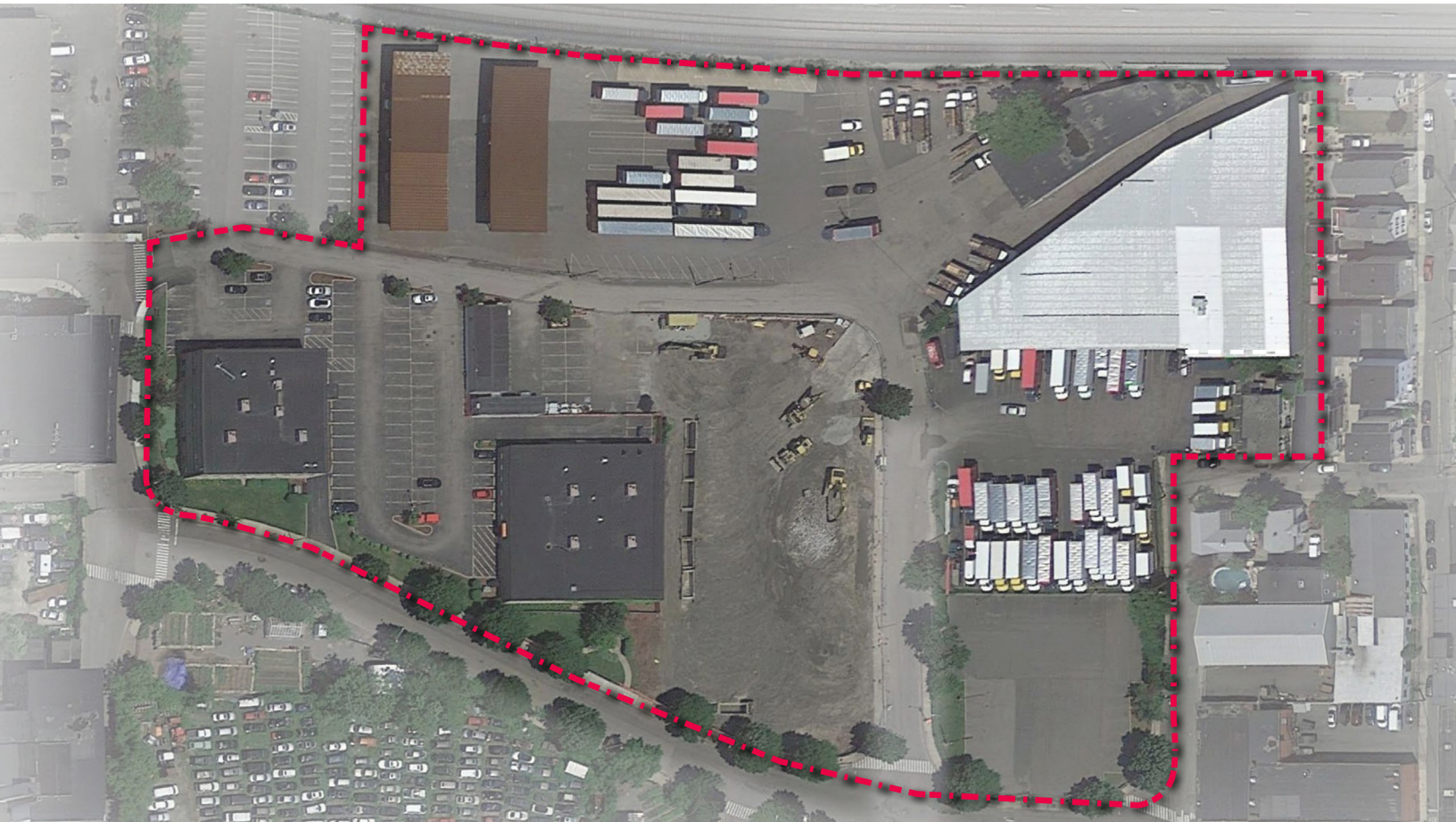


MASTER PLAN SPECIAL PERMIT

# Boynton Yards

Somerville, Massachusetts

JULY 22, 2020



**SUBMITTED TO**

**City of Somerville**

93 Highland Avenue  
Somerville, MA 02143  
Attn: Director of Planning

**SUBMITTED BY**

Boynton Yards LandCo LLC  
(a Joint Venture between DLJ Real  
Estate Capital Partners and Leggat  
McCall Properties LLC)

**PRODUCED BY**



**IN ASSOCIATION WITH**

Spagnolo Gisness & Associates, Inc.  
Copley Wolff Design Group, Inc.  
The Green Engineer  
AHA Consulting Engineers, Inc.  
Haley & Aldrich

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July 22, 2020

Ref: 14864.00

Sarah Lewis, Director of Planning and Zoning  
Somerville City Hall  
93 Highland Avenue  
Somerville, MA 02143

Re: Boynton Yards Master Plan Special Permit

Dear Ms. Lewis,

On behalf of Boynton Yards LandCo LLC (a joint venture between DLJ Real Estate Capital Partners and Leggat McCall Properties LLC), (collectively the "Proponent"), VHB is pleased to submit this Master Plan Special Permit ("MPSP") to initiate the MPSP review process. The Proponent proposes to the construction of a master planned redevelopment project on approximately 6.8 acres of land in the Boynton Yards neighborhood of Somerville, Massachusetts (the "Development Site").

Boynton Yards is considered a sub-neighborhood within the Union Square neighborhood, which was identified by the City of Somerville as a focal point of future development to generate economic development. Most of the land on and around the Project Site consists of industrial uses, including automotive repairs, vehicle salvage storage, dispatch and storage for Gentle Giant Moving Company, and commercial laundry services, as well as a mixture of one- to three-family structures, warehouse buildings, and impervious parking lots. Presently, the area's street network is disconnected from nearby neighborhoods, which constricts vehicular ingress/egress, and the current condition of the streetscape is unwelcoming to cyclists and pedestrians.

The Proponent proposes the construction of a pedestrian- and transit-oriented, mixed-use development that includes four buildings containing up to approximately 1,365,000 gross square feet (SF) of floor area, with approximately 984,500 SF of office, research and development, and lab enabled uses (office/R&D/lab), approximately 338,000 SF of residential space, 42,500 SF of retail and/or restaurant space, new civic and open space, and approximately 1,002 structured below-grade parking spaces (the "Project," also known as Boynton Yards).

Recognizing the unique opportunity to enhance Boynton Yards through the transformation of the Project Site, the buildings will be designed for cutting-edge labs, modern offices, innovative startups, arts/creative enterprise uses, and residential apartments. Twenty percent of the future residential component of the Project will include affordable units with a wide range of unit sizes and types to accommodate families, single professionals, empty nesters, roommates, artists, and others. With smart growth in mind, the Project will be the first step in transforming Boynton Yards into an urban employment center and mixed-use neighborhood. The Project will complement Somerville's surrounding,



existing neighborhoods and reestablish the Union Square neighborhood as a commercial center – as it once was in the past. Key benefits of the Project that are consistent with the Union Square Neighborhood Plan (“USNP”) and other City planning documents include:

- Civic and Open Space: The Project creates over two acres of publicly accessible and sustainably designed Civic and open spaces that will activate the district and benefit the wider neighborhood and the Project’s tenants;
- Connectivity: The Project proposes an enhanced street grid that will improve accessibility and enhance walkability and connections to transit, while establishing appropriately sized blocks that will attract commercial development;
- Infrastructure: The Project will deliver significant capacity upgrades to the existing, inadequate utility infrastructure, which has been identified by the USNP as a critical step in unlocking the area’s development potential;
- Sustainability: From the beginning of the design process the Proponent will prioritize sustainability to optimize building performance, influence material selections, drive reductions in energy use, and address resiliency concerns in alignment with the City’s goals to be carbon neutral by 2050;
- Employment & Job Creation: The Project will create approximately 4,000 permanent on-site jobs relating to the office/R&D/lab, life sciences, retail, and parking uses, and approximately 800 temporary construction jobs in a variety of trades;
- Housing: The Project will create approximately 330 units of housing, including 66 on-site affordable units;
- Arts/Creative Uses: The Project will incorporate arts/creative enterprise uses throughout each building in celebration of Somerville’s thriving arts community; and
- Economic Benefits: Upon construction completion, the Project will generate approximately \$24 million in community benefit contributions including but not limited to contributions to the affordable housing trust, the Green Line Extension, and employment linkage. Upon stabilization, it will generate more than \$14 million dollars annually in new commercial real estate tax revenues for the City of Somerville and significant State sales and business tax revenue to the Commonwealth.

We look forward to your review of this Project. Please contact me at (617) 607-2988 if you have any questions.

*Kyle Greaves*

Kyle Greaves, AICP  
Project Manager/ Senior Environmental Planner  
kgreaves@vhb.com

---

## Master Plan Special Permit

# Boynton Yards

Somerville, Massachusetts

### SUBMITTED TO

City of Somerville  
Attn: Sarah Lewis  
93 Highland Avenue  
Somerville, MA 02143

### SUBMITTED BY

Boynton Yards LandCo LLC  
(a joint venture between DLJ Real Estate Capital  
Partners and Leggat McCall Properties LLC)  
10 Post Office Square #1300  
Boston, MA 02109

### PREPARED BY

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99 High Street, 10<sup>th</sup> Floor  
Boston, MA 02110

July 22, 2020

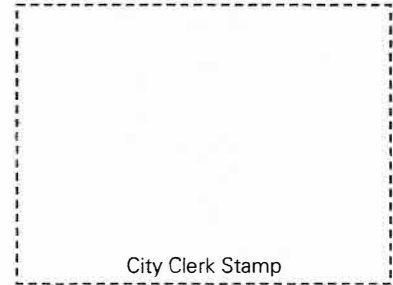


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# CITY OF SOMERVILLE

Office of Strategic Planning & Community Development



## MASTER PLAN SPECIAL PERMIT (MPSP) APPLICATION • COVER SHEET

In accordance with Article 15 of the Somerville Zoning Ordinance, the undersigned submits the following Master Plan Special Permit Application for review.

Property Address: <b>153 South Street</b>		
Zoning District: <b>BY Sub-Area</b>	Ward: <b>2</b>	MBL:
Applicant: <b>Boynton Yards LandCo LLC.</b>		
Address: <b>10 Post Office Square, Boston, MA 02109</b>		
Phone: <b>(617) 422-7027</b>	Email: <b>robert.dickey@lmp.com</b>	
Property Owner: <b>Boynton Yards LandCo LLC.</b>		
Address: <b>10 Post Office Square, Boston, MA 02109</b>		
Phone: <b>(978) 729-9010</b>	Email: <b>robert.dickey@lmp.com</b>	
Agent: <b>Kyle G. Greaves (Vanassee Hangen Brustlin, Inc.)</b>		
Phone: <b>(617) 607-2988</b>	Email: <b>kgreaves@vvhb.com</b>	

As the **Applicant**, I make the following representations:

1. I understand that a master plan special permit application is not complete until all necessary information has been submitted and all fees have been paid and that an incomplete application will not be reviewed, will not be publicly noticed, and will not be scheduled for a public hearing.
2. The information supplied on and with this application form is accurate to the best of my knowledge.
3. I certify that the agent listed on this application form is authorized to represent me before City staff and review boards as it relates to the development of this property.

As the **Owner**, I make the following representations:

1. I certify that I am the owner of the property identified on this application form.
2. I certify that the applicant named on this application form is authorized to apply for a master plan special permit for the property identified and for the purposes indicated by the submitted documentation.
3. I certify that the agent listed on this application form is authorized to represent me before City staff and review boards as it relates to the development of this property.
4. I permit City staff to conduct site visits on my property.
5. If the ownership of this property changes before the review boards have acted on this application, I will provide updated information and new copies of this form.

Signature: **Robert M. Dickey**  
Digitally signed by Robert M. Dickey  
Date: 2020.07.09 14:39:50 -04'00'

Signature: **Robert M. Dickey**  
Digitally signed by Robert M. Dickey  
Date: 2020.07.09 14:40:16 -04'00'

### CITY OF SOMERVILLE USE ONLY

	MPSP#:
	Full Fee:

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\*Includes supporting materials that can be downloaded at:

<https://tinyurl.com/boyntonyards>

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# 1

## Project Description

In accordance with Article 15 of the City of Somerville Zoning Code (the “Ordinance”), Boynton Yards LandCo LLC (a joint venture between DLJ Real Estate Capital Partners and Leggat McCall Properties LLC, collectively the “Proponent”) respectfully submits this Master Plan Special Permit application (the “MPSP”) for the construction of a Master Planned Development (MPD) project on approximately 6.8 acres of land in the Boynton Yards neighborhood (also referred to herein as the “BY Sub-Area”) of Somerville, Massachusetts (the “Development Site”).

### 1.1 Project Overview

The Proponent proposes the construction of a pedestrian- and transit-oriented, mixed-use development that includes four buildings containing up to approximately 1,365,000 gross square feet (SF) of floor area (also known as gross floor area), with approximately 984,500 SF of office, research and development, and lab enabled uses (office/R&D/lab), approximately 338,000 SF of residential space, 42,500 SF of retail and/or restaurant space, new civic and open space, and approximately 1,002 structured below-grade parking spaces (the “Project,” also known as Boynton Yards). Refer to Figure 1.1 for a site context plan.

Recognizing the unique opportunity to enhance Boynton Yards through the transformation of the Development Site, the buildings will be designed for cutting-edge labs, modern offices, innovative startups, arts/creative enterprise uses, and residential apartments. Twenty percent of the future residential component of the Project will include affordable units with a wide range of unit sizes and types to accommodate families, single professionals, empty nesters, roommates, artists, and others. With smart growth in mind, the Project will be the first step in transforming Boynton Yards into an urban employment center and mixed-use neighborhood. The Project will complement Somerville’s surrounding, existing neighborhoods and reestablish the Union Square neighborhood as a commercial center – as it once was in the past. Key benefits of the Project that are consistent with the Union Square Neighborhood Plan (“USNP”) and the Boynton Yards Urban Design Framework (the “BYUDF”) – described in Sections 1.12.2 and 1.12.4 respectively – include:

- › Civic and Open Space: The Project creates over two acres of publicly accessible and sustainably designed Civic and open spaces that will activate the district and benefit the wider neighborhood and the Project’s tenants;
- › Connectivity: The Project proposes an enhanced street grid that will improve accessibility and enhance walkability and connections to transit, while establishing appropriately sized blocks that will attract commercial development;

- › Infrastructure: The Project will deliver significant capacity upgrades to the existing, inadequate utility infrastructure, which has been identified by the USNP as a critical step in unlocking the area's development potential;
- › Sustainability: From the beginning of the design process the Proponent will prioritize sustainability to optimize building performance, influence material selections, drive reductions in energy use, and address resiliency concerns in alignment with the City's goals to be carbon neutral by 2050;
- › Employment & Job Creation: The Project will create approximately 4,000 permanent on-site jobs relating to the office/R&D/lab, life sciences, retail, and parking uses, and approximately 800 temporary construction jobs in a variety of trades;
- › Housing: The Project will create approximately 330 units of housing, including 66 on-site affordable units;
- › Arts/Creative Enterprise Uses: The Project will incorporate arts/creative enterprise uses throughout each building in celebration of Somerville's thriving arts community; and
- › Economic Benefits: Upon construction completion, the Project will generate approximately \$24 million in community benefit contributions including but not limited to contributions to the affordable housing trust, the Green Line Extension, and employment linkage. Upon stabilization, it will generate more than \$13 million dollars annually in new commercial real estate tax revenues for the City of Somerville and significant State sales and business tax revenue to the Commonwealth.

This chapter describes the existing Development Site conditions, the proposed Project and the Development Site, the Project's public benefits, and the Project schedule, and provides a summary of regulatory context applicable to the Project.

## 1.2 Site Context and Existing Conditions

### 1.2.1 Existing Conditions and Ownership

The approximately 6.8-acre Development Site is bounded by the Massachusetts Bay Transportation Authority ("MBTA") Commuter Rail train tracks to the north, South Street to the south, Harding Street to the east, and Windsor Street to the west. The Development Site is bisected by an existing vehicular access drive, which is currently privately owned land with existing access and utility easements. Refer to Figure 1.2 for an Existing Lot Plan depicting existing buildings, existing lot lines, and a boundary showing the existing limit of land owned by the Proponent (the "Ownership Boundary") and to Appendix F for the preliminary lotting plan. Refer also to Figure 1.3 for a figure depicting existing images of the Development Site.

Most of the land on and around the Development Site consists of industrial uses, including automotive repairs, vehicle salvage storage, and dispatch and storage for Gentle Giant Moving Company, and commercial laundry services, as well as a



mixture of one- to three-family structures, warehouse buildings, and parking lots. Presently, the neighborhood street network is disconnected from nearby neighborhoods, which constricts vehicular ingress/egress, and the current condition of the streetscape is unwelcoming to cyclists and pedestrians.

Existing structures on the Development Site presently include an approximately 15,000 SF two-story commercial building, two surface parking lots, and two single-story warehouse/distribution buildings of approximately 32,000 SF previously used by the Gentle Giant Moving Company at 29 and 33 Harding Street (also referred to as the "Gentle Giant Parcel").

Pursuant to previously issued approvals from the Planning Board and Zoning Board of Appeals, Building 1 (also known as "101 South") and associated utility work is under construction on Lot B1.<sup>1</sup> This lot is depicted on Figure 1.5 is located on the southern end of the Development Site and is bound by the existing vehicular access drive to the north, South Street to the south, and Earle Street to the east. Refer to Section 1.3.1 for a summary of the local review and approval process.

As shown on Figure 1.2, an approximately 11,000 SF parcel in the northwest corner of the Development Site is owned by the Proponent, but is encumbered by an existing agreement that gives control of the future development of the air-rights on this portion of the Development Site (the "Air-Rights Parcel")<sup>2</sup> to another entity. The Air-Rights Parcel is a component of the Development Site, but the air-rights agreement restricts the Proponent's ability to propose a structure on this portion of the Development Site that exceeds eight feet in height, thereby making it economically infeasible to develop any programmed space. As explained in Section 1.4.2, the Proponent will explore the possibility to provide additional public realm improvements on the Air Rights Parcel, however any potential improvements are subject to the existing agreements with the entity that controls the air-rights.

## 1.2.2 Site Context

Boynton Yards is considered a sub-neighborhood within the Union Square neighborhood, which was identified by the City of Somerville as a focal point of future development to generate economic development. As described in greater detail in Section 1.8.1, the entirety of Boynton Yards is located within a "transform area," which is an area identified by Somerville's Comprehensive Plan 2010-2030

<sup>1</sup> Due to the subdivision of the Development Site necessary to create the building lots, civic spaces and thoroughfares proposed in the Master Plan, it is anticipated that the boundaries of 101 South Street will be modified, which may require amendment of the previously issued approvals to acknowledge any dimensional changes to the lot.

<sup>2</sup> For the purposes of this application, all area and open space calculations were performed without the inclusion of the air right parcel, representing a total site area of 6.55 acres. Under existing conditions, the Air-Rights Parcel is a surface parking lot, and is entirely impervious. Refer to Figure 1.2 for the existing lot plan.

(SomerVision 2030)<sup>3</sup> that is anticipated to absorb 85 percent of new development in Somerville. Refer to Figure 1.4 for a neighborhood context map.

The Project's location within the Boynton Yards Sub-Area Master Planned Development Area provides an opportunity to continue the dramatic revitalization of the neighborhood and to realize the vision set forth by the City and the surrounding neighborhood for a balanced but dense mixed-use district that emphasizes pedestrian- and transit-oriented planning and design and prioritizes the creation of new pedestrian-oriented public spaces.

One of the greatest opportunities of the Development Site is its proximity to the new MBTA Green Line Station that is planned as a part of the MBTA Green Line Extension (GLX) project. Anticipated to be completed in December 2021, the new station is intended to be called Union Square Station and will be approximately 0.2 miles away from the Development Site. Additionally, the Development Site is near multiple MBTA bus routes, including the 69, 85, 86, 87, 88, 91, and CT2, which, coupled with the future MBTA Green Line Station, will position the area as a well-connected transit-oriented development.

The Development Site is located less than one mile from Kendall Square/MIT in East Cambridge, a predominant epicenter of the life science industry. The Development Site is also a short walk from a myriad of restaurants and neighborhood amenities located in both the Union Square and Inman Square neighborhoods of Somerville and Cambridge, respectively. Several beloved small businesses are located near the Development Site, including Somerville Brewing Company (also known as Slumbrew) to the east, and the Taza Chocolate Factory and Green City Growers, an urban agriculture organization, to the west. Just outside of the westernmost edge of the Development Site is the South Street Farm – Somerville's first urban farm. Larger companies, including Target, CVS, and Starbucks, are north of the Development Site. Additionally, the Development Site is 0.5 miles away from retail and restaurant offerings in Union Square, including Bow Market, which has become a major draw for visitors from the local community and beyond, and from Inman Square in Cambridge, which is well known for its wide selection of restaurants, cafes, and local retail offerings.

The design of the Project will integrate into the existing context of the continued growth and buildout of the neighborhood by complementing existing neighborhoods, local businesses, and amenities while also improving the current streetscape, providing additional public Civic and open space, and constructing a mixed-use development that will provide housing and employment opportunities to Somerville residents.

<sup>3</sup> A draft of the SomerVision 2040 Comprehensive Plan update was released in late 2019. Formal adoption of the update is anticipated in 2020.

## 1.3 Status of City Review

### 1.3.1 Status of City of Somerville Review

In 2018, the Proponent filed two Special Permit with Site Plan Review (SPSR) Applications with the City of Somerville under the previous City of Somerville Zoning Ordinance that proposed approximately 374,000 SF of total commercial uses across two buildings. The proposed buildings were anticipated to be the first buildings in a larger master plan buildout known at the time as the One Boynton Yards ("1BYN") project, which envisioned approximately 950,000 SF consisting of 570,000 SF of commercial and 380,000 SF of residential uses on a 3.4-acre site. At the time of the filings, a 270,000 SF lab/office building situated on Lot B1, which would have been the larger of the two commercial buildings, was in construction planning. The other building, a smaller 139,000 SF office building, was on hold as negotiations were ongoing with Gentle Giant Moving Company to acquire the Gentle Giant Parcel, which would allow a larger lab/office building similar to 101 South to be built. In 2019, the Proponent acquired the rights to the Gentle Giant Parcel, resulting in the assemblage of the 6.8-acre Development Site that is currently proposed.

The following provides a summary of the previous SPSR applications:

- › On February 15, 2018 the Proponent filed an SPSR for Building 3 (formerly known as Building 1), which proposed an approximately 139,000 SF office building with ground-floor retail. On May 3, 2018, a decision was issued approving the SPSR request with conditions. While Building 3 was permitted under the City's previous Zoning Ordinance, the Proponent is not moving forward with the previously permitted development program, as it was determined that redesigning this lot as part of the Building 3 development would create a preferable Master Plan and improve the neighborhood's pedestrian, bicycle, and vehicular circulation.
- › On November 8, 2018, the Proponent filed an SPSR for 101 South Street (formerly known as Building 2), which proposed an approximately 270,000 SF lab building with ground-floor retail and below-grade parking. On December 13, 2018, a decision was issued approving the SPSR request with conditions. 101 South Street subsequently received variance relief from the City of Somerville Zoning Board of Appeals to reduce the required parking and allow the proposed height under the previous City Zoning Ordinance. Even though 101 South Street was permitted under the City's previous Zoning Ordinance and development review processes and is currently under construction, Section 8.3.5(b)(iv) of the new Zoning Ordinance that was adopted by the City on December 12, 2019, (the "Zoning Ordinance") allows previously permitted development to be included in a development site, provided that the date of the first certificate of occupancy is within two years of the decision date of the MPSP.

## 1.4 Project Description

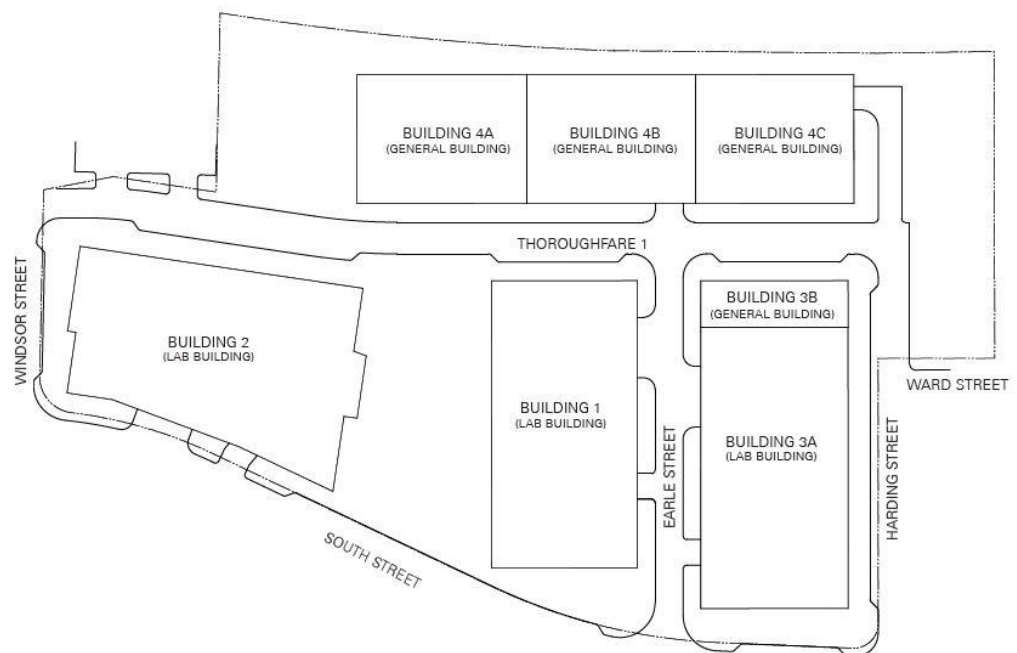
The Project consists of a mixed-use redevelopment master plan that comprise up to:

- › 984,500 SF of office/lab/R&D;<sup>4</sup>
- › 338,000 SF of residential use;
- › 42,500 SF of retail use;
- › Over two acres of publicly accessible and sustainably designed civic and open space;
- › New public thoroughfare and substantial public realm improvements; and
- › Project-related parking (up to 1,002 below-grade spaces).

Refer to Figure 1.5 for a proposed lot plan, Figure 1.6 for a proposed site plan depicting proposed buildings and site improvements, and Figure 1.7 for a building massing diagram. All plans showing proposed conditions herein this MPSP depict the "Development Site Boundary." The Development Site Boundary extends outside the limit of land owned by the Proponent (the "Ownership Boundary") and includes land to be improved by the Project on adjacent public sidewalks and public thoroughfares.

### Exhibit A – Project Key Plan

The Project Key Plan in Exhibit A below illustrates the location of the four proposed buildings and thoroughfare on the Development Site.



<sup>4</sup> Article 8.3.12(e)(iii)(b). At least 10 percent of the total commercial floor area required by Article 8.3.11(f)(iii) must be dedicated to Arts & Creative Enterprise principal uses.

The final mix of uses will vary depending on market conditions at the time the Project is constructed but will not exceed the maximum dimensions presented in Table 1-1 and the maximum impacts as analyzed herein this MPSP (Note: all dimensions are approximate).

**Table 1-1 Program Use Table**

<b>Use/Element</b>	<b>Approx. Dimensions/Quantity<sup>1</sup></b>
<b>Development Site</b>	6.8 Acres
Commercial	984,500 SF
Retail	42,500 SF
Residential	338,000 SF (330 units)
<b>Total</b>	<b>1,365,000 SF</b>
Floor Area Ratio	4.5
Below-Grade Parking	1,002 spaces

<sup>1</sup> Inclusive of all building space, including interior mechanical spaces, but excludes below-grade parking, and mechanical penthouse space. Net Floor Area (NFA) not yet defined.

The tallest of the four proposed buildings rises 16 stories, to a height of approximately 190 feet from grade to the top of the structural roof. Depending on the final mix of uses, the floor-to-floor height and the total number of floors may change slightly; however, the Project will not exceed the maximum approved height.

### 1.4.1 Proposed Thoroughfare

The Proponent is proposing a new thoroughfare that will bisect the Development Site at the approximate location of the existing vehicular access drive. As depicted in Figure 1.5, this new thoroughfare (Thoroughfare 1) will be constructed on Lot T1. The alignment of Thoroughfare 1 is consistent with the required thoroughfares depicted in Map 8.3.12(b) of the Zoning Ordinance.

The Proponent intends to transfer the ownership of Thoroughfare 1 to the City. Refer to Section 1.6 for additional details on proposed streetscape and public realm improvements.

### 1.4.2 Proposed Buildings

#### Building 1 ("101 South Street")

Building 1 will be a nine-story (roughly 133 feet to top of structural roof), approximately 270,000 SF commercial building constructed on Lot B1 at the southern end of the Project, as shown in Table 1-2. The first floor will house office/lab/R&D, retail and arts/creative enterprise uses. Floors 2 through 9 will be lab/commercial only. There will be four levels of below-grade parking beneath Building 1 with access from Earle Street. Building 1 is currently under construction with substantial completion anticipated by August 2021.

**Table 1-2 Building 1 Summary Table**

Building	Building Type	Typ. Floor Plate	Area	Levels	Lot #
Building 1	N/A	30,000 SF	270,000 SF	9	B1

**Building 2**

Building 2 will be a 12-story (roughly 185 feet to top of structural roof), approximately 366,000 SF commercial building constructed on Lot B2 at the southwest end of the Development Site, as shown in Table 1-3. The first and second floor will house office/lab/R&D, retail and arts/creative enterprise uses. Floors 3 through 12 will be lab/commercial only. There will be four levels of below-grade parking beneath Building 2 with access from either South Street and/or Windsor Street, which will be shifted to a dedicated alley when South Street is realigned.

**Table 1-3 Building 2 Summary Table**

Building	Building Type	Typ. Floor Plate	Area	Levels	Lot #
Building 3A	Lab Bldg.	34,000 SF	366,000 SF	12	B2

**Building 3**

Building 3 will be an approximately 381,000 SF commercial building constructed at the southeast end of the Development Site. While Building 3 will be operated and constructed as one cohesive building, as shown in Table 1-4, it will be comprised of two buildings (referred to as Building 3A and 3B, and collectively known as "Building 3") to comply with the Zoning Ordinance. Buildings 3A and 3B will be connected but located on separate building lots (Lot B3.1 and B3.2). The first and second floors of Building 3 will house office/lab/R&D, retail and arts/creative enterprise uses. Typical upper floors will include commercial uses. There will be four levels of below-grade parking beneath Building 3 with access from Earle Street.

**Table 1-4 Building 3 Summary Table**

Building	Building Type	Typ. Floor Plate	Area	Levels	Lot #
Building 3A	Lab Bldg.	30,000 SF	351,000 SF	12	B3.1
Building 3B	General Bldg.	6,000 SF	30,000 SF	6	B3.2

**Building 4**

Building 4 will be an approximately 348,000 SF residential building with approximately 330 units constructed at the northern end of the Development Site. While Building 4 will be operated and constructed as one cohesive building, it will be comprised of three buildings (referred to as Buildings 4A, 4B and 4C, and collectively known as "Building 4") to comply with the Zoning Ordinance, as shown in Table 1-5. Buildings 4A, 4B, and 4C will be connected but located on separate building lots (Lot B4, B4.2, and B4.3). The first floor of Building 4 will house residential and retail uses.

Floors 2 through 16 will be residential. There will be two levels of below-grade parking beneath Building 4 with access from Thoroughfare 1.

**Table 1-5 Building 4 Summary Table**

Building	Building Type	Typ. Floor Plate	Area	Levels	Lot #
Building 4A	General Bldg.	9,500 SF	167,000 SF	16	B4.1
Building 4B	General Bldg.	9,500 SF	119,000 SF	11	B4.2
Building 4C	General Bldg.	8,800 SF	62,000 SF	6	B4.2

### 1.4.3 Zoning Compliance Summary

The summary Table 1-6 below outlines conformance to key requirements of the Zoning Ordinance that are further detailed in Chapter 3, *Zoning Compliance Narrative*.

**Table 1-6 Zoning Compliance Summary Table**

Requirement	Permitted	Proposed	Status
Non-Residential Uses (Min)	Min 75%	75% <sup>1</sup>	Complies
Arts/Creative Enterprise Use (Min)	10%	10% <sup>2</sup>	Complies
Civic Space (Min)	20%	20%	Complies
Affordable Dwelling Units	20%	20% <sup>3,4</sup>	Complies

- 1 Section 8.3.1.2.f.iii.a - At least seventy-five percent (75%) of the floor space of any building must be dedicated to non-residential uses, excluding Auto-Oriented principal uses.
- 2 Section 8.3.11.f.iii.b - At least ten percent (10%) of the total commercial floor area required by §8.3.11.f.iii.b must be dedicated to Arts & Creative Enterprise principal uses.
- 3 Section 5.1.10 – Developments with four (4) or more dwelling units must provide at least twenty percent (20%) of the total dwelling units as affordable dwelling units (ADUs) as specified on Table 5.1.10(a).
- 4 Section 12.1.7 – Development with 30 or more dwelling units must provide at least Twenty (20) percent of the ADUs in with three or more bedrooms.

## 1.5 Civic Space

The Proponent is committed to developing the Development Site with as much publicly accessible Civic and open space as is feasible outside the building footprints. As described below, and as depicted in Figure 1.8a-b, over two acres of the Development Site will be publicly accessible Civic and open space. The Proponent envisions multiple unique passive publicly accessible open and Civic spaces with integrated and flexible seating to enjoy new café/restaurant uses, public art, and opportunities for outdoor markets and vendors. Seasonal activation opportunities could include space for outdoor yoga, an ice-skating rink, and even a stage for community productions or outdoor movies. The conceptual Civic and open spaces areas proposed by the Project are described in further detail below.



While providing new Civic and open space is a stated goal of the USNP, the Zoning Ordinance requires that at least 20 percent of the Development Site (excluding thoroughfares) must be provided as one or more “Civic spaces.”<sup>5</sup> Under the Zoning Ordinance, Civic spaces are defined as “open spaces designed to support Civic, cultural, recreational, or social activities.” As depicted in Figure 1.8b, the Project proposes three distinct Civic spaces that are consistent with the typologies and design guidelines provided in Article 13 of the Zoning Ordinance and, in aggregate pursuant to Section 8, will satisfy the 20 percent Civic space requirement in the BY Sub-Area. The final location, dimensions, and design of each proposed Civic space will be further defined as the Project design is advanced.

Consistent with Section 8.3.7 of the Zoning Code, all Civic space will be dedicated to the public in perpetuity by a covenant or other appropriate deed restriction.

### 1.5.1 Civic Space 1

At the heart of the Development Site on Lot C1, the Project proposes an approximately 22,360 SF signature Civic space that is most consistent with the Neighborhood Park typology. Civic Space 1 will be defined by a central, passive open lawn space surrounded by a permeable edge of plantings and seating (refer to Figures 1.6 and 1.8b). Civic Space 1 is envisioned as a flexible event space that can accommodate a wide range of pop-up activities, such as small performances, public art, farmers markets, or informal lawn games. Civic Space 1 is fronted by Thoroughfare 1, which is proposed to have a mid-block raised pedestrian crossing table that could be closed to vehicular traffic and would expand the useable area of Civic Space 1 for special events. The Proponent will continue to explore and consider additional design features that could further activate this space, such as an open-air amphitheater, arbor, or water feature. Civic Space 1 will be designed to allow for expansion of this Civic space should the City relocate South Street.

### 1.5.2 Civic Space 2

In the northeast corner of the Development Site to the east of Building 4 on Lot C2, the Project proposes an approximately 16,904 SF Civic space that is most consistent with the Neighborhood Park typology (refer to Figures 1.6 and 1.8b). The Project envisions that Civic Space 2 will include community garden plots, nature-based play elements, and a family picnic area. The Proponent hopes to explore an opportunity to partner with the South Street Farm, mentioned previously, to potentially relocate

<sup>5</sup> Section 8.3.12(f)(ii)(a) of the Zoning Ordinance requires that 20% of “each Development Site, excluding thoroughfares, must be provided as one or more Civic spaces. Further, Section 8.3.12(f)(ii)(b) of the Boynton Yards Sub-Area has an additional requirement for a Civic Space totaling at least 52,000 sf to be provided as shown on Map 8.3.12(b). Pursuant to Section 8.3.12.f.(i)(a), these Civic space build out standards may be aggregated within the Development Site to show compliance with the 20 percent Civic space requirement. As described in Section 3.1 of this Application and below in Section 1.4.1, the Proponents do not control the entirety of the area to be constructed as the 52,000 sf Civic space. Thus, the Proponents are providing approximately 21,300 sf within their control, while designing this space so that the City or others controlling the remaining area shown on Map 8.3.12(b) may connect and complete the required Civic space.

and expand the existing South Street Farm from its current location just outside of the Development Site boundary at the corner of South Street and Windsor Street to this location on the Development Site.

Additionally, while not a component of the Project, the City is proposing the future construction of a three million gallon below-grade stormwater detention tank and pump station at the northeast corner of the Development Site beneath Civic Space 2. The proposed detention tank will improve the resiliency of the Development Site and the adjacent area to respond to and accommodate more frequent and more intense, precipitation-based flooding anticipated due to climate change. Refer to Section 1.8.2 and Chapter 2, *Utility Analysis*, for more detail.

### **1.5.3 Civic Space 3**

In the northwest corner of the Development Site to the west of Building 4 on Lot C3, the Project proposes an approximately 7,142 SF Civic space most consistent with the Pocket Park typology. Civic Space 3 could support activities such as a community dog park, adult fitness programs, and recreation and game courts (refer to Civic Space 3 on Figure 1.8b). Civic Space 3 opens to the Thoroughfare 1 streetscape to the south and has a strong connection with Civic Space 1.

As shown on Figure 1.8a-b, the approximately 11,000 SF Air-Rights Parcel to the west of Building 4 is restricted by an existing agreement that controls the future development of the air rights. The Proponent will explore the possibility to provide additional public realm improvements on the Air-Rights Parcel; however, any potential improvements are subject to the existing agreements with the entity that controls the air-rights.

Refer to Appendix C for a copy of the Civic Space Study, which provide an analysis of existing open and Civic space resources within walking distance of the Development Site.

### **1.5.4 Additional Open and Landscaped Area**

There are several opportunities for smaller scale open and landscaped areas throughout the Development Site. Currently, one new Pocket Plaza is envisioned at the intersections of Thoroughfare 1 and Windsor Street, which will serve as a gateway into the neighborhood from the east. Two Pocket Plazas are envisioned to the south of Buildings 1 and 3 along South Street, and at the intersection of South Street and Harding Street, which will serve as a gateway into the neighborhood from the south and west. These Pocket Plazas are all intended to be publicly accessible open spaces.

## **1.6 Streetscape Design and Public Realm Improvements**

Establishing an urban grid that connects the Development Site to the greater Union Square Neighborhood and specifically to the BY Sub-Area is central to the development of the planning concept. The proposed streetscape design prioritizes

the pedestrian experience and is designed to establish a clear hierarchy for pedestrian, bicycle, and vehicular travel, and to provide opportunities for the creation of new public open space and a vibrant public realm.

The proposed street grid and associated public realm improvements are intended to strengthen current and future connections between Webster Avenue to the west and Medford Street to the east, with a specific focus on providing improved pedestrian and bicycle connections to the future Union Square Green Line Station and nearby MBTA bus routes. The Development Site's perimeter streets will be improved to meet the City's goals of providing a pedestrian-friendly, walkable environment in the area. These streets will receive street parking lanes, protected bicycle lanes, and expanded sidewalks to meet the intent of the City's Zoning Ordinance. Buildings 1, 2, and 3 have been located strategically to allow for their construction within the current street grid while creating a neighborhood experience that will continue to improve with the City's future goal of realigning South Street. This will enable the realization of economic benefits of over a million SF of commercial development, while also enabling the City's long-term planning goals for this neighborhood. Refer to Figure 1.9 for a street network plan and Figure 1.10 for a circulation and access plan.

The Project will create a well-furnished, shaded, and pedestrian-oriented streetscape throughout and surrounding the Development Site. The typical streetscape cross section for the primary thoroughfares consists of a unit paver edge zone, a permeable paver furnishing zone with regular street tree plantings, bike racks, lighting, and a concrete pedestrian zone. In addition, Thoroughfare 1 has been designed as a commercial shared street with a curbless condition to promote pedestrian activity and discourage vehicle volumes. Activated storefronts along the thoroughfares coupled with lively entry lobbies in the buildings will animate the streetscape. It is anticipated that further improvements will be made in conjunction with future developments on the adjacent parcels. Refer to Figure 1.11 and Figures 1.12a-e for street section plans.

The following section summarizes the streetscape design and public realm improvements proposed on Thoroughfare 1, Windsor Street, South Street, Earle Street, and Harding Street.

### **1.6.1 Thoroughfare 1**

With the redevelopment of the Development Site, a new thoroughfare will be constructed from the intersection of Windsor Place and Windsor Street extending 725 feet to the east where it will terminate at the intersection of Ward Street and Harding Street. Thoroughfare 1 serves as the Development Site's primary pedestrian spine, and this critical east/west connection is designed to deemphasize vehicular travel and to instead prioritize pedestrians and bicyclists. The entire length of the thoroughfare will be designed with a curbless condition. Four dedicated paver crossing areas will be employed as a traffic-calming measures while also offering a "festival street" condition to support special community events. Thoroughfare 1 will feature bi-directional protected bicycle lanes, expanded sidewalks on both sides of

the road, and will provide street trees, planting areas and new lighting that will enhance the pedestrian experience. Refer to Figure 1.12a and Figure 1.12b for a streetscape cross section on either side of Thoroughfare 1.

### 1.6.2 Windsor Street

Windsor Street, the Project's western-most perimeter street, abuts the Taza Chocolate Factory commercial building. The public realm on the Project side of the street will be widened to include an active frontage zone along Building 2 with a pocket plaza at the intersection with Thoroughfare 1. The plaza at the intersection of Thoroughfare 1 is envisioned as the primary Project gateway given its proximity to Union Square and the pedestrian circulation from the planned MBTA Green Line station to the Development Site. Loading and access for Building 2 will initially be from South Street and/or Windsor Street, but would be shifted to a dedicated alley if South Street is potentially realigned. Refer to Figure 1.12d for a streetscape cross section on the east side of Windsor Street.

### 1.6.3 South Street

South Street is a major circulation corridor for the Project as the southern perimeter of the development and longest abutting street within the neighborhood. The abutting uses to the south include multifamily residential, commercial, and the South Street Farm located at the intersection with Windsor Street. South Street will provide the drop-off access to Building 1's lobby. Loading and access for Building 2 will initially be from South Street and/or Windsor Street, but would be shifted to a dedicated alley if South Street is potentially realigned. The streetscape improvements on South Street include a two-way directionality for the entire length of the street, a full pedestrian zone, a slightly reduced-width furnishing zone given that the street's right-of-way is an existing condition, and bi-directional, protected bicycle lanes to facilitate bicyclists traveling east and west. Refer to Figure 1.12e for a streetscape cross section of South Street.

The design of the Development Site acknowledges the City's future goal of realigning South Street to recreate a grid layout and provide a continuous connection between Medford Street and Webster Avenue. As one of many examples of the Proponent's cooperative partnership with the City, the Development Site is designed to be modified at the time of this potential realignment, offering a pedestrian-focused streetscape and allowing Civic Space 1 to be expanded by others to meet the City's goal of cohesive open space between South Street and Ward Street. The Proponent also understands that the City intends to explore the potential to reconfigure the easterly segment of South Street between Harding Street and Medford Street so that it will allow for one-way eastbound traffic, as opposed to the current condition under which the road is one-way westbound. The Development Site has been designed to be accessible with either option, though the preferred option involves this conversion being implemented, as well as the future option of South Street being aligned further to the west. The Proponent understands that as these are both public roadways under City jurisdiction, any such changes will need

to be directed by the City. However, the Proponent is committed to continuing to develop the Development Site consistent with this vision. The Proponent does not control the timing of the future realignment or reconfiguration of South Street, or the scope of the potential associated open space improvements associated with land outside the Development Site boundary.

#### **1.6.4 Earle Street**

Earle Street is an existing public way; however, the Project proposes improvements to this thoroughfare, and it is therefore included within the Development Site Boundary for the purposes of this Master Plan. Earle Street serves as the Development Site's service corridor/alley, providing parking garage and loading access to Building 1 and Building 3. This street is intended to consolidate all primary service access, allowing Thoroughfare 1, Windsor Street, and Harding Street to remain focused on accommodating pedestrian and bicycle traffic. Despite being a service corridor/alley, Earle Street will provide continuous pedestrian sidewalks and buffer planting zones on both sides of the street adjacent to Buildings 1 and 3. Refer to Figure 1.12d for a streetscape cross section of Earle Street.

#### **1.6.5 Harding Street**

Harding Street is the eastern-most street and abuts a mix of light industrial and residential uses. Harding Street is an existing public way; however, the Project proposes improvements to this thoroughfare, and it is therefore included within the Development Site Boundary for the purposes of this Master Plan. During Phase 3 of the Project, the intersection at Ward Street will be reconstructed and Harding Street will be extended north to connect to Thoroughfare 1. Public realm improvements, including a new street parking lane and expanded sidewalks will also be made on the Project side of the street to activate the frontage zone for Building 3. Refer to Figure 1.12c for a streetscape cross section of Harding Street.

### **1.7 Parking**

#### **1.7.1 Vehicle Parking**

##### **Structured Vehicular Parking**

The Project will accommodate approximately 1,002 below-grade structured parking spaces to support the commercial, residential, and retail uses. The parking supply will be limited to below-grade structured parking only, replacing the existing expanse of surface parking that exists on the Development Site. Parking entrances have been carefully located at the perimeter edges of the Development Site or along Earle Street to allow for uninterrupted pedestrian and bicycle travel along Thoroughfare 1, Harding Street, and Civic Space 1. Vehicle access to below-grade parking spaces under each building is depicted on Figure 1.10.

The proposed parking ratio for the commercial and residential uses will be lower than that found at other large-scale mixed-use development projects in the area. Additionally, the Proponent anticipates opportunities for parking spaces to be shared between residents and workers. The Traffic Impact and Access Study (TIAS) accompanying this MPSP application package (refer to Appendix B) includes a comprehensive parking analysis documenting these findings.

### **On-Street Vehicular Parking**

The Project will provide approximately 48 short-term, on-street parallel public parking spaces to support the ground level retail space along Thoroughfare 1 and the west side of Harding Street (which is the same as the existing condition). Approximately 10 percent of on-street vehicular parking (five spaces) will be accessible.

### **1.7.2 Bicycle Parking**

The Project will include short and long-term bicycle parking storage consistent with the City of Somerville's guidelines to encourage cycling as an alternative transportation mode. Based on the current design, the Project proposes a minimum of 260 interior long-term secured bicycle parking spaces for the commercial buildings, as well as approximately 92 short-term bicycle parking spaces in aggregate to be located on the Development Site near commercial building entrances.<sup>6</sup> For the residential building, the Project proposes approximately 331 long-term secured bicycle parking spaces, and approximately 37 short-term spaces to be located near the building's entrances. The short-term bicycle parking spaces will be located within 50 feet of the residential building and will comply with the dimensional specifications in the City's Zoning Ordinance. The exact capacity and location of the racks will be determined during the Site Plan Review process.

## **1.8 Development Site Accessibility**

The Project will improve accessibility around the Development Site by creating generous, barrier-free pedestrian zones along Thoroughfare 1, Windsor Street, South Street and Harding Street. The proposed sidewalks in these locations will provide a 6'-0" unobstructed pedestrian zone which will comply with all accessibility requirements.

The Project will implement the following:

- › Short-term, accessible drop-off areas adjacent to each new building entrance. This will occur on Thoroughfare 1 for Buildings 3 and 4, and on South Street for Building 1 and Building 2;

<sup>6</sup> The Proponent will install 118 long-term secured bicycle parking spaces and 48 short-term bicycle parking spaces as a component of the approved 101 South building currently under construction.

- › Widened sidewalks in accordance with the Zoning Ordinance, which will comply with all accessibility regulations and provide barrier-free access to each building as well as to Civic Space 1 and other Civic spaces; and
- › The parking ingress/egress will incorporate a flush sidewalk condition giving priority to the pedestrian over the vehicle.

In compliance with the Americans with Disability Act (ADA) and the Massachusetts Architectural Access Board (MAAB) regulations, buildings and public spaces will be accessible, functional, and safe for persons with disabilities.

## 1.9 Sustainability and Resiliency

The following describes the overall approach to sustainable design, construction, and operation for the Project. Buildings 2, 3, and 4 are being designed to comply with the Somerville Zoning Ordinance. Specifically:

- › **Buildings 2 and 3** will include laboratory uses and will be constructed to meet the minimum requirements to achieve a LEED Platinum Certifiable level using the most current LEED Core and Shell rating system at the time each building is advanced.
- › **Building 4** will include residential uses and will be prohibit on-site combustion for HVAC and cooking uses and will be constructed to meet the standards of either Zero Carbon or higher from the International Living Future Institute; or PHIUS+ from the Passive House Institute.

In compliance with Section 8.3.5(b)(iv) of the Zoning Ordinance, Building 1 is a previously permitted development included in this Development Site, and is not subject to development standards as defined under Section 8.3.9 of the Zoning Code.

### 1.9.1 Carbon Neutral Assessment

Somerville set a goal to be carbon neutral by 2050. The buildings are proposed to be Net Zero Carbon Capable. This approach allows for the feasible implementation of sustainable features today with the built-in ability to transform to fully carbon neutral in the future. This includes the capacity to deploy and upgrade an all-electric building systems infrastructure to take advantage of renewable resources on and off-site.

Building 2, 3 and 4 will be required to comply with the new State Energy Code that went into effect on January 1st, 2020. The applicable energy code will be IECC 2018/ASHRAE 90.1-2016 with Massachusetts amendments. All buildings will be designed to be low-energy buildings - including but not limited to features such as a high performance envelope, high efficiency lighting and mechanical systems, and optimized controls - resulting in reduced demand and a low overall energy use intensity. All electric HVAC and DHW systems are being investigated to ascertain feasibility for the Project. This includes a combination of air-to-air and air-to-water

heat pumps. Geothermal heat pumps are likely unfeasible due to restrictions on the Project Site. Provisions for carbon offsets will be considered for non-electric infrastructure, since laboratory buildings are exempt from all-electric HVAC/DHW systems.

The Project will be designed to be energy, water, and waste efficient, to reduce greenhouse gas emissions, and to mitigate the impacts related to climate change in the design, construction, and occupancy of the Development Site. Infrastructure will be included where applicable to transition to a future zero-carbon ready site. Any cost premium for the zero-carbon ready infrastructure can be partially offset with utility incentives and reduced operating costs due to lower utility bills. It is expected that future advances in technology will allow for conversions that further reduce the Project's carbon footprint.

## **1.9.2 Sustainability Summary**

### **Integrative Process**

The Project Team plans to meet regularly to ensure the individual members from consulting firms involved are collaborating and communicating. As the design progresses, there will be multiple sustainable design-focused workshops to ensure that the Project Team establishes shared sustainable design and energy efficiency goals for the Project and ensure that the entire Project Team is engaged throughout the design and construction process. Early design phase energy modeling will be conducted to review systems synergies and assess areas where energy loads may be significantly reduced. An early water use analysis will be conducted to aid in establishing water use reduction targets.

The Project Team plans to contact local utilities to set up a design phase energy charrette for Building 2, 3, and 4 to discuss the incentive programs and potential energy conservation measures for the Project.

### **Location and Transportation**

The Development Site is being designed as a pedestrian and bike-friendly streetscape experience in order to improve the walkability of the neighborhood for nearby residents, tenants, and public transportation commuters and to create a dynamic street level environment for the Project and surrounding neighborhood. The Development Site currently has a Walk Score of 87, Transit Score of 71, and Biker's Score of 97, indicating that pedestrian, transit, and bike transportation is very accessible. Public bike racks will be provided for visitors, employees, and residents.

### **Sustainable Sites**

The Proponent will continue to evaluate the potential for incorporating rooftop solar PV systems and/or green roofs on a portion of the Project rooftops not occupied by outdoor amenity spaces or mechanical equipment. While there may be some opportunities for onsite renewables, it is not expected to be sufficient to meet all the



site's future energy needs. To achieve carbon neutrality, the purchase of carbon offsets and offsite renewables will need to be explored. Where possible, stormwater will be studied for reuse on-site for irrigation or other purposes.

In addition, the Project plans to provide new and enhanced open space and green space and link to the overall open space network for the district. Landscaped spaces and pedestrian friendly streetscape improvements will be included. The Development Site is classified under Lighting Zone 3 and the Project plans to meet backlight, uplight and glare ratings as well as light trespass requirements by complying with the LEED v4 BUG Rating method.

Tenant Design and Construction Guidelines will outline the sustainable design and energy efficiency measures in the Project and provide detailed guidance for the tenants to design and build in alignment with the Project's sustainability goals.

### **Water Efficiency**

The Project will reduce potable water use for both sewage conveyance and irrigation demand. Through the use of native/adaptive plant species selection, the Project's landscape water requirement (as calculated by the EPA WaterSense Water Budget Tool) will be reduced by at least 30 percent from the calculated baseline for the Development Site's peak watering month. Through the specification of low flush and flow and high efficiency indoor plumbing fixtures, the Project will reduce potable water consumption by at least 20 percent over the baseline calculated for each building. The Project will install permanent water meters that measure the total potable water use for each building and the associated grounds as well as include water sub-meter for at least two end uses. Refer to Chapter 2, *Utility Analysis*, for more detail.

### **Energy and Atmosphere**

Buildings 2, 3, and 4 will be designed with high-efficiency building systems and a high-performance building envelope. Refrigerants with low global warming and ozone depleting potential will be specified for use in applicable building systems equipment. The Project will minimally target a light power density reduction below code by using primarily LED lighting.

Preliminary conceptual energy modeling will be completed for each building in the schematic design phase and continue to be updated throughout the design process. Annual Development Site energy use will be measured against ASHRAE 90.1-2016 w/ MA Amendments baseline (MA energy code metric) and annual cost savings will be measured against the ASHRAE 90.1-2010 baseline (LEEDv4 metric).

The Proponent plans to engage a Commissioning Agent (CxA) to perform the fundamental commissioning services required by the LEED prerequisite as well as to meet the requirements for enhanced HVAC and envelope commissioning. The CxA will provide reviews of design documents and continue through construction to ultimately confirm the building systems are installed and function as intended and desired.

The Project will install whole building energy meters for gas and electricity use by the core and shell project. Advanced energy meters will be studied for the base-building design so that tenants will be capable of independently metering energy consumption for all systems dedicated to their space.

### **Materials and Resources**

The Project Team will specify materials and products that are environmentally responsible and are transparent regarding the harvest and/or extraction of raw materials and the manufacturing processes. The Project Team will endeavor to specify materials and products with compliant environmental and health product declarations to reduce the overall environmental impact of the Project and to create a healthy indoor environment for all occupants.

Waste management will be addressed both during construction and post-occupancy. The Construction Manager will implement a construction management plan (CMP) to divert construction waste and demolition debris from landfills. During occupancy, a recycling plan will be implemented and collected recyclables will be accommodated in a central location. A contracted waste management company will pick up the collected recyclables on a regular basis.

### **Indoor Environmental Quality**

Each building will maintain a healthy interior environment by specifying low VOC-containing interior construction and finish materials and designing an ASHRAE 62.1 compliant ventilation system. The buildings will be 100 percent non-smoking and smoking will not be allowed within 25 feet of each building. The buildings are being designed to incorporate permanent entryway systems, properly enclosed and ventilated chemical use/storage areas, and compliant filtration media. The Construction Manager will be required to implement a compliant Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the Project.

The envelope design for each building will include vision glazing with ample access to daylight and views for the occupants of each building. The following will be considered in the building design: quality views to the outdoors, multiple lines of sight, unobstructed views, and views to landscaped areas, sky, pedestrian walkways, and streetscapes. The thermal comfort systems and controls will be designed to meet the requirements of ASHRAE 55-2010 for all spaces that are regularly occupied.

### **Innovation and Regional Priority**

The Project Team will explore innovative approaches to design, construction, operations, and maintenance, including low mercury containing light fixtures, integrative analysis of building materials, and green cleaning and integrated pest management plans. Regional priority measures will also be considered.

### 1.9.3 Climate Change Preparedness and Resiliency

Climate change is expected to result in rising sea levels, more frequent storms, more extreme weather events, and increasing temperatures. The Proponent has begun to consider the projected impacts related to climate change in early stages of the Project's planning and design. The Project will incorporate a myriad of features that aim to increase the resiliency of the four buildings and the Development Site, which are described in the following sections. The Proponent will provide a Sustainable and Resilient Building Questionnaire for each building during Site Plan Approval.

#### Sea Level Rise

According to Somerville Climate Forward, which is Somerville's 2017 climate change plan, the Development Site will not be vulnerable to coastal flooding from sea level rise based on the City's projections for 2030 through 2070.

#### Precipitation

As precipitation events become more frequent and more intense, precipitation-based flooding will increase in areas like Boynton Yards where the drainage system may not have enough capacity and much of the area is covered with impervious surfaces. According to Somerville Climate Forward, the Development Site is vulnerable to increasing precipitation-based flooding during the following events:

- › 100- year (1 percent annual chance) 24-hour precipitation event with 1-year (100 percent annual chance) peak harbor elevation (from sea level rise and storm surge) in 2030;
- › 10-year (10 percent annual chance) 24-hour precipitation event with 1-year (100 percent annual chance) peak harbor elevation in 2070; and
- › 100-year (1 percent annual chance) 24-hour precipitation event with a 100-year (1 percent annual chance) peak harbor elevation in 2070.

The Development Site has been designed to increase green open space and to reduce impervious surface to promote infiltration of stormwater runoff. The Project will provide a new approximately 22,400 SF Civic space with a large grass lawn between Buildings 1 and 2, which will incorporate new trees and drought resistant plantings that will help reduce flooding at the Development Site. Overall impervious surface area throughout the Development Site will be reduced from 6.25 acres to 5.63 acres. Development Site runoff will be collected by area drains on-site and new catch basins in the roadways, and a stormwater detention tank and pump station will be constructed by the City at the northeast corner of the Development Site. The Project will utilize other green infrastructure measures, such as permeable paver zones and bioretention basins, that will be integrated into the landscape design of each building of the Project. The Proponent will also explore the use of green roofs in the design phases for Buildings 2-4. Refer to Chapter 2, *Utility Analysis*, for more information regarding the Project's proposed stormwater management system.

Essential mechanical systems and equipment in each of the Project's buildings will be placed above the first floor to reduce risk associated with flooding in the event of an extreme weather event. First floor uses in each building will include entry lobbies, retail space, and loading areas, and parking will be provided below grade. As such, the below-grade garages would likely be flooded during extreme weather events. To the extent feasible, the Proponent would provide as much notice as possible to evacuate people and vehicles from the garages before the peak of an extreme weather event. During and following an extreme weather event, the Proponent would monitor the flood water elevation, and sandbag and engage temporary pumping to keep as much water out of the first floors and the parking garages as possible. The building would be evacuated and closed if flood water rose to its first floor elevation. Additionally, the Proponent is researching other new technologies as possible solutions to be stored in the buildings and implemented during a major flood event, such as aqua-barrier water-inflated dams.

### **Rising Temperatures**

The Development Site lies within an area of high outdoor heat exposure due to a large amount of impervious surface and a lack of tree canopy and green open space throughout the Development Site. Consequently, the Project will experience negative impacts from the urban heat island effect, posing a threat to the functionality of utility systems and building performance, as well as to public health, particularly as climate change conditions become more severe.

To protect the functionality of the buildings and the safety of the public, the four buildings at the Development Site will incorporate design features that will keep occupants and visitors safe and comfortable during extreme heat events. As described in Section 1.8.1, the thermal comfort systems and controls will be designed to meet the requirements of ASHRAE 55-2010 for all spaces that are regularly occupied.

In addition to designing the buildings to withstand the impact of rising temperatures, the Project will strive to mitigate the urban heat island effect throughout the Development Site. As described above, the Project will reduce the total impervious surface area from approximately 6.25 acres to 5.63 acres. The Project will significantly increase and diversify the Development Site's urban tree canopy by proposing continuous street tree plantings along all the thoroughfares and by creating clustered shade tree plantings within the Civic spaces and private landscape areas. The proposed tree's shade, in combination with an increase in the amount of vegetative surface and light colored pavements, will significantly reduce the Development Site's urban heat island gain compared to the existing conditions, which are comprised of asphalt pavement or dark roof colors, and have little to no interior shade. The Project will provide newly planted native trees, drought-resistant plants, and shaded spaces throughout the Development Site. The Project Team is committed to working with the Public Space and Urban Forestry Division (PSUFD) to advance the landscape plan going forward to address the BYUDF (described in

Section 1.12.4) goal of increasing tree canopy cover in the BY Sub-Area to at least 15 percent following ten years of growth after full build-out.

## **1.10 Summary of Project Benefits**

### **1.10.1 Urban Design and Public Realm**

- › The Project will revitalize an underutilized, industrial urban area.
- › The Project will provide a significantly upgraded streetscape, including new sidewalks, new lighting, landscaping, and other public amenities enhance the pedestrian experience.
- › At the ground level, retail, arts, and active uses are planned to encourage a vibrant pedestrian environment.
- › The Project will create multiple passive public spaces with integrated and flexible seating to enjoy new café/restaurant uses, public art, opportunities for outdoor markets and vendors, and seasonal activities.
- › The Project will create over two acres of publicly accessible and sustainably designed open spaces, which is approximately 33 percent of the Development Site.
- › The Project envisions providing community garden plots, nature-based play elements, and a family picnic area in The Green.
- › The Project will improve accessibility throughout the Development Site by creating a 6-foot unobstructed pedestrian zone along Thoroughfare 1, Windsor Street, South Street and Harding Street that will comply with all accessibility requirements.
- › The Project proposes below-grade structured parking, replacing the existing expanse of surface parking that exists on the Development Site.

### **1.10.2 Sustainability and Resiliency**

- › The Project focuses on reducing carbon output, minimizing energy usage, and implementing resiliency initiatives in alignment with the City's goals to be carbon neutral by 2050.
- › Buildings 2 and 3 will comply with the Zoning Ordinance, which requires that new laboratory buildings meet the minimum requirements to achieve a LEED Platinum Certifiable level through sustainable and high-performance building strategies.
- › Building 4 will comply with the Zoning Ordinance, which requires that residential buildings prohibit on-site combustion for HVAC uses, and meet the standards of either Zero Carbon or higher from the International Living Future Institute; or PHIUS+ from the Passive House Institute.
- › The Project will address climate change-related impacts, such as precipitation-related flooding and the urban heat island effect, through the creation of a new approximately 21,300 SF Civic space, the incorporation of new trees and

drought resistant plantings, and the reduction of the Development Site's overall impervious surface area from 6.25 acres to 5.63 acres.

- › All four buildings at the Development Site will incorporate design features that will keep occupants and visitors safe and comfortable during extreme heat, such as using an efficient mechanical cooling system, coated façade glass, and window shading and coating that will reduce solar heat gain in the summer. Additionally, Building 4 will explore utilizing Passive House technology to create a highly insulated exterior wall system.
- › The Project incorporates a significant number of infrastructure improvements to support the greater Union Square Neighborhood and BY Sub-Area.
- › Development Site runoff will be collected by area drains on-site and new catch basins in the roadways and a sizeable subgrade stormwater tank and pump station will be constructed by the City at the north east of the Development Site to address the neighborhood's stormwater management initiatives focused on flood mitigation.
- › Essential mechanical systems and equipment in each building will be placed above the first floor to reduce flooding related risk during an extreme weather event and only non-essential uses will be provided on the first floor.

### **1.10.3 Traffic and Transportation**

- › The hierarchy of the proposed streets is intended to re-establish an urban grid while prioritizing pedestrians and bicyclists.
- › The proposed street grid and associated public realm improvements are intended to strengthen current and future connections between Webster Avenue to the west and Medford Street to the east, with a specific focus on providing improved pedestrian and bicycle connections to the future Union Square MBTA Green Line Station.
- › The Development Site's perimeter streets will be improved to meet the City's goals of providing a pedestrian-friendly, walkable environment in the area. These streets will receive street parking lanes, protected bicycle lanes, and expanded sidewalks to meet the intent of the City's Zoning Ordinance.
- › The Project will include short and long-term bicycle parking storage in compliance with the City of Somerville's guidelines to encourage cycling as a strong alternative transportation mode.
- › The Project intends to include a new Bluebikes bike-share station located next to the Development Site. The exact timing and number of bikes at the station will be determined through consultation with Bluebikes and the City.
- › The Project will provide preferred parking for low-emitting fuel-efficient vehicles and/or electric vehicle charging stations within each of the garages serving the buildings comprising the proposed Project. The exact number and location of these spaces will be determined through ongoing consultation with the City of Somerville as the building designs are advanced.

- › In partnership with the City, the design of the Development Site acknowledges the City's potential future goal of realigning South Street to provide a continuous connection between Medford Street and Webster Avenue. The Development Site is designed to be modified at the time of this potential realignment, offering a pedestrian focused streetscape and allowing Civic Space 1 to be expanded by others to meet the City's goal of cohesive open space between South Street and Ward Street.

#### **1.10.4 Social and Economic**

- › With smart growth in mind, the Project will be the first step in transforming Boynton Yards into an urban employment center and mixed-use neighborhood.
- › The Project will create over 4,000 on-site jobs relating to the office/R&D/lab, life sciences, retail, and parking uses, and over 800 construction jobs in a variety of trades.
- › Twenty percent of the future residential component of the Project will include affordable units with a wide range of unit sizes and types to accommodate families, single professionals, empty nesters, roommates, artists, and others, for a total of approximately 66 on-site affordable residential units.
- › Based on current projections, the Project will contribute approximately \$24 million in community benefit contributions including but not limited to contributions to the affordable housing trust, the Green Line Extension, and employment linkage.
- › Upon stabilization, the Project will generate approximately \$12 million annually in new real estate tax revenues for the City of Somerville and significant State sales and business tax revenue to the Commonwealth;
- › The Project will incorporate a significant amount of arts/creative enterprise uses throughout each building. A portion of these spaces will be located at the ground level to foster a unique and vibrant art-focused experience to emphasize Somerville's artistic and creative culture.

### **1.11 Project Schedule and Phasing**

The Project will be developed as one master-planned development project, to be constructed in three phases, with construction anticipated to be undertaken over six to eight years. This timeframe may be extended depending on market conditions and the scope of each phase of construction. This section summarizes associated activities during each phase of construction. Refer to Figures 1.13a-c, which present a preliminary phasing plan for the Project that includes the conceptual sequencing of buildings, impervious area, and open space improvements.

## Phase 1

As depicted in Figure 1.13a, Phase 1 of the Project involves the currently active construction of Building 1 and the construction of an interim civic/open space to the west. Until the existing surface parking lot associated with Building 2 (Phase 2) is redeveloped, the full-buildout of Civic Space 1 depicted in Figure 1.13b and Figure 1.13c will not be feasible. The interim open space will provide a passive space for short-term activation opportunities.

Phase 1 of the Project also proposes significant upgrades to existing, outdated sewer and water infrastructure within the planned right-of-way to allow for the development of future phases. Phase 1 will also include the installation of new pavement, sidewalk and drainage inlets associated with the extension of Thoroughfare 1 that will be completed in later phases.

Phase 1 is expected to generate approximately \$3 million in tax revenue annually and approximately \$5 million in community benefit contributions, including but not limited to contributions to the GLX Project, housing linkage, and employment linkage. 101 South is anticipated to provide approximately 1,148 new jobs.

## Phase 2

As depicted in Figure 1.13b, Phase 2 of the Project consists of the construction of Building 2 and the construction of Civic Space 1, the signature open space that was initiated during Phase 1. Along the east side of Building 2, Phase 2 includes the construction of the open and landscaped improvements that will serve as a gateway to the neighborhood. Additionally, during Phase 2, the intersection at Ward Street will be reconstructed and connected to Harding Street and extended north to Thoroughfare 1.

Buildings 3 and 4 will not be developed until Phase 3, but the sites will be used in the interim for temporary construction storage and staging.

Phase 2 is expected to generate approximately \$4 million in tax revenue annually and approximately \$8 million in community benefit contributions, including but not limited to contributions to the GLX Project, housing linkage, and employment linkage. Building 2 is anticipated to provide approximately 1,551 new jobs.

## Phase 3

As depicted in Figure 1.13c, Phase 3 of the Project consists of the construction of Buildings 3 and 4. During Phase 3, the Project will also construct Civic Space 2 to the west of Building 4, and Civic Space 3 to the east of Building 4.

Phase 3 is expected to generate approximately \$6 million in tax revenue annually and approximately \$11 million in community benefit contributions, including but not limited to contributions to the GLX Project, housing linkage, and employment linkage. Buildings 3 and 4 are anticipated to provide approximately 1,534 new jobs and 330 units of housing.



## 1.12 Public Process Overview

Since 2018, the Proponent has met with and received feedback from multiple State and City Agencies, elected officials, abutters and community stakeholders. These stakeholders include, but are not limited to:

- › Massachusetts Environmental Protection Act (MEPA) Office;
- › Somerville Dept. of Planning and Zoning;
- › Somerville Mobility Division;
- › Somerville Engineering Dept.;
- › Somerville Public Space and Forestry Dept.;
- › Union Square Neighborhood Council; and
- › Union Square Main Streets;
- › Community Action Agency of Somerville;
- › Somerville Arts Council;
- › Somerville Chamber of Commerce;
- › Bow Street Market; and
- › Artisans Asylum.

A pre-submittal meeting was held with the City of Somerville on March 9, 2020. A pre-filing meeting was held with MEPA on April 14, 2020. Prior to and during production of the MPSP, the Project Team met bi-weekly with City staff from multiple departments to solicit feedback and advance the Project. During production of the MPSP, a Neighborhood Meeting was held on June 6, 2020. Please refer to Appendix E for a summary of the key topics discussed during the neighborhood meeting.

These discussions have covered a broad array of topics, ranging from urban design and public realm improvements to community benefits and sustainability. The Project Team welcomes the input of governmental agencies, neighbors, and other stakeholders and will continue to meet with the community and others as the Project moves through the development review process.

## 1.13 Regulatory Context

### 1.13.1 Consistency with SomerVision

SomerVision was developed by a steering committee in collaboration with the Mayor's Office of Strategic Planning and Community Development (OSPCD) through a series of meetings, visioning sessions, and public workshops. The SomerVision plan was endorsed by the Somerville Board of Aldermen (now known as the City Council), adopted by the Somerville Planning Board in April 2012, and aims to guide future growth and development in Somerville. The primary goals of SomerVision are to:

- › Enhance existing squares and commercial corridors;
- › Emphasize pedestrian and transit-oriented planning and design;

- › Transform opportunity areas on the eastern and southern edges of Somerville; and
- › Focus development around new pedestrian-oriented public spaces.

The City of Somerville recently completed a comprehensive update that expands the SomerVision plan's goals to the year 2040 (SomerVision 2040). The City is currently working to formally adopt the plan through the City Council. By 2040, the City aims to zone and develop Boynton Yards as a biotech cluster and eco-district.

As proposed, the Project will transform an underutilized area containing scrap yards, industrial buildings and parking lots into a vibrant, transit-oriented, live-work-play, mixed-use neighborhood featuring innovative office, research and development and lab use spaces, diverse housing options, publicly accessible open spaces, engaging and safe pedestrian streetscapes, and differentiated retail experiences. The Project will reestablish Boynton Yards as an economic engine to stimulate and complement Somerville's surrounding, existing neighborhoods, as intended in SomerVision's plan for the area. Additionally, the Project is well-positioned to address the City's goal in SomerVision 2040 of establishing Boynton Yards as a biotech cluster and eco-district given the proposed office/R&D/lab uses in Buildings 1, 2, and 3 and the Proponent's commitment for the Project to be LEED Platinum Certifiable.

### **1.13.2 Consistency with Union Square Neighborhood Plan**

As described previously, the Development Site is located within Boynton Yards, which is considered a sub-neighborhood within the Union Square neighborhood. As a part of the MBTA GLX project, Union Square will welcome a new Green Line Station called Union Square Station. With the prospect of additional access to public transportation, the City of Somerville adopted the Union Square Neighborhood Plan (USNP) in 2015, which identified 42 acres of Union Square and Boynton Yards neighborhoods as areas to transform to contribute towards City-wide goals.

The USNP establishes a goal for almost 4.25 million square feet of new commercial space within the Union Square plan area, with 7,575 jobs, 1,030 units of housing, and almost three acres of public open space to be provided in the BY Sub-Area. Consequently, the BY Sub-Area is well-positioned to serve as a primary economic engine for Somerville and could help generate a commercial tax base that would reduce Somerville's dependence on residential taxes and fees.

According to the USNP, the design goals for the BY Sub-Area include:

- › Create a street network with blocks that are appropriately sized for commercial buildings;
- › Design complete streets;
- › Provide 2.59 acres of open space within the BY Sub-Area; and
- › Build enough residential development to create a vibrant, mixed-use neighborhood.

With these design goals for Boynton Yards and broader City objectives as key priorities, the Project will complement and support the surrounding land uses and adjacent residential and commercial areas by providing new commercial, residential, retail, and entertainment opportunities, enhanced public open spaces, and jobs for residents of Somerville in alignment with the recommendations from the USNP.

### 1.13.3 Consistency with the Public Realm Implementation Strategy for Boynton Yards

In December 2019, the City of Somerville developed the Public Realm Implementation Strategy for Boynton Yards (PRISBY). Building off the USNP and recent community input, the PRISBY outlines four key goals for the future public realm within the Boynton Yards Sub-Area:

- › **Circulation and Access:** The public street right-of-way provides for circulation within and through the community, accommodating pedestrians, bicycles, and buses, in addition to automobiles and trucks.
- › **Development Framework:** The public street right-of-way provides the fundamental structure that contains and organizes individual developments into a cohesive whole.
- › **Public Open Space:** In addition to the community's parks and plazas, public street rights-of-way plays an important role in public open space, allowing for light, air, and landscaping within developed areas, and serving as the "living room" for community life—places where people meet, interact, and linger.
- › **Visual Character:** While buildings are important visual elements, the physical design of the public realm is critical in establishing the community's identity and overall character.

In alignment with these goals and strategies, the Project will create a network of complete streets that enhances multimodal accessibility and establishes blocks that are properly sized for modern commercial floorplates through the creation of Thoroughfare 1. The Project will increase the area's public open space through the provision of new open/Civic spaces and enhanced, activated streetscapes that will transform Boynton Yards from an unwelcoming industrial zone to a lively destination for residents and visitors to frequent.

Additionally, as described previously, the Development Site has been designed to accommodate the City's future goal of realigning South Street, which is a stated goal of the PRISBY and USNP plans. The Proponent does not control the timing of the future realignment or reconfiguration of South Street, or the scope of the potential open space improvements associated with land outside the Development Site boundary; however, nothing in the design of the Project will impair the future realignment or expansion of the Civic space following the realignment of South Street.

#### **1.13.4 Consistency with the Boynton Yards Urban Design Framework**

The Zoning Ordinance mandates that the Somerville Planning Board adopt an Urban Design Framework for each sub-area of the Master Planned Development overlay district, which must be adopted by the Planning Board prior to the approval of any development within each sub-area. The BYUDF was approved by the Somerville Planning Board on July 16, 2020 and supplements the provisions of the BY Sub-Area by describing a set of standards and design criteria for development in the area.

The BYUDF documents the following criteria for master plan projects within the BY Sub-Area:

- › Provide a minimum of 20 percent Civic space;
- › Provide a maximum of 75 percent commercial space, with 10 percent of this space being designated for arts and creative enterprise space and five percent being designated for a community center;
- › A maximum of 25 percent residential gross floor area; and
- › All buildings must be Net Zero or LEED Platinum.

Additionally, the BYUDF highlights seven key principles/design goals for the BY Sub-Area that are consistent with the USNP and PRISBY. These include, but are not limited to creating a new, walkable street network, providing at least 2.5 acres of new Civic space, and providing enough residential density to create an 18-hour neighborhood with visible public life throughout most of the day.

As described herein this application, the Project is compliant with the master plan criteria, and consistent with the key principles and design goals for development within the BY Sub-Area.

#### **1.13.5 City of Somerville Zoning**

As previously stated, on December 12, 2019, the City adopted the new Zoning Ordinance. The Development Site is located within the Master Planned Development of the BY Sub-Area and meets the criteria to establish a MPSP in accordance with the applicable provisions of Article 8 and with Article 15 of the Zoning Ordinance. The purpose of a MPSP is to provide for a greater variety, density and intensity of land uses at a site than would normally be allowed under base zoning. The MPSP allows for more design flexibility in return for more thoughtful, sensitive land planning that encourages additional open space on-site and reduces the Project's impacts.

#### **1.13.6 Massachusetts Environmental Policy Act**

On April 10, 2017, the Proponent submitted a Request for Advisory Opinion (RAO) to the Massachusetts Environmental Policy Act (MEPA) Office within the Executive Office of Energy and Environmental Affairs (EOEEA) that provided an overview of the 1BYN project, a previous iteration of the Project that was proposed prior to acquiring the Gentle Giant Parcel. The RAO documented that, while the 1BYN project

did exceed two MEPA review thresholds, there was no MEPA jurisdiction over the 1BYN project, as there were no State Agency Actions required and no direct financial assistance was sought. On May 10, 2017, the Secretary issued an Advisory Opinion that confirmed that the 1BYN project was not subject to MEPA review.

Since the Advisory Opinion was issued for the 1BYN project, the Proponent has acquired the rights to the Gentle Giant Parcel, resulting in an expansion of the Development Site as well as modifications and enhancements to the overall build-out.

As currently proposed, the Project is subject to MEPA review. The acquisition of the Gentle Giant Parcel will require the Proponent to obtain MassDOT Approval for Construction on Former Railroad Land (M.G.L. Chapter 40 Section 54A). The Project also exceeds the following MEPA related thresholds:

- › 301 CMR 11.03(6)(a)(6): Generation of 3,000 or more New adt on roadways providing access to a single location; and
- › 301 CMR 11.03(5)(b)(4)(a): Expansion of an existing wastewater treatment and/or disposal facility by the greater of 100,000 gpd or 10 percent of existing Capacity.<sup>7</sup>

An Environmental Notification Form (ENF) was filed with MEPA on April 30, 2020. The Secretary issued a Certificate on the ENF on June 12, 2020 requiring the preparation of a Draft Environmental Impact Report.

## 1.14 Project Team

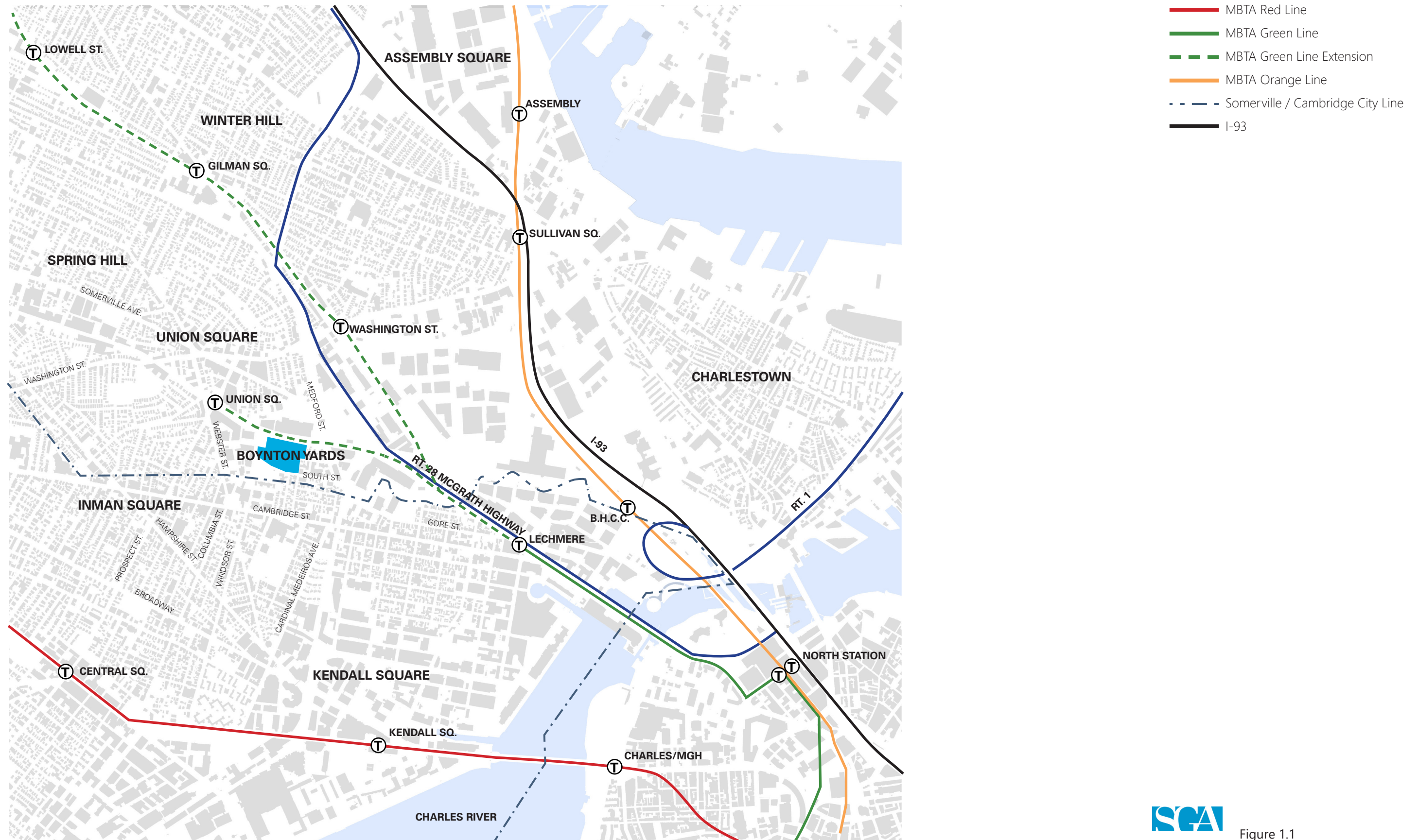
Table 1-7 identifies the members of the design and consulting team (the "Project Team") and provides their primary contact information.

<sup>7</sup> As described in Sections 22.3 and 22.4 of Chapter 2, *Utility Analysis*, the Project will connect to existing City owned water and sewer infrastructure in the vicinity of the Development Site.

**Table 1-7 Project Team Contact Information**

<b>Project Team Member</b>	<b>Contact Information</b>
<b>Proponents</b>	
DLJ Real Estate Capital Partners	John Fenton
18 Tremont Street, Suite 730	Nick Barker
Boston, MA 02110	Oliver Bushnell
617.580.2556	Toby Banta
Leggat McCall Properties LLC	Kevin Griffin
10 Post Office Square, #1300	Robert Dickey
Boston, MA 02109	Rola Idris
617.422.7000	
<b>Legal Counsel</b>	
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155 Seaport Boulevard	
Boston, MA 02110	
617.439.2000	
<b>Master Plan Architect</b>	
SGA Architecture	John Sullivan
200 High Street, #2	Matthew Formicola
Boston, MA 02109	Matt McCreary
617.654.9000	Bill Gisness
<b>Landscape Architect</b>	
Copley Wolff Design Group, Inc.	Ian Ramey
10 Post Office Square, Suite 1315	Achan Sookying
Boston, MA 02110	
857.300.2610	
<b>Permitting, Site/Civil Engineering, Transportation</b>	
VHB	Kyle Greaves
99 High Street, 10th Floor	Catherine McCandless
Boston, MA 02110	Brian Fairbanks
617-728-7777	Joseph Cappellino
	Patrick Dunford
<b>Sustainability Consultant</b>	
The Green Engineer	Allison Zuchman
23 Bradford Street, 1 <sup>st</sup> Floor	Erik Ruoff
Concord, MA 01742	Anthony Hardman
978.369.8978	Ryan Montoni
<b>Mechanical, Electrical, and Plumbing Services</b>	
AHA Consulting Engineers	David Ellowitz
24 Hartwell Avenue, #3	
Lexington, MA 02421	
781.372.3000	

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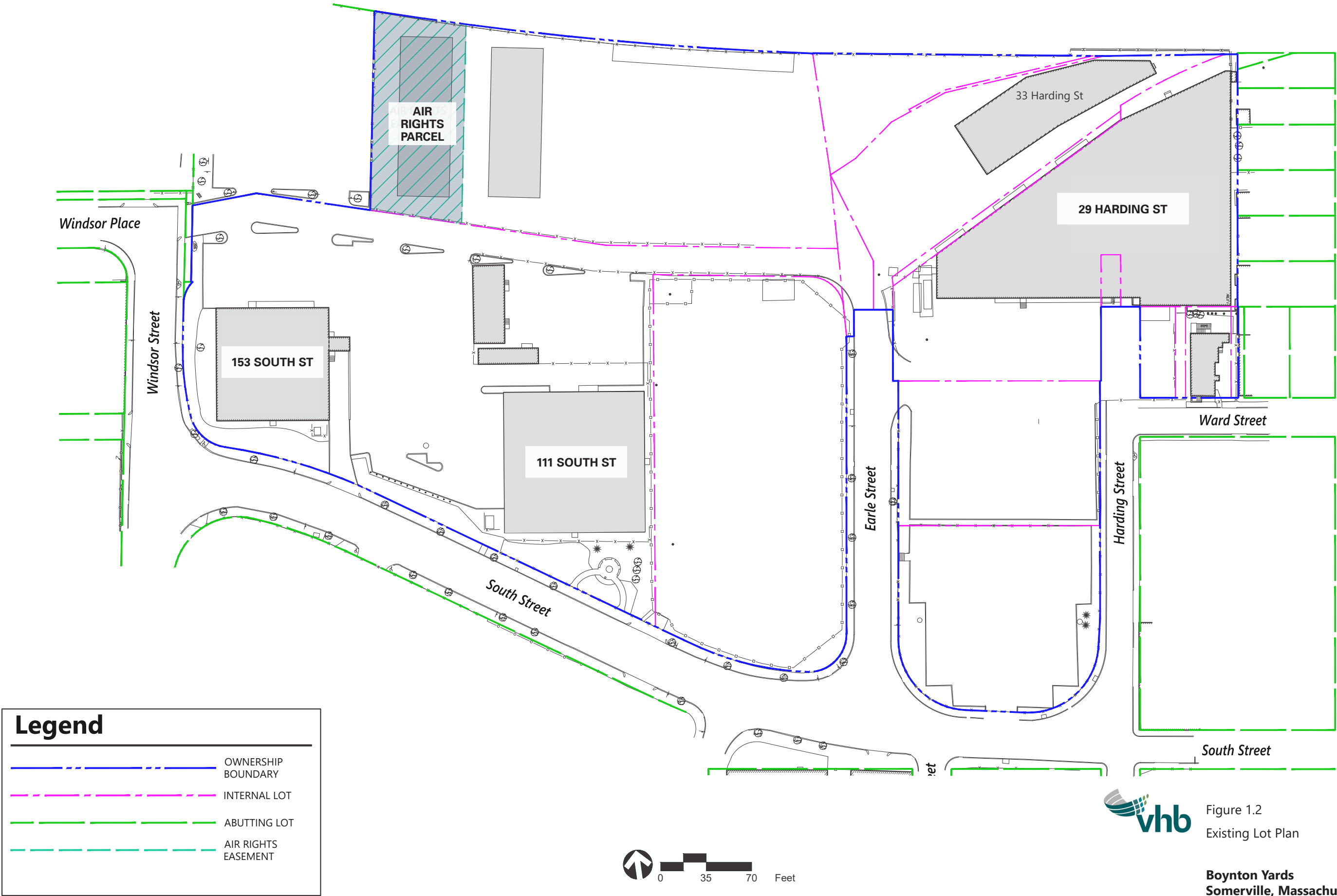
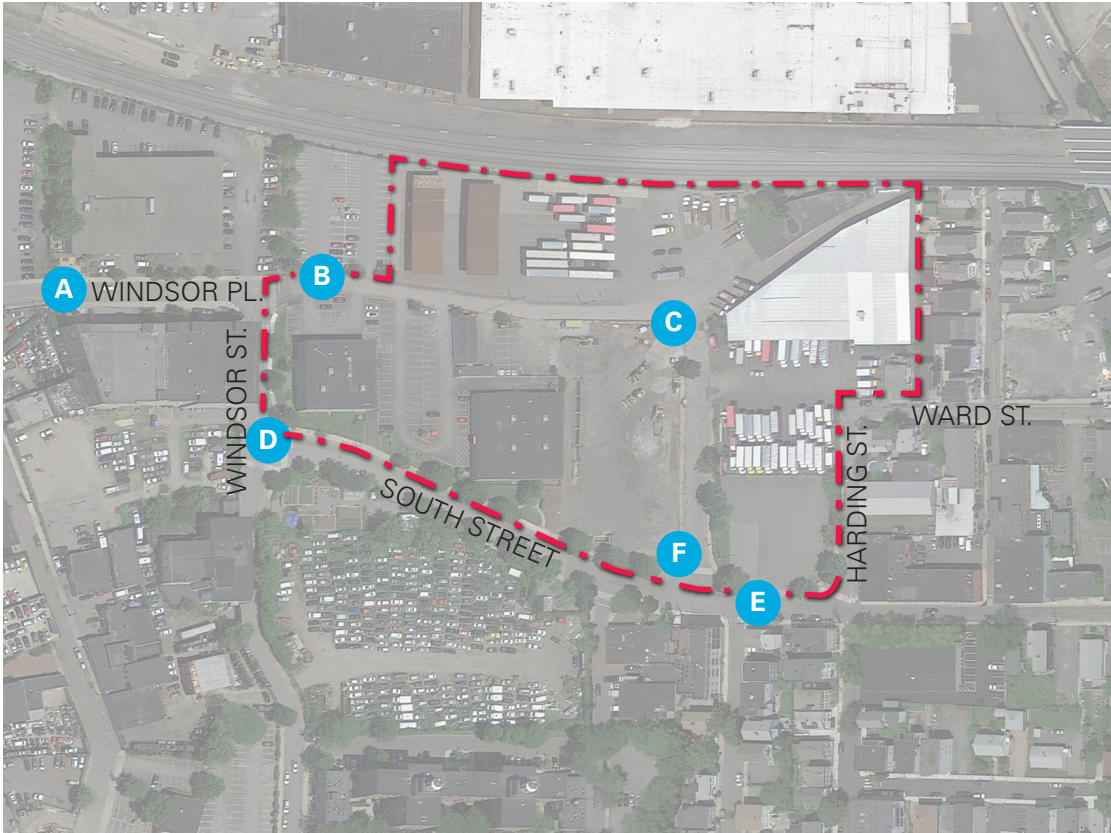


Figure 1.2  
Existing Lot Plan

Boynton Yards  
Somerville, Massachusetts





- A | Looking East on Windsor Place, facing entrance to Development Site
- B | Looking East after entering Development Site, facing current Gentle Giant Moving Company
- C | Looking North from Earle Street into Gentle Giant Moving Company
- D | Looking North on Windsor Street towards Windsor Place (Boynton Yards on Right)
- E | Looking West on South Street
- F | Looking North on Earle Street from South Street



- A Photo Location
- Development Site Boundary



Figure 1.3  
Existing Conditions Photos

**Boynton Yards  
Somerville, Massachusetts**



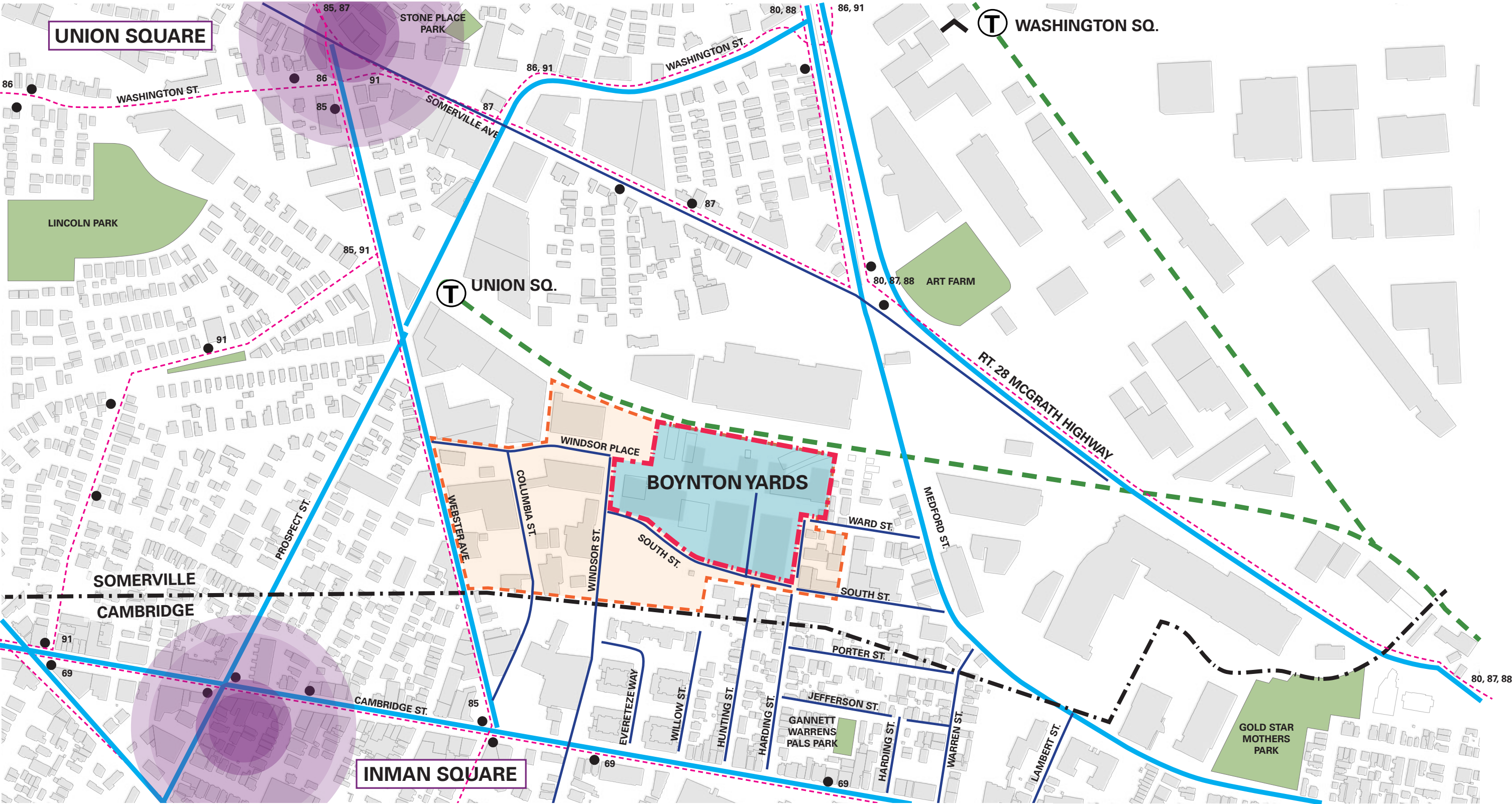


Figure 1.4  
Neighborhood Context Plan

**Boynton Yards**  
**Somerville, Massachusetts**









Boynton Yards Master Plan

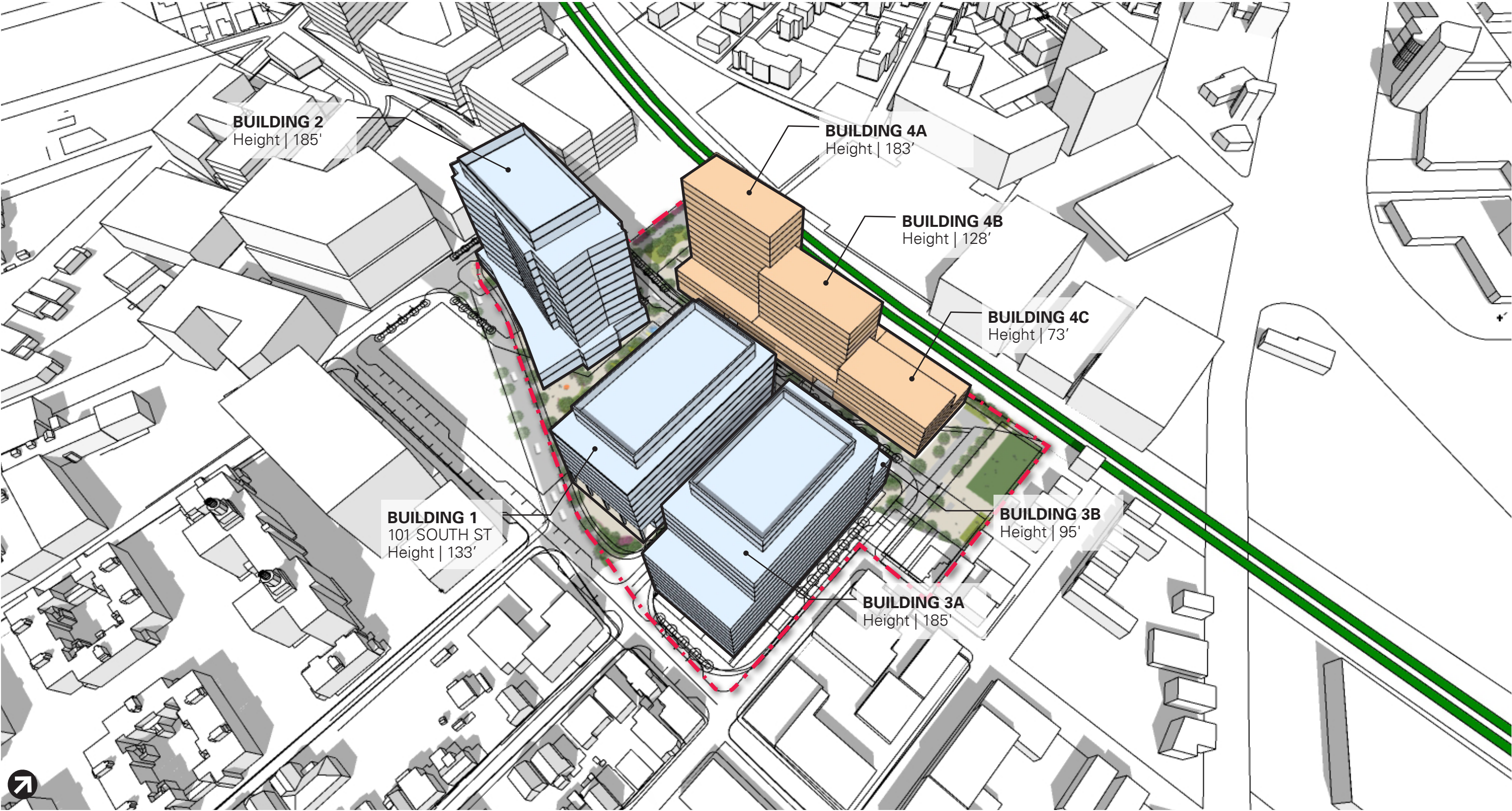
Development Site Boundary



Figure 1.6  
Proposed Site Plan

Boynton Yards  
Somerville, Massachusetts





Boynton Yards Master Plan

- Office / Lab
- Residential



Figure 1.7  
Building Massing Diagram

Boynton Yards  
Somerville, Massachusetts





Figure 1.8a  
Civic Space Plan

Boynton Yards  
Somerville, Massachusetts



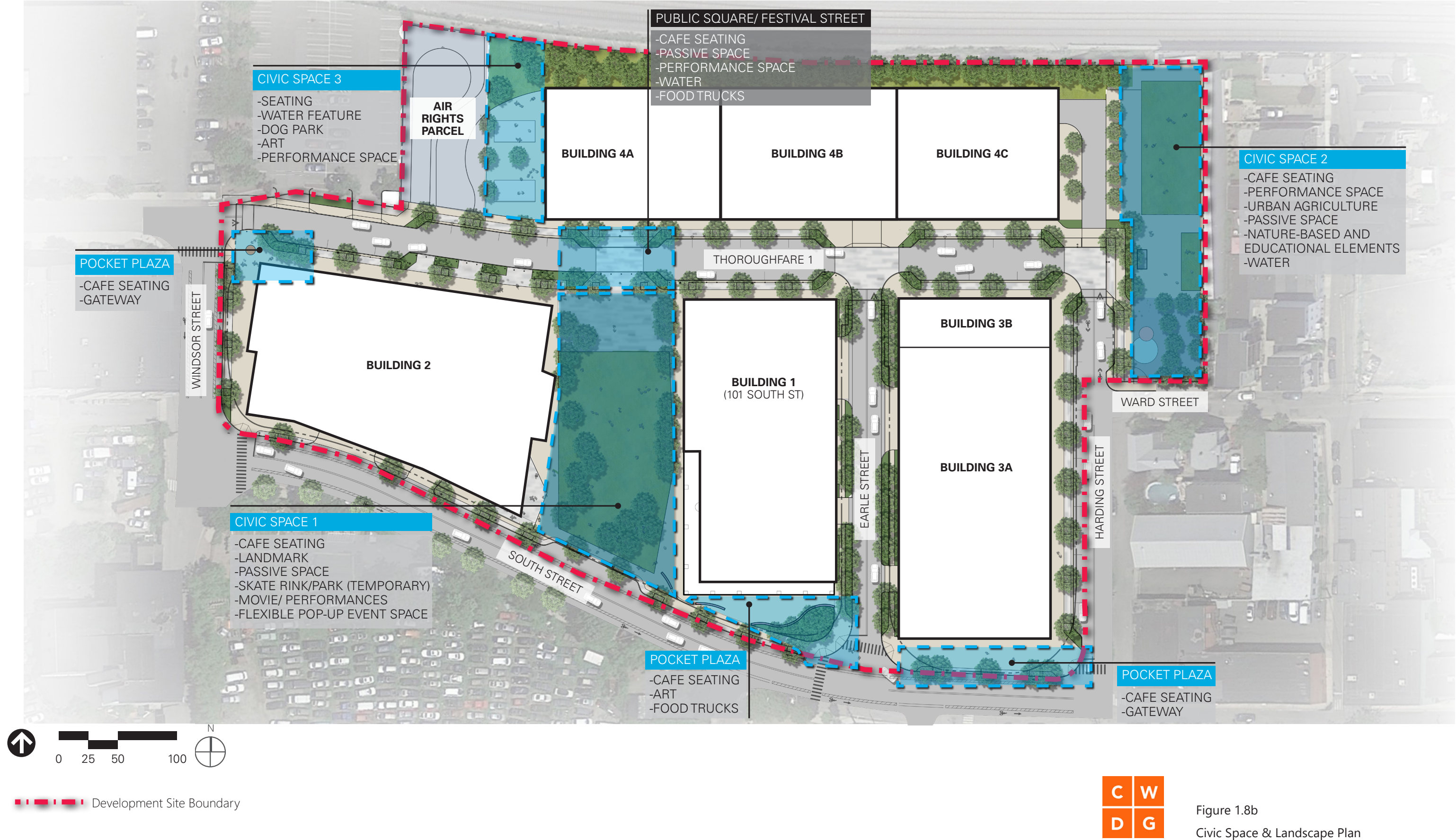


Figure 1.8b  
Civic Space & Landscape Plan

**Boynton Yards**  
**Somerville, Massachusetts**



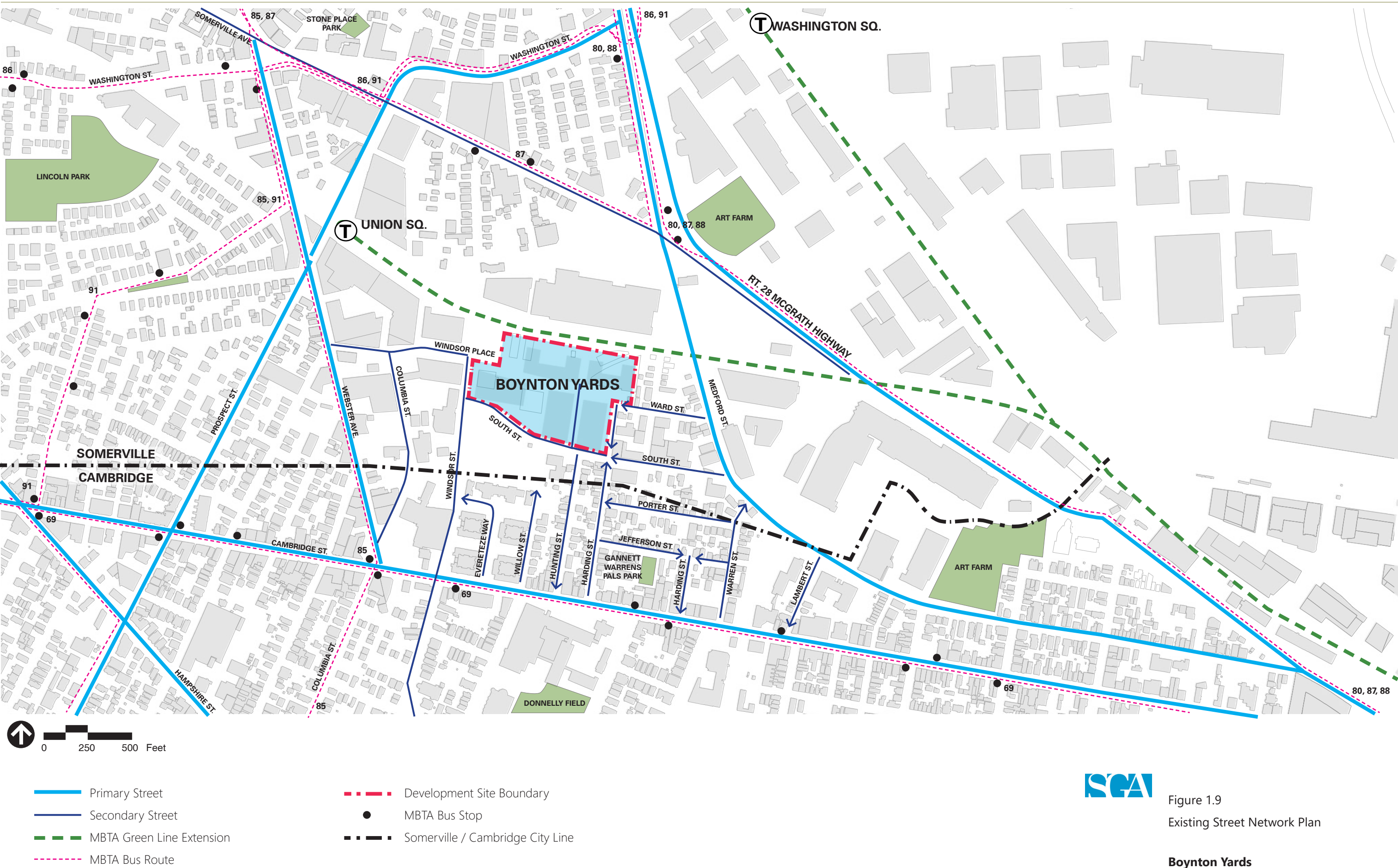


Figure 1.9  
Existing Street Network Plan

Boynton Yards  
Somerville, Massachusetts





- Pedestrian Focussed Street
- Vehicular Focussed Street
- Service Street
- Protected Bike Lane
- Development Site Boundary
- Pedestrian Access
- Vehicular/Loading Access



Figure 1.10  
Circulation and Access Plan

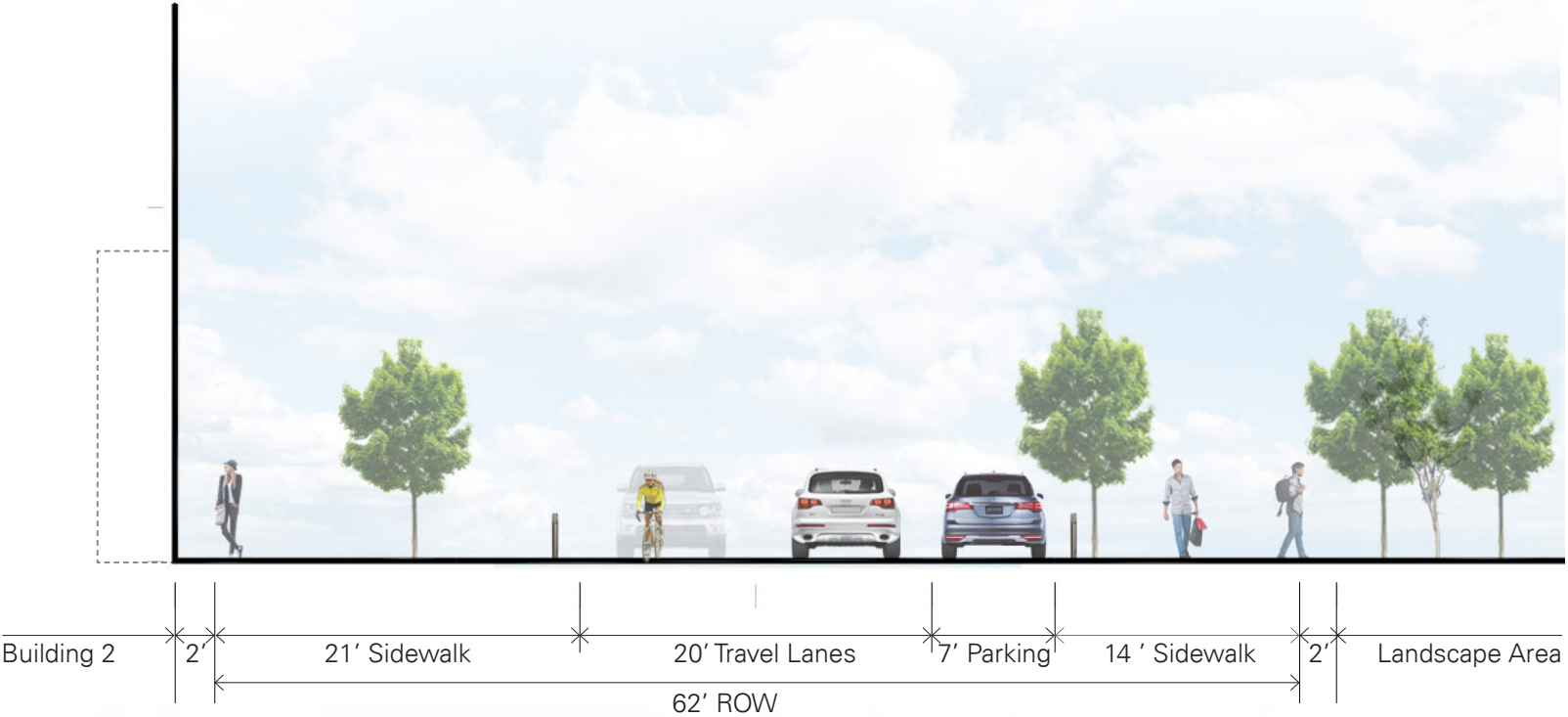
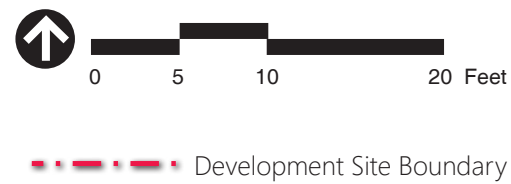
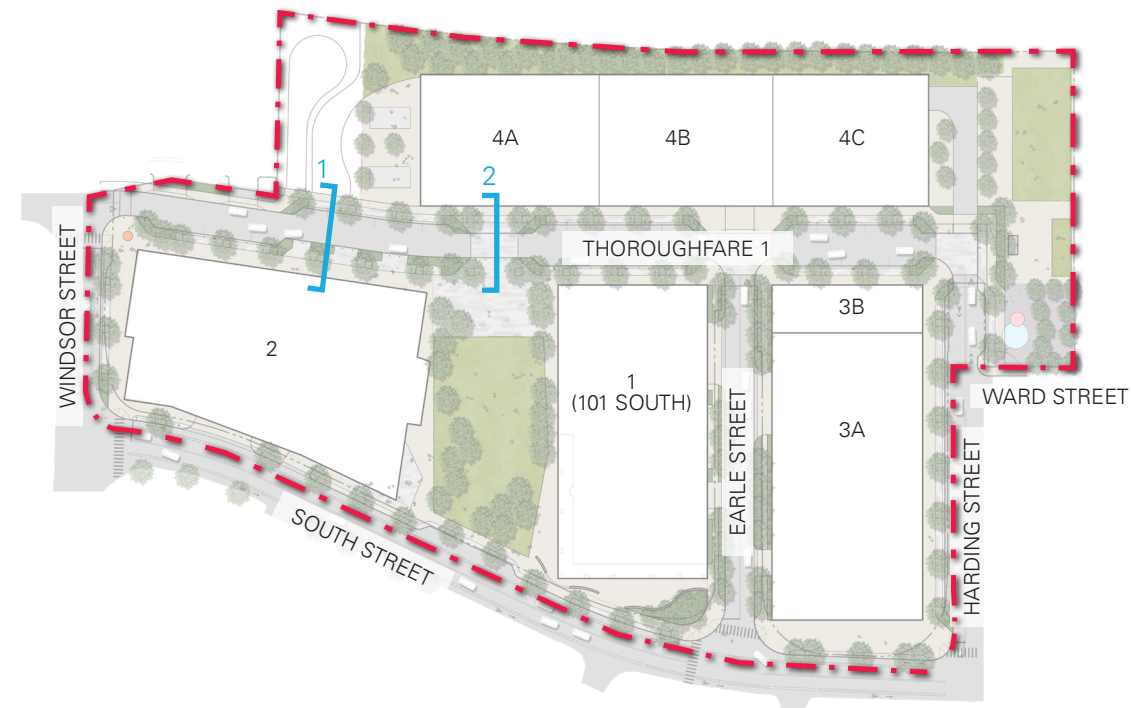
**Boynton Yards**  
**Somerville, Massachusetts**



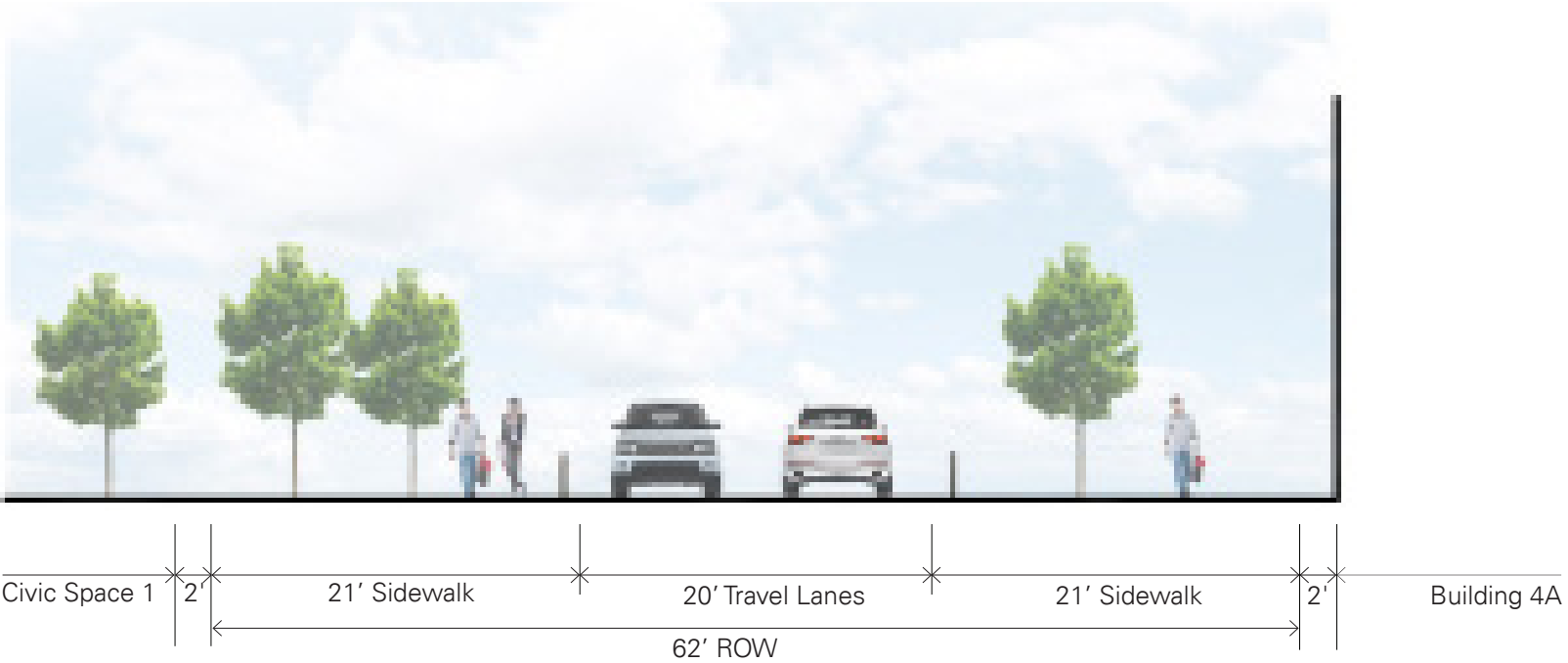


Figure 1.11  
Street Section Plan

**Boynton Yards**  
**Somerville, Massachusetts**



Street Section 1 | Thoroughfare 1



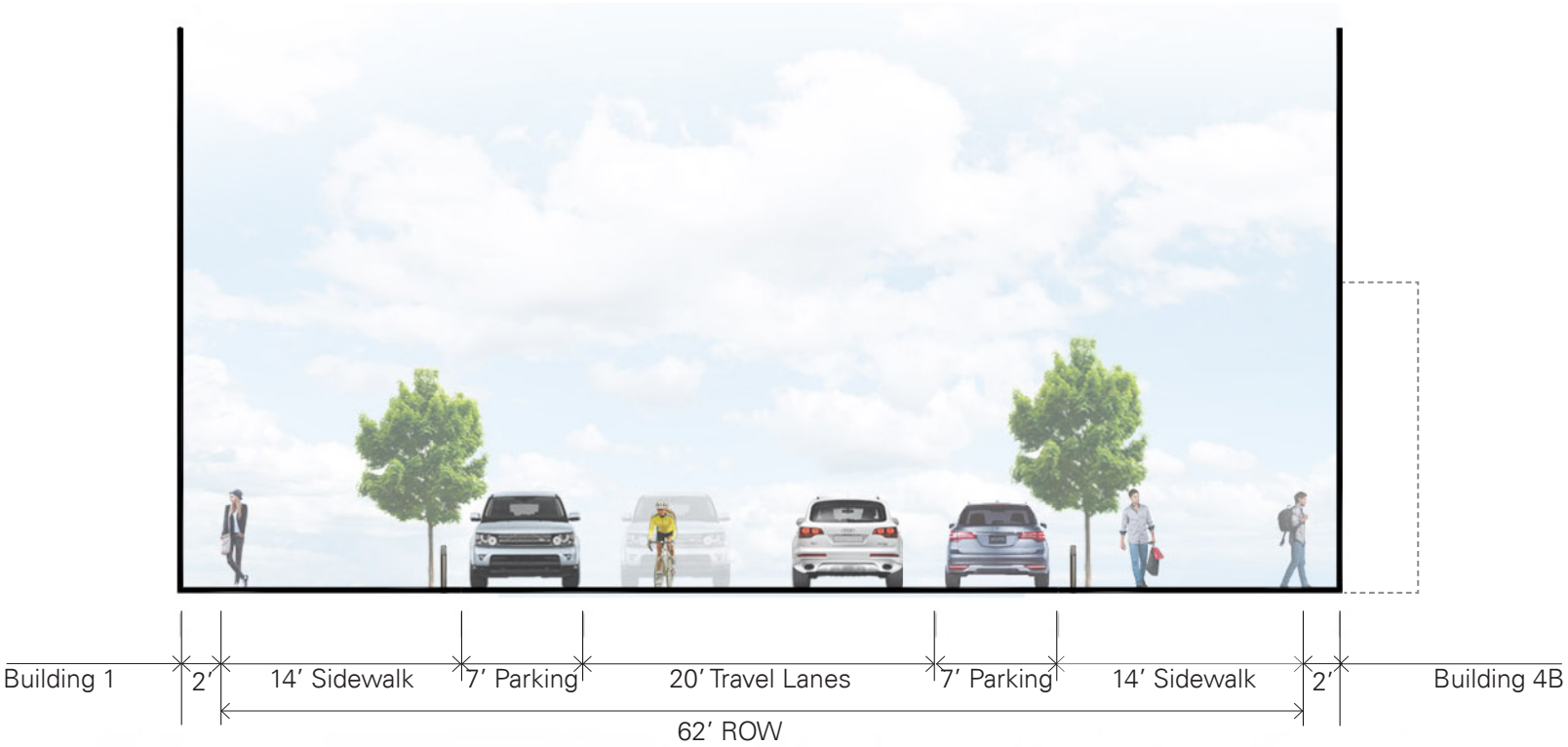
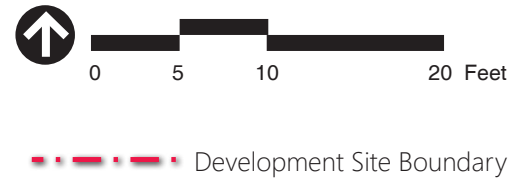
Street Section 2 | Thoroughfare 1



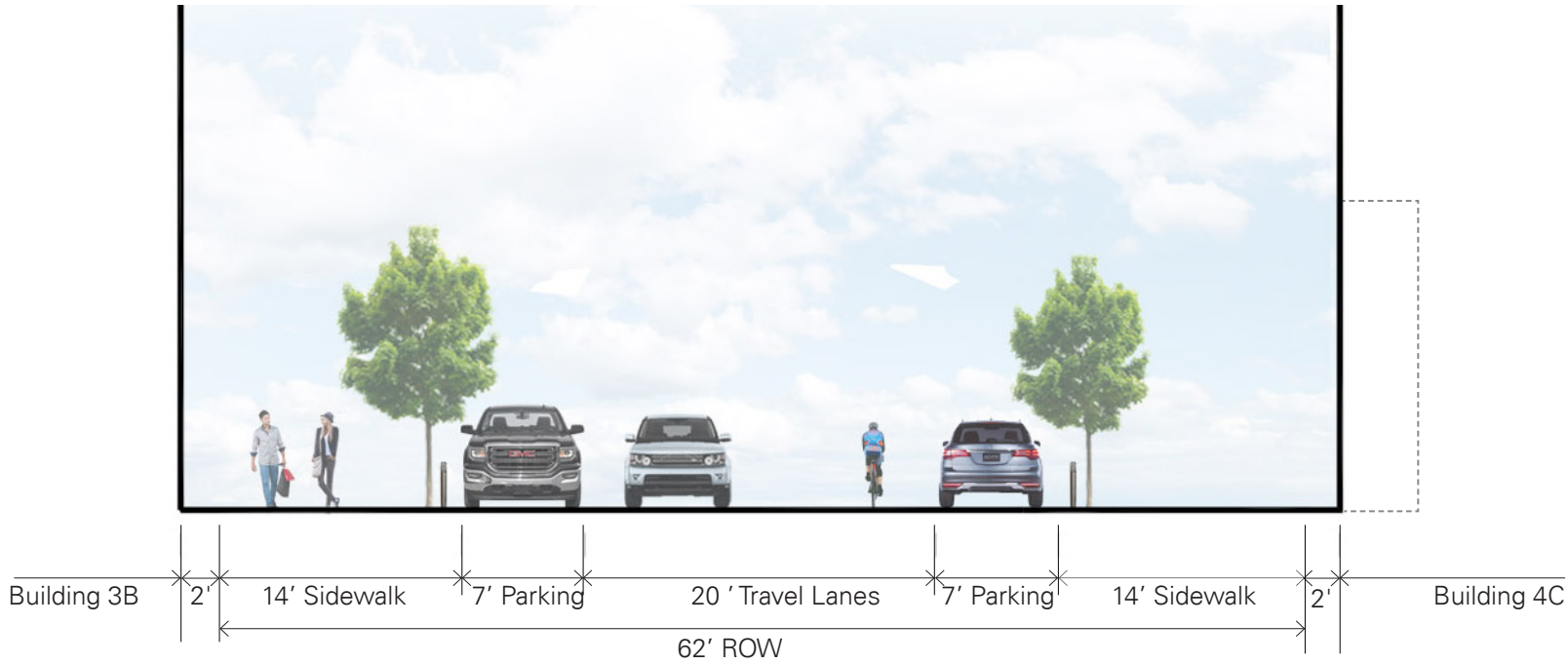
Figure 1.12a  
Street Section - Thoroughfare 1 (1)

**Boynton Yards**  
**Somerville, Massachusetts**





Street Section 3 | Thoroughfare 1

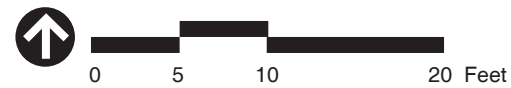
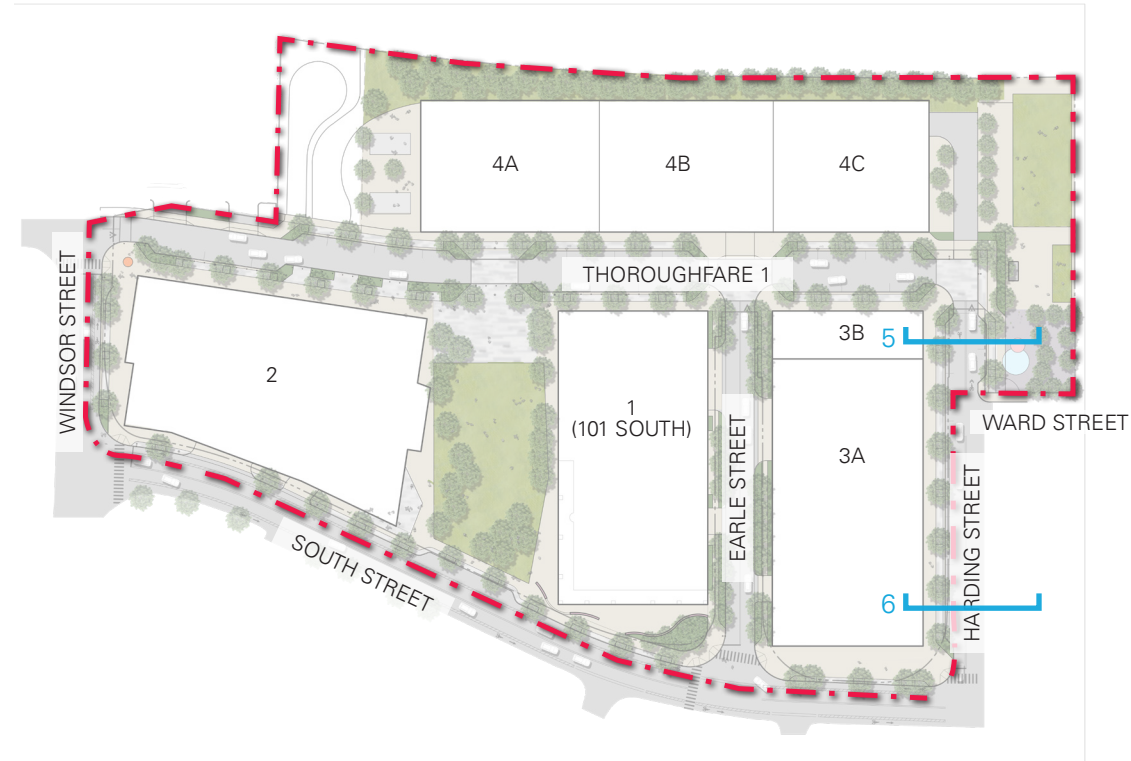


Street Section 4 | Thoroughfare 1

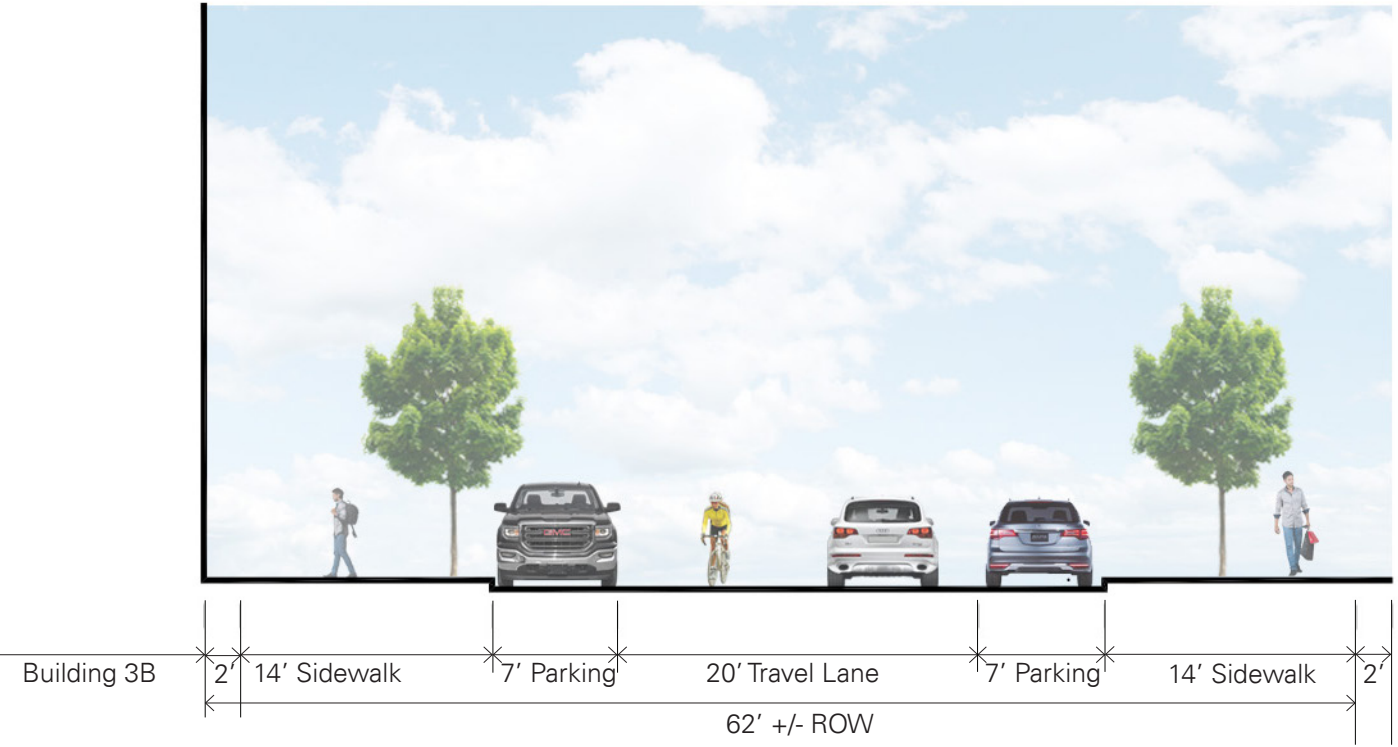


Figure 1.12b  
Street Section - Thoroughfare 1 (2)

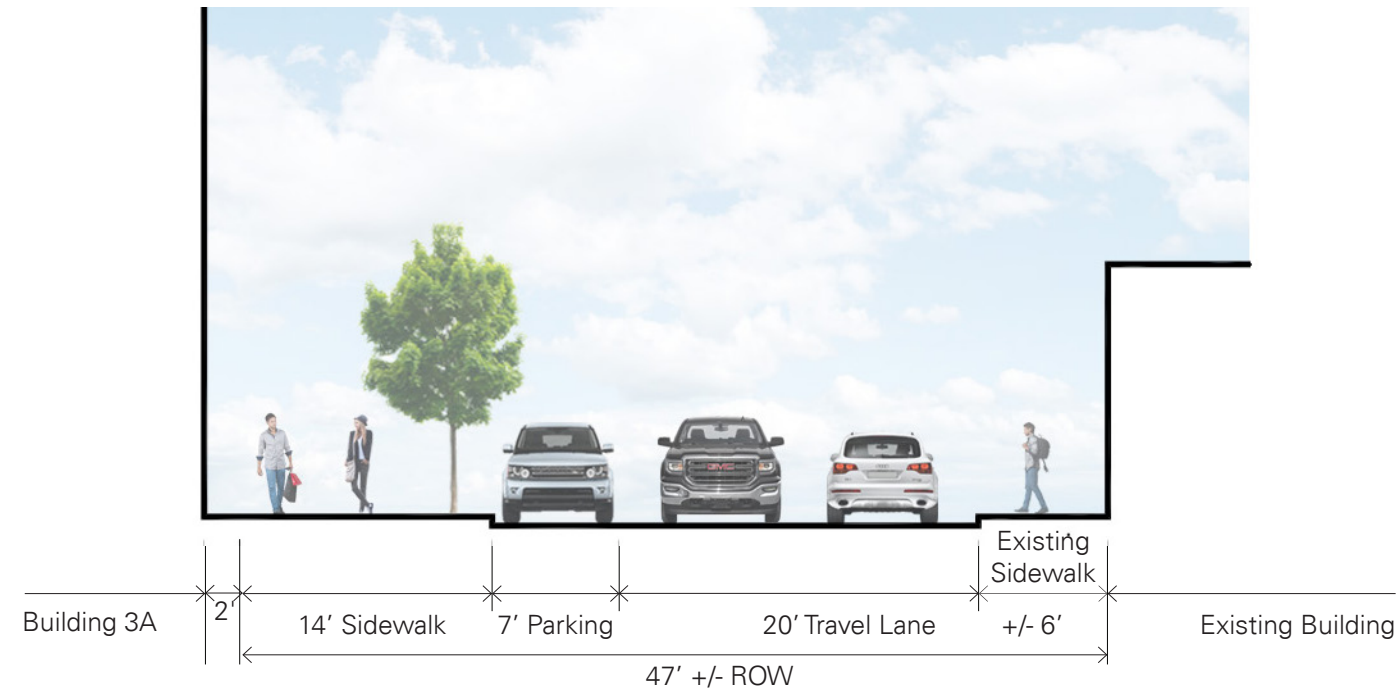
**Boynton Yards**  
**Somerville, Massachusetts**



--- Development Site Boundary



Street Section 5 | Upper Harding Street

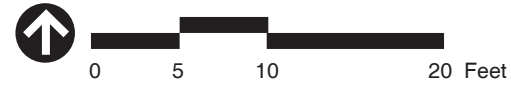


Street Section 6 | Lower Harding Street

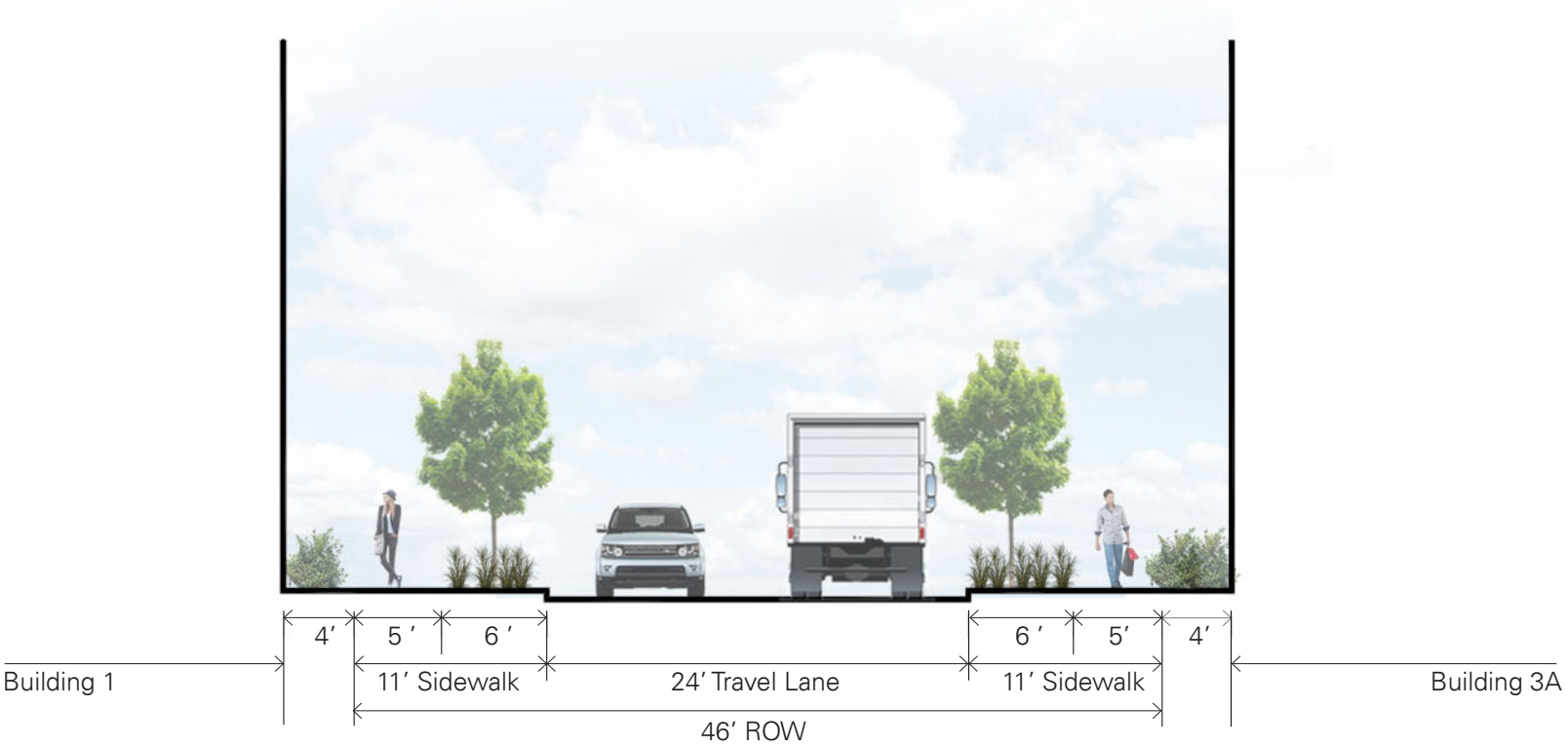


Figure 1.12c  
Street Section - Upper Harding Street

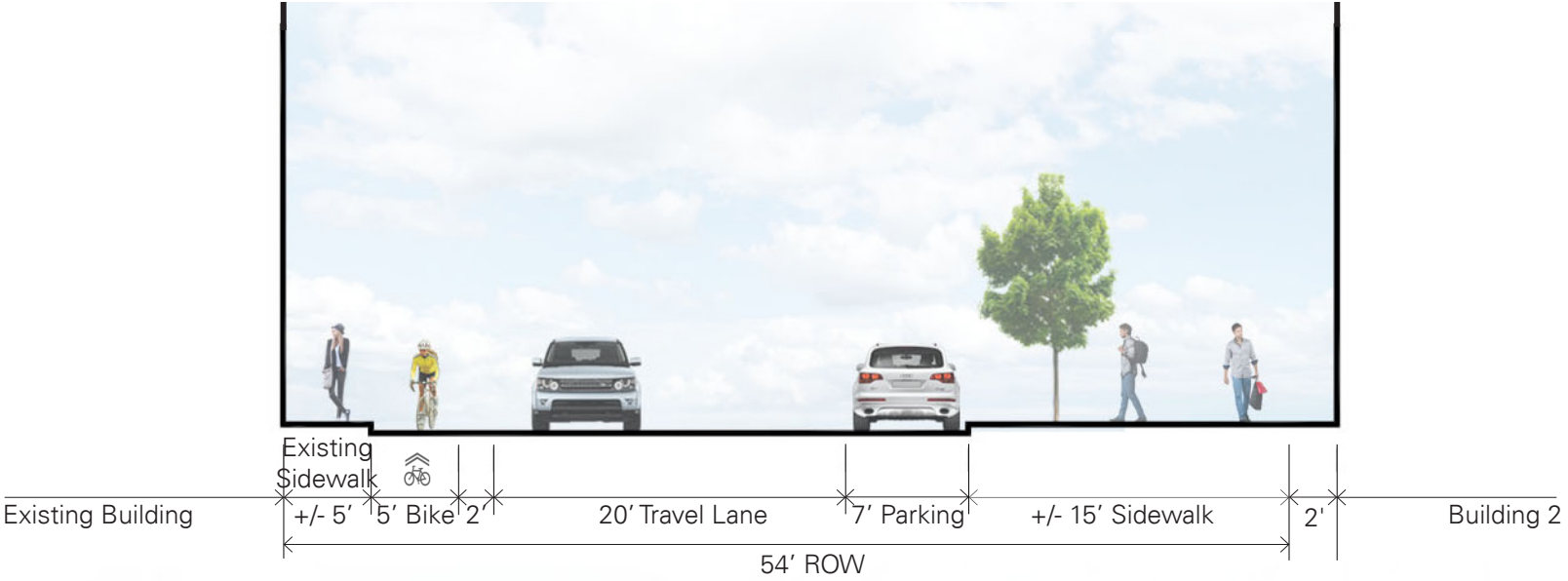
**Boynton Yards**  
**Somerville, Massachusetts**



--- Development Site Boundary



Street Section 7 | Earle Street

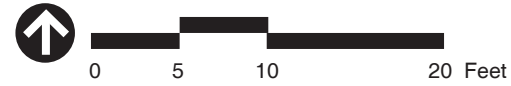


Street Section 8 | Windsor Street

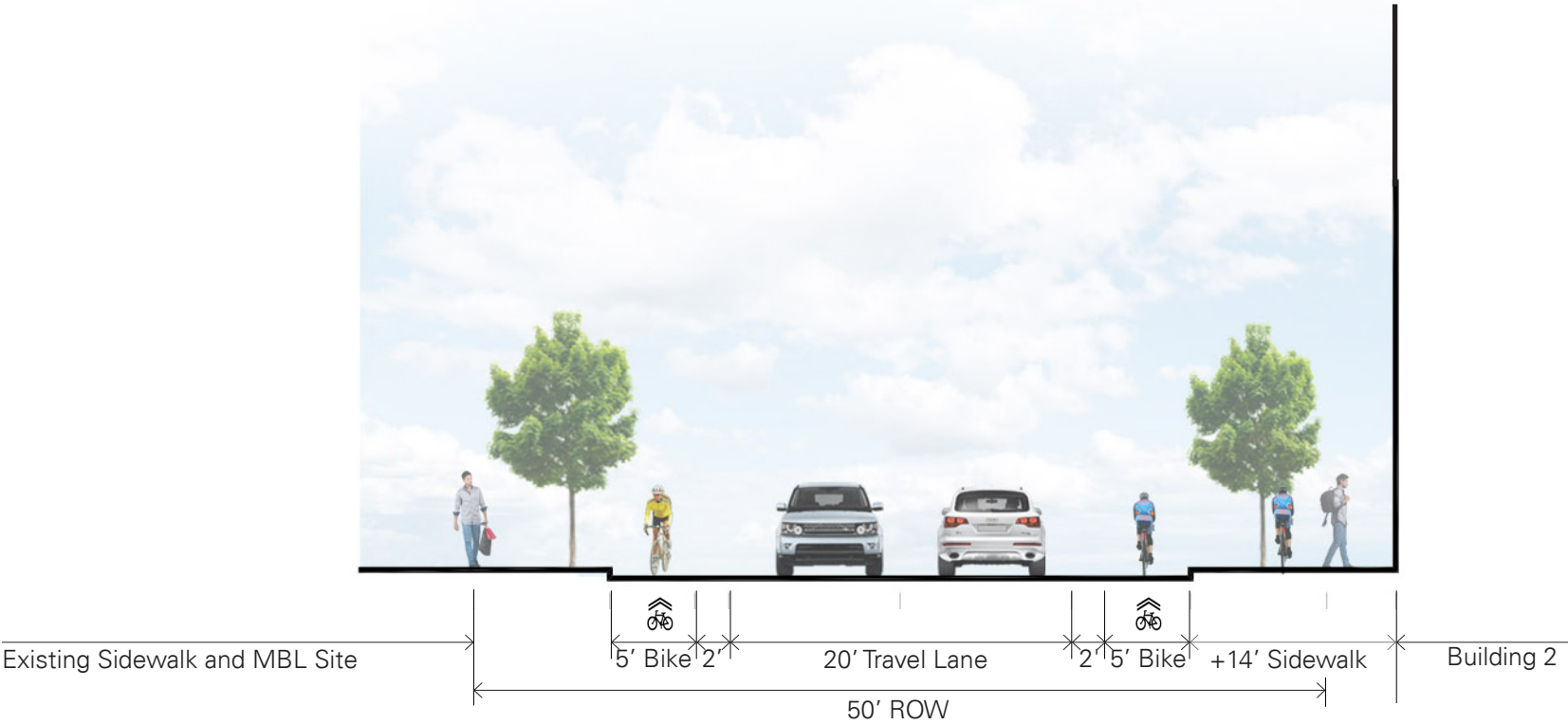


Figure 1.12d  
Street Section - Earle Street and Windsor  
Street  
**Boynton Yards**  
**Somerville, Massachusetts**

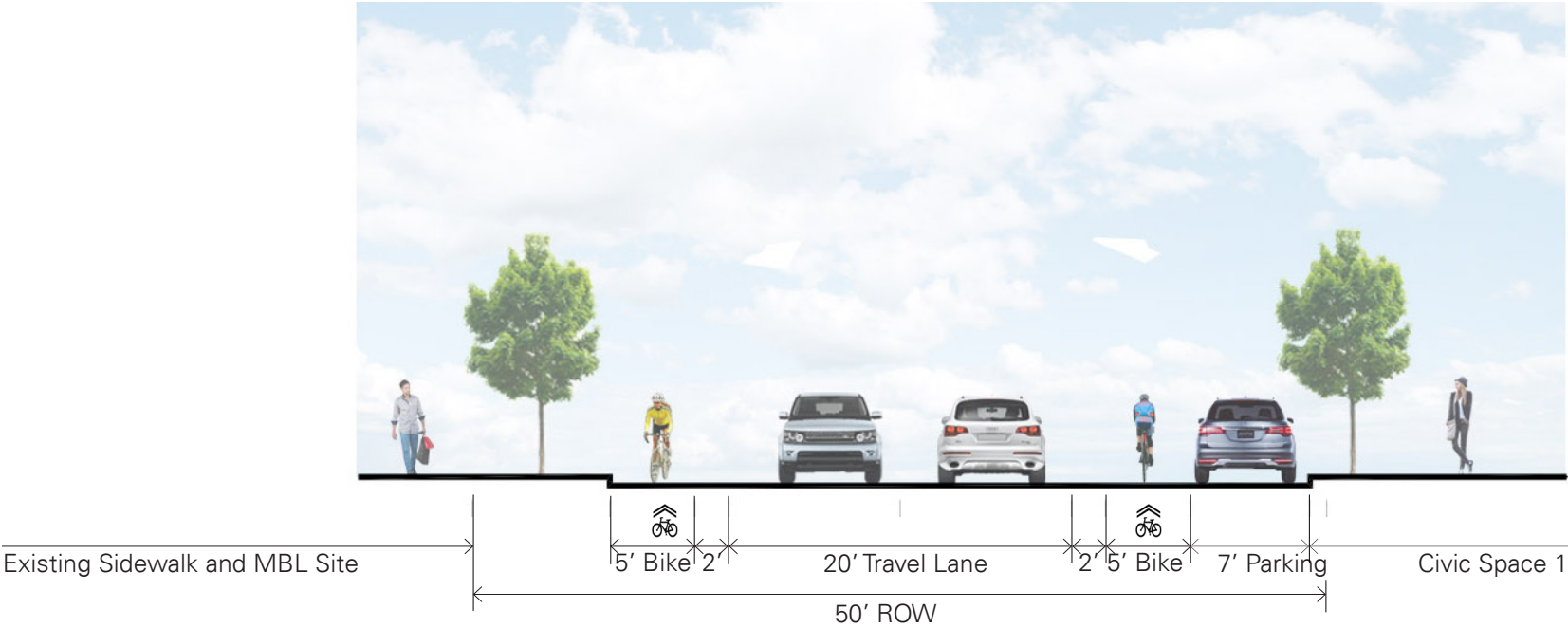




Development Site Boundary



Street Section 9 | South Street



Street Section 10 | South Street



Figure 1.12e  
Street Section - South Street

**Boynton Yards  
Somerville, Massachusetts**





Development Site Boundary



Figure 1.14a  
Phasing Plan - Phase 1

Boynton Yards  
Somerville, Massachusetts





Development Site Boundary



Figure 1.14b  
Phasing Plan - Phase 2

**Boynton Yards**  
**Somerville, Massachusetts**





Development Site Boundary



Figure 1.14c  
Phasing Plan - Phase 3

**Boynton Yards**  
**Somerville, Massachusetts**

# 2

## Utility Analysis

This chapter presents an analysis of the infrastructure-related aspects of the Project. Specifically, this evaluation includes the following elements:

- › Existing and proposed water distribution system;
- › Existing and proposed sanitary sewer system;
- › Existing and proposed stormwater management system; and
- › Utilities analysis.

Please refer to Figure 2.1 for an existing conditions plan, Figure 2.2 for a layout and materials plan, and Figure 2.3a-e for utilities plans.

Through various consultant led studies and analyses, City of Somerville Engineering Department has confirmed that, in the vicinity of the Project, the City-owned existing infrastructure has adequate capacity for water distribution. Additionally, the City has confirmed that the existing combined sewer infrastructure in the vicinity of the Project is inadequate in large storm events for storm drainage. Separations are needed to provide sanitary sewer systems. There are several private utility companies that serve the Development Site; therefore, it is anticipated that these companies will continue to provide service and work with the Proponent to upgrade and extend service to the Project as well.

### 2.1 Summary of Key Findings and Benefits

The key impact assessment findings related to infrastructure systems include:

- › The existing utility infrastructure systems along with the proposed improvements to both public and private systems are expected to be adequately sized to meet the demand associated with the development and operation of the Project.
- › The Project will comply with the City's Policy for New Connections and Modifications to Existing Connections to the Municipal Sewer and Drain System, Stormwater Management, and Infiltration/Inflow Mitigation, which was last updated on May 14, 2018.
- › The Project will comply with the City's Site Construction Permit Rules & Regulations which were introduced in June 2020.
- › The Project is estimated to generate approximately 220,852 gallons per day (GPD) of sanitary sewage and will require approximately 242,937 GPD of water.
- › The design team will analyze feasibility of reusing stormwater for the portions of the Project's irrigation system in the next design phase.

## 2.2 Public Utilities Connection Summary

- › The Project proposes five new domestic water service connections as well as up to ten new fire protection water services for the four proposed buildings. Building 1 (also known as “101 South”) is connected from a new 10-inch water main within Earle Street. Building 2 connects to an existing 16-inch water main in South Street. Buildings 3 and 4 connect to a new proposed 10-inch main in Thoroughfare 1.
- › The Project proposes five new sanitary sewer service connections as well as three additional connections for potential lab waste at 101 South, Building 2, and Building 3. 101 South connects sanitary sewer and lab waste to an existing 10-inch sewer in South Street. Buildings 2 and 3 connect sanitary sewer and lab waste to the proposed 12-inch sewer in Thoroughfare 1. Building 4 has two connections for combined residential and kitchen waste to the proposed 12-inch sewer in Thoroughfare 1.
- › The Project proposes eight new storm drain connections to public infrastructure for the four new buildings. 101 South connects with two services to a new 18-inch stormwater main in Earle Street, which then connects to the new 42-inch stormwater main in Thoroughfare 1. Building 2 connects two services to the new 36-inch stormwater main in Thoroughfare 1, west of Earle Street. Buildings 3 will have two connections to the new 42-inch stormwater main in Thoroughfare 1, east of Earle Street. Building 4 will have one connection to the 36-inch stormwater main in Thoroughfare 1, west of Earle Street, and one connection to the 42-inch stormwater main in Thoroughfare 1, east of Earle Street.

## 2.3 Water Supply and Distribution

### 2.3.1 Existing Water Supply and Distribution System

Per Somerville record drawings and the existing conditions survey performed by Feldman Land Surveyors, existing water infrastructure within and adjacent to the Development Site includes:

- › An existing 16-inch water line constructed in 1898 traverses a large portion of the Development Site. The material of the line is assumed to be pit cast iron. The line enters the Development Site from under the existing Taza Chocolate building to the west and traverses east under the future location of Building 2 and 101 South towards Earle Street. The water line then makes a 90-degree turn southward on Earle Street. The line makes another 90-degree turn eastward to traverse the future location of Building 3 before crossing Harding Street at Ward Street;
- › An existing 10-inch water line extending eastward in Ward Street from the water main described above;
- › An existing 16-inch loop constructed in 1996 in the public right-of-way of Windsor Place. The material of the line is assumed to be ductile iron;



- › An existing 16-inch water line constructed in 1898 in Windsor Street from Windsor Place to South Street. The material of the line is assumed to be pit cast iron;
- › An existing 16-inch water line constructed in 1996 in South Street from Windsor Street to Earle Street. The material of the line is assumed to be ductile iron;
- › An existing 10-inch water line in South Street from Earle Street to Harding Street;
- › An existing 10-inch water line in Earle Street from South Street to the 16-inch water main described above; and
- › An existing 6-inch water line in Harding Street from South Street to Ward Street.

The manner in which these existing water mains are situated creates a 16-inch loop around and through the Development Site.

### **2.3.1.1 Existing Water System Demands**

The existing uses at the Development Site include commercial uses comprised of a one- to two-story office and warehouse. There is also a two-family residential property within the Development Site.

The water demand for the existing uses at the Development Site is approximately 5,405 GPD. Calculations are included in Appendix D.

### **2.3.1.2 Existing Water System Analysis**

A hydraulic evaluation was completed by Kleinfelder/CDM Smith on behalf of the City of Somerville Engineering Department dated May 2013 and updated October 2017 and November 2018. The evaluation concluded that the water infrastructure in Boynton Yards was sized for heavy industrial users. Oversized infrastructure is contributing high water age, i.e. time of water spent inside the pipeline before delivery to customers/buildings. Additionally, the report concluded the existing 16-inch water loop around the Development Site within South Street, Earle Street, and Windsor Street would be oversized for the planned commercial and residential uses associated with this Project.

## **2.3.2 Proposed Water System**

### **2.3.2.1 Proposed Water System Demands**

The proposed uses at the Development Site include three office/R&D/lab buildings with ground floor retail and restaurant uses, as well as one residential building with ground floor retail and restaurant uses.

The water demand for the proposed uses at the Development Site is approximately 242,937 GPD. Calculations are included in Appendix D.

### **2.3.2.2 Proposed Water System Improvements**

Per recommendations from the City of Somerville Engineering Department, in conjunction with the completed hydraulic evaluation by Kleinfelder/CDM Smith, the Proponent will be installing new water infrastructure in specific areas of the Development Site. This new water infrastructure proposed is depicted on Figures 2.3a-d, and includes:

- › During Phase 1A, the Proponent will install a portion of 10-inch water main on the northern end of Earle Street from the existing 16-inch water line that traverses Building 3 northward to Thoroughfare 1.
- › As part of the Phase 1B scope of work, the Proponent is proposing approximately 500 linear feet (LF) of new 10-inch water main in Thoroughfare 1 from Windsor Street to Earle Street. This new water main will replace the long stretch of 16-inch main that traverses the future locations of 101 South and Building 2. The existing main will be removed.
- › During Phase 3, the Proponent proposes to construct an additional approximately 300 LF of new 10-inch water main in Thoroughfare 1 and Harding Street to connect from Earle Street to Ward Street. The existing 16-inch main within the future location of Building 3 will be removed.

Through the Site Plan Approval process for each phase of the Project, the Proponent, in coordination with the City of Somerville Engineering Department, will ensure that adequate sizes of new water main infrastructure are proposed to serve all aspects of the Master Planned Development.

## **2.4 Sanitary Sewer System**

### **2.4.1 Existing Sewer System**

Per Somerville record drawings and the existing conditions survey performed by Feldman Land Surveyors, existing sanitary sewer infrastructure within and adjacent to the Development Site includes:

- › An existing 36-inch brick combined sewer line within an existing easement through the Development Site. This combined sewer line flows in an easterly direction from Windsor Street, east within the future location of Building 2 and 101 South, then makes a 90 degree turn to run southward down Earle Street. After another 90 degree turn eastward towards the future location of Building 3, the sewer transitions to a 42-inch brick line. The 42-inch brick combined sewer continues eastward in Ward Street and discharges to existing combined sewer in Medford Street. Flows from the Medford Street combined sewer are conveyed to the Deer Island Wastewater Treatment Plant via Massachusetts Water Resources Authority (MWRA) regulators downstream.
- › An existing 10-inch sanitary sewer flows northward in Windsor Street from South Street to the existing 36-inch combined sewer described above.

- › An existing 10-inch sanitary sewer that flows eastward in South Street from Windsor Street to Earle Street.
- › An existing 12-inch sanitary sewer that flows westward in South Street from Harding Street to Earle Street.
- › An existing 12-inch by 15-inch combined sewer vitrified clay pipe that flows northward in Earle Street from South Street and discharges to the 42-inch brick combined sewer line as it crosses Earle Street to the future location of Building 3.

#### **2.4.1.1 Existing Sewer System Generation**

The existing uses at the Development Site include commercial uses comprised of a one- to two-story office and warehouse. There is also a two-family residential property within the Development Site.

The sewer generation for the existing uses at the Development Site is approximately 4,915 GPD. Calculations are included in Appendix D.

#### **2.4.1.2 Existing Sewer System Analysis**

Although the existing combined sewer system may be adequate to serve the Development Site for sanitary flows, the infrastructure is limited in rainfall events by combined flows. As documented by the City of Somerville in *Somerville Climate Forward*, the Development Site experiences flooding during high intensity precipitation events.

A Sewer Separation and Flood Mitigation Analysis was completed by Stantec on behalf of the City of Somerville Engineering Department dated January 30, 2019. This study recommends separated facilities and presents multiple alternatives to achieve that which would result in adequate capacity for not only sanitary sewer but also storm drainage.

### **2.4.2 Proposed Sewer System**

#### **2.4.2.1 Proposed Sewer System Generation**

The proposed uses at the Development Site include three office/R&D/lab buildings with ground floor retail and restaurant uses, as well as one residential building with ground floor retail and restaurant uses.

The sewer generation for the proposed uses at the Development Site is approximately 220,852 GPD with a net new sewer generation of approximately 215,938 GPD. Calculations are included in Appendix D.

#### **2.4.2.2 Proposed Sewer System Improvements**

As per recommendations from the City of Somerville Engineering Department, in conjunction with the Sewer Separation and Flood Mitigation Analysis completed by Stantec, the Proponent will be installing new separated sanitary sewer infrastructure



in specific areas of the Development Site. This new sanitary sewer infrastructure includes:

- › As part of the Phase 1B scope of work, the Proponent is proposing approximately 550 LF of new 12-inch sanitary sewer in Thoroughfare 1 from Windsor Street to Earle Street. In conjunction with new storm drainage, this will allow the existing 36-inch combined sewer to be removed.
- › During Phase 3, the Proponent proposes to construct an additional approximately 300 LF of 12-inch sanitary sewer in Thoroughfare 1 and Harding Street to connect from Earle Street to Ward Street. In conjunction with new storm drainage, this will allow the 42-inch existing combined sewer to be removed.

Through the Site Plan Approval process for each phase of the Project, the Proponent, in coordination with the City of Somerville Engineering Department, will ensure adequate sizes of new sanitary sewer infrastructure are proposed to serve all aspects of the master plan. Please see Figures 2.3a-e for a depiction of proposed sanitary sewer system improvements.

#### **2.4.2.3 Sewer Mitigation / Infiltration and Inflow (I/I)**

The Proponent will participate in the City's Infiltration and Inflow ("I/I") program. Calculations in Appendix D anticipate approximately 215,938 GPD of net new sewage generation over the four proposed buildings on the Development Site. As each building enters construction separately, I/I mitigation fees will be calculated and paid appropriately.

## **2.5 Stormwater Drainage System**

### **2.5.1 Existing Drainage System**

Per Somerville record drawings and the existing conditions survey performed by Feldman Land Surveyors, existing storm drain infrastructure within and adjacent to the Development Site includes:

- › The existing 36 to 42-inch brick combined sewer described in Section 2.4.1;
- › An existing 42-inch separated storm drain in Windsor Place constructed in 1996. The material of the main is assumed to be reinforced concrete pipe (RCP). This 42-inch storm drain discharges to the above-mentioned combined sewer via a short 12-inch connection;
- › An existing 12-inch storm drain in Windsor Street that flows northward to the existing 36-inch brick combined sewer that bisects the Development Site;
- › An existing 24 to 36-inch separated storm drain in South Street constructed in 1996. The material of the main is assumed to be RCP. This 24 to 36-inch storm drain discharges to the existing combined sewer in Medford Street; and
- › The existing 12-inch by 15-inch combined sewer in Earle Street described in Section 2.4.1.

### 2.5.2 Proposed Drainage System

Per recommendations from the City of Somerville Engineering Department, in conjunction with the Sewer Separation and Flood Mitigation Analysis completed by Stantec, the Proponent will be installing new separated storm drain infrastructure in specific areas of the Development Site. This new storm drain infrastructure includes:

- › During Phase 1A, the Proponent will install 250 LF of new 12 to 18-inch separated storm drain in Earle Street from just north of the intersection with South Street northward towards future Thoroughfare 1. A temporary storm drain connection will be provided to the existing 36 to 42-inch combined sewer described above.
- › As part of the Phase 1B scope of work, the Proponent has proposed 550 LF of new 36-inch separated storm drain in Thoroughfare 1 from Windsor Street to Earle Street. In conjunction with proposed sanitary sewer, this will allow the existing 36-inch combined sewer to be removed.
- › During Phase 3, the Proponent proposes to construct an additional approximately 300 LF of 42-inch separated storm drain in Thoroughfare 1 and Harding Street to connect from Earle Street to Ward Street. In conjunction with proposed sanitary sewer, this will allow the 42-inch existing combined sewer to be removed.

Through the Site Plan Approval process for each phase of the Project, the Proponent, in conjunction with the City of Somerville Engineering Department, will ensure adequate sizes of new storm drain infrastructure are proposed to serve all aspects of the master plan. Please see Figures 2.3a-e for a depiction of the proposed storm drain system improvements.

### 2.5.3 Connection to Municipal Stormwater Detention Tank

Additionally, while not a component of the Project, the City is proposing the future construction of a three million gallon below-grade stormwater detention tank and pump station at the northeast corner of the Development Site beneath Civic Space 2. This design is described in a memorandum to the City of Somerville by Stantec, dated January 30, 2019. The preferred alternative included relining the existing 36 to 42-inch combined sewer to be used for separated storm conveyance to the tank. The tank would then pump discharge to the Somerville Avenue Box Culvert via a 16-inch force main.

During Phase 3, the Proponent will construct an inlet control structure manhole within or in the vicinity of the intersection of Thoroughfare 1 and Harding Street. The control manhole has been discussed in concept with the City of Somerville Engineering department preceding any detailed design. The control manhole will allow stormwater flows to be directed to the detention tank. In storm events greater than the 10-year return interval, overflows will be allowed to discharge directly to the remaining 42-inch combined sewer in Ward Street.

## **2.5.4 Stormwater Mitigation**

### **2.5.4.1 Compliance with City Standards**

The Project will comply with all requirements of Large Project Review as put forth in the new Site Construction Permit Rules & Regulations. These requirements will be met on a site-by-site basis at the local permit review level. As part of these requirements, each building will provide elevated stormwater management and treatment as compared to existing conditions or prior regulations.

Regulations now require that all Large Projects reduce stormwater rate of runoff to the extent that the proposed 10-year return interval storm (NOAA Atlas 14) peak flow is less than the existing 2-year return interval storm peak flow. In addition, elevated removal of Total Suspended Solids (TSS) and Total Phosphorus (TP) is required.

The Proponent will study locations for infiltration and/or detention systems both within each Building 2-4, and in site areas associated with each building. As the preferred alternative, infiltration systems with footprints open to groundwater recharge would achieve compliance with peak rate reduction, TSS and TP removal requirements. If site constraints or subsurface constraints are encountered, closed bottom retention tanks would be introduced to comply with peak rate reduction requirements. Structural water quality units would also be introduced to comply with TSS and TP removal requirements.

### **2.5.4.2 Stormwater Reuse**

The Proponent will explore using storage tanks for stormwater reuse for mechanical and irrigation purposes in the design phases for Buildings 2-4. Buildings 2-4 will comply with the Zoning Ordinance, adopted on December 12, 2019, which requires that new projects over 50,000 SF meet the minimum requirements to achieve a LEED Platinum Certifiable level through sustainable and high-performance building strategies.

### **2.5.4.3 Permeable Open Space**

The overall Project will increase permeable open space by approximately 8.5 percent over existing conditions with the addition of approximately 10,500 square feet of vegetated/landscaped area and approximately 10,500 SF of permeable paver zones required as part of the City's streetscape standards. This will increase the overall performance of storm drain infrastructure by reducing the amount of surface runoff leaving the Development Site.

### **2.5.4.4 Green Infrastructure**

In addition to providing increased permeable open space and permeable paver areas, the Project will realize other benefits by using green infrastructure. Bioretention basins will be integrated into the landscape design of each building of the Project, to the maximum extent practicable. These bioretention basins will

provide stormwater benefits of retention and pollutant removal, as well as low maintenance shrubs and plantings. The Proponent will also explore the use of green roofs in the design phases for Buildings 2-4.

## **2.6 Private Utilities**

### **2.6.1 Gas Distribution System**

The Development Site is currently served by Eversource. Existing uses on the Development Site are served by small localized natural gas lines. The existing natural gas infrastructure on and around the Development Site is inadequate for the future demands of the Project. As part of Phase 1, the Proponent is working with Eversource to install a new 8-inch natural gas main in Thoroughfare 1 from Windsor Street to Earle Street to provide service for the Project.

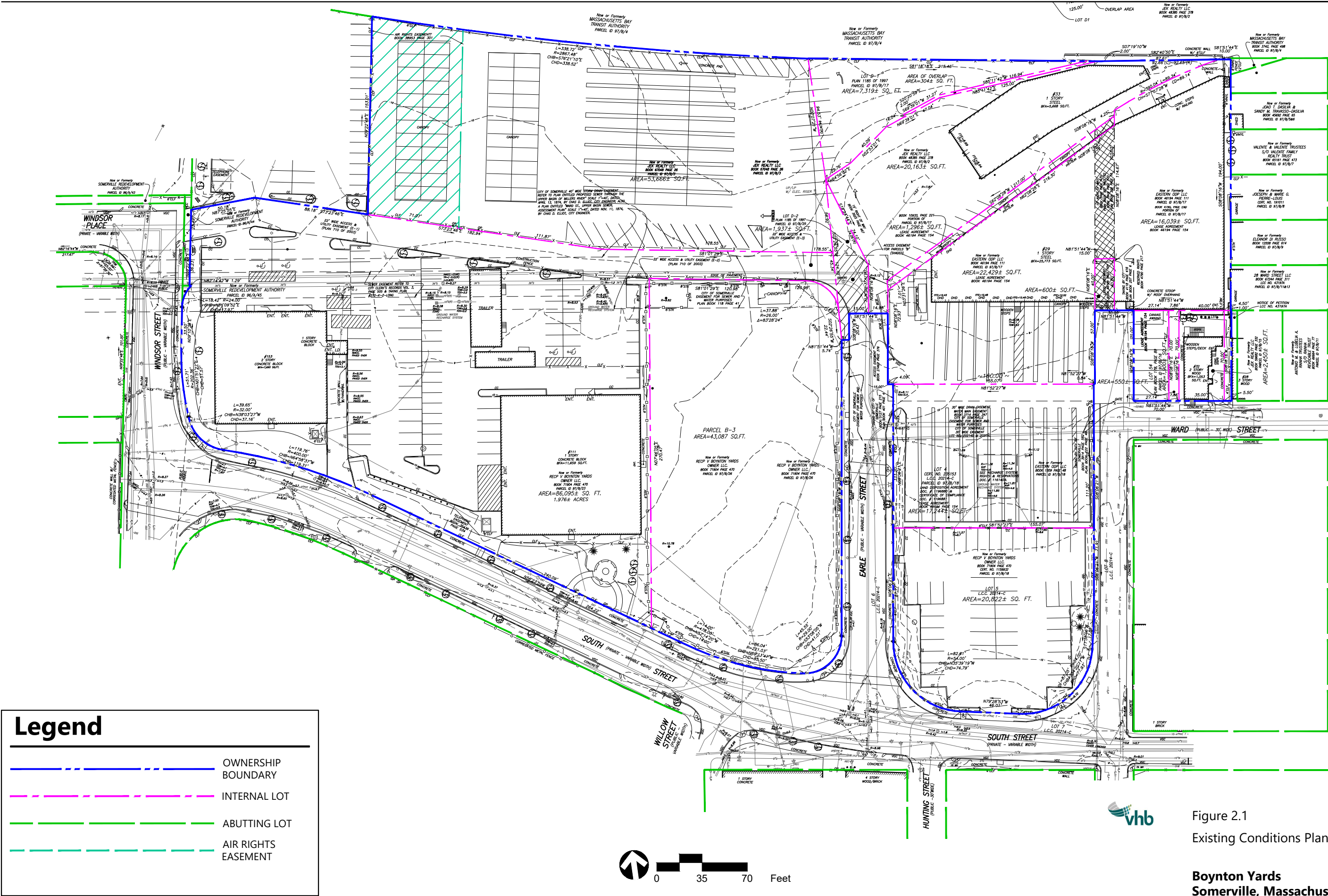
### **2.6.2 Electrical Distribution System**

The Development Site is currently served by Eversource. Existing uses on the Development Site are served by overheard head power. The existing Development Site and surrounding area lacks sufficient electric infrastructure to support the future demands of the Project. As part of both Phase 1A and Phase 1B, the Proponent is working with Eversource to install a nine-conduit duct bank in Thoroughfare 1 from Windsor Street to Earle Street. Service duct banks of four conduits will extend from new manholes to provide electric service for 101 South and Building 2 in their respective phases. During Phase 3, the nine-conduit duct bank will be extended eastward in Thoroughfare 1 from Earle Street to Harding Street at Ward Street to provide service for Building 4 and potentially connect to other Eversource infrastructure.

### **2.6.3 Telecommunications Distribution System**

The Development Site is currently served by both Verizon and Comcast for telephone, CATV and fiber services in a limited capacity. The Development Site lacks sufficient underground Tel/CATV/Fiber infrastructure in the existing condition to support the future demands of the proposed Project. As part of Phase 1A, the Proponent is working with both providers to install a nine-conduit duct bank and a four-conduit duct bank in Earle Street from South Street to Thoroughfare 1 to provide service for future developments on the Development Site. During Phase 3, telecommunications services will be provided in Thoroughfare 1 east and west of Earle Street to provide service for the Project.

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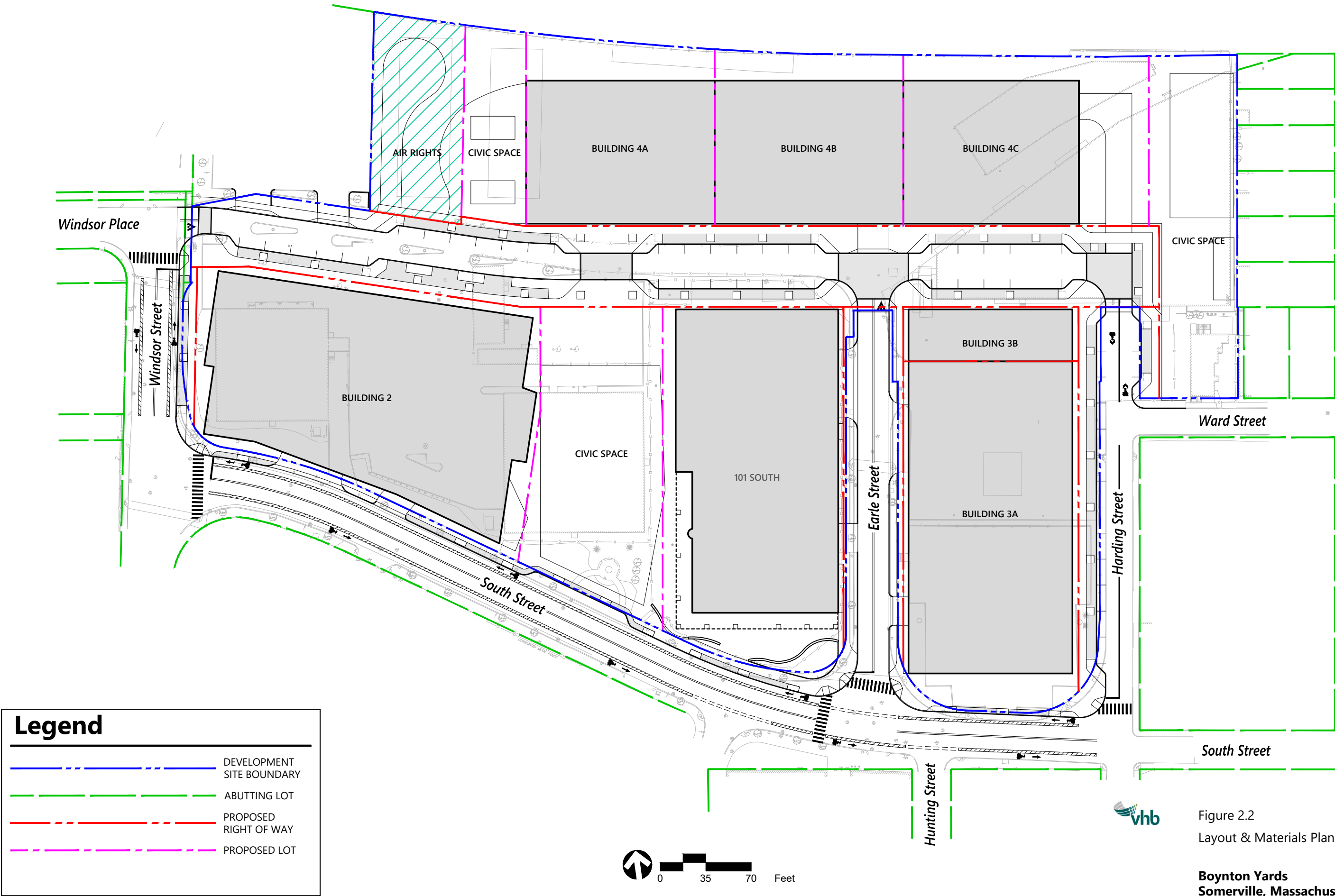


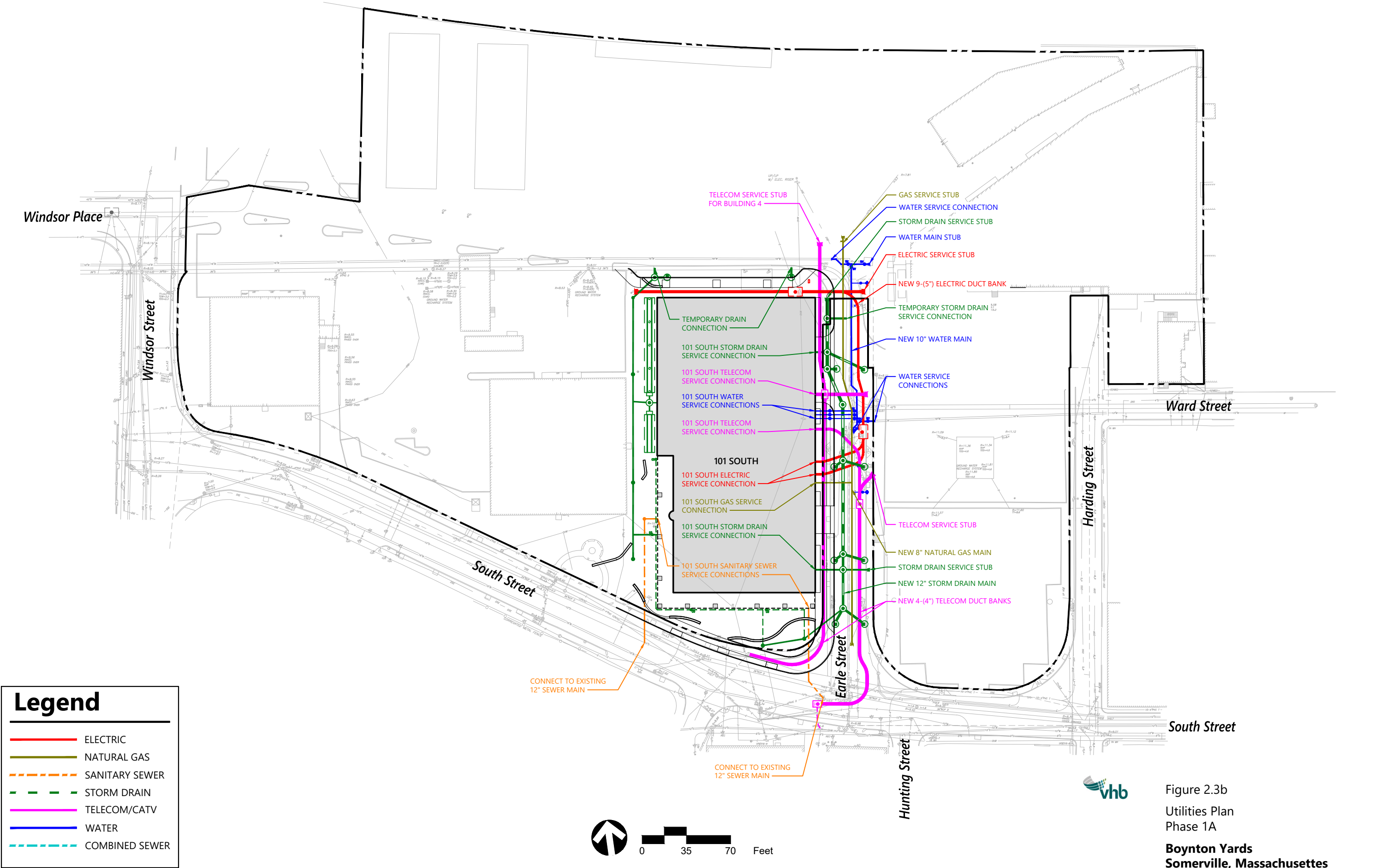
Figure 2.2  
Layout & Materials Plan

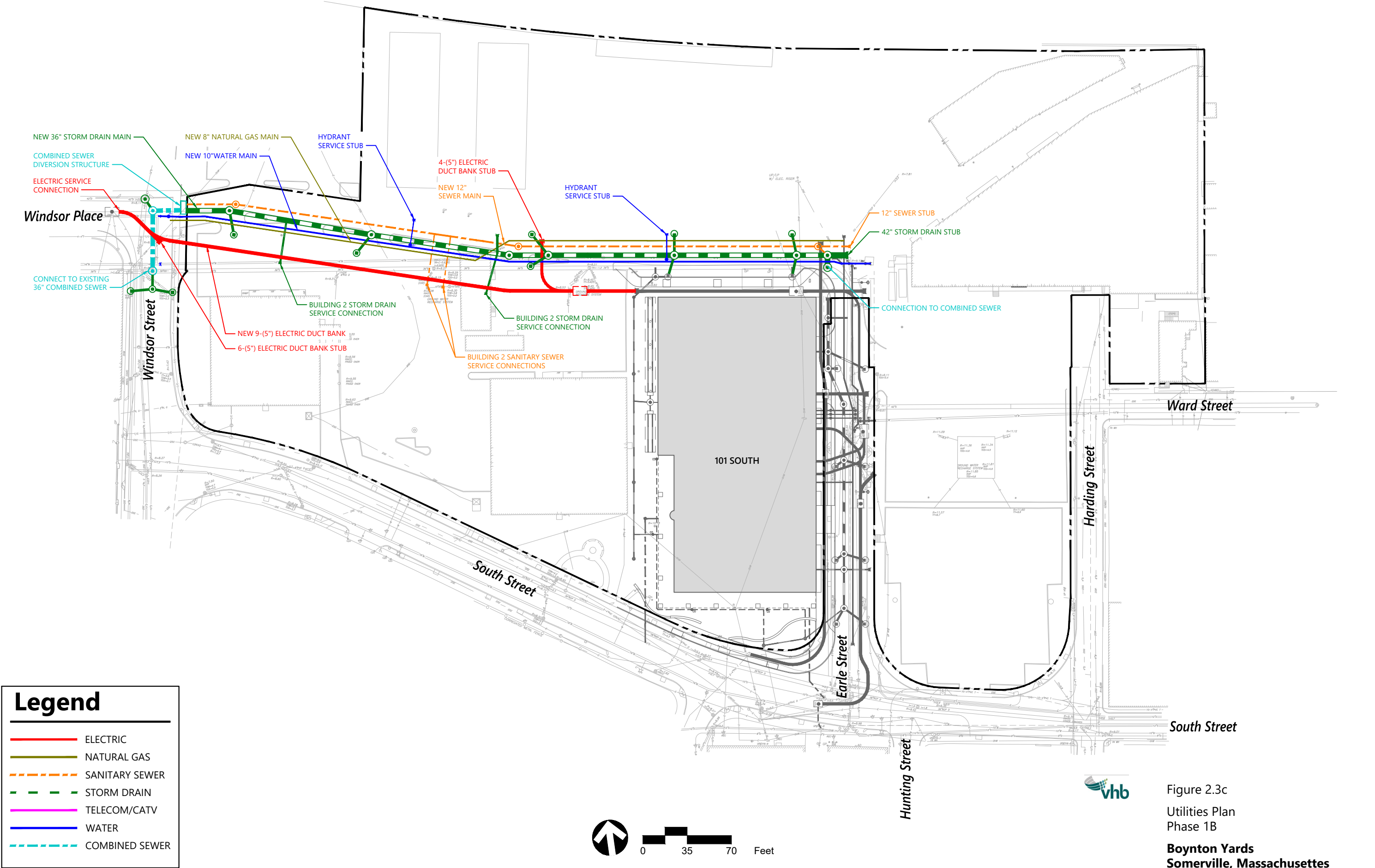
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Somerville, Massachusetts

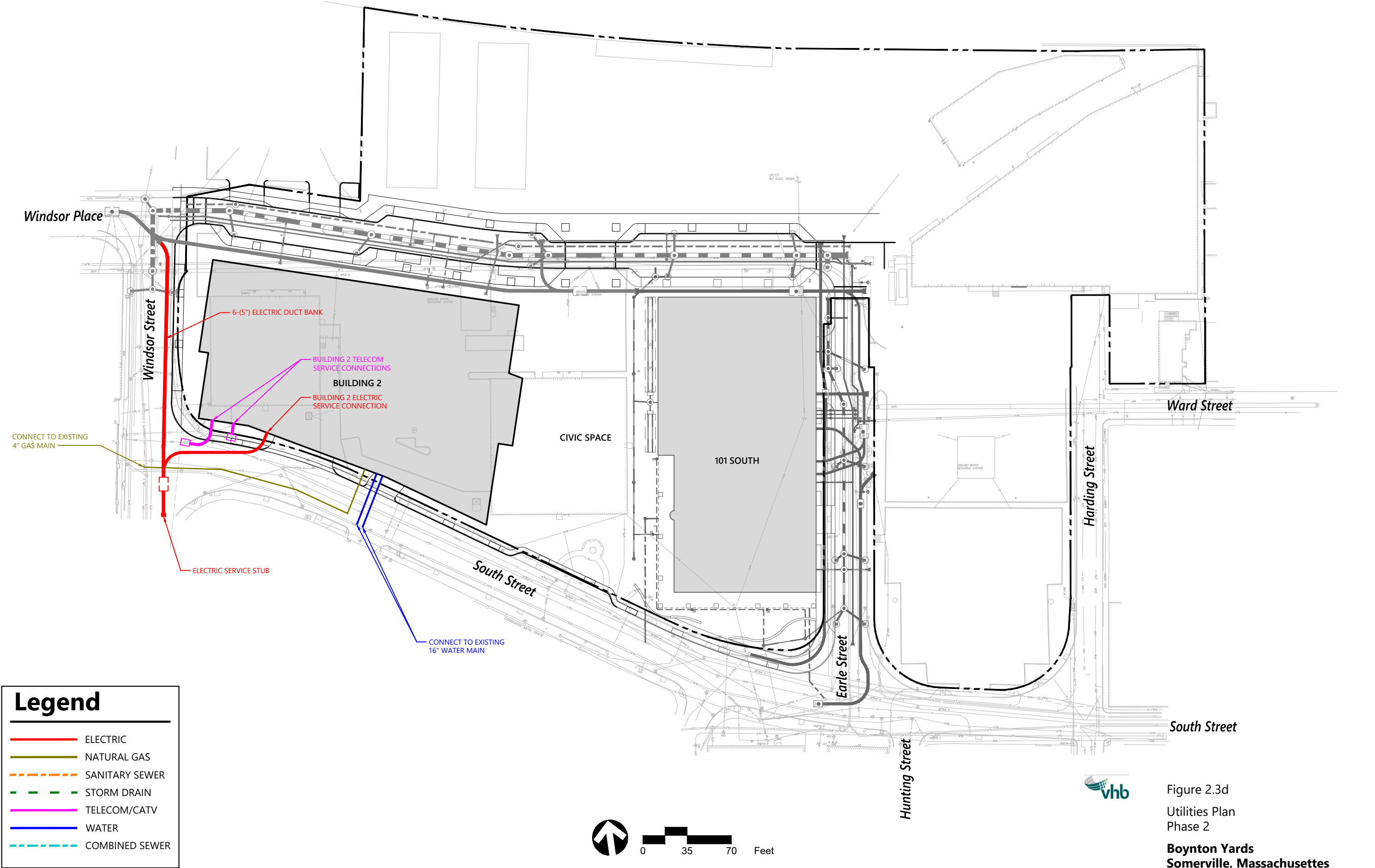




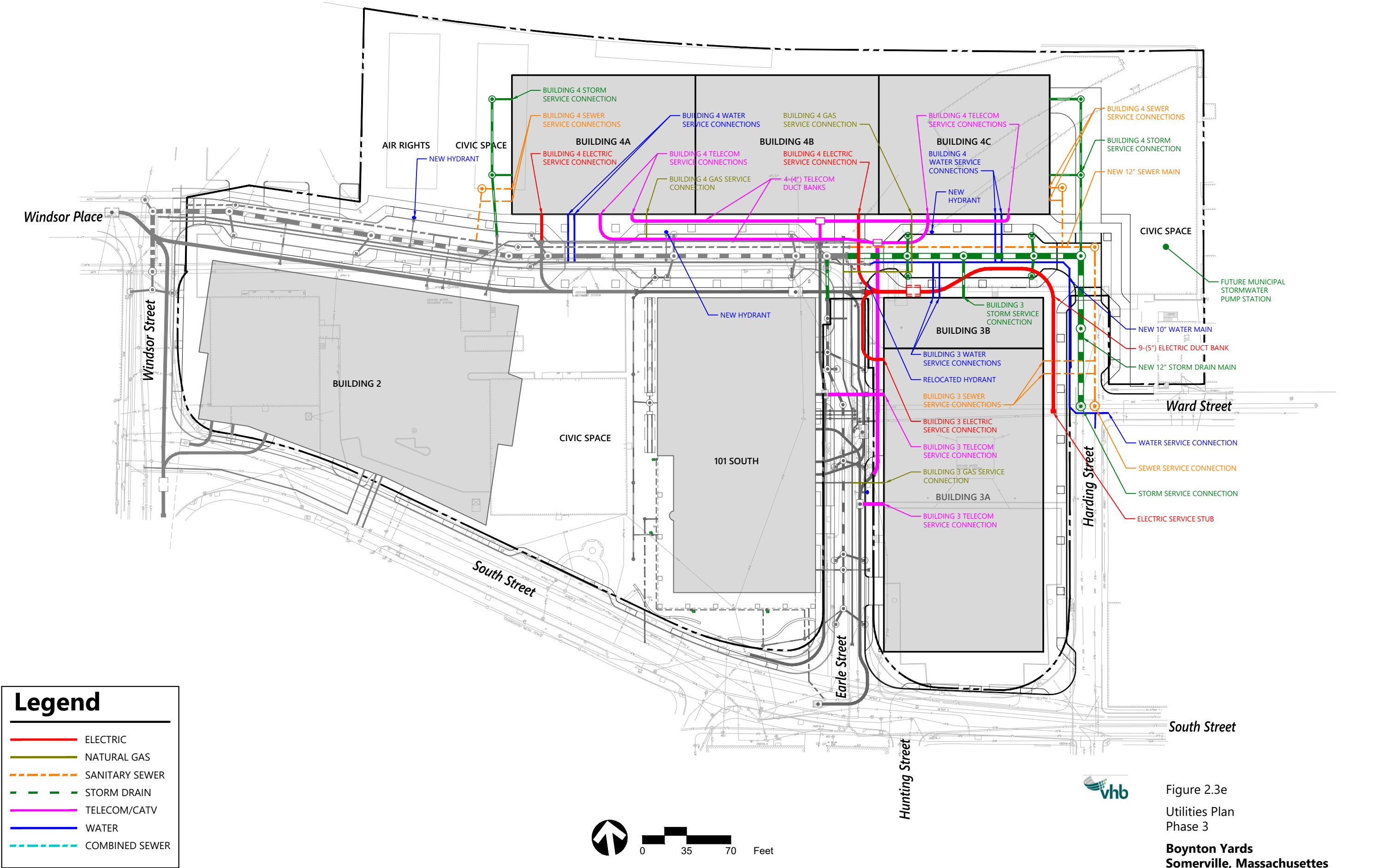












# 3

## Zoning Compliance Narrative

This chapter briefly describes how this Project complies with applicable provisions of the Zoning Ordinance.

### 3.1 MASTER PLAN STANDARDS

#### 8.3 Master Planned Development (MPD)

##### 8.3.6 In-Lieu Payments

##### a. Master Planned Development

**(i) The Planning Board may permit an in lieu payment for up to ten percent (10%) of the civic space required in each sub-area by Special Permit in accordance with Section 12.3 Buyouts & Payments.**

This section is not applicable to the Project. Refer to Section 1.5 of Chapter 1, *Project Description*, for a summary of the proposed Civic and open space improvements proposed by the Proponent.

Refer also to Appendix C for a copy of the Civic Space Study that provides an analysis of existing open and Civic space resources within walking distance of the Development Site.

##### b. Contributing Lots

**(i) The Planning Board may permit an in lieu payment for up to one hundred percent (100%) of the civic space required in each sub-area by Special Permit in accordance with Section 12.3 Buyouts & Payments.**

This section is not applicable to the Project.

##### 8.3.7 Master Plan Standards

**a. Submitted master plans must include a sustainability component that details the following:**

**(i) Identification of all master plan scale efforts to mitigate climate change impacts identified in Somerville's Climate Change Vulnerability Assessment in relation to the design, construction, and occupancy or use of all thoroughfares, civic spaces, and buildings.**

Refer to Section 1.9.3 of Chapter 1, *Project Description*, for a preliminary analysis of the potential impacts of changes in climate conditions related to extreme weather and increased precipitation and temperatures within

the Development Site and components of the Project. This section identifies preliminary building and site related measures to increase resiliency, which will be advanced as each Project component goes through Site Plan Review.

**(ii) A carbon neutral pathway assessment.**

Refer to Section 1.9.1 of Chapter 1, *Project Description*, for a carbon neutral assessment.

**(iii) A storm water management and green infrastructure plan.**

Refer to Figure 2.3a of Chapter 2, *Utility Analysis*, for a plan depicting the proposed stormwater management and green infrastructure. Proposed stormwater improvements be developed in accordance with applicable City and State standards and regulations.

**b. Submitted master plans must include development phasing commitments and proposed contingencies as a basis of a performance bond.**

Please refer to Section 1.11 of Chapter 1, *Project Description*, for a summary of the Project Schedule and phasing.

**8.3.8 Thoroughfares & Civic Spaces**

**a. Required and recommended thoroughfares and civic spaces are shown on the regulating maps for each subarea.**

**(i) Required thoroughfares and civic spaces are mandatory and necessary to implement the approved plan for each sub-area.**

The Project will comply with this requirement. As described herein, the Proponent will provide the thoroughfares and Civic spaces within the boundaries of the Development Site that the Proponent controls and will enable future developers or the City to realign South Street. As depicted on Figure 1.8a-b, in compliance with the required Civic space depicted on Map 8.3.12(b), the Proponent proposes the construction of the approximately 22,360 SF Civic Space 1, abutting South Street and Thoroughfare 1 at the heart of the Development Site. Refer to Section 1.5 of Chapter 1, *Project Description*, for a summary of the proposed Civic and open space improvements proposed by the Proponent.

As depicted on Figure 1.13b and described in Section 1.6 of Chapter 1, *Project Description*, in compliance with the required thoroughfares depicted on Map 8.3.12(b) of the Zoning Ordinance, during Phase 2 of the Project, West Ward Street will be reconstructed and connected to Harding Street, and Thoroughfare 1. The required thoroughfare within the Development Site under the control of the Proponents will also comply with Section 8.3.12(d)(ii) of the Zoning Ordinance.

The design of Civic Space 1 within the Development Site acknowledges the City's future goal of realigning South Street to provide a continuous connection between Medford Street and Webster Avenue, which is a required thoroughfare depicted on Map 8.3.12(b) of the Zoning Ordinance and a stated goal of the PRISBY and USNP plans. The Development Site is designed to be modified at the time of this potential realignment, offering a pedestrian focused streetscape and allowing Civic Space 1 to be expanded by others to meet the City's goal of a cohesive 52,000 SF open space between South Street and Ward Street (Thoroughfare 1). The Proponent also understands that the City intends to reconfigure the easterly segment of South Street between Harding Street and Medford Street so that it will allow for one-way eastbound traffic, as opposed to the current condition under which the road is one-way westbound. The Proponent does not control the timing of the future realignment or reconfiguration of South Street, or the scope of the potential associated open space improvements associated with land outside the Development Site Boundary.

**(ii) Recommended thoroughfares and civic spaces are ideal, but not mandatory.**

This section is not applicable to this Project.

**b. Thoroughfares and civic spaces are subject to the provisions of Article 13: Public Realm of this Ordinance.**

The application is for a MPSP approval and at this time specific details for the landscaping and materials selection associated with the proposed Civic spaces have not been designed. Design of the proposed Civic spaces will be addressed during the Site Plan approval process for each Project component. Refer to Appendix C for a copy of the Civic Space Study that provides an analysis of existing Civic space resources within walking distance of the Development Site.

Hardscape materials, trees, plantings, seating, and lighting will comply with the provisions of Sections 10.3, *Landscaping*, and 13.1, *Civic Space*. Circulation is a critical component of the proposed Civic space, and the proposed improvements will aim to enhance pedestrian connections between the Project components and provide welcoming spaces for the public to traverse the Development Site. Civic space will be accessible to the public and will be designed as accessible per ADA and Massachusetts Architectural Access Board (MAAB) regulations. The Project is exploring on-site locations for bicycle parking as well.

**c. All thoroughfares and civic spaces must be dedicated to the public in perpetuity by a covenant or other deed restriction.**

Consistent with this section of the Zoning Code, all Civic Space will be dedicated to the public in perpetuity by a covenant or other appropriate deed restriction.<sup>1</sup>

Additionally, it is the Proponent's intent to dedicate portions of the ROW associated with the proposed public realm improvements within the Development Site boundary along Windsor Place Extension, Earle Street and Harding Street. The Proponent will work collaboratively with the City to determine the exact area to be dedicated as the Project design advances.

**d. Civic space created through easement or decommissioning of an existing thoroughfare or other abutting right-of-way may be counted toward the required amount of civic space.**

This section is not applicable to the Project.

### **8.3.9 Development Standards**

#### **a. Sustainable Development**

**(i) Laboratory buildings must be LEED Platinum certifiable.**

The Project will comply with this requirement. Buildings 2 and 3 will include laboratory uses and will be constructed to meet the minimum requirements to achieve a LEED Platinum Certifiable level using the most current LEED Core and Shell rating system at the time each building is advanced.

Preliminary LEED scorecards that meet the most current LEED standards at the time will be prepared during the Site Plan approval application process for each building showing a pathway to achieve the standards of this section.

**(ii) All other building types must meet the following:**

**a) No on-site combustion for HVAC system operation;**

The Project will comply with this requirement. Building 4 will include residential uses and will be prohibit on-site combustion for HVAC and cooking uses.

**b) No on-site combustion for cooking equipment, excluding Eating & Drinking Establishment principal uses; and**

Refer to Section 8.3.9(ii)a above.

**c) Be certifiable as:**

<sup>1</sup> In compliance with the Proponent's land disposition agreement with the Somerville Redevelopment Authority dated September 12, 2019, the Proponent is presently in discussions with the City regarding the potential to transfer the underlying fee simple ownership of a portion of the underlying land associated with Civic Space 1 and Civic Space 2 to the City,



**(i) Zero Carbon or higher from the International Living Future Institute; or**

**(ii) PHIUS+ from the Passive House Institute US.**

The Project will comply with this requirement. Building 4 will include residential uses and will be constructed to meet the standards of either Zero Carbon or higher from the International Living Future Institute; or PHIUS+ from the Passive House Institute.

### **8.3.10 Parking & Mobility**

#### **a. Type**

**(i) Unless otherwise specified, motor vehicle parking must be provided as underground structured parking. All other types of parking are prohibited.**

The Project will comply with this requirement. The Project will accommodate approximately 1,002 parking spaces to support the commercial, residential, and retail uses. In accordance with the Zoning Ordinance, these spaces are proposed to be in multiple subgrade parking structures associated with each individual development parcel.

#### **b. Parking Maximums**

**(i) The maximum number of off-street parking spaces and reserved parking spaces permitted for each sub-area is specified in the provisions for each subarea.**

The Project will comply with this requirement. The Project will accommodate up to 1,002 parking spaces, leaving approximately 498 spaces for future development in this Sub-Area.

#### **d. Parking Access**

**(i) Access for motor vehicles, loading, and service to new blocks and individual lots must be from an alley. The configuration of alleys internal to a block must conform to §10.1.5 Alley Access.**

The access plan to all four new blocks has been designed off an alley or service road. 101 South (previously approved) and Building 3 have been designed with loading and user access via a drive internal to the buildings from Earle Street, which is classified as a service road. Loading and access for Building 2 will initially be from South Street and/or Windsor Street, but will be shifted to a dedicated alley when South Street is realigned. Building 4 has been designed to utilize an alleyway extending from the intersection of Thoroughfare 1 and Harding Street.

### **8.3.12 Boynton Yards (BY) Sub-Area**

#### **e. Master Plan Standards**

**(i) At least five percent (5%) of the total commercial floor area included in the proposed build out or twenty thousand (20,000) square feet, whichever is less, and at least ten thousand (10,000) square feet must be dedicated to a Community Center Principal Use.**

The Project will comply with this requirement. The Proponent currently intends to incorporate the Community Center use into Building 4. As an alternative, the Proponent will continue to coordinate with neighboring landowners, the community, and the City to determine the feasibility for the Project to contribute towards a district-wide Community Center outside the Development Site, which can serve the entire neighborhood of the greater BY Sub-Area.

Further, as described below, in compliance with the Zoning Ordinance, the Proponent proposes to allocate approximately 10 percent of commercial space associated with Buildings 2-4 for art/creative enterprise uses.<sup>2</sup>

#### **f. Build Out Standards**

**(i) General - Development Sites subject to approval Master Plan Special Permit may comply with the following standards in aggregate rather than for each individual lot by Master Plan Special Permit:**

As described herein, the Project has aggregated the following build out standards across the Development Site:

##### **(ii) Civic Space**

**a) At least twenty percent (20%) of each Development Site, excluding thoroughfares, must be provided as one or more civic spaces.**

The Project will comply with this requirement by providing 20 percent of the Development Site exclusive of thoroughfares as required (See Civic Space 1 required by 8.3.12.f.ii.b) and other Civic spaces. Refer to Section 1.5 and Figure 1.8a-b of Chapter 1, *Project Description*, for a summary of the proposed Civic and open space improvements proposed by the Project.

**b) A civic space, of at least fifty-two thousand (52,000) square feet, must be provided, abutting both West Ward Street and South Street, within the required civic space area indicated on Map 8.3.12 (b) and may be developed as a public common or a public square civic space type.**

<sup>2</sup> 101 South was approved in 2017 under the previous zoning ordinance. Consistent with existing approvals, 101 South, will allocate approximately five percent of the total commercial floor area as arts & creative Enterprise uses.

The Project complies with this requirement by providing the approximately 22,360 SF Civic Space 1 as the portion of the Civic space within its control. Within the Development Site boundaries, the Proponent only controls a portion of the area where this required Civic space is to be located. As depicted on Figure 1.8b, in compliance with the required Civic space depicted on Map 8.3.12(b), the Project proposes the construction of the approximately 22,360 SF Civic space, abutting South Street and Thoroughfare 1 at the heart of the Project development.

Recognizing the City's plan to develop the full 52,000 SF Civic space, the Development Site has been designed so as not to preclude the potential future realignment of South Street by the City or others who may control that roadway. The potential realignment of South Street would allow Civic Space 1 to be expanded by others to meet the City's goal of cohesive, 52,000 SF open space between South Street and Ward Street.

### **(iii) Commercial Floor Area**

#### **a) At least seventy-five percent (75%) of the floor space of any building must be dedicated to non-residential uses, excluding Auto-Oriented principal uses.**

The Project complies with this requirement. Approximately 1,027,000 SF of uses will be allocated for non-residential uses, which represents 75 percent of the total proposed GFA (1,365,000 SF) in accordance with the Zoning Ordinance.

#### **b) At least ten percent (10%) of the total commercial floor area required by §8.3.11.f.iii must be dedicated to Arts & 7 Enterprise principal uses.**

The Project complies with this requirement. Approximately 1,027,000 SF of uses will be allocated for commercial uses.

#### **c) At least three hundred and seventy five (375) square feet of commercial space must be provided for each dwelling units.**

The Project complies with this requirement. The Project proposes approximately 330 residential dwelling units, which would translate into a minimum of 123,750 SF required commercial space (375 SF/DU). The Project proposes approximately 1,027,000 SF of commercial uses.

### **g. Building Standards**

#### **(i) The standards of Table 8.3.12 (a) supersede specific dimensional standards for building types permitted by the zoning district shown on the regulating maps of this Section.**

In addition to being located within the Boynton Yards Sub-Area, the Development Site is located with "High-Rise" zoning district. The proposed buildings will be designed in accordance with the City of

Somerville's defined building typologies defined in Article 5 of the Zoning Ordinance. The section and tables below identify which building type each component of the Project is most consistent with.

The summary Tables below provides a high-level summary of the average lot and building dimensions for each Project building. For additional details on zoning compliance, please refer to Attachment A.

Building #1, also known as 101 South was permitted and approved under the previous City zoning ordinance and is therefore not subject to the dimensional standards under the new Zoning Ordinance.

**Table 3-1 Building 2 - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>Lab Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min	268'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	35,000 SF max	34,000 SF
Podium Height (ft.) / Stories	N/A	N/A
Building Height <sup>2</sup>	155' <sup>1</sup>	185' / 12 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

**Table 3-2 Building 3A - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>Lab Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min	270'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	35,000 SF max.	30,000 SF
Podium Height (ft.) / Stories	N/A	N/A
Building Height <sup>2</sup>	155' <sup>1</sup>	185' / 12 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

**Table 3-3 Building 3B - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>General Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min	42'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	30,000 SF max.	6,000 SF
Podium Height (ft.) / Stories	N/A	N/A
Building Height <sup>2</sup>	80' / 6 Stories <sup>1</sup>	95' / 6 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

**Table 3-4 Building 4A - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>General Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min.	195'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	30,000 SF max.	9,500 SF
Building Height (Podium) <sup>3</sup>	N/A	N/A
Building Height (Tower) <sup>3</sup>	80' / 6 Stories <sup>1</sup>	183' / 16 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

**Table 3-5 Building 4B - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>General Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min.	145'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	30,000 SF max.	9,500 SF
Building Height (Podium) <sup>3</sup>	N/A	N/A
Building Height (Tower) <sup>3</sup>	80' / 6 Stories <sup>1</sup>	128' / 11 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

**Table 3-6 Building 4C - Dimensional Summary Table**

	Permitted	Proposed
<b>Proposed Building Type</b>	<b>General Bldg.</b>	
<b>Lot Dimensions/Development</b>		
Lot Width (ft)	30' min.	188'
Lot Depth (ft)	N/A	N/A
Typical Floor Plate (SF)	30,000 SF max.	8,800 SF
Building Height (Podium) <sup>3</sup>	N/A	N/A
Building Height (Tower) <sup>3</sup>	80' / 6 Stories <sup>1</sup>	73' / 6 Stories <sup>1</sup>

<sup>1</sup> Requirements related to the number of stories and building height are superseded by the dimensional standards of Section 8.3.12 of the Zoning Ordinance.

## **h. Parking and Mobility**

**(i) The maximum number of off-street parking spaces in the BY sub-area may not exceed one thousand five hundred (1,500) spaces.**

Refer to Section 8.3.10b(i) above

**(ii) Up to three hundred (300) off-street parking spaces may be provided as reserved parking spaces.**

The Project does not propose any off-street, reserve parking spaces. Parking for all uses within the Development Site will be unbundled.

However, residents of Building 4 that elect to lease a parking space independently of their residential unit will have access to a parking spaces within the garage, though not a specifically designated spot.

## 3.2 ARTICLE 10: DEVELOPMENT STANDARDS

### 10.3 Landscaping

#### 10.3.5 Site Landscaping

The application is for a MPSP approval and at this time specific details for the landscaping and materials selection associated with the proposed Civic and open space has not been designed. Please refer to Section 1.5 of Chapter 1, *Project Description*, for a general discussion of proposed Civic space. The design of all Civic and open space will be advanced and addressed during the Site Plan approval process for each phase of the Project. Materials and plant selection will comply with the provisions of Sections 10.3, *Landscaping*, and 13.1, *Civic Space*, and the following characteristics.

Plant materials will be selected for their tolerance of urban conditions, year-round interest and reduced water usage. As such, native and adapted species will be utilized throughout. Additionally, species that offer habitat value and are pollinator-friendly will be given greater priority in planting design.

Shade trees will be located to maximize canopy cover over hardscape surfaces to help reduce heat island effect. In streetscape planting conditions, structural soil will be utilized to increase each tree's growing medium volume. The Project Team is committed to working with the PSUFD to advance the landscape plan going forward to address the BYUDF (described in Section 1.12.4 of Chapter 1, *Project Description*) goal of increasing tree canopy cover in the BY Sub-Area to at least 15 percent following ten years of growth after full build-out.

Irrigation, where provided, will employ Water Sense practices, making use of smart technologies and efficient watering products to provide the optimal amount of water when needed.

### 10.4 Green Score

#### 10.4.3 Applicability

**a. This section is applicable to the construction of any new principal building and any substantial renovation of a principal building.**

This application is for MPSP approval, and at this time specific details for the landscaping, materials selection and the Project's Green Score have not been designed and calculated. Details on the Green Score, including proposed landscaping materials will be provided during the Site Plan

Approval process for each Project component. Materials and plant selection will comply with the provisions of Sections 10.3, *Landscaping*, and 13.1, *Civic Space*.

#### **10.4.4 Compliance & Enforcement**

**a. Real property must comply with the Green Score indicated for each building type. See the standards for each building type in each zoning district for more information.**

Refer to Section 10.4.3.a above. Civic spaces as defined and depicted in Section 1.5 of Chapter 1, *Project Description*, and in Figure 1.8b, shall be permitted to count towards the Green Score calculation for each building type.

#### **10.11 Sustainable Development**

##### **10.11.1 Green Buildings**

**b. New construction or modification of any principal building type greater than fifty thousand (50,000) square feet in gross floor area must be LEED Platinum certifiable.**

The Project will comply with this requirement. Buildings 2 and 3 will include laboratory uses and will be constructed to meet the minimum requirements to achieve a LEED Platinum Certifiable level using the most current LEED Core and Shell rating system at the time each building is advanced.

Preliminary LEED scorecards that meet the most current LEED standards at the time will be prepared during the Site Plan approval application process for each building showing a pathway to achieve the standards of this section.

**c. Development subject to the provisions of this Section must meet the standards of the most current LEED building rating system. During the twelve (12) month time period after the adoption of a new version of LEED, permit applications may be submitted demonstrating compliance to either the immediately previous or newly adopted version of the LEED building rating system.**

Refer to Section 10.11.1.b above.

**d. Development review applications for development subject to the provisions of this Section must include:**

**(i). A completed LEED checklist for the appropriate LEED building standard to demonstrate how the proposed development is anticipated to meet the standards of this Section.**

Refer to Section 10.11.1.b above.

**(ii). A narrative indicating the mechanisms proposed to achieve each of the credits and prerequisites of the appropriate LEED building standard and demonstrating the anticipated methods by which compliance with the requirements of this Section will be achieved at the time of construction.**

In compliance with the Zoning Ordinance, a preliminary LEED narrative will be submitted during the Site Plan Approval application process for each building describing a pathway to achieve the standards of this section. Please refer to Section 1.9.1 and 1.9.2 of Chapter 1, *Project Description*, for a summary of the Project's preliminary sustainability approach.

**(iii). An affidavit by a LEED-Accredited Professional (LEED-AP) Project Manager or by appropriate consultants stating that to the best of their knowledge, the project has been designed to achieve the stated LEED building standard.**

In compliance with the Zoning Ordinance, an affidavit signed by a LEED-Accredited Professional (LEED-AP) will be submitted during the Site Plan Approval application process for each building.

**e. Prior to the issuance of the first Building Permit and prior to the issuance of the first Certificate of Occupancy, the LEED checklist and narrative description outlining compliance with the certification level required by this Section must be updated to identify any design changes made subsequent to Site Plan Approval and submitted to the Building Official accompanied by an affidavit by a LEED-AP Project Manager or appropriate consultants stating that, to the best of their knowledge, the project has been designed to achieve the stated LEED building standard.**

In compliance with the Zoning Ordinance, an updated LEED scorecard and narrative description outlining compliance will be submitted prior to the issuance of the Building Permit, and prior to issuance of the Certificate of Occupancy.

#### **10.11.2 Green Roofs & Storm Water Management**

**a. To every extent practicable, storm water should be reused on-site for irrigation or other purposes.**

The design team will continue to analyze the feasibility of stormwater reuse for the Project irrigation system(s) or other purposes. Additional details will be provided during the Site Plan approval process for each building.

**b. The review boards may authorize the City Engineer to grant a credit to properties, against which any storm water impact fees are imposed, equivalent to the quantity of storm water that is removed**



**from entering the system through the use of green roofs or other onsite storm water management practices.**

The stormwater management design will be studied as a part of the design process of each building. Additional details as applicable will be provided during the Site Plan approval process for each Project building.

#### **10.11.3 Heat Island Reduction**

**a. Roofs and parking covers must have a Solar Reflectance Index as specified on Table 10.11.1 for a minimum of seventy five percent (75%) of the roof area or parking spaces.**

Roofing materials will comply by having a Solar Reflectance Index (SRI) at or above the requirement.

**(i) Roof area and parking spaces covered by solar collectors and green roofs compliant with the provisions of this Ordinance are exempt.**

The Project will continue to evaluate the potential for incorporating rooftop solar PV systems and/or green roofs on a portion of the Project's building rooftops not occupied by outdoor amenity spaces or mechanical equipment. Additional details as applicable will be provided during the Site Plan approval process for each Project building.

**b. Uncovered surface parking spaces must have an initial solar reflectance of at least 0.33 or a three (3) year aged solar reflectance of at least 0.28.**

This section is not applicable to the Project.

#### **10.11.4 Environmental Performance**

**a. The review boards shall establish submittal requirements for development review applications to ensure the following:**

**(i) That shadows cast by high-rise buildings do not substantially and adversely limit ground level access to sunlight on sidewalks and Civic Spaces.**

The net new shadows produced by the Project's buildings are not expected to have any material effect on residential areas or open space in the vicinity of the Development Site. The majority of net new shadows will be cast to the north and east, towards the MBTA train tracks, existing commercial development, and paved areas. Please refer to Appendix A for the shadow studies of the Project's buildings, and a summary of the net new shadows created by the Project's buildings.

**(ii) That by high-rise buildings pedestrian level wind velocities do not exceed acceptable levels for various activities existing or proposed at locations.**

An analysis demonstrating acceptable pedestrian wind comfort will be prepared and submitted during the Site Plan approval process for each building.

**(iii) That buildings do not cause visual impairment or discomfort due to reflective spot glare and solar heat buildup in any nearby buildings.**

An analysis demonstrating that the Project's buildings do not result in any visual impairment or unacceptable solar glare will be prepared and submitted during the Site Plan approval process for each building.

### **3.3 ARTICLE 11: PARKING AND MOBILITY**

#### **11.1 Bicycle Parking**

This application is for MPSP approval. Additional details demonstrating compliance with Section 11.1 and 11.2 of the Zoning Ordinance will be provided during the Site Plan approval process.

#### **11.2 Motor Vehicle Parking**

Refer to Section 11.1 above. The Project will accommodate approximately 1,002 below-grade structured parking spaces to accommodate the commercial, residential, and retail uses. It is anticipated that below-grade parking spaces will be accessible to retail users, as well as to the neighborhood after 5:00 P.M.

The Project will also provide approximately 51 short-term, on-street parallel public parking spaces to support the ground level retail space along the east side of Windsor Street, the south side of Thoroughfare 1, the north side of South Street, and the west side of Harding Street (which is the same as the existing condition).

#### **11.3 Shared Parking**

Due to the varying peak times for the office/R&D/lab and residential uses, there may be opportunities for parking spaces to be shared between residents and workers. The peak residential parking demand should occur outside of normal office working hours. Due to these offsetting peak times, could be opportunities for shared parking between the residential and office uses. For example, other garages serving mixed-uses in the Boston area offer "reverse-commute" parking passes. Under this program, residents have access to certain parking spaces within a garage provided that they arrive after 4:00 PM and depart before 9:00 AM on weekdays. This allows nearby office workers to use these same parking spaces with the reverse time-restriction. The exact time periods for these restrictions can be determined as office tenants are identified.

Similarly, on a less formal basis, some of the office parking spaces could have signage noting that they are restricted to office use from 7:00 AM to 5:00 PM (or other similar time periods) with these spaces being reserved for other uses after that time. That alternate use likely would be by retail or restaurant patrons arriving during the early evening hours. These types of shared-parking activity are preferable to providing excessive parking for the office and residential uses separately without any consideration for these types of sharing opportunities within the Development Site. The excess of parking would discourage alternate means of transportation, such as MBTA bus or train services, biking, taxi, or other ride services.

Most of the Project's retail space will consist of small shops, restaurants, or cafes within each of the four Project buildings. Even without any formal shared parking program, there likely will be shared activity. With those uses, most customer traffic should be in the form of residents or office/lab workers already on-site, as opposed to destination retail traffic.

The potential measures summarized above are intended to illustrate potential programs that could be implemented to help minimize the parking needs for the Project. As the Project moves beyond the MPSP level and into the Site Plan approval process for each buildings these potential measures can be explored in greater detail and refined further as the nature of future tenants is known beyond the current conceptual basis.

#### **11.4 Mobility Management Plan**

**a. A mobility management plan (MMP) is required for all development and for Master Plan Special Permits.**

Refer to Appendix B for the Project's draft MMP.

### **3.4 REVIEW CRITERIA**

#### **15.2.2 Master Plan Special Permit**

##### **e. Review Criteria**

**(i) In its discretion to approve or deny a development review application requiring a Master Plan Special Permit, the Planning Board shall make findings considering, at least, each of the following:**

**a) The comprehensive plan and existing policy plans and standards established by the City.**

The Development Site is located within the Master Planned Development of the Boynton Yards Sub-Area and meets the criteria to establish a

MPSP in accordance with the applicable provisions of Article 8 and with Article 15 of the Zoning Ordinance.

The Project is also consistent with the USNP, the BYUDF, and the PRISBY. According to the guiding city planning documents, the urban design goals for Boynton Yards include but are not limited to: *Create a street network with blocks appropriately sized for commercial buildings; design complete streets; provide 2.59 acres of open space; and build enough residential development to create a vibrant, mixed-use neighborhood.*

Additionally, the Project is consistent with SomerVision, which aims to guide future growth and development in Somerville with the primary goals to: Enhance existing squares and commercial corridors; emphasize pedestrian and transit-oriented planning and design; transform opportunity areas on the eastern and southern edges of Somerville; and focus development around new pedestrian-oriented public places.

**b) The intent of the zoning district where the property is located.**

The Project is located within the BY Sub-Area, which is presently characterized by industrial uses, including automotive, vehicle storage and dispatch for Gentle Giant Moving Company, and commercial laundry services, as well as one- to three-family structures, warehouse buildings, and parking lots. The intent of the zoning district where the Project is located is to provide for a greater variety, density, and intensity of land uses with mid- and high-rise buildings, and to establish a new street grid/thoroughfare and Civic space.

**c) The proposed alignment and connectivity of the thoroughfare network.**

The proposed thoroughfare network is designed in accordance with the goals of the USNP, BYUDF, PRISBY, and the Zoning Ordinance. The proposed street grid (and associated public realm improvements) is intended to strengthen current and future connections between Webster Avenue (to the west) and Medford Street (to the east), with a specific focus on providing improved pedestrian and bicycle connections to the future Union Square MBTA Green Line Station. The organization of the thoroughfare network also establishes opportunities to provide meaningful open space, sensible development parcels, and a vibrant public realm.

As described in Section 1.6 of Chapter 1, *Project Description*, Thoroughfare 1 serves as the Development Site's primary pedestrian spine. This critical east/west connection is designed to deemphasize vehicular travel to instead prioritize pedestrian and bicycle movement. Earle Street serves as the Development Site's service corridor, providing parking and loading access to 101 South and Building 3. The consolidation of the service activities along Earle Street allows

Thoroughfare 1, Windsor Street, and Harding Street to remain focused on accommodating pedestrian, bicycle, and limited vehicular travel. The Development Site's perimeter Streets, including Windsor Street, South Street, and Harding Street, will also be improved to meet the City's goals of providing a pedestrian-friendly, walkable environment in Boynton Yards. These streets will receive street parking lanes, protected bicycle lanes, and expanded sidewalks to meet the intent of the Zoning Ordinance.

South Street will be improved in its current configuration and will offer bi-directional, protected bicycle lanes to facilitate bicyclists traveling east and west.

The design of the Development Site acknowledges the City's future goal of realigning South Street to recreate a grid layout and provide a continuous connection between Medford Street and Webster Avenue. As one of many examples of the Proponent's cooperative partnership with the City, the Development Site is designed to be modified at the time of this potential realignment, offering a pedestrian-focused streetscape and allowing Civic Space 1 to be expanded by others to meet the City's goal of cohesive open space between South Street and Ward Street. The Proponent also understands that the City intends to reconfigure the easterly segment of South Street between Harding Street and Medford Street so that it will allow for one-way eastbound traffic, as opposed to the current condition under which the road is one-way westbound. The Development Site has been designed to be accessible with either option, though the preferred option involves this conversion being implemented, as well as the future option of South Street being aligned further to the west. The Proponent understands that as these are both public roadways under City jurisdiction, any such changes will need to be directed by the City. However, the Proponent is committed to continuing to develop the Development Site consistent with this vision. The Proponent does not control the timing of the future realignment or reconfiguration of South Street, or the scope of the potential associated open space improvements associated with land outside the Development Site Boundary.

**d) The gross floor area allocated to different use categories.**

Refer to Table 1-1 of Chapter 1, *Project Description*, for a program summary table.

**e) Mitigation proposed to alleviate any adverse impacts on utility infrastructure.**

Refer to Chapter 2, *Utility Analysis*, for an analysis of existing and proposed utilities, and proposed mitigation. The utility design and any proposed mitigation will be refined during building design and

elaborated during review of the appropriate Site Plan approval application for each subsequent development phase.

**f) Proposed development phasing.**

It is anticipated that the Project will be constructed in three phases. Please refer to Section 1.11 of Chapter 1, *Project Description*, for a summary of the Project Schedule and Phasing.

**g) Proposed on-street parking to address demand by customers of Retail Sales, Food & Beverage, or Commercial Services principal uses.**

The Project will provide approximately 51 short-term, on-street parallel public parking spaces to support the ground level retail space along the east side of Windsor Street, the south side of Thoroughfare 1, the north side of South Street, and the west side of Harding Street (which is the same as the existing condition).



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# APPENDIX A: Shadow Analysis

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# Shadow Study Narrative

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# APPENDIX A: SHADOW ANALYSIS

## 1.1 Shadow Analysis

### 1.1.1 Regulatory Context

An analysis of the shading impact is a requirement of Article 10 of the Ordinance. Specifically, section 10.4.a states the following:

*The review boards shall establish submittal requirements for development review applications to ensure the following: That shadows cast by high-rise buildings do not substantially and adversely limit ground level access to sunlight on sidewalks and Civic Spaces.*

### 1.1.2 Key Findings/Conclusions

The net new shadows produced by the Project are not expected to have any material effect on residential areas or public open space in the vicinity of the Development Site. The majority of net new shadows will be cast to the north and east, towards the MBTA train tracks, existing commercial development, and paved areas. Net new shadows produced by the Project on the proposed on-site civic/open space are largely limited to the morning and evening hours, and are not expected to have any noticeable effect on pedestrian use or enjoyment of these publicly accessible open spaces.

### 1.1.3 Methodology

The following shadow impact analysis has been prepared using methodologies generally consistent with accepted practices for such studies.

A shadow analysis conducted in an urban area typically compares the shadows cast by existing buildings with those estimated to result from the Project when considering proposed buildings and topography.

The study was accomplished by using a three-dimensional model of the Development Site and surrounding area, using survey and design data for the Development Site, and proposed building massing prepared by Project designers.

The study used sun altitude and azimuth data, which is consistent with the standards established by the City of Somerville for each study date estimated to occur at the Project. Times were adjusted for daylight savings time as appropriate. The proposed shadows cast by the Project were estimated for the spring and fall equinoxes and

the summer and winter solstices. Shadows were estimated for each study date at 9:00 AM, 12:00 PM, 3:00 PM and 6:00 PM. Additionally, a diagram was prepared that shows the cumulative shadow impact for each required date.

The impact of net new shadow cast by the Project is shown in blue in Figures A.1-A.4, while existing shadows are shown in gray.

#### **1.1.4 Results**

The following section describes the estimated shadows under the proposed conditions and anticipated impacts these shadows may have on the nearby open spaces and major pedestrian ways.

##### **March 21 and September 21**

March 21 is the vernal equinox, when the length of day and night are equal. Eastern Daylight Time (EDT) is in effect. The sun rises on March 21 at 6:45 AM EDT in the southeastern sky and sets at 6:57 PM EDT. September 21 is the autumnal equinox and the daytime and nighttime hours are equal. The sun rises at 6:30 AM EDT in the southeastern sky and sets at 6:42 PM EDT. The shadows cast on this date are almost identical to those on March 21, the vernal equinox.

At 9:00 AM on the vernal equinox and autumnal equinox, the Project will cast net new shadow to the northwest of the Development Site over the Taza Chocolate Factory commercial building, a portion of Windsor Street, and a portion of the adjacent property located to the northwest of the Project near, but not touching, the MBTA train tracks. The Project will also result in limited net new shadow over portions of Earle Street, the proposed central open space between Buildings 1 and 2 (the "Public Common"), and a portion of the open space to the west of Building 4 (the "Pocket Park").

At 12:00 PM, the Project will cast net new shadow to the north of the Development Site over the MBTA train tracks, limited portions of Windsor Street to the northwest of the Project, over portions of Boynton Way, and over portions of the proposed Pocket Park to the east of Building 4.

At 3:00 PM the Project will cast net new shadow to the north of the Development Site over the MBTA train tracks, and over an incremental portion of the commercial and residential properties to the northeast of the Development Site. The Project will also result in net new shadows over limited portions of the Public Common, and over portions of Boynton Way, Earle Street, and Ward Street.

At 6:00 PM, the Project will cast net new shadow over portions of Earle Street, Ward Street, Horace Street and to the residential and commercial properties east of the Development Site. The Project will also result in limited net new shadow over portions of the proposed open space to the east of Building 4 (the "Green").

**June 21**

June 21 is the summer solstice, the first day of summer and has the longest day of the year. The sun rises at 5:08 AM EDT and sets at 8:25 PM EDT.

At 9:00 AM on the summer solstice, the Project will cast net new shadow northwest over the Taza Chocolate Factory commercial building and a portion of the adjacent property located to the northwest of the Project near, but not touching, the MBTA train tracks. The Project will also cast net new shadow over a portion of Windsor Street, Earle Street, and the Public Common.

At 12:00 PM, the Project will cast net new shadow to the north over a portion of Boynton Way, and over Windsor Street and Earle Street, a small portion of Pocket Park, and a portion of the northern and eastern sides of Building 4 along the MBTA Commuter Rail train tracks.

At 3:00 PM, the Project will cast net new shadow to the northeast of the Project over a portion of Boynton Way, Harding Street, Earle Street and Ward Street, and a portion of the northern and eastern sides of Building 4 along the MBTA Commuter Rail train tracks.

At 6:00 PM, the Project will cast net new shadow to the east of the Project towards Medford Street over the existing residential and commercial properties, over Harding Street, Earle Street and Ward Street, and over portions of the Public Common and The Green.

**December 21**

December 21 is the winter solstice and the shortest day of the year. The sun is at its lowest inclination above the horizon at each hour of the day. However, even low buildings cast long shadows in northerly latitudes like Somerville, MA. The sun rises at 7:10 AM Eastern Standard Time (EST) and sets at 4:15 PM EST.

Winter shadows due to the low sun angle extend to the northwest across the existing heavily shaded urban landscape. As the day progresses, the shadow moves to the north and northeast over the existing buildings north of the Development Site. Although new shadow is greatest at this period, the days during this time of year are less bright and there is much less contrast between shaded and unshaded areas. Given these environmental conditions, net new shadow is minimal and falls primarily on existing building rooftops.

At 9:00 AM on the winter solstice, the Project will cast net new shadow to the northwest over the MBTA train tracks, over the commercial building north of Windsor Place, over Boynton Way and portions of Windsor Street and Earle Street, and over the Public Common, the proposed Pocket Park to the west of Building 4, and a portion of the improved pedestrian connection that is proposed along the northern and eastern sides of Building 4 along the MBTA Commuter Rail train tracks.

At 12:00 PM, the Project will cast net new shadow to the north over the MBTA train tracks and a portion of the big box commercial stores to the north of the

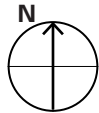
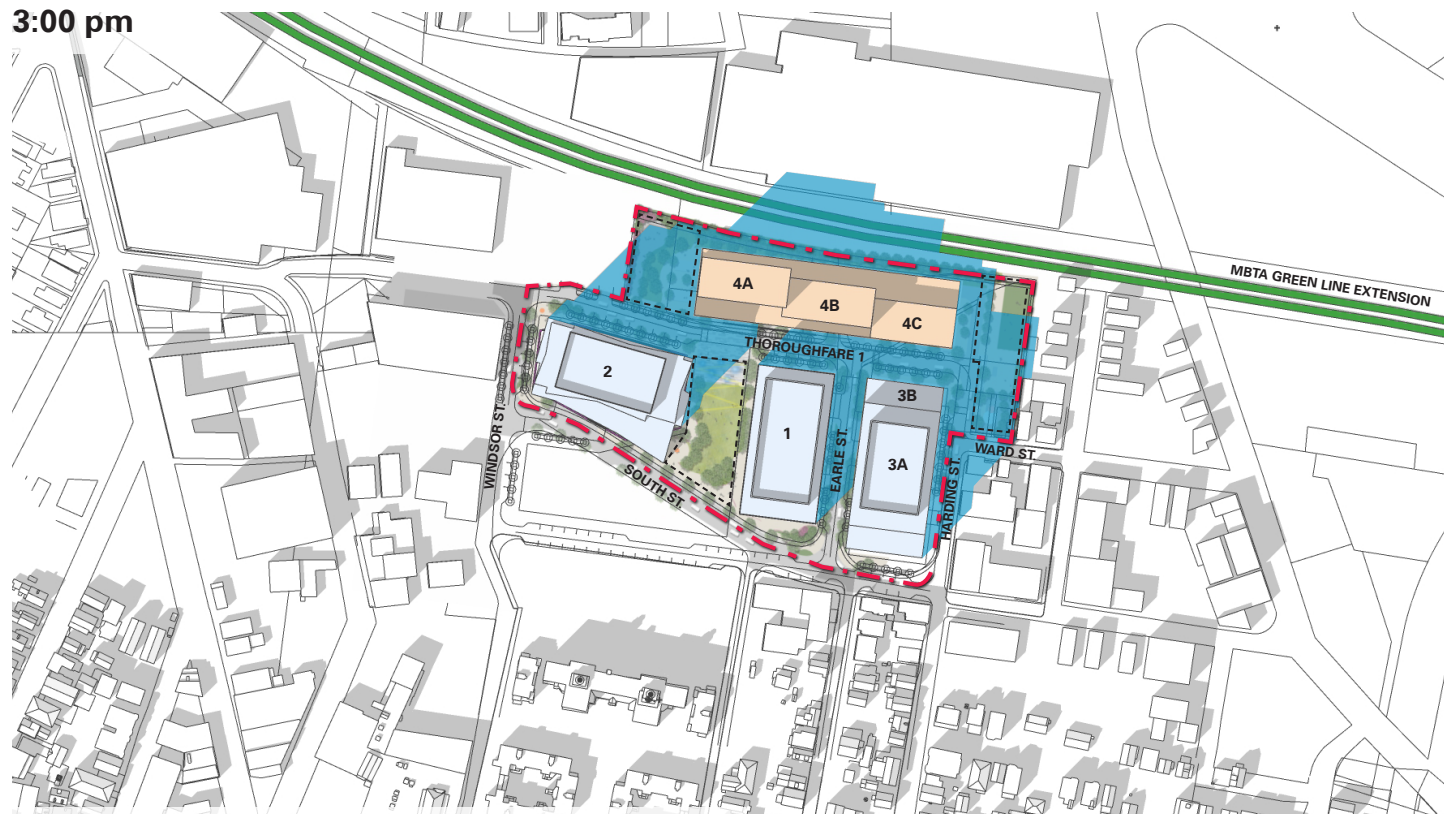
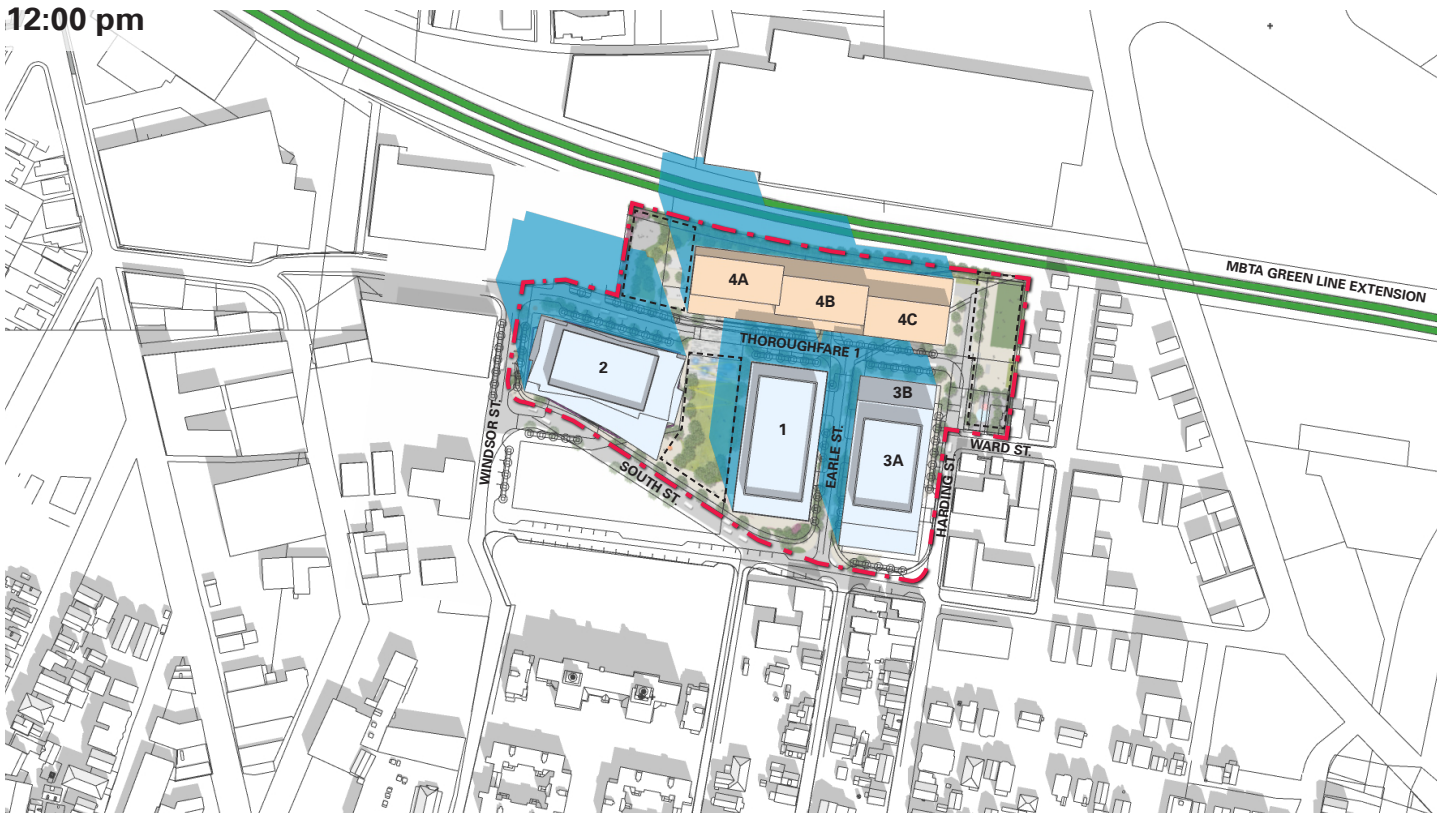
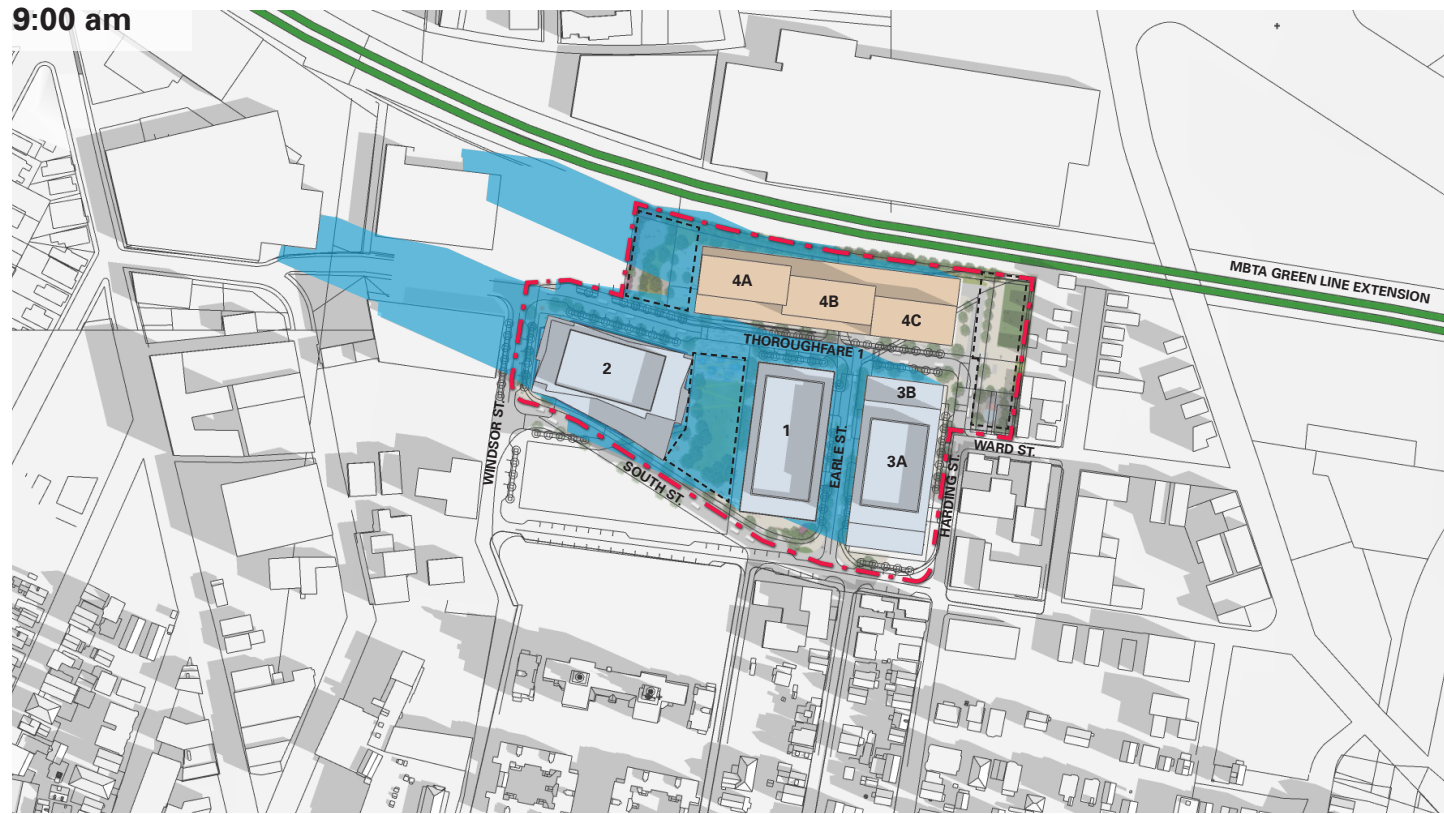
Development Site, as well as over portions of Boynton Way, the Pocket Park, and a portion of the improved pedestrian connection that is proposed along the northern and eastern sides of Building 4 along the MBTA Commuter Rail train tracks.

At 3:00 PM, the Project will cast net new shadow to the north over the MBTA train tracks, the big box commercial stores to the north of the Development Site, and northeast of the Project towards Medford Street and over the residential and commercial properties. The Project will also cast new shadow over the majority of Boynton Way, Earle Street, and Harding Street, over The Green and a limited portion of the Public Common, and over the improved pedestrian connection that is proposed along the northern and eastern sides of Building 4 along the MBTA Commuter Rail train tracks.

# SHADOW STUDY GRAPHICS



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■ NEW SHADOW  
■ EXISTING SHADOW

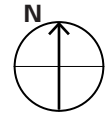
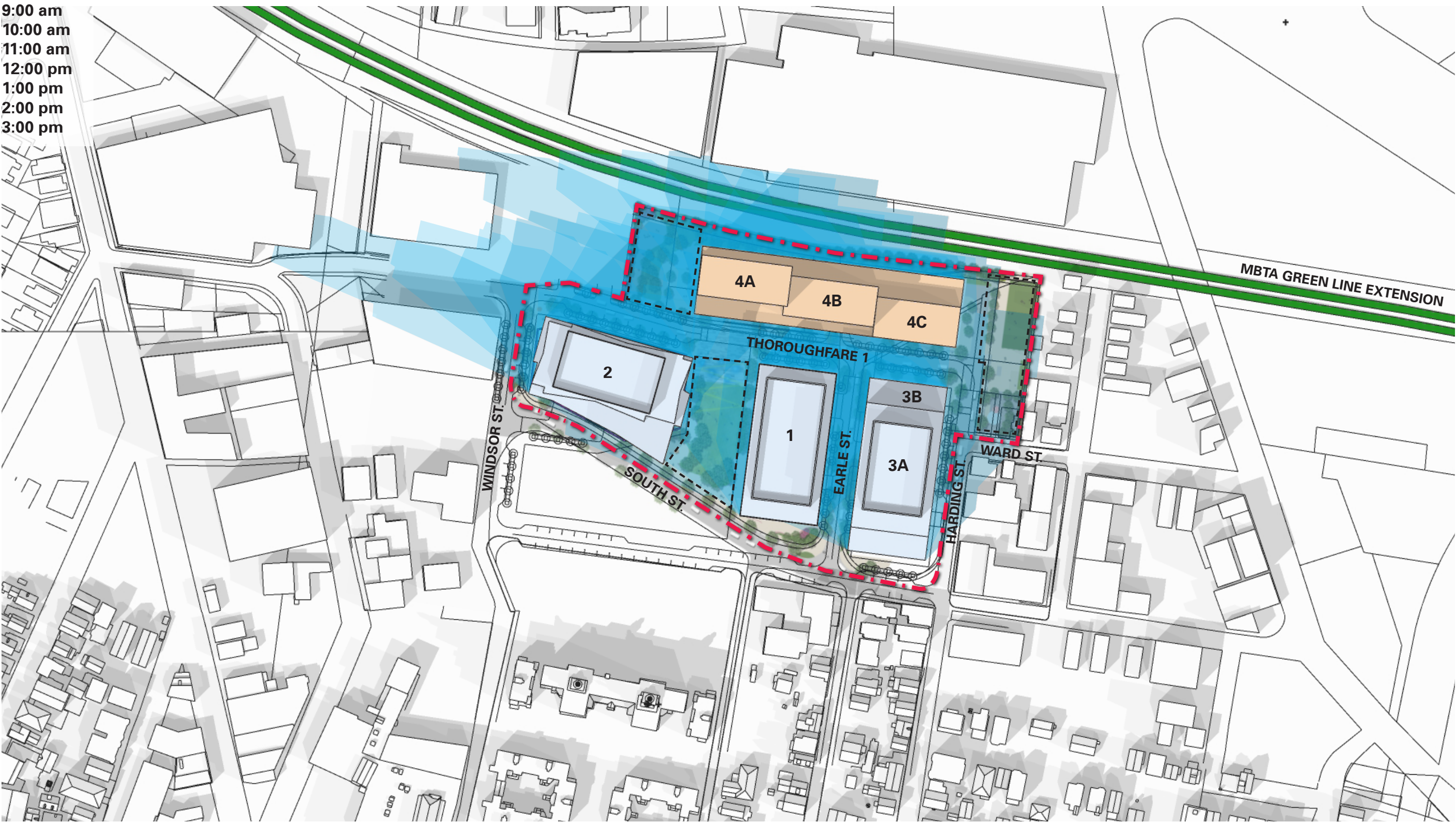
--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A1a - Existing + Net New Shadows  
March 21, Vernal Equinox

**Boynton Yards**  
**Somerville, Massachusetts**





■ NEW SHADOW  
■ EXISTING SHADOW

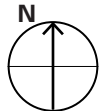
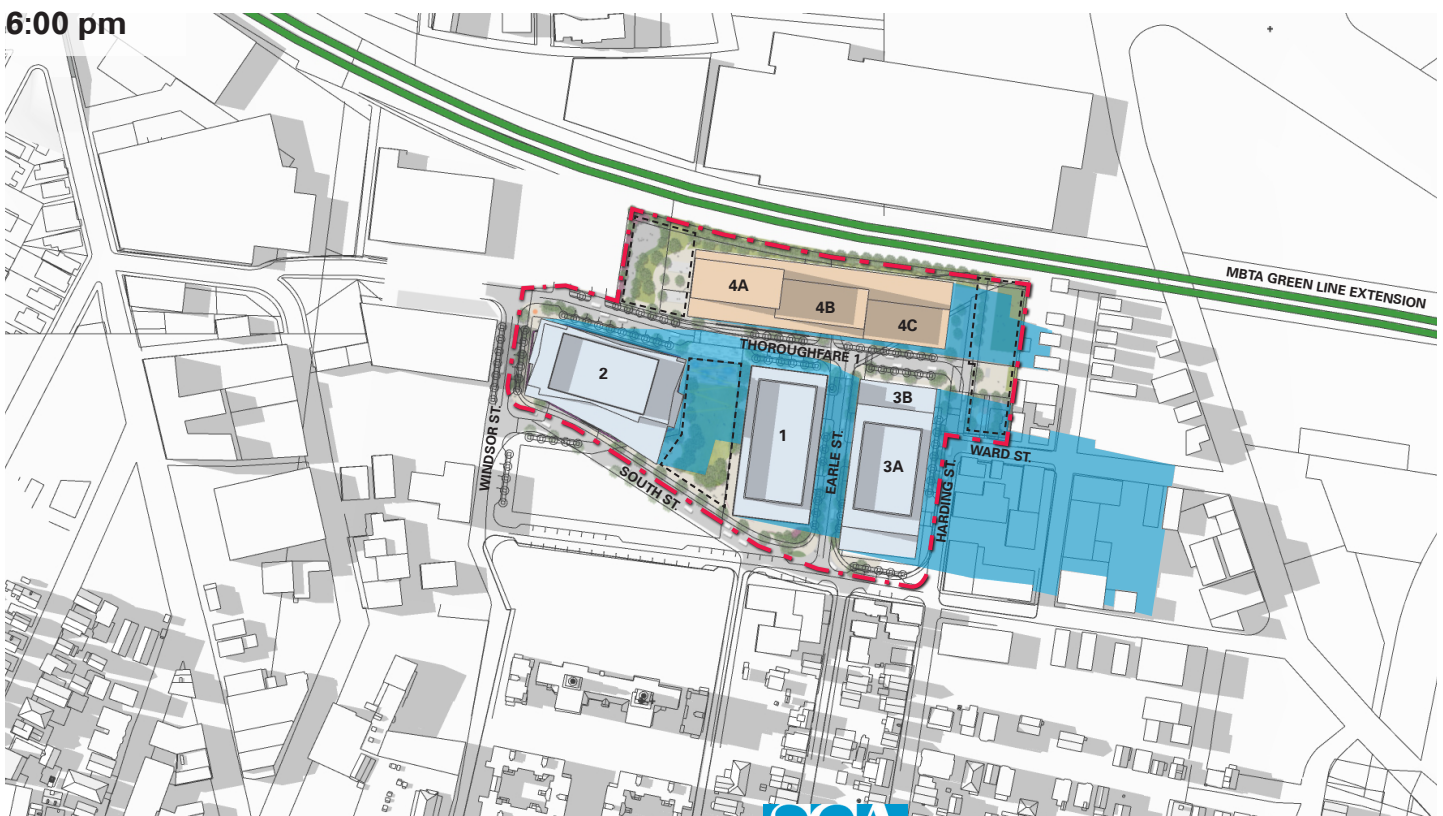
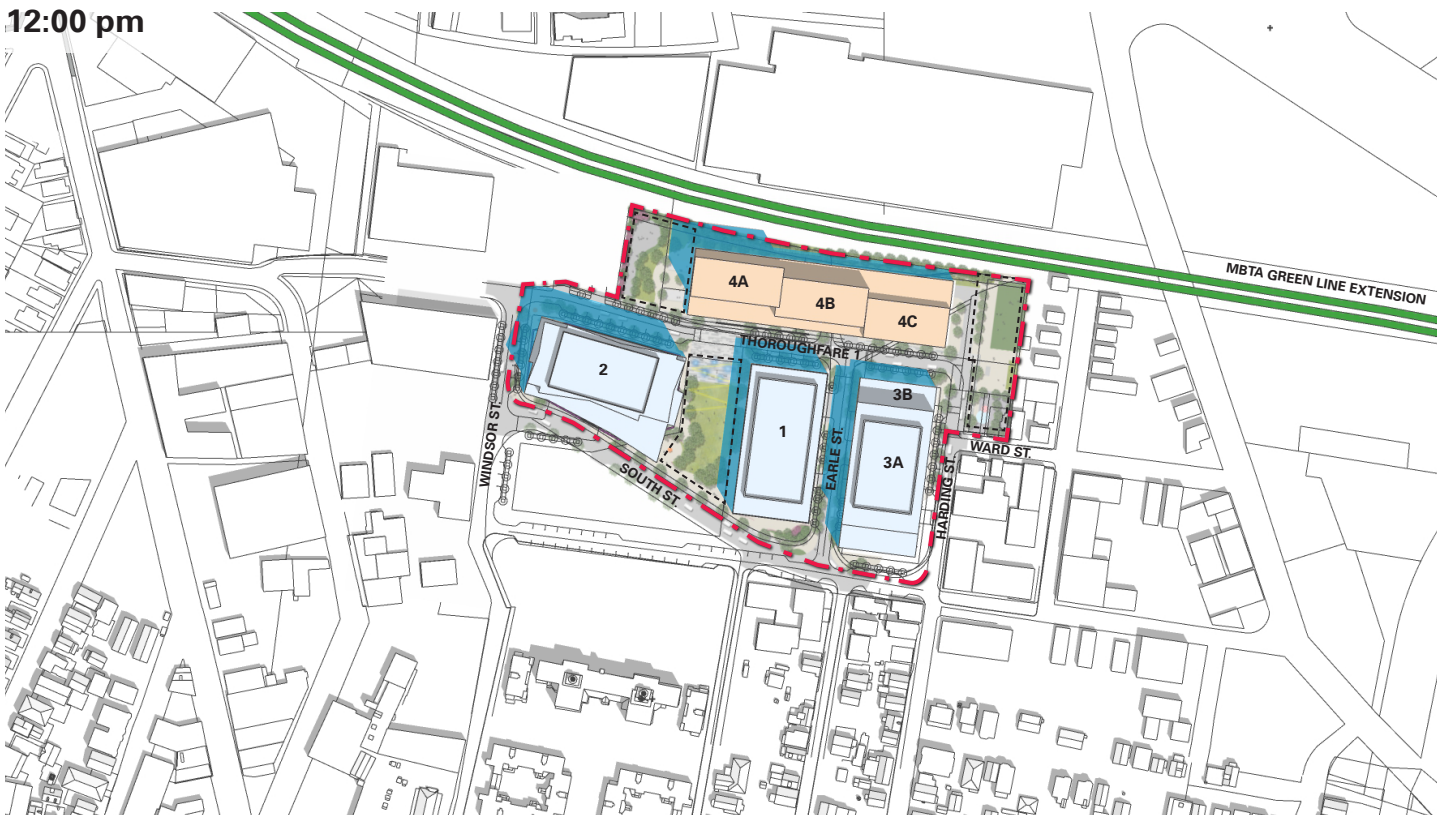
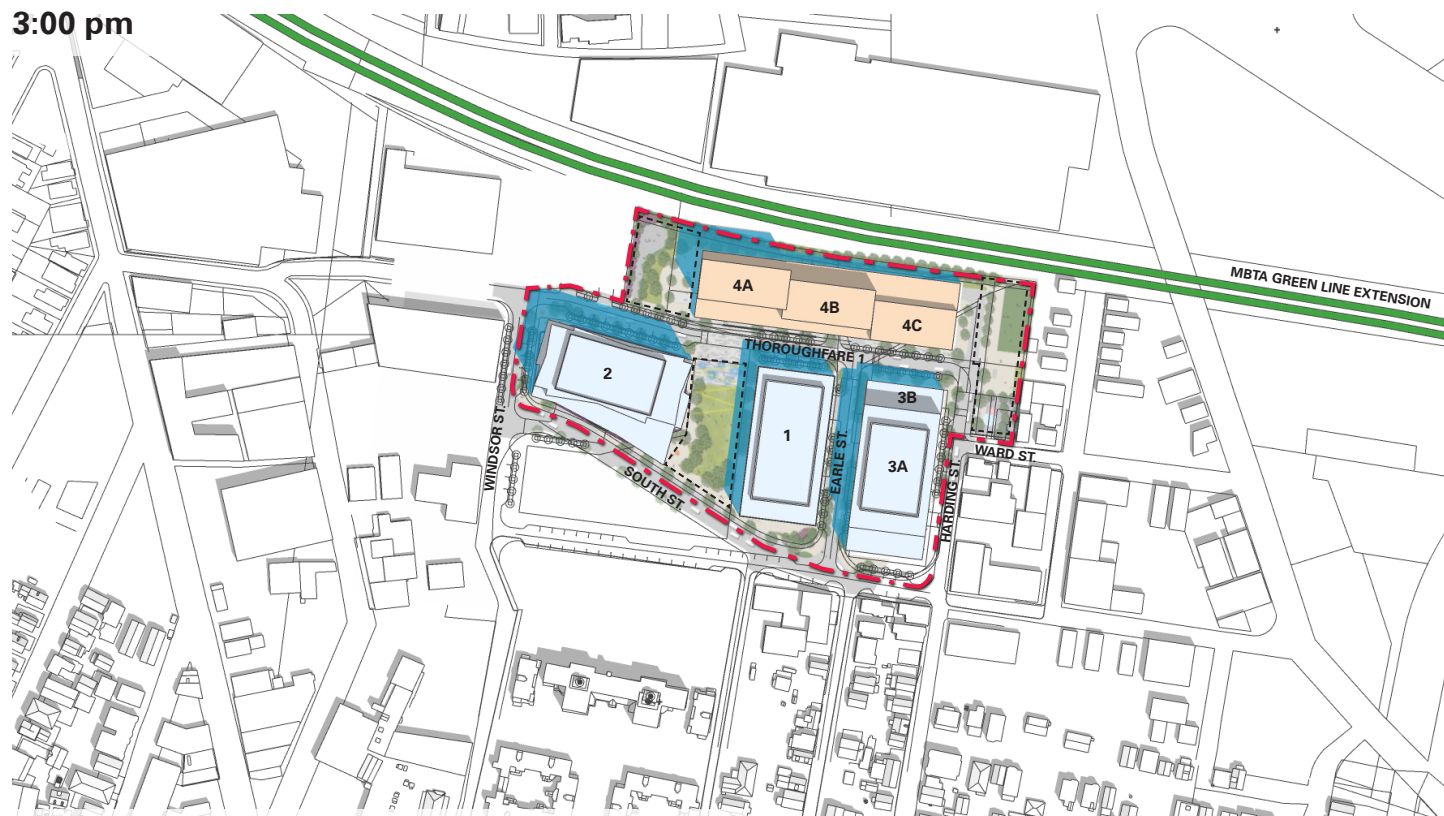
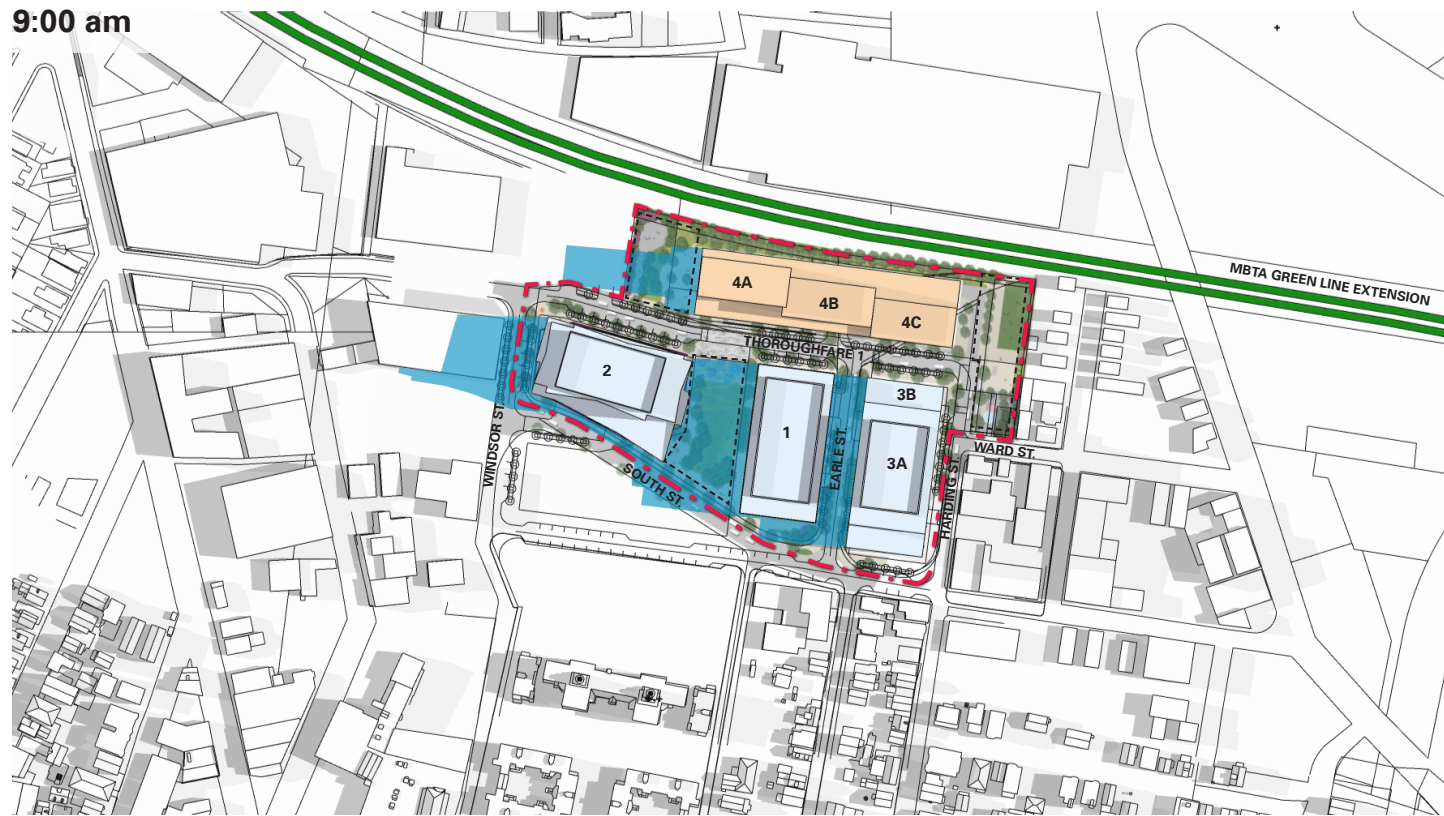
--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A1b - Cumulative Shadow Impacts  
March 21, Vernal Equinox

**Boynton Yards**  
**Somerville, Massachusetts**





NEW SHADOW  
EXISTING SHADOW

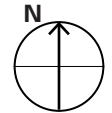
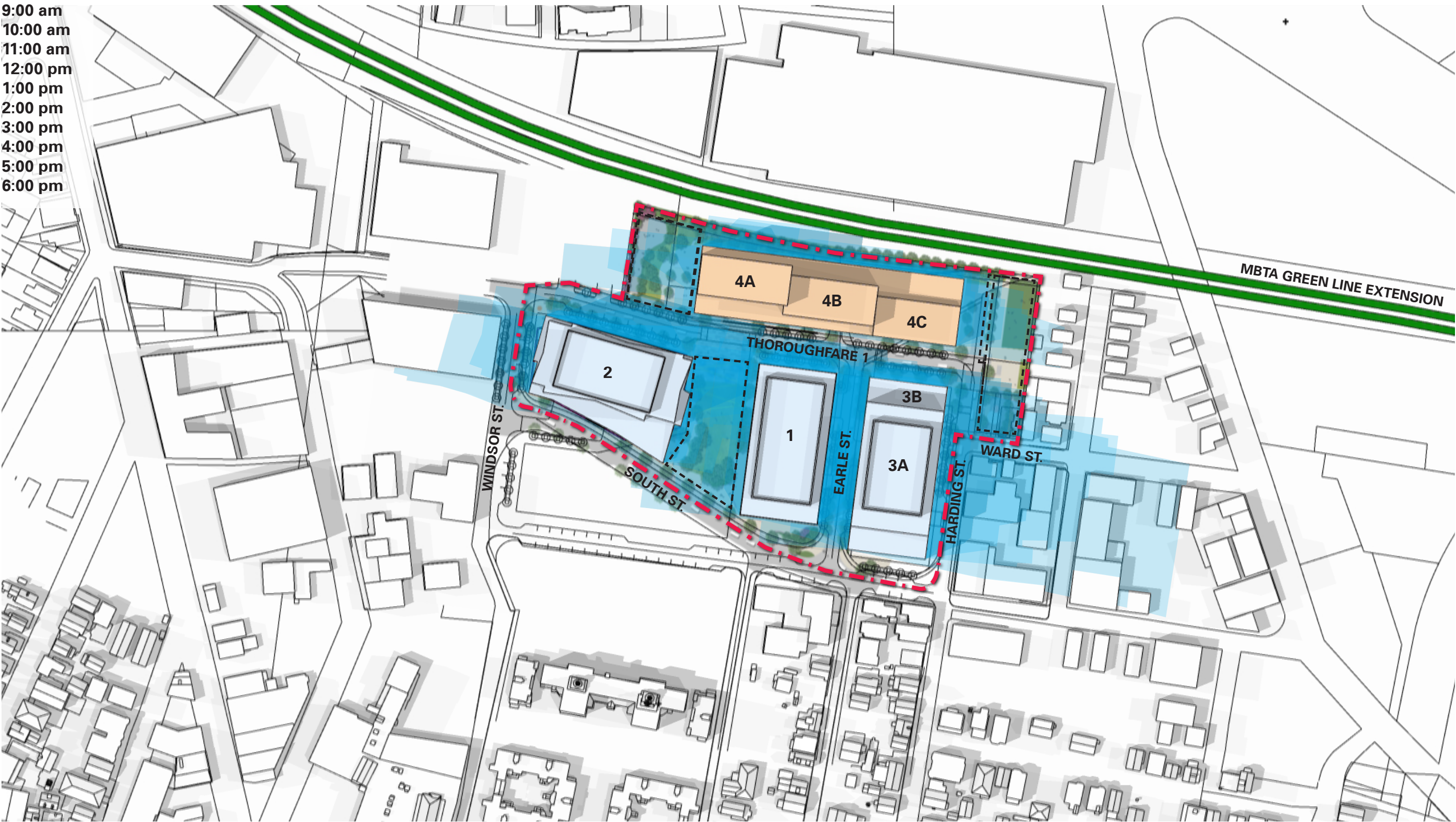
DEVELOPMENT SITE BOUNDARY  
PRIMARY OPEN SPACES



Figure A2a - Existing + Net New Shadows  
June 21, Summer Solstice

Boynton Yards  
Somerville, Massachusetts





■ NEW SHADOW  
■ EXISTING SHADOW

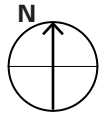
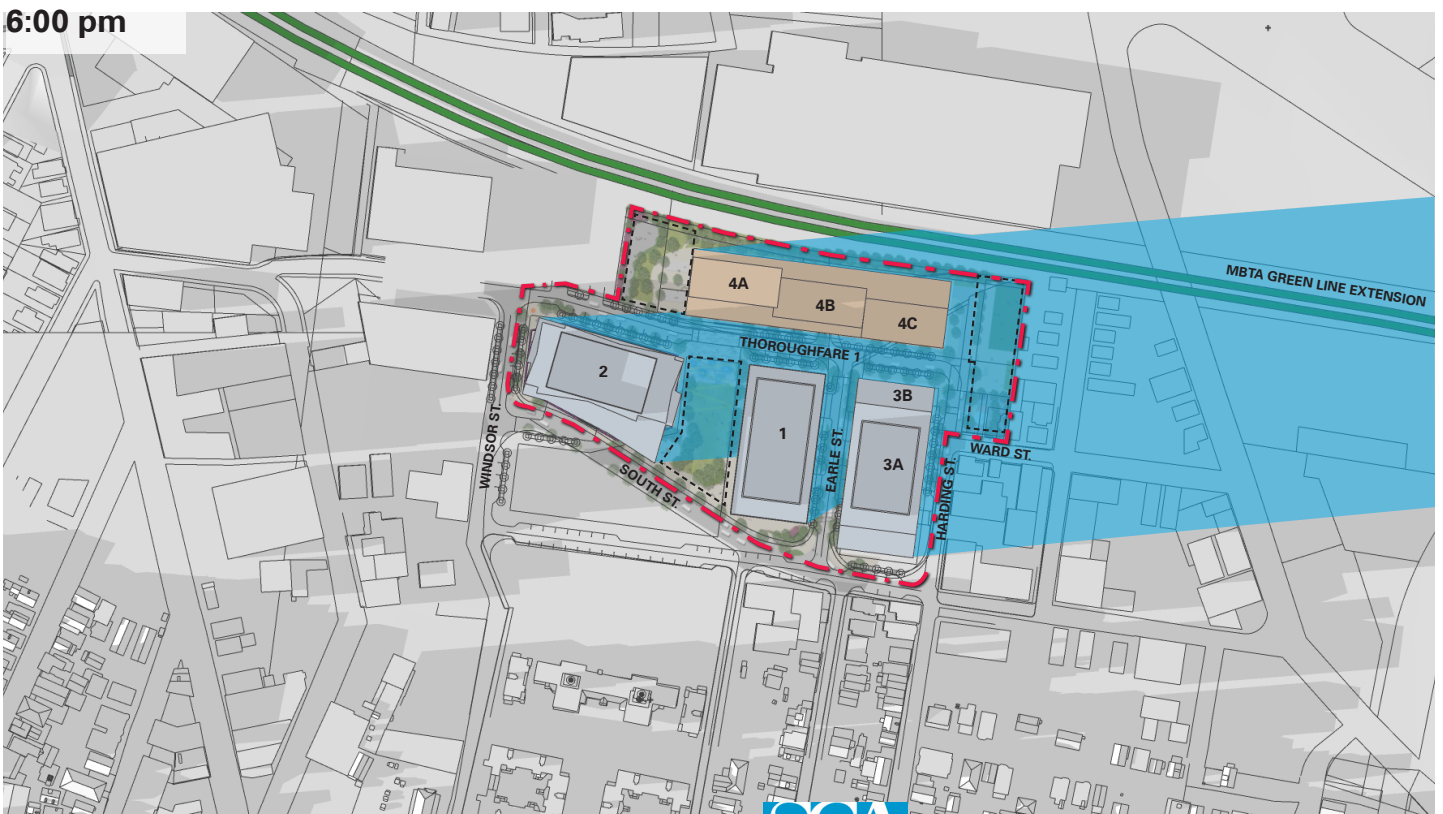
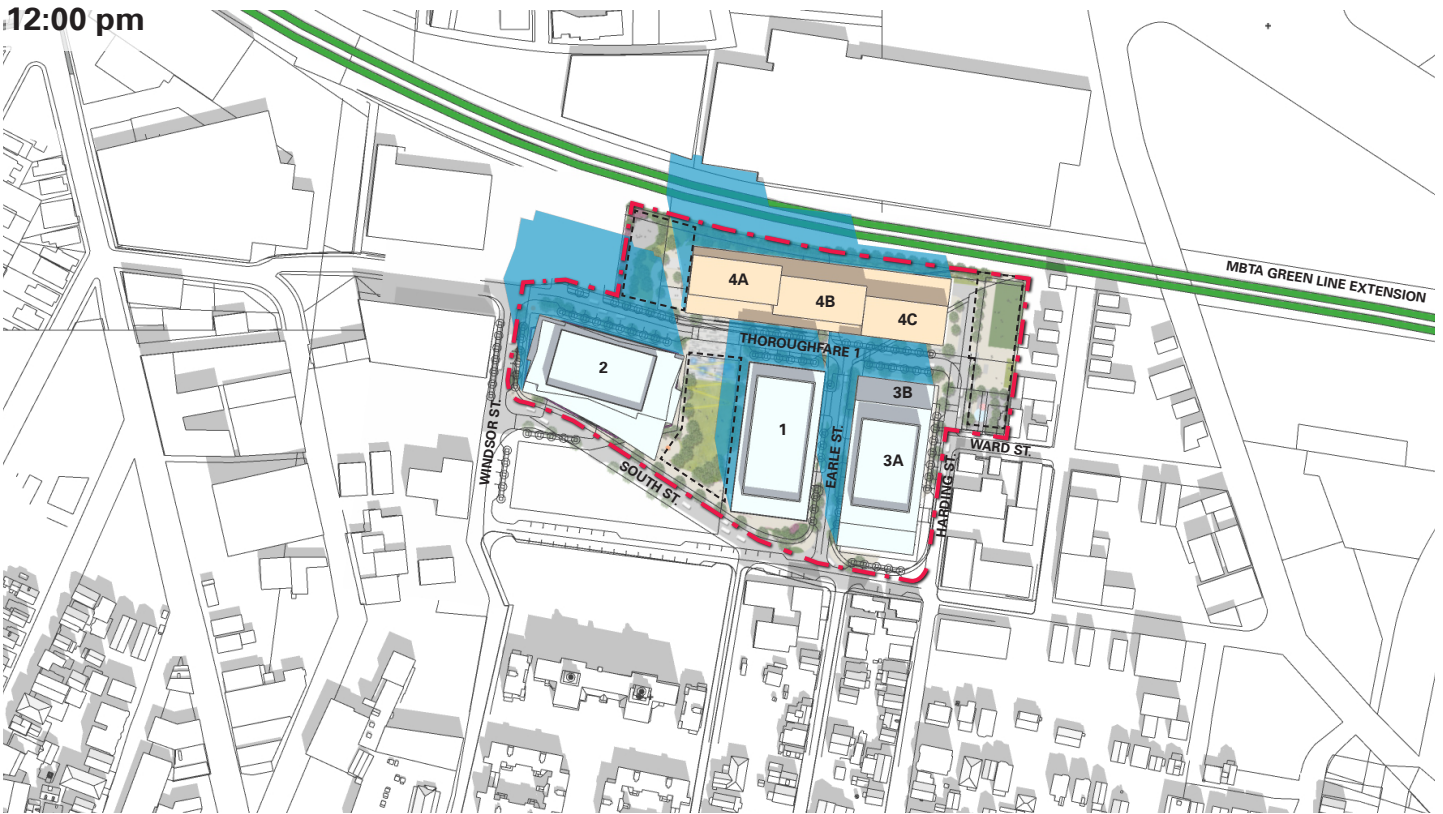
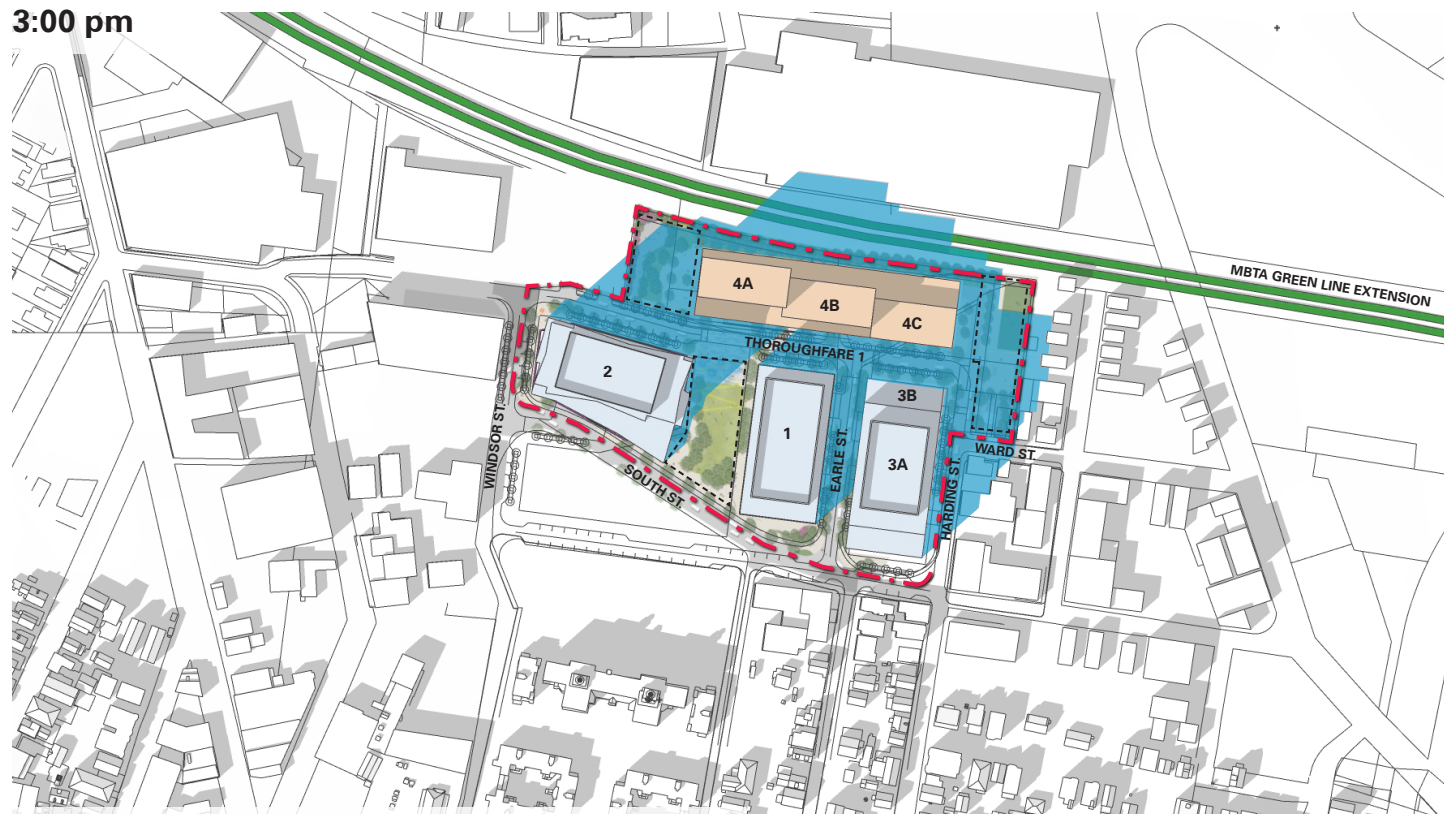
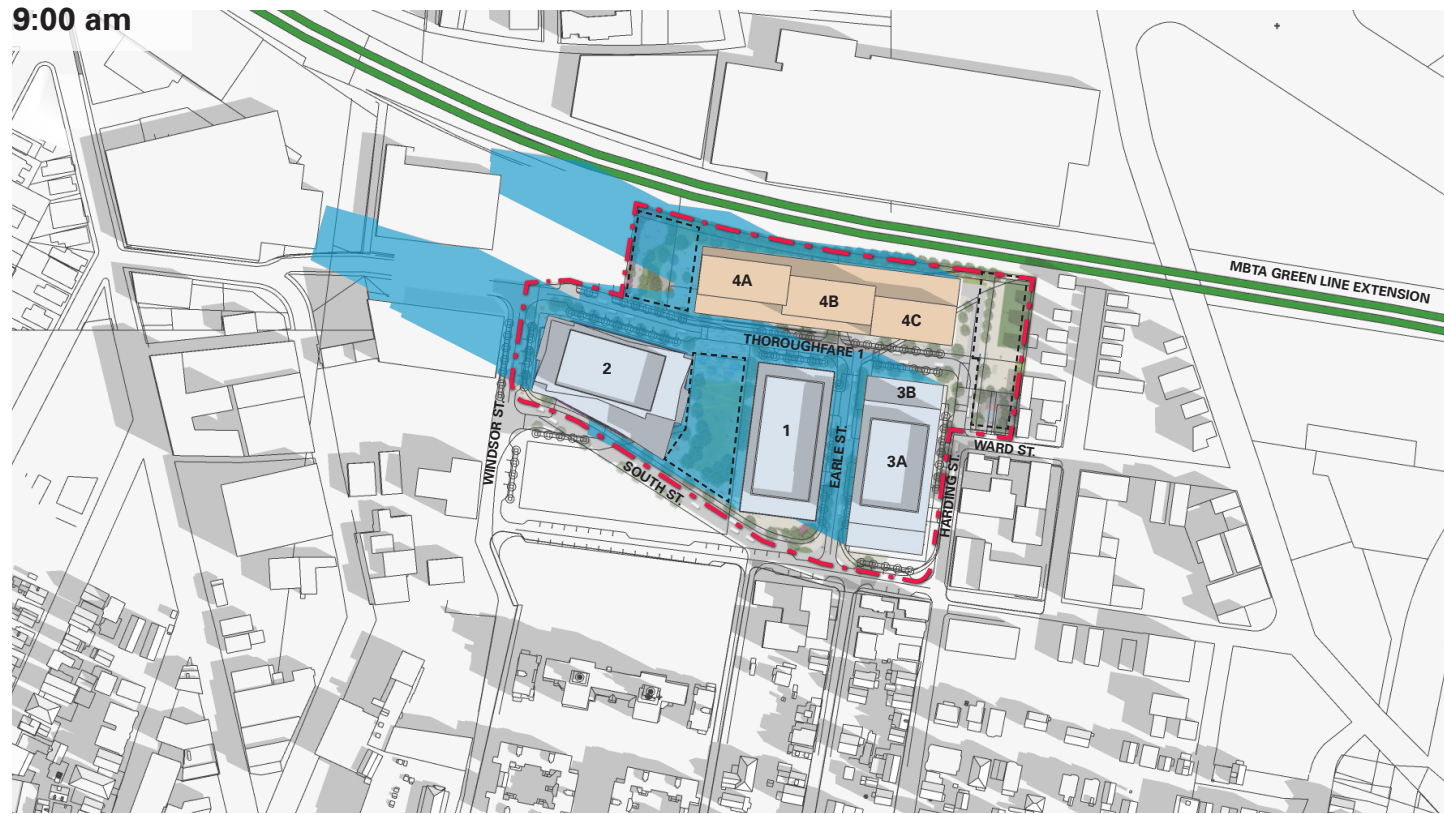
--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A2b - Cumulative Shadow Impacts  
June 21, Summer Solstice

**Boynton Yards**  
**Somerville, Massachusetts**





■ NEW SHADOW  
■ EXISTING SHADOW

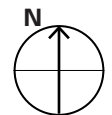
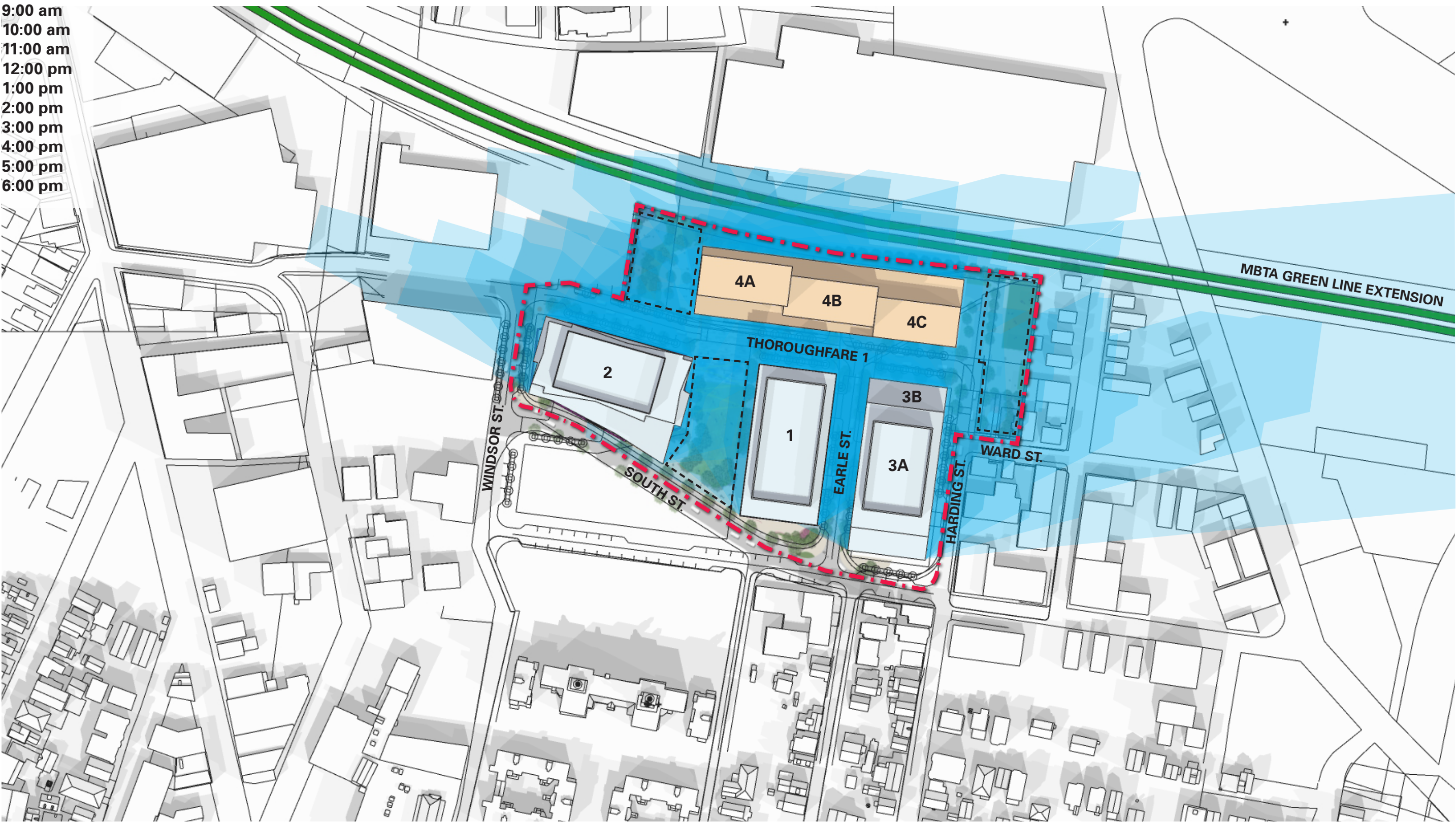
--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A3a - Existing + Net New Shadows  
September 21, Autumnal Equinox

**Boynton Yards**  
**Somerville, Massachusetts**





■ NEW SHADOW  
■ EXISTING SHADOW

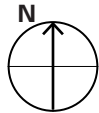
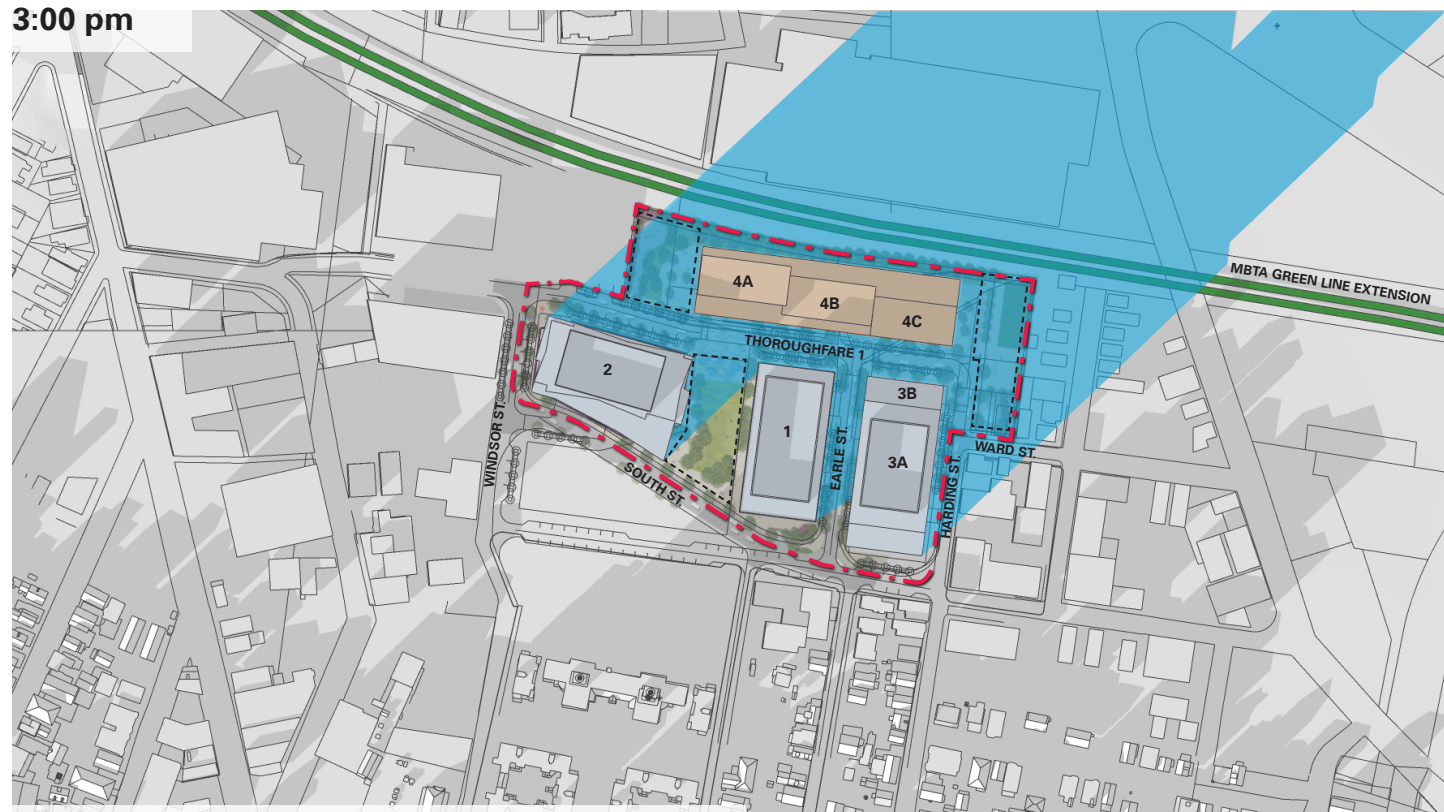
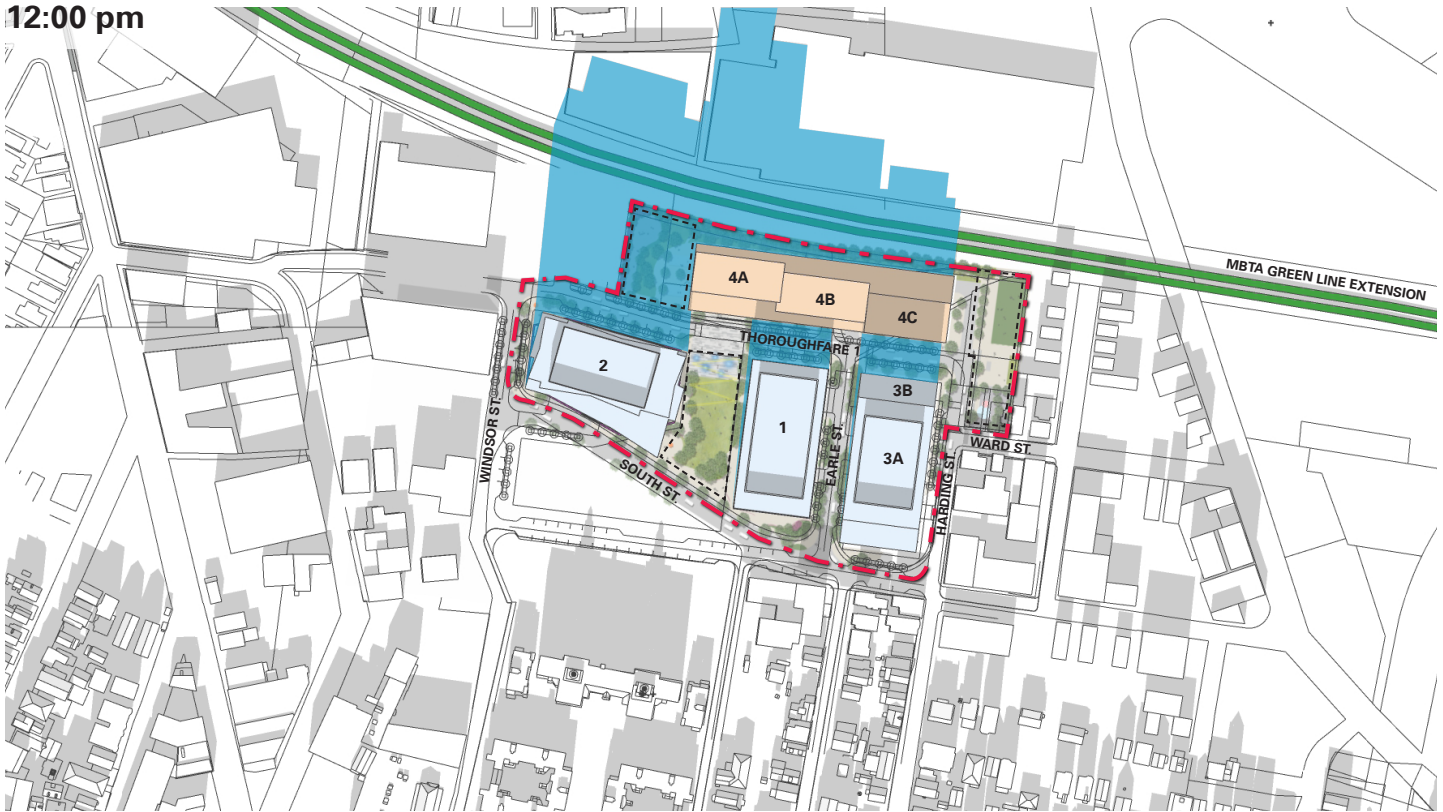
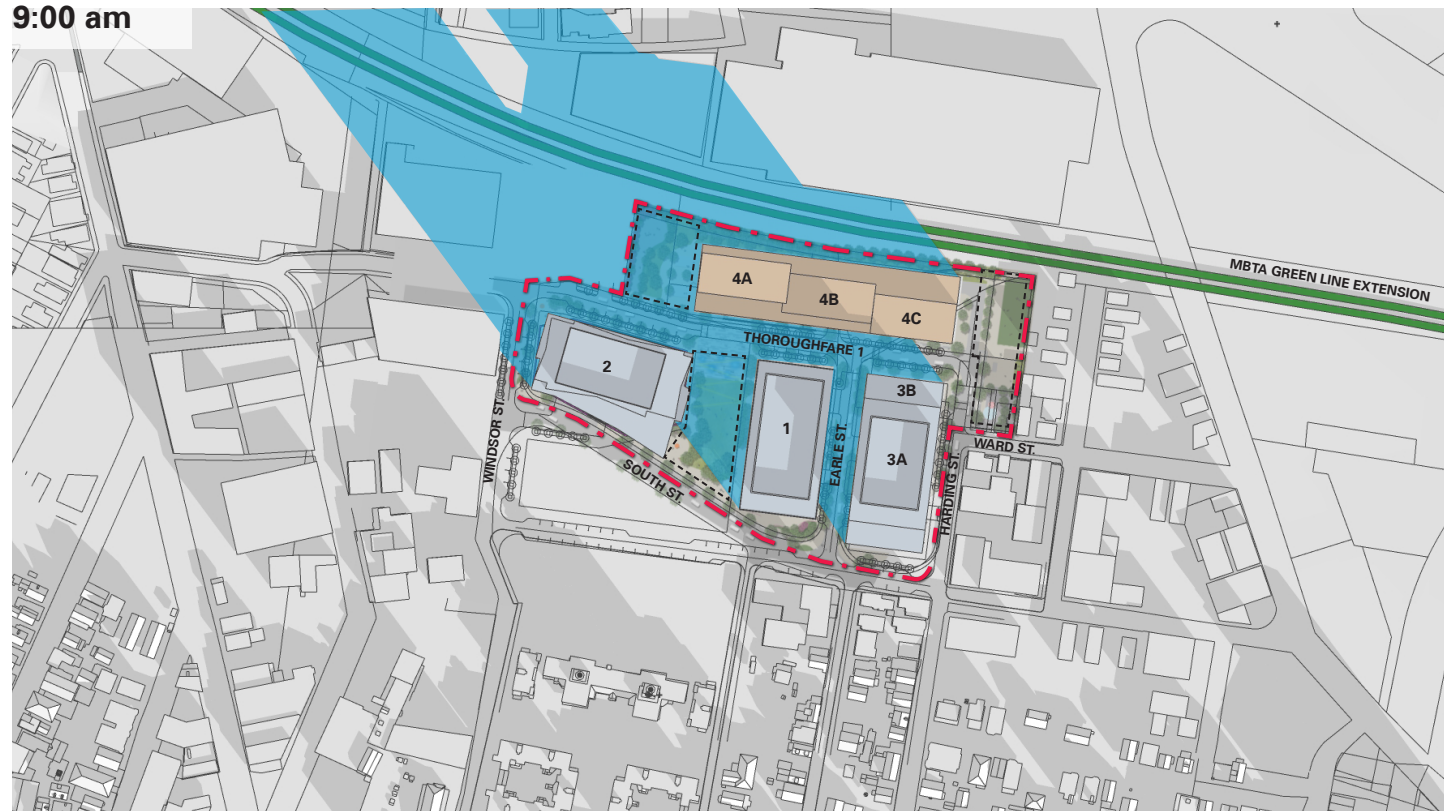
--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A3b - Cumulative Shadow Impacts  
September 21, Autumnal Equinox

**Boynton Yards**  
**Somerville, Massachusetts**





NEW SHADOW  
EXISTING SHADOW

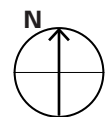
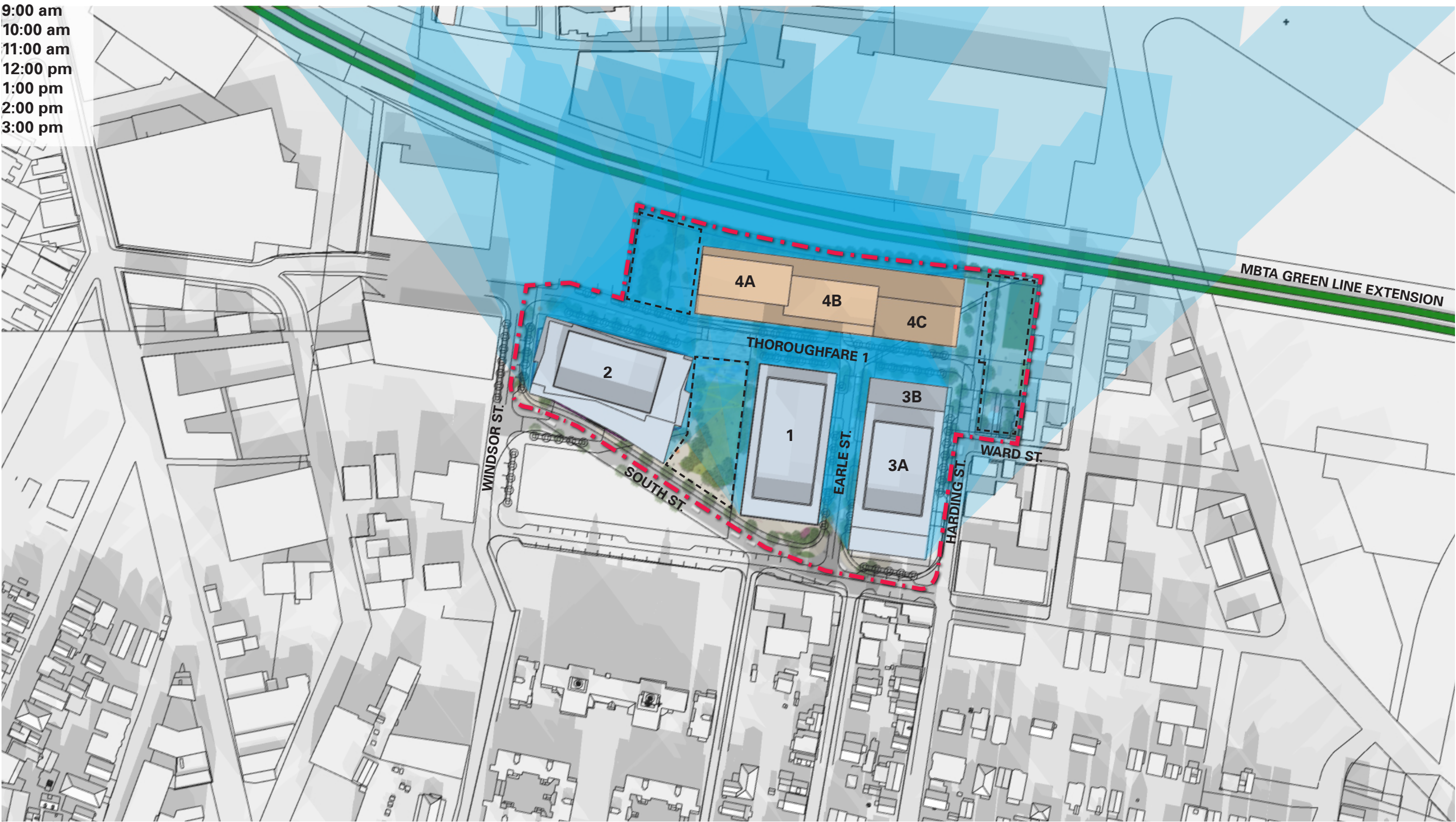
DEVELOPMENT SITE BOUNDARY  
PRIMARY OPEN SPACES



Figure A4a - Existing + Net New Shadows  
December 21, Winter Solstice

Boynton Yards  
Somerville, Massachusetts





■ NEW SHADOW  
■ EXISTING SHADOW

--- DEVELOPMENT SITE BOUNDARY  
--- PRIMARY OPEN SPACES



Figure A4b - Cumulative Shadow Impacts  
December 21, Winter Solstice

**Boynton Yards**  
**Somerville, Massachusetts**

# APPENDIX B: Mobility and Transportation

## Contents

- Mobility Management Plan
- Mobility Management Plan Certification
- Traffic Impact and Access Study
- Transportation Access Plan

The Following supporting Materials are provided electronically

- TIAS Supporting Documentation

<https://tinyurl.com/boyntonyards>



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# MOBILITY MANAGEMENT PLAN

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# Boynton Yards: 153 South Street Somerville, Massachusetts

PREPARED FOR

Boynton Yards LandCo LLC

Contact:

(A joint venture between DLJ Real Estate Capital  
Partners and Leggat McCall Properties LLC)  
C/O 10 Post Office Square, #1300  
Boston, MA 02109

PREPARED BY



101 Walnut Street  
PO Box 9151  
Watertown, MA 02471  
617.924.1770

July 2020



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# 1

## Project Information

### Contact Information

The Project development site address and contact information is as follows:

153 South Street

Contact:

Boynton Yards LandCo LLC

(A joint venture between DLJ Real Estate Capital Partners and  
Leggat McCall Properties LLC)

10 Post Office Square, #1300

Boston, MA 02109

### Project Description

Boynton Yards LandCo LLC (a joint venture between DLJ Real Estate Capital Partners and Leggat McCall Properties LLC) (collectively the "Proponent") is in the process of developing a pedestrian and transit oriented, mixed-use development consisting of four buildings containing a mixture of residential units, commercial (research & development and office), and supporting retail/restaurant space (the "Project").

The Project will be developed on a 6.8-acre site bounded by the MBTA train tracks for the Green Line Extension ("GLX") project to the north, South Street to the south, Harding Street to the east, and Windsor Street to the west. Windsor Place Extension, which is an existing privately-owned street, travels in an east-west direction through the Site. The

Proponent intends to transfer the ownership of the Windsor Place Extension to the City. At this stage, this new roadway will be referred to as "Thoroughfare 1" until an official name for the street is determined at a later date by the City. In the future, the proposed buildings will host a mixture of office, research and development (R&D) and lab enabled uses (office/R&D/lab), ground floor retail/restaurant uses, residential, and associated parking facilities and infrastructure improvements.

## Build Out/Program Estimates

The Proponent proposes the construction of a pedestrian- and transit-oriented, mixed-use development that includes four buildings containing up to approximately 1,344,000 gross square feet (SF) of floor area (also known as "GFA"), with approximately 963,500 SF of office, research and development, and lab enabled uses (office/R&D/lab), approximately 338,000 SF of residential space, 42,500 SF of retail and/or restaurant space, and approximately 1,002 structured below-grade parking spaces (the "Project," also known as Boynton Yards). The initial 270,000 SF component of the Project is already under construction at 101 South Street (known as 101 South). The Mobility Management Plan (MMP) for this portion of the Project previously was completed and approved under the 1 Earle Street property (now known as 101 South).

The Project will be constructed in multiple stages, consisting of approximately 1.3 million SF across four buildings, as described above and shown in Table 1.

**Table 1 Development Program**

Development	Office / Lab / Research & Development <sup>a</sup>	Retail/ Restaurant	Residential	Total	Parking spaces
Building 1 – 101 South	257,200 SF	12,500 SF	0 units	269,700 SF	233
Building 2	356,000 SF	9,000 SF	0 units	365,000 SF	240-270*
Building 3	350,000 SF	11,000 SF	0 units	361,000 SF	240-270*
			330 units		
<u>Building 4</u>	<u>0 SF</u>	<u>10,000 SF</u>	<u>(338,000 SF)</u>	<u>338,000 SF</u>	<u>240-270*</u>
			<b>330 units</b>		
<b>Total Build-out</b>	<b>963,500 SF</b>	<b>42,500 SF</b>	<b>(338,000 SF)</b>	<b>1,344,000 SF</b>	<b>1,002</b>

<sup>a</sup> A total of approximately 963,500 SF of building space will be devoted to office, lab, or research and development space. The exact breakdown for between these uses is based on current development plans but may change over time based on market conditions and tenant needs.

\* Exact parking count for Buildings 2-4 to be determined as architecture is refined.

## Project Schedule / Phasing

The Project will be developed as one master-planned development project, to be constructed in three stages, with construction anticipated to be undertaken over six to eight years. This timeframe may be extended depending on market conditions and the scope of each phase of construction. This following section provides a general summary

of the anticipated Project schedule and phasing, with more detailed discussion being provided in the Project Description section included in the overall Master Plan Special Permit (MPSP) application package.

### **Phase 1**

Phase 1 of the Project involves the currently active construction of Building 1 (101 South) and the construction of an interim civic/open space to the west. Until the existing surface parking lot associated with Building 2 (Phase 2) is redeveloped, the full buildout of the signature civic/open space will not be feasible. The interim open space will provide a passive lawn for short-term activation opportunities.

Phase 1 of the Project also proposes significant upgrades to existing, outdated sewer and water infrastructure within the planned right-of-way to allow for the development of future phases. Phase 1 will also include the installation of new curbing, pavement, sidewalk and drainage inlets associated with the extension of Thoroughfare 1 which will be completed in later phases.

### **Phase 2**

Phase 2 of the Project consists of the construction of Building 2 and the construction of the Public Common, the signature open space that was initiated during Phase 1. Along the east side of Building 2, Phase 2 includes the construction of the Pocket Plaza that will serve as a gateway to the Project. Additionally, during Phase 2, Ward Street will be reconstructed and connected to Harding Street and Thoroughfare 1.

Buildings 3 and 4 will not be developed until Phase 3, but the sites will be used in the interim for temporary construction storage and staging.

### **Phase 3**

Phase 3 of the Project will involve the construction of both Buildings 3 and 4 and associated civic and open spaces. The Project will construct the pocket park to the west of Building 4, as well as the linear path that will run to the north of Building 4 adjacent the MBTA Commuter Rail train tracks. Phase 3 will also include the construction of "The Green" to the east of Building 4, which will serve as the future location for South Street Farm.

## **Parking Plan**

The following section summarizes the proposed Project parking supply.

### **Proposed Parking Supply**

The parking needs for the Project will be accommodated by the proposed 1,002-space total parking supply, which will appropriately satisfy the anticipated demand for this development. The parking supply will be limited to below-grade structured parking only, replacing the existing expanse of surface parking that exists on the Development Site. Building 1 (101 South) currently is under construction and has a final design including

four-levels of below-grade parking with 233 total parking spaces. Between 240 and 270 parking spaces will be provided beneath each of the remaining buildings. The resulting parking ratio for the commercial and residential uses will be lower than that found at other large-scale mixed-use development projects in the area. The Traffic Impact and Access Study in Chapter 3, *Transportation*, accompanying this overall MPSP application package, includes a comprehensive parking analysis documenting this finding.

The Project will be providing a lower than typical parking ratio for the office/R&D/lab, and residential tenants. The Development Site is positioned within a quarter mile walking distance of the planned MBTA Union Square Station Green Line Station to the west, which is scheduled to open in 2021, as well as existing MBTA bus routes that serve the Project. Through this deliberate design mindset, workers, residents and visitors to the Development Site will be strongly encouraged to utilize alternative modes of transportation, including existing and enhanced MBTA services, to avoid using single-occupant vehicles (SOV) to travel to and from the Development Site.

## **Nearby Transit Services**

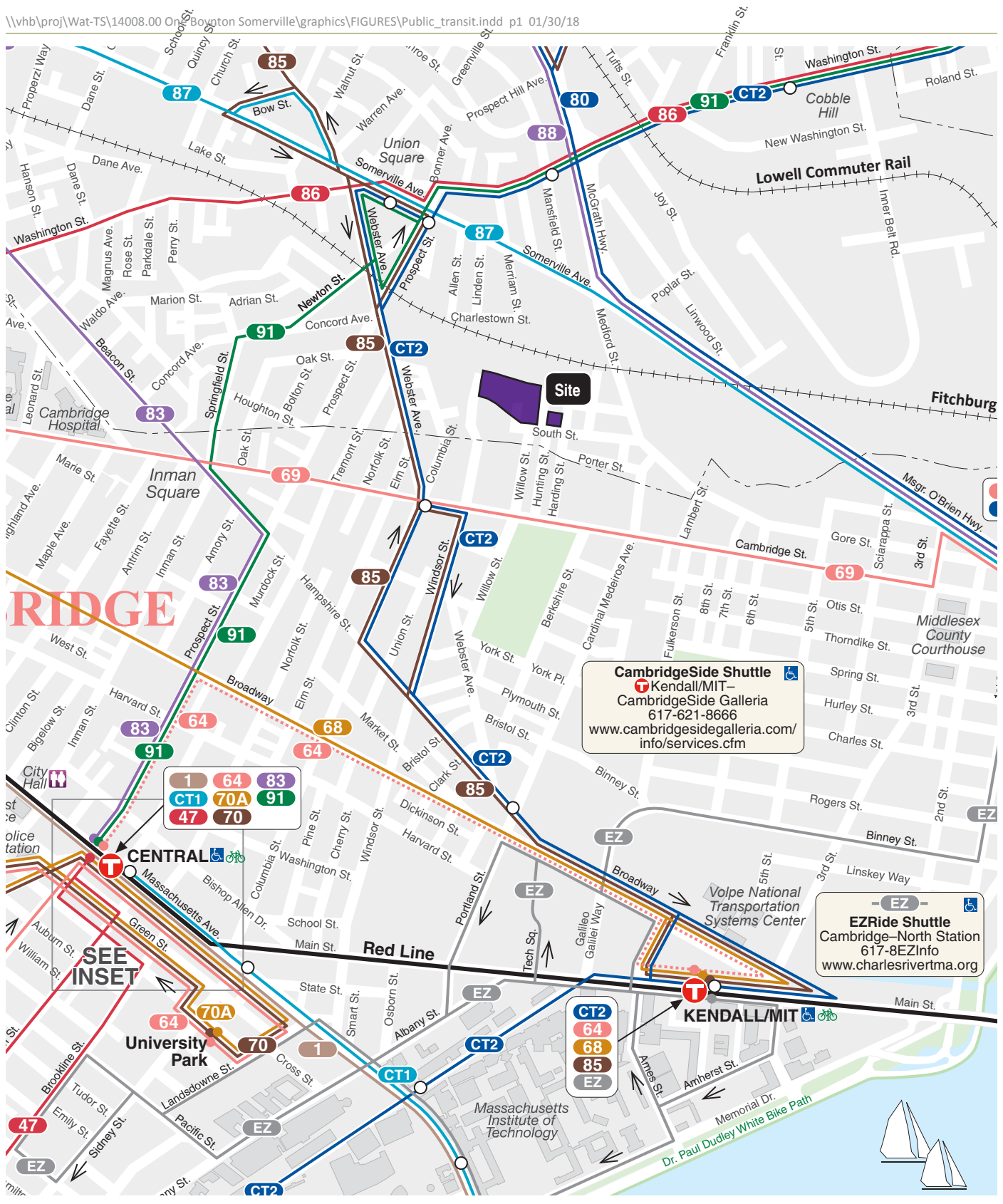
There are ample public transportation services provided by the MBTA currently in the immediate vicinity of the Development Site, as summarized in the following section.

### **Existing Conditions**

The Development Site is currently served by eight MBTA bus routes within a half mile of the Development Site. While no routes currently provide direct service to the Development Site, there are multiple MBTA bus stops in close proximity. These include the nearest bus stops located approximately 800 feet west of the Development Site on Webster Avenue at Columbia Street (Route 85), and 1,000 feet south of the Development Site on Cambridge Street at Windsor Street (Route 69). Furthermore, MBTA Routes 80, 86, 87, 88, 91, and CT2 provide nearby access to the Development Site. The nearest bus stop on Route 86 is located on Somerville Avenue at Union Square, and the nearest stop on Route 91 is located on Webster Avenue at Newton Street. The closest MBTA bus stops for Routes 80, 87, and 88 are located on Somerville Avenue Extension and Route 28 Northbound. Route CT2 is one of three cross-town routes operated by the MBTA. By design, these cross-town routes have fewer stops than a traditional bus route. The nearest stop to the Development Site on Route CT2 is located at the intersection of Cambridge Street and Webster Avenue/Columbia Street.

Peak period frequencies/headways for MBTA bus services are shown graphically in Figure 1 and summarized in Table 2.





Source: MBTA



Figure 1  
Existing Transit Service Map

**Boynton Yards**  
**Somerville, Massachusetts**

**Table 2 Project Area MBTA Service**

Bus Route	Origin / Destination	Peak-Hour Frequency (minutes)		Weekday	Saturday	Sunday
69	Harvard Square – Lechmere Station	10-20	Inbound	1,588	999	543
			<u>Outbound</u>	<u>1,598</u>	<u>1,092</u>	<u>508</u>
			Total	3,185	2,092	1,051
80	Arlington Center – Lechmere Station (via Medford Hillside)	15-30	Inbound	1,063	748	428
			<u>Outbound</u>	<u>995</u>	<u>667</u>	<u>398</u>
			Total	2,058	1,415	826
85	Spring Hill – Kendall/MIT	25-45	Inbound	301	N/A	N/A
			<u>Outbound</u>	<u>288</u>	<u>N/A</u>	<u>N/A</u>
			Total	589	N/A	N/A
86	Sullivan Square – Reservoir	10-18	Inbound	2,591	1,430	895
			<u>Outbound</u>	<u>3,027</u>	<u>1,780</u>	<u>1,022</u>
			Total	5,618	3,210	1,917
87	Arlington Center – Lechmere Station (via Somerville Avenue)	20-30	Inbound	1,943	1,436	817
			<u>Outbound</u>	<u>1,853</u>	<u>1,422</u>	<u>925</u>
			Total	3,796	2,858	1,742
88	Clarendon Hill – Lechmere Station	16-20	Inbound	2,003	1,418	862
			<u>Outbound</u>	<u>2,073</u>	<u>1,376</u>	<u>803</u>
			Total	4,076	2,794	1,664
91	Sullivan Square – Central Square	25-30	Inbound	784	713	354
			<u>Outbound</u>	<u>909</u>	<u>860</u>	<u>389</u>
			Total	1,693	1,573	743
CT2	Sullivan Square – Ruggles Station	15-25	Inbound	1,425	N/A	N/A
			<u>Outbound</u>	<u>1,390</u>	<u>N/A</u>	<u>N/A</u>
			Total	2,815	N/A	N/A

a Based on MBTA's Ridership and Service Statistics – Fourteenth Edition, 2014.

## MBTA Green Line Extension Project

Construction is currently underway for a 4.3-mile extension of the MBTA Green Line light rail from its current terminus at Lechmere Station in Cambridge into Somerville and Medford. The extension will have two branches: a 0.9-mile southerly branch that will terminate near Somerville's Union Square and a 3.4-mile northerly branch that will parallel the Lowell Line of the MBTA Commuter Rail through Somerville and terminate at College Avenue in Medford. Union Square Station will be located on Prospect Street, approximately one-quarter of a mile from the Development Site. The Green Line extension is expected to be completed in 2021, which will be prior to commencing construction of Phase 2 of the Project.

## Bicycle Network

As part of the traffic data collection, biking activity was recorded for the study area intersections in September of 2017. In recent years, the Project study area has had

multiple significant improvements implemented in the form of new bike lanes and other amenities (such as new Bluebikes bike-sharing stations) as part of Somerville's ongoing efforts to improve biking conditions throughout the City.

The City of Somerville recently began requesting that even more advanced bicycle counts be conducted as part of development traffic studies. In addition to recording the number of bicycles by a given movement, the age, gender, and general estimated riding ability of bicyclists also are to be recorded. The traffic data collection for this study occurred in September of 2017 while schools were in session and after traffic patterns had been established following recent roadway improvements in the area. Following the initial traffic consultation with the City, it was not possible to conduct the more detailed bicycle inventory during representative conditions prior to colder, late fall conditions. However, the traffic study for the nearby Union Square Revitalization Project (the "US2 Project") included a detailed bike inventory.<sup>1</sup> As this project's study area partially overlaps with the study area for the Project, the bike data in that report was reviewed as part of this evaluation as discussed below.

VHB reviewed the detailed bicyclist inventories conducted on Webster Avenue, Prospect Street, and Somerville Avenue. That inventory revealed a roughly 75/25 percent split between male and female bicyclists in the area, with the majority being between 15- and 30-years old. While not specifically noted in that study, it is possible that these demographics may change as the local population becomes more familiar with the improved bicycle accommodations in the area. In addition to the biking activity, the study also compared the biking levels to the appropriateness of the study area roadways for bike travel. The study found that the roadways in the immediate vicinity of the Development Site have low "Bicycle Level of Traffic Stress" ratings. This is consistent with the field observations and speed measurements conducted for this study. While some of the study area roadways recently had significant upgrades to bike accommodations, some streets (such as Prospect Street and Webster Avenue) have inherently more difficult conditions for bicyclists due to the presence of parking, slightly higher travel speeds, and other factors. Measures will be implemented to promote low travel speeds to create a comfortable environment for biking and walking as part of the planned reconstruction of the roadways abutting the Development Site.

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<sup>1</sup> [Union Square CDSP Application](#), Nelson\Nygaard Consulting Associates (Boston, Massachusetts), 2017.





— No existing dedicated bike facilities



Figure 2  
Bicycle Infrastructure Plan  
**Boynton Yards**  
**Somerville, Massachusetts**



## Sidewalks

In the vicinity of the Development Site, South Street, Earle Street, and Harding Street currently have sidewalks provided along both sides of each roadway with crosswalks and accompanying wheelchair ramps provided at key locations. The sidewalk on the easterly side of Earle Street terminates at the driveway to the Gentle Giant parcel to the north of the Building 3. The sidewalk on the opposite side of the street ends approximately 40 feet further to the north. From that point, the roadway curves to the northwest and transitions to Windsor Place. Sidewalks currently are not provided on the roadway from this point, extending further to the west where it intersects Windsor Street.

With the redevelopment of the Development Site a new street, initially to be referred to as Thoroughfare 1, will be constructed from Windsor Place extending 725 feet to the east where it will terminate at the Ward Street/Harding Street intersection. The new Thoroughfare 1 will feature sidewalks on both sides of the road, with approximately 14 feet of space provided for sidewalks, street furniture, and street trees. The walkability of this area will be enhanced by narrow lane widths, a portion of the roadway featuring crosswalk and sidewalks at the same elevations, and on-street parking located along the both sides of the roadway, which will further buffer pedestrians from adjacent street automobile traffic. The same sidewalk treatment will continue to the south on Thoroughfare 1 before intersecting with Ward Street and Harding Street.

In addition to crosswalks provided at key intersecting roadway and driveways, a prominent mid-block crossing of Thoroughfare 1 will be provided between 101 South and Building 4. This crossing will provide a valuable connections for residents living in Building 4 and the proposed Public Common located between Buildings 1 and 2 on the opposite side of the roadway. Accompanying standard warning signage will be provided along Thoroughfare 1 approaching this crossing so that both motorists and pedestrians are fully aware of its presence. The inherent traffic-calming features of this new roadway will require Thoroughfare 1 to reduce its speed, which will help maintain a pedestrian-friendly environment.

Earle Street will be a newly reconstructed 325-foot long road located between 101 South and Building 3 with a 46-foot right-of-way. The roadway will include 15 feet of space on each side of the road for sidewalks, street furniture, and street trees. The sidewalks will be constructed with a continuous flush treatment under which any intersecting curb cuts will ramp up to meet the sidewalk, as opposed to having wheelchair ramps be necessary.

To the south of its intersection with Ward Street and Thoroughfare 1, Harding Street currently extends approximately 240 feet to the south where it intersects with South Street. While Building 3 abuts the westerly side of the roadway, the land east of and adjacent to Harding Street is not part of the Development Site. Accordingly, the existing 5-foot sidewalk width along the easterly side of the street will be maintained. However, as part of the Project, a new 14-foot wide sidewalk will be provided along the westerly side of the roadway for use by pedestrians with associated landscape and street furniture amenities. As with Thoroughfare 1, pedestrians along the westerly side of Harding Street will be buffered from vehicular traffic by the on-street parallel parking proposed along the Development Site frontage.



Finally, South Street presently has sidewalks provided on both sides of the roadway throughout the study area, and this will continue under future conditions with new and improved sidewalks along the segment of this roadway adjacent to the Development Site. Specifically, a minimum of 12 feet will be provided between the South Street northerly curblineline and the face of the new buildings. This will provide ample space for sidewalks, landscaping, and street furniture. New buffered bike lanes will be provided on both sides of this street. Some portions of this sidewalk space will straddle the Development Site property line. However, the 10 feet of space to be provided for sidewalks and associated amenities along the south side of the roadway will be provided entirely within the South Street right-of-way.

# 2

## Mode Split / Trip Generation

The Project is comprised of office, research and development, and lab enabled uses (office/R&D/lab), residential, and retail use being developed in three phases, as shown in Tables 1 and 2. The Institute of Transportation Engineers' (ITE) *Trip Generation Manual*<sup>2</sup> categorizes these land uses and provides weekday daily, weekday morning, weekday evening, Saturday daily, and midday peak hour unadjusted vehicle trip generation estimates for each use. With their proximity and shared parking facilities, trip generation estimates were not developed separately for each building but, instead, were estimated as a single total development. The resulting trip generation analyses for the total Project are summarized as follows.

### Project-Generated Traffic Volumes

The rate at which a development generates traffic is dependent upon several factors such as size, location, and concentration of surrounding developments. As previously discussed, the Project consists of commercial, retail, residential, and arts/creative enterprises uses. Trip generation estimates for the proposed uses were projected using the ITE trip generation data noted above for LUC 710 (General Office Building), LUC 760 (Research & Development Center), LUC 221 (Mid-Rise Residential), and LUC 820 (Shopping Center).

The trip generation analyses are presented below.

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<sup>2</sup> [Trip Generation Manual, 10<sup>th</sup> Edition](#), Institute of Transportation Engineers, Washington, D.C., 2017.

### **Existing Site-Generated Traffic**

Estimating future conditions volumes involved a review of the existing development on those parcels, along with the additional trip generation expected from the Project development.

The planned development parcels are currently occupied by an approximately 15,134 SF office building, two warehouse buildings with a combined 31,441 SF, 2,937 SF of multi-family housing, and an 11,659 SF vacant building, which until June 2019 was used by the "Jam Spot" recording studio. "Credit" for the office and warehouses uses was taken for the existing traffic generation associated with the respective land uses. As the trips associated with the multi-family housing development are expected to be negligible, no credit was taken for the existing nominal traffic generated by this existing use.

Additionally, a private commercial parking lot exists at 2 Harding Street, which is located between Earle Street and Harding Street, and a commercial truck storage lot on the opposite side of Earle Street. While there is regular parking activity at 2 Harding Street, neither lot generates significant peak-hour traffic volumes. Accordingly, no credit was taken for the existing nominal traffic generation associated with either lot.

Table 3 summarizes the Project-related trips for the existing uses on Development Site.

**Table 3 Existing Site Trip Generation**

	Office Adjusted <sup>a</sup>	Warehousing <sup>b</sup>	Total Adjusted Vehicle Trips
<b>Weekday Daily</b>			
Enter	64	48	<b>111</b>
<u>Exit</u>	<u>64</u>	<u>48</u>	<b>111</b>
Total	127	95	<b>223</b>
<b>Weekday Morning</b>			
Enter	26	22	<b>49</b>
<u>Exit</u>	<u>4</u>	<u>7</u>	<b>11</b>
Total	31	29	<b>60</b>
<b>Weekday Evening</b>			
Enter	2	9	<b>11</b>
<u>Exit</u>	<u>12</u>	<u>23</u>	<b>35</b>
Total	14	32	<b>46</b>
<b>Saturday Daily</b>			
Enter	13	2	<b>15</b>
<u>Exit</u>	<u>13</u>	<u>2</u>	<b>15</b>
Total	25	5	<b>30</b>
<b>Saturday Midday</b>			
Enter	3	1	<b>4</b>
<u>Exit</u>	<u>3</u>	<u>1</u>	<b>3</b>
Total	6	2	<b>8</b>

a Based on ITE LUC 710 (General Office Building), for 15,134 SF. Assume 75% vehicular mode split based on Union Square Neighborhood Plan.

b Based on ITE LUC 150 (Warehousing), for 31,441 SF. Assume 100% vehicular mode split.

### 101 South Street-Generated Trips

As mentioned previously, an initial component of the Project – approximately 257,200 SF of the proposed commercial space and 12,500 SF of the proposed retail/restaurant space – is already under construction at 101 South Street.

The retail/restaurant use is expected to consist of small, service-oriented businesses. While exact tenants have not yet been secured, these are not expected to be large destination retail uses. Instead, potential uses will include small eating establishments, coffee shops, or galleries. While these do not fit the description of a transitional ITE "Shopping Center," retail traffic was estimated using this land use code, which results in an overly conservative analysis.

The new vehicle trips generated for this portion of the Project are presented in Table 4.

**Table 4 101 South Street-Generated Peak-Hour Vehicle Trips by Use**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Retail Pass-By <sup>d</sup>	<u>Net Site</u> Generated Vehicle Trips <sup>e</sup>
<b>Weekday Morning</b>					
Enter	93	30	55	14	178
<u>Exit</u>	<u>11</u>	<u>8</u>	<u>28</u>	<u>14</u>	<u>47</u>
Total	104	38	83	28	225
<b>Weekday Evening</b>					
Enter	17	7	25	14	49
<u>Exit</u>	<u>89</u>	<u>39</u>	<u>31</u>	<u>14</u>	<u>159</u>
Total	106	46	56	28	208
<b>Saturday MIDDAY</b>					
Enter	27	11	32	11	70
<u>Exit</u>	<u>20</u>	<u>10</u>	<u>31</u>	<u>11</u>	<u>61</u>
Total	47	21	63	22	131

a New vehicle trips with internal capture credits applied.

b New vehicle trips with internal capture credits applied.

c New vehicle trips with internal capture and pass-by credits applied.

d 25% pass-by credit for weekday morning and Saturday midday peak hours, 34% for weekday evening peak hour.

e Sum of columns a, b, c

As shown in Table 4, 101 South Street is expected to generate 225, 208, and 131 new vehicle trips during the weekday morning, weekday evening, and Saturday midday peak hours. Credit for internal capture, mode-share, and pass-by trips was taken as discussed in the following sections.

Traffic associated with 101 South Street was assigned to the existing study area roadways and intersections based on trip distribution patterns developed, as discussed in the Trip Distribution section of this report.

### Full Build-Out Unadjusted ITE Vehicle Trips

The Project consists of approximately 963,500 SF of commercial uses (split between office/R&D/lab), 42,500 SF of retail, and 330 residential units across 6.8 acres. Approximately 20,000 SF of additional building space within the Project will be for arts/creative enterprise uses, which is expected to have negligible impacts on the surrounding roadway network.

As with Building 1 (101 South), the proposed retail/restaurant uses are expected to be small, service-oriented businesses. Exact tenants have not yet been secured, but these are not expected to be large destination retail uses. Instead, potential uses will include small eating establishments, coffee shops, or galleries. Regardless, retail traffic was estimated using ITE's "Shopping Center" land use code, which results in an overly conservative analysis.



The unadjusted new vehicle trips for the full build-out of the development are presented in Table 5.

**Table 5 Full-Build Project Trip Generation – Total Unadjusted Vehicle Trips**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Residential <sup>d</sup>	Total Unadjusted Vehicle Trips
<b>Weekday Daily</b>					
Enter	2,438	2,566	1,680	898	7,583
<u>Exit</u>	<u>2,438</u>	<u>2,566</u>	<u>1,680</u>	<u>898</u>	<u>7,583</u>
Total	4,876	5,133	3,360	1,797	15,166
<b>Weekday Morning</b>					
Enter	412	152	107	29	700
<u>Exit</u>	<u>67</u>	<u>51</u>	<u>66</u>	<u>82</u>	<u>265</u>
Total	479	202	173	110	965
<b>Weekday Evening</b>					
Enter	81	35	138	85	340
<u>Exit</u>	<u>426</u>	<u>201</u>	<u>150</u>	<u>54</u>	<u>831</u>
Total	507	236	288	139	1,171
<b>Saturday Daily</b>					
Enter	532	357	2,622	810	4,321
<u>Exit</u>	<u>532</u>	<u>357</u>	<u>2,622</u>	<u>810</u>	<u>4,321</u>
Total	1,065	714	5,243	1,620	8,642
<b>Saturday Midday</b>					
Enter	138	58	164	71	431
<u>Exit</u>	<u>117</u>	<u>58</u>	<u>151</u>	<u>74</u>	<u>401</u>
Total	255	116	315	145	831

Note: The current development program includes an additional 21,000 SF of space beyond that specified above split between office and R&D uses. This increase is not expected to significantly alter the results of the future conditions analyses presented in this document as the associated increase in vehicular trip generation is projected to be fewer than five (5) vehicle trips during the peak hours studied.

a Based on ITE LUC 710 (General Office Building), for 481,750 SF

b Based on ITE LUC 760 (Research & Development), for 481,750 SF

c Based on ITE LUC 820 (Shopping Center) for 42,500 SF

d Based on ITE LUC 221 (Mid-Rise Residential) for 330 units

### Person Trips

The unadjusted vehicle trips generated from ITE are converted into person trips by applying the national average vehicle occupancy (AVO) of 1.18 for residential, office, and research and development trips and of 1.82 for retail trips, as outlined by the U.S. Department of Transportation (USDOT).<sup>3</sup> The unadjusted vehicle trips were converted into person trips in order to apply internal capture credits and applicable mode share

<sup>3</sup> Summary of Travel Trends: National Household Survey; US Department of Transportation, Federal Highway Administration, Washington D.C., 2017.

credits. Applying these credits to person trips allows for estimates to be made for the total number of Development Site-generated vehicle trips.

### **Internal Capture Trips**

Since the Project proposes a mix of uses, the trip generation characteristics of the Development Site will be different from a single-use project. Some of the traffic to be generated by the Project will be contained on-site as "internal" or "shared vehicle" trips. This concept means that some patrons could visit more than one of the uses on the Development Site. For example, workers at the office space on-site may patron the retail shops after work, or residents who live in the Project may also work in the office on-site. While these shared trips represent new traffic to the individual uses, they would not show up as new vehicle trips on the surrounding roadway network.

As described in the ITE Trip Generation Handbook,<sup>4</sup> "because of the complementary nature of these land uses, some trips are made among the on-site uses. This capture of trips internal to the site has the net effect of reducing vehicle trip generation between the overall development site and the external street system (compared to the total number of trips generated by comparable land uses developed individually on stand-alone sites) an internal capture rate can generally be defined as the percentage of total person trips generated by a site that are made entirely within the site. The trip origin, destination, and travel path are all within the site."

Based on the methodology outlined in the ITE Trip Generation Handbook, internal capture rates were applied to the gross person trips. The resulting peak-hour person trip estimates for the Project are presented in Table 6.

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<sup>4</sup> Trip Generation Handbook, 3rd Edition, Institute of Transportation Engineers, Washington, D.C., 2017.

**Table 6 Full-Build Project Trip Generation – Net Person Trips**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Residential <sup>d</sup>	Total Person Trips
<b>Weekday Daily</b>					
Enter	2,832	2,981	2,660	692	9,165
Exit	<u>2,802</u>	<u>2,949</u>	<u>2,629</u>	<u>785</u>	<u>9,165</u>
Total	5,634	5,930	5,289	1,477	18,330
<b>Weekday Morning</b>					
Enter	465	171	155	33	824
Exit	<u>57</u>	<u>43</u>	<u>92</u>	<u>93</u>	<u>285</u>
Total	522	214	247	126	1,109
<b>Weekday Evening</b>					
Enter	90	40	207	50	387
Exit	<u>487</u>	<u>229</u>	<u>222</u>	<u>36</u>	<u>974</u>
Total	577	269	429	86	1,361
<b>Saturday Daily</b>					
Enter	542	364	4,217	620	5,743
Exit	<u>501</u>	<u>336</u>	<u>4,313</u>	<u>593</u>	<u>5,743</u>
Total	1,043	700	8,530	1,213	11,486
<b>Saturday Midday</b>					
Enter	157	65	249	42	513
Exit	<u>121</u>	<u>59</u>	<u>230</u>	<u>59</u>	<u>469</u>
Total	278	124	479	101	982

<sup>a</sup> Person trip generation estimate with internal capture credits applied.

### Mode Share

The mode shares used for this trip generation evaluation were evaluated in two main steps. This was done to reflect the current transportation environment surrounding the Development Site, while also acknowledging the significant changes that are expected to occur in this area.

Based on US Census Data (2012-2016) for the overall City, the existing vehicle mode share is 71 percent with relatively low transit, walk, and bike shares (15-, 13-, and 1-percent, respectively). These figures generally are consistent with existing conditions data for the Union Square area as presented in the Union Square Neighborhood Plan (USNP)<sup>5</sup> and the Central Planning Transportation Staff (CTPS) report. However, due to the Development Site's close proximity to ample public transportation options and with the proposed MBTA GLX Project, the expected vehicle mode share is expected to be much lower in the future. As discussed later in this document, the anticipated future mode share data presented in the USNP and the CTPS report was used for reference. The USNP suggested that a vehicle mode share of 40 percent and higher walk and bike shares (23- and 15-percent, respectively) could be expected following the completion of the MBTA GLX project. For the initial trip generation evaluation, mode splits were conservatively

<sup>5</sup> [Union Square Neighborhood Plan](#), City of Somerville, Somerville, Massachusetts, 2017.

estimated based on the existing conditions, as reflected by the USNP data for Union Square. Later in this document, these initial projections are compared to those based on the expected future mode splits. The resulting mode shares for each use based on existing conditions are presented in Table 7.

**Table 7 Existing Mode Share**

Use	Vehicle	Transit	Bike	Walk
Office/Lab	75%	14%	3%	8%
Retail	75%	14%	3%	8%
Residential	50%	25%	10%	15%

Source: Peak hour/peak direction mode share estimates based on the Union Square Neighborhood Plan.

The mode shares discussed above were applied to the net-new person trips shown in Table 6 to generate the adjusted Project trips by mode. To reflect the number of vehicle trips generated by the Project, the adjusted person trips are converted back to vehicle trips by applying the local average vehicle occupancy rates. These rates are slightly different than the national AVO data discussed earlier in this section. Based on 2012-2016 U.S. Census Data,<sup>6</sup> a local AVO of 1.21 for residential trips and 1.16 for office and research and development use was determined. As local AVO data are not available for retail, the same 1.82 national AVO was determined for retail trips based on the USDOT data, as noted earlier.

### Pass-By Trips

While the ITE rates provide estimates for all the traffic associated with each land use, not all of the traffic generated by the Project will be new to the area roadways. For example, a portion of the vehicle-trips generated by the retail land use will likely be drawn from the traffic volume roadways adjacent to the Development Site. For example, someone traveling on South Street may choose to deviate from their original travel path to visit the Development Site's retail before continuing to their destination. With the presence of nearby one-way streets, it is expected that most pass-by traffic will consist of westbound South Street travel that stops at the Development Site before continuing on to the west. As there will be on-street parking provided along the northerly side of South Street, most of this impulse traffic should be oriented to the Building 3 retail/restaurant uses.

For this evaluation, ITE pass-by rates for LUC 820 (Shopping Center) were utilized for the retail trip generation and applied to existing trips on South Street. Specifically, 34- and 26-percent of the Development Site's trip generation was assumed to be drawn from the surrounding roadway network during the weekday evening and Saturday midday peak hours, respectively. A 25-percent pass-by rate was assumed for all other time periods studied.

## Project-Generated Trips by Mode

The mode share and local average vehicle occupancy were applied to the person trips to estimate net new trips by mode, and then the pass-by adjustments noted previously were

<sup>6</sup> [US Census Data \(2012-2016\)](#); City of Somerville.

applied to the vehicle trips generated by the retail portion of the Project. Following these calculations, trip generation associated with the existing Development Site uses and the approved Building 1 (101 South) development was deducted, which resulted in the increased net new trips from the Project. Tables 8 and 9 summarize the net new trips by mode and net new vehicle trips by use, respectively.

**Table 8 Project-Generated Peak-Hour Trips by Mode**

	Bike/Walk	Transit	Vehicle <sup>a</sup>
<b>Weekday Morning</b>			
Enter	49	60	250
<u>Exit</u>	<u>28</u>	<u>30</u>	<u>70</u>
Total	77	90	320
<b>Weekday Evening</b>			
Enter	34	41	100
<u>Exit</u>	<u>73</u>	<u>92</u>	<u>345</u>
Total	107	133	445
<b>Saturday Midday</b>			
Enter	43	53	163
<u>Exit</u>	<u>43</u>	<u>51</u>	<u>145</u>
Total	86	104	307

a Total development vehicle trips (including pass-by trips associated with the retail portion).

As shown in Table 8, the Project, prior to the construction of the MBTA GLX project and implementation of this Project's MMP measures, the Project would be expected to generate between 307 and 445 total vehicle trips during the peak hours studied, including trips generated by the existing Development Site uses. The breakdown of these trips by use is provided in Table 9.



**Table 9 Full Build Project-Generated Peak-Hour Vehicle Trips by Use**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Retail Pass- By <sup>d</sup>	Residential <sup>e</sup>	Net Site Generated Vehicle Trips <sup>f</sup>	101 South Street Adjusted Trips <sup>g</sup>	Existing Adjusted Site Generated Trips <sup>g</sup>	Net New Site Generated Vehicle Trips <sup>h</sup>
<b>Weekday Morning</b>									
Enter	301	111	51	13	14	477	-178	-49	250
Exit	<u>37</u>	<u>28</u>	<u>25</u>	<u>13</u>	<u>38</u>	<u>128</u>	<u>-47</u>	<u>-11</u>	<u>70</u>
Total	338	139	76	26	52	605	-225	-60	320
<b>Weekday Evening</b>									
Enter	58	26	55	30	21	160	-49	-11	100
Exit	<u>315</u>	<u>148</u>	<u>61</u>	<u>30</u>	<u>15</u>	<u>539</u>	<u>-159</u>	<u>-35</u>	<u>345</u>
Total	373	174	116	60	36	699	-208	-46	445
<b>Saturday Midday</b>									
Enter	101	42	77	26	17	237	-70	-4	163
Exit	<u>78</u>	<u>38</u>	<u>69</u>	<u>26</u>	<u>24</u>	<u>209</u>	<u>-61</u>	<u>-3</u>	<u>145</u>
Total	179	80	146	52	41	446	-131	-8	307

a New vehicle trips with internal capture credits applied.

b New vehicle trips with internal capture credits applied.

c New vehicle trips with internal capture and pass-by credits applied.

d 25% pass-by credit for weekday morning and Saturday midday peak hours; 34% for weekday evening peak hour.

e New vehicle trips with internal capture credits applied.

f Sum of columns a, b, c, e.

g 101 South Street Adjusted trips (refer to Table 4).

g Sum of existing office and warehouse land uses. Existing mode share applied.

h Column f minus column g.

As shown in Table 9, based on the existing local mode splits, the Project is expected to generate 320, 445, and 307 additional “new” vehicle trips during the weekday morning, weekday evening, and Saturday midday peak hours. Credit has been taken for Building 1 (101 South) trips, as that building was previously reviewed and approved by the City of Somerville. Traffic generated by the existing buildings on the Development Site, which will be removed a part of the Project, also were deducted. The expected distribution of the net new trips on the surrounding roadway system is discussed later in this document.

## Mode Share Commitment

The Proponent is committed to making reasonable efforts to achieve the City’s goal to control the percentage of trips by automobile at 50 percent or less, consistent with the updated Somerville Zoning Ordinance adopted on December 12, 2019. In combination with proposed pedestrian and bicycle improvements, proximity to public transit services, and the inherent walkable characteristics of the Boynton Yards neighborhood, the implementation of this MMP is anticipated to decrease the percentage of trips made by automobile to below the desired 50 percent level. If annual monitoring and reporting identifies a shortfall in meeting this goal, additional mobility management programs and services will be implemented. The nature and details of the additional reasonable efforts

to be undertaken by the Proponent, if required, will be determined through consultation with the City Director, Mobility Division. The measures could involve amplifying existing programs or introducing new measures.

## **Project-Generated Traffic Volumes**

As previously discussed, the Project consists of commercial, retail, residential, and creative-use space. Trip generation estimates for the proposed uses were projected as discussed in the prior section using data published in the ITE *Trip Generation Manual*<sup>7</sup> for LUC 710 (General Office Building), LUC 760 (Research & Development Center), LUC 221 (Mid-Rise Residential), and LUC 820 (Shopping Center). The existing conditions trip generation estimates presented in that section remained unchanged. The base trip generation for the approved Building 1 (101 South) also remained unchanged, though the mode splits were adjusted to reflect anticipated future conditions as discussed in the following section.

## **Revised Project Mode Share**

Through the implementation of this MMP, and the completion of the MBTA GLX project, it is the hope and expectation of the Proponent that the percentage of trips made by automobile can be reduced to under 50 percent. The mode shares used for the future condition's analysis are based on mode share data presented in the previously mentioned USNP and CTPS report. The USNP suggested a vehicle mode share of 40 percent and very high walk and bike shares (23 percent and 15 percent, respectively). VHB chose to use more conservative walking and bike shares given the Development Site's location and surrounding roadway network. The Project design, parking supply, and Transportation Demand Management (TDM) program all are being developed with the intent of minimizing travel by SOV and maximizing transit use. The pedestrian friendly setting being advanced for this and other projects also will promote walking and biking to and from the Development Site. Secured bicycle parking within the building also will encourage biking.

The increased transit mode share used for this analysis is primarily due to the scheduled opening of the new Union Square station in December 2021. The Development Site will be located roughly one-quarter mile from this new station. As noted in the USNP, office workers are typically willing to walk up to one-quarter mile for transit service, while residents are willing to walk up to one-half mile. The USNP further notes that people generally are willing to walk longer distances for rail (such as the new Union Square station) than they are for bus service. Accordingly, with the Project falling within these ranges, there should be a notable decrease in automobile dependency in the area due to the transit improvements. The proposed TDM measures proposed later in this report also are expected to help reduce the vehicular mode split compared to existing conditions in this area. The resulting peak hour/peak direction mode share estimates, by use, are presented in Table 10.

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<sup>7</sup> [Trip Generation Manual, 10th Edition](#), Institute of Transportation Engineers, Washington, D.C., 2017.

**Table 10 Mode Share**

Use	Vehicle	Transit	Bike	Walk
Office/Lab	40%	40%	8%	12%
Retail	40%	40%	8%	12%
Residential	40%	40%	8%	12%

Source: Peak hour/peak direction mode share estimates based on the Union Square Neighborhood Plan.

The mode shares discussed above were applied to the net-new person trips previously presented in Table 6 to generate the adjusted Project trips by mode. As with the prior estimates based on existing mode splits, the adjusted person trips were converted back to vehicle trips by applying the local average vehicle occupancy rates. The portion of retail traffic made up of pass-by trips also was estimated following the same procedure discussed earlier in this report. Table 11 presents the Project-generated net new peak hour trips by mode using the anticipated future mode splits summarized above.

**Table 11 Project-Generated Peak-Hour Trips by Mode**

	Bike/Walk	Transit	Net New Vehicle Trips <sup>a</sup>
<b>Weekday Morning</b>			
Enter	87	176	112
<u>Exit</u>	<u>30</u>	<u>60</u>	<u>43</u>
Total	117	236	155
<b>Weekday Evening</b>			
Enter	49	101	54
<u>Exit</u>	<u>128</u>	<u>262</u>	<u>173</u>
Total	177	363	227
<b>Saturday Midday</b>			
Enter	69	139	91
<u>Exit</u>	<u>63</u>	<u>128</u>	<u>83</u>
Total	132	267	173

a Total development vehicle trips (not including pass-by trips associated with the retail portion).

As shown in Table 11, the Project, prior to the construction of the MBTA GLX project and the implementation of this Project's MMP measures, the Project would be expected to generate between 155 and 227 total vehicle trips during the peak hours studied, including trips generated by the existing Development Site uses. The breakdown of these trips by use is provided below in Table 12.

**Table 12 Full Build Project-Generated Peak-Hour Vehicle Trips by Use**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Retail Pass- By <sup>d</sup>	Residential <sup>e</sup>	Net Site Generated Vehicle Trips <sup>f</sup>	101 South Street Adjusted Trips <sup>g</sup>	Existing Adjusted Site Generated Trips <sup>g</sup>	Net New Site Generated Vehicle Trips <sup>h</sup>
<b>Weekday Morning</b>									
Enter	160	59	27	7	11	257	-96	-49	112
Exit	<u>20</u>	<u>15</u>	<u>13</u>	<u>7</u>	<u>31</u>	<u>79</u>	<u>-25</u>	<u>-11</u>	<u>43</u>
Total	180	74	40	14	42	336	-121	-60	155
<b>Weekday Evening</b>									
Enter	31	14	29	16	17	91	-26	-11	54
Exit	<u>168</u>	<u>79</u>	<u>33</u>	<u>16</u>	<u>12</u>	<u>292</u>	<u>-84</u>	<u>-35</u>	<u>173</u>
Total	199	93	62	32	29	383	-110	-46	227
<b>Saturday Midday</b>									
Enter	54	23	41	14	14	132	-37	-4	91
Exit	<u>42</u>	<u>20</u>	<u>37</u>	<u>14</u>	<u>20</u>	<u>119</u>	<u>-33</u>	<u>-3</u>	<u>83</u>
Total	96	43	78	28	34	251	-70	-8	173

a New vehicle trips with internal capture credits applied.

b New vehicle trips with internal capture credits applied.

c New vehicle trips with internal capture and pass-by credits applied.

d 25% pass-by credit for weekday morning and Saturday midday peak hours, 34% for weekday evening peak hour.

e New vehicle trips with internal capture credits applied.

f Sum of columns a, b, c, e.

g 101 South Street Adjusted trips (see Table 4).

g Sum of existing office and warehouse land uses. Existing mode share applied.

h Column f minus column g.

As shown in Table 12, based on the existing local mode splits, the Project would be expected to generate 155, 227, and 173 additional “new” vehicle trips during the weekday morning, weekday evening, and Saturday midday peak hours. Credit has been taken for Building 1 (101 South) trips, as this building was previously reviewed and approved by the City of Somerville. Traffic generated by the existing buildings on the Development Site, which will be removed a part of the Project, also were deducted. The expected distribution of the net new trips on the surrounding roadway system is discussed later in this document.

Table 13 compares the expected net new vehicle trip generation for the Project based on the anticipated future mode splits to that which theoretically would occur if the current mode splits were not improved through the MBTA GLX project’s construction and the TDM program for the Project.

**Table 13 Trip Generation Comparison – Anticipated Vs. Existing Mode Splits**

	Project Trip Generation		Reduction in Vehicle Trips	
	With Existing Mode Splits <sup>a</sup>	With Targeted Mode Splits <sup>a</sup>	Vehicle Trips	Percent Decrease
<b>Weekday Morning</b>				
Enter	250	112	138	
<u>Exit</u>	<u>70</u>	43	<u>27</u>	
Total	320	155	165	52%
<b>Weekday Evening</b>				
Enter	100	54	46	
<u>Exit</u>	<u>345</u>	173	<u>172</u>	
Total	445	227	218	49%
<b>Saturday Midday</b>				
Enter	163	91	72	
<u>Exit</u>	<u>145</u>	83	<u>62</u>	
Total	307	173	134	44%

<sup>a</sup> Existing conditions mode share and Project mode share based on Tables 9 and 12, respectively.

As shown in Table 13, it is expected that Project vehicle trip generation can be reduced by between 44 and 52 percent through the implementation of the MMP, the Project's proximity to public transit, and the availability of bicycle/pedestrian accommodations. While most of this reduction is likely associated with the opening of Union Square station, details regarding the proposed TDM measures are provided later in this document.

## Trip Distribution

The directional distribution of traffic approaching and departing the Project is a function of several variables. These include the population densities, existing travel patterns, and the efficiency of the roadways leading to the Development Site.

Since the Project is primarily comprised of office/R&D/lab space, the trip distribution patterns were determined using journey-to-work census data for the City. The assignment of Development Site-generated traffic to specific travel routes was based on observed traffic flow conditions on available routes and the assumption that most motorists will seek the fastest and most direct routes to and from the Development Site.

It is expected that the retail portion of the Development Site will be oriented towards service-support of the office/R&D/lab space and will therefore be considered "non-destination" retail. The resulting trip distribution for the Development Site-generated traffic was based on the residential and office/R&D/lab space portions of the Development Site and the anticipated trip distribution is expected to be heavily oriented to and from McGrath Highway (Route 28) and is summarized in Table 14.

The anticipated trip distribution of automobile traffic is shown in Figure 3.



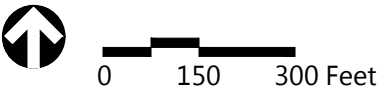
**Table 14 Vehicle Trip Distribution Summary**

Travel Route	Direction (to/from)	Office/R&D Trips	Residential Trips
McGrath Highway	North	43%	21%
Gore Street	East	7%	9%
Cambridge Street	East	12%	17%
	West	5%	14%
Somerville Avenue	West	24%	14%
Columbia Street	South	4%	11%
Prospect Street	South	<u>5%</u>	<u>14%</u>
Total		100%	100%

Source: Journey-to-Work data for the City of Somerville (2010 U.S. Census Data).

In addition to the regional distribution summarized above, the anticipated arrival/departure patterns for Project traffic are shown on the Vehicle Access and Parking Plan provided in Figure 4. Similarly, Figures 5 and 6 show the access plan for pedestrians and bicyclists with the proposed bicycle parking supplies for each building also highlighted in Figure 6.





Regional Trip Distribution  
Boynton Yards  
Somerville, Massachusetts

Figure 3



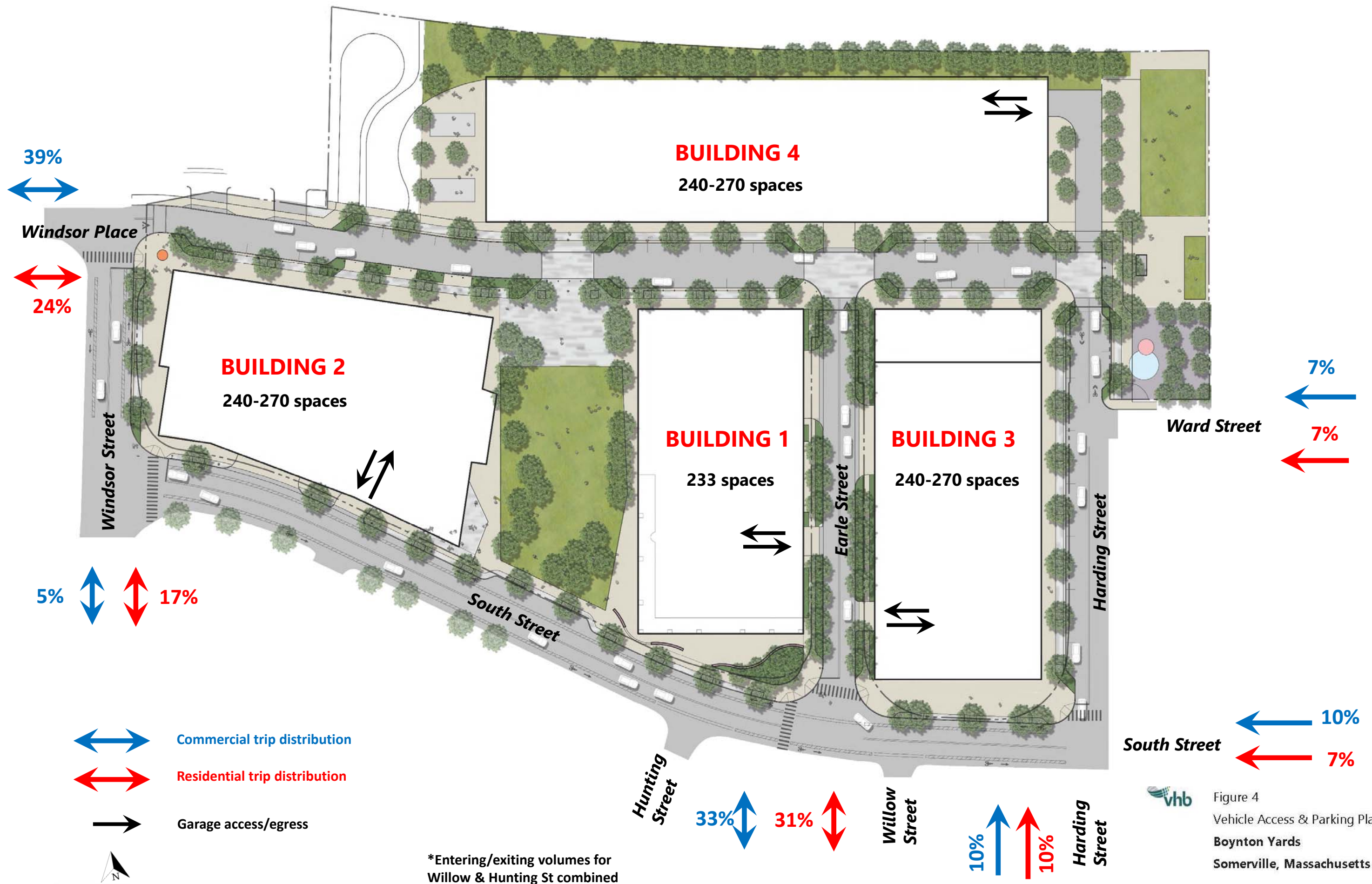


Figure 4  
Vehicle Access & Parking Plan  
Boynton Yards  
Somerville, Massachusetts



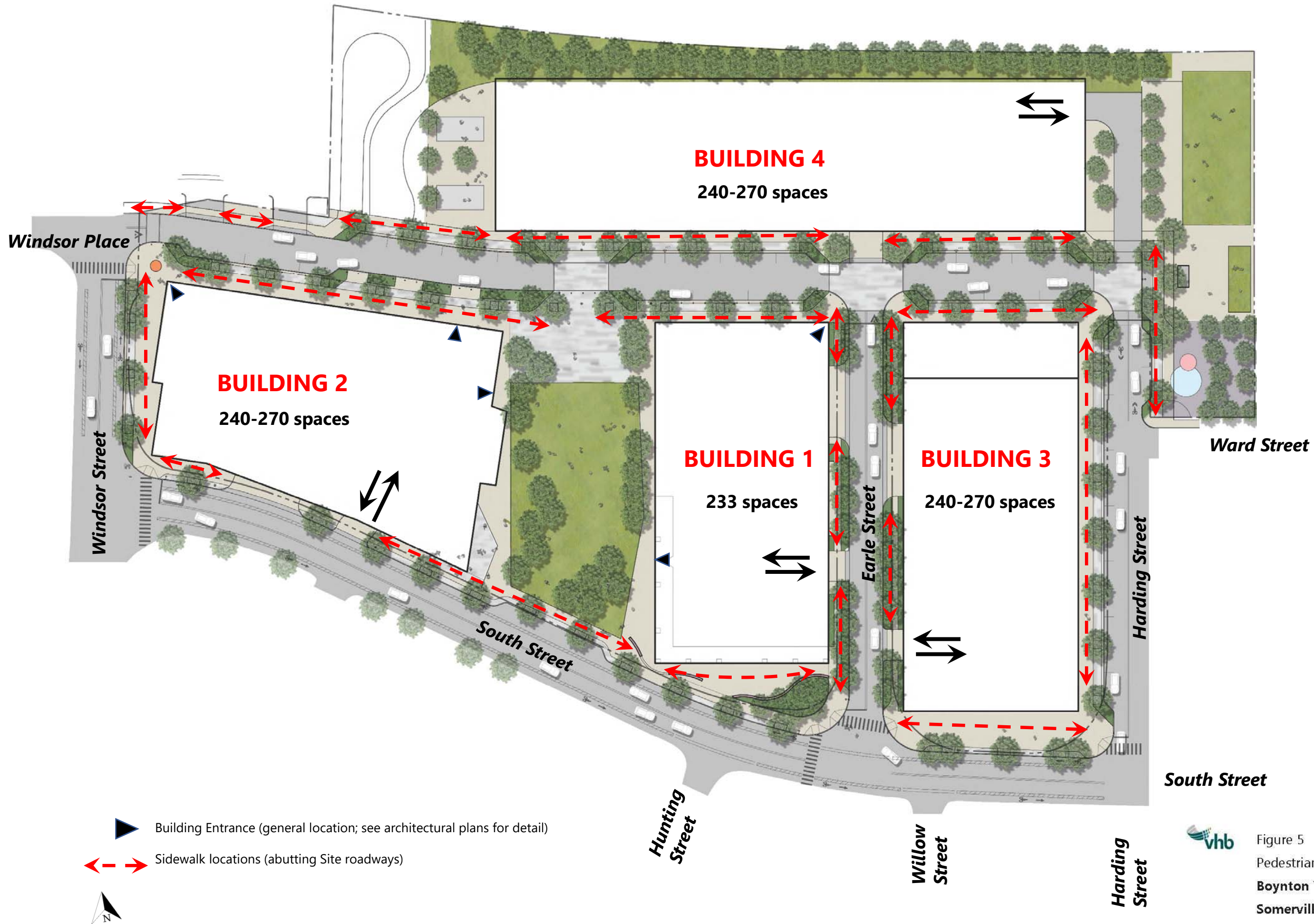


Figure 5  
Pedestrian Access Plan  
**Boynton Yards**  
Somerville, Massachusetts



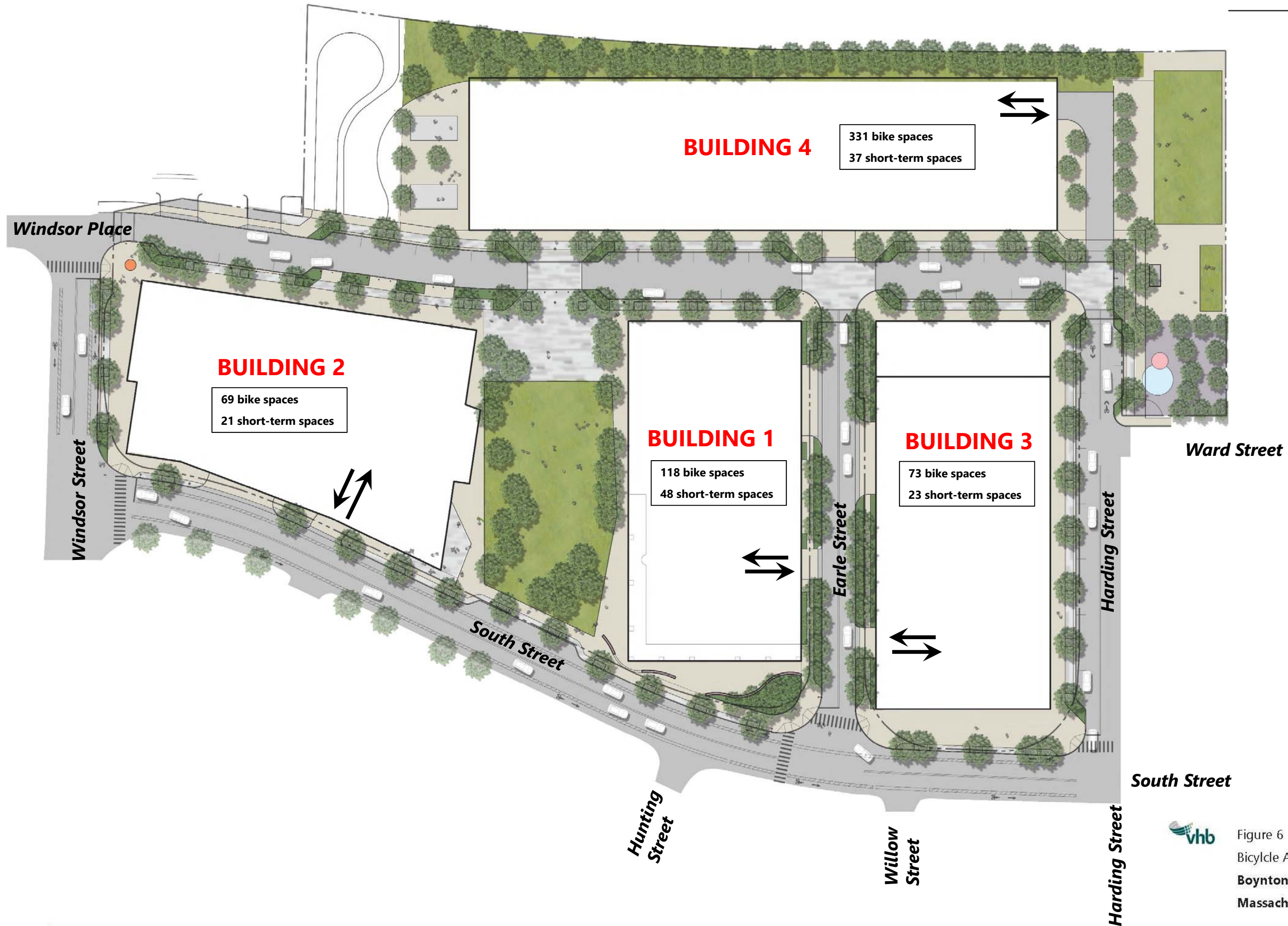


Figure 6  
Bicycle Access & Parking Plan  
Boynton Yards Somerville,  
Massachusetts



# 3

## Proposed Programs and Services

An MMP is required by the Somerville Zoning Ordinance for all MPSP applications. The purpose of a MMP for a master planned development, as stated in the submittal requirements for MPSP MMPs, is to ensure that the master plan developers are fully aware of the mobility management responsibilities of future property owners and tenants – namely employers – and that advanced notice of the operational expectations necessary for successful plan implementation is provided to future property owners, tenants, parking facility operators, and property management firms.

The following section summarizes the City's Zoning Ordinance requirements for MMPs:

- › Property owners of buildings with 50,000 SF or more of commercial space OR multi-tenant buildings that in combination have 50 or more employees are required to provide the following for their tenants:
  - An on-site transportation coordinator;
  - Posted mobility management information;
  - Distributed mobility management information;
  - Unbundled parking;
  - Preferential parking for carpool/vanpool vehicles; and
  - An annual mobility management education meeting for tenants and their employees.
- › These same property owners must require future tenants to provide the following through lease agreements:
  - Qualified transportation fringe benefits for employees; and
  - A guaranteed ride home program for employees.

- › Employers with 50 or more employees are required to provide the following for their employees:
  - An on-site transportation coordinator;
  - Posted mobility management information;
  - Distributed mobility management information;
  - Qualified transportation fringe benefits for employees;
  - A guaranteed ride home program for employees; and
  - An annual mobility management education meeting for tenants and their employees.
- › The property owner of a parking facility is required to provide the following:
  - Preferential parking locations for carpool/vanpool; and
  - Posted mobility management information.
- › The property owner of a residential building with 20 or more dwelling units is required to provide the following:
  - Posted mobility management information;
  - Distributed mobility management information; and
  - Unbundled parking.

The following sections outline the MMP responsibilities and commitments for the various stakeholders of the Project, including the Proponent, future tenants, and property management firms. While best efforts have been made to assign these commitments accordingly, specific duties outlined subsequently may be fulfilled by other stakeholders as tenant specific MMP policies are drafted.

## **Proponent / Property Owner Commitments**

### **Transportation Coordinator**

In conjunction with the initial phase of development, an overall on-site TDM coordinator will be designated to oversee all TDM programs for each of the Project's buildings and the Development Site in its entirety. In keeping with the requirements of the City, TDM coordinators will be provided for each tenant occupying a building. The person(s) in this role will coordinate with the City of Somerville Mobility Division or any future Transportation Management Associations formed in the future which the Project may possibly join to help promote a reduced reliance on single-occupant automobile travel to the Development Site. To that end, the TDM measures identified in the following sections will be implemented under the direction and supervision of this person.

The final job description for this role will be determined over time, but the duties of the on-site TDM coordinator may include, but not be limited to:

- › Assist Development Site employees and residents with ride matching and transportation planning;
- › Develop and implementing appropriate TDM measures;

- › Disseminate information regarding alternate modes of transportation and developing transportation-related marketing and educational materials;
- › Develop and maintaining information pertaining to pedestrian and cycling access to and from the Development Site;
- › Host occasional transportation-related events to promote the use of commuting alternatives;
- › Distribute transit maps and passes;
- › Advocate with the state and local governments to improve transportation infrastructure and services;
- › Monitor the effectiveness of TDM measures through surveys and other tools;
- › Complete regulatory reports to state and city agencies, as required; and
- › Implement a website that provides travel-related information and promotes awareness of the items listed above.

## **Ride-Sharing Services**

The parking needs for the Project will be reduced due to the nearby availability of public bus service currently provided in the area. Furthermore, alternate means of travel, such as taxi and private ride services, such as Uber and Lyft, should continue to reduce the parking needs for the area. The exact level of usage by these private ride-sharing services can be quantified through post-opening monitoring studies to be conducted as discussed later in this document.

## **Promote Transit Use**

Access to public transportation will significantly reduce demand for vehicular travel and parking spaces. This should be particularly effective in relation to the new Union Square station, which is planned to open in December 2021. To serve visitors, employees, and residents, the Proponent will work with the MBTA to identify appropriate locations for new or relocated bus stops near the Development Site and other possible amenities, including bus shelters and real-time transit information.

The on-site TDM coordinator will provide a central commuter information center within the Development Site in a prominent location, such as in a building's foyer or near garage elevators. This will provide employees, visitors, and residents with transit maps, transportation schedules, and route information for pedestrians and cyclists. One or two smaller centers also may be provided at central locations within the overall development, or possibly within each building. This also could include the residential lobbies or at the entrance of the planned office building among other possible locations that would be identified by the on-site TDM coordinator in consultation with the City's Mobility Division.

Parking spaces for the Development Site's commercial tenants either can be allocated only to certain employees through a process to be determined by individual tenants, or parking use could be managed through pricing strategies. The Proponent also will implement a temporary shuttle service for Building 1 (101 South) in the event that the building should open prior to the opening of the Union Square station. This shuttle

would run between the Development Site and a nearby MBTA station (likely Lechmere Station, which is 0.75 miles to the east) until the new station is in operation. With the Development Site being located within one-quarter mile of the new station, employees who do not own an automobile should have easy access to public transportation.

### **Bike Sharing Service**

Bluebikes began operating in July 2011 and currently provides over 3,000 bikes at 300+ bike-sharing stations. In addition to the Project's on-site bicycle parking, bike-share stations may be provided conjunction with the Project. While it is possible that additional new bike-share stations may be provided near the new Union Square station or near the US2 Project, the Proponent intends to pursue the installation of a new bike-share station at the Development Site. The closest Bluebikes bike-share stations are located over one-quarter mile to the north near the planned Union Square station, one-quarter mile to the south at the Cambridge Street/Columbia Street intersection, and 950 feet to the south at Cambridge Street's intersection with Berkshire Street. Therefore, the Proponent will work with Bluebikes to have a new bike-share station located next to the Development Site. The exact timing and number of bikes at the station will be determined through consultation with Bluebikes.

### **Transportation Management Association Involvement**

While there are not any active Transportation Management Associations (TMAs) in the vicinity of the Project, the Proponent is committed to be an active member of any TMAs formed in the future. The mission of most TMAs is to enhance quality of life through focusing on Transportation and Infrastructure, Land Use and Development, and Energy and the Environment. In the absence of a formal, established TMA, the Proponent will support local efforts in Somerville in improving and expanding public transportation in the area. Through this involvement, the pedestrian-friendly nature of the Development Site's design and internal roadway networks create a framework for offering alternative transportation services. If a TMA is formed in the future, the Proponent will consult with TMA management to confirm that the TMA structure, fees, and other details are compatible with the Project prior to officially becoming a member. With or without participation in any TMA, the Proponent is committed to implementing all of the TDM measures outlined in this MMP. Post-construction traffic monitoring and evaluation of TDM programs will also be the responsibility of the Proponent.

### **Monitoring and Annual Reporting**

The Proponent will conduct annual travel surveys through the on-site TDM coordinators to be appointed as outlined above. These surveys will be developed through consultation with the City to determine the number of Development Site employees utilizing public transportation, those traveling to the Development Site by private automobile, and those using car-sharing services. Employees also will be surveyed to identify those that bike or walk to and from work.

Following the opening of the Development Site, the Proponent will conduct biennial counts of cars and bike parking occupancy at the Development Site. This will be done

through a field inventory to be conducted during a representative weekday midday period when it can reasonably be assumed that the peak parking demand for employees and visitors would occur. A continuous 24-hour count of each Development Site driveway will be conducted on a typical weekday to capture the volume of entering and exiting traffic. As part of the summary report to be provided to the City, a status summary of the MMP in place at the Development Site also will be provided.

## **Tenant Commitments**

The following sections discuss the tenant types for which MMP programs will be implemented for the Project as well as overall MMP programs for all tenants. A description of the MMP elements is presented in this section along with information on how those elements aid employees, visitors, and retail patrons getting to and from the Development Site. The following plan first addresses general MMP measures that apply to all tenants with 50 or more employees, then special programs for the office/R&D/lab uses, retail shops/restaurants, and the residential tenants. Select duties outlined below may alternatively be fulfilled by the property management team or the Proponent's appointed TDM coordinator on behalf of the tenants.

As there will likely be multiple tenants located within the Development Site, MMP obligations will need to be included as part of the lease language between tenants and the property owner. Any tenants with more than 50 employees also will be required to submit their own MMP, along with a copy of the leases with financial aspects and other non-MMP elements redacted or an affidavit signed by the owner and tenant(s) verifying that this language was included and agreed to in the lease. This documentation will be provided to the City prior to the issuance of the Certificate of Occupancy of a space by these tenants.

## **General Tenant Measures**

The following section describes overall commitments of all future tenants with 50 or more employees.

### **Transportation Coordinator**

As required by the Zoning Ordinance, an on-site TDM coordinator will be designated for each tenant with 50 or more employees. This person may be the office manager, human resources employee, or other individual serving a dual role in another job.

The person(s) in this role will coordinate with the property owner's overall TDM to help promote a reduced reliance on single-occupant automobile vehicle travel to and from the Development Site. To that end, the tenant specific TDM measures identified in the following sections will be implemented under the direction and supervision of this person. Alternatively, the Project's appointed overall TDM coordinator may fulfill the duties outlined below. The final job description for this role will be determined over time, but the duties of the on-site TDM coordinator will include, but not be limited to:

- › Assist employees with ride-matching and transportation planning;



- › Disseminate information on alternate modes of transportation and information pertaining to pedestrian and cycling access to and from the Development Site;
- › Develop transportation related marketing and education materials;
- › Distribute transit maps and passes; and
- › Host an annual mobility management educational meeting for employees.

### **Parking Management**

Future tenants with over 50 employees who are leasing a number of parking spaces will be required to commit to the following TDM measures:

- › Charge market rate for on-site parking spaces through employee lease agreements;
- › Implement short-term parking lease agreements for employees; and
- › Provide preferential carpool and vanpool parking within the parking garage and spaces near office building entrances within the parking garage as a convenience to commuters and to promote ridesharing.

In addition to the general TDM measures outlined above, the following use-specific programs for the office/R&D/lab uses and retail shops/restaurants also will be provided.

### **Office/Laboratory Tenants**

Office/lab employers within the Development Site will be encouraged to implement appropriate TDM measures by the on-site TDM coordinator. As not every TDM program will be suitable for every type of employer, such as telecommuting or flexible work hours, the on-site TDM coordinator will offer technical assistance to employers to evaluate potential programs and implement them when appropriate. Employer-based TDM measures may include the following programs:

- › Provide preferential carpool and vanpool parking within the parking garage and spaces near office building entrances within the parking garage;
- › Offer ride matching assistance managed by the on-site TDM coordinator or by MassRIDES so that employees find appropriate carpool and vanpool partners;
- › Disseminate information on alternate modes of transportation and developing transportation;
- › Offer sponsored vanpools and subsidized expenses;
- › Allow employees to use pre-tax dollars for the purchase of MBTA passes, as the pre-tax purchase is free from both federal and state income and payroll taxes;
- › Provide telecommuting options for employees in appropriate jobs;
- › Offer incentives for bicycle and pedestrian commutes, such as covered bicycle storage, changing rooms, and shower facilities;
- › Hold promotional events for transit-riders, cyclists, and pedestrians;
- › Offer direct deposit to employees; and

- › Providing preferred parking for low-emitting fuel-efficient vehicles and/or electric vehicle charging stations within the future parking facilities for the additional buildings.

## **Retail/Restaurant Tenants**

The Proponent will seek to attract a variety of retail shops, restaurants, and service tenants as ground-floor supporting uses. These shops will potentially include restaurants, apparel, furnishings, general merchandise, and service uses, such as banks and office supplies. As most of these businesses will be small shops, the same levels of TDM opportunities internal to each individual business will not be as available as with larger employers, but employees who work on the Development Site will be able to take advantage of the transportation guidance and programs coordinated by the TDM coordinator.

The suite of TDM measures to be implemented in association with the retail shops and/or restaurant are fewer than for traditional offices but will still have an impact in reducing single-occupant vehicle travel. The retail TDM program may include the following:

- › Improved Development Site amenities, such as cycling paths and pedestrian crossings, which enhance the ability of employees to walk or cycle to work;
- › Ride matching services and transit information provided by the on-site TDM coordinator or MassRIDES;
- › Promotional events for cyclists, pedestrians, and transit-riders;
- › Direct deposits to employees; and
- › Possible provision of parking for low-emitting fuel-efficient vehicles and/or electric vehicle charging stations within each of the garages serving the buildings comprising the Proposed Project.

## **Residential Building**

In addition to providing a pedestrian friendly, mixed-use transit-orientated environment, the Proponent will enact a variety of additional strategies to reduce the need for auto trips by residents. This will include working with a car-sharing service such as Zipcar to provide cars for periodic use by residents, if such a demand exists. As noted earlier, the Project parking will be unbundled, which will require that residents rent or lease spaces, as opposed to have parking being included as part of the rental of a unit.

Several of the TDM measures to be implemented for the entire Development Site will be attractive to new residents. Specifically, the provision of secured bicycle storage, bicycle racks, pedestrian walkways, and proximity to public transportation, including several bus lines and the new Union Square station should help to minimize the need for vehicular travel and parking spaces. The Proponent also will provide preferred parking for low-emitting fuel-efficient vehicles and/or electric vehicle charging stations within each of the garages serving the buildings comprising the proposed Project. The exact number and location of these spaces will be determined through ongoing consultation with the City of Somerville as the building designs are advanced.

In addition to the requirement of providing only unbundled parking, the residential component of the Project also will need to post and distribute mobility management information. The physical posting of information will be handled by the building manager, and the information will be provided within either a bulletin board or wall display case to be provided in the residential lobby of Building 4. These boards/cases will display MBTA maps and schedules for busses in the Boynton Yards area and for the MBTA Green Line. Maps showing bicycle and pedestrian facilities in the vicinity of the Development Site also will be posted. Similar information identifying the locations of nearby car-sharing stations, Bluebike stations, and the availability of carpool/vanpool opportunities also will be posted. The initial posting of this information will be done by the Proponent prior to the issuance of the Building 4 Certificate of Occupancy.

The same information that will be posted as described above also will be provided to residents of Building 4 when they move in. Yearly emails with this information also will be sent to Development Site residents with additional emails sent if there are any notable changes to public transportation schedules, bicycle/pedestrian infrastructure, or the availability of ride-share or car-share services in the area.

## **Property Management Firm**

The following sections discuss the TDM duties expected to be fulfilled by the property management firm.

### **Parking Management**

As previously stated, the Proponent has committed to providing unbundled parking to future tenants and, in turn, future tenants will determine how parking spaces are allocated or leased to employees. Due to the extremely low proposed parking ratio, the Proponent anticipates that all parking spaces will be leased by tenant(s). To the extent that any parking spaces are not leased by tenants, those spaces will be made available to the public.

The Proponent, and ultimately the Property Management Firm will commit to the following additional TDM measures:

- › Charge market rate for parking spaces through tenant lease agreements;
- › Implement short-term parking lease agreements;
- › Require tenants to offer short-term parking lease options to employees, such as month to month;
- › Require tenants to charge employees market rate for on-site employee parking; and
- › Provide preferential carpool/vanpool parking spaces;

The following additional TDM measures will also be considered:

- › Demand-responsive pricing, which adjusts hourly rates for public and customer parking to manage parking availability;
- › Shared parking; and

- › Preferred parking for low-emitting fuel-efficient vehicles and/or electric vehicle charging stations within the Project garage.

### **SomerVision 2040**

The Project is committed to making reasonable efforts to achieve the City's goal to control the percentage of trips made by automobile at 50 percent or less. If annual monitoring and reporting identifies a shortfall in meeting this goal, the Property Management Firm will implement additional mobility management programs and services.

# **MOBILITY MANAGEMENT PLAN CERTIFICATION**



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# **TRAFFIC IMPACT AND ACCESS STUDY (TIAS)**

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# Boynton Yards

## Somerville, Massachusetts

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SUBMITTED TO

City of Somerville  
Attn: Sarah Lewis  
93 Highland Avenue  
Somerville, MA 02143

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PREPARED FOR

Boynton Yards LandCo LLC  
(a joint venture between DLJ Real Estate Capital  
Partners and Leggat McCall Properties LLC)  
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July 2020

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# 1

## Introduction

VHB, on behalf of Boynton Yards LandCo LLC (a joint venture between DLJ Real Estate Capital Partners and Leggat McCall Properties LLC) (collectively the “Proponent”), has prepared a detailed Traffic Impact and Access Study (TIAS) for the for the construction of a Master Planned Development (MPD) project on approximately 6.8 acres of land in the Boynton Yards neighborhood (also referred to herein as “BY Sub-Area”) of Somerville, Massachusetts (the “Development Site”).

The Proponent proposes the construction of a pedestrian- and transit-oriented, mixed-use development that includes four buildings containing up to approximately 1,344,000 gross square feet (SF) of floor area (also known as “GFA”), with approximately 963,500 SF of office, research and development, and lab enabled uses (office/R&D/lab), approximately 338,000 SF of residential space, 42,500 SF of retail and/or restaurant space, and approximately 1,002 structured below-grade parking spaces (the “Project,” also known as Boynton Yards). An initial component of the Project – approximately 257,500 SF of the proposed commercial space and 12,500 SF of the retail space – is already under construction at 101 South Street (known as 101 South). This portion of the Project was approved previously by the City of Somerville in 2018 before the Project evolved into the current proposal. For the purposes of this TIAS, 101 South Street will be considered in the all future conditions, with and without full Project build-out.

The Development Site is bounded by the MBTA train tracks for the Green Line Extension (“GLX”) project to the north, South Street to the south, Harding Street to the east, and Windsor Street to the west. Windsor Place Extension, which is an existing privately-owned street, travels in an east-west direction through the Site. The Proponent intends to transfer the ownership of the Windsor Place Extension to

the City. At this stage, this new roadway will be referred to as “Thoroughfare 1” until an official name for the street is determined at a later date by the City. In the future, the proposed buildings will host a mixture of office, research and development (R&D) and lab enabled uses (office/R&D/lab), ground floor retail/restaurant uses, residential, and associated parking facilities and infrastructure improvements. The Project location is shown in Figure 1.

The TIAS quantifies existing and projected future traffic conditions with and without the Project. Based on the analysis of the future traffic conditions, the Project is not expected to have a significant impact on the study area locations.

## 1.1 Study Methodology

The following transportation analysis has been performed in general conformance with the Massachusetts Executive Office of Environmental Affairs (EEA)/Executive Office of Transportation (EOT) guidelines. It also has been prepared to be consistent with the goals and overall vision of the Union Square Neighborhood Plan (USNP).<sup>1</sup>

VHB prepared the traffic assessment in three stages. The first stage involved an assessment of existing traffic conditions within the Project study area, including an inventory of existing roadway geometry; observations of traffic flow, including daily and peak period traffic counts; and a review of vehicular crash data.

The second stage of the study established the framework for evaluating the transportation impacts of the Project. Specific travel demand forecasts for the Project were assessed along with future traffic demands on the study area roadways due to projected background traffic growth and other proposed area developments that may occur independent of the Project. The year 2027, a seven-year time horizon, was selected as the design year for analysis for the preparation of this TIAS in accordance with the standard industry practices in Massachusetts.

The third and final stage of the study discusses possible measures to improve existing and future traffic operations in the area and offsetting the traffic-related impacts associated with the development of the Project.

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<sup>1</sup> Union Square Neighborhood Plan – City of Somerville (Somerville, Massachusetts) May 2016.





Locus Map  
Study Area Intersections  
Boynton Yards  
Somerville, Massachusetts

Figure 1





# 2

## Existing Conditions

Evaluation of the transportation impacts associated with the Project requires a thorough understanding of the existing transportation conditions in the study area, including roadway geometry, traffic controls, daily and peak hour traffic flow, and traffic safety data. Each of these elements is described in detail below.

### 2.1 Study Area

As noted earlier, based on VHB's knowledge of the area's transportation network and the operational characteristics of the Project, the following intersections and their approach roadways were included in the assessment. The City of Somerville Mobility Division was contacted to confirm the appropriateness of the resulting study area. The following study area intersections are highlighted in Figure 2:

Windsor Street at:

- › Windsor Place and Boynton Yards Driveway – *unsignalized*

South Street at:

- › Windsor Street – *unsignalized*
- › Willow Street – *unsignalized*
- › Earle Street – *unsignalized*
- › Hunting Street – *unsignalized*

- › Harding Street – *unsignalized*

Medford Street at:

- › Warren Street – *unsignalized*
- › South Street – *unsignalized*
- › Ward Street – *unsignalized*

Somerville Avenue at:

- › Medford Street/ Route 28 interchange – *signalized*
- › Prospect Street – *signalized*

Webster Avenue at:

- › Prospect Street/ Concord Avenue – *signalized*
- › Columbia Street/ Tremont Street – *unsignalized*

Cambridge Street (City of Cambridge) at:

- › Prospect Street – *signalized*
- › Webster Avenue/ Columbia Street – *signalized*
- › Windsor Street – *unsignalized*
- › Willow Street – *signalized*
- › Hunting Street – *signalized*
- › Harding Street – *unsignalized*

The existing conditions analysis consisted of an inventory of the traffic control, the roadway, driveway, and intersection geometry in the study area, the collection of daily and peak hour traffic volumes, and a review of recent crash history.



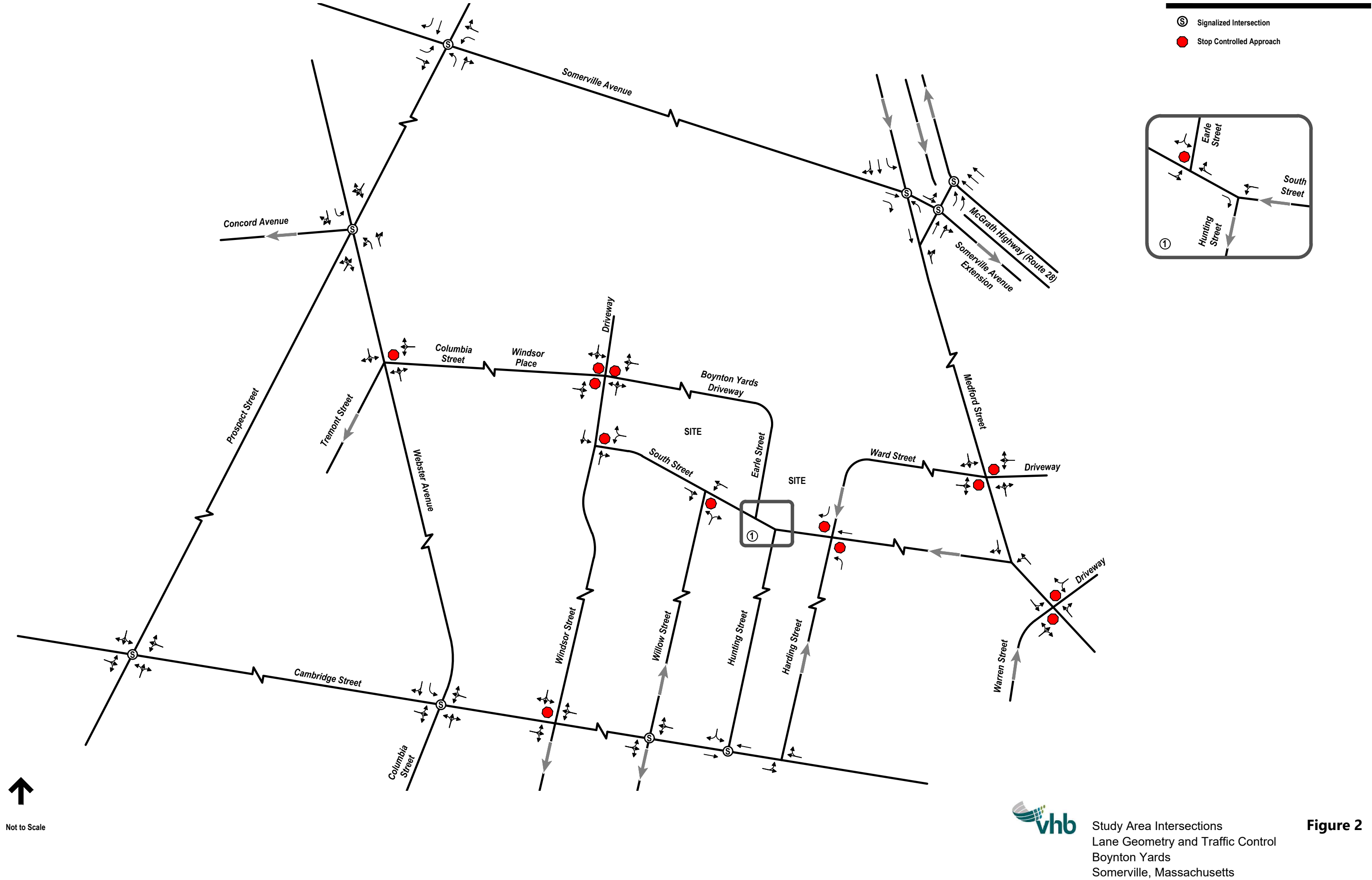


Figure 2

### **2.1.1 Roadway Geometry**

Descriptions of the study area roadways and intersections are provided below, including descriptions of the existing lane configurations, traffic control at the study intersections, and the roadway jurisdiction in this area.

### **2.1.2 Roadways**

#### **2.1.2.1 South Street**

South Street runs between Windsor Street and Medford Street. It is classified as a local roadway and is under local City of Somerville jurisdiction. South Street runs in a generally east/west direction and consists of one travel lane in both directions between Windsor Street and Hunting Street and becomes one way traveling west with one lane between Hunting Street and Medford Street. A 20 miles per hour (mph) speed limit sign with a "safety zone" placard is posted facing westbound traffic at the corner of South Street and Earle Street. However, there is a 30-mph speed limit sign approximately 100 feet further to the west. A 20-mph speed limit sign with an accompanying "safety zone" placard is posted facing eastbound traffic just east of Windsor Street. On-street parking is provided on the south side of South Street. Sidewalks are provided along both sides of the street and crosswalks are provided at Windsor Street, Hunting Street, and Medford Street. Land use along South Street consists of a mix of industrial and residential.

#### **2.1.2.2 Medford Street**

Medford Street runs between Warren Street and Somerville Avenue within the study area. It is classified as a minor arterial roadway and is under local City of Somerville jurisdiction. Medford Street runs in a generally north/south direction and consists of one travel lane in both directions until it reaches Somerville Avenue where additional turning lanes are provided. There is no posted speed limit within the study area. On-street parking is provided on the east side of the roadway between South Street and Ward Street. Sidewalks are provided on both sides and crosswalks are provided at South Street and Somerville Avenue. "Sharrow" pavement markings are provided between South Street and Ward Street. Bike lanes and a northbound sharrow are provided between Ward Street and Somerville Avenue. Land use along Medford Street is a mixture of commercial and residential.

#### **2.1.2.3 Somerville Avenue**

Somerville Avenue runs from Medford Street to Prospect Street within the study area. It is classified as a principal artery and is under local City of Somerville jurisdiction. Somerville Avenue runs in a generally east/west direction and consists of one travel lane in both directions with additional turn lanes at major intersections. There is no posted speed limit within the study area. On-street parking is provided on both sides of Somerville Avenue. Sidewalks are provided along both sides of the roadway and crosswalks are provided at major intersections. Bike lanes are provided

along both sides of the roadway. Bus stops are provided at major intersections within the study area. Land use along Somerville Avenue is a mixture of commercial, industrial, and residential.

#### **2.1.2.4 Webster Avenue**

Webster Avenue runs from Prospect Street to Cambridge Street within the study area. It is classified as a minor arterial roadway and is under local City of Somerville jurisdiction between Prospect Street and Elm Street and City of Cambridge jurisdiction between Elm Street and Cambridge Street. Webster Avenue runs in a generally north/south direction and consists of one travel lane in both directions with additional turn lanes at major intersections. There is no posted speed limit within the study area. On-street parking is provided along both sides for most of the roadway. Sidewalks are provided along both sides and crosswalks are provided at major intersections and between Elm Street and Norfolk Street. Bus stops are provided at major intersections within the study area. Land use along Webster Avenue is a mixture of industrial and residential.

#### **2.1.2.5 Cambridge Street**

Cambridge Street runs from Prospect Street to Warren Street within the study area. It is classified as a minor arterial roadway and is under local City of Cambridge jurisdiction. Cambridge Street runs in a generally east/west direction and consists of one travel lane in both directions. There is no posted speed limit within the study area. On-street parking is provided along both sides of the roadway. Sidewalks are provided along both sides and crosswalks are provided at most intersections. Bike lanes are provided along both sides of the roadway. Bus stops are provided at major intersections within the study area. Land use along Cambridge Street is a mixture of commercial and residential.

### **2.1.3 Intersections**

#### **2.1.3.1 Windsor Street at Windsor Place**

Windsor Street, Windsor Place, the existing Site driveway from the east, and a private parking lot driveway from the north form a four-way unsignalized intersection. Windsor Street is to the south, Windsor Place is to the west, Boynton Yards driveway is to the east, and the parking lot driveway is to the north. All approaches consist of one general purpose lane. The Windsor Place eastbound approach and Boynton Yards driveway are under stop control. Sidewalks are provided along both sides of the Windsor Place and the Windsor Street approaches. The sidewalks extend across the entrances to the Development Site and the parking lot driveway. A crosswalk is provided across the Windsor Street northbound approach. On-street parking is provided on the west side of the Windsor Street approach. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.2 Windsor Street at South Street**

South Street and Windsor Street form a three-way unsignalized intersection. Windsor Street runs north/south and South Street intersects from the east. All approaches consist of one general purpose lane. The South Street westbound approach is under stop control. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across the Windsor Street northbound approach and South Street westbound approach. On-street parking is provided on the west side of the Windsor Street north- and southbound approaches and the south side of the South Street westbound approach. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.3 South Street at Willow Street**

South Street and Willow Street form a three-way unsignalized intersection. South Street runs east/west and Willow Street intersects from the south. All approaches consist of one general purpose lane. The Willow Street northbound approach is one way approaching the intersection and under stop control. Sidewalks are provided along both sides of all approaches. A crosswalk is provided across the Willow Street northbound approach. On-street parking is provided on the south side of the South Street east- and westbound approaches. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.4 South Street at Earle Street**

South Street and Earle Street form a three-way unsignalized intersection. South Street runs east/west and Earle Street intersects from the north. All approaches consist of one general purpose lane. The Earle Street southbound approach is under stop control. Sidewalks are provided along both sides of all approaches. A crosswalk is provided across the Earle Street southbound approach. On-street parking is provided along the south side of South Street and the west side of Earle Street. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.5 South Street at Hunting Street**

South Street and Hunting Street form a three-way unsignalized intersection. South Street runs east/west and Hunting Street intersects from the south. All approaches consist of one general purpose lane. Hunting Street northbound approach is one way departing the intersection. South Street westbound approach is one way approaching the intersection. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across the Hunting Street northbound approach and the South Street westbound approach. On-street parking is provided along the south side of the South Street east- and westbound approaches and the easterly side of the Hunting Street northbound approach. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.6 South Street at Harding Street**

South Street and Harding Street form a four-way unsignalized intersection. South Street runs east/west and Harding Street runs north/south and is under stop control. All approaches consist of one general purpose lane. South Street is one way traveling westbound. Harding Street is one way approaching from both the north- and southbound approaches converging at the intersection. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across the Harding Street north- and southbound approaches. On-street parking is provided along the south side of the South Street east- and westbound approaches and the east side of the Harding Street north- and southbound approaches. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.7 Medford Street at Warren Street**

Medford Street, Warren Street, and a private driveway form a three-way unsignalized intersection. Medford Street runs north/south, Warren Street intersects from the southwest, and the driveway intersects from the northeast. All approaches consist of one general purpose lane. The Warren Street eastbound approach is one way approaching the intersection and is under stop control. Sidewalks are provided along both sides of all approaches. The sidewalk goes across the driveway entrance. A crosswalk is provided across the Warren Street eastbound approach. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.8 Medford Street at South Street**

Medford Street and South Street form a three-way unsignalized intersection. Medford Street runs north/south and South Street intersects from the west. All approaches consist of one general purpose lane. The South Street eastbound approach is one way departing the intersection. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across the South Street eastbound approach and the Medford Street northbound approach. Sharrows are provided on Medford Street in both directions. On-street parking is provided along the east side of the Medford Street southbound approach. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.9 Medford Street at Ward Street**

Medford Street, Ward Street, and a driveway form a four-way unsignalized intersection. Medford Street runs north/south, Ward Street intersects from the west, and the driveway intersects from the east. All approaches consist of one general purpose lane. Ward Street and the driveway are under stop control. Sidewalks are provided along both sides of all approaches. There are no crosswalks provided at this intersection. Sharrows are provided on the Medford Street north- and southbound approaches. Land use around the intersection is a mixture of commercial and residential.



### **2.1.3.10 Somerville Avenue at Medford Street**

Somerville Avenue and Medford Street form a four-way signalized intersection with Somerville Avenue extending in an east/west direction and Medford Street having a north/south orientation. The Somerville Avenue eastbound approach consists of an exclusive through lane and an exclusive right-turn lane. The Somerville Avenue westbound approach is one way departing the intersection and consists of a general-purpose lane. The Medford Street northbound approach consists of an exclusive left-turn lane. The Medford Street southbound approach is one way approaching the intersection and consists of an exclusive left-turn lane, a through lane, and a shared through/right-turn lane. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided on the Somerville Avenue east- and westbound approaches and the Medford Street northbound approach. Sharrow markings are provided running southbound through the intersection along Medford Street. This location was reconstructed in 2016 in a redesign of the area that eliminated the off-ramp from Route 28 Southbound to Medford Street, closed the northbound tunnel from Somerville Avenue to Washington Street, created a new signalized access point to Route 28 Northbound via Medford Street Extension, and improved pedestrian and bicycle accommodations. Land use around the intersection is a mixture of commercial and industrial.

### **2.1.3.11 Somerville Avenue/Somerville Avenue Extension at Medford Street Extension**

Somerville Avenue meets the Somerville Avenue Extension and Medford Street Extension at a signalized intersection approximately 100 feet east of the intersection of Somerville Avenue and Medford Street. This intersection and Medford Street Extension were reconstructed in 2016 in a redesign of the area that eliminated the off-ramp from Route 28 Southbound to Medford Street, closed the northbound tunnel from Somerville Avenue to Washington Street, created a new signalized access point to Route 28 Northbound via Medford Street Extension, and improved pedestrian and bicycle accommodations. Somerville Avenue/Somerville Avenue Extension runs east/west and Medford Street Extension runs north/south. The Somerville Avenue eastbound approach is one way approaching the intersection and consists of a single general-purpose lane. The Somerville Avenue Extension westbound approach is one way departing the intersection, splitting approximately 150 feet east of the intersection into an on-ramp for Route 28 Southbound and a through roadway for Somerville Avenue Extension. The Medford Street Extension northbound approach is one way approaching the intersection and consists of a through lane and a shared through/right-turn lane. The Medford Street Extension southbound approach is one way departing the intersection and consists of two travel receiving travel lanes. Sidewalks are provided on both sides of all approaches. Crosswalks are provided across the Somerville Avenue/Somerville Avenue Extension eastbound and westbound approaches and the Medford Street Extension northbound approach. Bike lanes are provided along the east side of Medford Street Extension and the south side of the Somerville Avenue eastbound approach, which

transitions into a sharrow on the Somerville Avenue Extension westbound approach. Land use around the intersection is a mixture of commercial and industrial.

#### **2.1.3.12 Medford Street Extension at Route 28 Northbound/Route 28 Northbound Off-Ramp**

Medford Street Extension and Route 28 Northbound/Route 28 Northbound Off-Ramp form a four-way signalized intersection approximately 100 feet north of the intersection of Somerville Avenue/Somerville Avenue Extension and Medford Street Extension. This intersection and Medford Street Extension were reconstructed in 2016 in a redesign of the area that eliminated the off-ramp from Route 28 Southbound to Medford Street, closed the northbound tunnel from Somerville Avenue to Washington Street, created a new signalized access point to Route 28 Northbound via Medford Street Extension, and improved pedestrian and bicycle accommodations. Route 28 Northbound runs northwest/southeast, Medford Street Extension intersects with Route 28 Northbound from the south, and the Route 28 Northbound Off-Ramp intersects from the north. Route 28 Northbound is one way and consists of two through lanes and an exclusive right-turn lane on the northbound approach, approaching the intersection, and two receiving lanes on the southeastbound approach, departing the intersection. The Medford Street Extension northbound approach is one-way approaching the intersection and consists of an exclusive left-turn lane and a shared left-turn/through lane. The Route 28 Northbound Off-Ramp southbound approach is one-way departing the intersection and provides a vehicular connection to Washington Street. Bike lanes are provided on the east side of the Medford Street Extension approach and along the east side of the Route 28 Northbound approach. An MBTA bus stop is located on the north side of the Route 28 Northbound approach. Land use around the intersection is a mixture of commercial and industrial.

#### **2.1.3.13 Somerville Avenue at Prospect Street**

Somerville Avenue runs in a generally east/west direction and is bisected by Prospect Street from the north and south to form a four-way signalized intersection. The Somerville Avenue east- and westbound approaches consist of an exclusive left-turn lane and a shared through/right-turn lane. The Prospect Street northbound approach is one way approaching the intersection and consists of an exclusive left-turn lane and a shared through/right-turn lane. The Prospect Street southbound approach consists of an exclusive right-turn lane and an exclusive through lane.

This intersection and the approaching roadways were reconfigured in July 2017 as part of the Union Square Early Action Plan. Bike accommodations were added and Prospect Street, south of the intersection, was converted from one-way directional traffic only to two-way directional traffic. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided on both sides of the Somerville Avenue east- and westbound approaches and the Prospect Street southbound approach. The Prospect Street northbound approach provides a bike lane on the east side of the approaching lane and a

sharrow on the departing lane. On-street parking is provided on the south side of the Somerville Avenue eastbound approach and the east side of the Prospect Street northbound approach. Land use around the intersection is a mixture of commercial and residential.

#### **2.1.3.14 Webster Avenue at Prospect Street/Concord Avenue**

Webster Avenue, Prospect Street, and Concord Avenue form a five-way signalized intersection. Webster Avenue runs north/south, Prospect Street runs northeast/southwest, and Concord Avenue intersects from the west. The Prospect Street northeast- and southwesterly approaches and the Concord Avenue eastbound approach consist of single general-purpose lanes. The Webster Avenue north- and southbound approaches consist of an exclusive left turn lane and a shared through/right-turn lane. The Concord Avenue eastbound approach is one way departing the intersection. The intersection and the approaching roadways were reconfigured in July 2017 as part of the Union Square Early Action Plan. Bike accommodations were added and both Webster Avenue and Prospect Street, north of the intersection, were converted from one-way directional traffic only to two-way directional traffic. Sidewalks are provided on both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided on the southeast side of the Prospect Street southwesterly approach, departing the intersection, and the west side of the Webster Avenue southbound approach, approaching the intersection. Sharrows are provided on the Prospect Street northeast- and southwesterly approach, approaching the intersection, and the Webster Avenue north- and southbound approaches, departing the intersection. On-street parking is provided on both sides of the Concord Avenue eastbound approach and on the southeast side of the Prospect Street northeast- and southwesterly approaches. An MBTA bus stop is located on the east side of the Webster Avenue northbound approach. Land use around the intersection is a mixture of commercial and residential.

#### **2.1.3.15 Webster Avenue at Columbia Street/Tremont Street**

Webster Avenue, Columbia Street, and Tremont Street form a four-way unsignalized intersection. Webster Avenue runs north/south, Tremont Street intersects from the west, and Columbia Street intersects from the east. All approaches consist of one general purpose lane. The Tremont Street eastbound approach is one-way departing the intersection. The Columbia Street westbound approach is under stop control. Sidewalks are provided along both sides of all approaches. No crosswalks are provided across any approach. Sharrows are provided on Webster Avenue in both directions. On-street parking is provided along the north side of the Tremont Street eastbound approach and both sides of the Webster Avenue southbound approach. An MBTA bus stop is located on the east corner of the Webster Avenue northbound approach. Land use around the intersection is a mixture of industrial and residential.

**2.1.3.16 Cambridge Street at Prospect Street**

Cambridge Street and Prospect Street form a four-way signalized intersection. Cambridge Street runs east/west and Prospect Street runs north/south. All approaches consist of one general purpose lane. Sidewalks are provided on both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided along Cambridge Street in both directions. On-street parking is provided along both sides of the Cambridge Street east- and westbound approaches and along the east side of the Prospect Street north- and southbound approaches. MBTA bus stops are located on the south corner of the Cambridge Street eastbound approach and the north corner of the Cambridge Street westbound approach. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.17 Cambridge Street at Webster Avenue/Columbia Street**

Cambridge Street, Webster Avenue, and Columbia Street form a four-way signalized intersection. Cambridge Street runs east/west, Webster Avenue intersects from the north, and Columbia Street intersects from the south. The Columbia Street northbound approach and the Cambridge Street east- and westbound approaches consist of one general purpose lane. The Webster Avenue southbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. Sidewalks are provided on both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided along Cambridge Street in both directions. On-street parking is provided on both sides of the Cambridge Street east- and westbound approaches and the east side of the Columbia Street northbound approach. MBTA bus stops are located on the east side of the Columbia Street northbound approach and the west side of the Webster Avenue southbound approach. A Hubway bike rental station is located on the east side of the Webster Avenue southbound approach. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.18 Cambridge Street at Windsor Street**

Cambridge Street and Windsor Street form a four-way unsignalized intersection. Cambridge Street runs east/west and Windsor Street runs north/south. All approaches consist of one general purpose lane, with the Windsor Street northbound approach being one-way departing the intersection. The Windsor Street southbound approach is under stop control. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided along Cambridge Street in both directions. On-street parking is provided along both sides of the Cambridge Street east- and westbound approaches, both sides of the Windsor Street northbound approach, and the west side of the Windsor Street southbound approach. MBTA bus stops are located on the north and south sides of the Cambridge Street westbound approach. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.19 Cambridge Street at Willow Street**

Cambridge Street and Willow Street form a four-way signalized intersection. Cambridge Street runs east/west and Willow Street runs north/south. All approaches consist of one general purpose lane. The Willow Street north- and southbound approaches are both one way departing the intersection. The traffic signal primarily serves to assist pedestrians crossing Cambridge Street. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided on Cambridge Street in both directions. On-street parking is provided along both sides of the Cambridge Street east- and westbound approaches and the Willow Street northbound approach. The Willow Street southbound approach provides on-street parking on the east side. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.20 Cambridge Street at Hunting Street**

Cambridge Street and Hunting Street form a three-way signalized intersection with Cambridge Street running in a general east/west direction and Hunting Street intersecting from the north. All approaches consist of one general purpose lane. Hunting Street is one way southbound approaching the intersection. Sidewalks are provided along both sides of all approaches. Crosswalks are provided across all approaches. Bike lanes are provided on Cambridge Street in both directions. On-street parking is provided on both sides of the Cambridge Street eastbound approach and Hunting Street southbound approach. The Cambridge Street westbound approach provides on-street parking on the north side. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.21 Cambridge Street at Harding Street**

Cambridge Street and Harding Street form a three-way unsignalized intersection. Cambridge Street runs east/west and Harding Street intersects from the north. All approaches consist of one general purpose lane. The Harding Street southbound approach is one way departing the intersection. Sidewalks are provided along both sides of all approaches. A crosswalk is provided across the Harding Street southbound approach. Bike lanes are provided along Cambridge Street in both directions. On-street parking is provided along the north side of Cambridge Street and the east side of Harding Street. Land use around the intersection is a mixture of commercial and residential.

**2.1.3.22 On-Street Public Parking**

South Street is roughly one-quarter mile long with parking provided on the southerly side of the road for most of its length. Signs are posted indicating a two-hour limit (except by permit) between 8:00 AM and 2:30 AM, with permit parking being allowed from 2:30 AM to 8:00 AM. This same signage is posted on Windsor Street further to the west. Signs also are posted on both Earle Street and Harding Street indicating that only permit parking is allowed except for Sundays and



holidays). Further to the east, Horace Street has parking along its easterly side with the same two-hour restrictions found on South Street. While the two-hour parking limits are appropriate for short duration retail/restaurant parking, enforcement is required to prevent long-term parking. This can be accomplished through police enforcement or by installing parking meters. Either method will help prevent these spaces from being used by Development Site employees or residents, or others in the area.

## **2.2 Traffic Volumes**

Traffic volumes for the study area roadways and intersections were collected by VHB in September 2017 while local schools were in session. Due to ongoing work by the MBTA as part of its GLX project, three bridges in the City are temporarily closed, which has resulted in detours, diversions, and generally non-representative traffic conditions. Because of this, and current nationwide conditions due to the Covid-19 virus, collecting new traffic data is not feasible at this time. The appropriateness of this data collection in terms of timing and the general scope was confirmed through subsequent consultation with the City of Somerville Mobility Division and it was agreed that the September 2017 counts would be used for the analysis purposes of this traffic study.

The counts also were conducted after the implementation of various roadway improvements near Union Square in late July 2017. Several of these measures involved changes removing one-way restrictions. To allow for the new traffic patterns to become established in this area, the required traffic counts for this study were conducted after these improvements had been in place for over one month.

Peak-period turning movement and classification (TMC) counts were collected at the study area intersections on a typical weekday in September 2017 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, and on a typical Saturday from 11:00 AM to 2:00 PM. These time periods were selected so that the combined peak periods for the roadway and Development Site activity would be evaluated. Based on the TMCs, the weekday morning peak period generally occurs from 7:30 AM to 8:30 AM, the weekday evening peak period generally occurs from 4:45 PM to 5:45 PM, and the Saturday midday peak period occurs from 12:00 PM to 1:00 PM.

In addition, VHB conducted automatic traffic recorder (ATR) counts for a continuous 72-hour period, including a typical weekday and Saturday. These counts were conducted on South Street adjacent to the Development Site, Webster Avenue to the south of Prospect Street, and on Medford Street to the south of South Street. The observed traffic volumes are summarized in Table 1. All traffic count data is included in Appendix B.

**Table 1 Observed Traffic Volumes**

Location	Weekday	Weekday Morning			Weekday Evening			Saturday	Saturday Midday		
	Daily <sup>a</sup>	Peak Hour			Peak Hour			Daily	Peak Hour		
	Vol.	Vol. <sup>b</sup>	K Factor <sup>c</sup>	Dir. Dist. <sup>d</sup>	Vol.	K Factor	Dir. Dist.	Vol.	Vol.	K Factor	Dir. Dist.
South Street - East of Windsor Street	4,800	435	9.0%	WB 96%	330	6.8%	WB 91%	3,700	315	8.5%	WB 92%
Webster Avenue - South of Prospect Street	8,800	590	6.7%	SB 63%	610	6.9%	NB 69%	8,200	560	6.9%	NB 54%
Medford Street - South of South Street	12,800	960	7.5%	SB 62%	900	7.1%	NB 67%	9,500	765	8.0%	NB 53%

Source: VHB; Based on automatic traffic recorder (ATR) counts conducted in September 2017 and increased using a 1-percent annual growth rate to reflect September 2020 conditions.

a Average Daily Traffic volume, expressed in vehicles per day

b Represents the percent daily traffic which occurs during the peak hour

c Directional distribution of peak hour traffic

Note: Peak hours do not necessarily coincide with the peak hours of turning movement counts.

As shown in Table 2, South Street, east of Windsor Street, carries approximately 4,800 vehicles on a typical weekday with the peak hours accounting for 9.0 percent (morning peak hour) and 6.8 percent (evening peak hour) of the weekday daily traffic flow. On a typical Saturday, South Street, east of Windsor Street, carries approximately 3,700 vehicles with the midday peak hour accounting for 8.5 percent of the Saturday daily traffic flow. Traffic flow along South Street is significantly heavier in the westbound direction during all peak periods, as South Street becomes one-way in the westbound direction east of Hunting Street.

Webster Avenue, south of Prospect Street, carries approximately 8,800 vehicles on a typical weekday with the peak hours accounting for 6.7 percent (morning peak hour) and 6.9 percent (evening peak hour) of the weekday daily traffic flow. On a typical Saturday, Webster Avenue, south of Prospect Street, carries approximately 8,200 vehicles with the midday peak hour accounting for 6.9 percent of the Saturday daily traffic flow. Traffic flow along Webster Avenue is heavier in the southbound direction during the weekday morning peak period and heavier in the northbound direction during the weekday evening and Saturday midday peak periods.

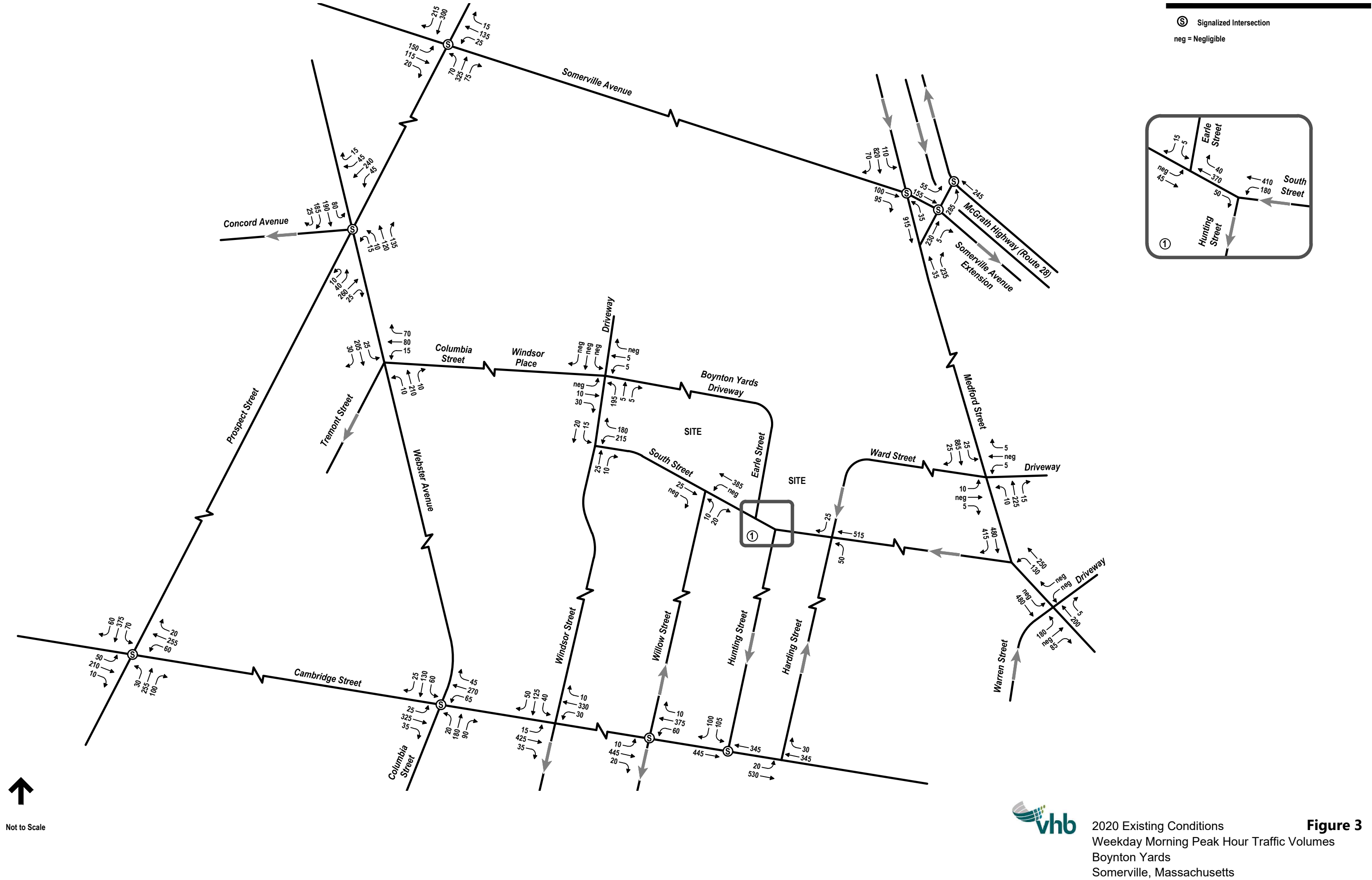
Medford Street, south of South Street, carries approximately 12,800 vehicles on a typical weekday with the peak hours accounting for 7.5 percent (morning peak hour) and 7.1 percent (evening peak hour) of the weekday daily traffic flow. On a typical Saturday, Medford Street, south of South Street, carries approximately 9,500 vehicles with the midday peak hour accounting for 8.0 percent of the Saturday daily traffic

flow. The predominant flow of traffic along Medford Street is in the southbound direction during the weekday morning peak period, but heavier in the northbound direction during the weekday evening and Saturday midday conditions.

### **2.2.1 Seasonal Adjustment**

The traffic data collected for the study area were obtained during the month of September. As noted earlier, the appropriateness of this time period was confirmed through subsequent consultation with the City of Somerville Mobility Division. To quantify the seasonal variation of traffic volumes in the area, historic traffic data available from MassDOT were reviewed. Specifically, 2015 and 2016 monthly traffic volumes were reviewed at MassDOT permanent counting station 8098 located on Route I-93 in Medford (the closest MassDOT permanent count station to the Development Site). Based on the review, traffic volumes in September are higher than average-month conditions. To present a conservative analysis, the traffic volumes were not adjusted. The seasonal adjustment factors are included in Appendix B.

The resulting 2020 Existing Conditions weekday morning, weekday evening, and Saturday midday peak hour traffic volumes are shown in Figures 3, 4 and 5, respectively.







### Figure 5

## 2.3 Pedestrians and Bicycles

As part of the prior traffic data collection, biking activity was recorded for the study area intersections in September of 2017. In recent years, the Development Site has had multiple significant improvements implemented in the form of new bike lanes and other amenities (such as new Bluebikes bike-sharing stations) as part of Somerville's ongoing efforts to improve biking conditions throughout the City.

The City of Somerville recently began requesting that even more advanced bicycle counts be conducted as part of development traffic studies. In addition to recording the number of bicycles by a given movement, the age, gender, and general estimated riding ability of bicyclists also are to be recorded. The traffic data collection for this study occurred in September of 2017 while schools were in session and after traffic patterns had been established following recent roadway improvements in the area. Following the initial traffic consultation with the City, it was not possible to conduct the more detailed bicycle inventory during representative conditions prior to colder, late fall conditions. However, the traffic study<sup>2</sup> for the nearby Union Square Revitalization Project (the "US2 Project") included a detailed bike inventory. As the US2 Project study area partially overlaps with the study area for the Project, the bike data in that report was reviewed as part of this evaluation as discussed below.

VHB reviewed the detailed bicyclist inventories conducted on Webster Avenue, Prospect Street, and Somerville Avenue. That inventory revealed a roughly 75/25 percent split between male and female bicyclists in the area, with the majority being between 15- and 30-years old. While not specifically noted in that study, it is possible that these demographics may change as the local population becomes more familiar with the improved bicycle accommodations in the area. In addition to the biking activity, the study also compared the biking levels to the appropriateness of the study area roadways for bike travel. The study found that the roadways in the immediate vicinity of the Development Site have low "Bicycle Level of Traffic Stress" ratings. This is consistent with the field observations and speed measurements conducted for this study. While some of the study area roadways recently had significant upgrades to bike accommodations, some streets, such as Prospect Street and Webster Avenue, have inherently more difficult conditions for bicyclists due to the presence of parking, slightly higher travel speeds, and other factors. Measures will be implemented to promote low travel speeds to create a comfortable environment for biking and walking as part of the planned reconstruction of the roadways abutting the Development Site.

## 2.4 Public Transportation

Ample public transportation services by the MBTA currently are provided within the study area, with significant enhancements also planned. A summary of existing

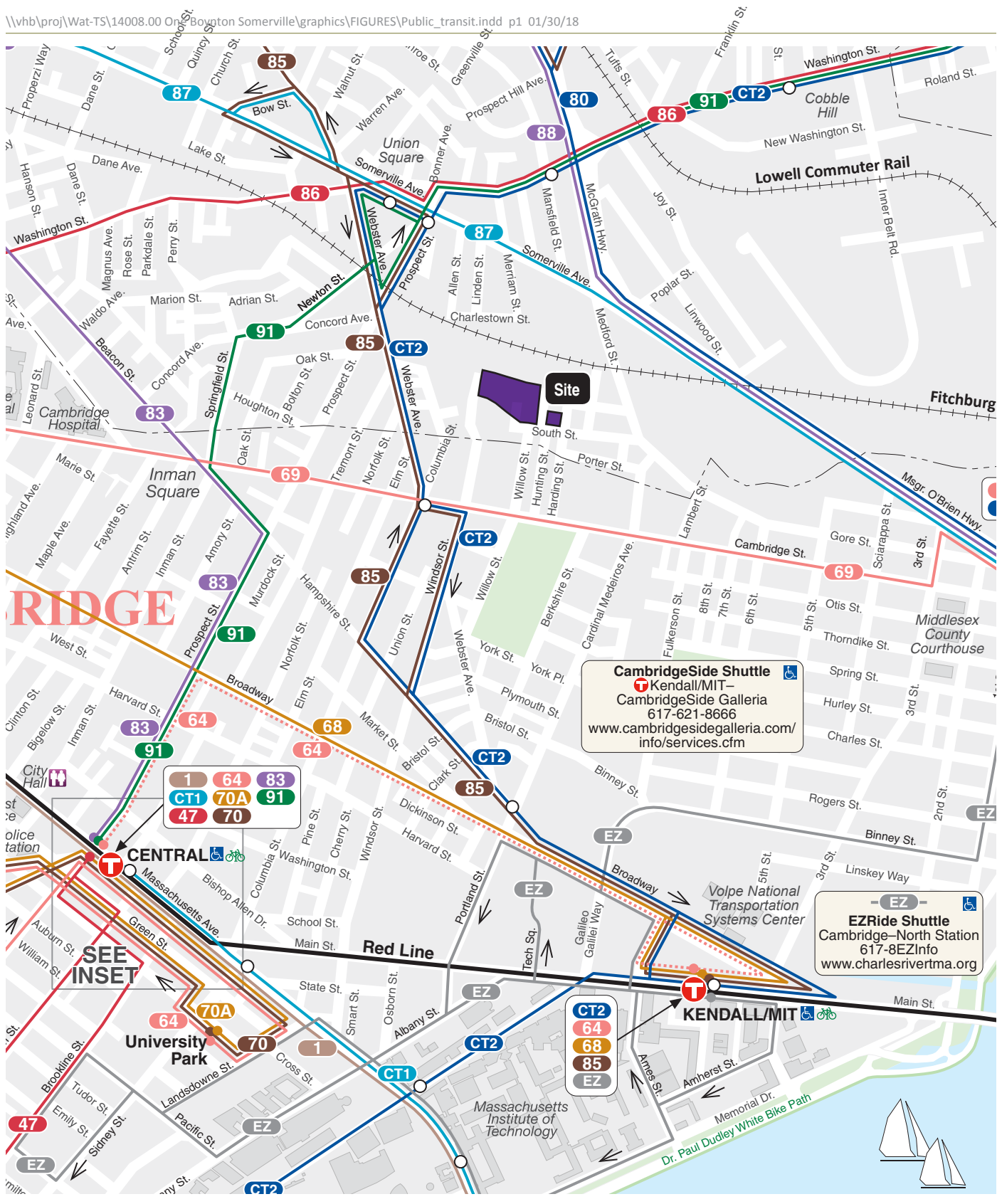
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<sup>2</sup> Union Square CDSP Application, Nelson\Nygaard Consulting Associates (Boston, Massachusetts), 2017.

public transportation amenities in the area is provided below, followed by a discussion of the planned MBTA GLX project.

### **2.4.1 Existing Conditions**

The Project study area is currently served by eight MBTA bus routes within a half mile of the Development Site. While no routes currently provide direct service to the Development Site, there are multiple MBTA bus stops in close proximity. These include the nearest bus stops located approximately 800 feet west of the Development Site on Webster Avenue at Columbia Street (Route 85), and 1000 feet south of the Development Site on Cambridge Street at Windsor Street (Route 69). Furthermore, MBTA Routes 80, 86, 87, 88, 91, and CT2 provide nearby access to the Development Site. The nearest bus stop on Route 86 is located on Somerville Avenue at Union Square, and the nearest stop on Route 91 is located on Webster Avenue at Newton Street. The closest MBTA bus stops for Routes 80, 87, and 88 are located on Somerville Avenue Extension and Route 28 Northbound. Route CT2 is one of three cross-town routes operated by the MBTA and by design these have fewer stops than a traditional bus route. The nearest stop to the Development Site on Route CT2 is located at the intersection of Cambridge Street and Webster Avenue/Columbia Street. Peak period frequencies/headways for MBTA bus services are summarized in Table 2 and shown graphically in Figure 6.



**Table 2 Project Area MBTA Service**

Service	Origin / Destination	Peak-Hour Frequency (minutes)
Route 69	Harvard Square – Lechmere Station	10-20
Route 80	Arlington Center – Lechmere Station (via Medford Hillside)	15-30
Route 85	Spring Hill – Kendall/MIT	25-45
Route 86	Sullivan Square – Reservoir	10-18
Route 87	Arlington Center – Lechmere Station (via Somerville Avenue)	20-30
Route 88	Clarendon Hill – Lechmere Station	16-20
Route 91	Sullivan Square – Central Square	25-30
Route CT2	Sullivan Square – Ruggles Station	15-25

## 2.4.2 MBTA Green Line Extension Project

Planning is currently underway for a 4.3-mile extension of the MBTA Green Line light rail from its current terminus at Lechmere Station in Cambridge into Somerville and Medford. The extension will have two branches: a 0.9-mile southerly branch that will terminate near Somerville's Union Square, and a 3.4-mile northerly branch that will parallel the Lowell Line of the commuter rail through Somerville and will terminate at College Avenue in Medford. The Union Square station will be located on Prospect Street, approximately one-quarter of a mile from the Development Site. The GLX project is expected to be completed in December 2021. Additional information regarding the planned MBTA Union Square Station is provided under the Future Conditions section of this report.

## 2.5 Crash History

A detailed crash analysis was conducted to identify potential vehicle accident trends and/or roadway deficiencies in the traffic study area. The most current vehicle accident data for the traffic study area intersections were obtained from MassDOT for the years 2013 to 2017. The MassDOT database is comprised of crash data from the Massachusetts Registry of Motor Vehicles (RMV) Division primarily for use in traffic studies and safety evaluations. Data files are provided for an entire city or town for an entire year, though it is possible that some crash records may be omitted either due to individual crashes not being reported, or the city crash records not being provided in a compatible format for RMV use. A summary of the study intersections vehicle accident history based on the available RMV data is presented in Table 3 and the detailed crash data is provided in Appendix B.

Crash rates are calculated based on the number of accidents at an intersection and the volume of traffic traveling through that intersection on a daily basis. Rates that exceed MassDOT's average for accidents at intersections in the MassDOT district in which the town or city is located could indicate safety or geometric issues for a



particular intersection. For this study area, the calculated crash rates for intersections located in Somerville were compared to MassDOT's District 4 average and the calculated crash rates for intersections located in Cambridge were compared to MassDOT's District 6 average, as Somerville is located in District 4 and Cambridge is located in District 6. In District 4, the average crash rate is 0.73 for signalized intersections and 0.57 for unsignalized intersections. In District 6, the average crash rate is 0.71 for signalized intersection and 0.52 for unsignalized intersections. These rates imply that, on average, 0.73 and 0.71 accidents occurred per million vehicles entering signalized intersections throughout Districts 4 and 6, respectively, and 0.57 and 0.52 accidents occurred per million vehicles entering unsignalized intersections in Districts 4 and 6, respectively. It should be noted that the location for some accidents cannot be precisely determined from the database. These locations typically involve interchange intersections. Additionally, some accidents may have occurred but were either not reported or not included in the database, and therefore were not considered.

Table 3    Vehicular Crash Summary (2013-2017)

	Windsor Street at Windsor Place/Boynton Yards driveway	South Street at Windsor Street	South Street at Willow Street	South Street at Earle Street	South Street at Hunting Street	South Street at Harding Street	Medford Street at Warren Street	Medford Street at South Street	Medford Street at Ward Street	Somerville Avenue at Medford Street <sup>a</sup>	Medford Street Ext at Somerville Avenue Ext	Route 28 NB at Medford Street Ext
Signalized?	No	No	No	No	No	No	No	No	No	Yes	Yes	Yes
MassDOT Average Crash Rate	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.73	0.73	0.73
Calculated Crash Rate	0.00	0.31	0.00	0.00	0.00	0.84	0.46	0.05	0.00	1.22	0.14	0.11
Exceeds Average?	No	No	No	No	No	Yes	No	No	No	Yes	No	No
Year												
2013	0	0	0	0	0	3	1	0	0	2	1	0
2014	0	1	0	0	0	1	3	0	0	3	0	0
2015	0	2	0	0	0	1	0	0	0	4	1	2
2016	0	0	0	0	0	1	2	0	0	7	0	0
2017	0	0	0	0	0	1	2	1	0	6	0	1
Total	0	3	0	0	0	7	8	1	0	22	2	3
Collision Type												
Angle	0	1	0	0	0	4	3	0	0	7	1	0
Head-on	0	0	0	0	0	0	0	0	0	0	0	0
Rear-end	0	0	0	0	0	1	1	0	0	8	0	0
Rear-to-rear	0	0	0	0	0	0	0	0	0	0	0	0
Sideswipe, opposite direction	0	0	0	0	0	0	0	0	0	1	0	0
Sideswipe, same direction	0	0	0	0	0	0	1	0	0	2	0	1
Single Vehicle Crash	0	1	0	0	0	2	3	1	0	4	1	1
Not reported	0	1	0	0	0	0	0	0	0	0	0	1
Severity												
Fatal Injury	0	0	0	0	0	0	0	0	0	0	0	0
Non-Fatal Injury	0	0	0	0	0	4	2	1	0	7	1	1
Property Damage Only	0	1	0	0	0	2	3	0	0	12	1	1
Not Reported	0	2	0	0	0	1	3	0	0	3	0	1
Time of day												
Weekday ,7:00 AM - 9:00 AM	0	1	0	0	0	0	2	1	0	1	0	0
Weekday, 4:00 – 6:00 PM	0	0	0	0	0	0	4	0	0	3	0	0
Saturday 11:00 AM – 2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0
Weekday, other time	0	1	0	0	0	6	2	0	0	11	2	2
Weekend, other time	0	1	0	0	0	1	0	0	0	7	0	1
Pavement Conditions												
Dry	0	2	0	0	0	3	5	1	0	17	2	2
Wet	0	1	0	0	0	3	2	0	0	4	0	0
Snow	0	0	0	0	0	1	1	0	0	1	0	0
Ice	0	0	0	0	0	0	0	0	0	0	0	0
Slush	0	0	0	0	0	0	0	0	0	0	0	0
Not reported	0	0	0	0	0	0	0	0	0	0	0	1
Non-Motorist (Bike, Pedestrian)	0	1	0	0	0	1	3	0	0	4	1	1

Source: Crash data was obtained from MassDOT Crash Portal (2013 – 2017)

a        Intersection reconstructed in 2016. Crash data prior to 2016 is not reflective of the current roadway geometry.

Table 3    Vehicular Crash Summary (2013-2017) (Continued)

	Somerville Avenue at Prospect Street	Webster Avenue at Prospect Street / Concord Avenue	Webster Avenue at Columbia Street / Tremont Street	Cambridge Street at Prospect Street	Cambridge Street at Webster Avenue / Columbia Street	Cambridge Street at Windsor Street	Cambridge Street at Willow Street	Cambridge Street at Hunting Street	Cambridge Street at Harding Street
Signalized?	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No
MassDOT Average Crash Rate	0.73	0.73	0.57	0.71	0.71	0.52	0.71	0.71	0.52
Calculated Crash Rate	0.89	0.52	1.03	0.79	0.81	1.57	0.50	0.29	0.47
Exceeds Average?	Yes	No	Yes	Yes	Yes	Yes	No	No	No
<b>Year</b>									
2011	4	5	1	6	4	10	1	1	4
2012	7	2	7	4	5	9	1	1	0
2013	6	1	1	2	4	4	1	2	2
2014	9	3	3	6	8	7	2	1	2
2015	3	4	2	6	1	1	3	0	0
Total	29	15	14	24	22	31	8	5	8
<b>Collision Type</b>									
Angle	9	2	8	8	3	16	2	0	1
Head-on	3	0	0	0	0	2	1	0	1
Rear-end	5	5	1	7	6	0	3	2	4
Rear-to-rear	0	0	0	0	0	0	0	1	0
Sideswipe, opposite direction	0	1	0	0	2	3	0	0	1
Sideswipe, same direction	7	1	1	3	3	4	1	1	0
Single Vehicle Crash	4	3	4	3	2	2	1	0	0
Not reported	1	3	0	3	6	4	0	1	1
<b>Severity</b>									
Fatal Injury	0	0	0	0	0	0	0	0	0
Non-Fatal Injury	9	6	6	4	7	9	2	1	2
Property Damage Only	17	4	6	16	7	14	4	2	3
Not Reported	3	5	2	4	8	8	2	2	3
<b>Time of day</b>									
Weekday ,7:00 AM - 9:00 AM	6	2	5	1	1	3	0	0	0
Weekday, 4:00 – 6:00 PM	1	0	1	1	2	5	0	0	1
Saturday 11:00 AM – 2:00 PM	1	0	0	0	0	1	0	0	0
Weekday, other time	14	10	6	16	15	19	4	4	5
Weekend, other time	7	3	2	6	4	3	4	1	2
<b>Pavement Conditions</b>									
Dry	27	11	11	17	13	20	4	3	5
Wet	1	1	3	3	6	6	3	0	1
Snow	1	0	0	0	0	1	0	2	0
Ice	0	1	0	0	0	0	1	0	0
Slush	0	0	0	0	0	0	0	0	0
Not reported	0	2	0	4	3	4	0	0	2
<b>Non-Motorist (Bike, Pedestrian)</b>	3	4	5	5	7	9	2	0	2

Source: Crash data was obtained from MassDOT Crash Portal (2013 – 2017)

As shown in Table 3, review of the accident data indicates that seven of the study area intersections are above the district crash rate averages. Three of the intersections had crash rates greater than 1.00: Somerville Avenue at Medford Street, Cambridge Street at Webster Avenue/Columbia Street, and Cambridge Street at Windsor Street. The majority of crashes throughout the study area were angle crashes and rear-end crashes occurring on dry pavement resulting in non-fatal injury and property damage only. Based on the MassDOT records, there were no fatal accidents during the five-year period studied. In addition, twelve of the study area intersections had crashes involving bicycles or pedestrians during the five-year period. As referenced below, the benefits of implemented bicycle improvements are not reflected by the 2013 through 2017 data but should result in significantly improved cycling conditions in the future.

Several of the study area intersections have been reconstructed in recent years, which may have addressed some of the existing safety concerns described above. Intersections that have seen improvements include the intersections of Somerville Avenue at Medford Street, Somerville Avenue at Prospect Street, and Webster Avenue at Prospect Street/Concord Avenue. However, the intersection improvements at these locations have occurred since 2015 and therefore are not reflected in the data above.

## 2.6 Highway Safety Improvement Program

In addition to calculating the crash rate, study area intersections should also be reviewed in the MassDOT's Highway Safety Improvement Program (HSIP) database. An HSIP-eligible cluster is one in which the total number of "equivalent property damage only"<sup>3</sup> crashes in the area is within the top 5 percent of all clusters in that region. Being HSIP-eligible makes the location eligible for FHWA and MassDOT funds to address the identified safety issues at these locations.

As part of this effort, VHB reviewed this database and found that the following intersections are listed under the following HSIP-eligible clusters:

- › 2014-2016 HSIP Cluster:
  - Somerville Avenue at Prospect Street
- › 2007-2016 HSIP Pedestrian Cluster:
  - Somerville Avenue at Prospect Street
  - Cambridge Street at Prospect Street
  - Cambridge Street at Windsor Street
  - Cambridge Street at Harding Street

<sup>3</sup> Equivalent property damage only" is a method of combining the number of crashes with the severity of the crashes based on a weighted scale. Crashes involving property damage only are reported at a minimal level of importance, while collisions involving personal injury (or fatalities) are weighted more heavily.

- › 2007-2016 HSIP Bicycle Cluster:
  - Somerville Avenue at Prospect Street
  - Webster Avenue at Prospect Street / Concord Avenue
  - Webster Avenue at Columbia Street / Tremont Street
  - Cambridge Street at Prospect Street
  - Cambridge Street at Webster Avenue / Columbia Street
  - Cambridge Street at Windsor Street
  - Cambridge Street at Willow Street
  - Cambridge Street at Hunting Street
  - Cambridge Street at Harding Street

Most of the locations listed above fall within the study areas of other nearby development projects under MEPA review that may be undertaking Roadway Safety Audits (RSAs). Likewise, some of the intersections listed recently had roadway improvements implemented that are not necessarily reflected by the underlying HSIP crash records. Regardless, as part of the Project's MEPA review, the Proponent will consult with MassDOT to identify any locations where RSAs will be required in conjunction with the MEPA review process.



# 3

## Future Conditions

Traffic volumes in the study area were projected to a seven-year traffic-planning horizon. Independent of the Project, volumes on the roadway network under the future No-Build conditions were assumed to include existing traffic, traffic generated by 101 South Street, an initial component of the development, and new traffic resulting from background traffic growth. Under the Build condition, Project-generated traffic volumes were added to the No-Build volumes to reflect the Build conditions within the Project study area.

### 3.1 Background Traffic Growth

Traffic growth on area roadways is a function of the expected land development, economic activity, and changes in demographics. Several methods can be used to estimate this growth. A procedure frequently employed is to estimate an annual percentage increase and apply that increase to study area traffic volumes. An alternative procedure is to identify estimated traffic generated by planned new major developments that would be expected to impact the project study area roadways. For the purpose of this assessment, both methods were considered.

#### 3.1.1 Historic Traffic Growth

Historic traffic data in the vicinity of the Development Site was reviewed to determine an appropriate growth rate. Based on this research, a growth rate of one percent was determined to be appropriate for this study.

### 3.1.2 Site-Specific Growth

In addition to accounting for background growth, the traffic associated with other planned and/or approved developments was evaluated. Based on research by VHB and discussions with the City of Somerville, it was determined that there are six planned development projects within the vicinity of the study area that were considered as part of the background development.

- › **The US2 Project:** The proposed project being developed by US2 is a large mixed-use development in Union Square in Somerville, consisting of a total of 1,159,000 SF of office, 984 residential units, 143,000 SF of retail space and a 175-room hotel. Projected traffic volumes expected to be generated by this project were obtained from the published traffic study submitted as part of the permitting process for the project. While the report does identify mitigation measures for some of the study area signalized intersections, the analysis demonstrated that these improvements were not required for the initial phase of development.
- › **King Open/Cambridge Street School:** The recent development, located at 850 Cambridge Street in Cambridge, replaced the existing school with a new facility including an expanded library, a reconstructed pool, more space for academic and human services, and a new space for Cambridge Public School Administration offices. Projected traffic volumes expected to be generated by this project were obtained from the published traffic study submitted as part of the permitting process for the project. Construction of the school has been completed, though it was not in operation at the time of the traffic counts which will be used for this assessment.
- › **399 Binney Street:** The development, located at 399 Binney Street in Cambridge, proposes replacing two small office buildings with a 134,700-SF office/lab building with 1,900 SF of first-floor retail space. Projected traffic volumes expected to be generated by this project were obtained from the published traffic study submitted as part of the permitting process for the project. Construction since has been completed, though it was not in operation at the time of the traffic counts which will be used for this assessment.
- › **Columbia Court:** The development, located at 305 Webster Avenue in Cambridge, proposed a mixed-use development consisting of 35 residential units and 1,780 SF of retail. Traffic volumes expected to be generated by this project were estimated using Institute of Transportation Engineers data and distributed based on existing travel patterns.
- › **70 Prospect Street:** The development, located at 70 Prospect Street in Somerville, proposes replacing an existing building with a 14-unit residential building with 1,300 SF of first floor retail. Projected traffic volumes expected to be generated by this project were obtained from the published traffic study submitted as part of the permitting process for the project. Construction at this location has been completed, though it was not in operation at the time of the traffic counts which will be used for this assessment.

- › **Courthouse Redevelopment:** The development, located at 40 Thorndike Street in Cambridge, proposes a mixed-use building that will be comprised of 24 residential units, 15,000 SF of retail, and 460,000 SF of R&D/office. Projected traffic volumes expected to be generated by this project were obtained from the published traffic study submitted as part of the permitting process for the project.

While some of these developments have since been constructed, they were not in operation at the time of the 2017 data collection and therefore will only be considered as part of future conditions analyses.

### **3.1.3 101 South Street**

An initial component of the Project – approximately 257,500 SF of the proposed commercial space and 12,500 SF of the supporting retail/restaurant space – already is under construction at 101 South. This portion of the development building was approved previously by the City of Somerville in 2018 before the Project evolved into the current proposal. Accordingly, as an approved project, it is evaluated in conjunction with the other nearby background development projects.

Project trips associated with this portion of the development were included as stand-alone trips, separate from the full build-out, to develop the 2027 No-Build traffic volumes. Both the trip generation and trip distribution for this portion of the Project are quantified and discussed in detail later in this report.

### **3.1.4 2027 No-Build Volumes**

The 2027 No-Build traffic volumes were developed using a growth rate of one percent per year and adding in the background projects and traffic associated with 101 South described above. The resulting No-Build weekday morning, weekday evening, and Saturday midday peak hour traffic volume networks are shown in Figures 7 through 9, respectively.









### **3.1.5 Roadway Improvements**

In assessing future traffic conditions for the Project, proposed roadway improvements within the study area were considered.

#### **3.1.5.1 Grounding McGrath**

Based on discussions with the City of Somerville and MassDOT, the Route 28 “Grounding McGrath” is a proposed roadway improvement project within the vicinity of the study area. This project entails Route 28 corridor improvements and bringing the McGrath corridor to grade. However, Grounding McGrath is not expected to begin construction within the seven-year build horizon determined for the Project and therefore was not considered in the analyses for this report.

#### **3.1.5.2 Union Square Neighborhood Development Plan**

In May 2017 the City of Somerville published the USNP. This plan outlined the City’s long-standing goals for an improved transportation network in this area. The Development Site is located adjacent to two of the most notable parts of this plan. The realignment of South Street from Earle Street heading westerly to Windsor Street has been a longstanding goal of the City. The relocation of this roadway by the City could help advance a new direct connection between South Street, Columbia Street, and Webster Avenue. As discussed in the Site Access section of this report, the Project will be compatible both with the existing roadway alignment, as well as with the desired future reconfiguration. The Proponent understands that the City intends to reconfigure the easterly segment of South Street between Harding Street and Medford Street so that it will allow for one-way eastbound traffic, as opposed to the current condition under which the road is one-way westbound. The Development Site has been designed to be compatible with either option, thought the preferred option involves this conversion being implemented, as well as the future option of South Street being aligned further to the west. As these are public roadways under City jurisdiction any such changes will need to be directed by the City. However, the Proponent is committed to continuing to develop the Development Site consistent with this vision.

The timeframe for the City of Somerville’s implementation of the USNP changes is uncertain. As discussed in the Section 3.3 of this evaluation, the Project is being designed so as not to preclude any of these changes from occurring. Furthermore, to provide for a conservative analysis, the future conditions analysis both with and without the Project has been conducted assuming that the existing roadway network would remain unchanged. This methodology is being used only so that the maximum potential impacts on the study area roadways would be evaluated as part of this study. The Proponent continues to fully support the vision presented in the USNP.

### 3.1.6 MBTA Transit Improvements

In early 2017, the Federal Transit Administration (FTA) granted final approval for the MBTA's GLX project. As noted earlier, the MBTA will be extending the Green Line by approximately 4.3-miles from Lechmere Station in Cambridge heading northbound into Somerville and Medford. Following this project, approximately 85 percent of Somerville's population will be within reasonable walking distance of train service.

The extension will have two branches: a 0.9-mile southerly branch that will terminate near Somerville's Union Square, and a 3.4-mile northerly branch that will parallel the Lowell Line of the commuter rail through Somerville and will terminate at College Avenue in Medford. The new MBTA Union Square station will be located on Prospect Street, approximately one-quarter of a mile from the Development Site. The GLX project is expected to be completed in December 2021, which will be prior to commencing construction of Phase 2 of the Project. Headways for the trains servicing the new station are scheduled to be six- and five-minutes during the respective weekday morning and evening peak periods, and under ten minutes for all other time periods while the Green Line is in operation.

Construction of this station will change the transportation dynamic of the Project study area, with a significant increase in transit ridership expected, corresponding to a decrease in automobile travel. The expected changes in automobile travel to and from the Development Site, as well as changes to existing roadway volumes within the study area, are discussed in the Trip Generation section of this report and further analyzed in the 2027 Build analyses.

## 3.2 Project-Generated Traffic Volumes

The rate at which a development generates traffic is dependent upon several factors, such as size, location, and concentration of surrounding developments. As previously discussed, the Project consists of commercial, retail, residential, and arts/creative enterprise uses. Trip generation estimates for the proposed uses were projected using data published in the ITE *Trip Generation Manual*<sup>4</sup> for LUC 710 (General Office Building), LUC 760 (Research & Development Center), LUC 221 (Mid-Rise Residential), and LUC 820 (Shopping Center).

The trip generation analyses are presented below.

### 3.2.1.1 Existing Site-Generated Traffic

Estimating future conditions volumes involved a review of the existing development on those parcels, along with the additional trip generation expected from the Project development.

The planned development parcels are currently occupied by an approximately 15,134 SF office building, two buildings used by Gentle Giant with a combined

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<sup>4</sup> [Trip Generation Manual, 10th Edition](#), Institute of Transportation Engineers, Washington, D.C., 2017.

31,441 SF, 2,937 SF of multi-family housing, and an 11,659 SF vacant building, which until June 2019 was used by the "Jam Spot" recording studio. In evaluating the potential impacts associated with the Project, the resulting increase in traffic from the Project compared to these existing uses was quantified. As the trips associated with the multi-family housing development are expected to be negligible, no credit was taken for the existing nominal traffic generated by this existing use.

Additionally, there exists a private commercial parking lot at 2 Harding Street located between Earle Street and Harding Street, and a commercial truck storage lot on the opposite side of Earle Street. While there is regular parking activity at 2 Harding Street, neither lot generates significant peak-hour traffic volumes. Accordingly, no credit was taken for the existing nominal traffic generation associated with either lot.

Table 4 summarizes the Project-related trips for the existing uses on Development Site.

**Table 4 Existing Site Trip Generation**

	Office Unadjusted <sup>a</sup>	Office Adjusted <sup>b</sup>	Warehousing <sup>c</sup>	Total Unadjusted Vehicle Trips <sup>d</sup>	Total Adjusted Vehicle Trips <sup>e</sup>
<b>Weekday Daily</b>					
Enter	85	64	48	<b>133</b>	<b>111</b>
<u>Exit</u>	<u>85</u>	<u>64</u>	<u>48</u>	<b>133</b>	<b>111</b>
Total	170	127	95	<b>265</b>	<b>223</b>
<b>Weekday Morning</b>					
Enter	35	26	22	<b>57</b>	<b>49</b>
<u>Exit</u>	<u>6</u>	<u>4</u>	<u>7</u>	<b>12</b>	<b>11</b>
Total	41	31	29	<b>70</b>	<b>60</b>
<b>Weekday Evening</b>					
Enter	3	2	9	<b>12</b>	<b>11</b>
<u>Exit</u>	<u>16</u>	<u>12</u>	<u>23</u>	<b>39</b>	<b>35</b>
Total	19	14	32	<b>51</b>	<b>46</b>
<b>Saturday Daily</b>					
Enter	17	13	2	<b>19</b>	<b>15</b>
<u>Exit</u>	<u>17</u>	<u>13</u>	<u>2</u>	<b>19</b>	<b>15</b>
Total	33	25	5	<b>38</b>	<b>30</b>
<b>Saturday Midday</b>					
Enter	4	3	1	<b>5</b>	<b>4</b>
<u>Exit</u>	<u>4</u>	<u>3</u>	<u>1</u>	<b>4</b>	<b>3</b>
Total	8	6	2	<b>10</b>	<b>8</b>

a Based on ITE LUC 710 (General Office Building), for 15,134 sf. No mode split applied

b Based on ITE LUC 710 (General Office Building), for 15,134 sf. Assume 75% vehicular mode split based on Union Square Neighborhood Plan.

c Based on ITE LUC 150 (Warehousing), for 31,441 sf. Assume 100% vehicular mode split.

### 3.2.1.2 101 South Street-Generated Trips

As mentioned previously, an initial component of the Project – approximately 257,500 SF of commercial space and 12,500 SF of supporting retail/restaurant space – already is under construction at 101 South Street.

The planned retail/restaurant use is expected to consist of small, service-oriented businesses. While exact tenants have not yet been secured, these are not expected to be large destination-retail uses. Instead, potential uses will include small eating establishments, coffee shops, or galleries. While these do not fit the description of a traditional ITE "Shopping Center," retail traffic was estimated using this land use code, which results in an overly conservative analysis.

The new vehicle trips generated for this portion of the development are presented in Table 5 and trip generation worksheets are included in Appendix B.

**Table 5 101 South Street-Generated Peak-Hour Vehicle Trips by Use**

Peak Hour	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Retail Pass-By <sup>d</sup>	Net Site Generated Vehicle Trips <sup>e</sup>
<b>Weekday Morning</b>					
Enter	50	16	30	7	96
Exit	<u>6</u>	<u>4</u>	<u>15</u>	<u>7</u>	<u>25</u>
Total	56	20	45	14	121
<b>Weekday Evening</b>					
Enter	9	4	13	8	26
Exit	<u>47</u>	<u>21</u>	<u>16</u>	<u>8</u>	<u>84</u>
Total	56	25	29	16	110
<b>Saturday Midday</b>					
Enter	14	6	17	6	37
Exit	<u>11</u>	<u>5</u>	<u>17</u>	<u>6</u>	<u>33</u>
Total	25	11	34	12	70

a New vehicle trips with internal capture credits applied.

b New vehicle trips with internal capture credits applied.

c New vehicle trips with internal capture and pass-by credits applied.

d 25% pass-by credit for weekday morning and Saturday midday peak hours, 34% for weekday evening peak hour.

e Sum of columns a, b, c

As shown in Table 5, 101 South is expected to generate 121, 110, and 70 new vehicle trips during the weekday morning, weekday evening, and Saturday midday peak hours. Appropriate credits for internal capture, mode-share, and pass-by trips were taken as discussed in the following sections.

As previously noted, 101 South already was approved and is under construction. Accordingly, that portion of the development is evaluated under the 2027 No-Build Condition as that building will be constructed independently of the remainder of the Project, though the Project is being designed as a single cohesive development. Traffic associated with 101 South was assigned to the existing study area roadways

and intersections based on trip distribution patterns developed as discussed in the Trip Distribution section of this report.

### **3.2.1.3 Full Build-Out Unadjusted ITE Vehicle Trips**

The Project consists of approximately 963,500 SF of commercial uses (split between office and research & development), 42,500 SF of retail, and 330 residential units across 6.8 acres. In compliance with the Zoning Ordinance, Buildings 2, 3 and 4 will allocate approximately 10 percent of commercial space for arts & creative enterprise uses, which is expected to have negligible impacts on the surrounding roadway network.<sup>5</sup> As with the approved 101 South building, trip generation for the retail/restaurant uses was estimated using ITE shopping center data, which results in an overly conservative analysis.

The unadjusted new vehicle trips for the full build-out of the development are presented in Table 6 and trip generation worksheets are included in Appendix B.

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<sup>5</sup> Consistent with existing approvals, 101 South, will allocate approximately five percent of the total commercial floor area as arts & creative enterprise uses.



**Table 6 Full-Build Project Trip Generation – Total Unadjusted Vehicle Trips**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Residential <sup>d</sup>	Total Unadjusted Vehicle Trips
<b>Weekday Daily</b>					
Enter	2,438	2,566	1,680	898	7,583
<u>Exit</u>	<u>2,438</u>	<u>2,566</u>	<u>1,680</u>	<u>898</u>	<u>7,583</u>
Total	4,876	5,133	3,360	1,797	15,166
<b>Weekday Morning</b>					
Enter	412	152	107	29	700
<u>Exit</u>	<u>67</u>	<u>51</u>	<u>66</u>	<u>82</u>	<u>265</u>
Total	479	202	173	110	965
<b>Weekday Evening</b>					
Enter	81	35	138	85	340
<u>Exit</u>	<u>426</u>	<u>201</u>	<u>150</u>	<u>54</u>	<u>831</u>
Total	507	236	288	139	1,171
<b>Saturday Daily</b>					
Enter	532	357	2,622	810	4,321
<u>Exit</u>	<u>532</u>	<u>357</u>	<u>2,622</u>	<u>810</u>	<u>4,321</u>
Total	1,065	714	5,243	1,620	8,642
<b>Saturday Midday</b>					
Enter	138	58	164	71	431
<u>Exit</u>	<u>117</u>	<u>58</u>	<u>151</u>	<u>74</u>	<u>401</u>
Total	255	116	315	145	831

Note: The current development program includes an additional 21,000 sf of building space beyond that specified above split between office and R&D uses. This increase is not expected to significantly alter the results of the future conditions analyses presented in this document as the associated increase in trip generation is projected to be fewer than 5 vehicles trips during the peak hours studied.

a Based on ITE LUC 710 (General Office Building), for 481,750 sf

b Based on ITE LUC 760 (Research & Development), for 481,750 sf

c Based on ITE LUC 820 (Shopping Center) for 42,500 sf

d Based on ITE LUC 221 (Mid-Rise Residential) for 330 units

### 3.2.1.4 Person Trips

The unadjusted vehicle trips generated from ITE are converted into person trips by applying the national average vehicle occupancy (AVO) of 1.18 for residential, office, and research and development trips and of 1.82 for retail trips, as outlined by the U.S Department of Transportation (USDOT).<sup>6</sup> The unadjusted vehicle trips were converted into person trips in order to apply the internal capture credits and applicable mode share credits discussed below. Applying these adjustments to

<sup>6</sup> Summary of Travel Trends: National Household Survey; US Department of Transportation, Federal Highway Administration, Washington D.C, 2017.

person trips allows for estimates to be made for the total number of Project-generated vehicle trips.

### **3.2.1.5 Internal Capture Trips**

As the Project proposes a mixture of uses, the trip generation characteristics of the Development Site will be different from a single-use project. Some of the traffic to be generated by the Project will be contained on-site as "internal" or "shared vehicle" trips. This concept means that some patrons could visit more than one of the uses on the Development Site. For example, workers at the office space on-site may patron the retail shops after work or residents who live in the development may also work in the office on-site. While these shared trips represent new traffic to the individual uses, they would not show up as new vehicle trips on the surrounding roadway network.

As described in the ITE Trip Generation Handbook,<sup>7</sup> "because of the complementary nature of these land uses, some trips are made among the on-site uses. This capture of trips internal to the site has the net effect of reducing vehicle trip generation between the overall development site and the external street system (compared to the total number of trips generated by comparable land uses developed individually on stand-alone sites) an internal capture rate can generally be defined as the percentage of total person trips generated by a site that are made entirely within the site. The trip origin, destination, and travel path are all within the site."

Based on the methodology outlined in the ITE Trip Generation Handbook, internal capture rates were applied to the gross person trips. The resulting peak-hour person trip estimates for the Project and are presented in Table 7 and internal capture worksheets are included in Appendix B.

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<sup>7</sup> Trip Generation Handbook, 3rd Edition, Institute of Transportation Engineers, Washington, D.C., 2017.

**Table 7 Full-Build Project Trip Generation – Net Person Trips**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Residential <sup>d</sup>	Total Person Trips
<b>Weekday Daily</b>					
Enter	2,832	2,981	2,660	692	9,165
<u>Exit</u>	<u>2,802</u>	<u>2,949</u>	<u>2,629</u>	<u>785</u>	<u>9,165</u>
Total	5,634	5,930	5,289	1,477	18,330
<b>Weekday Morning</b>					
Enter	465	171	155	33	824
<u>Exit</u>	<u>57</u>	<u>43</u>	<u>92</u>	<u>93</u>	<u>285</u>
Total	522	214	247	126	1,109
<b>Weekday Evening</b>					
Enter	90	40	207	50	387
<u>Exit</u>	<u>487</u>	<u>229</u>	<u>222</u>	<u>36</u>	<u>974</u>
Total	577	269	429	86	1,361
<b>Saturday Daily</b>					
Enter	542	364	4,217	620	5,743
<u>Exit</u>	<u>501</u>	<u>336</u>	<u>4,313</u>	<u>593</u>	<u>5,743</u>
Total	1,043	700	8,530	1,213	11,486
<b>Saturday Midday</b>					
Enter	157	65	249	42	513
<u>Exit</u>	<u>121</u>	<u>59</u>	<u>230</u>	<u>59</u>	<u>469</u>
Total	278	124	479	101	982

<sup>a</sup> Person trip generation estimate with internal capture credits applied.

### 3.2.1.6 Mode Share

The mode shares used are based on proposed mode share data presented in the USNP CTPS report. The USNP proposed a vehicle mode share of 40 percent and very high walk and bike shares (23 percent and 15 percent, respectively). For this Project's analysis, slightly more conservative walking and bike shares were used given the Development Site's location and surrounding roadway network. The Project design, parking supply, and Transportation Demand Management (TDM) program all are being developed with the intent of minimizing travel by single-occupant automobile and maximizing transit use. The pedestrian friendly setting being advanced for this and other projects also will help promote walking and biking to and from the Development Site. Secured bicycle parking within the building also will encourage biking. Regardless of these benefits, evaluating the maximum vehicular traffic that could be on the study area roadways in the future is critical in confirming the adequacy of the street network to accommodate this traffic.

The increased transit mode share used for this analysis is primarily due to the scheduled opening of the new MBTA Union Square station in December 2021. The Development Site will be located roughly one-quarter mile from this new station. As noted in the USNP, office workers are typically willing to walk up to one-quarter mile for transit service, while residents are willing to walk up to one-half mile. The USNP

further notes that people generally are willing to walk longer distances for rail (such as the new Union Square station) than they are for bus service. Accordingly, with the Project falling within these ranges, there should be a notable decrease in automobile dependency in this area due to the transit improvements.

The resulting peak hour/peak direction mode share estimates, by use, are presented in Table 8 and all mode share data is included in Appendix B.

**Table 8 Future Mode Share**

Use	Vehicle	Transit	Bike	Walk
Office/Lab	40%	40%	8%	12%
Retail	40%	40%	8%	12%
Residential	40%	40%	8%	12%

Source: Peak hour/peak direction mode share estimates based on the Union Square Neighborhood Plan.

The mode shares discussed above were applied to the net-new person trips shown in Table 7 to generate the adjusted Project trips by mode. To reflect the number of vehicle trips generated by the Project, the adjusted person trips are converted back to vehicle trips by applying the local average vehicle occupancy rates. These rates are slightly different than the national AVO data discussed earlier in this section. Based on 2012-2016 U.S Census Data,<sup>8</sup> a local AVO of 1.21 for residential trips and 1.16 for office and research and development use was determined. As local AVO data are not available for retail, the same 1.82 national AVO was determined for retail trips based on the USDOT data noted earlier.

### 3.2.1.7 Pass-By Trips

While the ITE data provide estimates for all the traffic associated with each land use, not all of the traffic generated by the Project will be new to the area roadways. For example, a portion of the vehicle-trips generated by the retail land use will likely be drawn from the traffic volume roadways adjacent to the Development Site. For example, someone traveling on South Street may choose to deviate from their original travel path to visit the Development Site's retail before continuing to their destination. With the presence of nearby one-way streets, it is expected that most pass-by traffic will consist of westbound South Street travel that stops at the Development Site before continuing on to the west. As there will be on-street parking provided along the northerly side of South Street, most of this traffic should be oriented to the Building 3 retail/restaurant uses.

For this evaluation, ITE pass-by rates for LUC 820 (Shopping Center) were utilized for the retail trip generation and applied to existing trips on South Street. Specifically, 34 and 26 percent of the Development Site's trip generation was assumed to be drawn from the surrounding roadway network during the weekday evening and

<sup>8</sup> US Census Data (2012-2016); City of Somerville.

Saturday midday peak hours, respectively. For all other time periods studied, a 25 percent pass-by rate was assumed.

### 3.2.1.8 Full Build Project-Generated Trips

As described above, internal capture credit, mode share credit, and pass-by credit for the retail portion of the Project was applied to the unadjusted new vehicle trips presented in Table 6 to develop the net new trips expected to be generated by the Development Site. Table 9 presents the Project-generated net new peak hour trips by land use. Detailed trip generation worksheets are provided in Appendix B.

**Table 9 Full Build Project-Generated Peak-Hour Vehicle Trips by Use**

	Office <sup>a</sup>	R&D <sup>b</sup>	Retail <sup>c</sup>	Retail Pass- By <sup>d</sup>	Residential <sup>e</sup>	Net Site Generated Vehicle Trips <sup>f</sup>	101 South Street Adjusted Trips <sup>g</sup>	Existing Adjusted Site Generated Trips <sup>g</sup>	Net New Site Generated Vehicle Trips <sup>h</sup>
<b>Weekday Morning</b>									
Enter	160	59	27	7	11	257	-96	-49	112
Exit	<u>20</u>	<u>15</u>	<u>13</u>	<u>7</u>	<u>31</u>	<u>68</u>	<u>-25</u>	<u>-11</u>	<u>32</u>
Total	180	74	40	14	42	336	-121	-60	144
<b>Weekday Evening</b>									
Enter	31	14	29	16	17	91	-26	-11	54
Exit	<u>168</u>	<u>79</u>	<u>33</u>	<u>16</u>	<u>12</u>	<u>292</u>	<u>-84</u>	<u>-35</u>	<u>173</u>
Total	199	93	62	32	29	383	-110	-46	227
<b>Saturday Midday</b>									
Enter	54	23	41	14	14	132	-37	-4	91
Exit	<u>42</u>	<u>20</u>	<u>37</u>	<u>14</u>	<u>20</u>	<u>119</u>	<u>-33</u>	<u>-3</u>	<u>83</u>
Total	96	43	78	28	34	251	-70	-8	173

a New vehicle trips with internal capture credits applied.

b New vehicle trips with internal capture credits applied.

c New vehicle trips with internal capture and pass-by credits applied.

d 25% pass-by credit for weekday morning and Saturday midday peak hours, 34% for weekday evening peak hour.

e New vehicle trips with internal capture credits applied

f Sum of columns a, b, c, e

g 101 South Street Adjusted trips (see Table 5)

g Sum of existing office and warehouse land uses. Existing mode share applied.

h Column f minus column g

As shown in Table 9, the Project is expected to generate 144, 227, and 173 additional "new" vehicle trips during the weekday morning, weekday evening, and Saturday midday peak hours. This represents the Project-generated traffic that will be added to the surrounding roadway system in addition to traffic generated by 101 South and the existing land uses on the Development Site. This traffic was assigned to the study area roadways and intersections based on trip distribution patterns developed as discussed in the following section.

### 3.2.2 Trip Distribution

The directional distribution of the traffic approaching and departing the Development Site is a function of population densities, the location of employment opportunities, existing travel patterns, and the efficiency of the roadway system. Trips made to and from the proposed office/lab space during the peak hours are expected to be predominantly home-to-work and work-to-home trips in the morning and evening peak hours, respectively. Accordingly, the trip distribution for the office/lab portion of the Project has been derived based on Journey-to-Work data for the City of Somerville with the 2012-2016 U.S. Census data. The trip distribution for the retail portion of the Project is assumed to follow similar trip distribution patterns as the office/lab space. Larger-scale retail uses frequently will have unique trip distribution patterns that are dependent on their customer base and, therefore, may be different than those for office use. However, in this instance, the retail uses are smaller, generally non-destination uses as compared to a standard shopping center. Accordingly, the retail distribution should closely mimic that of the office/lab uses. Table 10 and Figure 10 illustrate the regional trip distribution.

**Table 10 Regional Trip Distribution Summary**

Travel Route	Direction	Residential Trips	Office/R&D Trips
McGrath Highway	North	18%	44%
Gore Street	East	10%	7%
Cambridge Street	East	20%	14%
	West	16%	6%
Somerville Avenue	West	10%	21%
Columbia Street	South	11%	3%
<u>Prospect Street</u>	<u>South</u>	<u>15%</u>	<u>5%</u>
Total		100%	100%

### 3.2.3 2027 Build Volumes

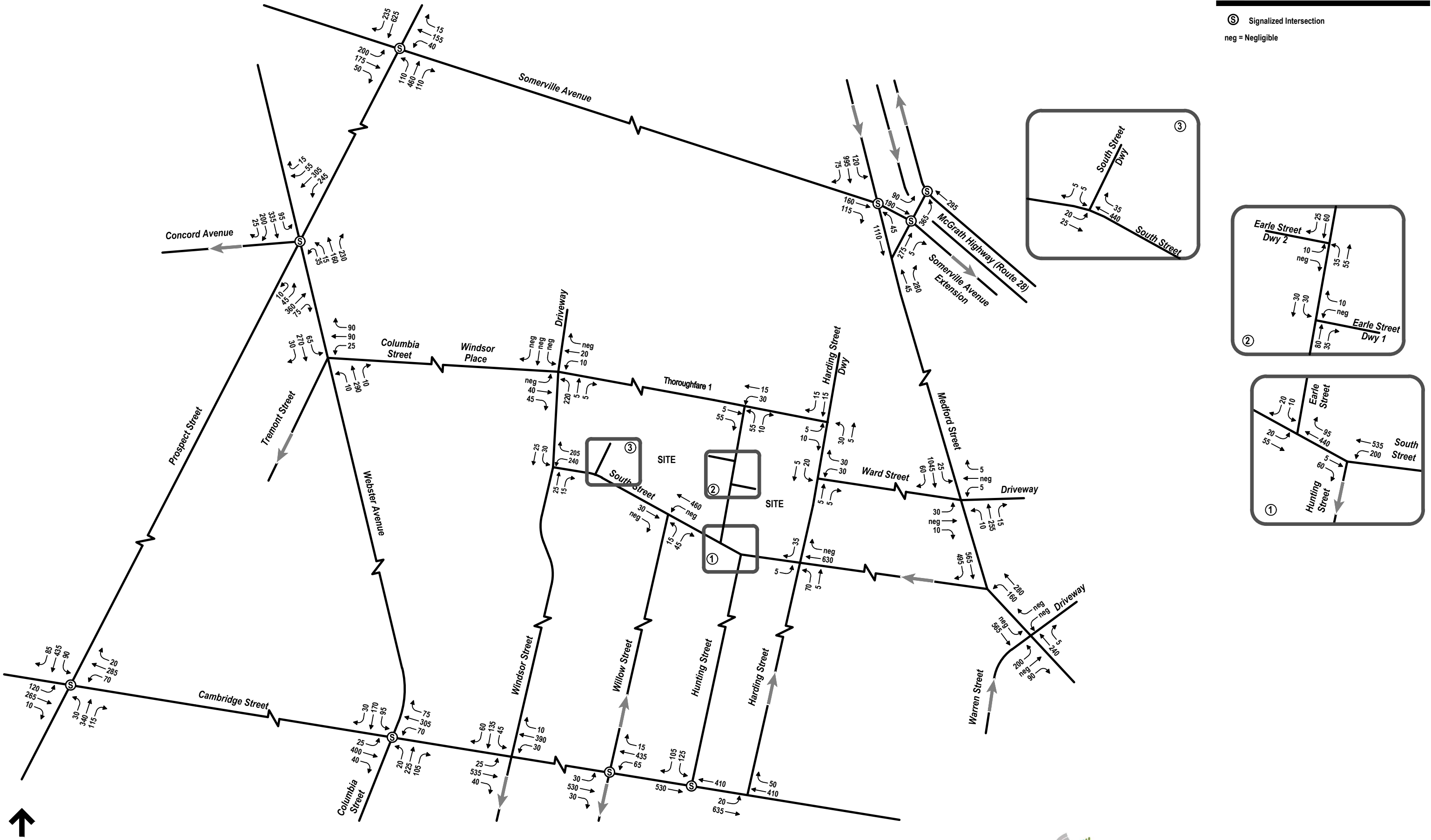
The future 2027 Build peak-hour traffic volumes were developed by adding the net new Project-generated traffic volumes, as shown in Table 9, to the 2027 No-Build conditions peak-hour traffic volumes. 101 South-generated traffic volumes were redistributed slightly to the Build traffic volume networks to reflect the Site Access Plan associated with the full development of the Project.

Figures 11, 12, and 13 show the resulting 2027 Build Conditions networks for the weekday morning, weekday evening, and Saturday midday peak hour traffic volumes, respectively. Detailed trip distribution calculations are provided in Appendix B.









S Signalized Intersection  
neg = Negligible

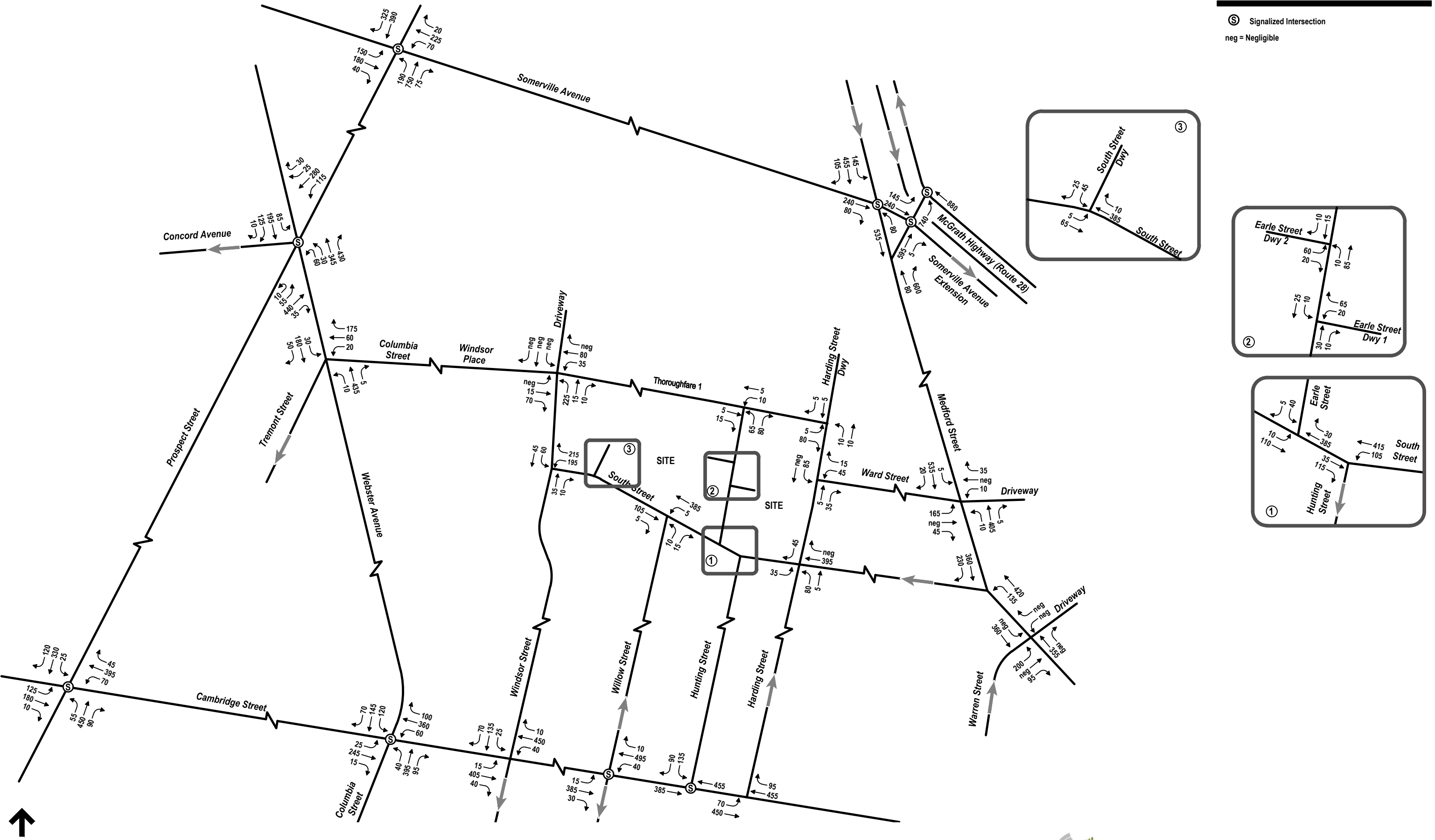


Not to Scale



2027 Build Conditions  
Weekday Morning Peak Hour Traffic Volumes  
Boynton Yards  
Somerville, Massachusetts

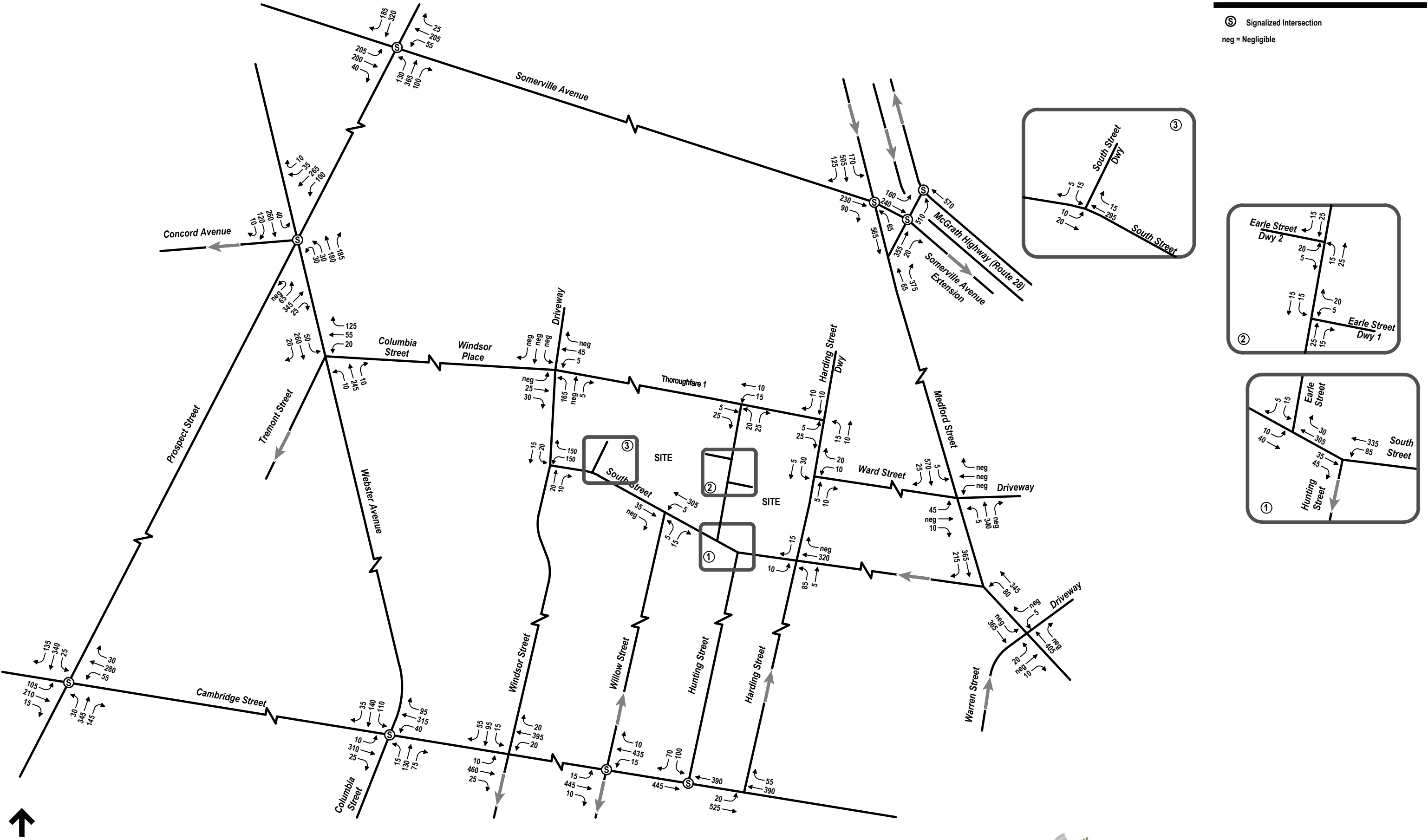
**Figure 11**



Not to Scale



**Figure 12**  
2027 Build Conditions  
Weekday Evening Peak Hour Traffic Volumes  
Boynton Yards  
Somerville, Massachusetts



Not to Scale



2027 Build Conditions  
Saturday Midday Peak Hour Traffic Volumes  
Boynton Yards  
Somerville, Massachusetts

**Figure 13**

### **3.3 Proposed Site Access Plan**

In addition to the off-site traffic operations analysis, a detailed review of the proposed Site Access Plan also was conducted as part of this evaluation as described in the following sections.

#### **3.3.1 Existing Site Access**

Access to the easterly portion of the Development Site at 2 Harding Street currently is provided by a single full-access curb cut on Earle Street, approximately 200 feet to the north of South Street. The 101 South parcel to the west previously had a single full-access driveway at the center of its northerly frontage on Windsor Place, but that area is now fenced off as a construction zone. The future Building 2 development area currently is occupied by an approximately 15,140 SF office building at the westerly end of that area, and an 11,665 SF building at the easterly end of the parcels. Access to both currently is provided by six curb cuts along the parcels' 350-foot frontage on Windsor Place. These driveways provide direct access and egress to the striped parking field serving both businesses.

The existing Gentle Giant Moving Company location at the northeast corner of the Development Site presently has access provided via the northerly end of Earle Street. There also is an existing driveway at the northerly side of the Harding Street/Ward Street intersection, but that driveway is closed with a gate in place.

A fence extends along the frontage of the future Building 4 to the west with three existing gated driveways.

#### **3.3.2 Proposed Development Site Access**

Each of the four Project buildings will feature single driveways for the individual structured parking garages. 101 South currently under construction will have 233 parking spaces, while the remaining three buildings each will have between 240 and 270 parking spaces. Bicycle parking also will be provided within each building as required by the City of Somerville. 101 South will have a single curb cut providing access and egress to its parking garage.

The future Building 2 will be located at the northeast corner of the South Street/Windsor Street intersection. The driveway for the garage in that building will be located on the north side of South Street just east of Windsor Street. That access has been designed to allow for the future realignment of South Street. Accordingly, the Project buildings have been positioned to be compatible with both the existing roadway and the future condition that involves shifting the roadway to the south. This is consistent with the USNP discussed earlier. The USNP presented the City's vision for a reconfigured roadway network surrounding the Development Site. The reconstruction of Earle Street between 101 South (currently under construction) and Building 3 will be the first step in this process. Under the future condition with South Street realigned, the Building 2 access point would remain unchanged, but vehicles

now would be turning to and from a driveway extending from Windsor Street instead of South Street.

The garage on the opposite side of the Earle Street for Building 3 will be accessed by a driveway to be located just north of the South Street/Earle Street intersection.

Finally, the access driveway for Building 4's garage would be located at the easterly end of that parcel assemblage. The garage access would be at the northeasterly corner of the building with the driveway leading to and from the garage connecting to the newly created Thoroughfare 1 to the south.

### **3.3.2.1 Pedestrian Access**

In the vicinity of the Development Site, South Street, Earle Street, and Harding Street currently have sidewalks provided along both sides of each roadways with crosswalks and accompanying wheelchair ramps provided at key locations. The sidewalk on the easterly side of Earle Street terminates at the driveway to the Gentle Giant Parcel to the north of the proposed Building 3. The sidewalk on the opposite side of the street ends approximately 40 feet further to the north. From that point, the roadway curves to the northwest and transitions to Windsor Place. Sidewalks currently are not provided on the roadway from this point, extending further to the west where it intersects Windsor Street.

As described in Chapter 1, *Project Description*, with the redevelopment of the Development Site, a new "Thoroughfare 1" will be constructed from Windsor Place extending 725 feet to the east where it will terminate at the intersection of Ward Street and Harding Street. The new Thoroughfare 1 Way will feature sidewalks on both sides of the road, with approximately 14 feet of space provided for sidewalks, street furniture, and street trees. The walkability of this area will be enhanced by narrow lane widths, a portion of the roadway featuring crosswalk and sidewalks at the same elevations, and on-street parking located along the both sides of the roadway, which will further buffer pedestrians from adjacent street automobile traffic. The same sidewalk treatment will continue to the south on Thoroughfare 1 before intersecting with Ward Street and Harding Street.

In addition to crosswalks provided at key intersecting roadway and driveways, a prominent mid-block crossing of Thoroughfare 1 will be provided between 101 South and Building 2. This crossing will provide a valuable connections for residents living in Building 4 and the proposed Public Common located between Buildings 1 and 2 on the opposite side of the roadway. Accompanying standard warning signage will be provided along Thoroughfare 1 approaching this crossing so that both motorists and pedestrians are fully aware of its presence. This traffic-calming feature will require Thoroughfare 1 traffic to reduce its speed, which will help maintain a pedestrian-friendly environment.

Earle Street will be a newly reconstructed 325-foot long road located between 101 South and Building 3 with a 46-foot right-of-way. The roadway will include approximately 15 feet of space on each side of the road for sidewalks, street furniture, and street trees. The sidewalks will be constructed with a continuous flush



treatment under which any intersecting curb cuts will ramp up to meet the sidewalk, as opposed to having wheelchair ramps be necessary.

To the south of its intersection with Ward Street and Thoroughfare 1, Harding Street currently extends approximately 240 feet to the south where it intersects with South Street. While Building 3 abuts the westerly side of the roadway, the land east of and adjacent to Harding Street is not part of the Development Site. Accordingly, the existing 5-foot sidewalk width along the easterly side of the street will be maintained. However, as part of the Project, a new 14-foot wide sidewalk will be provided along the westerly side of the roadway for use by pedestrians with associated landscape and street furniture amenities. As with Thoroughfare 1, pedestrians along the westerly side of Harding Street will be buffered from vehicular traffic by the on-street parallel parking proposed along the Development Site frontage.

Finally, South Street presently has sidewalks provided on both sides of the roadway throughout the study area, and this will continue under future conditions with new and improved sidewalks along the segment of this roadway adjacent to the Development Site. Specifically, a minimum of 12 feet will be provided between the South Street northerly curblin and the face of the new buildings. This will provide ample space for sidewalks, landscaping, and street furniture. New buffered bike lanes will be provided on both sides of this street. Some portions of this sidewalk space will straddle the Development Site property line. However, the 10 feet of space to be provided for sidewalks and associated amenities along the south side of the roadway will be provided entirely within the South Street right-of-way.

#### **3.3.2.2 Bicycle Accommodations**

The potential bicycle parking needs for the Project will be accommodated through the provision of secured bicycle parking within the various Project buildings and by bicycle racks through the development.

#### **3.3.2.3 Bike-Sharing Stations**

Bluebikes is continuing to advance its greater-Boston bike-sharing program. This program began operating in July 2011 and the goal is for it to continue expanding with accommodations for over 5,000 bikes at 300 bike-sharing stations. In addition to the on-site bicycle parking specified above, bike-share stations may be provided in conjunction with the Proposed Project.

#### **3.3.2.4 Service and Loading**

Each Project building will have loading bays within the building as opposed to open-air loading areas. 101 South will have a loading driveway located on the west side of Earle Street just south of Thoroughfare 1. Building 3 also will have a loading driveway on the east side of this roadway, just south of the 101 South loading curb cut. The garage and loading bay access for Building 2 will share a single curb cut on the north side of South Street. As noted above, that access will be reconfigured in

the future so that trucks will be accessing the building from Windsor Street instead of South Street when that roadway is realigned. Finally, the loading for Building 4 will be at the center of that building, with trucks accessing that area by a curb cut to be located on Thoroughfare 1 opposite Earle Street.

The exact number and timing of deliveries will vary depending on the nature of the various retail establishments, in addition to standard office and residential delivery activity. Most retail activity typically occurs during morning hours so as not to interfere with the operation of the business. Due to the smaller sizes of the retail uses, most deliveries likely will be made by smaller, single-unit trucks. These are the same types of vehicles typically seen on a daily basis in the Union Square area that make deliveries to other existing retail businesses and restaurants. Smaller single-unit trucks can easily be accommodated and should typically only be on-site for a short time.

### **3.4 Project Parking Plan**

Evaluating the adequacy of a development's parking supply typically consists of comparing the unfettered parking demand to the proposed supply. Estimating the parking demand associated with each individual use also requires adjustments for transit, walking, biking, and internal trip sharing. The resulting parking demand then can be compared to the proposed parking supply. This analysis procedure typically is used in development traffic impact analyses. However, this approach essentially assumes that there are no limitations to parking availability and that anyone wishing to park can freely do so. If the availability of parking is not restricted to some degree, then a site will not truly function as a transit-oriented development. Instead, it only will be a project that happens to have nearby public transportation available as one possible travel option.

Somerville's USNP contains a detailed discussion of how parking demand can be controlled through a variety of factors, including minimizing the available supply to help promote transit use. Only through management of parking can the mode splits desired in the USNP be achieved. This also will help to reduce automobile congestion within the study area. Some of the suggested measures which can be utilized for this Project are discussed later in this section.

#### **3.4.1 Proposed Parking Supply**

The parking needs for the Project will be accommodated by the proposed 1,002-space total parking supply, which will appropriately satisfy the anticipated demand for this development. The parking supply will be limited to below-grade structured parking only, replacing the existing expanse of surface parking that exists on the Development Site. 101 South includes four-levels of below-grade parking with 233 total parking spaces. Between 240 and 270 parking spaces will be provided beneath each of the remaining buildings. The resulting parking ratio for the commercial and residential uses will be lower than that found at other large-scale mixed-use development projects in the area.

The Project will be providing a lower than typical parking ratio for the office/R&D/lab and residential tenants. The Development Site is positioned within a quarter mile walking distance of the planned Union Square station to the west, which is scheduled to open in December 2021, as well as existing MBTA bus routes that serve the Project. Through this deliberate design mindset, workers, residents and visitors to the Development Site will be strongly encouraged to utilize alternative modes of transportation, including existing and enhanced MBTA services to avoid using single-occupant vehicles (SOV) to travel to and from the Development Site.

### **3.4.2 Parking Demand**

To evaluate a baseline condition, the potential Project parking demand was estimated considering the Development Site as an isolated development without consideration for the surrounding mixed-use environment envisioned under the USNP. The following section summarizes the factors considered in estimating the Project's parking needs.

#### **3.4.2.1 Time-of-Day Considerations**

As with any office/lab-oriented development, the peak period for the parking demand will occur midday on a weekday. Even with the additional retail/restaurant and residential development, the combined peak parking demand for the Project still will continue to occur on a typical weekday. Weekend activity should be notably lower due to the minimal office/lab activity. Due to the various land uses proposed, the peak parking demand for the overall Project differs from that of the various individual uses within the Development Site.

#### **3.4.2.2 Public Transportation/Biking/Walking**

The parking needs for the Project will be lessened due to the nearby availability of public bus service currently provided in the area. Furthermore, with the 2021 opening of the new Union Square station, automobile travel to and from the Development Site should be reduced further. Amenities associated with the Project also will promote bicycle and pedestrian travel. With the Project being continuously developed over a several-year period, there should continue to be less reliance by workers and future Project residents on private automobile ownership. This ongoing trend is the result of increased transit usage and improved accommodations for bicycle and pedestrian travel throughout the surrounding Union Square area. Alternate means of travel, such as taxi and private ride services (Uber, Lyft, and others), should continue to reduce the parking needs for this area. There also will be extensive internal trip-sharing between the various uses within the Development Site. As an example, some residents of the Development Site may choose to walk to the various on-site retail uses that will be available. Because of that, there will not be any parking activity associated with that type of activity.

#### **3.4.2.3 Shared Parking**

Due to the varying peak times for the office/R&D/lab and residential uses, there are opportunities for parking spaces to be shared between residents and workers. The peak residential parking demand should occur outside of normal office working hours. Due to these offsetting peak times, there should be ample opportunity for shared parking between the residential and office uses. For example, other garages serving mixed-uses in the Boston area offer "reverse-commute" parking passes. Under this program, residents have access to certain parking spaces within a garage provided that they arrive after 4:00 PM and depart before 9:00 AM on weekdays. This allows nearby office workers to use these same parking spaces with the reverse time-restriction. The exact time periods for these restrictions can be determined as office tenants are identified.

Similarly, on a less formal basis, some of the office parking spaces can have signage noting that they are restricted to office use from 7:00 AM to 5:00 PM (or other similar time periods) with these spaces being reserved for other uses after that time. That alternate use likely would be by retail or restaurant patrons arriving during the early evening hours. These types of shared-parking activity are preferable to providing excessive parking for the office and residential uses separately without any consideration for these types of sharing opportunities within the Development Site. The excess of parking would discourage alternate means of transportation, such as MBTA bus or train services, biking, taxi, or other ride services.

Most of the Project retail space will consist of small shops, restaurants, or cafes within each of the four Project buildings. Even without any formal shared parking program, there likely will be shared activity. With those uses, most customer traffic should be in the form of residents or office/lab workers already on-site, as opposed to destination retail traffic.

#### **3.4.2.4 Parking Management**

The parking ratios proposed for the Project are considerably lower than those found in a suburban setting and are low even for sites that are well-served by public transportation. With the limited supply, parking spaces will need to be allocated to a select number of residents and employees. This will be accomplished through a bundled parking arrangement. The USNP also cited studies indicating that residents generally are willing to walk up to one-half mile from their home for transit service. The new Union Square station will be located only one-quarter mile from the Development Site. Many residents of the Project also may specifically choose to live at this location specifically due to its proximity to the new station. Office/lab parking spaces also will be unbundled from tenant leases.

#### 3.4.2.5 Parking Demand Estimates

This analysis was based on standard ITE<sup>9</sup> parking generation data for office, residential, and retail uses. Even considering the varying peak periods, shared parking, and other factors, the calculated 85<sup>th</sup> percentile parking demand for the full build-out of the Project is 1,845 vehicles, which exceeds the proposed 1,002-space supply. Increasing the parking supply to meet the ITE-based parking demand estimates would reduce any incentive to utilize public transportation. Instead, the Project's proposed parking supply will be appropriately limited to help promote travel to the Development Site other means besides automobile. The Mobility Management Plan (MMP) accompanying this submittal discusses how the office/lab, residential, and retail/restaurant demand effectively will be managed to help reduce the Project's parking needs.

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<sup>9</sup> Parking Generation, 4<sup>th</sup> Edition, Institute of Transportation Engineers, Washington, D.C., 2010.



# 4

## Traffic Operations Analysis

Measuring existing traffic volumes and projecting future traffic volumes quantifies traffic flow within the study area. To assess quality flow, roadway capacity analyses were conducted with respect to Existing and projected No-Build and Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them. Roadway operating conditions are classified by calculated levels of service.

### 4.1 Level-of-Service Criteria

The evaluation criteria used to analyze area intersections in this traffic study are based on the Highway Capacity Manual 6<sup>th</sup> Edition (HCM).<sup>10</sup> The term “Level of Service” (LOS) is used to denote the different operating conditions that occur on a given roadway segment under various traffic volume loads. It is a qualitative measure that considers a number of factors including roadway geometry, speed, travel delay and freedom to maneuver. LOS provides an index to the operational qualities of a roadway segment or an intersection. LOS designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions.

In addition to LOS, two other measures of effectiveness (MOEs) are typically used to quantify the traffic operations at intersections; volume-to-capacity ratio (v/c) and delay

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10 Transportation Research Board, *Highway Capacity Manual*, Washington, D.C., 2016.



(expressed in seconds per vehicle). For example, an existing v/c ratio of 0.9 for an intersection indicates that the intersection is operating at 90 percent of its available capacity. A delay of 15 seconds for a vehicular movement or approach indicates that vehicles on the movement or approach will experience an average additional travel time of 15 seconds. There may be a wide range of values for both v/c ratios and delay for a given LOS letter designation. Comparison of intersection capacity results therefore requires that, in addition to the LOS, the other MOEs should also be considered.

The LOS designations, which are based on delay, are reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection and the LOS designation is for overall conditions at the intersection. For unsignalized intersections, however, the analysis assumes that traffic on the mainline is not affected by traffic on the side streets. Thus, the LOS designation is for the critical movement exiting the side street, which is generally the left turn out of the side street or site driveway. Table 11 shows the LOS criteria for both signalized intersections and unsignalized intersections.

It should be noted that the analytical methodologies typically used for the analysis of unsignalized intersections use conservative analysis parameters, such as long critical gaps. Actual field observations indicate that drivers on minor streets generally accept shorter gaps in traffic than those used in the analysis procedures and therefore experience less delay than reported by the analysis software. The analysis methodologies also do not fully take into account the beneficial grouping effects caused by nearby signalized intersections. The net effect of these analysis procedures is the over-estimation of calculated delays at unsignalized intersections in the study area. Cautious judgment should therefore be exercised when interpreting the capacity analysis results at unsignalized intersections.

**Table 11 Level of Service Criteria**

Level of Service	Delay – Signalized Intersection	Delay – Unsignalized Intersection
A	0 to 10 seconds	0 to 10 seconds
B	10 to 20 seconds	10 to 15 seconds
C	20 to 35 seconds	15 to 25 seconds
D	35 to 55 seconds	25 to 35 seconds
E	55 to 80 seconds	35 to 50 seconds
F	Greater than 80 seconds	Greater than 50 seconds

Source: Highway Capacity Manual 6<sup>th</sup> Edition.

## 4.2 Signalized Intersection Capacity Analysis

Capacity analyses conducted by VHB for the signalized intersections are summarized in Table 12. The capacity analyses were conducted for the 2020 Existing, 2027 No-Build, and 2027 Build conditions.

**Table 12 Signalized Intersection Capacity Analysis**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	v/c <sup>a</sup>	Del <sup>b</sup>	LOS <sup>c</sup>	50 Q <sup>d</sup>	95 Q <sup>e</sup>	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
<b>Somerville Avenue at Medford Street</b>															
<i>Weekday Morning</i>															
EB T	0.43	36	D	39	113	0.60	42	D	77	171	0.62	44	D	81	172
EB R	0.20	16	B	24	76	0.24	18	B	37	89	0.24	19	B	40	89
NB L	0.12	30	C	13	49	0.17	34	C	20	60	0.17	34	C	21	60
SB L	0.15	3	A	0	25	0.16	4	A	0	32	0.15	4	A	0	32
SB T/R	0.70	20	C	152	303	0.75	23	C	213	394	0.76	23	C	229	420
<b>Overall</b>		<b>20</b>	<b>C</b>				<b>23</b>	<b>C</b>				<b>24</b>	<b>C</b>		
<i>Weekday Evening</i>															
EB T	0.44	31	C	40	114	0.67	38	D	106	#265	0.69	41	D	111	#259
EB R	0.10	10	A	10	39	0.12	11	B	16	54	0.12	11	B	17	54
NB L	0.18	22	C	20	68	0.21	27	C	31	83	0.19	26	C	32	84
SB L	0.25	6	A	1	41	0.26	7	A	5	48	0.26	7	A	6	48
SB T/R	0.56	21	C	74	163	0.60	24	C	113	188	0.62	26	C	126	194
<b>Overall</b>		<b>19</b>	<b>B</b>				<b>24</b>	<b>C</b>				<b>25</b>	<b>C</b>		
<i>Saturday Midday</i>															
EB T	0.54	32	C	55	154	0.64	37	D	91	#259	0.66	39	D	95	#264
EB R	0.11	10	A	12	44	0.15	12	B	19	64	0.15	13	B	20	65
NB L	0.16	24	C	17	60	0.21	29	C	26	74	0.21	29	C	26	75
SB L	0.27	7	A	5	51	0.28	7	A	12	62	0.28	7	A	13	62
SB T/R	0.56	21	C	74	170	0.60	22	C	112	209	0.61	23	C	122	219
<b>Overall</b>		<b>20</b>	<b>B</b>				<b>23</b>	<b>C</b>				<b>23</b>	<b>C</b>		
<b>Somerville Avenue / Somerville Avenue Extension at Medford Street Extension</b>															
<i>Weekday Morning</i>															
EB L/T	0.18	2	A	7	11	0.25	2	A	10	12	0.24	2	A	10	12
NB T/R	0.46	30	C	52	112	0.52	36	D	66	129	0.54	36	D	74	136
<b>Overall</b>		<b>18</b>	<b>B</b>				<b>18</b>	<b>B</b>				<b>19</b>	<b>B</b>		
<i>Weekday Evening</i>															
EB L/T	0.26	2	A	12	13	0.38	4	A	15	54	0.39	5	A	17	51
NB T/R	0.60	25	C	80	166	0.68	31	C	118	216	0.72	33	C	144	#280
<b>Overall</b>		<b>17</b>	<b>B</b>				<b>20</b>	<b>B</b>				<b>22</b>	<b>C</b>		
<i>Saturday Midday</i>															
EB L/T	0.32	2	A	11	14	0.38	4	A	12	53	0.38	4	A	13	55
NB T/R	0.52	26	C	61	123	0.55	30	C	74	151	0.59	31	C	84	166
<b>Overall</b>		<b>15</b>	<b>B</b>				<b>16</b>	<b>B</b>				<b>17</b>	<b>B</b>		

- a Volume to capacity ratio.  
b Average total delay, in seconds per vehicle.  
c Level-of-service.  
d 50th percentile queue, in feet.  
e 95th percentile queue, in feet.  
~ Volume exceeds capacity, queue is theoretically infinite.  
# 95th percentile volume exceeds capacity, queue may be longer.  
m Volume for 95th percentile queue is metered by upstream signal.

**Table 12 Signalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	v/c <sup>a</sup>	Del <sup>b</sup>	LOS <sup>c</sup>	50 Q <sup>d</sup>	95 Q <sup>e</sup>	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
<b>Medford Street Extension at Route 28 Northbound / Route 28 Northbound Off-Ramp</b>															
<i>Weekday Morning</i>															
NB L	0.17	0	A	0	0	0.20	0	A	0	0	0.21	0	A	0	0
NWB T	0.12	13	B	20	45	0.15	14	B	30	61	0.14	14	B	31	61
<b>Overall</b>		<b>6</b>	<b>A</b>				<b>6</b>	<b>A</b>				<b>6</b>	<b>A</b>		
<i>Weekday Evening</i>															
NB L	0.31	1	A	0	0	0.37	3	A	1	34	0.41	4	A	2	39
NWB T	0.55	20	C	84	158	0.63	24	C	136	194	0.63	25	C	146	194
<b>Overall</b>		<b>12</b>	<b>B</b>				<b>15</b>	<b>B</b>				<b>16</b>	<b>B</b>		
<i>Saturday Midday</i>															
NB L	0.25	0	A	0	1	0.28	1	A	1	7	0.29	1	A	0	8
NWB T	0.37	18	B	52	108	0.37	19	B	71	122	0.37	19	B	73	122
<b>Overall</b>		<b>10</b>	<b>A</b>				<b>11</b>	<b>B</b>				<b>10</b>	<b>B</b>		
<b>Somerville Avenue at Prospect Street</b>															
<i>Weekday Morning</i>															
EB L	0.42	44	D	109	179	0.61	51	D	153	238	0.61	51	D	153	238
EB T/R	0.40	44	D	98	165	0.73	58	E	177	#291	0.73	58	E	177	#291
WB L	0.09	43	D	17	44	0.15	44	D	29	63	0.15	44	D	29	63
WB T/R	0.52	53	D	110	180	0.62	56	E	134	212	0.62	56	E	134	212
NB L	0.32	25	C	26	m60	1.18	>120	F	~70	m#136	1.18	>120	F	~70	m#135
NB T/R	0.77	36	D	282	438	1.09	92	F	~556	m#739	1.08	89	F	~549	m#730
SB T	0.68	49	D	221	324	>1.20	>120	F	~720	#952	>1.20	>120	F	~720	#952
SB R	0.44	26	C	103	159	0.52	28	C	118	181	0.52	28	C	118	181
<b>Overall</b>		<b>40</b>	<b>D</b>				<b>&gt;120</b>	<b>F</b>				<b>&gt;120</b>	<b>F</b>		
<i>Weekday Evening</i>															
EB L	0.37	44	D	89	150	0.47	47	D	112	182	0.47	47	D	112	182
EB T/R	0.50	48	D	116	190	0.75	61	E	175	#292	0.75	61	E	175	#292
WB L	0.12	47	D	21	51	0.30	50	D	53	102	0.30	50	D	53	102
WB T/R	0.74	68	E	147	#254	1.02	112	F	~215	#390	1.02	112	F	~215	#390
NB L	0.32	20	C	37	m88	1.07	78	E	~132	m#125	1.07	78	E	~132	m#123
NB T/R	0.78	32	C	339	518	>1.20	>120	F	~983	m#878	>1.20	>120	F	~944	m#845
SB T	0.40	36	D	128	199	0.77	48	D	297	422	0.77	48	D	297	422
SB R	0.54	25	C	136	204	0.64	29	C	167	246	0.64	29	C	167	246
<b>Overall</b>		<b>38</b>	<b>D</b>				<b>116</b>	<b>F</b>				<b>110</b>	<b>F</b>		
<i>Saturday Midday</i>															
EB L	0.32	41	D	136	208	0.42	44	D	179	262	0.42	44	D	179	262
EB T/R	0.37	43	D	148	225	0.54	49	D	219	317	0.54	48	D	219	317
WB L	0.15	60	E	34	72	0.24	62	E	55	102	0.24	62	E	55	102
WB T/R	0.90	100	F	225	#383	1.00	>120	F	257	#446	1.00	>120	F	257	#446
NB L	0.35	46	D	73	121	0.73	72	E	106	#191	0.73	73	E	106	#191
NB T/R	0.73	57	E	338	459	0.95	79	E	501	#726	0.94	78	E	494	#715
SB T	0.47	54	D	176	253	0.76	65	E	323	443	0.76	65	E	323	443
SB R	0.27	20	B	88	133	0.30	20	C	99	147	0.30	20	C	99	147
<b>Overall</b>		<b>54</b>	<b>D</b>				<b>67</b>	<b>E</b>				<b>67</b>	<b>E</b>		

a Volume to capacity ratio.

b Average total delay, in seconds per vehicle.

c Level-of-service.

d 50th percentile queue, in feet.

e 95th percentile queue, in feet.

~ Volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

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**Table 12 Signalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	v/c <sup>a</sup>	Del <sup>b</sup>	LOS <sup>c</sup>	50 Q <sup>d</sup>	95 Q <sup>e</sup>	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
<b>Webster Avenue at Prospect Street / Concord Avenue</b>															
<i>Weekday Morning</i>															
NB L	0.09	26	C	10	40	0.43	45	D	25	#101	0.49	51	D	26	#110
NB T/R	0.37	22	C	94	242	0.62	31	C	187	#436	0.62	32	C	189	#442
SB L	0.21	26	C	32	103	0.42	37	D	48	135	0.42	37	D	48	136
SB T/R	0.61	31	C	204	#556	0.92	56	E	363	#804	0.95	61	E	384	#840
NEB L/T/R	0.79	51	D	242	316	0.86	48	D	367	#572	0.86	48	D	367	#572
SWB L/T/R	0.89	88	F	323	407	>1.20	>120	F	~775	m#504	>1.20	>120	F	~775	m#504
<b>Overall</b>		<b>47</b>	<b>D</b>				<b>&gt;120</b>	<b>F</b>				<b>&gt;120</b>	<b>F</b>		
<i>Weekday Evening</i>															
NB L	0.08	28	C	12	51	0.39	40	D	50	#135	0.39	40	D	50	#141
NB T/R	0.50	28	C	158	#462	>1.20	>120	F	~738	#1225	>1.20	>120	F	~759	#1250
SB L	0.24	30	C	30	107	>1.20	>120	F	~90	#226	>1.20	>120	F	~90	#226
SB T/R	0.39	28	C	116	308	0.61	41	D	198	#462	0.62	41	D	202	#469
NEB L/T/R	0.85	52	D	326	402	0.81	39	D	375	536	0.81	39	D	375	536
SWB L/T/R	0.49	60	E	189	247	0.97	82	F	287	#457	0.97	82	F	287	#457
<b>Overall</b>		<b>41</b>	<b>D</b>				<b>113</b>	<b>F</b>				<b>116</b>	<b>F</b>		
<i>Saturday Midday</i>															
NB L	0.11	28	C	24	58	0.29	41	D	48	97	0.30	42	D	48	98
NB T/R	0.34	26	C	150	260	0.60	40	D	295	421	0.61	41	D	303	431
SB L	0.07	28	C	17	46	0.18	39	D	30	65	0.19	39	D	30	66
SB T/R	0.44	31	C	225	368	0.66	47	D	355	493	0.68	47	D	367	#532
NEB L/T/R	0.93	78	E	367	447	0.79	49	D	375	507	0.79	49	D	375	507
SWB L/T/R	0.58	48	D	216	276	0.96	75	E	392	#595	0.96	75	E	392	#595
<b>Overall</b>		<b>47</b>	<b>D</b>				<b>52</b>	<b>D</b>				<b>53</b>	<b>D</b>		
<b>Cambridge Street at Prospect Street</b>															
<i>Weekday Morning</i>															
EB L/T/R	0.49	25	C	122	198	0.93	56	E	227	#412	0.94	59	E	231	#420
WB L/T/R	0.62	43	D	198	285	0.68	45	D	215	m263	0.71	46	D	222	m268
NB L/T/R	0.54	22	C	158	245	0.71	27	C	234	357	0.72	27	C	237	362
SB L/T/R	0.72	28	C	235	359	1.02	68	E	~387	#614	1.03	70	E	~407	#616
<b>Overall</b>		<b>29</b>	<b>C</b>				<b>50</b>	<b>D</b>				<b>52</b>	<b>D</b>		
<i>Weekday Evening</i>															
EB L/T/R	0.56	29	C	117	197	1.01	82	F	~190	#367	1.03	87	F	~210	#376
WB L/T/R	0.69	45	D	236	339	0.86	53	D	302	m#363	0.92	58	E	318	m#385
NB L/T/R	0.65	24	C	215	326	0.84	34	C	311	#519	0.85	35	C	316	#528
SB L/T/R	0.43	19	B	123	193	0.66	24	C	221	336	0.66	24	C	221	336
<b>Overall</b>		<b>30</b>	<b>C</b>				<b>45</b>	<b>D</b>				<b>47</b>	<b>D</b>		
<i>Saturday Midday</i>															
EB L/T/R	0.52	23	C	101	173	0.77	35	C	142	#276	0.78	36	D	146	#284
WB L/T/R	0.54	23	C	120	198	0.64	26	C	146	237	0.66	27	C	152	248
NB L/T/R	0.67	23	C	176	282	0.77	27	C	214	#357	0.78	28	C	218	#384
SB L/T/R	0.60	21	C	151	242	0.74	26	C	204	325	0.74	26	C	204	325
<b>Overall</b>		<b>22</b>	<b>C</b>				<b>28</b>	<b>C</b>				<b>29</b>	<b>C</b>		

a Volume to capacity ratio.

b Average total delay, in seconds per vehicle.

c Level-of-service.

d 50th percentile queue, in feet.

e 95th percentile queue, in feet.

~ Volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

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**Table 12 Signalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	v/c <sup>a</sup>	Del <sup>b</sup>	LOS <sup>c</sup>	50 Q <sup>d</sup>	95 Q <sup>e</sup>	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
<b>Cambridge Street at Webster Avenue / Columbia Street</b>															
<i>Weekday Morning</i>															
EB L/T/R	0.60	19	B	134	198	0.72	25	C	203	m235	0.74	26	C	209	m239
WB L/T/R	0.71	31	C	199	312	0.87	44	D	249	#434	0.88	46	D	254	#443
NB L/T/R	0.40	20	B	112	178	0.50	22	C	150	233	0.51	22	C	153	237
SB L	0.17	17	B	23	49	0.28	19	B	37	76	0.28	19	B	37	76
SB T/R	0.23	17	B	62	102	0.28	18	B	77	129	0.28	18	B	77	129
<b>Overall</b>		<b>23</b>	<b>C</b>				<b>28</b>	<b>C</b>				<b>29</b>	<b>C</b>		
<i>Weekday Evening</i>															
EB L/T/R	0.41	19	B	76	148	0.48	24	C	127	m137	0.49	24	C	129	m138
WB L/T/R	0.68	31	C	199	306	0.90	47	D	290	#487	0.93	52	D	304	#511
NB L/T/R	0.62	23	C	206	311	0.72	26	C	256	385	0.72	26	C	256	385
SB L	0.24	18	B	28	60	0.44	22	C	48	102	0.44	22	C	48	102
SB T/R	0.22	16	B	57	99	0.29	17	B	81	132	0.29	17	B	81	132
<b>Overall</b>		<b>23</b>	<b>C</b>				<b>31</b>	<b>C</b>				<b>32</b>	<b>C</b>		
<i>Saturday Midday</i>															
EB L/T/R	0.48	24	C	141	219	0.53	25	C	158	243	0.54	26	C	164	251
WB L/T/R	0.62	28	C	181	278	0.74	33	C	231	352	0.76	34	C	237	#362
NB L/T/R	0.28	17	B	75	119	0.31	18	B	82	136	0.31	18	B	85	139
SB L	0.17	16	B	27	57	0.25	17	B	41	80	0.25	17	B	41	80
SB T/R	0.17	16	B	46	83	0.24	17	B	65	110	0.24	17	B	65	110
<b>Overall</b>		<b>23</b>	<b>C</b>				<b>25</b>	<b>C</b>				<b>25</b>	<b>C</b>		
<b>Cambridge Street at Willow Street</b>															
<i>Weekday Morning</i>															
EB L/T/R	0.53	15	B	91	355	0.72	21	C	143	#586	0.73	21	C	146	#597
WB L/T/R	0.59	12	B	58	#429	0.69	15	B	62	#524	0.70	15	B	62	#530
<b>Overall</b>		<b>13</b>	<b>B</b>				<b>18</b>	<b>B</b>				<b>18</b>	<b>B</b>		
<i>Weekday Evening</i>															
EB L/T/R	0.36	11	B	57	201	0.49	14	B	92	275	0.50	14	B	95	280
WB L/T/R	0.47	8	A	53	305	0.63	9	A	60	419	0.64	10	A	63	425
<b>Overall</b>		<b>9</b>	<b>A</b>				<b>11</b>	<b>B</b>				<b>12</b>	<b>B</b>		
<i>Saturday Midday</i>															
EB L/T/R	0.44	11	B	63	245	0.53	13	B	81	#348	0.54	14	B	84	#357
WB L/T/R	0.43	6	A	37	67	0.51	7	A	39	#69	0.53	7	A	41	#350
<b>Overall</b>		<b>9</b>	<b>A</b>				<b>10</b>	<b>A</b>				<b>10</b>	<b>B</b>		

a Volume to capacity ratio.

b Average total delay, in seconds per vehicle.

c Level-of-service.

d 50th percentile queue, in feet.

e 95th percentile queue, in feet.

~ Volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.

**Table 12 Signalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	v/c <sup>a</sup>	Del <sup>b</sup>	LOS <sup>c</sup>	50 Q <sup>d</sup>	95 Q <sup>e</sup>	v/c	Del	LOS	50 Q	95 Q	v/c	Del	LOS	50 Q	95 Q
<b>Cambridge Street at Hunting Street</b>															
<i>Weekday Morning</i>															
EB T	0.42	4	A	13	42	0.54	5	A	16	52	0.54	5	A	16	52
WB T	0.36	12	B	63	234	0.41	13	B	76	283	0.42	13	B	77	288
SB L/R	0.58	31	C	75	177	0.61	31	C	83	196	0.61	31	C	83	196
<b>Overall</b>		<b>12</b>	<b>B</b>				<b>13</b>	<b>B</b>				<b>13</b>	<b>B</b>		
<i>Weekday Evening</i>															
EB T	0.28	3	A	9	13	0.37	3	A	12	16	0.37	3	A	12	16
WB T	0.32	11	B	57	194	0.44	13	B	94	271	0.44	13	B	96	271
SB L/R	0.61	41	D	71	157	0.72	45	D	94	#235	0.73	46	D	97	#244
<b>Overall</b>		<b>14</b>	<b>B</b>				<b>16</b>	<b>B</b>				<b>16</b>	<b>B</b>		
<i>Saturday Midday</i>															
EB T	0.36	3	A	12	16	0.43	4	A	14	46	0.44	4	A	14	45
WB T	0.32	10	A	49	187	0.37	10	B	59	225	0.38	10	B	61	229
SB L/R	0.53	29	C	54	112	0.53	29	C	54	133	0.54	29	C	55	137
<b>Overall</b>		<b>10</b>	<b>B</b>				<b>10</b>	<b>B</b>				<b>11</b>	<b>B</b>		

a Volume to capacity ratio.

b Average total delay, in seconds per vehicle.

c Level-of-service.

d 50th percentile queue, in feet.

e 95th percentile queue, in feet.

~ Volume exceeds capacity, queue is theoretically infinite.

# 95th percentile volume exceeds capacity, queue may be longer.

m Volume for 95th percentile queue is metered by upstream signal.



As shown in Table 12, the signalized study area intersections currently function at an acceptable LOS D or better during peak-hour conditions. Under future conditions, with and without the full build-out, the intersections of Somerville Avenue at Prospect Street and Webster Avenue at Prospect Street/Concord Avenue are expected to degrade to LOS F during the weekday morning and weekday evening peak periods. During the Saturday midday peak period, Somerville Avenue at Prospect Street is expected to degrade to LOS E while Webster Avenue at Prospect Street/Concord Avenue is expected to remain at an acceptable LOS D. However, these projected changes are expected to occur under future conditions with or without the Project's full build-out, suggesting that Project-generated trips are expected to have minimal impact at these signalized study area intersections. All other signalized intersections are expected to remain at an acceptable LOS D or better during peak-hour conditions under the 2027 future conditions with or without the Project full build-out. While queues on some intersection approaches can be lengthy under peak-hour conditions, these locations generally operate acceptably throughout the day. Accordingly, the full build-out Project-generated traffic can be accommodated at the signalized study area intersections without the need for any signal phasing or timings changes, or any further physical improvements beyond those recently implemented by the City.

### **4.3 Unsignalized Intersection Capacity Analysis**

The unsignalized capacity analysis results for the study area intersections are summarized in Table 13. The capacity analyses were conducted for the 2020 Existing, 2027 No-Build, and 2027 Build conditions.

**Table 13 Unsignalized Intersection Capacity Analysis**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	D <sup>a</sup>	v/c <sup>b</sup>	Del <sup>c</sup>	LOS <sup>d</sup>	95 Q <sup>e</sup>	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
<b>Windsor Street at Windsor Place / Boynton Yards driveway</b>															
<i>Weekday Morning</i>															
EB L/T/R	41	0.07	10	B	5	61	0.12	12	B	10	86	0.11	8	A	10
WB L/T/R	10	0.03	14	B	3	20	0.06	15	C	5	30	0.05	8	A	3
NB L	195	0.14	8	A	13	220	0.15	8	A	13	n/a	n/a	n/a	n/a	n/a
NB L/T/R	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	230	0.31	9	A	33
SB L/T/R <sup>f</sup>	neg	-	0	A	0	neg	-	0	A	0	1	0.00	8	A	0
<i>Weekday Evening</i>															
EB L/T/R	61	0.07	9	A	5	76	0.10	10	A	8	86	0.11	8	A	10
WB L/T/R	70	0.21	15	C	20	110	0.29	17	C	30	115	0.17	9	A	15
NB L	185	0.12	8	A	10	205	0.14	8	A	13	n/a	n/a	n/a	n/a	n/a
NB L/T/R	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	250	0.35	10	A	38
SB L/T/R <sup>f</sup>	neg	-	0	A	0	neg	-	0	A	0	3	0.00	0	A	0
<i>Saturday Midday</i>															
EB L/T/R	32	0.04	9	A	3	42	0.06	10	B	5	57	0.07	8	A	5
WB L/T/R	30	0.07	12	B	5	45	0.10	13	B	8	50	0.07	8	A	5
NB L	140	0.09	8	A	8	155	0.10	8	A	8	n/a	n/a	n/a	n/a	n/a
NB L/T/R	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	171	0.22	9	A	20
SB L/T/R <sup>f</sup>	neg	-	0	A	0	neg	-	0	A	0	1	0.00	7	A	0
<b>South Street at Windsor Street</b>															
<i>Weekday Morning</i>															
WB L/R	395	0.43	12	B	55	440	0.51	13	B	73	445	0.53	13	B	80
SB L	15	0.01	7	A	0	15	0.01	7	A	0	30	0.02	7	A	3
<i>Weekday Evening</i>															
WB L/R	345	0.43	13	B	55	385	0.48	13	B	68	410	0.52	14	B	78
SB L	50	0.05	8	A	3	55	0.04	7	A	3	60	0.04	8	A	3
<i>Saturday Midday</i>															
WB L/R	260	0.31	10	B	33	285	0.32	10	B	35	300	0.34	11	B	38
SB L	15	0.01	7	A	0	15	0.01	7	A	0	20	0.01	7	A	0
<b>South Street at Willow Street</b>															
<i>Weekday Morning</i>															
WB L	2	0.00	7	A	0	2	0.00	7	A	0	2	0.00	7	A	0
NB L/R	30	0.06	10	A	5	50	0.06	10	A	5	60	0.08	10	A	8
<i>Weekday Evening</i>															
WB L	5	0.00	7	A	0	5	0.00	7	A	0	5	0.00	8	A	0
NB L/R	20	0.03	10	B	3	25	0.04	10	B	3	25	0.04	10	B	3
<i>Saturday Midday</i>															
WB L	5	0.00	7	A	0	5	0.00	7	A	0	5	0.00	7	A	0
NB L/R	6	0.01	9	A	0	11	0.01	9	A	0	20	0.03	9	A	3
a	Demand														
b	Volume to capacity ratio.														
c	Average total delay, in seconds per vehicle.														
d	Level-of-service.														
e	95th percentile queue, in feet.														
f	Under existing and no-build conditions the SB approach is coded as free flow due to software limitations on three-way stop-controlled intersections. Under all conditions the SB approach is under STOP-control														
#	95th percentile volume exceeds capacity, queue may be longer.														

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**Table 13 Unsignalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	D <sup>a</sup>	v/c <sup>b</sup>	Del <sup>c</sup>	LOS <sup>d</sup>	95 Q <sup>e</sup>	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
<b>South Street at Earle Street</b>															
<i>Weekday Morning</i>															
EB L	2	0.00	8	A	0	15	0.02	9	A	3	20	0.02	9	A	3
SB L/R	20	0.04	11	B	3	35	0.08	13	B	5	30	0.07	13	B	5
<i>Weekday Evening</i>															
EB L	5	0.01	8	A	0	10	0.01	8	A	0	10	0.01	8	A	0
SB L/R	10	0.03	12	B	3	50	0.10	13	B	8	45	0.10	13	B	8
<i>Saturday Midday</i>															
EB L	2	0.00	8	A	0	5	0.00	8	A	0	10	0.01	8	A	0
SB L/R	6	0.02	11	B	3	25	0.04	11	B	3	20	0.04	11	B	3
<b>South Street at Hunting Street</b>															
<i>Weekday Morning</i>															
WB L	180	0.12	8	A	0	195	0.13	8	A	13	200	0.14	8	A	13
<i>Weekday Evening</i>															
WB L	100	0.07	7	A	5	105	0.07	7	A	5	105	0.07	7	A	5
<i>Saturday Midday</i>															
WB L	75	0.05	7	A	5	80	0.05	7	A	5	85	0.06	7	A	5
<b>South Street at Harding Street</b>															
<i>Weekday Morning</i>															
NB L/T	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	75	0.25	20	C	25
NB L	50	0.13	15	C	13	65	0.22	20	C	20	n/a	n/a	n/a	n/a	n/a
SB R	25	0.06	12	B	5	70	0.16	14	B	15	35	0.09	14	B	8
<i>Weekday Evening</i>															
NB L/T	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	85	0.19	14	B	18
NB L	70	0.14	13	B	13	80	0.18	14	B	18	n/a	n/a	n/a	n/a	n/a
SB R	40	0.07	11	B	5	55	0.09	11	B	8	45	0.08	11	B	8
<i>Saturday Midday</i>															
NB L/T	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	90	0.17	12	B	15
NB L	70	0.12	11	B	10	80	0.14	12	B	13	n/a	n/a	n/a	n/a	n/a
SB R	10	0.02	10	A	3	25	0.04	10	B	3	15	0.02	10	B	3
<b>Medford Street at Warren Street / Driveway</b>															
<i>Weekday Morning</i>															
SB L	2	0.00	8	A	0	2	0.00	8	A	0	2	0.00	8	A	0
NEB L/T/R	266	0.81	48	E	173	296	1.04	99	F	293	291	1.03	99	F	290
SWB L/R	3	0.01	14	B	0	3	0.01	14	B	0	3	0.01	15	B	0
<i>Weekday Evening</i>															
SB L	1	0.00	8	A	0	1	0.00	8	A	0	1	0.00	8	A	0
NEB L/T/R	250	0.76	37	E	155	315	0.89	57	F	228	295	0.85	51	F	200
SWB L/R	4	0.02	15	C	3	4	0.01	15	C	0	4	0.01	16	C	0
<i>Saturday Midday</i>															
SB L	0	n/a	0	A	0	0	n/a	0	A	0	0	n/a	0	A	0
NEB L/T/R	20	0.07	14	B	5	35	0.11	17	C	10	30	0.09	16	C	8
SWB L/R	5	0.05	18	C	3	5	0.02	18	C	3	5	0.02	19	C	3

a Demand

b Volume to capacity ratio.

c Average total delay, in seconds per vehicle.

d Level-of-service.

e 95th percentile queue, in feet.

# 95th percentile volume exceeds capacity, queue may be longer.

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**Table 13 Unsignalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	D <sup>a</sup>	v/c <sup>b</sup>	Del <sup>c</sup>	LOS <sup>d</sup>	95 Q <sup>e</sup>	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS <sup>f</sup>	95 Q
<b>Medford Street at South Street</b>															
<i>Weekday Morning</i>															
NB L	130	0.22	12	B	20	155	0.27	13	B	28	160	0.30	14	B	30
<i>Weekday Evening</i>															
NB L	105	0.12	9	A	10	130	0.15	9	A	13	135	0.16	10	A	15
<i>Saturday Midday</i>															
NB L	65	0.08	9	A	8	75	0.08	9	A	8	80	0.09	9	A	8
<b>Medford Street at Ward Street / Driveway</b>															
<i>Weekday Morning</i>															
EB L/T/R	15	0.14	35	D	13	15	0.14	41	E	13	40	0.43	64	F	45
WB L/T/R	10	0.10	25	D	8	10	0.07	29	D	5	10	0.07	31	D	5
NB L	10	0.02	11	B	3	10	0.02	11	B	3	10	0.02	12	B	3
SB L	25	0.02	8	A	3	25	0.02	8	A	3	25	0.02	8	A	3
<i>Weekday Evening</i>															
EB L/T/R	90	0.45	30	D	55	95	0.48	36	E	58	210	1.13	>120	F	275
WB L/T/R	45	0.13	15	B	10	45	0.13	16	C	10	45	0.13	16	C	10
NB L	10	0.01	9	A	0	10	0.01	9	A	0	10	0.01	9	A	0
SB L	5	0.01	8	A	0	5	0.01	8	A	0	5	0.01	8	A	0
<i>Saturday Midday</i>															
EB L/T/R	15	0.10	19	C	8	15	0.06	19	C	5	55	0.25	26	D	25
WB L/T/R	1	0.01	11	B	0	1	0.00	10	B	0	1	0.00	10	B	0
NB L	5	0.01	9	A	0	5	0.01	9	A	0	5	0.01	9	A	0
SB L	5	0.01	8	A	0	5	0.01	8	A	0	5	0.01	8	A	0
<b>Webster Avenue at Columbia Street / Tremont Street</b>															
<i>Weekday Morning</i>															
WB L/T/R	165	0.28	13	B	28	200	0.39	16	C	45	205	0.41	16	C	50
NB L	10	0.01	8	A	0	10	0.01	8	A	0	10	0.01	8	A	0
SB L	25	0.02	8	A	3	45	0.04	8	A	3	65	0.06	8	A	5
<i>Weekday Evening</i>															
WB L/T/R	155	0.25	12	B	25	230	0.47	18	C	63	255	0.52	19	C	73
NB L	10	0.01	8	A	0	10	0.01	8	A	0	10	0.01	8	A	0
SB L	20	0.02	8	A	3	25	0.03	8	A	3	30	0.03	9	A	3
<i>Saturday Midday</i>															
WB L/T/R	155	0.23	11	B	23	190	0.31	13	B	33	190	0.32	13	B	35
NB L	10	0.01	8	A	0	10	0.01	8	A	0	10	0.01	8	A	0
SB L	30	0.03	8	A	3	40	0.03	8	A	3	50	0.04	8	A	3

a Demand

b Volume to capacity ratio.

c Average total delay, in seconds per vehicle.

d Level-of-service.

e 95th percentile queue, in feet.

# 95th percentile volume exceeds capacity, queue may be longer.

**Table 13 Unsignalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	D <sup>a</sup>	v/c <sup>b</sup>	Del <sup>c</sup>	LOS <sup>d</sup>	95 Q <sup>e</sup>	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
<b>Cambridge Street at Windsor Street</b>															
<i>Weekday Morning</i>															
EB L	15	0.01	8	A	0	15	0.02	8	A	0	25	0.03	8	A	3
WB L	30	0.03	9	A	3	30	0.04	9	A	3	30	0.04	9	A	3
SB L/T/R	215	0.64	31	D	105	235	0.87	63	F	193	240	0.90	70	F	208
<i>Weekday Evening</i>															
EB L	15	0.01	8	A	0	15	0.02	9	A	0	15	0.02	9	A	0
WB L	35	0.03	8	A	3	40	0.04	9	A	3	40	0.04	9	A	3
SB L/T/R	200	0.48	20	C	63	220	0.66	32	D	113	230	0.68	33	D	118
<i>Saturday Midday</i>															
EB L	5	0.01	8	A	0	5	0.01	8	A	0	10	0.01	8	A	0
WB L	20	0.02	8	A	3	20	0.02	9	A	3	20	0.02	9	A	3
SB L/T/R	150	0.37	16	C	43	160	0.39	18	C	45	165	0.40	18	C	48

**Cambridge Street at Harding Street**

<i>Weekday Morning</i>															
EB L	20	0.02	8	A	3	20	0.02	9	A	3	20	0.02	9	A	3
<i>Weekday Evening</i>															
EB L	60	0.06	9	A	5	65	0.07	9	A	5	70	0.08	9	A	8
<i>Saturday Midday</i>															
EB L	20	0.02	8	A	3	20	0.02	8	A	3	20	0.02	9	A	3

**Thoroughfare 1 at Harding Street/ Development Site driveway**

Weekday Morning	Intersection does not exist under 2020 Existing Conditions	Intersection does not exist under 2027 No-Build Conditions						
EB L			5	0.00	7	A	0	
SB T/R			30	0.03	9	A	3	
Weekday Evening								
EB L			5	0.00	7	A	0	
SB T/R			10	0.01	9	A	0	
Saturday Midday								
EB L			5	0.00	7	A	0	
SB T/R		20	0.02	9	A	3		

**South Street at Development Site driveway**

Weekday Morning	Intersection does not exist under 2020 Existing Conditions	Intersection does not exist under 2027 No-Build Conditions	20	0.02	9	A	3
EB L			10	0.02	12	B	3
SB L/R							
Weekday Evening							
EB L			5	0.01	8	A	0
SB L/R			70	0.14	13	B	13
Saturday Midday							
EB L			10	0.01	8	A	0
SB L/R	20	0.03	11	B	3		

- a Demand  
b Volume to capacity ratio.  
c Average total delay, in seconds per vehicle.  
d Level-of-service.  
e 95th percentile queue, in feet.  
# 95th percentile volume exceeds capacity, queue may be longer.

**Table 13 Unsignalized Intersection Capacity Analysis (continued)**

Location / Movement	2020 Existing Conditions					2027 No-Build Conditions					2027 Build Conditions				
	D <sup>a</sup>	v/c <sup>b</sup>	Del <sup>c</sup>	LOS <sup>d</sup>	95 Q <sup>e</sup>	D	v/c	Del	LOS	95 Q	D	v/c	Del	LOS	95 Q
Earle Street at Development Site driveway South															
Weekday Morning WB L/R	Intersection does not exist under 2020 Existing Conditions					Intersection does not exist under 2027 No-Build Conditions					12	0.01	9	A	0
SB L											30	0.02	8	A	3
Weekday Evening WB L/R											85	0.09	9	A	8
SB L											10	0.01	7	A	0
Saturday Midday WB L/R											25	0.03	9	A	3
SB L											15	0.01	7	A	0
Earle Street at Development Site driveway North															
Weekday Morning EB L/R	Intersection does not exist under 2020 Existing Conditions					Intersection does not exist under 2027 No-Build Conditions					12	0.02	10	A	3
NB L											35	0.03	8	A	3
Weekday Evening EB L/R											80	0.10	10	A	8
NB L											10	0.01	7	A	0
Saturday Midday EB L/R											25	0.03	9	A	3
NB L											15	0.01	7	A	0
Ward Street at Harding Street															
Weekday Morning WB L/R	Intersection does not exist under 2020 Existing Conditions					Intersection does not exist under 2027 No-Build Conditions					60	0.07	9	A	5
SB L											20	0.01	7	A	0
Weekday Evening WB L/R											60	0.08	10	B	8
SB L											85	0.06	7	A	5
Saturday Midday WB L/R											30	0.03	9	A	3
SB L											30	0.02	7	A	3
Earle Street at Thoroughfare 1															
Weekday Morning WB L	Intersection does not exist under 2020 Existing Conditions					Intersection does not exist under 2027 No-Build Conditions					30	0.02	7	A	3
NB L/R											65	0.08	9	A	8
Weekday Evening WB L											10	0.01	7	A	0
NB L/R											145	0.16	9	A	13
Saturday Midday WB L											15	0.01	7	A	0
NB L/R											45	0.05	9	A	5

- a Demand  
b Volume to capacity ratio.  
c Average total delay, in seconds per vehicle.  
d Level-of-service.  
e 95th percentile queue, in feet.  
# 95th percentile volume exceeds capacity, queue may be longer.



As shown in Table 13, the critical movements at almost all the unsignalized study area intersections currently operate at acceptable levels of service. These conditions generally are expected to continue under the future 2027 conditions with and without the addition of Project-generated traffic. The only exceptions to this are at Medford Street's intersection with Warren Street and, to a lesser degree, at Medford Street's intersection with Ward Street and the Cambridge Street/Windsor Street intersection. Conditions at these locations are discussed in greater detail below.

The northbound Warren Street approach to Medford Street operates under Stop-sign control. Under existing conditions, this movement operates at LOS E during the weekday morning and evening peak hours, and at LOS B during the Saturday midday peak hour. Independent of the Project full build-out, this movement will decrease to LOS F during the weekday morning and evening peak hours, and to LOS C during the Saturday midday peak hour. This approach will still operate well under theoretical capacity, though peak hour queues could extend up to twelve vehicles during this time period.

The Medford Street/Ward Street intersection provides a single lane on each approach, with Ward Street operating under Stop-sign control. The critical Ward Street approach currently operates at LOS D during the weekday morning and evening peak hours, and at LOS C during the Saturday midday peak hour. Independent of the Project's full build-out, this movement will decrease to LOS E during the weekday morning and evening peak hours, while remaining at LOS C during the Saturday midday peak hour. With the addition of the full buildout Project-generated traffic, the LOS on this approach is projected to degrade to LOS F during the weekday morning and weekday evening peak hours and to LOS D during the Saturday midday peak hour. Ward Street is currently one-way in the westbound direction west of Horace Street. Under 2027 Build conditions, Ward Street will operate as a two-way roadway from its intersection at Medford Street to Harding Street. Ward Street will provide access to Medford Street for Development Site-exiting vehicles where previously this movement was not possible. Cut-through traffic unrelated to the Project may use Ward Street as an access-way between Prospect Street and Medford Street in order to avoid larger, signalized intersections within the vicinity of the study area. The projected demand on this approach is highest during the weekday evening peak period while remaining relatively low during the weekday morning and Saturday midday peak periods. Accordingly, there should not be the need for any mitigation measures at this location to accommodate Project-generated traffic.

The Cambridge Street/Windsor Street intersection functions with Windsor Street operating under Stop-sign control. The Windsor Street approach currently operates at LOS D during the weekday morning peak period and LOS C during the weekday evening and Saturday midday peak periods. Under the 2020 No-Build condition, this approach is projected to degrade to LOS F and LOS D during the weekday morning and weekday evening peak periods respectively. The LOS during the Saturday midday peak period is expected to remain at LOS C under the 2027 No-Build condition. The same LOS will be maintained under the 2027 Build condition during all peak periods. With queues being limited to seven or eight vehicles, there are not any corrective measures which should be implemented to address the projected negligible impact of the Project.



# 5

## Conclusion

The Project is consistent with the City of Somerville's transportation-related goals for the Boynton Yards area as presented in the USNP. The Development Site has been designed to accommodate Project-generated traffic, as well as traffic other nearby planned or potential developments, such as the US2 Project. In summary, the Project will provide the following transportation-related benefits:

- › The Project will be a mixed-use, transit-oriented development consistent with the City's goals for this area. With the mixed-use environment, there should be considerable internal trip-sharing between the various uses proposed within the Development Site. For example, the retail space provided should be largely oriented to workers or residents already on-site as opposed to traditional shopping center.
- › The proposed on-site parking supply will be kept to the minimum levels needed to satisfy tenant and resident needs while being low enough to help promote travel by biking, walking, or using MBTA transit service, including the planned GLX project, which is expected to be completed in December 2021.
- › Ample secured bicycle parking will be provided within the Project buildings with outdoor bicycle racks provided at key points near the building entrances.
- › The Project will not preclude the implementation of roadway improvements in the future. The Site Access Plan involves curb cut consolidation along the roadways abutting the Development Site with each building proposed to be limited to single garage and loading driveways, which will help minimize conflicts with potential future development on the opposite side of the roadway.

Likewise, the analysis demonstrates that the Project-generated traffic can be accommodated on the existing study area roadway infrastructure without modification.

- › The Project is entirely consistent with the goals of the USNP. The Project's reconstruction of Earle Street between Buildings 1 and 3 will be the first step in advancing the USNP. The design of the Development Site acknowledges the City's potential future goal of realigning South Street to provide a continuous connection between Medford Street and Webster Avenue. The Development Site is designed to be modified at the time of this potential realignment, offering a pedestrian focused streetscape and allowing the Public Common to be expanded by others to meet the City's goal of cohesive open space between South Street and Ward Street.
- › The transportation analysis for the Project was conducted in a highly conservative manner. The underlying mode shares used assume higher automobile use than is anticipated for this area based on prior studies. However, the conservatively high auto use was assumed so that the maximum potential vehicular traffic on the study area roadways would be evaluated. Even with these assumptions, the analysis indicates that the study area roadway will still functionally acceptably, even prior to the implementation of the desired USNP changes by the City of Somerville at some point in the future.
- › With the uncertain timeframe for the City's implementation of the USNP changes, the Project is being designed so as not to preclude any of these improvements. This study's analysis was conducted assuming that the existing roadway network would remain unchanged. However, this was done solely to evaluate the maximum potential traffic impacts. The Proponent continues to fully support the vision presented in the USNP.
- › New and improved sidewalks provided along the roadways serving the Development Site will significantly improve existing, long-standing deficiencies for pedestrians in this area.

Overall, the additional new automobile traffic generated by the Project can be accommodated on the surrounding roadway network and, minimal impacts are expected from this proposed development.

# **TRANSPORTATION ACCESS PLAN**

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## Memorandum

To: Mayor's Office of Strategic Planning  
and Community Development  
City of Somerville  
93 Highland Avenue  
Somerville, MA 02143

Date: July 21, 2020

Project #: 14864.00

From: Patrick Dunford, P.E.  
Senior Project Manager

Re: Transportation Access Plan  
Boynton Yards – 153 South Street  
Somerville, Massachusetts

The following information is being provided to document the draft Transportation Access Plan (TAP) for the Boynton Yards development (the "Project") to be located at 153 South Street in Somerville, Massachusetts (the "Development Site"). The TAP will be issued as a final document upon review and approval by the City of Somerville (the "City"), following any required edits or additional information from that review. This document and accompanying information depict the proposed Development Site access for automobile, bicycle, and pedestrian traffic. Information regarding truck deliveries and service vehicles (trash, recycling, etc.) also is provided for review.

The Project will be developed on a 6.8-acre site bounded by the MBTA train tracks for the Green Line Extension ("GLX") project to the north, South Street to the south, Harding Street to the east, and Windsor Street to the west. Windsor Place Extension, which is an existing privately-owned street, travels in an east-west direction through the Site. The Proponent intends to transfer the ownership of the Windsor Place Extension to the City. At this stage, this new roadway will be referred to as "Thoroughfare 1" until an official name for the street is determined at a later date by the City. In the future, the proposed buildings will host a mixture of office, research and development (R&D) and lab enabled uses (office/R&D/lab), ground floor retail/restaurant uses, residential, and associated parking facilities and infrastructure improvements. Specifically, the Project will involve the construction of a pedestrian- and transit-oriented, mixed-use development including four buildings containing up to approximately 1,344,000 gross square feet (SF) of floor area, with approximately 963,500 SF of office, research and development, and lab enabled uses (office/R&D/lab), approximately 338,000 SF of residential space (330 units), 42,500 SF of retail and/or restaurant space, and approximately 1,002 structured below-grade parking spaces<sup>1</sup>. An initial component of the Project is already under construction at 101 South Street (known as 101 South), which includes approximately 270,000 SF of the proposed commercial space. The TAP for this portion of the Project previously was prepared approved under the 1 Earle Street property (now known herein as "101 South"). Regardless, to provide a comprehensive overview of the Project, this portion of the Development Site is again included as part of this current TAP.

### Site Access

Access to the easterly portion of the Development Site at 2 Harding Street currently is provided by a single full-access curb cut on Earle Street, approximately 200 feet to the north of South Street. 101 South Street which is under construction on Parcel 1 to the west. Parcel 1 formerly included a single full-access driveway at the center of its northerly frontage on Thoroughfare 1, but that area is now fenced off as a construction zone. Building 2 will be constructed on Parcel 2, which currently is occupied by an approximately an approximately 15,000 SF two-story

<sup>1</sup> The current development program includes an additional 21,000 sf of space beyond that specified split between office and R&D uses. This increase is not expected to significantly alter the results of the analyses presented in this document as the associated increase in vehicular trip generation is projected to be fewer than 5 vehicles during the peak hours studied.





commercial building at the westerly end of that area and an approximately 11,700 SF building at the easterly end of Parcel 2. Access to both currently is provided by six curb cuts along the parcels' 350-foot frontage on Windsor Place. These driveways provide direct access and egress to the striped parking field serving both businesses.

The existing Gentle Giant Moving Company location at the northeast corner of the Development Site presently has access provided via the northerly end of Earle Street. There also is an existing driveway at the northerly side of the Harding Street/Ward Street intersection, but that driveway is closed with a gate in place.

A fence currently extends along the frontage of the future Building 4 parcel to the west with three existing gated driveways.

With the redevelopment of the Development Site, each of the four Project buildings will feature single driveways for the individual structured parking garages. The 101 South building currently under construction will have a single curb cut providing access and egress to its parking garage. The future Building 2 will be located at the intersection of South Street and Thoroughfare 1. The driveway for access to the below-grade Building 2 garage will be located on the north side of South Street just east of Windsor Street. That access has been designed to allow for the potential future realignment of South Street. As one of many examples of the Proponent's cooperative partnership with the City, the Development Site is designed to be modified at the time of this potential realignment, and the Project buildings have been positioned to be compatible with both the existing roadway and a future condition that would involve the City of Somerville shifting the roadway to the south. Under that potential future condition with South Street realigned, the Building 2 access point would remain unchanged, but vehicles would turn to and from a driveway that would extend from Windsor Street instead of South Street. The access driveway for Building 3's garage will be located just north of the South Street/Earle Street intersection. Finally, the access driveway for Building 4's garage would be located at the northeasterly corner of the building with the driveway leading to and from the garage connecting to the newly created Boynton Way to the south. The Proponent also understands that the City intends to reconfigure the easterly segment of South Street between Harding Street and Medford Street so that it will allow for one-way eastbound traffic, as opposed to the current condition under which the road is one-way westbound. The Development Site has been designed to be compatible with either option, though the preferred option involves this conversion being implemented, as well as the future option of South Street being aligned further to the west. As these are public roadways under City jurisdiction any such changes will need to be directed by the City. However, the Proponent is committed to continuing to develop the Development Site consistent with this vision.

### **On-Street Parking**

The Proponent plans to make changes to the current parking configuration on the roadways adjacent to the Development Site. Specifically, this will involve relocating the existing parking along the south side of South Street to the north side. Currently, there is approximately 500 feet of unstriped parking allowed along the southerly side of South Street between Windsor Street and Earle Street with that area capable of accommodating approximately twenty to twenty-one parked cars. The resulting on-street parking supply following the Project construction will consist of ten parking spaces being provided from the easterly edge of Building 2's frontage to Earle Street and four spaces adjacent to Building 3. The parking along South Street currently has a two-hour time limit (except for permit parking) between 8:00 AM and 2:30 AM with parking restricted to permit parking only from 2:30 AM to 8:00 AM. This parking currently is free, but the final regulation of any on-street parking will be determined by the City of Somerville.



To maintain a narrow roadway cross-section, no on-street parking will be provided along Earle Street. Currently, there is space for approximately 13 vehicles along the westerly side of the roadway. Similarly, Harding Street has approximately eight unstriped parking spaces along the westerly side of the street. With the extension of Harding Street to the north, a total of thirteen on-street parallel parking spaces will be provided along the westerly side of the road. Currently, there is no on-street parking along the approximately 475-foot east/west connector roadway between Earle Street and Windsor Street. As part of the Project, on-street parking will be provided along the southerly side of the length of the newly proposed Thoroughfare 1 within this area. This will include nine parking spaces being provided adjacent to Building 2 and five spaces each along the frontages for Buildings 1 and 3. Five parking spaces will be provided on the easterly side of Windsor Street adjacent to Building 2. In total fifty-one on-street parking spaces will be provided to accommodate the Project.

### **Site Plans and Supporting Graphics**

The existing conditions plan and conceptual ground floor Development Site plans with proposed utility improvements for each phase of the Project have been attached for reference in Figures 2.1 through 2.3e. To supplement the Project's Site plans, graphics highlighting the planned vehicular and pedestrian accommodations have been provided for general reference.

#### **Illustrative Site Plan**

Refer to Figure A-1 for an illustrative Development Site plan depicting the full build-out of the Project.

#### **Pedestrian Access Plan**

Refer to Figure A-2 for a plan depicting the Project sidewalk network and primary building entrance locations. The building entrances shown are general locations. More detail and information will be provided as plans are developed.

#### **Bicycle Parking Plan**

Refer to Figure A-3 for a conceptual bicycle parking plan. The exact locations and configurations of the internal building bicycle parking have not yet been finalized. Based on the current design, the Project proposes 118, 69, and 73 interior secured bicycle parking spaces located within Building 1, 2, and 3.<sup>2</sup> Building 4, which primarily be residential in nature, will include 331 interior secured bicycle parking spaces. The Project also will be providing short-term bicycle racks within 50 feet of each building entrance. The exact location of the racks will be determined during the in consultation with the City.

#### **Motor Vehicle Parking Plan**

Refer to Figure A-4 for a plan showing the vehicular access to each of the four buildings comprising the Development Site with the parking supplies for each building noted.

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<sup>2</sup> The Proponent will install 118 long-term secured bicycle parking spaces and 48 short-term bicycle parking spaces as a component of the approved 101 South building currently under construction.



## Memorandum

### Vehicle Movement Plans

Refer to Figures A-12 through A-15 for vehicle tracking diagrams that demonstrate the ability of large vehicles (WB-40 sized tractor trailers) to navigate in and out of each building's loading facilities. The exact number and timing of deliveries will vary depending on the nature of the various retail establishments in addition to standard office and residential delivery activity. Most retail activity typically occurs during morning hours so as not to interfere with the operation of the business. Due to the smaller sizes of the retail uses, most deliveries likely will be made by smaller, single-unit trucks. These are the same types of vehicles typically seen on a daily basis in the Union Square area that make deliveries to other existing retail businesses and restaurants. Smaller single-unit trucks can easily be accommodated and should typically only be on-site for a short time.



## Memorandum

### ATTACHMENTS

- Development Site Plans
- Illustrative Plan
- Pedestrian Access Plan
- Bicycle Parking Plan
- Vehicle Parking Plan
- Vehicle Tracking Diagrams

Ref: 14864.00  
July 21, 2020



Memorandum

➤ **Development Site Plans**

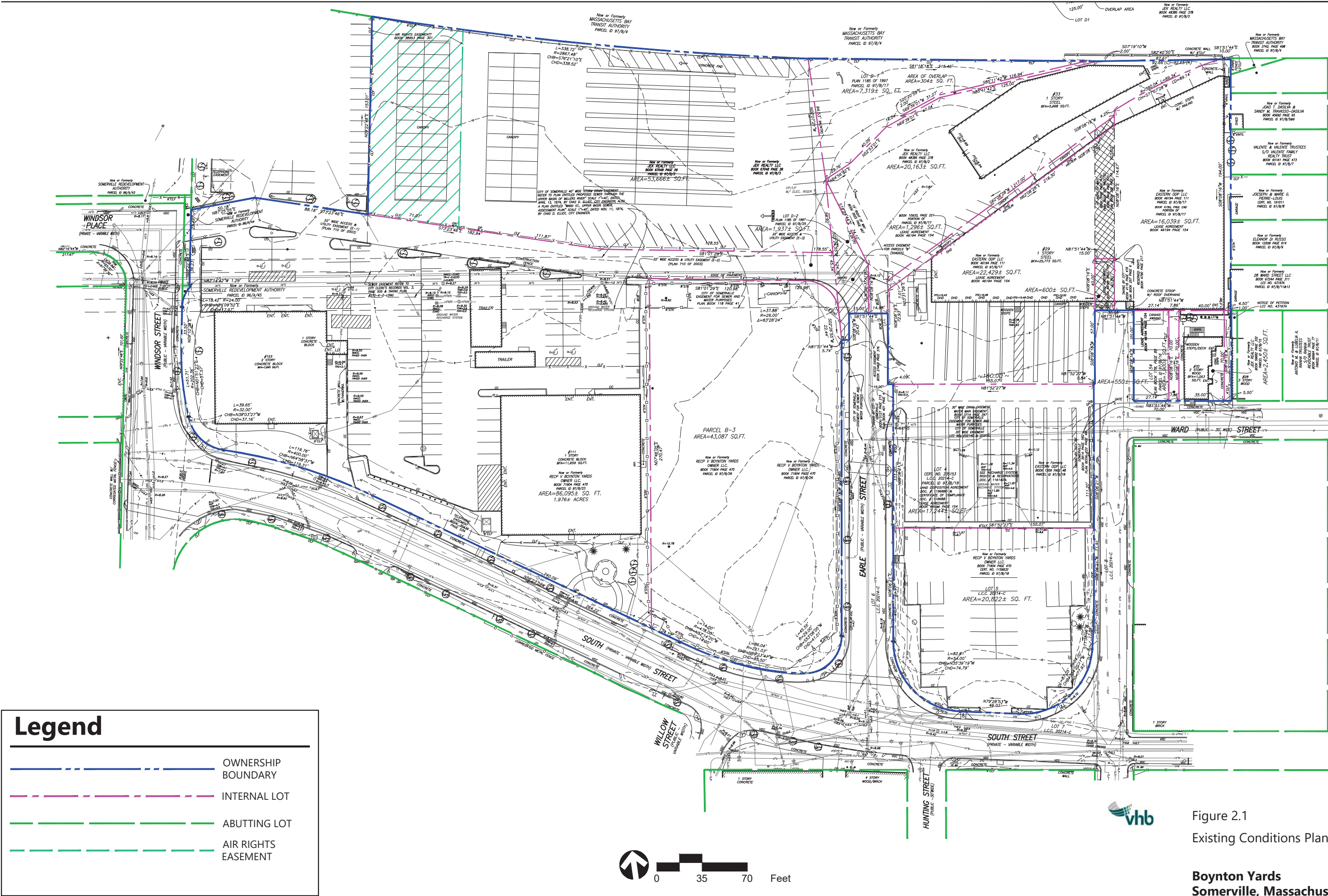
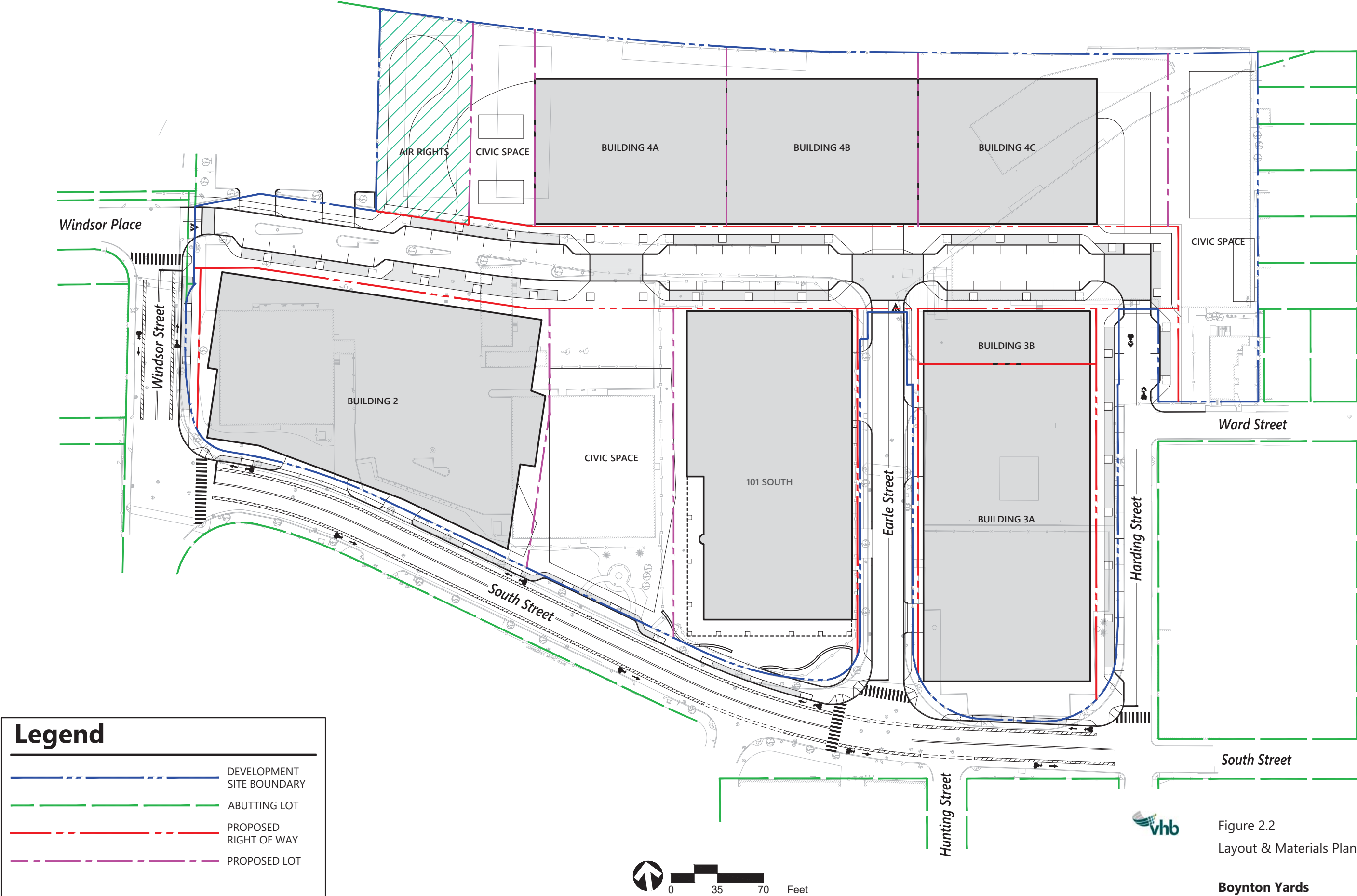
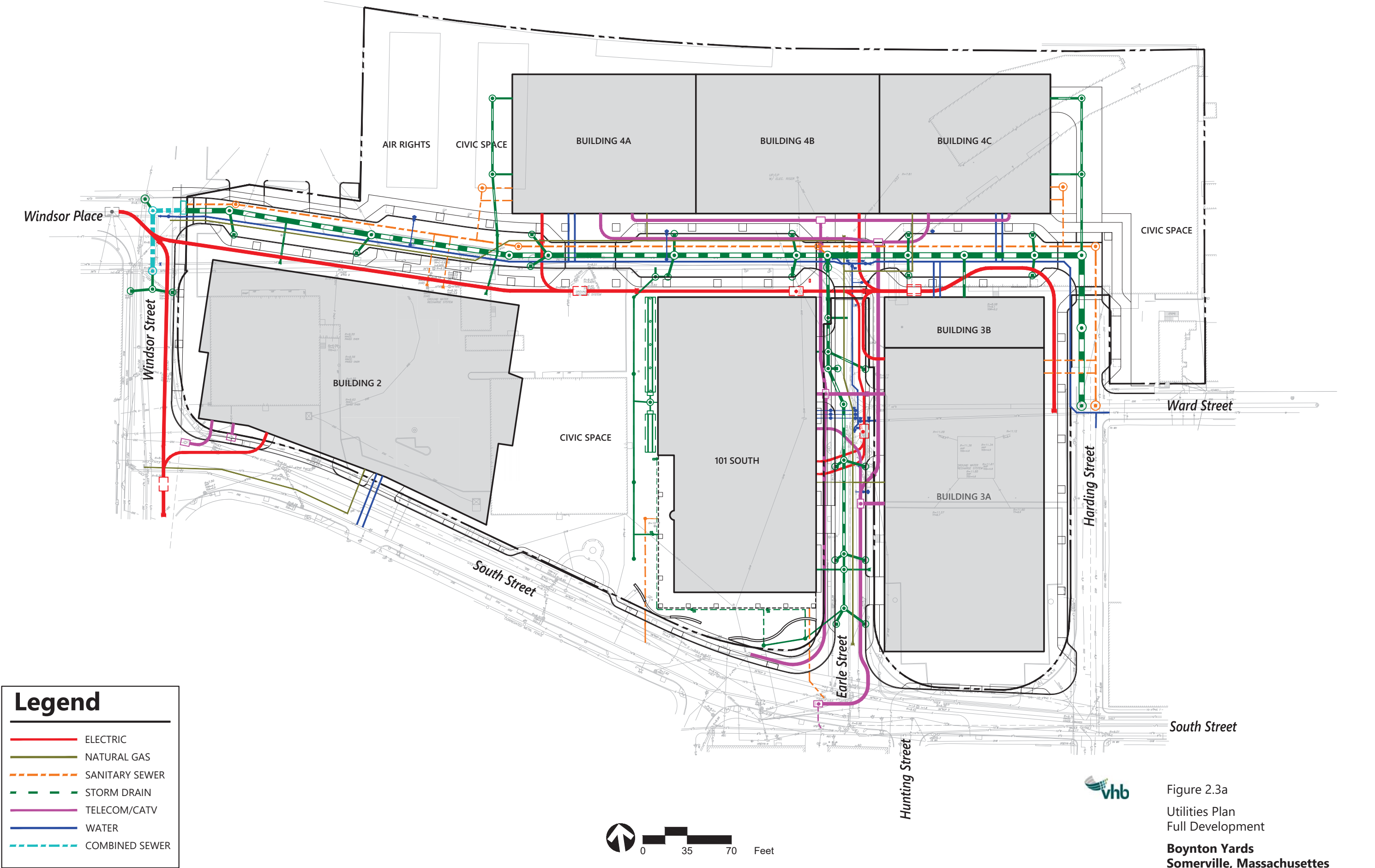
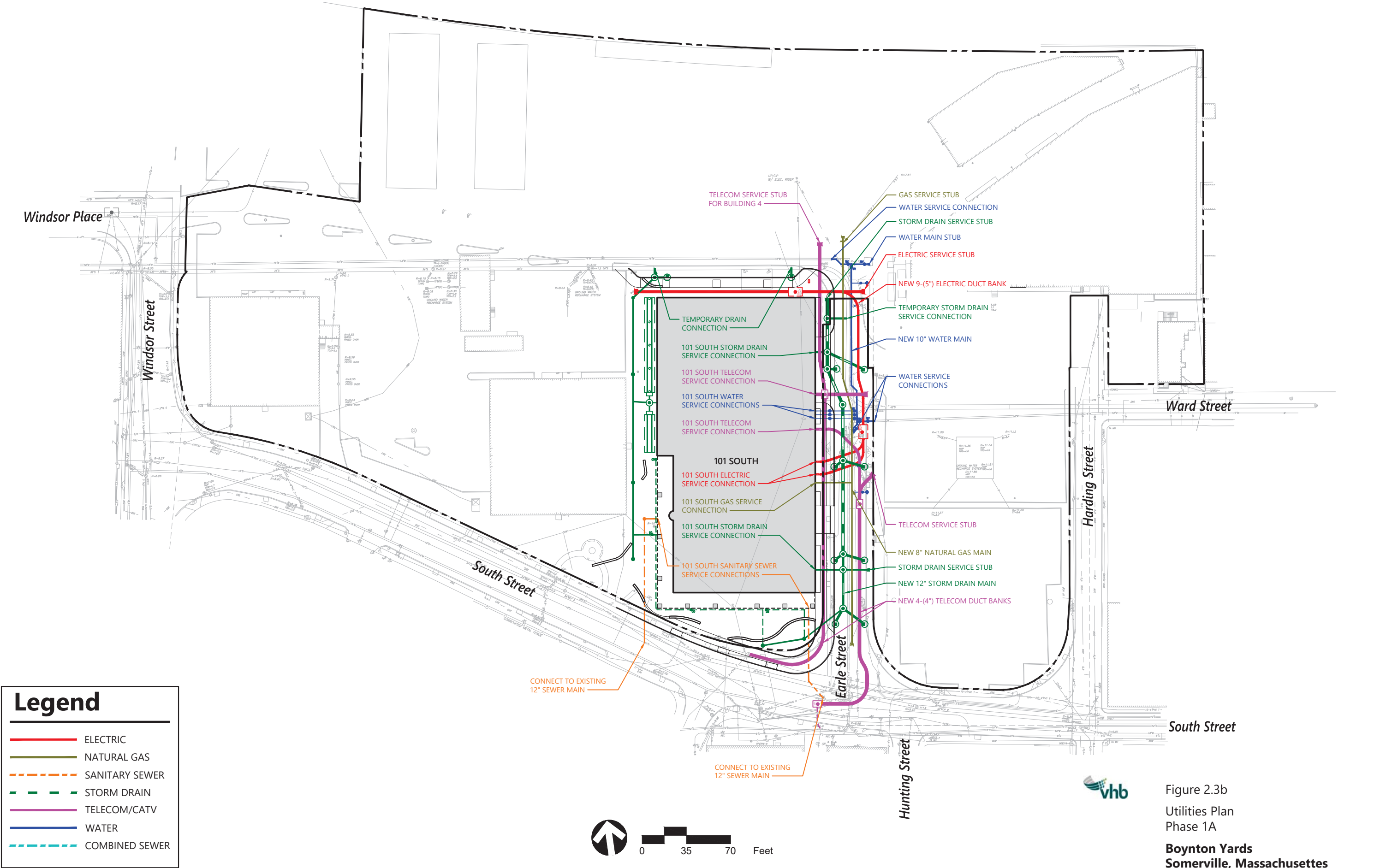


Figure 2.1  
Existing Conditions Plan  
  
Boynton Yards  
Somerville, Massachusetts

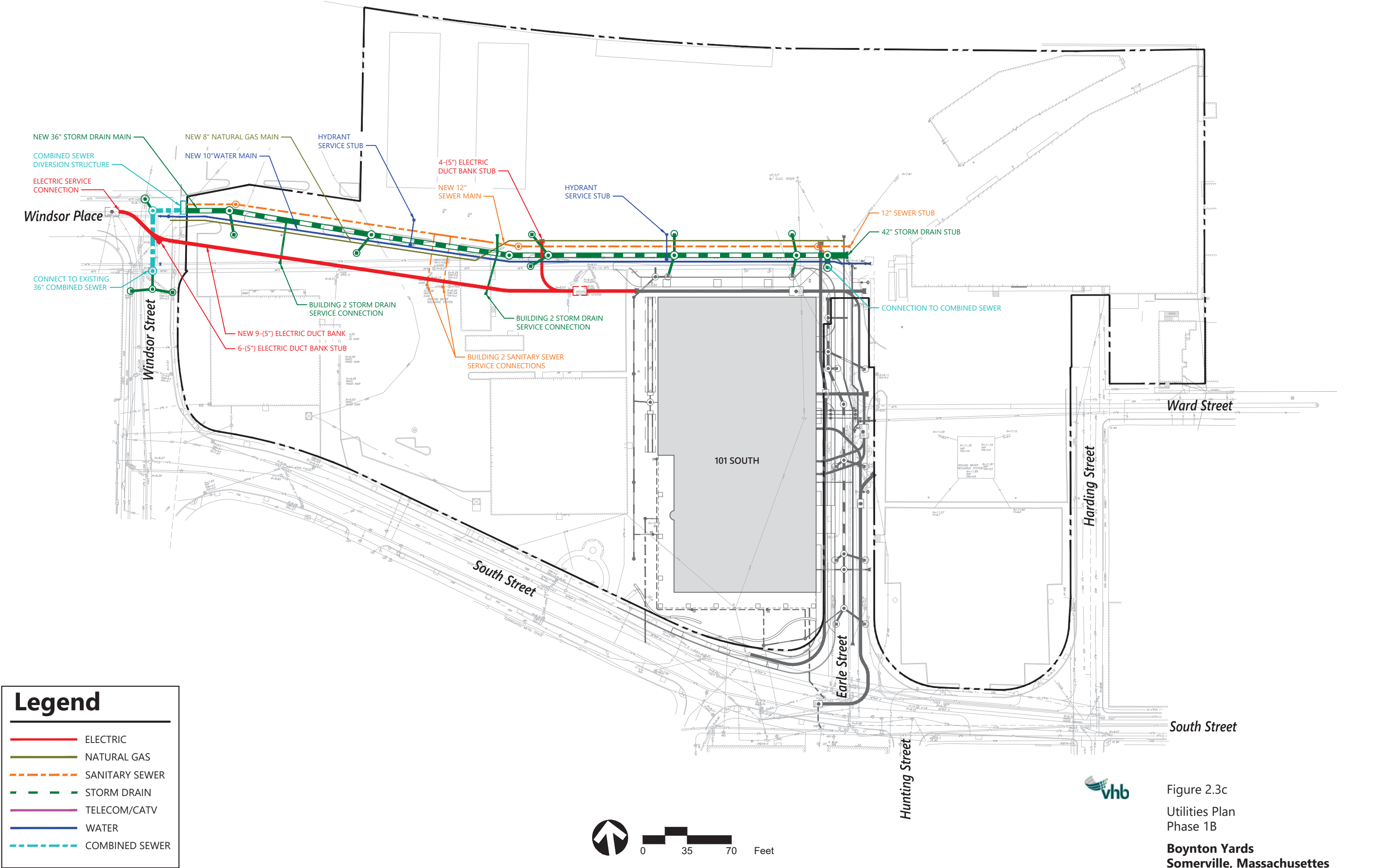


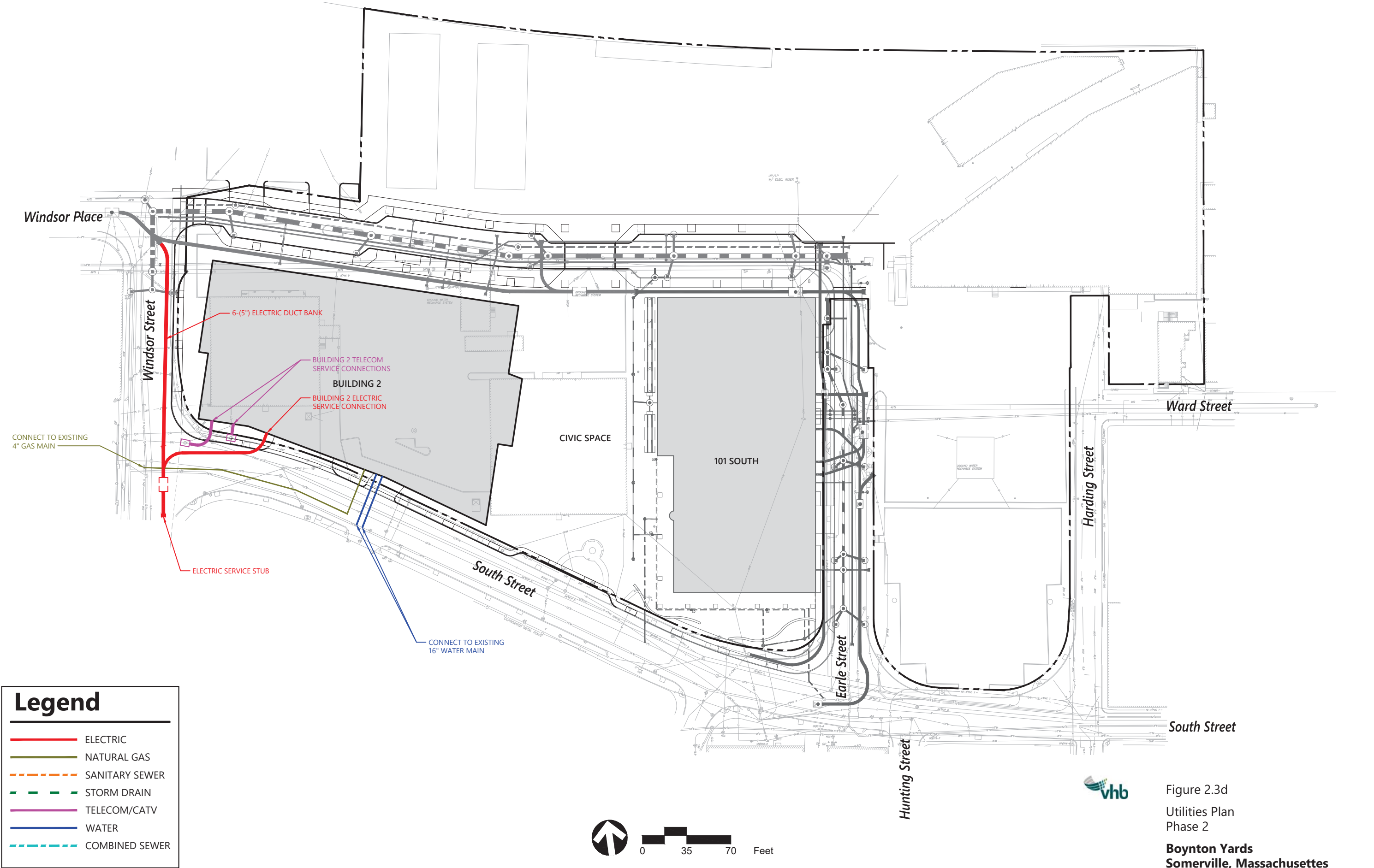


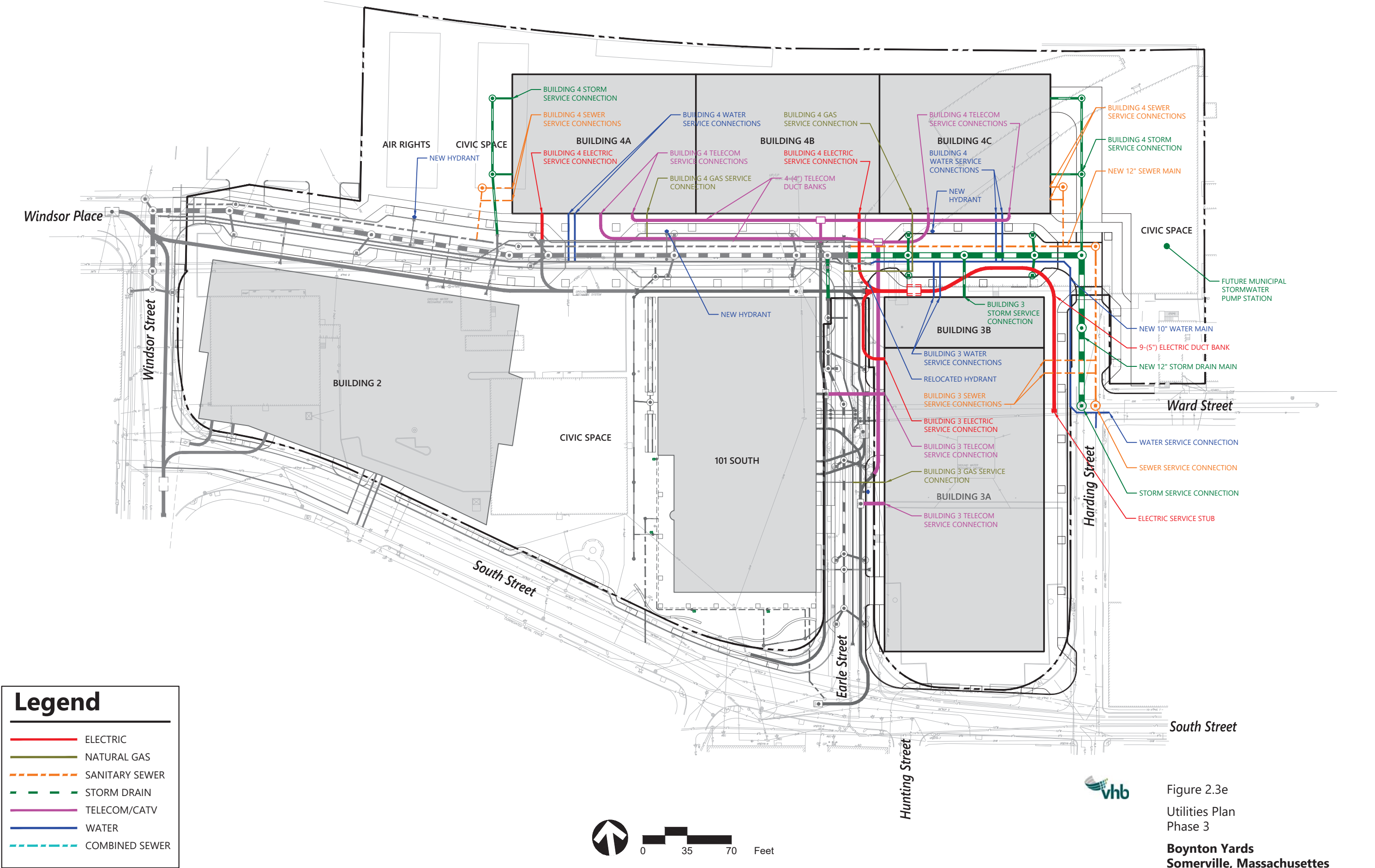














Ref: 14864.00  
July 21, 2020



## Memorandum

### ➤ Illustrative Plan

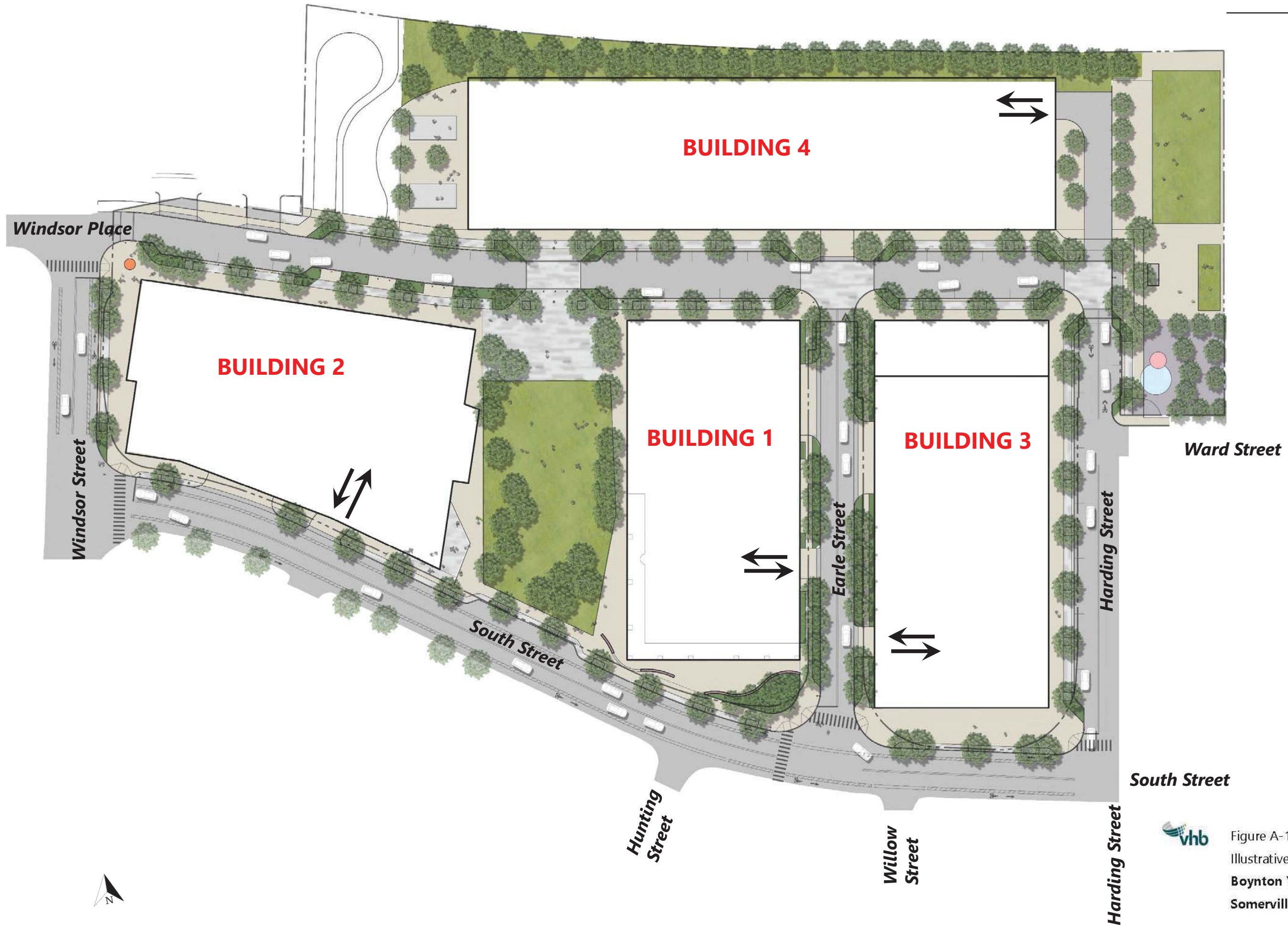


Figure A-1  
Illustrative Site Plan  
**Boynton Yards**  
Somerville, Massachusetts

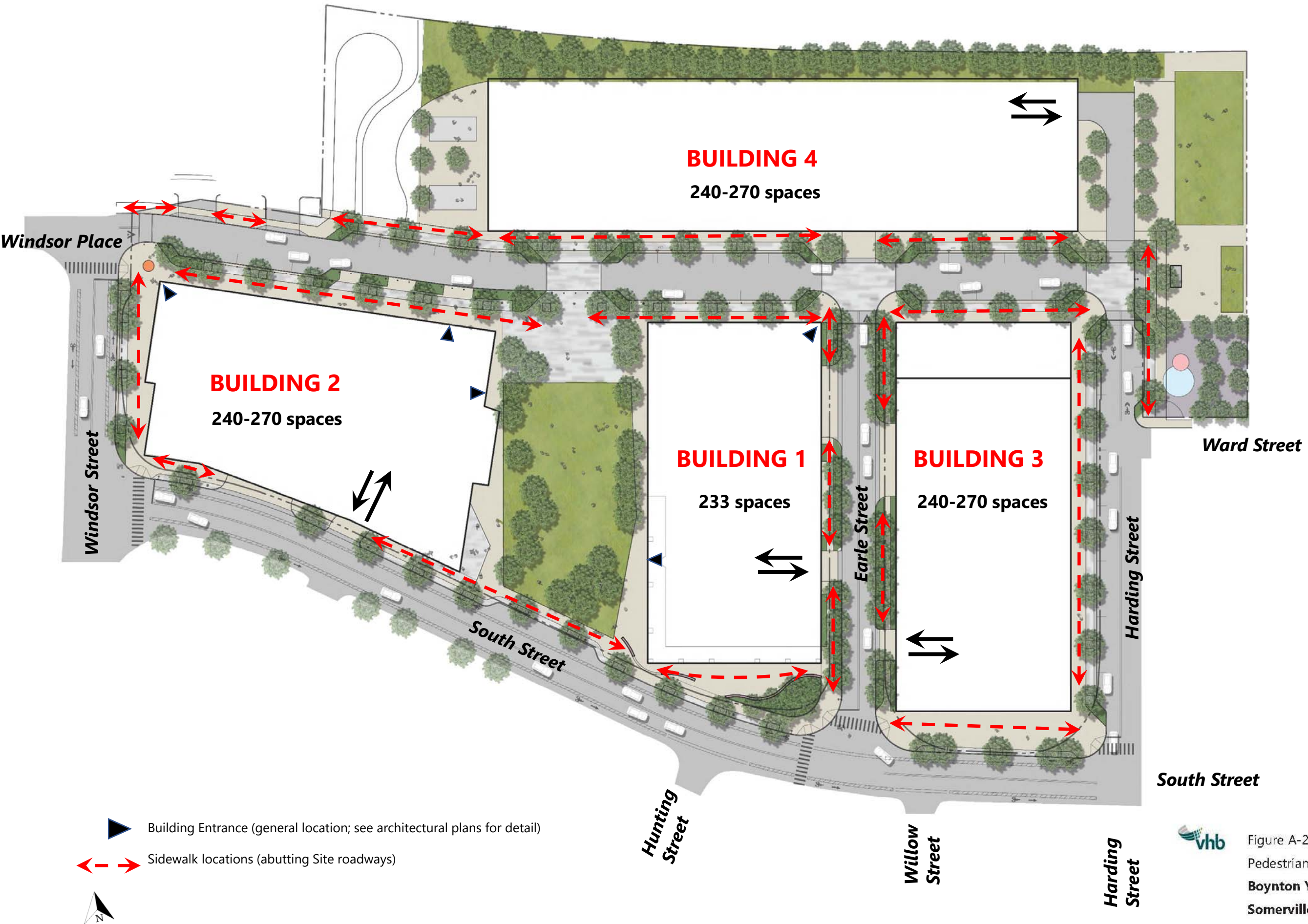
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July 21, 2020



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➤ **Pedestrian Access Plan**





Ref: 14864.00  
July 21, 2020



Memorandum

➤ **Bicycle Parking Plan**



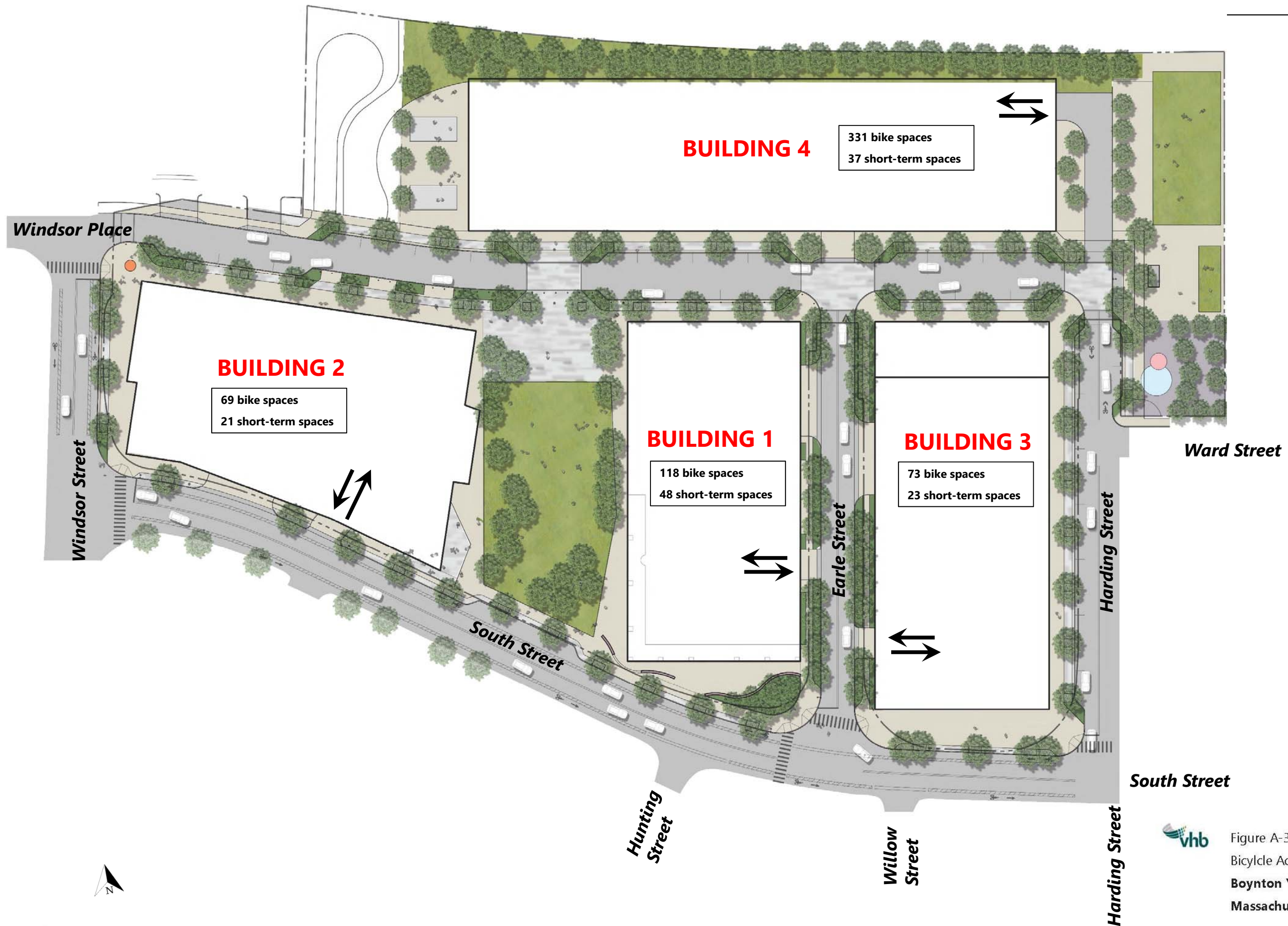


Figure A-3  
Bicycle Access & Parking Plan  
Boynton Yards Somerville,  
Massachusetts



Ref: 14864.00  
July 21, 2020



Memorandum

➤ **Vehicle Parking Plan**

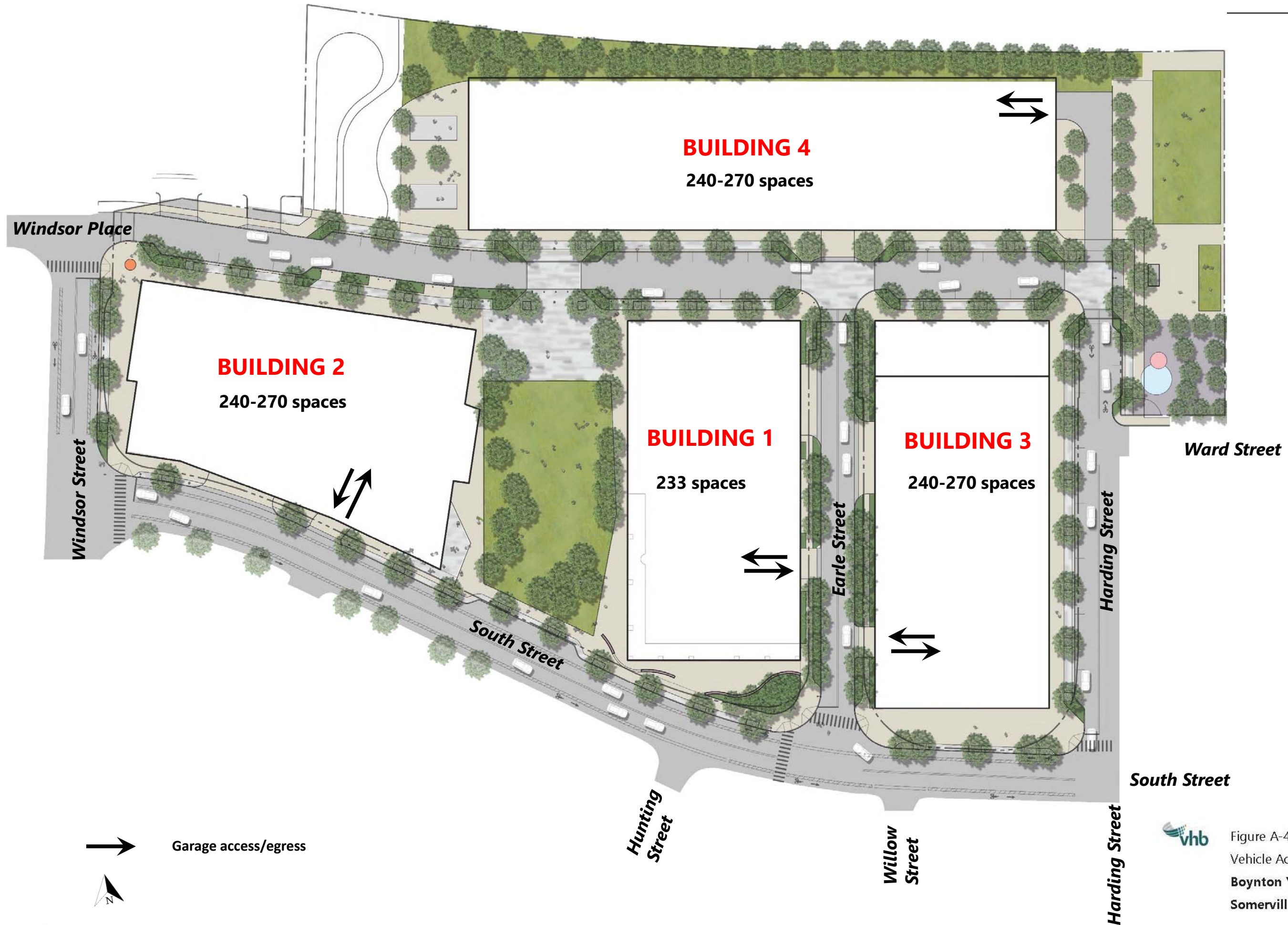


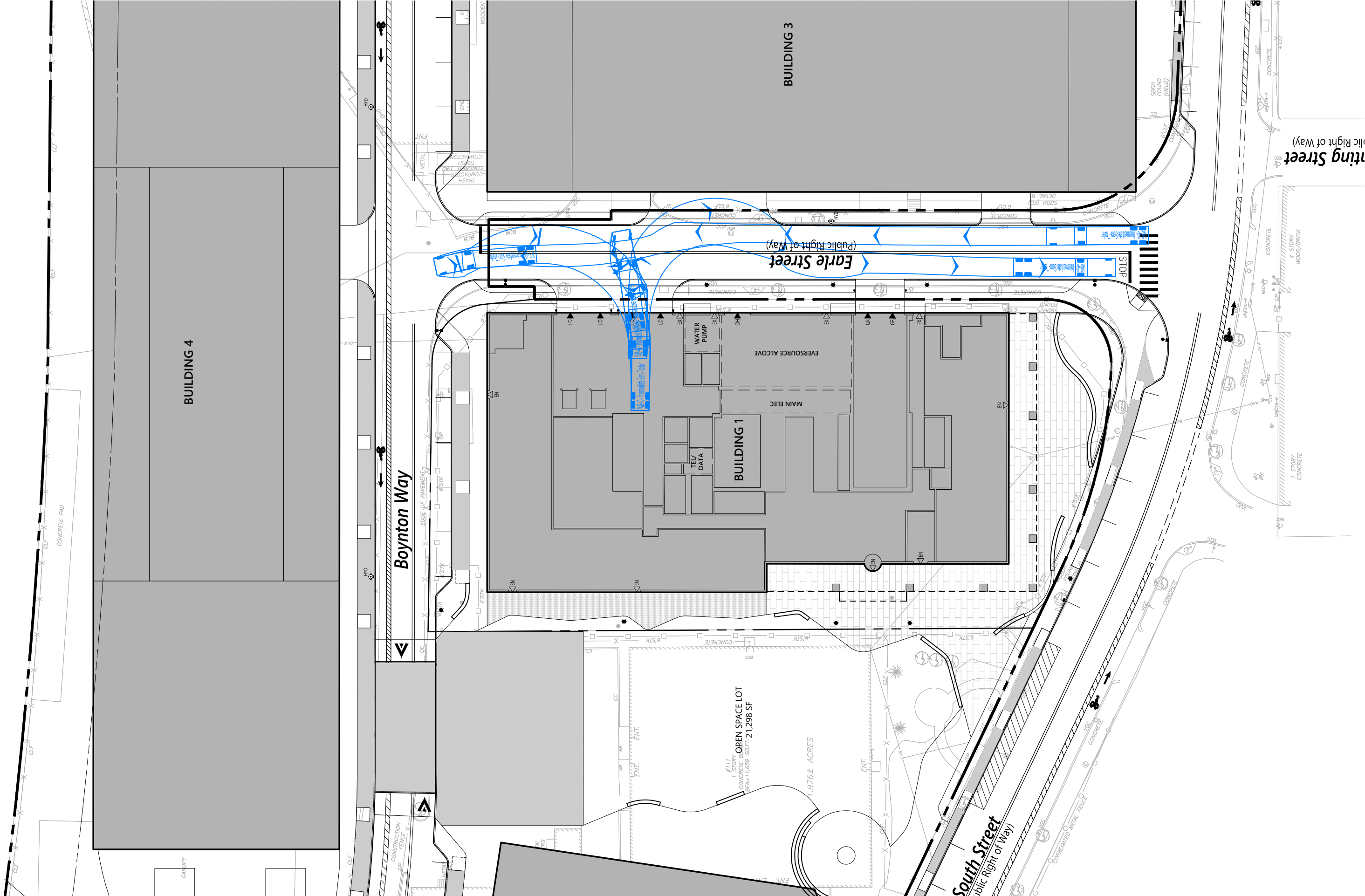
Figure A-4  
Vehicle Access & Parking Plan  
Boynton Yards  
Somerville, Massachusetts

Ref: 14864.00  
July 21, 2020

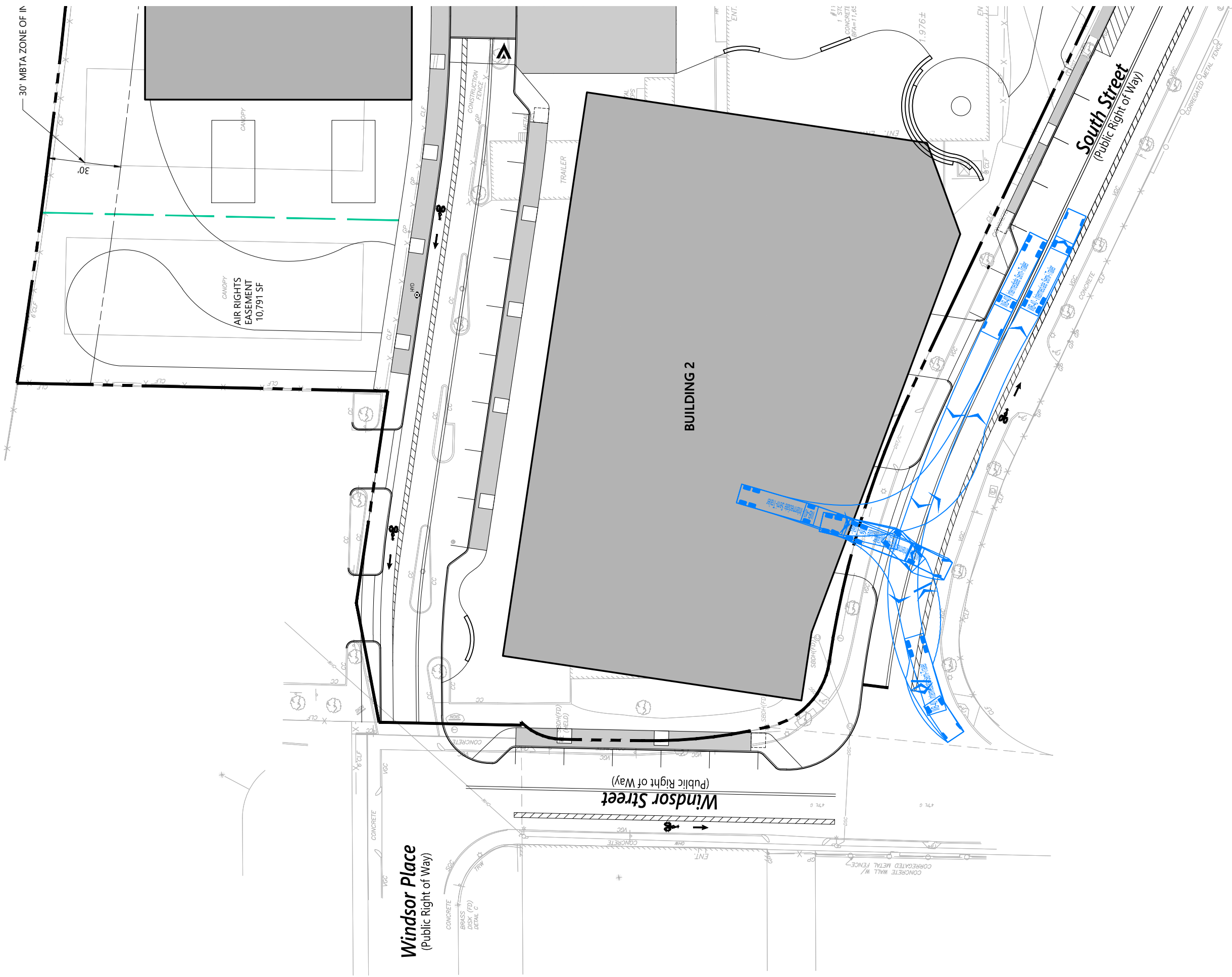


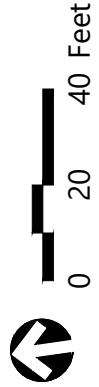
Memorandum

➤ **Vehicle Tracking Diagrams**

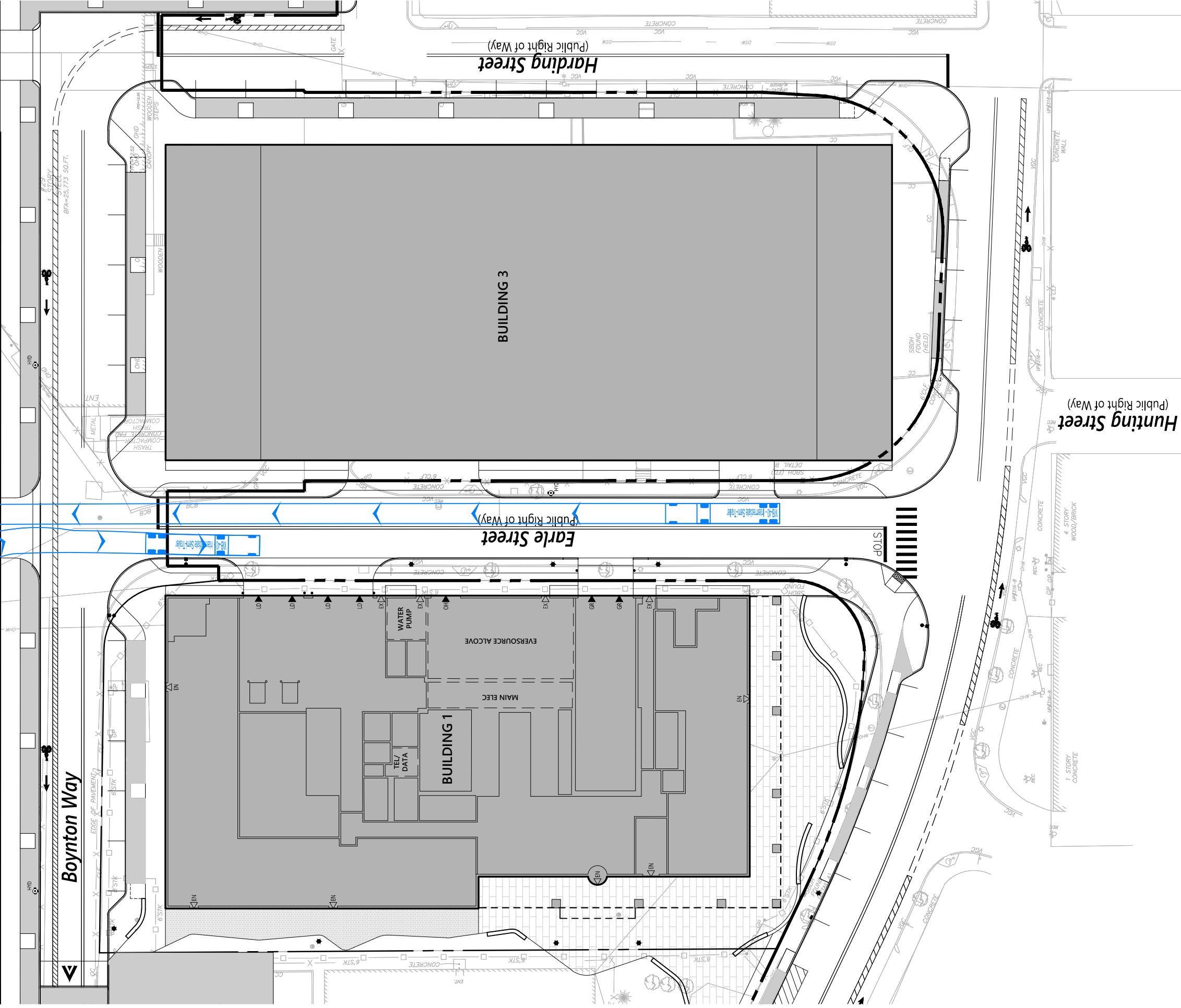












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# APPENDIX C: Civic Space Study

## Contents

- Civic Space Study Report

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# **MASTER PLAN SPECIAL PERMIT**

## APPENDIX C: CIVIC SPACE STUDY BOYNTON YARDS

SUBMITTED TO THE CITY OF SOMERVILLE  
July 21, 2020  
Prepared by Copley Wolff Design Group

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- 1.4 Walkshed Analysis**
- 1.5 Demographic Analysis**
- 1.6 Environmental Justice Populations**
- 1.7 Adjacency to Specific Uses**

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- 2.2 Departmental Feedback**
- 2.3 Findings from Existing Conditions Analysis**
- 2.4 Summary of Existing Open Space Programs and Needs**
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# EXISTING CONDITIONS ANALYSIS

The following chapter analyzes the existing and future context of the Development Site to help determine the optimal design and programming for the new civic spaces proposed by the Boynton Yards Project.

## 1.1 Context Map

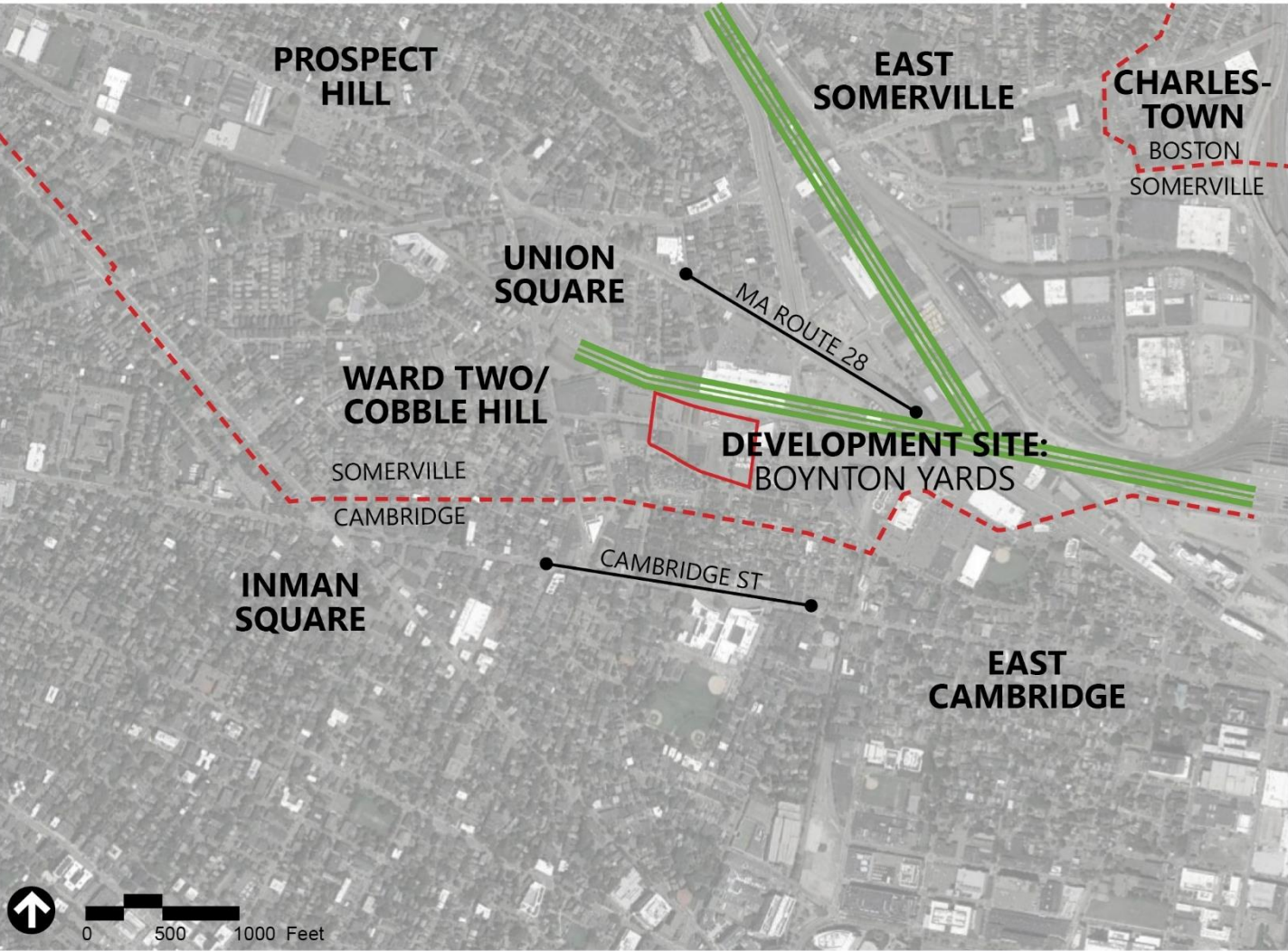




Exhibit: Map of Project Context

Study Area Radius Source: Google Earth

-  Boynton Yards Site
-  Green Line Extension



## 1.2 Study Area

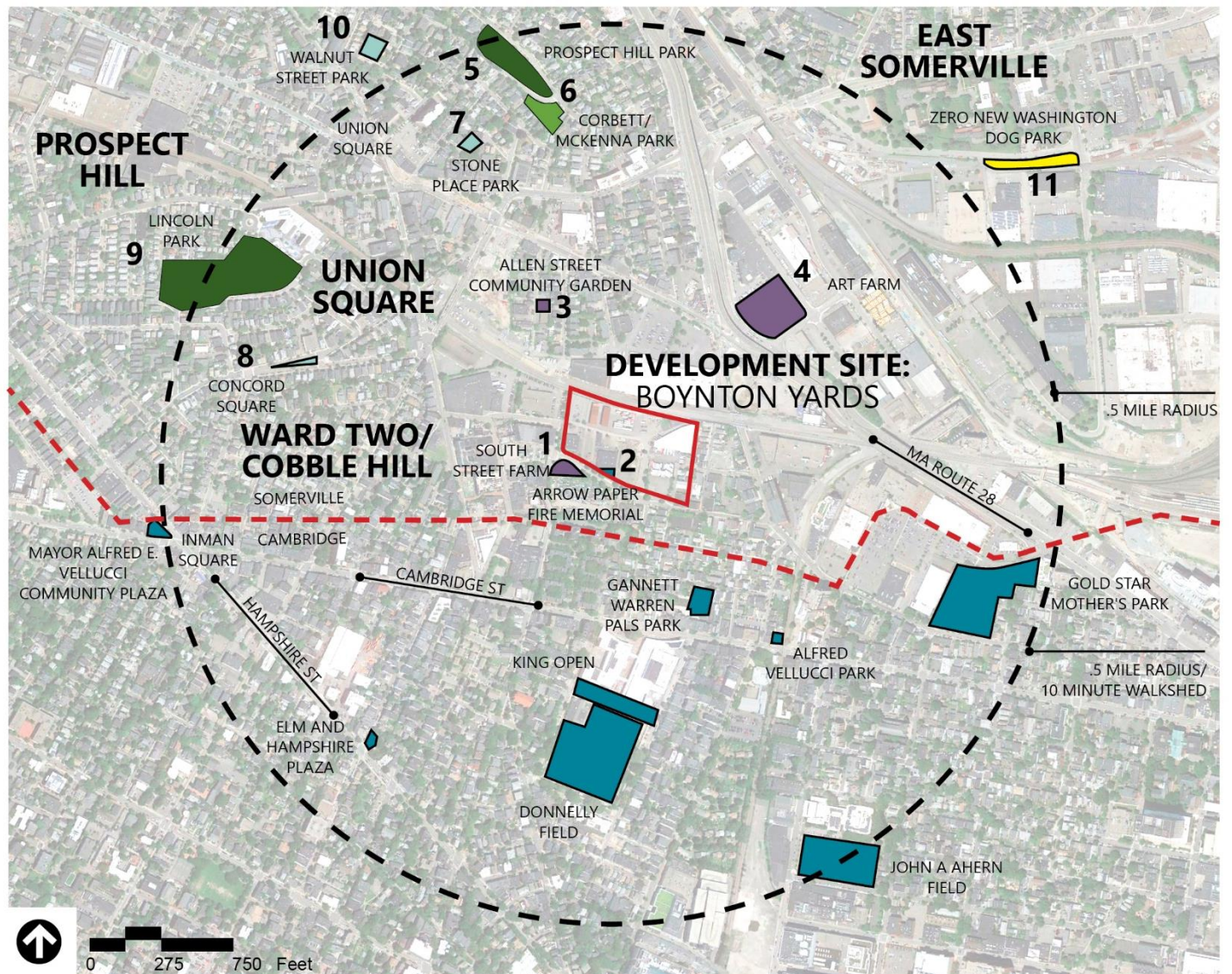


Exhibit: Map of Civic Spaces within the Study Area

Study Area Radius Source: Google Earth

The map above shows the existing civic spaces located within or just beyond a ½-mile radius of the Development Site. This study area encompasses Union Square and falls within the neighborhoods of Prospect Hill, Ward 2 / Cobble Hill and East Somerville. The proposed open spaces associated with the ongoing redevelopment of Union Square and the existing Cambridge open spaces within the study area were noted but not inventoried or included in this study.

### 1.3 Study Area Civic Spaces

	<u>Open Space Name</u>	<u>Type</u>	<u>Square</u>		
			<u>Footage</u>	<u>Acreage</u>	<u>% of Total</u>
1	South Street Farm	Urban Ag. / Arts	10,890	.25	2%
2	Arrow Paper Fire Memorial	Memorial	2,970	.07	1%
3	Allen Street Comm. Garden	Community Garden/Tot-Lot	5,663	.13	1%
4	Art Farm	Urban Ag. / Art & Perform. Space	91,476	2.10	17%
5	Prospect Hill Park	Community Park	71,400	1.64	13%
6	Corbett / McKenna Park	Neighborhood Park	26,571	.61	5%
7	Stone Place Park	Pocket Park	5,227	.12	1%
8	Concord Square	Pocket Park	5,330	.12	1%
9	Lincoln Park	Community Park	287,496	6.60	53%
10	Walnut Street Park*	Pocket Park	9,583	.22	2%
11	Zero New Washington Park*	Dog Park	27,878	.64	5%
*Just outside of ½ mile radius			Totals	544,484	12.50

The study area includes two Community Parks that together provide 66% percent of the study area's available civic space. The largest Community Park is Lincoln Park which supports the widest range of programs and amenities in the study area including active recreation uses such as basketball courts, sports fields, a skate park, play structures, adult fitness equipment and water play features, in addition to several passive use elements. Prospect Hill Park, a recently renovated historical site, accommodates passive uses via an open lawn space, walking paths through natural areas, a monumental overlook and historic interpretive markers.

The study area also includes one Neighborhood Park and two Pocket Parks that together total 37,128 square feet and provide 6.8% percent of the available civic space. Corbett / McKenna Park supports primarily active recreation uses in the form of basketball courts, play structures, waterplay features and community garden plots. Stone Place Park is a small, passive space with bench seating and shade trees. Concord Square, while considered an open space, is essentially a landscaped island between two neighborhood streets. It contains a bus stop and shade trees but offers no formal programming.

There are three Community Gardens / Urban Agriculture sites in the study area, which provide nearly 20% percent of the available open space. South Street Farm is immediately adjacent to the Development Site and provides an urban agriculture program as well as Somerville Arts Council-supported pollinator pole projects that combine art with agriculture. The Allen Street Community garden offers raised bed garden plots on a converted residential parcel, as well as a micro tot-lot that is used by the CAAS Head Start program at the Jack Hamilton Center nearby. Art Farm (currently under development) will be a 2.1-acre combined community urban agriculture / performance / artist space that is being developed under a public-private partnership. The proposed program will include walking paths, performance and exhibit structures, a flexible plaza, a shade tree grove, walking paths, an outdoor educational area, and garden / display plots.

The final open space typology within the study area is the Arrow Paper Fire Memorial, which is currently located within the Boynton Yards Development Site area. The memorial, dedicated in 1999, includes a small engraved stone memorial and bench seats that honor the firefighters lost in the line of duty responding to a warehouse fire on a nearby site. The Memorial will be relocated and integrated into the proposed civic space at Boynton Yards.

In addition to the nine civic spaces described above, this study was extended to include two peripheral civic spaces located just outside the ½ mile radius: Walnut Street Park and Zero New Washington Dog Park. Walnut Street Park, a pocket park, offers a combination of active and passive uses, such as community garden plots, a picnic area, water play elements and play structures. Zero New Washington Dog Park offers a linear play space for dogs and includes a shade structure and bench seating for pet-owners.

The Boynton Yards Civic Space Study also makes note of the Development Site's proximity to Cambridge and the several open spaces within the ½ mile study area. While not included in this study, the Project Team has inventoried and assessed the open space typologies in Cambridge and used that information to help supplement the needs assessment portion of the study. Additionally, the proposed open spaces associated with the ongoing redevelopment of Union Square were not included in this study.



## 1.4 Walkshed Analysis

A walkshed analysis was performed on the Boynton Yards Development Site overlaying a ½-mile / 10-minute duration walk. The analysis reveals that residents and workers can reasonably walk from the Development Site to one or more existing civic spaces. However, despite being in the ½-mile radius, four of the open spaces are not reachable with a 10-minute walk given the existing road and intersection configuration. The open spaces that are beyond a 10-minute walkshed include the largest spaces with the greatest diversity of programs, namely Lincoln Park, Prospect Hill Park and Corbett-McKenna Park. Located outside the ½-mile radius, Walnut Street Park and Zero New Washington Dog park are also not reachable within 10-minutes.

Conversely, two large community parks within Cambridge are reachable by a 10-minute walk from the Boynton Yards Development Site. These include Donnelly Field, a 1.3-acre field with tot lots, athletic fields, and basketball courts, and Gold Star Mothers Park, a 1.5-acre park with a softball field, a playground with water play, and basketball courts, as well as pathways, trees, benches and picnic table.

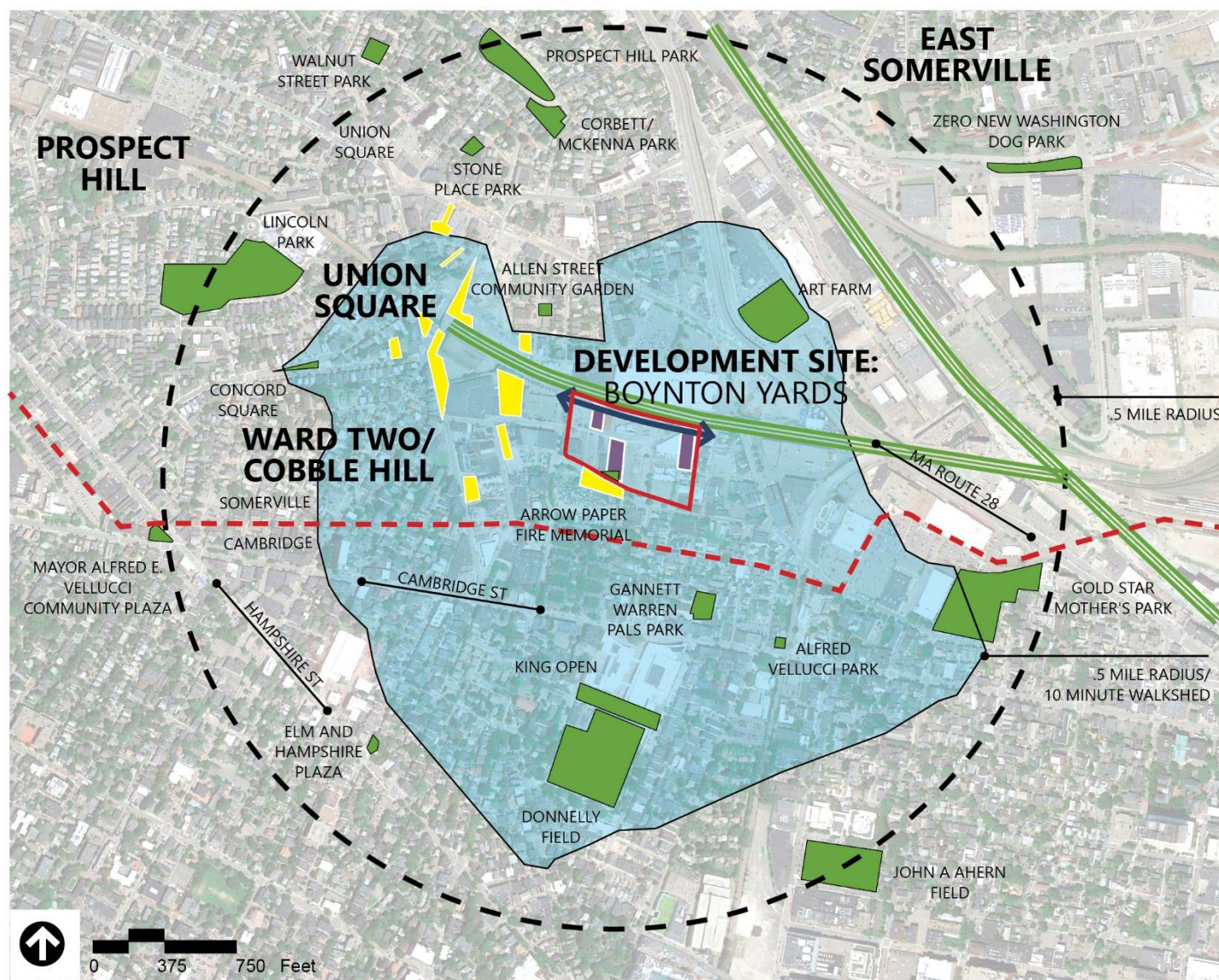


Exhibit: Map of Walkshed in Study Area

Walkshed Source: <http://mvjantzen.com/mobility/walkshed.html>

- .5 Mile Radius
- US2 and City- Proposed Civic Space
- Boynton Yards Site
- Boynton Yards - Proposed Civic Space
- .5 Mile/ 10 Minute Walkshed
- Green Line Extension

## 1.5 Demographics Analysis

According to the 2010 US Census, there are seven Census Block Groups that fall within the ½-mile study area, comprised of 4,128 households (Occupied Housing Units). These households include 8,926 people, with a median age of 32. Of individuals within the study area, 28 percent are Minority/Non-White. The median household income between February 2019 and February 2020 (in 2017 inflation-adjusted dollars) is \$70,226.

### Demographics

Census Block Reference	Total Population	Housing Units	Occupied	Vacant	Median Age	White	Black	Hispanic	Asian	Native American	% Minority
351203-2	882	404	404	0	31	840	55	60	130	2	28%
351203-3	1064	498	498	0	32	899	29	50	74	5	15%
351203-4	1137	511	511	0	28	832	32	58	192	5	25%
351204-2	1707	769	718	51	30	1137	116	173	218	6	30%
351300-2	1143	892	877	15	43	1143	105	75	68	5	22%
351300-3	801	304	283	21	32	691	34	91	59	17	25%
351500-2	2192	842	837	5	30	1105	199	374	229	6	37%
<b>Totals</b>	<b>8926</b>	<b>4220</b>	<b>4128</b>	<b>92</b>	<b>32</b>	<b>6647</b>	<b>570</b>	<b>881</b>	<b>970</b>	<b>46</b>	<b>28%</b>

### Median Household Income

Block Group Reference	Median Household Income
351203-2	\$ 59,286
351203-3	\$ 88,750
351203-4	\$ 91,313
351204-2	\$ 61,356
351300-2	\$ 31,577
351300-3	\$ 96,528
351500-2	\$ 62,773
<b>Average</b>	<b>\$ 70,226</b>



1.6 Environmental Justice Populations

Among the neighborhoods within the study area, all seven contain Environmental Justice Populations, based on the most current data available. These are neighborhoods whose annual median household income is equal to or less than 65 percent of the statewide median, or whose population is made up of 25 percent or more Minority individuals.

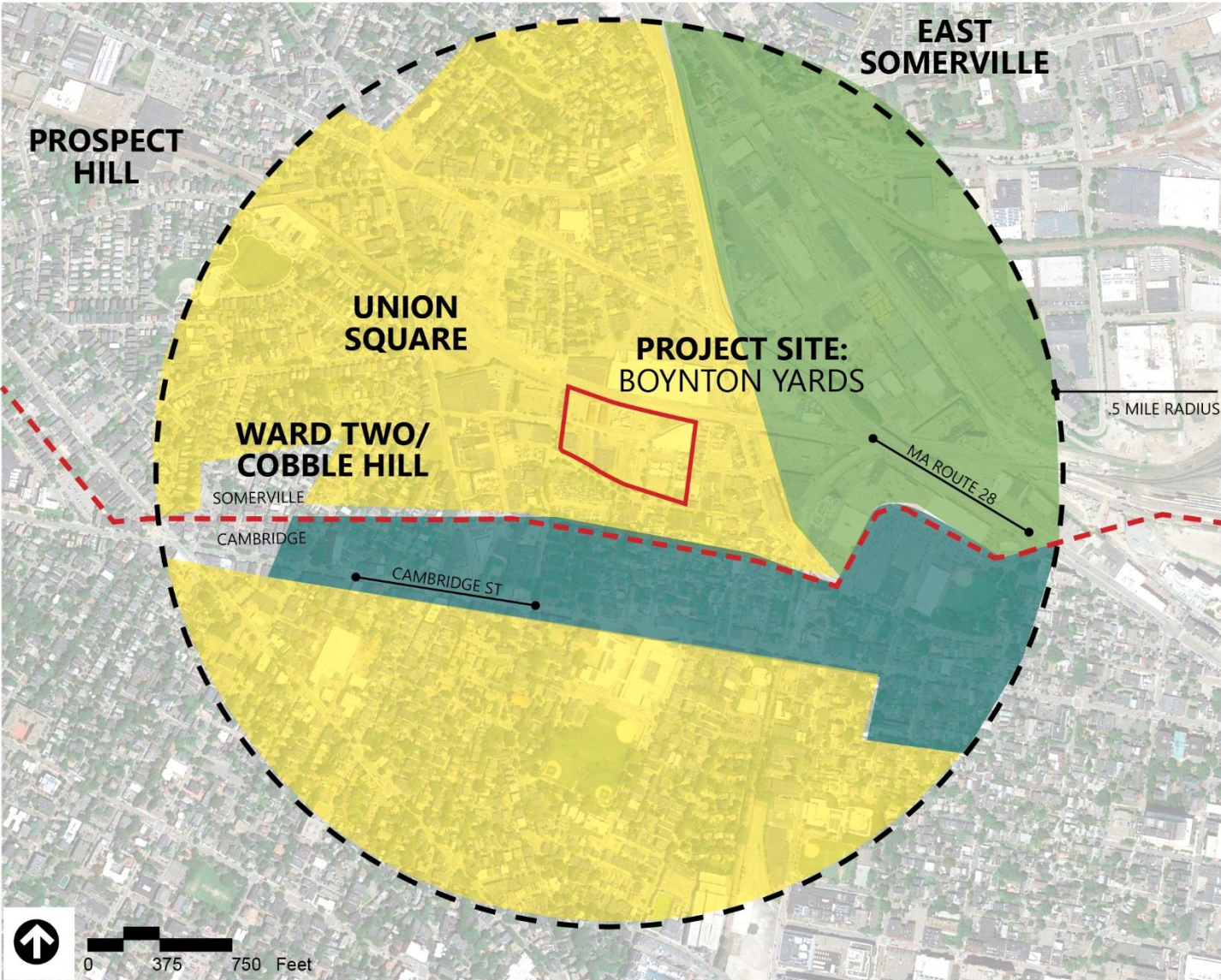


Exhibit: Map of Environmental Justice Population

Environmental Justice Viewer Source: MASSGIS [http://maps.massgis.state.ma.us/map\\_ol/ej.php](http://maps.massgis.state.ma.us/map_ol/ej.php)

- - .5 Mile Radius
- Boynton Yards Site
- Minority
- Minority and Income
- Income



## 1.7 Adjacency to Specific Uses

Existing uses that might impact civic space needs were mapped within the study area, such as schools, daycare centers, senior centers, housing, and religious institutions. The study area includes two schools, four daycare centers, and several religious institutions, most of which are in Cambridge. There are no senior centers located within the study area.

Housing in the study area includes the established Prospect Hill and Cobble Hill residential neighborhoods in Somerville and the Wellington-Harrington neighborhood in Cambridge. Hagan Manor, administered by the Somerville Housing Authority, and Linden Street Apartments, administered by Somerville Community Corporation, represent affordable housing projects within the study area. The planned housing developments associated with the ongoing Union Square redevelopment will contribute additional population to the study area, as will the anticipated residential component of the Development Site.

The Development Site is a short walk from the restaurants and amenities associated with Union Square and Cambridge Street in Cambridge. Anticipated future commercial development spurred by the Green Line Extension ("GLX") Project and Union Square improvements will bring a diversity of new retail and restaurant offerings to the neighborhood and will also provide new office space.

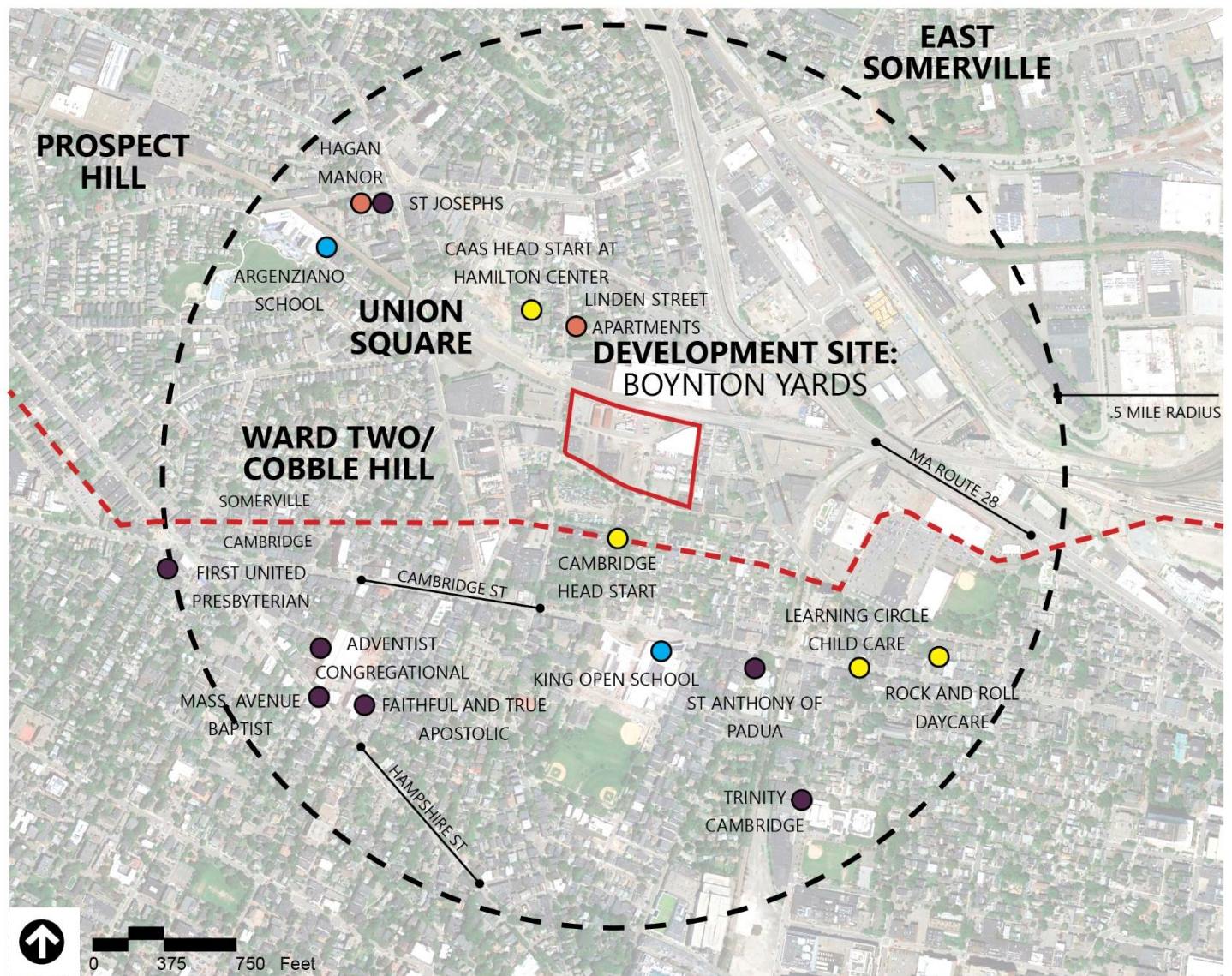


Exhibit: Map of Adjacent Specific Uses

- .5 Mile Radius
- Boynton Yards Site
- Senior Center (none)
- Affordable Housing
- School
- Daycare Center
- Religious Institution

Study Area Radius Source: Google Earth

# NEEDS ASSESSMENT

## 2.1 Existing Plans

As part of the planning process for the Boynton Yards public realm, several plans and studies were referenced. Specifically, the City of Somerville's *Open Space Creation Task Force Strategy Memo* and the *Public Realm Implementation Strategy for Boynton Yards (PRISBY)* studies were provided to the development team and utilized as resources. In addition, the *SomerVision2040 Comprehensive Plan* as well as the newly adopted zoning regulations, were used to guide the planning process.

The Project's proximity to Union Square provides a unique opportunity to continue the revitalization of the neighborhood set forth by the City to create a balanced, dense, and vibrant mixed-use district that emphasizes pedestrian and transit-oriented planning and design and prioritizes the creation of new pedestrian-oriented public spaces. The Project intends to integrate into the fabric of the larger Union Square neighborhood and the context of the continued buildout of the area.

## 2.2 Departmental Feedback

The Project Team has met regularly with the Office of Strategic Planning and Community Development (OSPCD) prior to the submission of this study. Drafts of the Civic Space Study materials have been reviewed and commented on by the Planning & Zoning and Open Space divisions of the OSPCD. Further Departmental feedback will be collected after the initial submission of the Master Plan Special Permit.

## 2.3 Findings from Existing Conditions Analysis

The existing uses within the study area include an abundance of neighborhood scale residences and small businesses, suggesting that, in the near term, many civic space users will likely be residents who use the space predominantly after working hours and on weekends with a small portion of users being employees that will use the space during lunchtime. The surrounding context of the established family-centered neighborhoods are within a comfortable walking distance from the Development Site, so spaces designed for families could be well-used.

Increased activation of the open spaces is anticipated with the introduction of the proposed commercial tenants, community spaces, and housing in the Project. The improved thoroughfare routes between Union Square and the Development Site will also foster increased walkability to the Development Site, for both employees and residents of the neighborhood.

The inventory of the existing open spaces shows that the most prevalent program is community gardens and urban agriculture. Six of the eleven open spaces inventoried provide this program and three of the four closest open spaces to the Development Site contain community gardens or urban agriculture. The second most common program in the study area is passive lawn space which is provided by four sites. The next most common programs are tot lots and water play, which are provided by three sites each. As noted in the analysis portion of the study, the larger and more diverse program offerings are located to the periphery of the study radius.

The relative scarcity of active recreation programs in close proximity to the Development Site suggests accommodating open spaces that can support small active recreation, fitness, and play activities, as well as



dog parks. Additionally, the area is in need of flexible open spaces to support seasonal events, including farmers markets and community engaging activities such as performances and art exhibits.

## 2.4 Summary of Existing Open Space Programs and Needs

	Open Space Program	South Street Farm	Arrow Paper Fire Memorial	Allen Street Community Garden	Artfarm	Prospect Hill Park	Corbett / McKenna Park	Stone Place Park	Concord Square	Lincoln Park	Walnut Street Park	Zero New Washington Park	Totals per Program
A	Community Gardens	1		1	1		1			1	1		6
B	Dog Park											1	1
C	Basketball Court						1			1			2
D	Athletic Fields									1			1
E	Adult Fitness / Parkour									1			1
F	Play Structures / Tot Lot			1			1			1	1		4
G	Plaza (flexible / seasonal uses)				1								1
H	Memorial		1										1
I	Historic Interpretive		1			1							2
J	Performance Space				1								1
K	Passive Lawn					1		1	1	1			4
L	Water Play						1			1	1		3
M	Picnic Tables									1	1		2
N	Book Share												0
O	Fountains / Water Feature												0
P	Rain Gardens				1					1			2
Q	Formal Gardens												0
R	Sculpture / Art				1								1
S	Skate Park									1			1
T	Nature Paths / Woodland					1							1
	<b>Totals per Open Space</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>3</b>	<b>4</b>	<b>1</b>	<b>1</b>	<b>10</b>	<b>4</b>	<b>1</b>	

## 2.5 Neighborhood Feedback

On June 6, 2020, a Neighborhood Meeting was held online and moderated by City Councilor J.T. Scott of Ward 2. The design team presented the Master Plan including an explanation of development's approach to the creation of civic spaces and landscape design in general. Specific reference was given to this Civic Space Study and the inventory of existing open spaces within the study area. The concepts of inclusive design, resiliency and an activated and well-connected public realm were discussed.

Community feedback pertaining to open space topics was received during the meeting. Specifically, a question was raised about inclusivity and accessible spaces, both inside and outside the building. The Project Team responded by stating that they are looking at accessibility for the entirety of the public realm, including the civic and open spaces outside the buildings. The Project Team also noted that the details on accessibility will be provided during the Site Plan Approval process as the design for each building and civic space advances.

Another question was brought up concerning the availability of shade for open space users given increasing temperatures due to climate change. The Project Team responded that it is looking into a combination of vegetated shade from trees and structural shade opportunities such as pergolas and building canopies to promote thermal comfort during all seasons and noted that the goal is to provide a combination of seating types that are flexible and can accommodate a variety of user preferences in terms of orientation and degrees of shade.

A third general question was raised concerning the layout of the buildings and massing which creates the open space and whether more density in the buildings could be created to allow for a larger area of open space. Councilor Scott responded that he would connect the questioner with the Proponent to discuss the specific concerns.

The Project Team has assembled the comments received from the Neighborhood Meeting into the Master Plan Special Permit document and will coordinate with the City on addressing the items as applicable and appropriate.

## 2.6 Conclusion - Civic Space Proposal

As described below, approximately 20 percent of the Development Site will be dedicated as publicly accessible open space. This is primarily composed of significant open spaces and a network of new streetscapes with broad pedestrian sidewalks throughout the Development Site. The Project proposes to create three Civic Spaces within the Development Site.

Civic Space 1 will be a Neighborhood Park consisting of approximately 22,360 SF of civic space. The Neighborhood Park will be the central open space located between the development's core building sites (Building 1 and 2), which will all have active façades fronting the open space. The park will be defined by a central, passive open lawn space surrounded by a permeable edge of plantings and seating and is envisioned as a flexible event space that can accommodate a wide range of pop-up activities, such as small performances, public art, farmers markets, or informal lawn games. The Neighborhood Park is fronted by Thoroughfare 1, which is proposed to be a flush curb shared street with a mid-block pedestrian crossing that could be closed to vehicular traffic and would expand the useable civic space of the park for special events. The Proponent will continue to explore and consider additional design features that could further activate this space, such as an open-air amphitheater, arbor, or water feature.

In the northeast corner of the site, the Development Site proposes Civic Space 2, an approximately 16,904 SF Neighborhood Park. The Project envisions relocating and expanding the existing South Street Farm from its current location just outside of the Development Site boundary at the corner of South Street and Windsor Street to this location on the Development Site, which would provide South Street Farm with the opportunity to expand the number of community garden plots they can offer, construct nature-based play elements, and create a family picnic area. Additionally, while not a component of the Project, the City is proposing the future construction of a below-grade stormwater detention tank that will be constructed at the northeast corner of the Development Site beneath the park. The Proposed detention tank will improve the resiliency of the Development Site and the adjacent area to respond to and accommodate more frequent and more intense, precipitation-based flooding that is anticipated due to climate change.

The Proponent is presently in discussions with the City regarding the potential to donate a portion of the underlying land associated with the Civic Space 1 and Civic Space 2 to the City of Somerville to be preserved as publicly accessible open space. The City would own the underlying land and would control the ongoing maintenance of the Civic Spaces and, in return, would allow these spaces to be counted towards the required amount of civic space that the Project must provide.

In the northwest corner of the Development Site, the Project proposes Civic Space 3, an approximately 7,142 SF Pocket Park that could support activities such as a community dog park, adult fitness programs, and recreation and game courts. The park opens to Thoroughfare 1 and has a strong connection with Civic Space 1.

There are also several opportunities for smaller scale Pocket Plazas throughout the Development Site that have the potential to provide additional public open space with movable furniture and informal bench seating. Currently, one new Pocket Plaza is proposed at the intersections of Thoroughfare 1 and Windsor Street, which will serve as gateway plazas into the development.

Establishing an urban grid that connects the Development Site to the greater Union Square Neighborhood and specifically to the Boynton Yards District is central to the planning concept. The proposed streetscape design will prioritize the pedestrian experience and is designed to establish a clear hierarchy for pedestrian, bicycle, and vehicular travel, and to provide opportunities for the creation of new public open space and a vibrant public realm. The Development Site's perimeter streets will be improved to meet the City's goals of



providing a pedestrian-friendly, walkable environment in the area. These streets will receive protected bicycle lanes and expanded sidewalks to meet the intent of the City's Zoning Ordinance. Thoroughfare 1, a new internal public street will be designed as a flush curb, shared street condition with landscaped bump-outs, changes in pavement materials, and subtle alignment shifts for traffic calming which will prioritize pedestrians and bicyclist over vehicles. Overall, the Project will create a well-furnished, consistently shaded, and pedestrian-oriented streetscape throughout and surrounding the Development Site. Activated storefronts along the thoroughfares coupled with lively entry lobbies in the buildings will animate the streetscape.

The Project has the potential to contribute to many of the City of Somerville's goals for identified for achieving a robust and well-connected public realm. The design and programming of the civic space itself will be critical to ensuring that it will be well-used by both workers and residents of the surrounding communities.

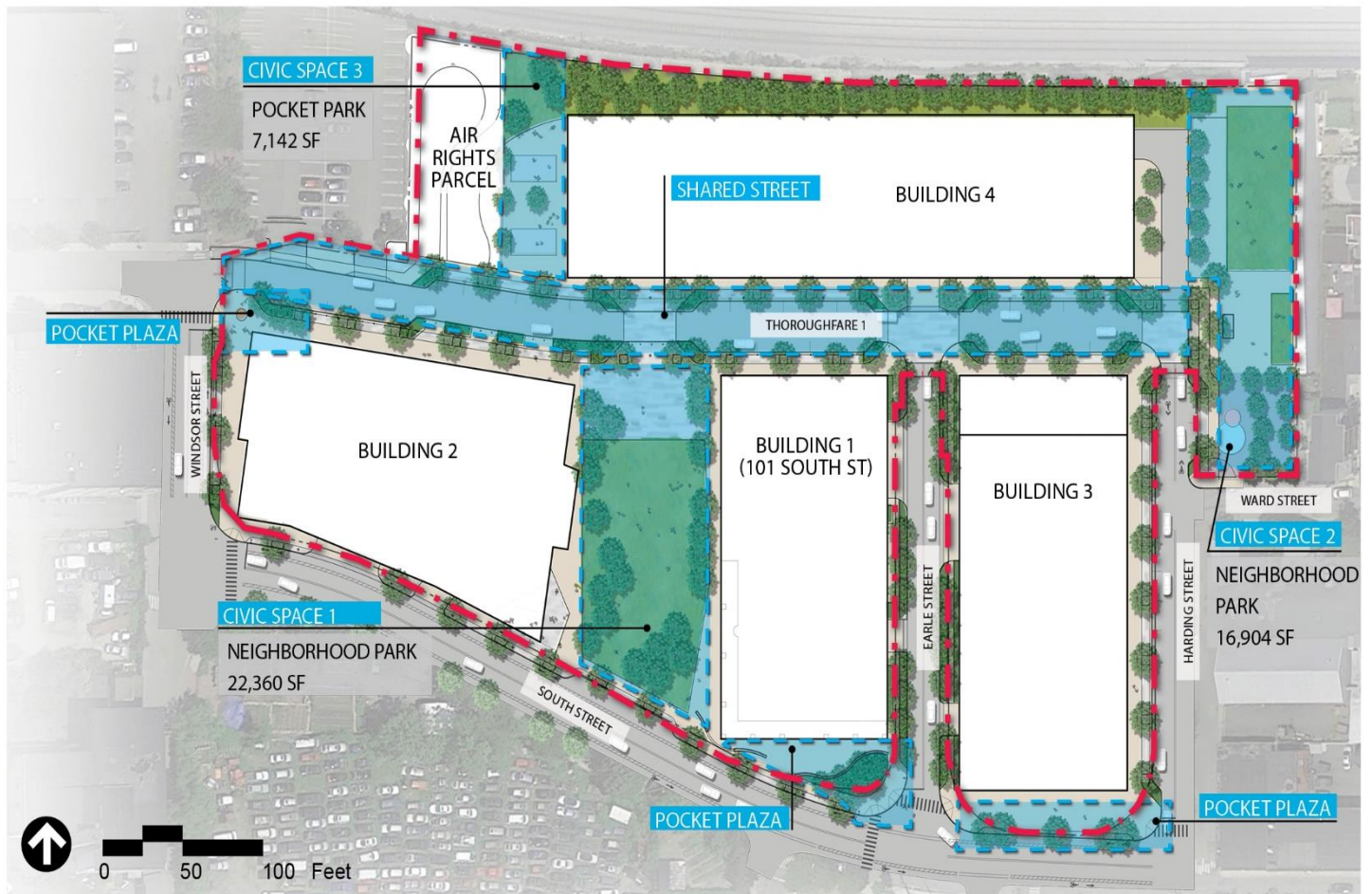


Exhibit: Open Space Diagram

# APPENDIX D: Utility Supporting Documentation

## Contents

- Sewer Generation Calculation

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BY	JVC	DATE	6/16/2020	PROJECT	14864.00 -Boynton Yards MPSP	Page No.	
CHK. BY	BKF	DATE		SUBJECT		Sheet No.	

## SEWAGE GENERATION CALCULATION

Existing Occupancy	Quantity	Sewage Generation (GPD)
1. 111 South Street Office: 75 GPD/1,000 SF	11,659 SF	874
2. 153 South Street Office: 75 GPD/1,000 SF	15,134 SF	1,135
3. 29 Harding Street Warehouse: 15 GPD/Person	129 Persons	1,935
4. 33 Harding Street Warehouse: 15 GPD/Person	28 Persons	420
5. 32 Ward Street 2-Family Res: 110 GPD/Bed	5 Bed	550

**Total Existing Sewage Generation (GPD) 4,914**

**Total Existing Domestic Water Demand (GPD) 5,405**

Proposed Occupancy	Quantity	Sewage Generation (GPD)
1. 101 South Restaurant: 35 GPD/Seat	250 Seats	8,750
2. 101 South Retail: 50 GPD/1,000 SF	6,250 SF	313
3. 101 South Office: 75 GPD/1,000 SF	128,750 SF	9,656
4. 101 South R&D: 200 GPD/1,000 SF	128,750 SF	25,750
5. Building 2 Restaurant: 35 GPD/Seat	180 Seats	6,300
6. Building 2 Retail: 50 GPD/1,000 SF	4,500 SF	225
7. Building 2 Office: 75 GPD/1,000 SF	178,000 SF	13,350
8. Building 2 R&D: 200 GPD/1,000 SF	178,000 SF	35,600
9. Building 3 Restaurant: 35 GPD/Seat	220 Seats	7,700
10. Building 3 Retail: 50 GPD/1,000 SF	5,500 SF	275
11. Building 3 Office: 75 GPD/1,000 SF	185,500 SF	13,913
12. Building 3 R&D: 200 GPD/1,000 SF	185,500 SF	37,100
13. Building 4 Restaurant: 35 GPD/Seat	200 Seats	7,000
14. Building 4 Retail: 50 GPD/1,000 SF	5,000 SF	250
15. Building 4 Residential: 110 GPD/Bed	497 Bed	54,670

**Total Sewage Generation (GPD) 220,852**

**Net Sewage Change (GPD) 215,938**

**New Domestic Water Demand (GPD) 242,937**

**Notes:**

1. Based on DEP 310 CMR 7.15 flow calculation factors
2. GPD: Gallons per day
3. SF: Square feet
4. New domestic water demand based on estimated sewage generation with a factor of 10 percent for consumption
5. Existing Warehouse assumed to have 1 employee per 200 SF
6. Existing 2-Family Home assumed to have 5 bedrooms based on assessor's information
7. Assumed 50/50 split of restaurant/retail for ground floor commercial tenants
8. Assumed 50/50 split of Office/R&D space for commercial office and lab tenant areas
9. Assumed 80% efficiency of restaurant area with 1 seat per 20 SF
10. Assumed 1.5 Beds per Residential Unit in Building 4

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# APPENDIX E: Neighborhood Meeting Report

## Contents

- Neighborhood Meeting Summary



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## Neighborhood Meeting Report

Date: June 6, 2020

### Introduction & Presentation:

- City Councilor J.T. Scott (Ward 2) and Melissa Woods, Planner for the City of Somerville introduced the meeting.
- John Fenton (DLJ), John Sullivan (SGA), and Ian Ramey (Copley Wolff) presented an introduction to the Boynton Yards project.

### Questions and Answers/Comments:

Question (Sandra Lima): How will pest management be managed throughout construction of the Project?

Response: (John Fenton, DLJ): We clearly heard directly from residents that rodent infestation has been a serious health and safety issue and challenge to Somerville and its surrounding communities and businesses, including Boynton Yards. Since construction began on the Project's first building at 101 South, there have been no rodent issues reported on-site to date; however, we will remain proactive and vigilant in planning and prevention. We have communicated these concerns to our general contractor, Shawmut Design & Construction, and have asked them to go above and beyond standard requirements by producing a formal pest control plan that includes humane baiting and trapping methods. Shawmut has already proven its commitment to the public health and safety of the City in designing and implementing a comprehensive policy and protocol to address COVID-19.

The City does have a rodent control program that requires pest control plans to be submitted prior to demolition and construction activities. The appropriate time to revisit this discussion for each subsequent phase of development is prior to construction when a construction management plan is being developed. We will work with the City and with our contractors to make sure they have an effective and humane plan to address rodents.

Question (Sandra Lima): How will parking be managed for tenant, public, and accessory parking?

Response: (Melissa Woods, City of Somerville): The City of Somerville's development review process requires the Proponent to develop a Mobility Management Plan (MMP), which addresses and documents how the Project's parking will be used. Parking created by the Project will be available to the public during certain hours. The City of Somerville is no longer allowing construction of parking that does not accommodate shared uses (e.g. public parking at night or during the day) and will require public parking access to garages during off hours. The City's Mobility Division is also inventorying and studying all the City's curb space to better understand how the curb space is currently used and how it could be used more efficiently.

Question (Sandra Lima): Is there a contingency plan for flooding to nearby homes/businesses during construction of the Project?

Response: (John Fenton, DLJ): We can connect with the Construction Manager for 101 South to discuss that contingency plans that may be in place to prepare for potential flooding. We are happy to circle back with Sandra on this topic.

*\*\*\*Councilor Scott will put Sandra in touch directly with the Proponent to discuss her specific concerns.*

Question (Bonnie Dennis): I hear inclusivity mentioned, but I am wondering what the plans are to go beyond the ADA requirements in work areas. I want to understand what we are doing so the employee-only spaces can be accessible and used by everyone.

Response: We are committed to addressing the concern raised regarding the adequacy of current municipal regulations and private sector commitment to provide the necessary resources and accommodations to persons with disabilities to achieve equitable access to employment opportunities without performance disadvantages in the workplace.

To address this, we are studying the Americans with Disability Act (ADA) and the Massachusetts Architectural Access Board (MAAB) regulations, which require buildings and public space to be accessible, functional, and safe for persons with disabilities. We are also exploring possible alternative initiatives to improve the workplace to address these challenges.

We will work collaboratively with Bonnie Dennis, Chair of the City of Somerville's Commission for Persons with Disabilities, and others to implement a strategy to address these concerns. Additional details on accessibility of interior areas will be provided during the Site Plan Approval process as the design for each building advances.

Comment (Lisa and Scott Flannagan): We wanted to confirm the location of the below grade storage tank. We are watching cautiously and think this will be a great thing for the City of Somerville.

Response: The stormwater retention tank will be located beneath the green space to the northeast, adjacent Building 4.

Question (Jacob Bloom): Is the water retained by the stormwater retention tank going to be put back into the sewer system or infiltrated into the Project Site?

Response: (Brian Fairbanks, VHB): The land area is being held for the stormwater retention tank, which is a City project. We will be handling stormwater from the proposed buildings on-site and detailed proposals for managing stormwater will be provided during the Site Plan Approval process for each phase of development. The tank itself is taking stormwater not only from our project, but also up stream of our Project Site.

Question (Jacob Bloom): I am hoping the architect could better describe the proposed building heights.

Response: (John Sullivan, SGA): John provided an overview of the proposed heights for Buildings 2-3. The highest floor for the commercial buildings will approximately 185 feet. The highest floor for the residential building will be approximately 190 feet.

Question (Amelia Sorenson): I am excited about the lab use, as kids love science. However, given climate change, the 100 year storm will be much larger and flooding is a concern. The stormwater tank is critical, as well as open space, seating, and shade, which should be appropriate for elderly as well.

Response: (Ian Ramey, CWDG): We will be looking into structural shade opportunities like pergolas to promote thermal comfort during all seasons. Our goal is also to provide a combination of seating types that are flexible and can accommodate a variety of users and uses.

Question: Were flyers for this meeting distributed into Cambridge?

Response: Yes, flyers were distributed to abutters/neighborhoods into Cambridge.

Question (Rob Buchanan): How does the Project accommodate/maintain the potential for a future connection under the tracks to the Target to the north?

Response: (Melissa Woods, City of Somerville): The Union Square Neighborhood Plan does include the "Earle Street Underpass," which is a proposed, future connection under the railroad tracks to Target.

Bridges and tunnels under the tracks would be owned by the State. This is a topic that will be explored in the future with the community in association with Building 4 and would likely be more appropriate on Harding Street.

Question What is the Air Rights parcel in the northwest of the site?

Response: (John Fenton, DLJ): An approximately 11,000 SF portion of the Development Site to the east of Building 4 is owned by the Proponent, but is encumbered by an existing agreement that gives control of the future development of the air-rights on this portion of the Development Site to another entity. The Air-Rights Parcel is a component of the Development Site, but the air-rights agreement would restrict the ability to propose a structure on this portion of the Development Site that exceeded eight feet in height, thereby making it economically infeasible to develop any programmed space. We will explore the possibility to provide additional open space improvements on the Air Rights Parcel, however any potential improvements are subject to the existing agreements with the entity that controls the air-rights.

Question: Is there a parallel process being undertaken to update the entire vision for Boynton Yards to understand how this project fits in?

Response: (Melissa Woods, City of Somerville): There is a requirement in the Zoning Ordinance for a community center to be provided by each project. This could be a standalone structure or a space that is incorporated into a proposed building. There are no plans for any substantial update to the existing planning documents for the Boynton Yards area.

Question (Lisa): Is a traffic study being completed, and what is being done to manage traffic into and out of the area in the morning and evening?

Response: (Pat Dunford, VHB): We are currently updating the traffic study that was developed a couple years ago. The parking ratios being provided are purposely designed to encourage use of the new Green Line Station, but some people will still drive. We are trying to make better use of the existing streets to be designed to promote shared uses and encourage alternative modes of transportation like bicycling and walking. We are also working on a Mobility Management Plan and Transportation Access Plan that will be submitted along with the Master Plan Special Permit.

Question: How many cars per day do you estimate will enter/exit this area?

Response: (Pat Dunford, VHB): In a broader sense, the Project Site will be accessed from Windsor Street and South Street. In total, the Project will add approximately 200 car trips during the morning and evening peak hours. There are currently approximately 4,800 cars per day on South Street. All that traffic eventually ends up on South Street or Thoroughfare 1. The Project will focus on traffic calming measures and making streets more walkable and bikeable.

Question (Susan Silverman): I am concerned by rats. The City's typical approach is to put down poison but that is not an acceptable approach given the local population of cats and raptors.

Response: (Kevin Griffin, LMP): We clearly heard directly from residents that rodent infestation has been a serious health and safety issue and challenge to Somerville and its surrounding communities and businesses, including Boynton Yards. Since construction began on the Project's first building at 101 South, there have been no rodent issues reported on-site to date; however, we will remain proactive and vigilant in planning and prevention. We have communicated these concerns to our general contractor, Shawmut Design & Construction, and have asked them to go above and beyond standard requirements by producing a formal pest control plan that includes humane baiting and trapping methods. Shawmut has already proven its commitment to the public health and safety of the City in designing and implementing a comprehensive policy and protocol to address COVID-19.

The City does have a rodent control program that requires pest control plans to be submitted prior to demolition and construction activities. The appropriate time to revisit this discussion for each subsequent phase of development is prior to construction when a construction management plan is being developed. We will work with the City and with our contractors to make sure they have an effective and humane plan to address rodents.

Question: What provisions are in place for security of the proposed open spaces?

Response: The Proponent will provide additional details on the operation and management of each open space/civic space during the site plan approval process for each phase of development.

Question (Renee): I want to reiterate that rat poison should be the last choice. I also want to thank the team for using native plantings. My understanding is that the Project is in the overlay district and I am curious if the Project plans to comply with the Zoning provisions that require solar and green roofs?

Response: This Project is subject to this zoning requirement, but that level of design and detail is not required for the Master Plan Special Permit submission. It will be provided during the Site Plan Approval process for each building. 101 South Street will be LEED Gold, per the previous Zoning Ordinance. Lab buildings are difficult to power through solar panels, but we will address this during the design process.

Question: I am wondering whether the utility backbone will consider a microgrid powered by geothermal or renewables?

Response: (Kevin Griffin, LMP): This is something that the Development Team has considered. The utility backbone referenced mainly includes water, sewer, gas and utility infrastructure. The Development Team will continue to evaluate the potential for a microgrid as the design and energy load requirements for each building is better understood.

Question: (Larry) I am curious about the number of parking spaces for electric vehicles. I would like to see more than a token number of electric vehicle parking spaces.

Response: This is something that will be addressed during the Site Plan Approval for each building. The Proponent would be happy to have further discussions on this topic.

Question: (Tori) Why is the residential building adjacent the railroad tracks and the commercial buildings are adjacent the open space? I feel like it would be safer to have the commercial buildings adjacent the railroad tracks. I suggest relocating Building 2 (commercial) adjacent the tracks and move the residential buildings away from the tracks. I also want to see the residential buildings be constructed as towers, similar in height to what is proposed in Union Square. It feels like the mid-rise residential is not efficient and is wasting ground level open space that could be used if a taller residential tower was explored.

*\*\*\* Councilor Scott will put Tori in touch directly with the Proponent to discuss her specific concerns.*

Question: (Quinn) I want to understand the scope of the population expansion and the potential impacts of that expansion on local schools and services.

Response: (Councilor Scott): Currently, there are about 11,000 people in Ward 2. Union Square could potentially be adding approximately 1,400 people (900-1,000 units), although the proposed residential uses in Phase 4 are not guaranteed.

Question: (Quinn) Is there any plan to address bicycle safety on roadways outside the Project Site given the increase in traffic? An increase of only 200 vehicle trips per day seems underestimated.

Response: (Councilor Scott): The City and the City Council are focused on ensuring that the City's streets remain safe for bicyclists.

Question (Ann): The Mayor designated East Somerville and Union Square as an opportunity zone. Why would some developers not take advantage of this? We would like to request for information on this topic to better understand.

Response: The Development Team would be more than happy to discuss this topic and the question more.

Question (Bill): I think this is an excellent development and is exactly what Somerville needs. Once you begin to lease up the premises, can you encourage tenants to work through a local hiring agency to prioritize hiring of local talent?

Response: We are committed to recruiting local. It is important for the buildings to get leased, but it is also important that the benefits flow back into the community. The Proponent would be more than happy to learn more about what Bill is requesting.

Question: The Zoning calls for 10 percent Arts and Community Enterprise Space. Would any of this space be located at ground level, facing proposed open spaces? How much retail space is currently planned?

Response: The Project complies with this requirement; however, the exact location of the Arts and Community Enterprise Space is not detailed during this phase of the design process. We anticipate that these spaces would be located at the ground plane along streets and open spaces. The idea is to attract tenants that activate and support a robust ground floor program. The Project currently proposes approximately 42,500 SF of ground-level retail space.

Question: (Cindy Larsen) My office is in the Taza Building, and South Street and Windsor Place is a favorite cut-through to Medford Street. I would like to get some understanding of how the Project will manage or mitigate traffic?

Response: The Development Team would be more than happy to discuss this topic offline.

\*\*\* *Councilor Scott will put Cindy in touch directly with the Proponent to discuss her specific concerns.*

Question: (Amelia Sorenson) When will the first civic space be completed?

Response: We hope to start construction on the second building a year from now (Spring/Summer 2021). The hope is that the Phase 1, interim civic space will be partially activated after the completion of Building 1 (101 South), and will be fully completed at completion of Building 2.

Comment: (Joe Nissenbaum) I am disappointed to see the amount of residential space being proposed on site. I think there are better areas in Somerville for proposed residential uses.

Comment: (Michelle Hanson) I think that a community benefits agreement needs to be codified to help create a Wishlist for the community that will promote diversity and will support and be inclusive of the local Somerville population.

Response: The Boynton Yards Development Team is committed to equal employment opportunity without regard for race, color, religion, national origin, gender, sexual orientation, gender identity, age, physical or mental disability, or veteran status. This policy applies to recruiting, hiring, transfers, promotions, terminations, compensation and benefits.



# **APPENDIX F: Preliminary Lotting Plan**

## **Contents**

- Preliminary Lotting Plan

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