

East-West Street between Buildings D and E

The pedestrian connection between Building E and the rest of the development is very important. The streetscape between will evoke the feeling of a shared street by utilizing stamped concrete paving that matches the Promenade in the vehicular drop off and parking areas along Building E. Bollards will separate the pedestrians from the vehicular drop off and parking areas. Street trees set in the paving will provide shade and seasonal interest. The streetscape along Building D has raised curbs with a row of fastigiate growing street trees and short term parallel parking. Street Lights and bollards are the only furnishings. See Figure 7-60, Streetscape Enlargement and Figure 7-61, Streetscape Materials & Trees.

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 feature street trees set in a continuous raised planter. This planter will have a mix of groundcovers and shrubs to screen headlights from oncoming vehicles during the evening hours. The hardscape plaza provides an opportunity for outdoor lounges and dining to spill out onto the sidewalk just north of Building A. Other furnishings include, benches, trash and recycle containers, bicycle racks, and street lights. See Figure 7-62, Allstate Road Plaza Enlargement, Figure 7-63, Allstate Road Plans, and Materials & Trees, and Figure 7-64, Allstate Road Furnishings.

7.7.2 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, ornamental plant beds, plants in movable pots, and architectural exterior lighting are place-making features used to create a variety of spaces that are texturally rich and compliment the proposed architecture. A continuous plane of stamped concrete paving adds to the intimate

feeling of the Promenade and accommodates a variety of events. Fastigiate growing trees are planted in the ornamental beds along Building D. See Figure 7-65 through 7-68, Promenade Plans, Sections, and Details.

7.7.3 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 courtyard serves as the primary guest entrance for the buildings and also includes 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 planted within the courtyards. See Figure 7-69 through 7-72, Courtyard Plans, Sections, and Details.

7.7.4 OFF-SITE IMPROVEMENTS

Enterprise Street

To enhance access and 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. See Figure 4-36 in the Transportation chapter.

West Howell Street

Following extensive consultation and working sessions with City staff, the Proponent commits to redesigning and upgrading West Howell Street to enhance access/egress to the Project Site for pedestrians and bicycles and to promote safe vehicular travel with a one-way direction away from Boston Street. West Howell Street will be reconstructed to incorporate the City's Complete Streets design standards including a raised intersection where West Howell Street meets the proposed West Howell Street Extension. See Figure 4-37 through 4-38 in the Transportation chapter.

Pedestrian Improvements

All sidewalks are ADA compliant to connect the Project Site and adjacent properties to accommodate and promote pedestrian activity. The Project 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 existing South Bay Center.

The proposed redesign 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. See Figure 4-36 through 4-38 in the Transportation chapter

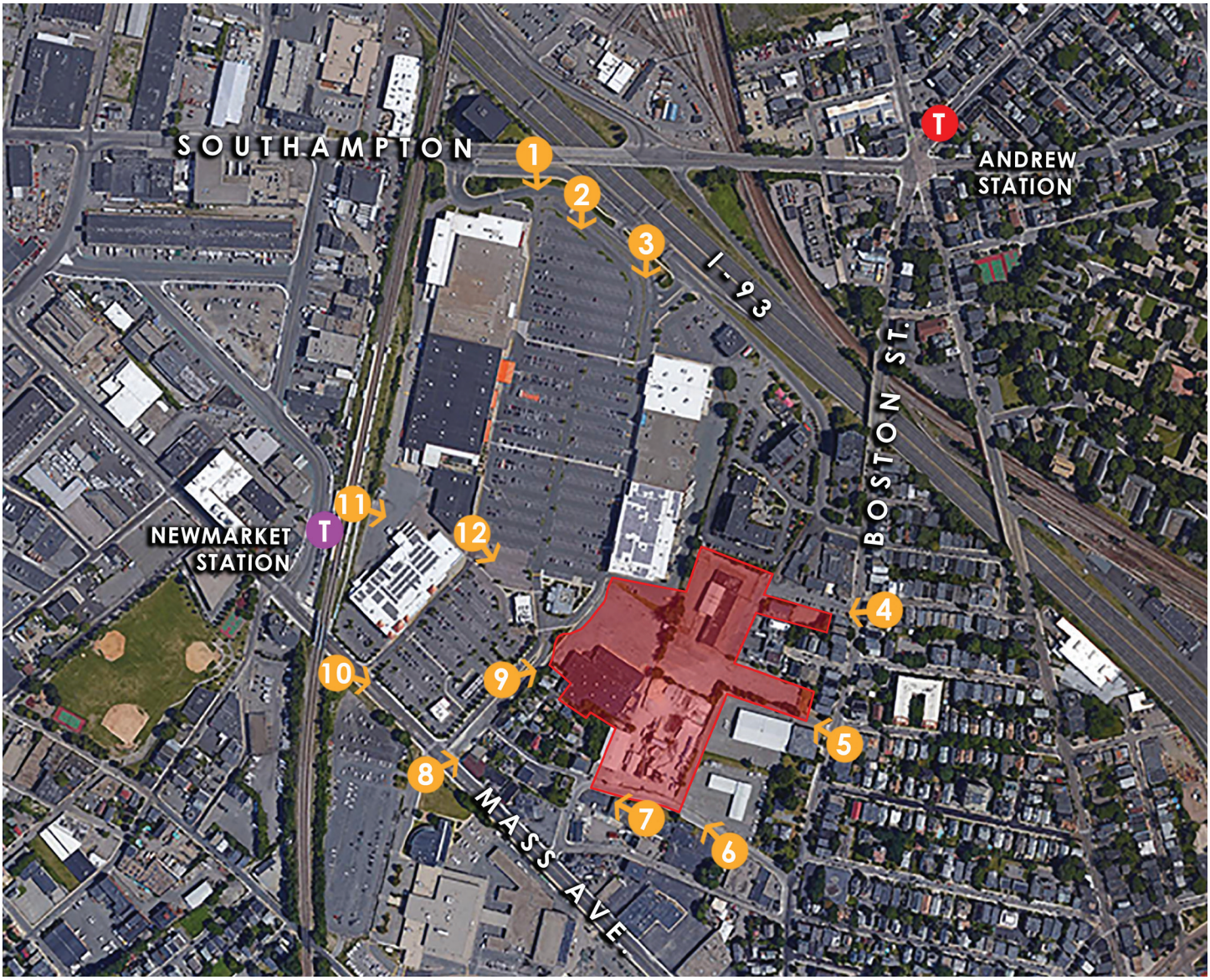
In an effort to enhance pedestrian accessibility and comfort, the Proponent will also evaluate and implement to the maximum extent feasible an enhanced pedestrian connection that is more desirable for pedestrians between the Project Site and Newmarket Station via sidewalk improvements within the existing South Bay Center. See Figure 4-45 in the Transportation chapter.



Figure 7-1
Expanded Site Plan
Source: OLIN, 2015



Figure 7-2
Project Site Plan
Source: OLIN, 2015



Project Approach Views - Key Plan

Figure 7-3
Project Approach Views- Key
Source: Stantec, 2015





Figure 7-4
Project Approach Views
Source: Stantec, 2015





Figure 7-5
Project Approach Views
Source: Stantec, 2015





Figure 7-6
Project Approach Views
Source: Stantec, 2015





Figure 7-7
Project Approach Views
Source: Stantec, 2015





Figure 7-8
Project Approach Views
Source: Stantec, 2015





Figure 7-9
Project Approach Views
Source: Stantec, 2015





Figure 7-10
Project Approach Views
Source: Stantec, 2015





Dorchester, Massachusetts

Figure 7-11
Project Approach Views
Source: Stantec, 2015





Dorchester, Massachusetts

Figure 7-12
Project Approach Views
Source: Stantec, 2015





Figure 7-13
Project Approach Views
Source: Stantec, 2015





Figure 7-14
Project Approach Views
Source: Stantec, 2015





Figure 7-15
Project Approach Views
Source: Stantec, 2015



Project View - Main Street Looking South



Project View - Main Street Looking North

Figure 7-17
Project Views
Source: Stantec, 2015



Retail & Place Making

Figure 7-18
Precedents
Source: Stantec, 2015











Garage

Figure 7-19
Precedents
Source: Stantec, 2015





Cinema









Residential

Dorchester, Massachusetts

Figure 7-21
Precedents
Source: Stantec, 2015



Landscape - Olin

Figure 7-22
Precedents
Source: Stantec, 2015



Washington, D. C. - Union Market



Promenade - Bethesda Row

Figure 7-24
Precedents
Source: Stantec, 2015

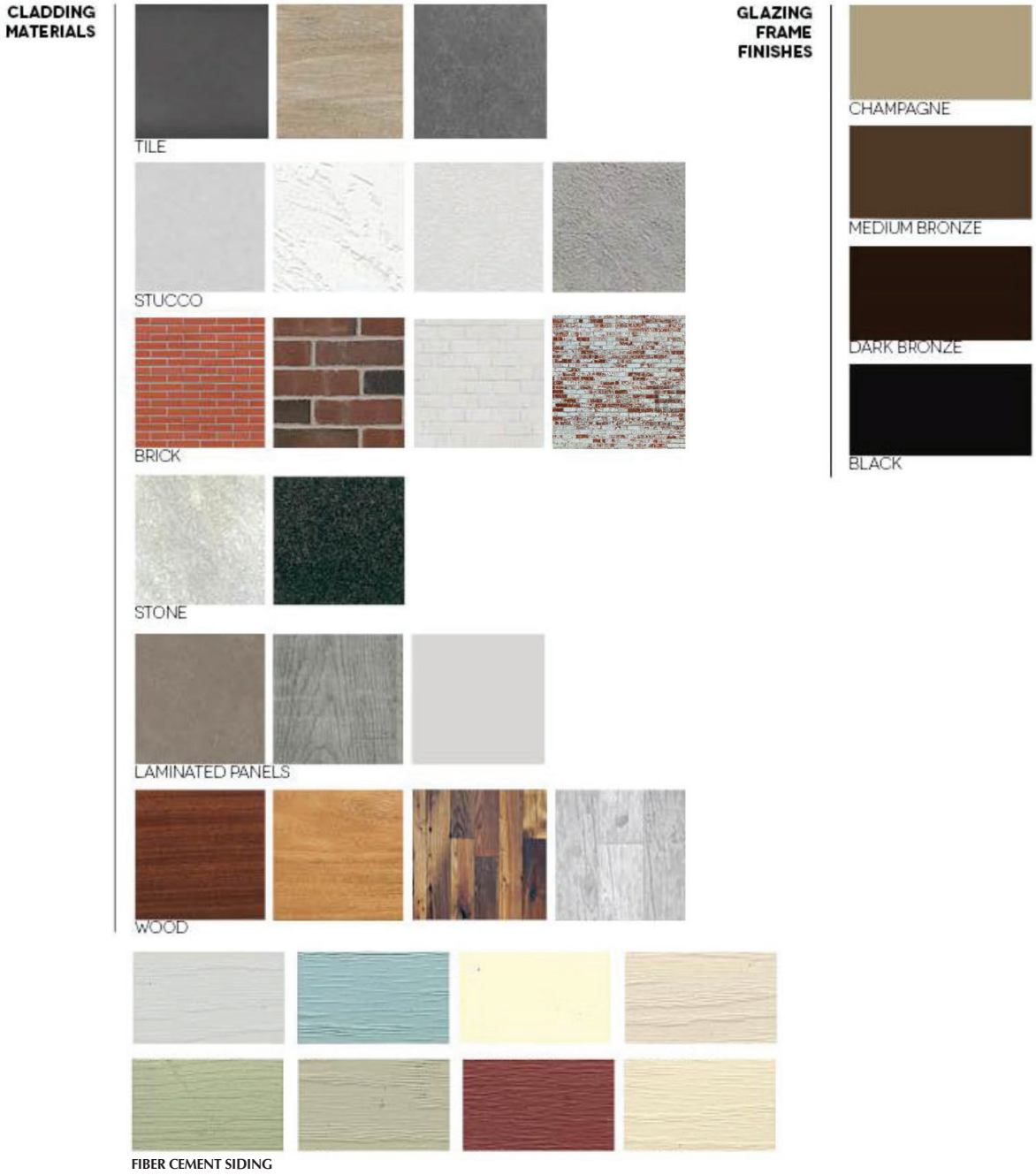
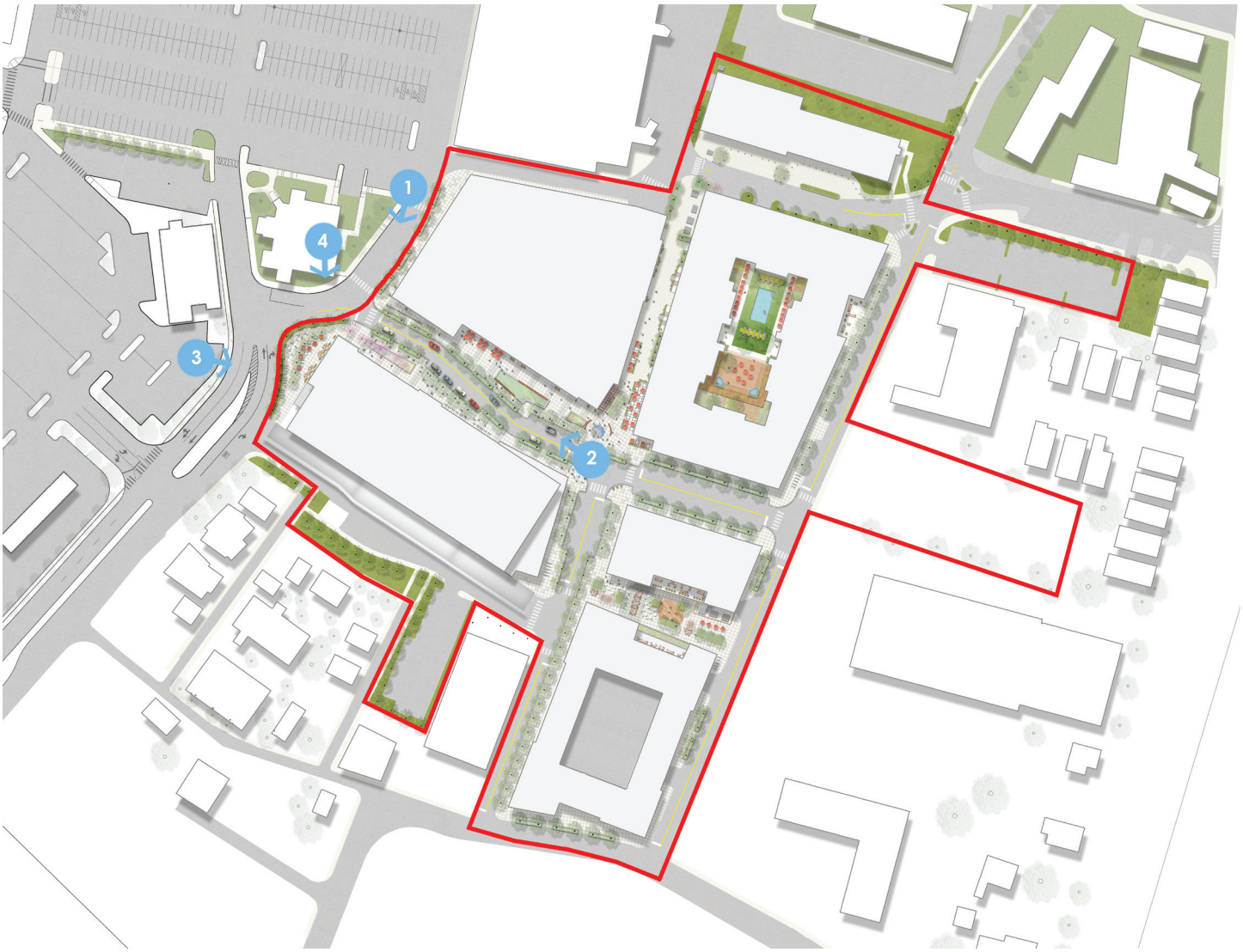


Figure 7-25
Proposed Materials
Source: Stantec, 2015



Building A - Perspectives Key Plan

Figure 7-26
Building A Perspectives
Source: Stantec, 2015



1. Building A - Main Street Entrance Perspective



2. Building A - Main Street Perspective

Figure 7-27
Building A Perspectives
Source: Stantec, 2015



3. Building A - Allstate Road Public Space Perspective



4. Building A - Allstate Road Public Space Perspective

Figure 7-28
Building A Perspectives
Source: Stantec, 2015



Building A North Elevation - Retail and Parking

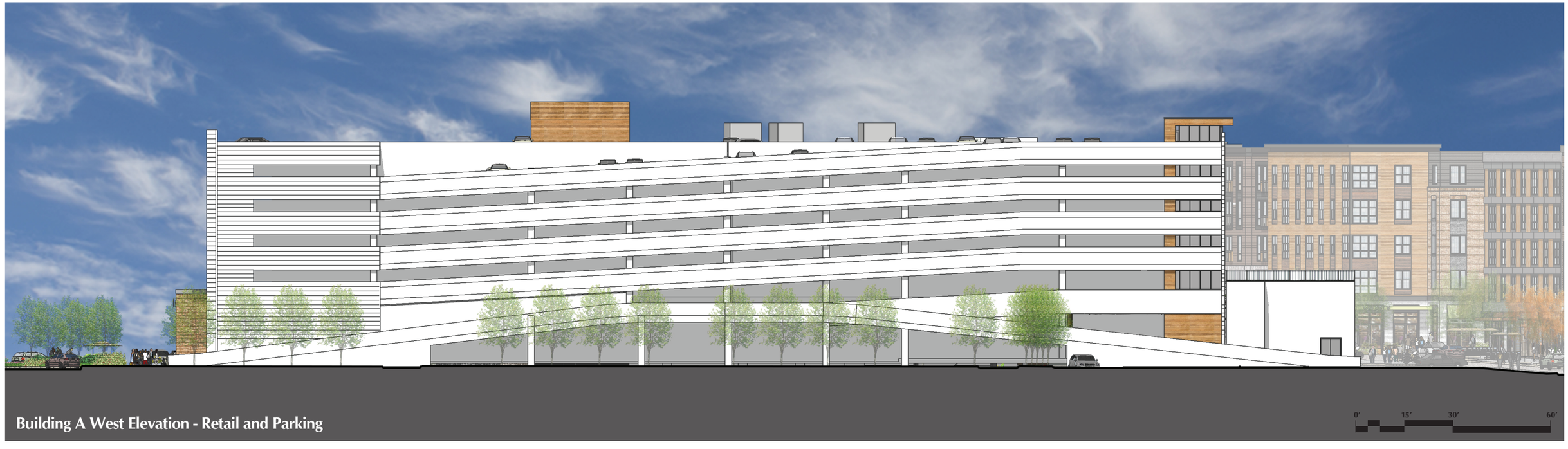


Building A South Elevation - Retail and Parking

Figure 7-29
Building A Elevations
Source: Stantec, 2015

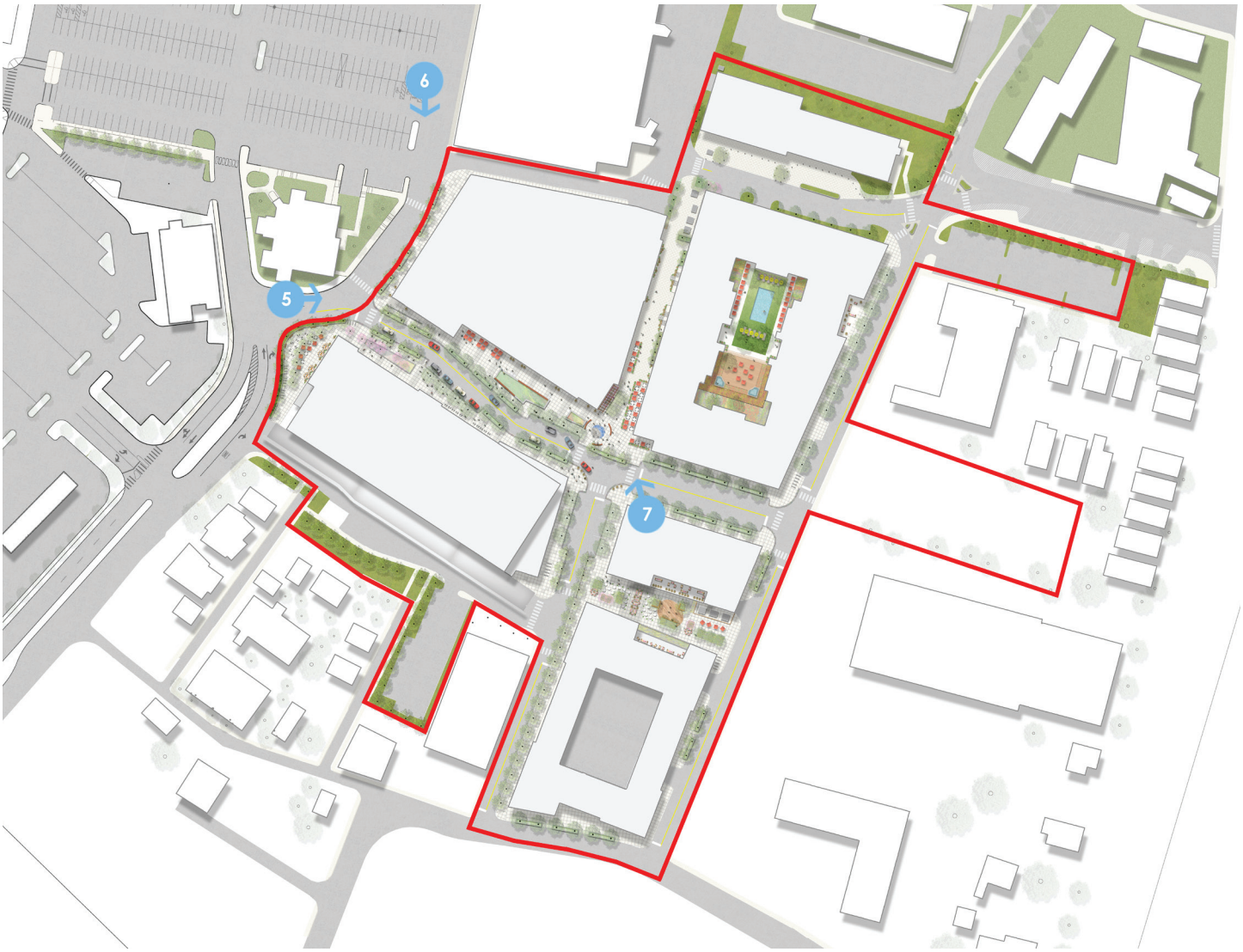


Building A East Elevation - Retail and Parking



Building A West Elevation - Retail and Parking

Figure 7-30
Building A Elevations
Source: Stantec, 2015



Building B - Perspectives Key Plan

Figure 7-31
Building B Perspectives
Source: Stantec, 2015



5. Building B - Main Street Perspective



6. Building B - Main Street Perspective

Figure 7-32
Building B Perspectives
Source: Stantec, 2015



7. Building B - Public Spaces on Main Street Perspective



Building B - Public Spaces - West Elevation Night View

Figure 7-33
Building B Perspectives
Source: Stantec, 2015



Building B North Elevation - Cinema and Retail



Building B West Elevation - Cinema and Retail

Figure 7-34
Building B Elevations
Source: Stantec, 2015

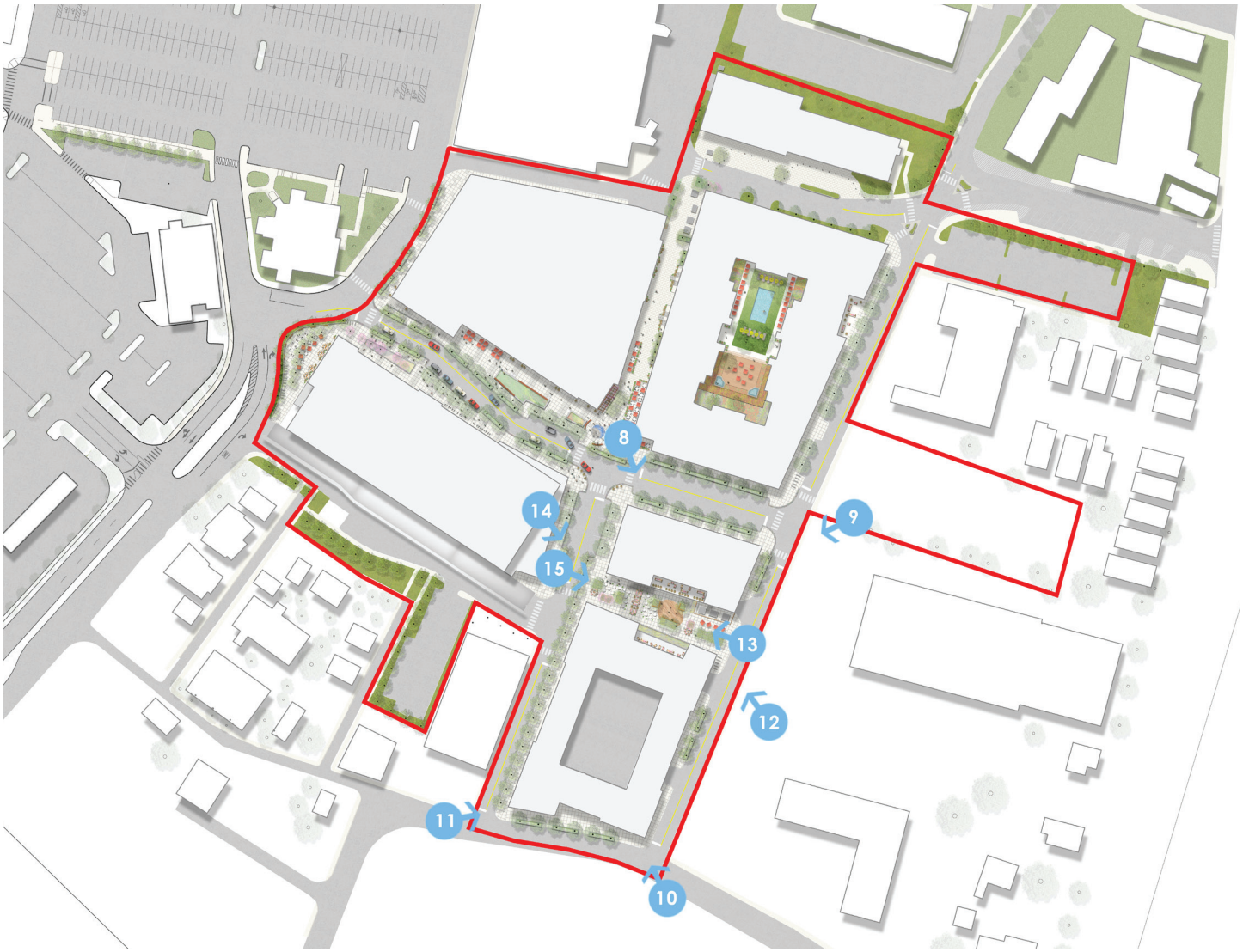


Building B South Elevation - Cinema and Retail



Building B East Elevation - Cinema and Retail

Figure 7-35
Building B Elevations
Source: Stantec, 2015



Building C - Perspectives Key Plan

Figure 7-36
Building C Perspectives
Source: Stantec, 2015



8. Building C - Retail Corner Perspective



9. Building C - New Road Perspective

Figure 7-37
Building C Perspectives
Source: Stantec, 2015



10. Building C - Enterprise Street Perspective



11. Building C - New Road Perspective



12. Building C - West Howell Street Public Space Perspective



13. Building C - West Howell Street Public Space Perspective

Figure 7-39
Building C Perspectives
Source: Stantec, 2015



14. Building C - New Road Public Space Perspective



15. Building C - New Road Public Space Perspective





Figure 7-41
Building C Elevations
Source: Stantec, 2015



Building C East Elevation - Residential and Retail



Building C West Elevation - Residential and Retail

Figure 7-42
Building C Elevations
Source: Stantec, 2015



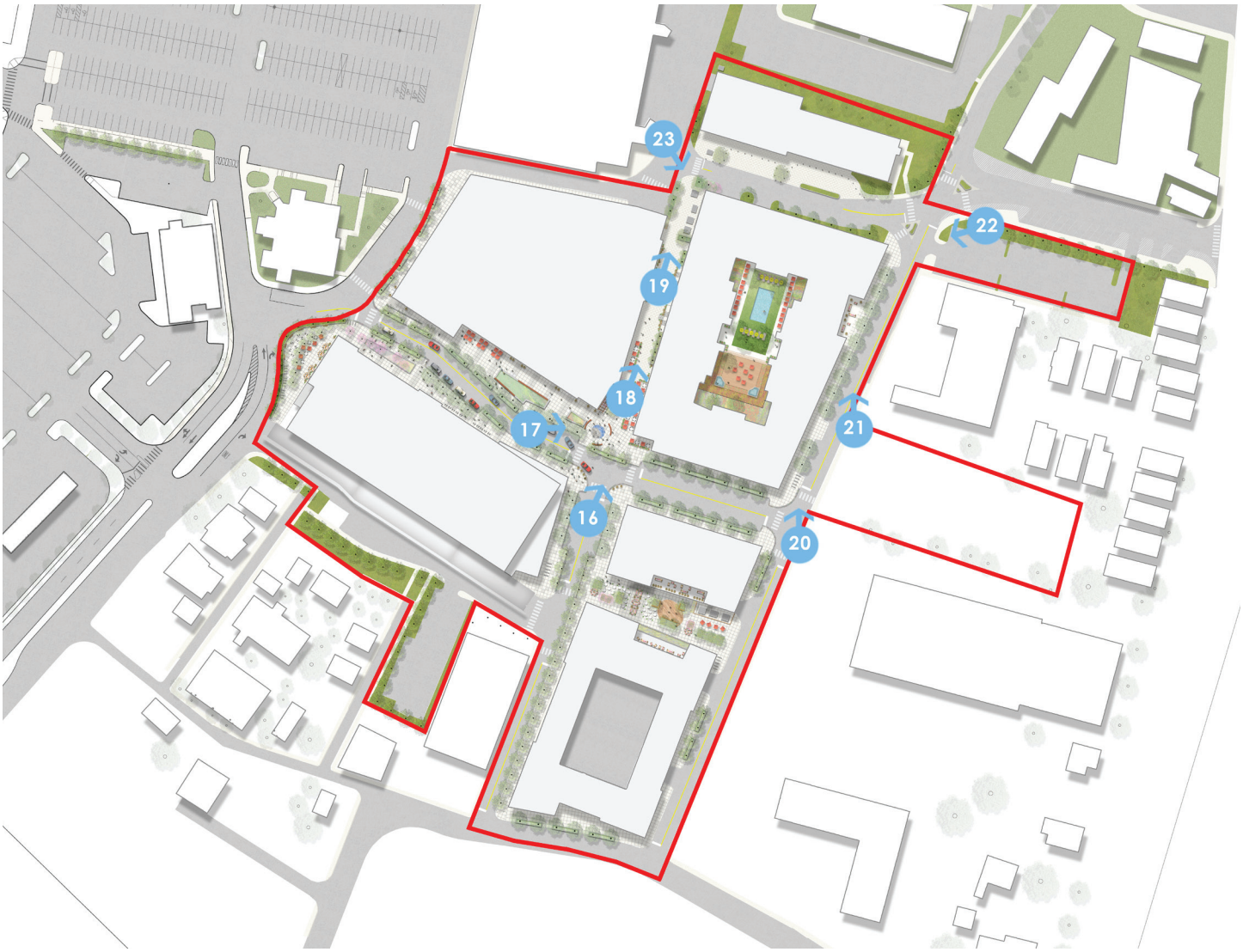
Building C Courtyard East Elevation



Building C Coutyard West Elevation

0′ 15′ 30′ 60′

Figure 7-43
Building C Elevations
Source: Stantec, 2015



Building D - Perspectives Key Plan

Figure 7-44
Building D Perspectives
Source: Stantec, 2015



16. Building D - Public Space Perspective



17. Building D - Pedestrian Promenade Perspective

Figure 7-45
Building D Perspectives
Source: Stantec, 2015



18. Building D - Public Space Perspective



19. Building D - Pedestrian Promenade Perspective



20. Building D - West Howell Perspective



21. Building D - West Howell Perspective

Figure 7-47
Building D Perspectives
Source: Stantec, 2015



22. Building D - West Howell Perspective



23. Building D

Figure 7-48
Building D Perspectives
Source: Stantec, 2015



Building D North Elevation - Residential and Retail



Building D South Elevation - Residential and Retail

Figure 7-49
Building D Elevations
Source: Stantec, 2015

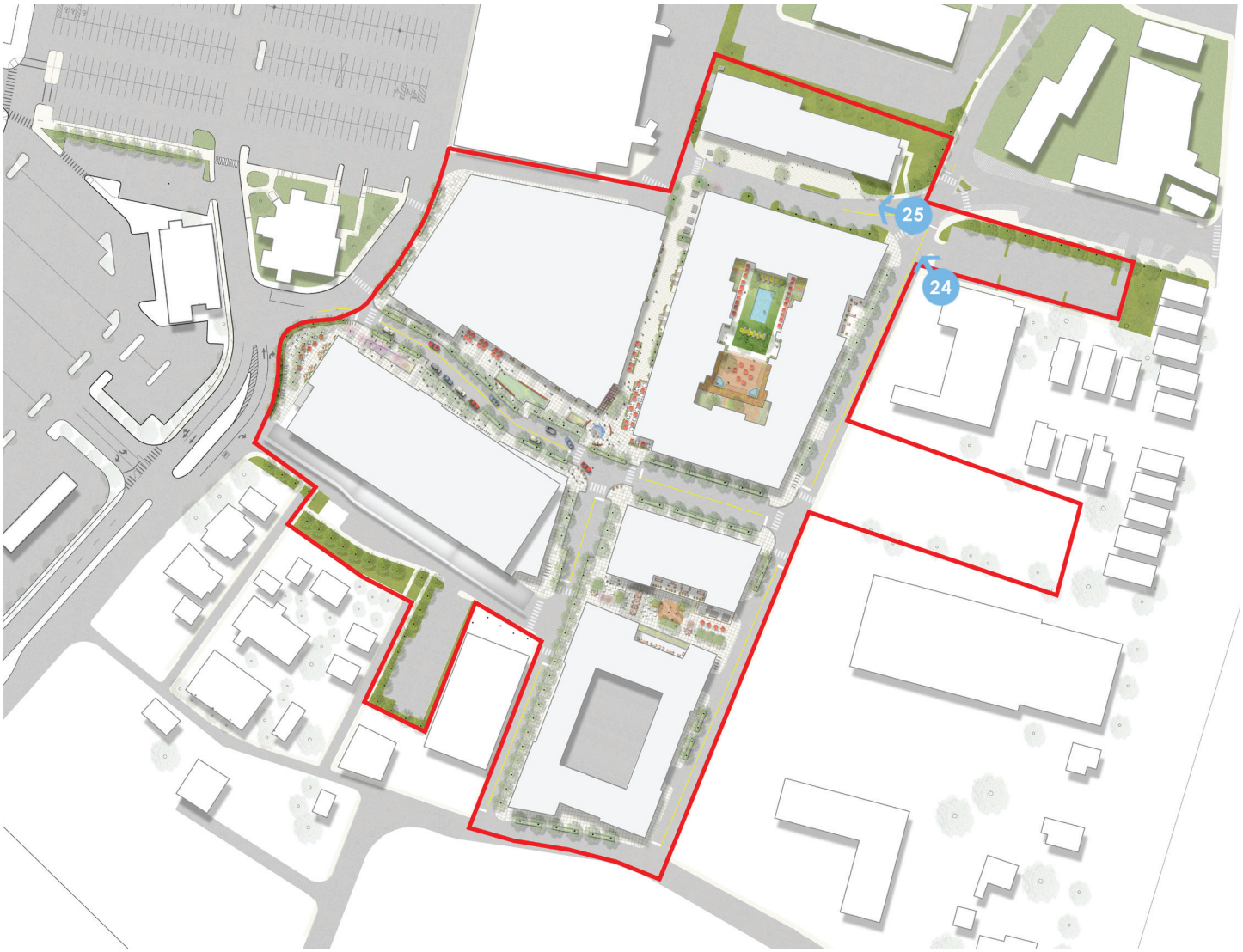


Building D East Elevation - Residential and Retail



Building D West Elevation - Residential and Retail

Figure 7-50
Building D Elevations
Source: Stantec, 2015



Building E - Perspectives Key Plan

Figure 7-51
Building E Perspectives
Source: Stantec, 2015



24. Building E - Hotel Perspective



25. Building E - Hotel Perspective

Figure 7-52
Building E Perspectives
Source: Stantec, 2015



Building E East Elevation - Hotel



Building E North Elevation - Hotel



Building E West Elevation - Hotel



Building E South Elevation - Hotel

Figure 7-53
Building E Elevations
Source: Stantec, 2015

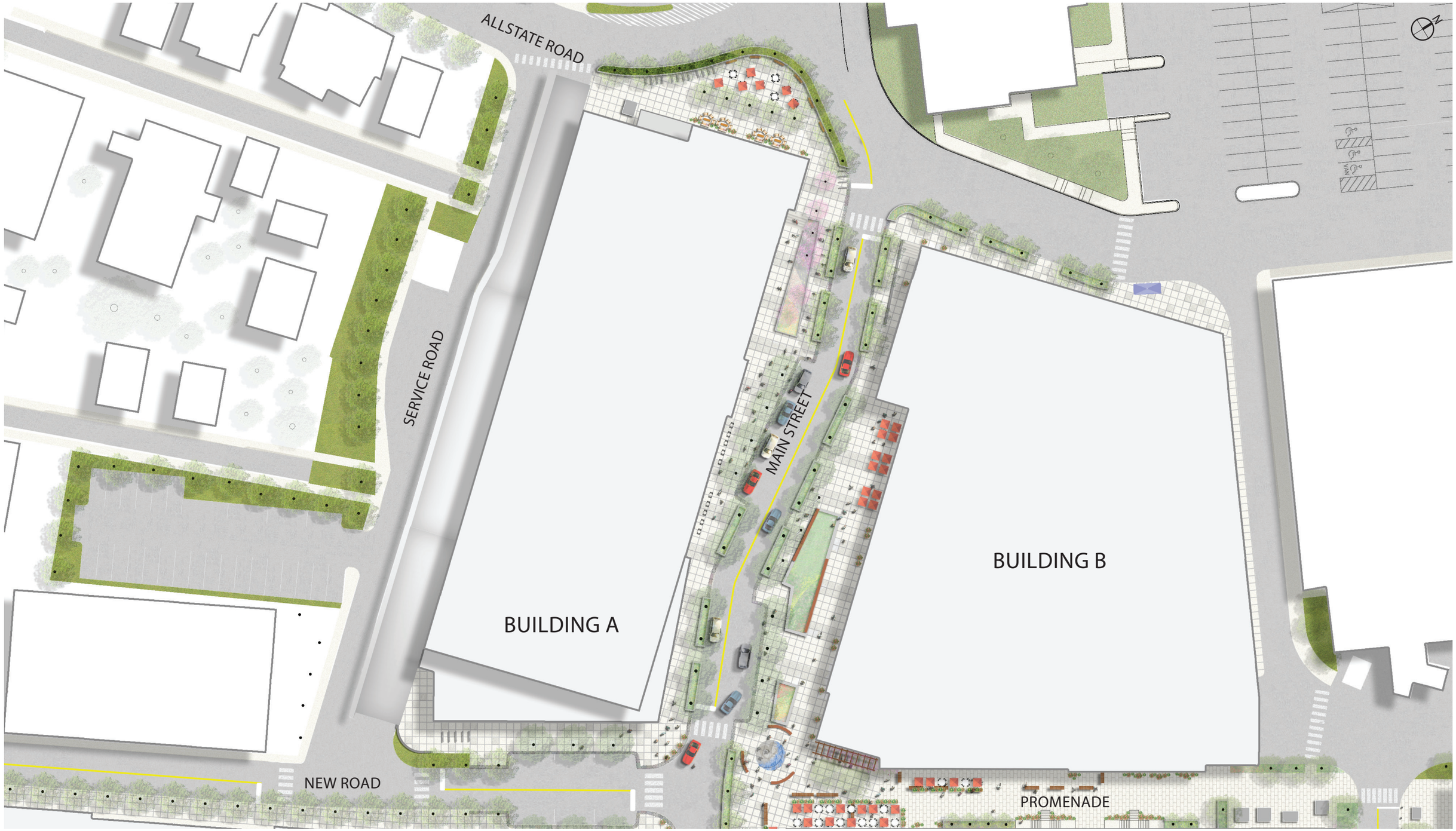


Figure 7-54
Main Street North Plan
Source: OLIN, 2015

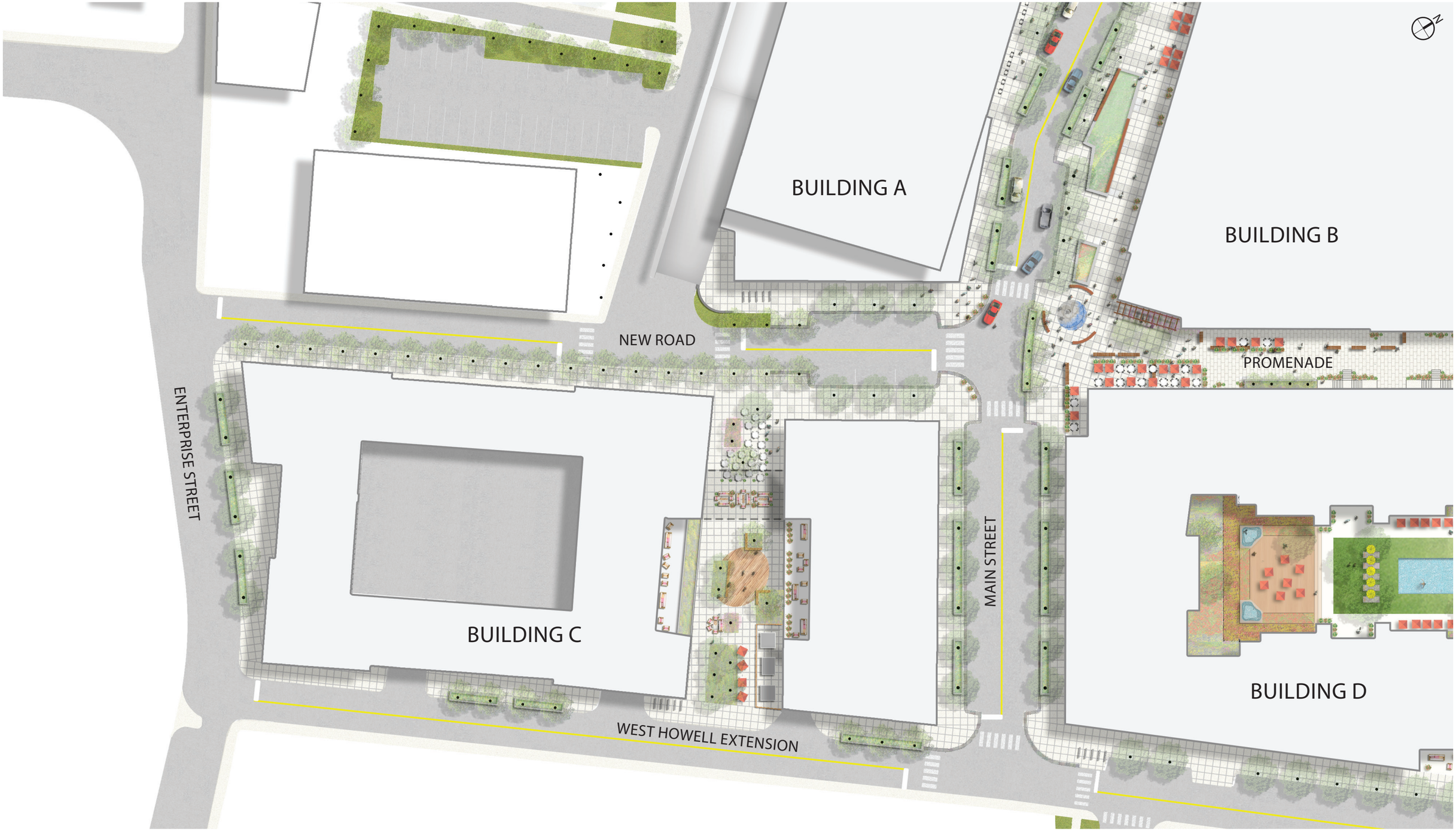


Figure 7-55
Main Street Southwest Plan
Source: OLIN, 2015

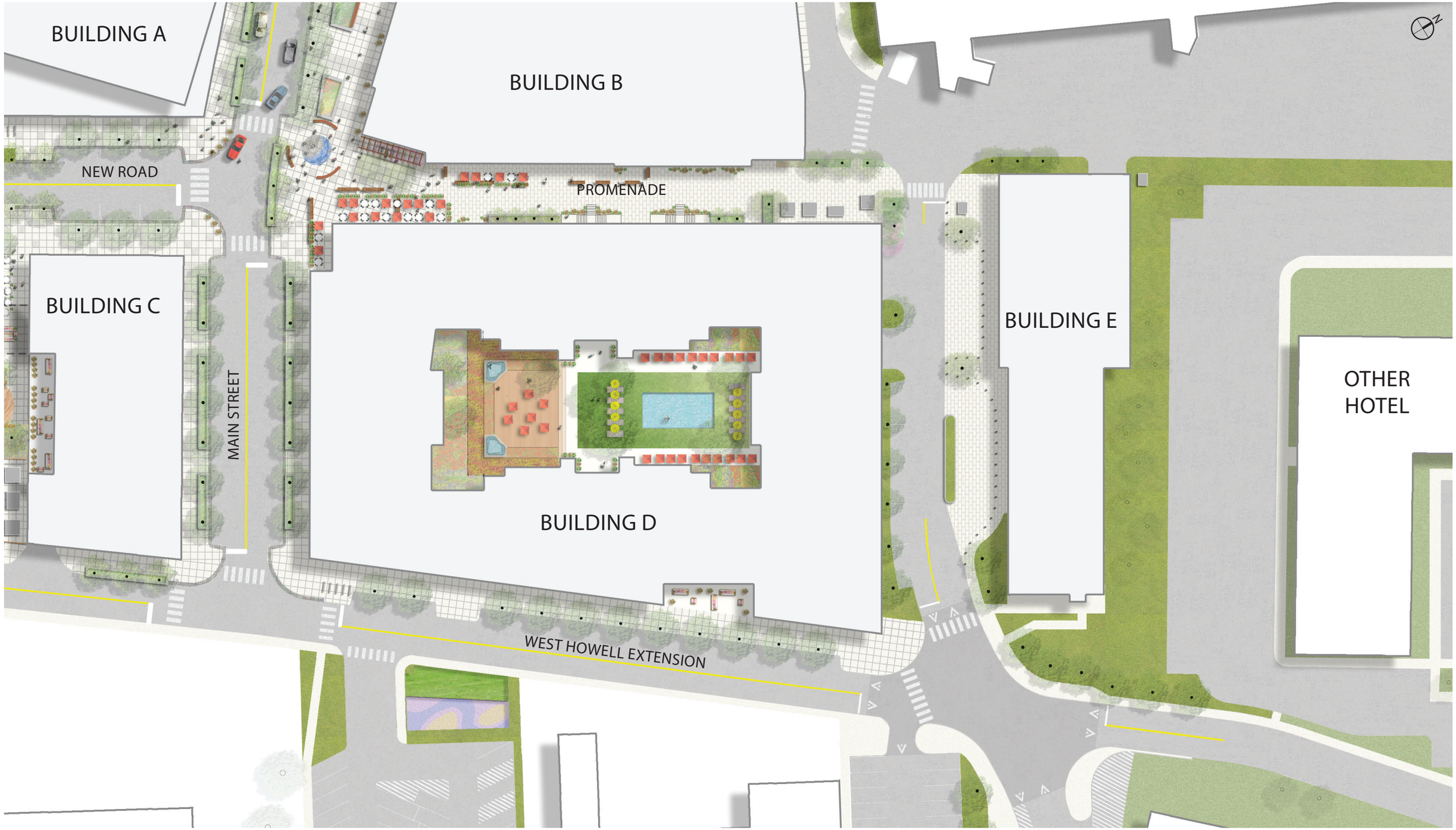


Figure 7-56
Main Street Southeast Plan
Source: OLIN, 2015



Main Street Section A - Looking West



Main Street Section B - Looking West

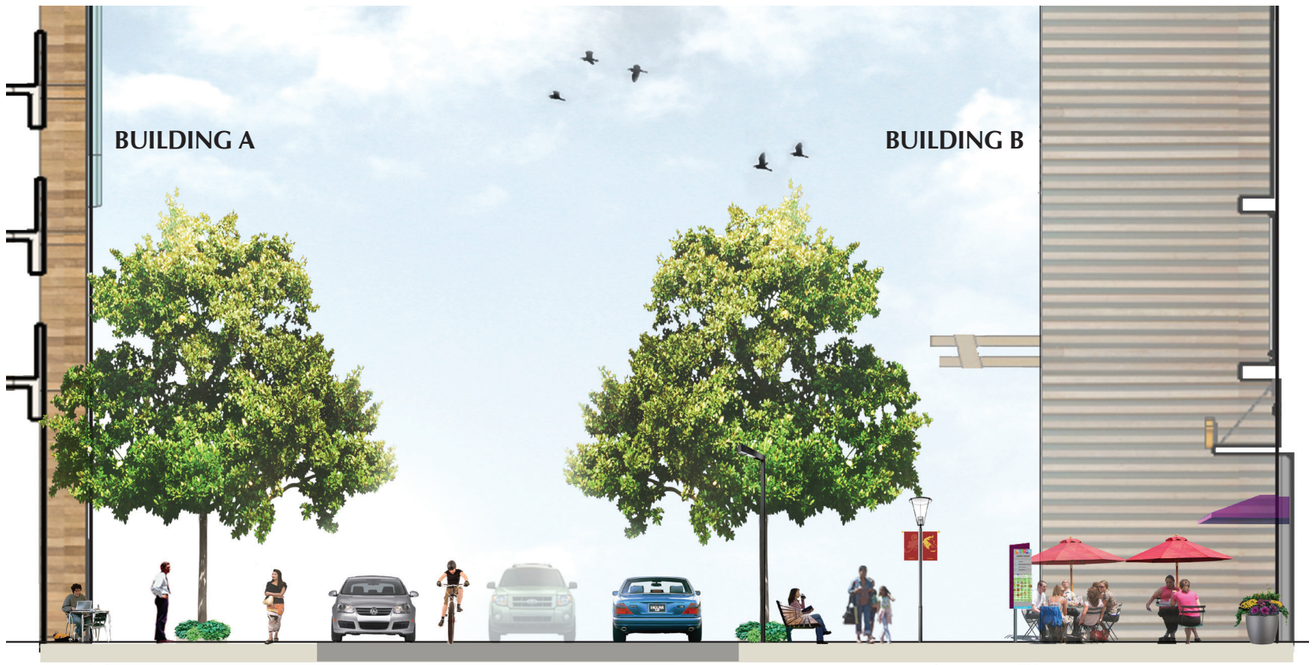
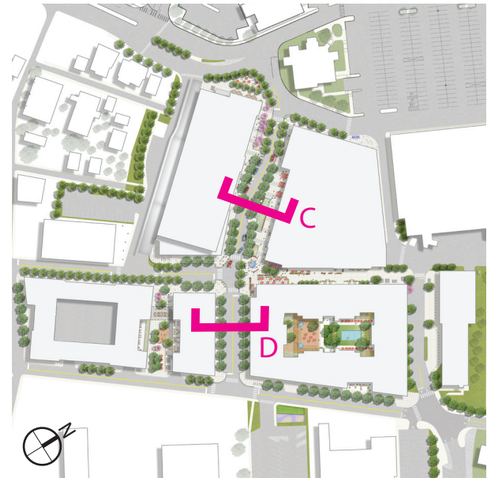


Figure 7-57
Main Street- Streetscape Sections
Source: OLIN, 2015



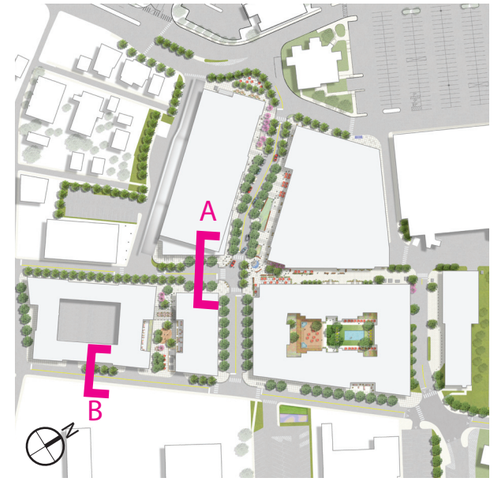
Main Street Section C - Looking West



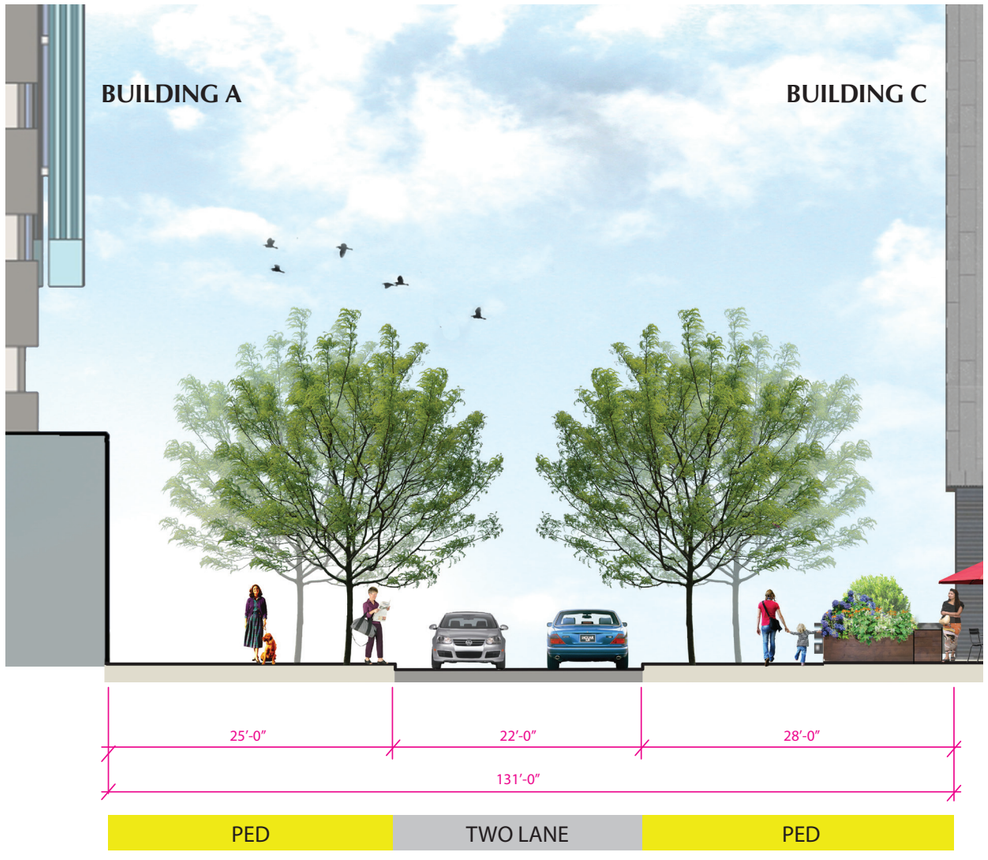
Main Street Section D - Looking West



Figure 7-58
Main Street- Streetscape Sections
Source: OLIN, 2015



New Road Section A - Looking Northeast



West Howell Street Section B - Looking Northeast

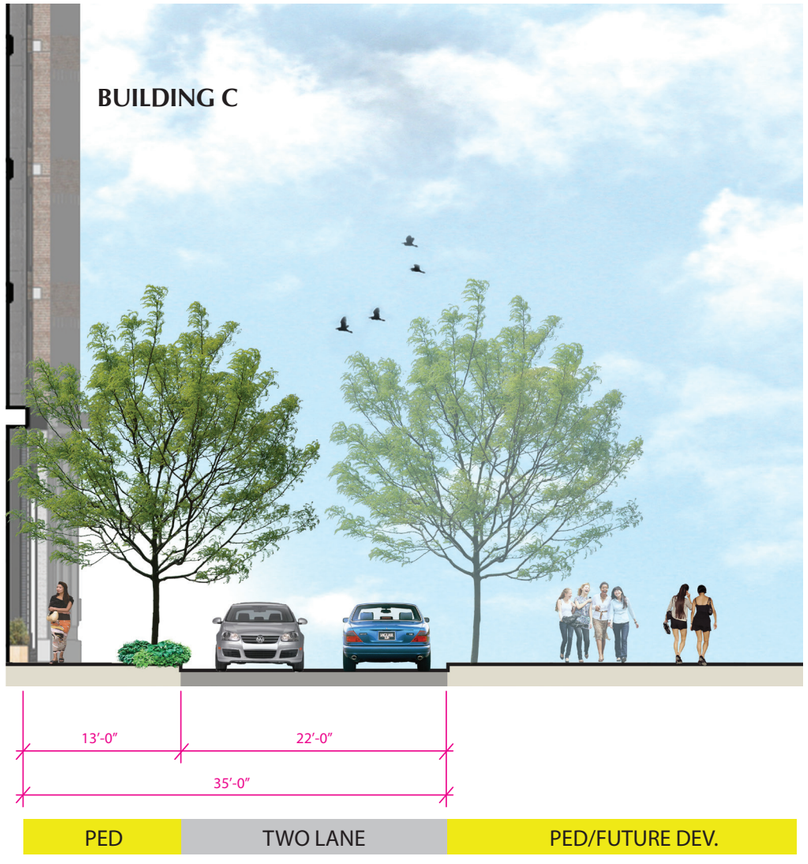
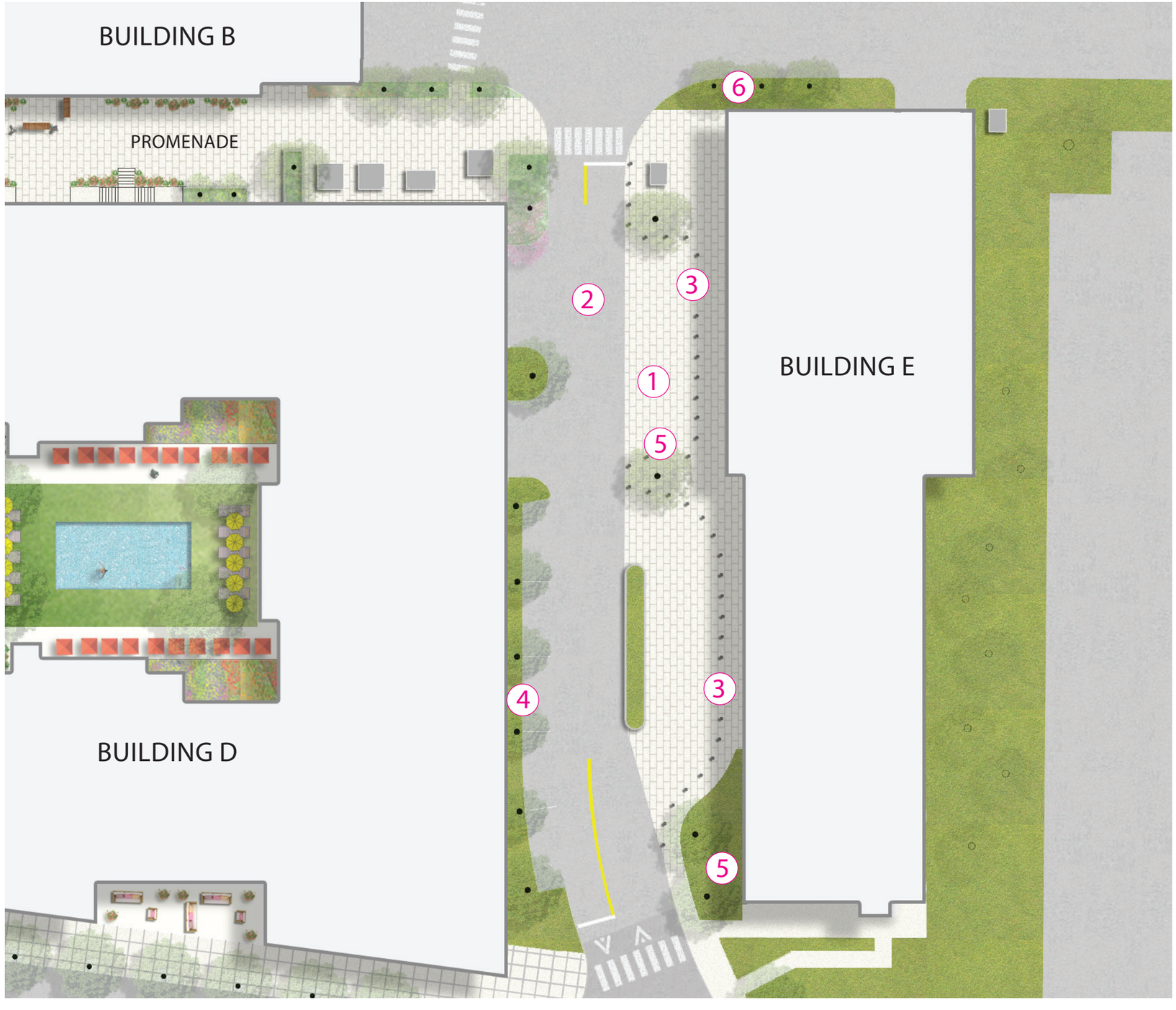


Figure 7-59
Streetscape Sections
Source: OLIN, 2015



Dorchester, Massachusetts

Figure 7-60
Block E Streetscape Enlargement
Source: OLIN, 2015





1 C.I.P. Stamped Concrete



2 Asphalt



3 Bollards



4 Zelkova serrata
Japanese Zelkova



5 Gleditsia triacanthos
Honey Locust



6 Quercus Rubrum
Red Oak

Figure 7-61
Block E Streetscape - Materials & Trees
Source: OLIN, 2015

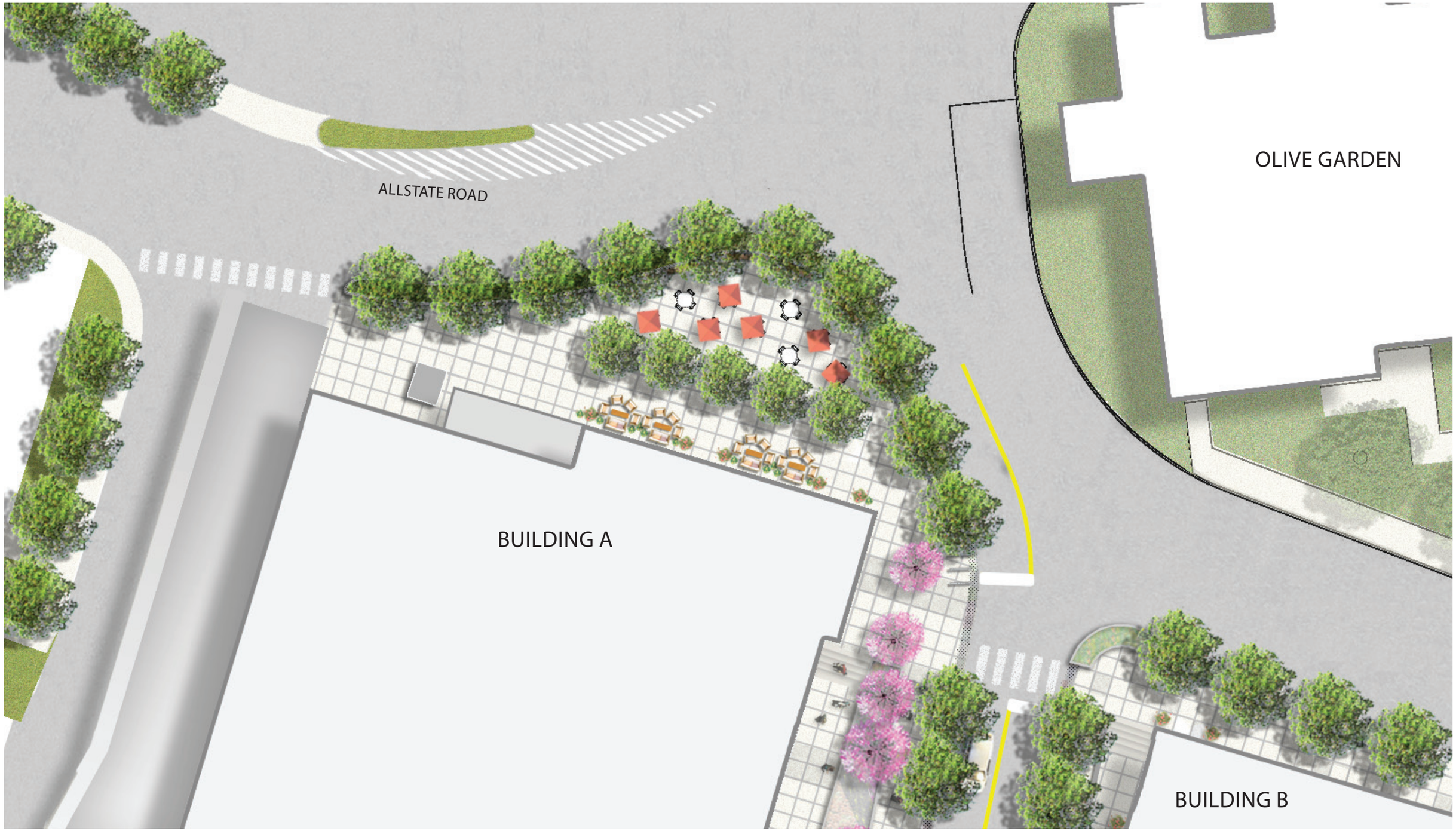


Figure 7-62
Allstate Road Plaza Enlargement
Source: OLIN, 2015

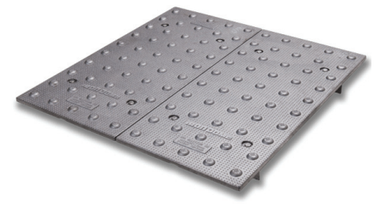




1 C.I.P. Concrete
Various Finishes



3 Liquidambar styraciflua
Sweetgum



2 Cast Iron Detectable
Warning Strip



4 Tilia x euchlora
Crimean Linden



5 Crataegus crus-galli
Flowering Hawthorn Tree

Figure 7-63
Allstate Road Plaza - Materials & Trees
Source: OLIN, 2015





A Cafe Chairs



D Bike Racks



B Planter Pots
Various Sizes



E Backed Wood Bench



C Lounge Furnishing



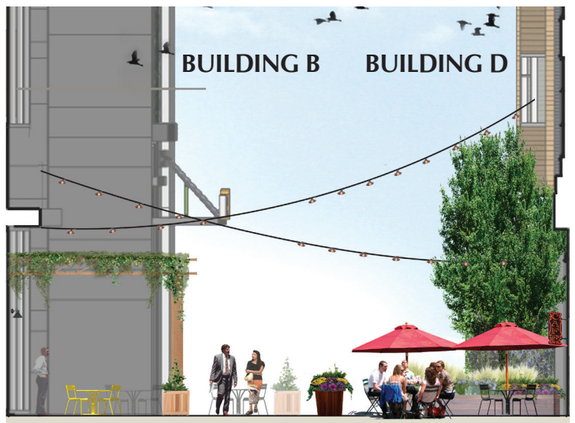
F Recycling & Garbage

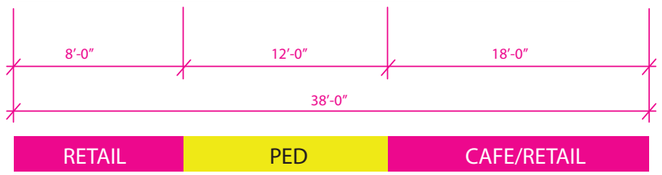
Figure 7-64
Allstate Road Plaza - Furnishings
Source: OLIN, 2015

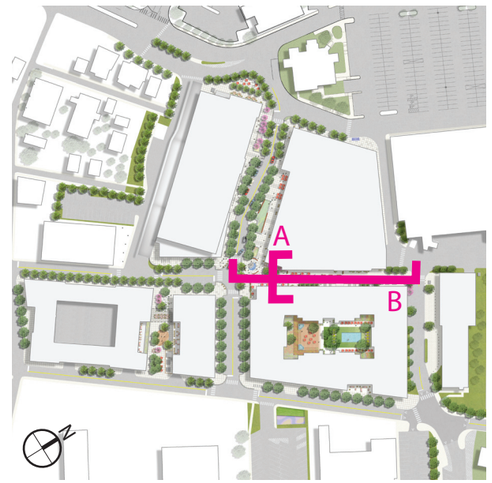


Figure 7-65
Promenade Enlargement
Source: OLIN, 2015

Promenade Section A - Looking Northeast







Promenade Section B - Looking West



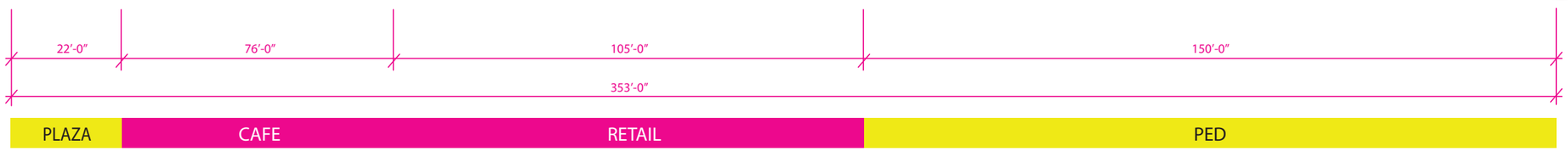
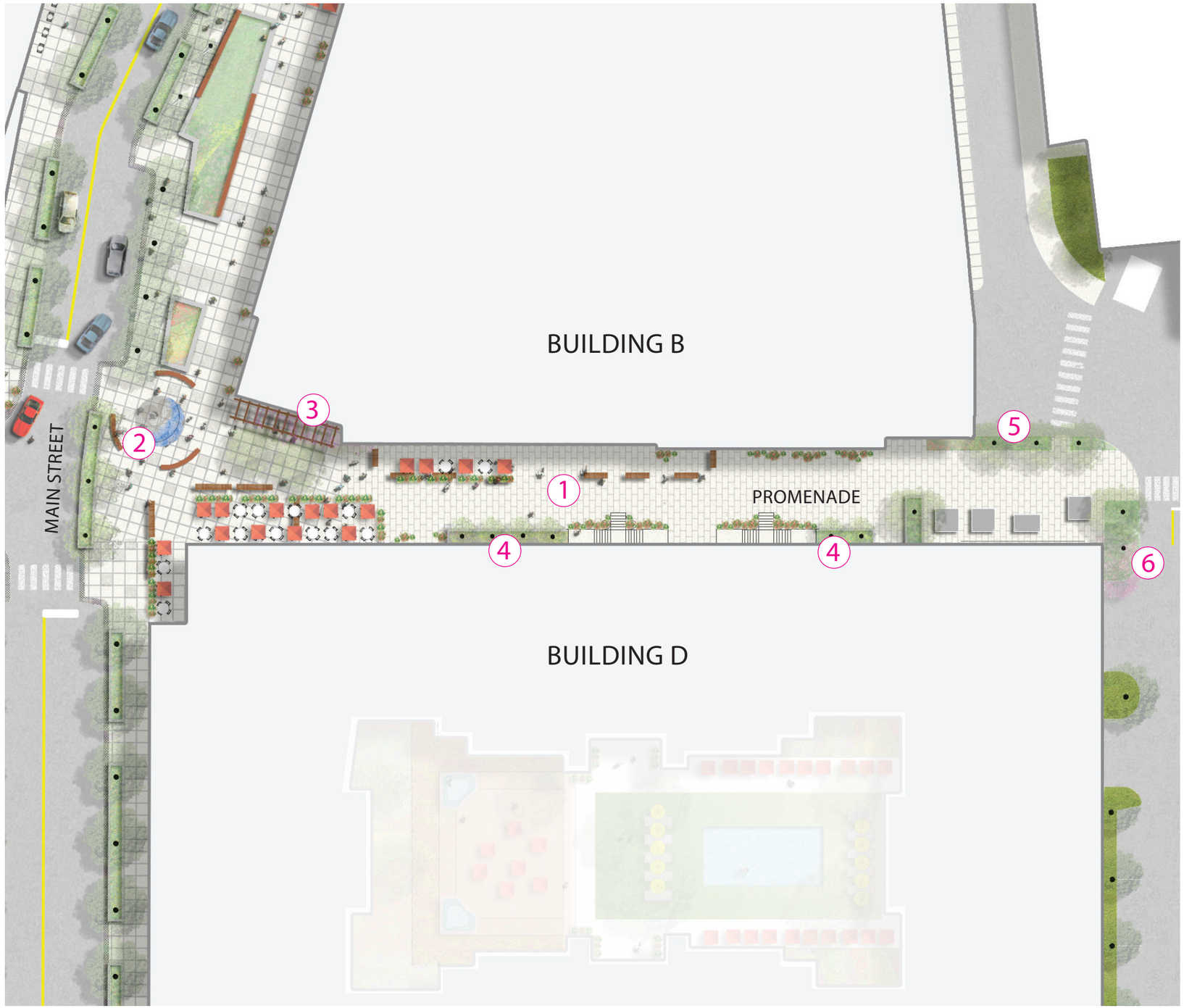


Figure 7-66
Promenade Sections
Source: OLIN, 2015





1 C.I.P. Stamped Concrete



2 Specialty Unit Pavers & Special Landscape Feature



3 Trellis



4 Acer rubrum fastigiata Red Maple

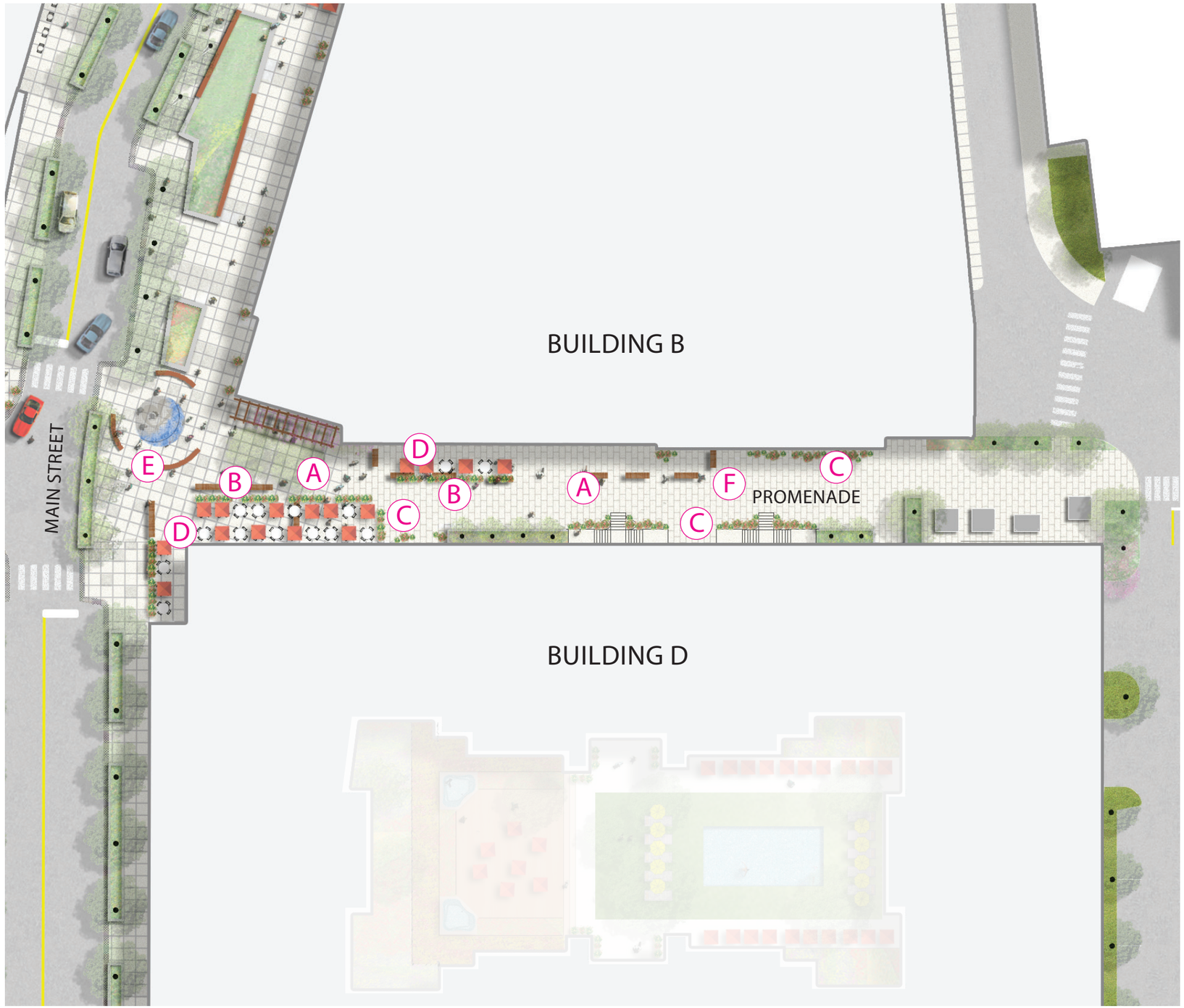


5 Quercus Rubrum Red Oak



6 Cercis canadensis Eastern Redbud

Figure 7-67
Promenade - Materials & Trees
Source: OLIN, 2015

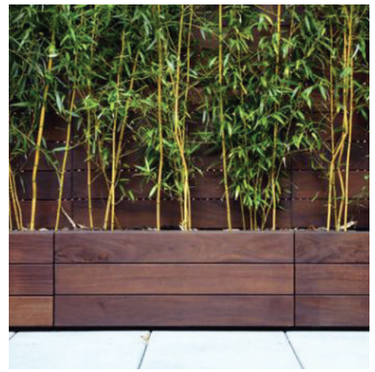




A Catenary Lighting



D Cafe Chairs



B Planter Boxes



E Curvilinear Wood Bench



C Planter Pots
Various Sizes



F Temporary Tents for
Special Events

Figure 7-68
Promenade - Furnishings
Source: OLIN, 2015

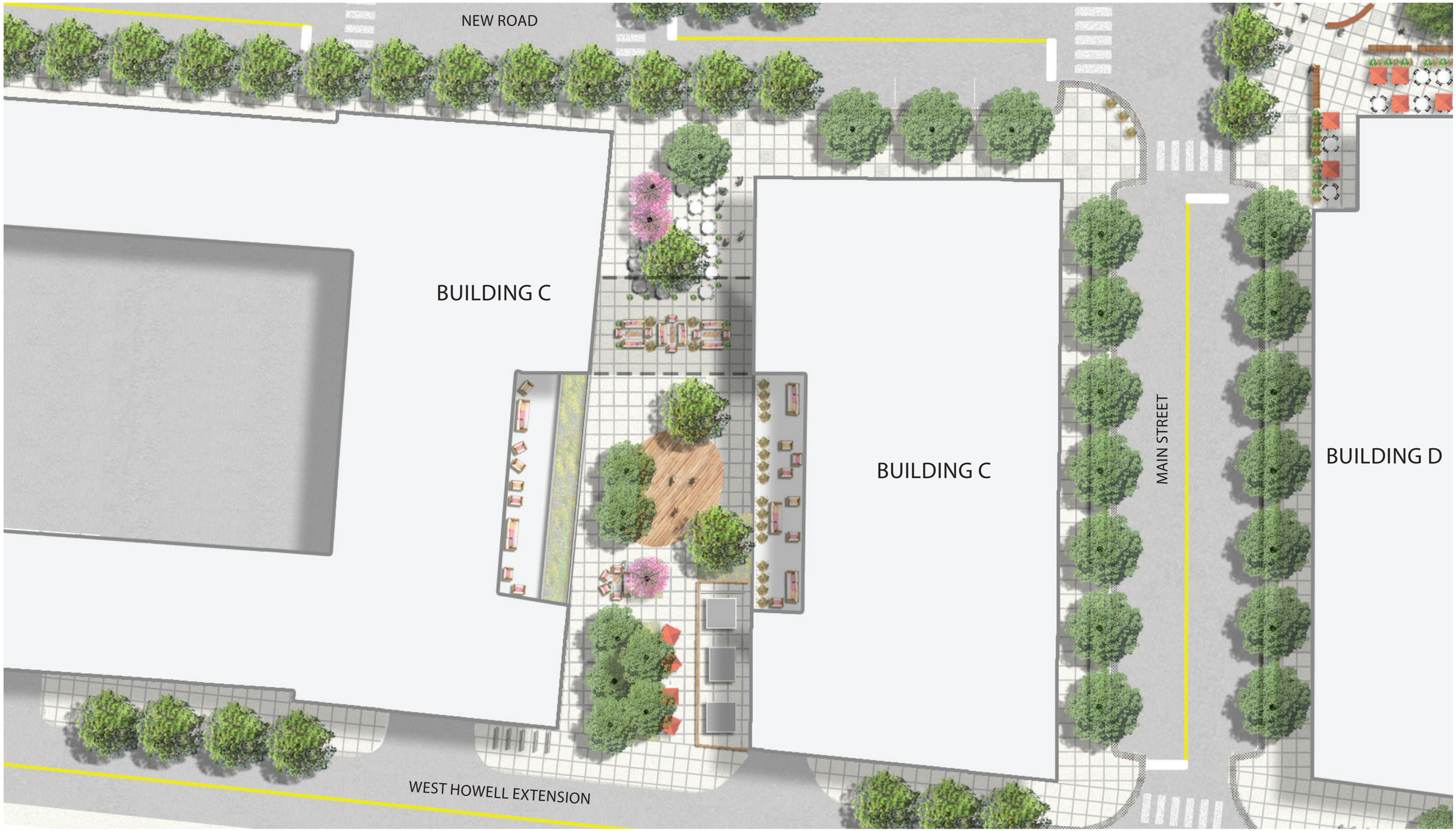


Figure 7-69
Block C Courtyard Enlargement
Source: OLIN, 2015

Courtyard Section A - Looking Northeast

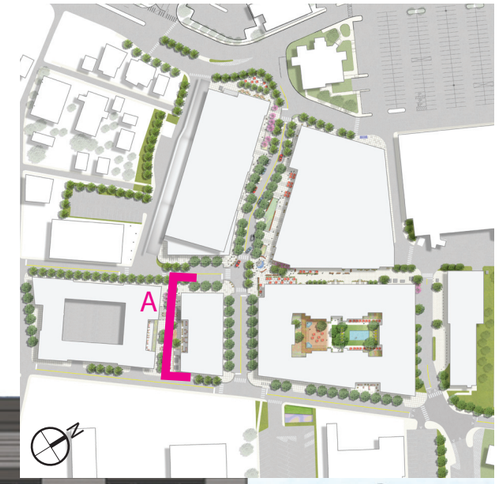
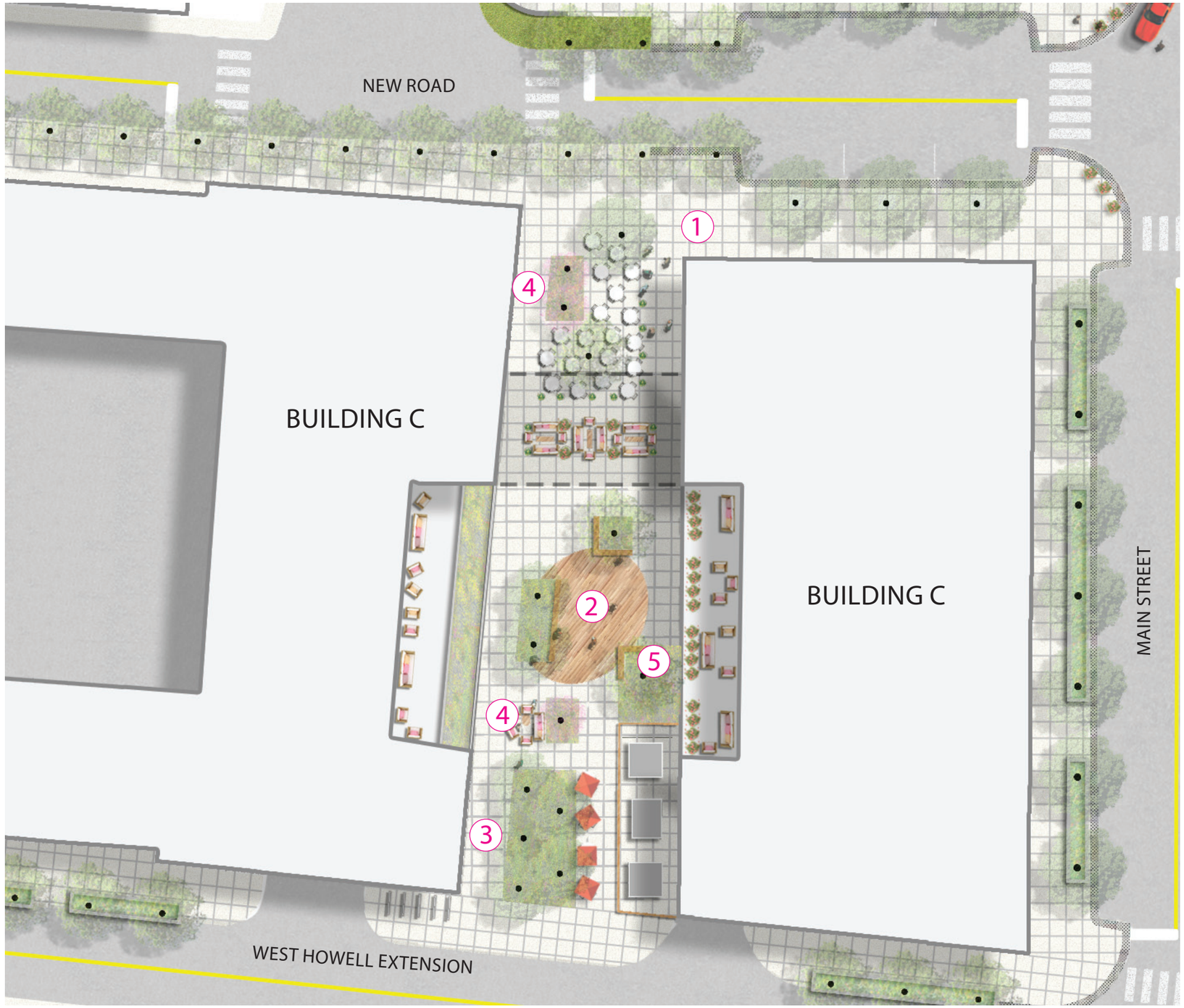




Figure 7-70
Block C Courtyard Section
Source: OLIN, 2015

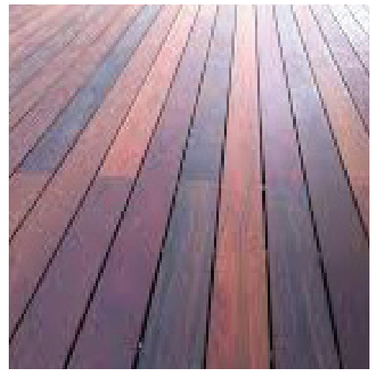




1 C.I.P. Concrete
Various Finishes



3 Liquidambar styraciflua
Sweetgum



2 Tropical Hardwood Decking

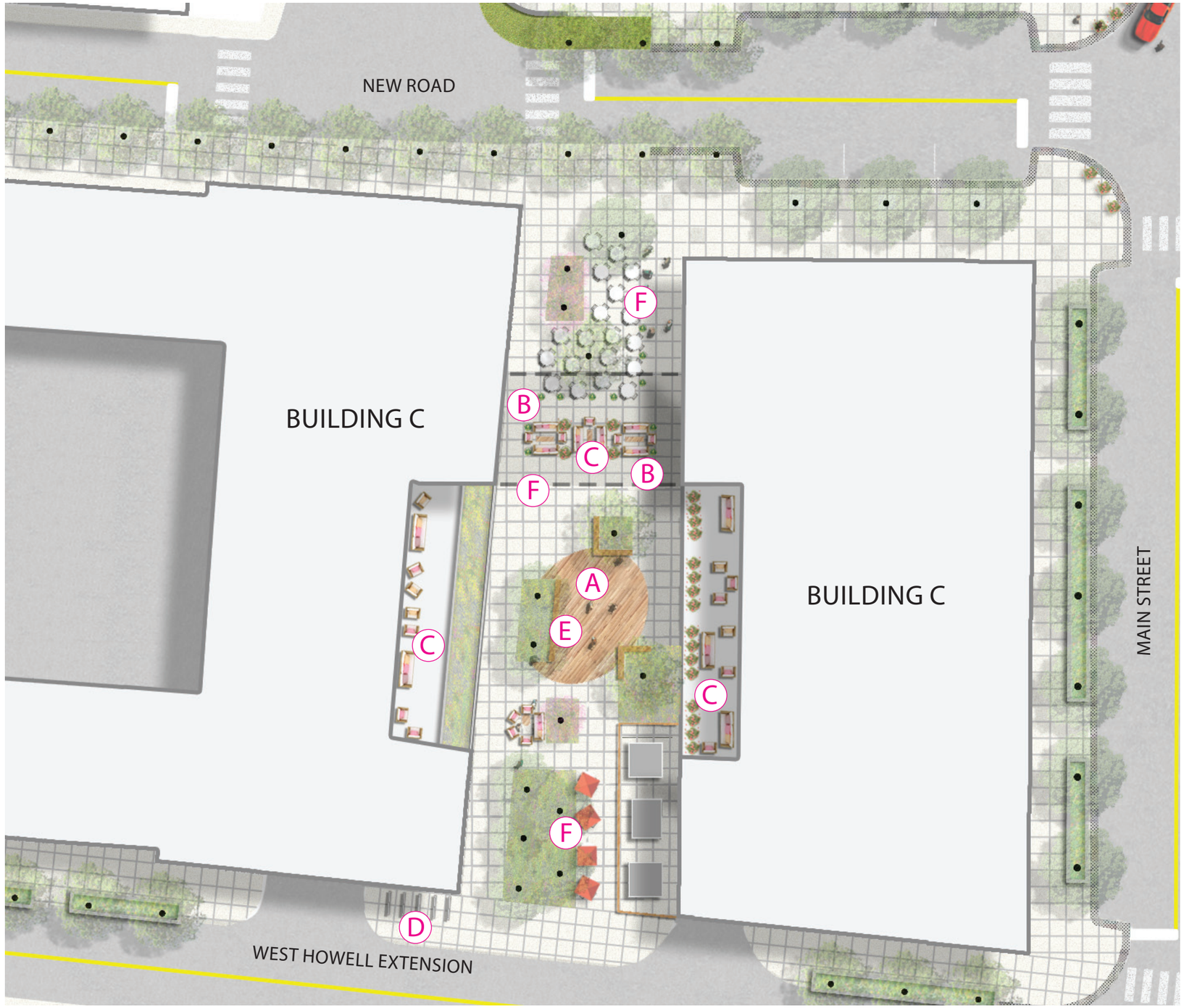


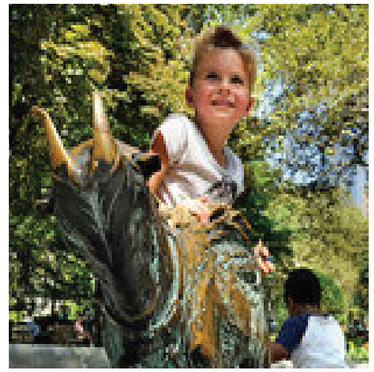
4 Quercus Rubrum
Red Oak



5 Cornus florida
Dogwood

Figure 7-71
Block C Courtyard - Materials & Trees
Source: OLIN, 2015





A Play Sculpture



D Bike Racks



B Planter Pots
Various Sizes



E Backless Wood Bench



C Lounge Furnishing



F Cafe Chairs

Figure 7-72
Block C Courtyard - Furnishings
Source: OLIN, 2015

Chapter 8

INFRASTRUCTURE

CHAPTER 8: INFRASTRUCTURE

8.1 INTRODUCTION

The existing infrastructure surrounding the Project Site is anticipated to be of adequate capacity to service the needs of the Project. As outlined in the PNF filing, 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 Figures 8-1 through Figure 8-3, for Existing Sanitary Sewer, Water Main, and Storm Drain Maps

Prior to demolition, the Proponent will cut and cap existing storm drain, sanitary sewer, and water services that are not proposed for reuse on the Project. A Termination Verification Approval Form for Demolition Permit will be completed and submitted to the City of Boston Inspectional Services Department (ISD) as required.

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.

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

8.2 WASTEWATER SYSTEM

8.2.1 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. The extent of the existing wastewater sewer system near the Project Site was shown on Figure 8-1, Existing Sanitary Sewer Map.

8.2.2 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 typical generation values. Based on an estimate of the Project's building program, the Project is expected to generate approximately 146,370 gallons/day of sewer flow. The proposed sewer generation calculation will be refined as the building tenants are confirmed and final sewer generation flows will be coordinated with BWSC.

8.2.3 SANITARY SEWER CONNECTION

The Project will likely have multiple connections to the existing sewer infrastructure in the adjacent streets. Figure 8-4, Conceptual Sanitary Sewer Map, shows the proposed sanitary sewer connections and describes in detail the sewer discharge points for individual buildings as well as capacities of the existing system. 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.

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 near the Project Site. The Proponent's engineer will coordinate final, proposed sewer flows and available capacity with BWSC during the Site Plan Review.

8.3 WATER SYSTEM

8.3.1 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. The extent of the existing water sewer system near the Project Site is shown on Figure 8-2, Existing Water Map. All existing water services will be cut and capped prior to demolition, as required by BWSC. Existing hydrants will be removed and/or relocated in coordination with Boston Fire Department (BFD) service needs.

8.3.2 ANTICIPATED WATER CONSUMPTION

The estimated water demand for the Project is based on the estimated sewer generation with a conservative factor applied and has been estimated to be approximately 161,010 gpd of domestic water. The water for the Project will be supplied by BWSC.

Based on discussions with BWSC, there are no expected water capacity problems near the Project Site. Flow testing has been performed by BWSC and a private contractor in the Project vicinity. 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.

8.3.3 PROPOSED WATER SERVICE

It is anticipated that the Project will be served primarily from existing BWSC mains in West Howell Street and a private main in Allstate Road. The extent of proposed water main connections is shown in Figure 8-5, Conceptual Water Main Map. Final connection points and metering configuration will be coordinated with BWSC during the Site Plan Approval process.

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 is previously master metered as a part of the existing South Bay Shopping Center infrastructure. 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.

8.3.4 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 requirements. 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.

8.4 STORM DRAINAGE SYSTEM

This section describes the Project's storm drainage system and includes a detailed analysis of the Project Site's stormwater management system on a storm-by-storm basis and its conformance with the state's Stormwater Management Standards.

8.4.1 EXISTING SITE CONDITIONS

The 10.6± acre Project Site is covered by vacant/abandoned buildings, disused parking lots, and the Aggregate industries Concrete Manufacturing Facility. There are some small landscaped buffers and perimeter vegetation along the edges of the existing parking lots; however, the majority of the Project Site is impervious.

The hydrologic study area encompasses the entire subject parcel and drains to four points of analysis. These four locations represent the convergence point of the major watershed boundaries that make up the overall drainage study limits. The points of analysis for the subject study are the BWSC drainage system within Enterprise Street, the private drainage system within Allstate Road, the BWSC drainage system within West Howell Street and the eastern property line adjacent to the residences abutting West Bellflower Street.

In the existing condition, runoff from the existing buildings and parking lots generally sheet flows overland from the high point located centrally in the southeastern portion of the Project Site to each of the four points of analysis described above and shown on Figure 8-6, Pre-Development Watershed Map. Ultimately, the storm drainage system discharges to the Massachusetts Bay.

8.4.2 PROPOSED SITE CONDITIONS

The Project involves construction of five commercial, residential and hotel buildings and associated parking areas on the 10.6± acre parcel. The proposed construction will meet or decrease the imperious paved/roofed areas as compared to the existing site conditions. The proposed stormwater management system has been designed in accordance the DEP and BWSC standards.

The Project area was broken into ten catchment areas, which drain to four Points of Analysis as exhibited in Figure 8-7, Post-Development Watershed Map. The assessment of the anticipated existing and proposed stormwater flows and volumes was performed using HydroCAD. A detailed assessment of pre and post-development flows and volumes will be provided as a part of the site plan submission application for BWSC review.

A closed collection and conveyance system is proposed to collect and distribute stormwater to the proposed proprietary treatment units and infiltration systems equipped with overflows to BWSC and private drain systems, to handle larger, less frequent rainfall events. The Project has been designed such that the calculated peak rates of runoff for the 2, 10, and 100-year storm events are equal to or less than in the existing condition. Further, the Project has been designed in accordance with the BWSC Drainage Requirements. 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 in an effort to reduce the impact on the surrounding drainage system. Appropriate stormwater best management practices (BMPs) 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.

8.4.3 STORM SEWER SYSTEM

Catch basins will be deep sump, hooded structures. Storm sewer piping will have a minimum pipe diameter of 12 inches (some smaller tributary areas will have a minimum pipe diameter of 6 inches) and is generally designed with a minimum slope of 0.005 ft/ft. Pipes have been designed to accommodate the 10-year storm event. Prior to each infiltration/detention system where runoff from roadways or parking lots is collected, proprietary treatment units are proposed to provide water quality treatment for TSS removal as well as oil, grease and gas removal. The structures are sized using the minimum Water Quality Flow methodology outlined by DEP.

8.4.4 INFILTRATION/DETENTION SYSTEM

The Project will include ten sub-surface infiltration systems designed to capture runoff from the Project Site for at least a 1-inch storm event per BWSC requirements. The majority of the systems will be comprised of a series of concrete chambers set on a stone bed. Infiltration for the residential overflow parking lot consists of a crushed stone diaphragm wrapped in filter fabric sized to capture and infiltrate 1-inch of runoff. In general, roof runoff is proposed to be directly connected to the proposed subsurface infiltration systems while roadway and paved area drainage is routed through proprietary stormwater quality units before discharging into the subsurface infiltration systems. Overflow pipes from the subsurface drainage systems

to accommodate larger, less frequent storm events will connect to 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. The connection to the combined sewer system in West Howell Street will be constructed, per BWSC details, in a manner to facilitate a future connection to a separated storm drainage system as it becomes available.

In compliance with BWSC standards, the Project is providing greater than 1-inch of stormwater recharge over the Project area that exceeds the 0.25 inches of recharge required for Hydrologic Soil Group C required by DEP Stormwater Handbook. Per the USDA National Resources Conservation Service (NRCS) soils mapping data, the Project Site is classified as Urban Land that does not have an assigned hydrologic soils group designation, however, based on preliminary subsurface geotechnical information the underlying soils predominantly consist of a sand and gravel fill consistent with a hydrologic soil group C.

The Project will disturb greater than one acre of land; therefore, a National Pollution Discharge Elimination System (NPDES) General Permit for Construction is required. A stormwater pollution prevention plan will be prepared and submitted prior to commencing construction. A copy of the SWPPP will be provided to the BRA. Soil erosion and sediment controls measures will be implemented to prevent soil loss during construction and protect the City's storm drainage system and downstream discharge points.

8.4.5 MASSACHUSETTS DEP STORMWATER MANAGEMENT STANDARDS

The following section describes the Project's conformance with the DEP Stormwater Management Standards dated January 2, 2008.

Standard #1- Untreated Stormwater

No point discharges of untreated stormwater to resource areas are proposed. Stormwater quality control for the Project includes deep-sump, hooded catch basins, proprietary hydrodynamic stormwater quality structures, and sub-surface infiltration basins. All points of discharge are designed to prevent scour and erosion.

Standard #2: Post Development Peak Discharge Rates

Runoff rates for the pre-development and post-development conditions were calculated for the 2-year, 10-year, 25-year, and 100-year 24-hour storm events. Rainfall data for the storm events is from TP-40 Rainfall Data for Suffolk County as shown in Table 8-1 below. Runoff rate calculations are summarized in table 8-2 below.

Table 8-1: Storm Events

Frequency	2-year	10-year	25-year	100-year
Rainfall (Inches)	3.2	4.6	5.5	6.6

Table 8-2: Comparison of Peak Runoff Rates (in CFS)

Point of Analysis	2-Year Storm			10-Year Storm			25-Year Storm			100-Year Storm		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
#1	9.4	7.6	-1.8	13.7	9.6	-4.1	16.4	11.3	-5.1	19.7	13.8	-5.9
#2	16.1	14.0	-2.1	23.4	16.5	-6.9	28.1	19.0	-9.1	33.8	22.8	-11.0
#3	6.1	4.5	-1.6	8.8	7.5	-1.3	10.6	8.2	-2.4	12.7	7.8	-4.9
#4	1.0	0.1	-0.9	1.5	0.5	-1.0	1.8	0.8	-1.0	2.2	1.1	-1.1

Standard #3: Recharge to Groundwater

The required recharge volume will be obtained through the storage volume available below the lowest outlet to the system. Recharge for this Project Site was calculated using the Static Method as outlined in the Stormwater Management Standards.

The guidelines recommend that projects recharge 0.25 inches of runoff from impervious areas for Type C soils. The design meets the minimum required recharge volume for the Site, as the Project subsurface recharge systems are designed with a holding volume of 1-inch of runoff over the Project area in accordance BWSC standards.

Standard #4: 80% TSS Removal

The proposed Best Management Practices for this Project Site provide for at least 80% TSS removal and consist of a "treatment train" which includes both non-structural and structural techniques. Street sweeping, deep-sump and hooded catch basins, proprietary stormwater quality units and subsurface infiltration beds will be used to improve water quality and provide TSS removal in excess of 80%.

Standard #5: Land Use with Higher Potential Pollutant Loads

The Project is classified as a use that will generate higher pollutant loads and is subject to the requirements of Standard 5, including pretreatment of stormwater. In accordance with these standards, the Project area stormwater management system has been designed to achieve a total TSS removal rate greater than 80%.

As discussed under Standard 3, groundwater recharge is provided in accordance with DEP requirements. The portions of the Project that are directed to the sub-surface infiltration basins will achieve a TSS removal rate in excess of 44% prior to discharge into the infiltration systems and is designed to treat 1.0 inches of runoff times the total impervious area, consistent with DEP policy.

Standard #6: Protection of Critical Areas

The Project Site is not located within a Critical Area.

Standard #7: Redevelopment Projects

The Project Site qualifies as a redevelopment Project and therefore all designs and standards are met to the maximum extent practicable.

Standard #8: Erosion/Sediment Control During Construction

An erosion and sediment control plan will be developed for this Project implementing, at a minimum: silt fencing, a crushed stone construction entrance/exits, catch basin inlet protection, and provisions for stabilizing disturbed areas. A full SWPPP will be prepared in conjunction with filing an EPA NPDES Construction General Permit prior to land disturbance and a copy will be provided to the BRA.

Standard #9: Operation/Maintenance Plan

The stormwater management system will be owned and operated by the owner. The General Contractor (under contract with the owner) will appoint a Project Manager who will be responsible during construction. A stormwater Drainage Operations and Maintenance Plans will be submitted in conjunction with the SWPPP.

Standard #10: Illicit Discharges

To the Project engineer's knowledge, there are no known or designed non-stormwater discharges that are or will be connected to the stormwater collection system that would convey pollutants directly to groundwater or surface waters.

8.4.6 SUMMARY

The post-development peak rates of runoff for the analyzed points of analysis will be mitigated through the implementation of a comprehensive stormwater management program. The stormwater controls installed as part of this Project will be in accordance with the requirements set forth by the DEP Stormwater Management Policy and the BWSC. The stormwater management system has been designed to improve both the rate and quality of stormwater runoff generated by the proposed site improvements.

8.5 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 Industries Concrete Manufacturing Facility receives electric service from the overhead service in Enterprise Street. The existing parking lots and buildings located off West Howell Street currently receive electric service from overhead service in West Howell Street.

Proposed electric service is 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.

8.6 TELECOMMUNICATION SYSTEM

Verizon New England, Comcast, and RCN provide telephone and cable services in the Project area. Overhead service lines in West Howell Street, Enterprise Street and Allstate Road service the Project area. It is anticipated that the new telecommunications 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.

8.7 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.

8.8 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. In addition, 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.

8.9 FIRE PREVENTION

Figure 8-8, Fire Truck Simulation Plan, demonstrates emergency vehicle access throughout the Project Site and to each of the proposed buildings. As shown, the Project will not adversely affect emergency vehicle access to the surrounding existing buildings. In addition, the figure shows the location of existing and proposed fire hydrants throughout the Project Site.

Siamese connections for the proposed buildings will be located in proximity to existing or proposed fire hydrants in accordance with the State Building Code. Siamese connections located on the surrounding existing buildings have not been adversely affected by the Project. Existing hydrants on and surrounding the Project Site are proposed to remain or will be relocated to a suitable nearby location. The Proponent will continue to work with the Boston Fire Department to ensure a safe and coordinated design.

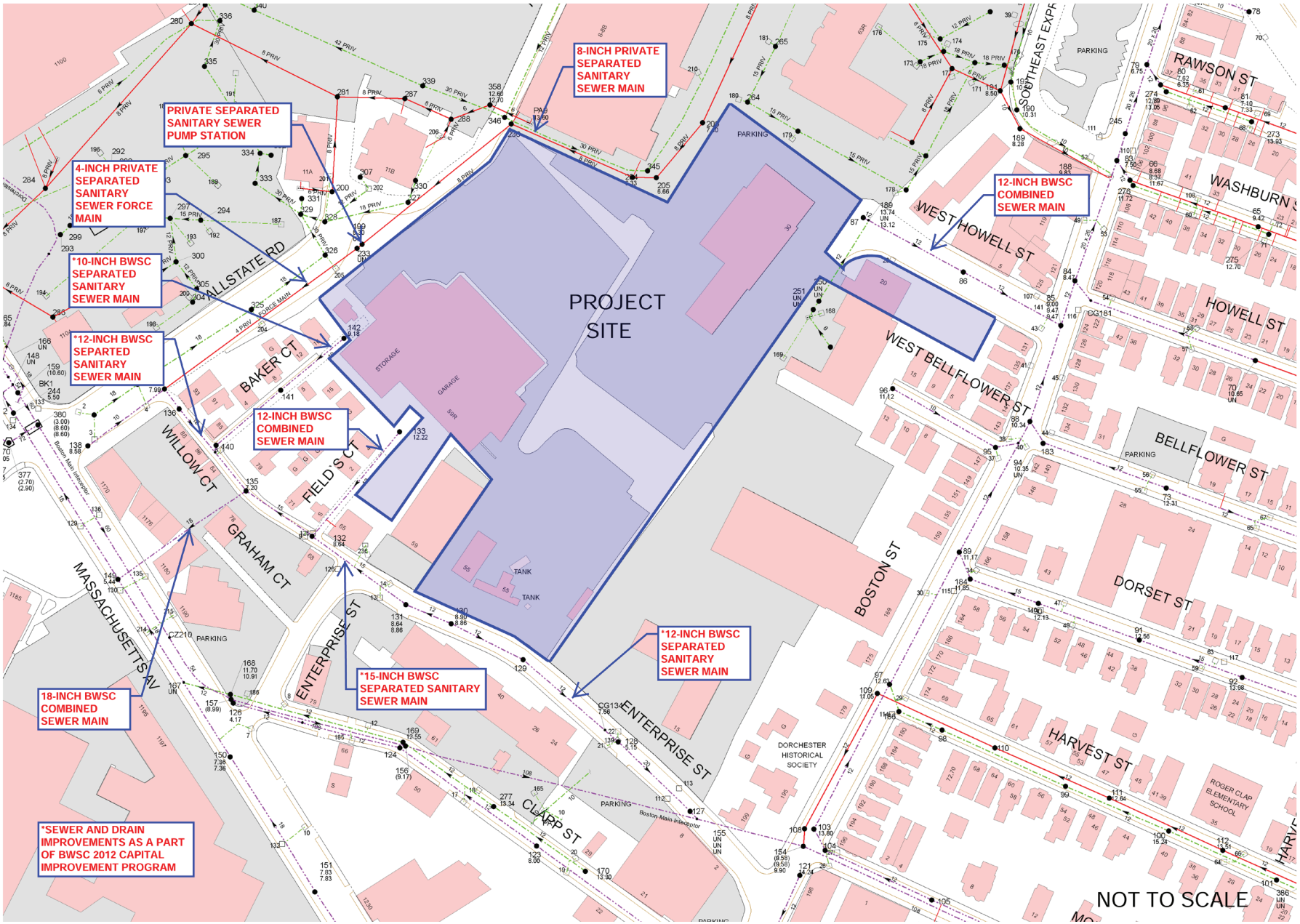


Figure 8-1
Existing Sanitary Sewer Map
Source: Bohler Engineering, 2015

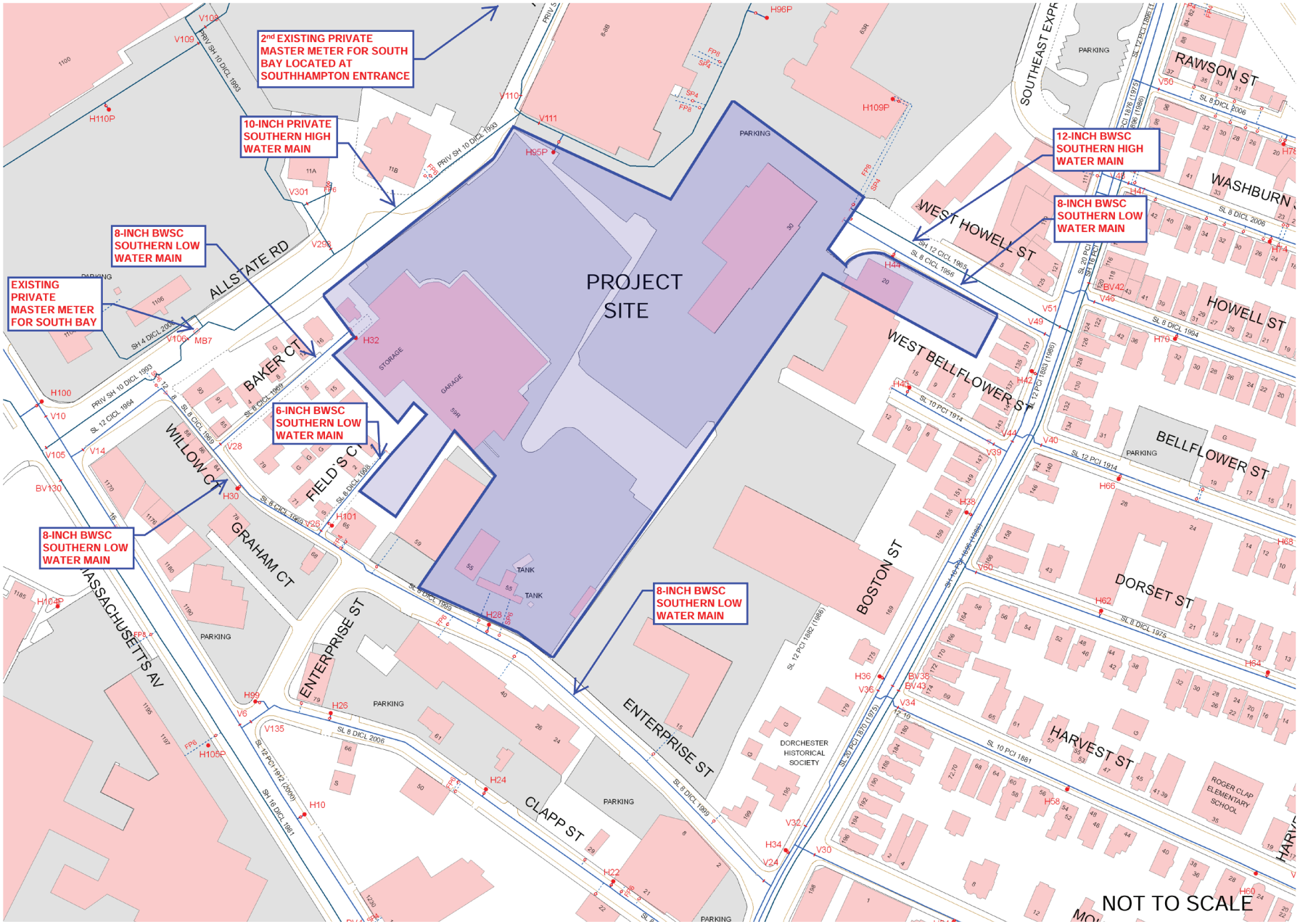


Figure 8-2
Existing Water Main Map
Source: Bohler Engineering, 2015

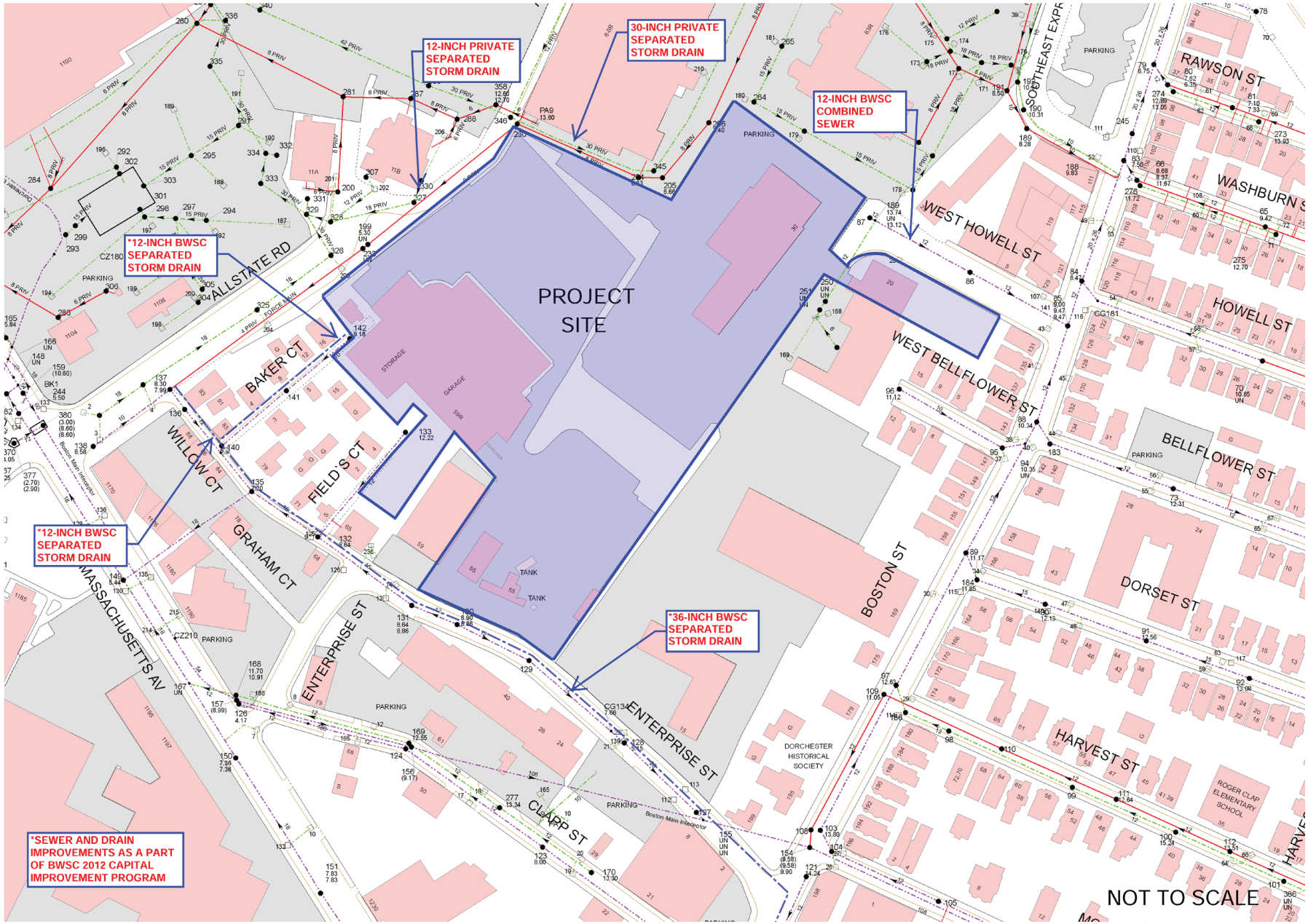


Figure 8-3
Existing Storm Drain Map
Source: Bohler Engineering, 2015

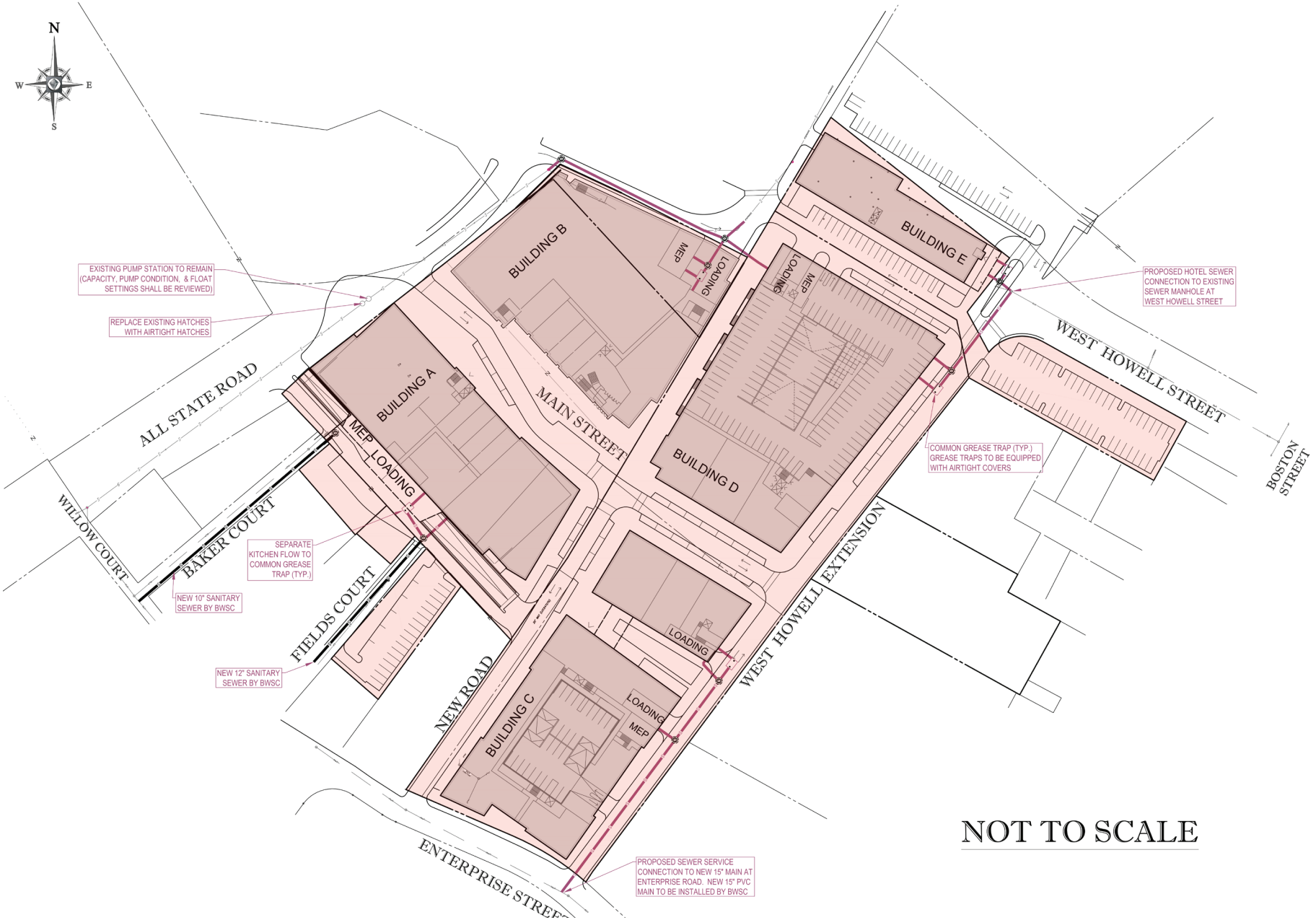


Figure 8-4
Conceptual Sanitary Sewer Map
Source: Bohler Engineering, 2015

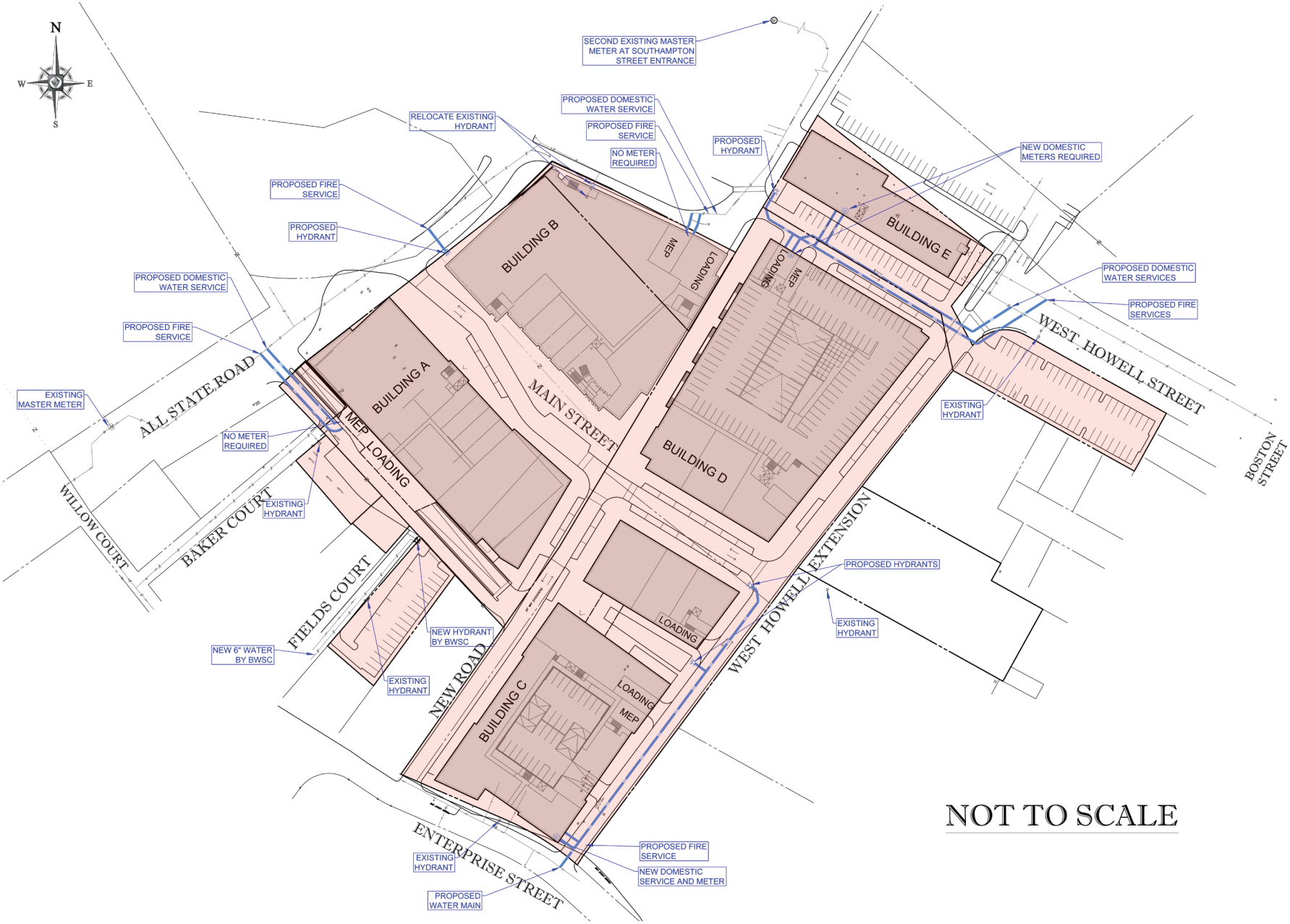
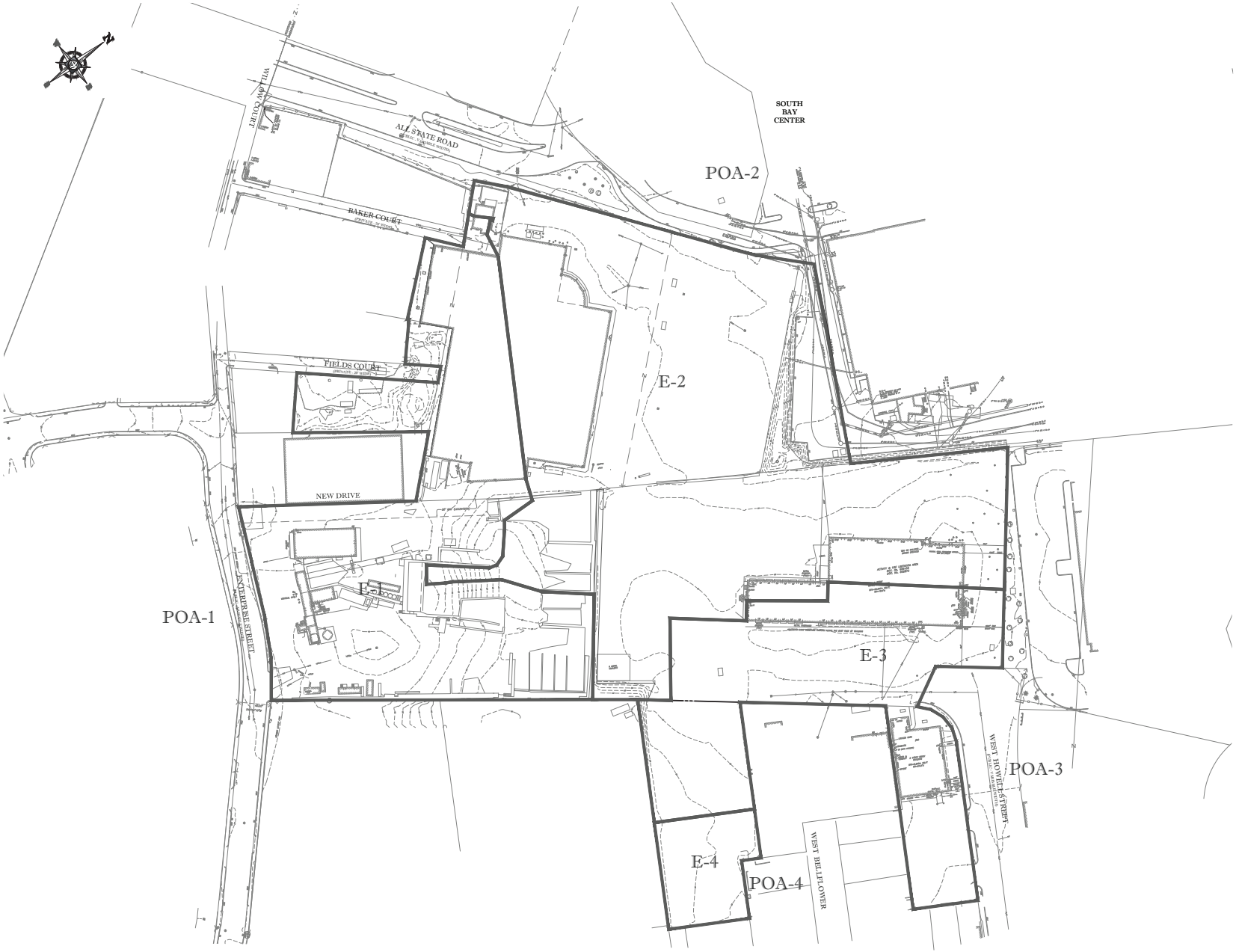
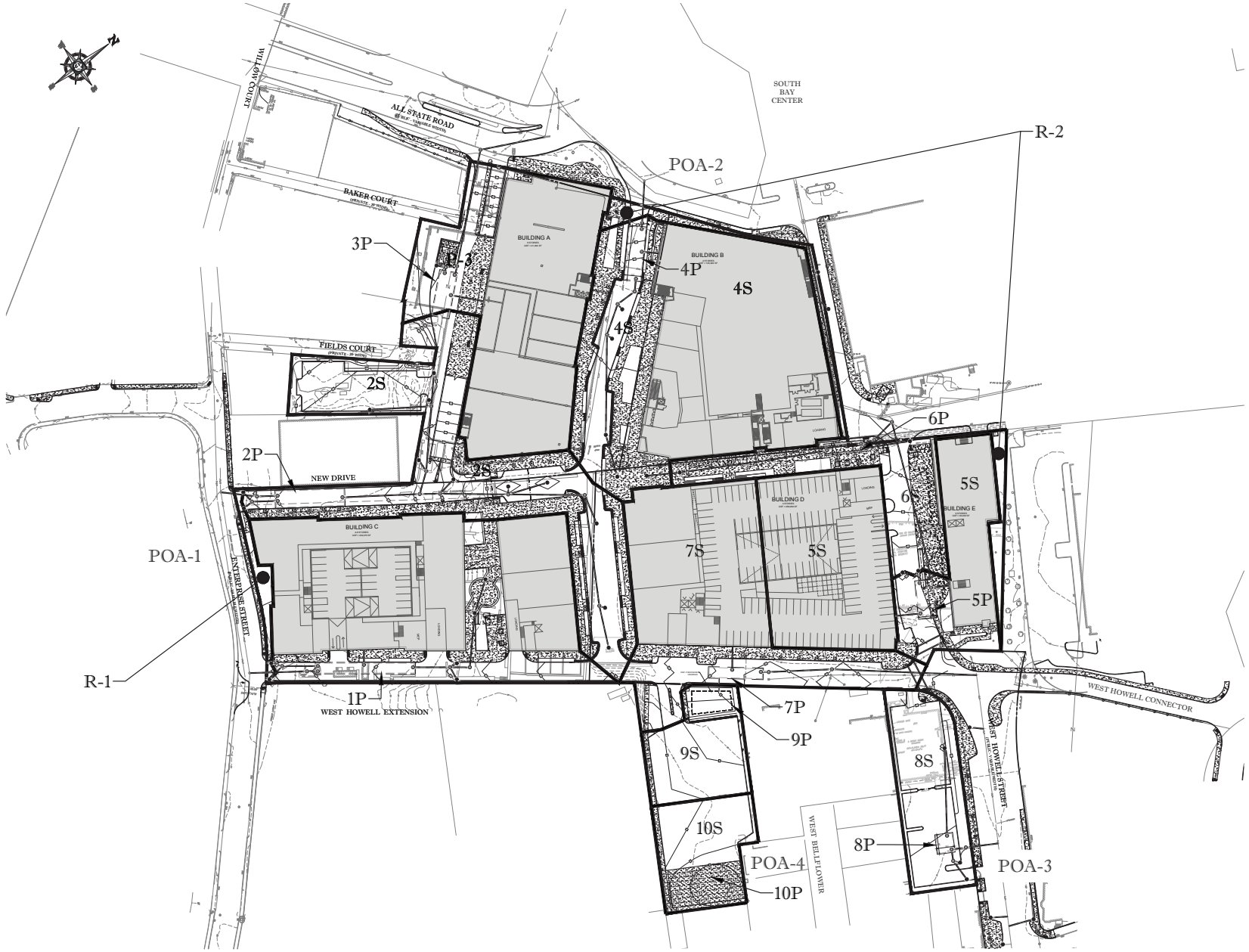


Figure 8-5
Conceptual Water Main Map
Source: Bohler Engineering, 2015



Dorchester, Massachusetts

Figure 8-6
Pre-Development Watershed Map
Source: Bohler Engineering, 2015



Dorchester, Massachusetts

Figure 8-7
Post-Development Watershed Map
Source: Bohler Engineering, 2015



Figure 8-8
Fire Truck Simulation Plan
Source: Bohler Engineering, 2015