

## 3.2 PROPOSED OPEN SPACE

### PROPOSED PARCEL 2 BREAKDOWN PER TRACT

TRACT	BLDG	RECONFIG'D. TRACT AREA	PROP'D DEV. AREA	PROP'D BLDG. FTPRINT	LOT COVERAGE (BLDG/TRACT)	PROP'D OPEN SPACE	REQ'D OPEN SPACE
I	250 BINNEY	-	44,093	35,222	58.10%	16,530	25,652
II	145 BROADWAY	56,760	29,945	21,707	39.18%	25,460	36,502
III	105 BROADWAY	-	26,135	24,721	50.33%	22,980	11,648
IV	BLUE GARAGE	72,950	60,283	52,404	70.53%	14,022	33,730
V	12 CC	-	24,924	23,677	64.74%	11,647	COMBINED IN TRACT VI
VI	12 CC	-	17,554	17,554	67.73%	8,362	
VII	15 CC	-	35,070	33,604	44.94%	39,714	16,380
VIII	300 BINNEY	-	32,654	32,276	65.15%	16,890	17,093

PARCEL 2 PROPOSED OPEN SPACE REQUIRED (±SF)	152,863
PARCEL 2 PROPOSED OPEN SPACE PROVIDED (±SF)	<b>155,605</b>

NOTES: Required open space calculations based on Lot/Tract. Rows in pink in above chart indicate new construction in Parcel 2.

#### SOURCES:

1. CAD/Alta survey
2. Exhibit A Development Area Map. CRA Document. March 18, 1982.
3. Exhibit A Development Area Map. CRA Document. May 25, 1979.
4. CRA's KSURP Open Space Accounting. June, 2015.
5. Kendall Center Open Space Parcels 2, 3, and 4. July 31, 2015.



--- Tract/Lot Boundary  
 — Open Space/Park

Ⓥ Tract/Lot Number

# 3.2 PROPOSED OPEN SPACE

## REQUIRED OPEN SPACE CALCULATIONS: TRACT I , TRACT II, TRACT IV

### COMMERCIAL BUILDING A (PHASE 1)

Tract II - 145 Broadway	
<b>GFA Allocation</b>	
Infill GFA	312,610.20
Innovation Space Transfer GFA	62,522.04
Existing GFA	78,636.00
<b>TOTAL ALLOCATED GFA</b>	<b>453,768.24</b>
Planned Office GFA	443,731.00
Planned Retail/Active Use GFA	10,037.00
<b>TOTAL GFA</b>	<b>453,768.00</b>
<b>Lot Open Space - New Infill GFA + Existing GFA</b>	
Office Infill GFA - Lot Open Space (8:100)	29,207.62
Retail Infill GFA - Lot Open Space (10:100)	1,003.70
Existing GFA - Lot Open Space (8:100)	6,290.88
<b>TOTAL LOT OPEN SPACE REQUIREMENT</b>	<b>36,502.20</b>
PHASE 1	
Track II -145 Broadway Open Space	8,263.00
<b>Enhanced Open Space</b>	
Track VII - EW connector Enhanced OS	6,908.00
6th Street Connector (inside lot)	19,569.00
6th Street Connector (outside lot)	19,790.00
<b>TOTAL LOT OPEN SPACE PROVIDED</b>	<b>54,530.00</b>
<b>TOTAL OPEN SPACE OVER REQ. FOR PHASE 1</b>	<b>18,027.80</b>

**REQUIRED** 36,502 ±SF  
**PROVIDED** 54,530 ±SF

### RESIDENTIAL BUILDING SOUTH (PHASE 2)

Tract IV -Blue Garage - Residential South	
<b>GFA Allocation</b>	
Infill GFA	350,000.00
Innovation Space Transfer GFA	-
Existing GFA	-
<b>TOTAL ALLOCATED GFA</b>	<b>350,000.00</b>
Planned Rental GFA	266,000.00
Planned Home Ownership GFA	84,000.00
Planned Retail/Active Use GFA	-
<b>TOTAL GFA</b>	<b>350,000.00</b>
<b>Lot Open Space - New Infill GFA + Existing GFA</b>	
Office Infill GFA - Lot Open Space (8:100)	28,000.00
Retail Infill GFA - Lot Open Space (10:100)	-
Existing GFA - Lot Open Space (8:100)	-
<b>TOTAL LOT OPEN SPACE REQUIREMENT</b>	<b>28,000.00</b>
*PHASE 2	
Track IV -Blue Garage	4,625.00
<b>Enhanced Open Space</b>	
Track III -Broadway Park	11,485.00
Track III -EW connector Enhanced OS	6,606.00
Track V -EW connector Enhanced OS	6,491.00
Track III - Enhanced OS	2,863.00
<b>Rooftop Open Space</b>	
Track IV -Blue Garage (Residential Amenity Space)	9,700.00
<b>TOTAL LOT OPEN SPACE PROVIDED ON GRADE</b>	<b>32,070.00</b>
<b>TOTAL OPEN SPACE OVER REQ.FOR PHASE 2</b>	<b>4,070.00</b>
<b>TOTAL OPEN SPACE PROVIDED INC (Roof Top Amenity)</b>	<b>41,770.00</b>
<b>TOTAL OPEN OVER REQ. INC (Roof Top Amenity)</b>	<b>13,770.00</b>

**REQUIRED** 28,000 ±SF  
**PROVIDED** 32,070 ±SF  
*\*(Including Roof Top Amenity space)* **\*41,770 ±SF**





## 3.2 PROPOSED OPEN SPACE

### REQUIRED OPEN SPACE CALCULATIONS: TRACT I , TRACT II, TRACT IV

#### COMMERCIAL BUILDING B (PHASE 2)

Tract I - 250 Binnney Street	
<b>GFA Allocation</b>	
Infill GFA	213,389.80
Innovation Space Transfer GFA	42,677.96
Existing GFA	62,576.00
<b>TOTAL ALLOCATED GFA</b>	<b>318,643.76</b>
Planned Office GFA	310,614.76
Planned Retail/Active Use GFA	8,029.00
<b>TOTAL GFA</b>	<b>318,643.76</b>
<b>Lot Open Space - New Infill GFA + Existing GFA</b>	
Office Infill GFA - Lot Open Space (8:100)	19,843.10
Retail Infill GFA - Lot Open Space (10:100)	802.90
Existing GFA - Lot Open Space (8:100)	5,006.08
<b>TOTAL LOT OPEN SPACE REQUIREMENT</b>	<b>25,652.08</b>
<b>*PHASE 2</b>	
Track I -Open Space	16,548.00
<b>Enhanced Open Space</b>	
Track V - Enhanced Open Space	2,575.00
Track VI - Enhanced Open Space	6,535.00

<b>TOTAL OPEN SPACE PROVIDED</b>	<b>25,658.00</b>
<b>TOTAL OPEN SPACE OVER REQ. FOR PHASE 2</b>	<b>5.92</b>

**REQUIRED** 25,652 ±SF  
**PROVIDED** 25,658 ±SF

#### RESIDENTIAL BUILDING NORTH (PHASE 3)

Tract IV -Blue Garge - Residential North	
<b>GFA Allocation</b>	
Infill GFA	70,000.00
Innovation Space Transfer GFA	-
Existing GFA	-
<b>TOTAL ALLOCATED GFA</b>	<b>70,000.00</b>
Planned Rental GFA	68,700.00
Planned Home Ownership GFA	-
Planned Retail/Active Use GFA	1,300.00
<b>TOTAL GFA</b>	<b>70,000.00</b>
<b>Lot Open Space - New Infill GFA + Existing GFA</b>	
Office Infill GFA - Lot Open Space (8:100)	5,600.00
Retail Infill GFA - Lot Open Space (10:100)	130.00
Existing GFA - Lot Open Space (8:100)	-
<b>TOTAL LOT OPEN SPACE REQUIREMENT</b>	<b>5,730.00</b>
<b>PHASE 3</b>	
Track IV -Blue Garage	4,647.00
<b>Enhanced Open Space</b>	
Track II -Binney Park	7,898.00
<b>Rooftop Open Space</b>	
Track IV -Blue Garage (Residential Amenity Space)	4,700.00
Track IV -Blue Garage (PV Area)	19,400.00

<b>TOTAL LOT OPEN SPACE PROVIDED</b>	<b>12,545.00</b>
<b>TOTAL OPEN SPACE OVER REQ. FOR PHASE 3</b>	<b>6,815.00</b>

<b>TOTAL OPEN SPACE PROVIDED INC (Roof Top Amenity)</b>	<b>17,245.00</b>
<b>TOTAL OPEN OVER REQ. INC (Roof Top Amenity)</b>	<b>11,515.00</b>

**REQUIRED** 5,730 ±SF  
**PROVIDED** 12,545 ±SF  
*\*(Including Roof Top Amenity space)* **\*17,245 ±SF**



## 3.2 OPEN SPACE VISION

### PARKS

#### BROADWAY PARK

The existing park is between Broadway and the North Garage and is defined on the east and west sides by the streets that lead to and border the North Garage. The current grading slopes up from the south to north toward the existing parking garage separated from these streets by the grades. The park is further separated from these adjacent streets by the brick walls at the edges of the park. The existing entries to the park are limited to Broadway at the southeast and southwest corners and from the parking garage.

The redesign of the Broadway Park aims to expand the usable space of the park to the east and west toward the proposed new building at 145 Broadway, the existing building at 105 Broadway and the new building entries for residential at the north edge of the park. The expanded park space is expressed in the design with the park paving pattern extended into the adjacent streets, and installed in a flush condition. A change of color and texture, along with a couple of vertical elements along each side of the street, marks the travel ways.

The redesign also makes the park more permeable in response to pedestrian desire lines to and from the East West Pedestrian Connector north of 105 Broadway, and to and from the southeast corner of the park on Broadway toward the northwest. While the park redesign accommodates these pedestrian movements through the space, the redesign, first and foremost aims to make the park a more usable public space with multiple seating options and more ways to program and enjoy the park.

Along the eastern side of the park, a 50' long community table functions as a meeting place, lunchtime eating spot, outdoor work table, game table and outdoor classroom. The table and its seating are framed by rather tightly spaced, light leafed, canopy shade trees to create dappled light in the space. To extend the use of the community table into the evening, LED light strips form a pattern of illuminated lines overhead.

The planting is in a series of linear zones with a varied and mostly native palette of shrubs and perennials up to 3' or so in height as an understory, and canopy trees overhead. The planting creates a presence of nature in this urbanized area and is designed to create seasonal interest as well as define paths and subspaces. The central space of the park is an open and flexible lawn area suitable for programming.





THE CITYDECK GREENBAY



BYRANT PARK



HARVARD YARD



SMITH CARDIOVASCULAR RESEARCH BUILDING



# PARKS

## BROADWAY PARK

In addition to the seating at the community table, the park includes long wooden benches along the linear planting zones. Along the path at the north edge of the lawn, another elongated seating element is designed in a profile that corresponds to the reclined seating of a chaise lounge for relaxing in a south facing orientation.

At the north edge of the park along a key east west path, is a simple rectangular basin of water that is supplied from rainwater harvested from the site. Water drops via gravity into the basin from a series of water spouts along a low wall that separates the edge of the basin from the residential entries. The grading in the park directs surface runoff into the planting zones as recharge areas.

The basin of water also serves as an address for the residential lobbies along the northern edge of the park.

The key materials in the park include bands of concrete unit pavers in several colors on a concrete setting bed, over the walking surfaces and drives, as described above. The pavers in the driving surface will match the colors and pattern of pedestrian areas, but be a smaller paving module size to prevent breaking from vehicular travel. The rectangular space with the community table may have special paving such as stone.



LOOKING ALONG BROADWAY TOWARD BROADWAY PARK





LOOKING ALONG THE WATER BASIN TOWARD THE COMMUNITY TABLE



## PARKS

### BINNEY PARK

The existing park along Binney Street at the north end of the garage is defined on the east and west sides by the service roads that flank the Blue Garage. The site is flat and currently has paths that lead to an entry to the existing parking garage. There are crosswalks on the flanking streets leading to the garage that provide a shortcut to the garage from the existing 250 and 300 Binney Street buildings. Currently the open space is used mostly for circulation and not designed as a place to pause and enjoy.

The redesign of the Binney Park aims to make a space that is more green than the Broadway Park but retains the pedestrian circulation through the space. The goal is to also make the space more usable for employees as well as residents. The existing crosswalks at the adjacent streets are retained in response to pedestrian desire lines toward Broadway and the transit station, between 250 and 300 Binney Street and to the new residential and active use areas at the Residential Building North and Commercial Building B.

The redesign also draws connections between the existing paved area at the entry to 300 Binney Street and the new entry to the Commercial Building B. The proposed paving in the Binney Park and at Commercial Building B are

concrete unit pavers that are similar, but not identical to the existing paving at 300 Binney Street to draw continuities along Binney Street, in a way similar to the design expression along Broadway. The streets however along each side of the park, are only in a flush condition at the crosswalk near Broadway, as exists today.

Paths that respond to pedestrian circulation are angled toward the entries of the Residential Building North and retail / active use space. There is some expanded paving in front of the active use area to allow for outdoor seating. The balance of the space is planted with an understory of mostly native shrubs and perennials to create a presence of nature as well as seasonal interest.

Colorful structures that support netting are located over some the perennial planting at the center of Binney Park. The netting slopes toward paths and are used as informal and relaxing seating structures, appealing to adults as well children. It is envisioned these unique seating structures could be used by employees during the weekday and also attract families and children to be used as play structures at other times, encouraging activity throughout the week.



LOOKING ALONG BINNEY STREET TOWARDS THE RESIDENTIAL LOBBY AND ACTIVE USE





LOOKING ALONG ACTIVE USE TO SCULPTURAL LOUNGE SEATING

## CONNECTORS

### SIXTH STREET CONNECTOR

The existing Sixth Street Connector is a 12.5' wide path between an alley of mature Red Oaks connecting from Binney Street to Broadway, which is well used by pedestrians and bicyclists. The path is approximately 7' from the existing buildings to the west. A new 10' wide bike path is proposed in the space between the existing path and buildings on the west. This proposed bicycle path aligns with paths to the north on Sixth Street and to the south on Ames Street. The new bike path will be set at the existing grade to reduce impacts on the existing tree roots. The Red Oaks, as is typical for oaks in general, as compared to other tree species, can survive some disruption of the root zone. The design team is working with an arborist at Bartlett Trees to evaluate the location and design details of the path to minimize impacts on the existing trees. The East West Pedestrian Connectors cross the new bike path where a change of material, texture and color serves as a warning to pedestrians crossing the bike path.

At a few selected locations where the grading permits, seating will be added between the pedestrian path and bicycle path with crushed stone as a permeable surface over the tree roots. New shade tolerant ground cover planting is between the trees. The lighting is updated with new LED cut off fixtures to enhance safety and the pedestrian experience at night, as well as improve energy efficiency and reduce maintenance costs. The new lights are located in the same location as the existing lights to avoid disturbing the existing tree roots with new conduit.

### EAST WEST PEDESTRIAN CONNECTORS

There are three East West Pedestrian Connectors in the overall site area. There are two connectors linking the Sixth Street Pedestrian Connector to the East Drive along the parking garage. The third East West Pedestrian Connector links the West Drive to the sidewalk along Galileo Galilei Way.

It is anticipated that the southernmost East West Pedestrian Connector on the east side will have the most significant use, because of pedestrian desire lines leading to and from the Sixth Street Connector to the Broadway Park and the new building at 145 Broadway. Since this Connector is aligned slightly north of the open space at Broadway Park, it is proposed to add a walkway which angles toward the southwest to accommodate the pedestrian desire line to and from Broadway Park and westward. Other than this addition, the balance of the path is in the same alignment as the existing path in the Connector.

The southernmost East West Pedestrian Connector on the east side will also be designed to accommodate short term bicycle parking for the residential building to the west. This location, slightly more than 50' from the entries, will allow the Broadway Park to accommodate pedestrian use rather than taking up park space with bicycle parking. If possible, linear rain gardens will be water receiving landscapes along the path as one part of the storm water strategy.

The northernmost East West Pedestrian Connector on the east side will remain in the current configuration, because this paved space also serves as a fire lane between 115 Broadway and the new building at 250 Binney Street. New planting of small trees and ground cover are added along the wide path/fire lane.

The alignment of the path of East West Pedestrian Connector on the west side is adjusted to shift northward, away from the ramp down to the parking garage at 145 Broadway. This allows planting between the path and the ramp. New planting of small trees and ground cover is located along the 5' wide path. If possible, a portion of the landscape will function as a water receiving landscape.

Each of the East West Pedestrian Connectors will have new LED lighting in cut off fixtures to enhance safety and the pedestrian experience at night, as well as improve energy efficiency and reduce maintenance costs.

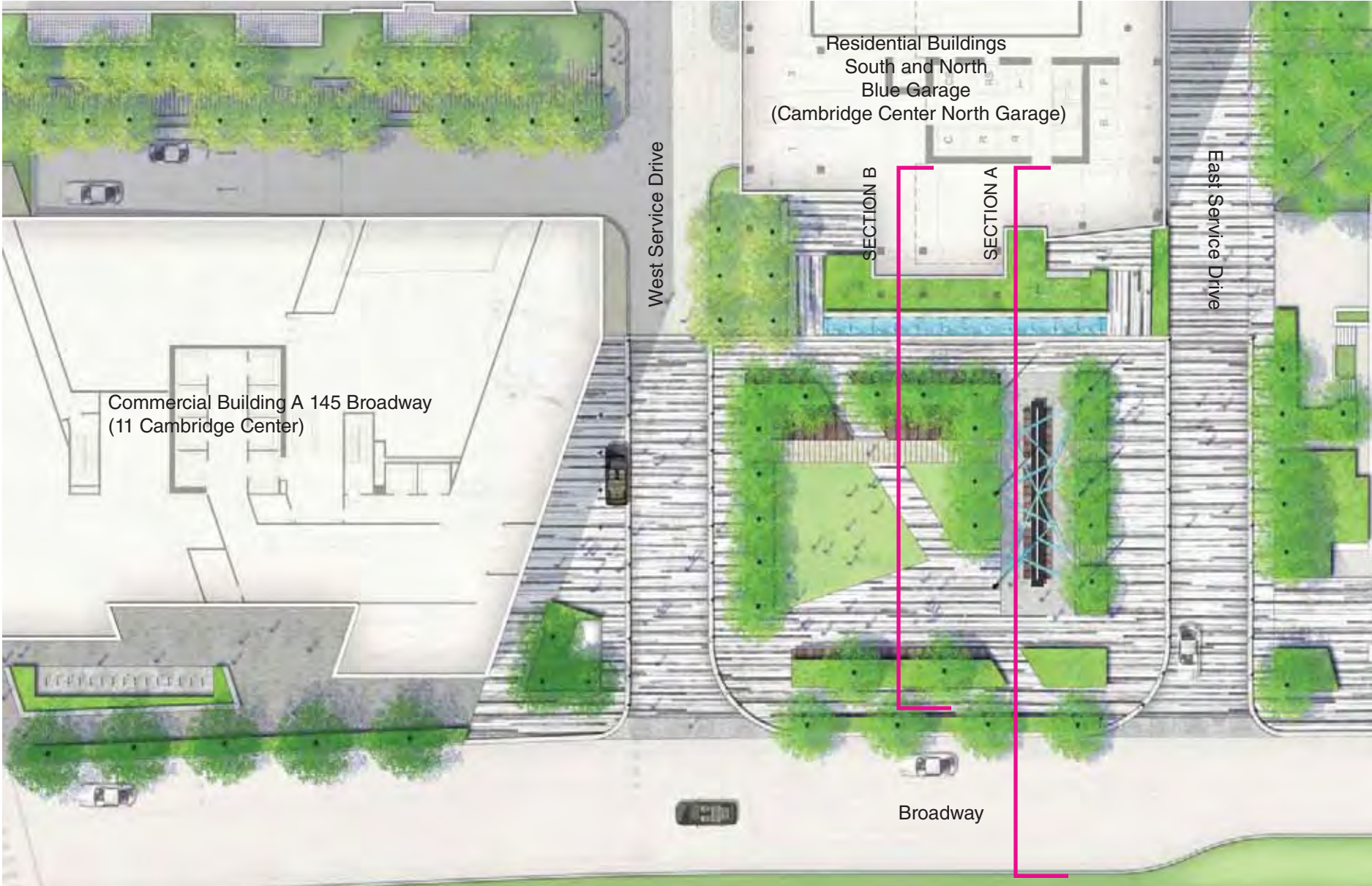




LOOKING NORTH ALONG THE 6TH STREET CONNECTOR



# 3.2 DETAILS - OPEN SPACE PLANS



BROADWAY PARK





BROADWAY PARK SECTION A



BROADWAY PARK SECTION B

## 3.2 DETAILS - OPEN SPACE PLANS



BINNEY PARK





BINNEY PARK SECTION A



BINNEY PARK SECTION B

## 3.2.1 PUBLIC PROGRAMMING

### MXD DISTRICT PUBLIC PROGRAMMING

The redesign of Broadway Park and Binney Park create new open space programming opportunities in the MXD District. Broadway Park is at a highly visible location near the center of the MXD District and is envisioned as a key gathering space for employees, residents and visitors. The expanded Broadway Park has a small flexible lawn area and a contiguous paved area which could be the setting for community events such as performances, outdoor cinema, temporary public art installations, market, and other events and gatherings. The community table in Broadway Park is envisioned being used for outdoor dining, as a meeting place, board game table, outdoor classroom as well as other possible programmed events. Existing Binney Park, at the northern edge of the MXD District, is currently a small green space with paths to the parking garage. With new active ground floor uses planned for the edge of Binney Park, the park is envisioned as a more usable public space. There is an expanded range of seating places, including colorful structures that support netting and may be used as informal and relaxing seating structures, appealing to adults as well children. These unique seating structures could be used by employees during the weekday and be used as play structures at other times.

These programming opportunities complement the current programming initiatives that are underway in the MXD District at the Kendall Plaza on Main Street and the Kendall Square Roof Garden above the Green Garage. Programming in these spaces is focused on creating engaging opportunities for all communities including office workers, residents, students, visitors within Kendall Square to connect and interact. Ongoing events on Kendall Plaza include a seasonal farmer's market on Kendall Plaza, concerts with both Cambridge institution Club Passim and Berklee College of Music, and participatory community art projects and performances with the Community Art Center and the Multicultural Arts Center. In addition, temporary public art installations are sourced annually for the Plaza, and include a sidewalk mural in collaboration with the Cambridge Science Festival this spring, as well as an upcoming collaboration with local non-profit Now + There. Programming on the Kendall Square Roof Garden includes free fitness programming, cooking demonstrations and tastings, urban gardening workshops and available lawn games. Both spaces are programmed with cushions for easy, portable seating and participate in programs through the KSA, including hosting libraries as part of the Kendall Reads promotion. Partnerships with local non-profits enhance activities in these spaces and provide valuable exposure for local community groups and an opportunity for office customers to participate in the community around them.

### PUBLIC PROGRAMMING ELEMENTS

#### A. BROADWAY PARK

Outdoor Community Table (Collaboration Space)  
Outdoor Seating (Collaboration Space)  
Summer Movies / Concerts / Digital WIFI Connection

#### B. 6TH STREET CONNECTOR

Outdoor Seating (Collaboration Space)

#### C. BINNEY PARK

Outdoor Seating (Collaboration Space)  
Sculptural Netting  
Interactive Lounge Seating  
Children's Play

#### D. GRAND JUNCTION

Outdoor Seating (Collaboration Space) / Bike Path

#### E. BINNEY STREET PARK "Play Valley"

Hitching Posts for Hammocks / Rock Climbing Walls  
Sculptural Netting / Children's Play

#### F. KENDALL PLAZA

Outdoor Seating (Collaboration Space) / Summer Concerts  
Public Markets / Temporary Public Art Installations  
Community Partner Programming

#### G. KENDALL SQUARE ROOF GARDEN

Outdoor Seating (Collaboration Space) / Fitness Classes  
Urban Gardening Workshops / Cooking Demonstrations/Tastings  
Lawn Games

#### H. POINT PARK

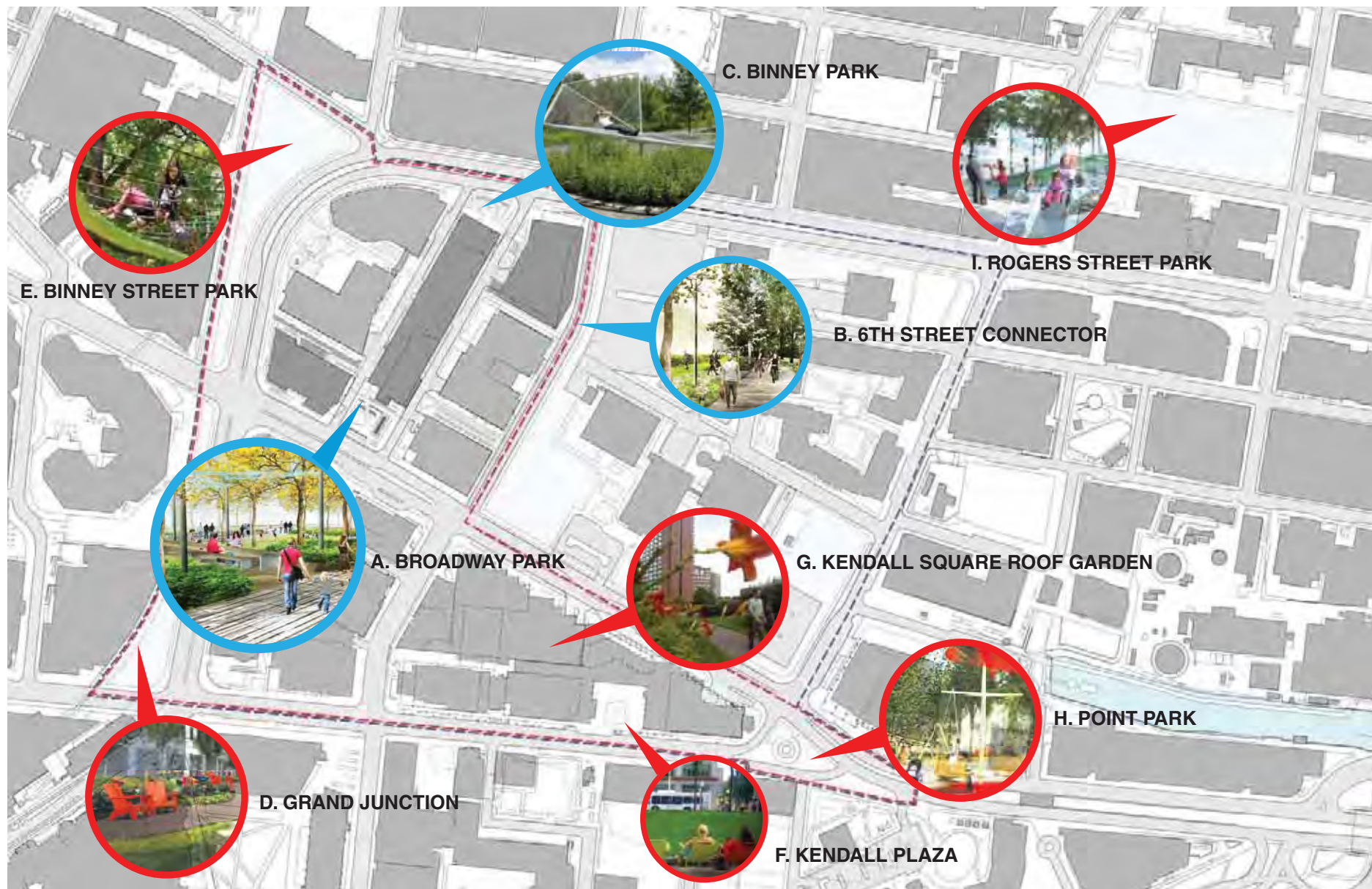
Outdoor Seating and Gathering / Sculpture Park

#### I. ROGERS STREET PARK

Outdoor Seating / Water Play / Dog park / Bike Loop

■ Enhanced Open Spaces included in Project  
■ Open Spaces Projects not part of Project





- Enhanced Open Spaces included in Project
- Open Spaces Projects not part of Project

## 3.3 PEDESTRIAN ACCESS AND CIRCULATION

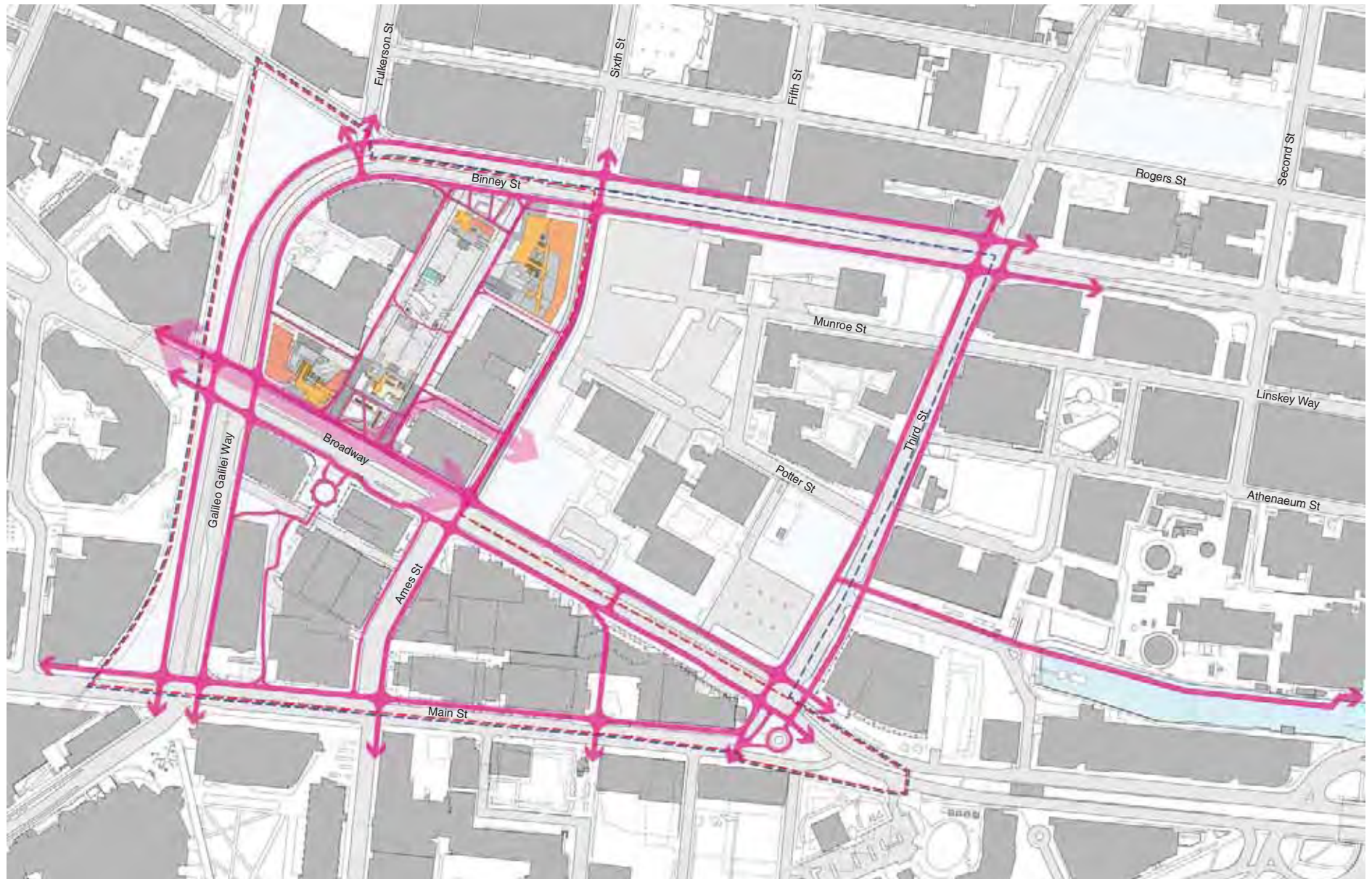
The proposed enhancements to the pedestrian network and open spaces between Broadway and Binney Street are planned to logically extend to adjacent areas in East Cambridge. Broadway Park is the northernmost in a sequence of open spaces extending southward to Danny Lewin Park and further southward to Main Street. To reinforce the connectivity of these spaces, a mid-block crosswalk should be considered from the southeast corner of Broadway Park to the south side of Broadway.

The proposed improvements to the Sixth Street Connector for pedestrians and bicyclists are an extension of pedestrian and bicycle paths on Ames Street to the south and Sixth Street to the north.

With the expanded Commercial Building A, along with new active uses at the ground floor that front Broadway, the Broadway streetscape should have a positive impact on east west pedestrian use. The new expanded streetscape design at 145 Broadway will accommodate this new pedestrian volume. This east west pedestrian route along the north side of Broadway could potentially be further enhanced in the future, if and when 105 Broadway redevelops, which could include an expanded streetscape zone and active ground floor uses. Further eastward, the future redevelopment of the Volpe site could continue this activated street edge on the north side of Broadway.

The redevelopment of the Volpe site opens up additional opportunities to break down the scale of the Volpe superblock and extend a network of paths through the site that would logically connect to the enhanced pedestrian connectors to the west in the MXD. While it is difficult to speculate on how this site may get redeveloped, it is possible that the East West Connectors could provide a series of logical pedestrian connections that would facilitate the integration of the Volpe site to the MXD District and East Cambridge.





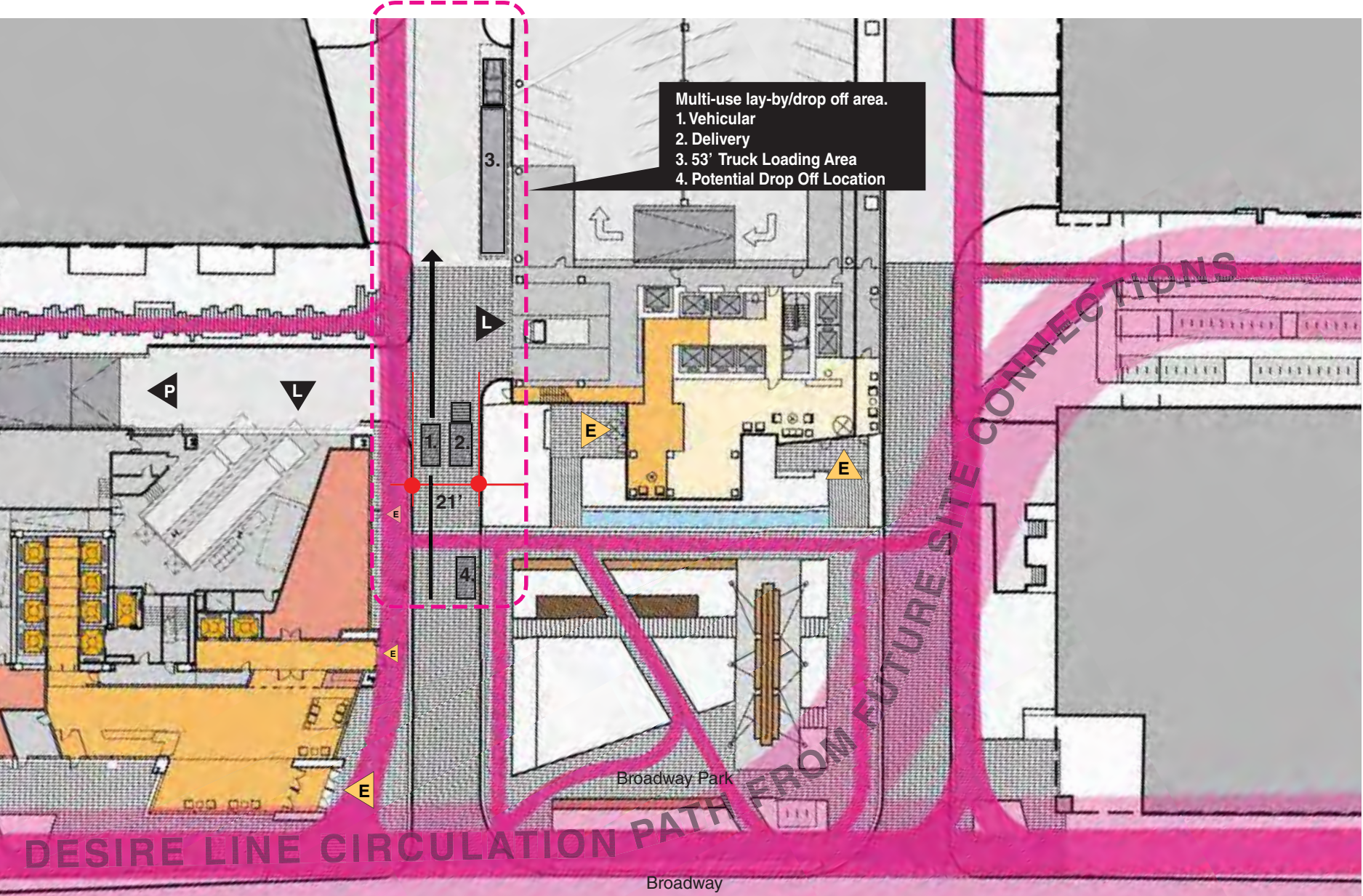
— Circulation Routes

— Lobby

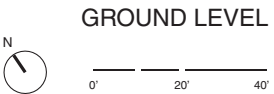
— Active Use

FIGURE R5.3.1A

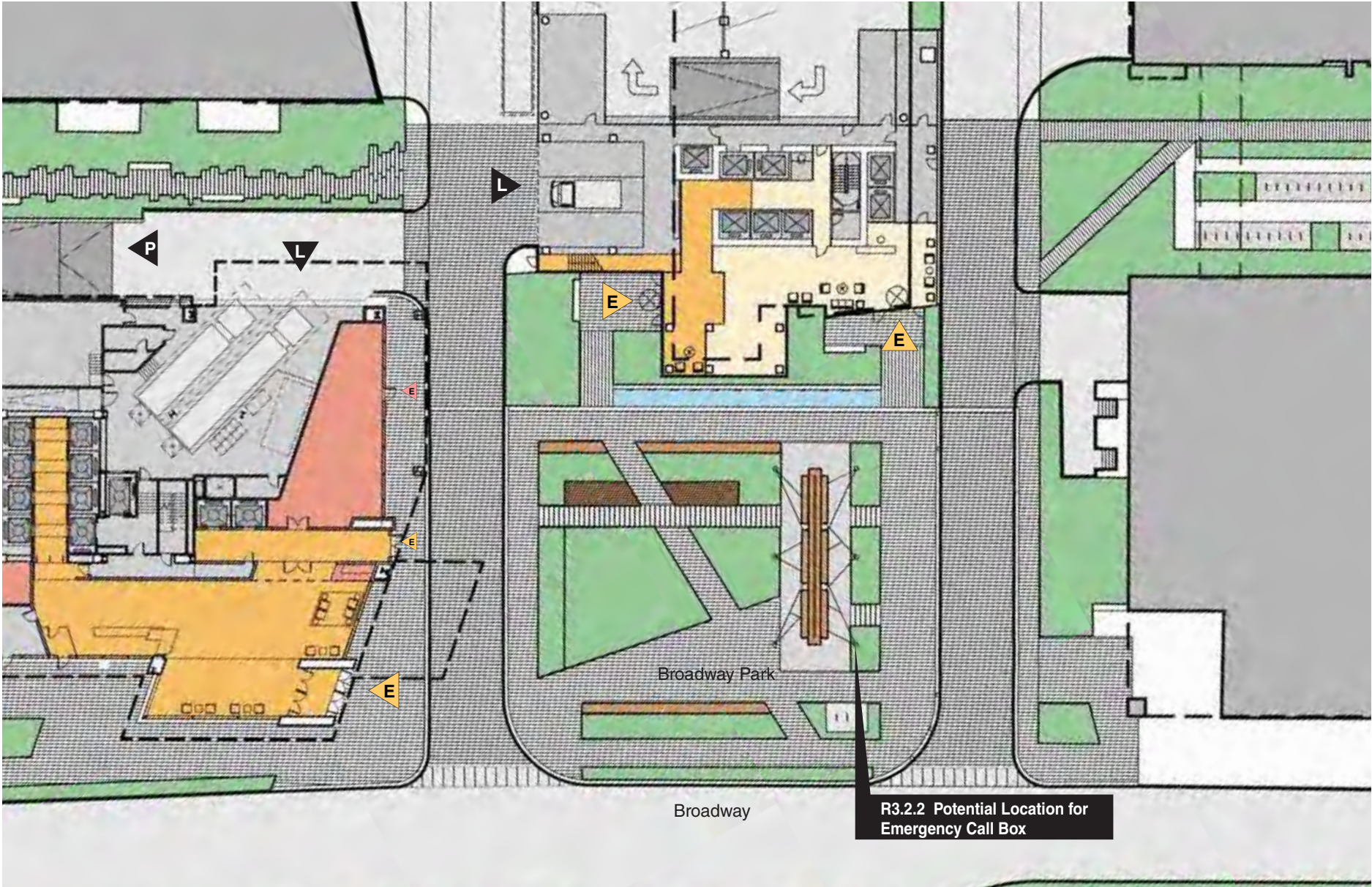




- ← Vehicular Passing
- Circulation Routes
- Yellow square: Lobby
- Orange square: Active Use
- Parking Entrance Loading (P/L symbol)
- Entrance (per use type) (E symbol)







Orange Lobby  
Red Active Use

P Parking Entrance  
L Loading

E Entrance (per use type)



GROUND LEVEL

0' 20' 40'





# 3.3 STREETSCAPE / LANDSCAPE IMPROVEMENTS

## STREETSCAPES

### COMMERCIAL BUILDING A - STREETSCAPE ON BROADWAY AND GALILEO GALILEI

The design of the 145 Broadway streetscape along Broadway and Galileo Galilei Way has been developed in parallel with the design of Broadway Park. The planting zones along Broadway are aligned in front of 145 Broadway and Broadway Park to extend continuity of pedestrian walking zones as well as planting along Broadway. Short term bicycle parking will be located along the Broadway streetscape framed with low planting.

The eastern façade of 145 Broadway is splayed to open up the corner along Broadway at the street leading to the Blue Garage. The concrete unit pavers of Broadway Park extend to meet the eastern façade of 145 Broadway, thereby extending the park westward to position the entry and active use at 145 Broadway as the western edge of Broadway Park.

### BLUE GARAGE EAST AND WEST SERVICE STREETS

The existing service streets flanking the Blue Garage have rather narrow sidewalks on the opposite side of each street from the garage, which are constrained by existing buildings, planting and loading areas. There are however opportunities at the north and south ends of these streets, adjacent to the proposed buildings, to expand pedestrian space. There are also some selected opportunities to widen the sidewalk or enhance the planting along these streets beyond the zone of new buildings. The sidewalks along these streets are interrupted by several service drives and parking garage entries which cross the pedestrian paths. The paving of the sidewalks should extend over the driveways to clearly define pedestrian circulation.

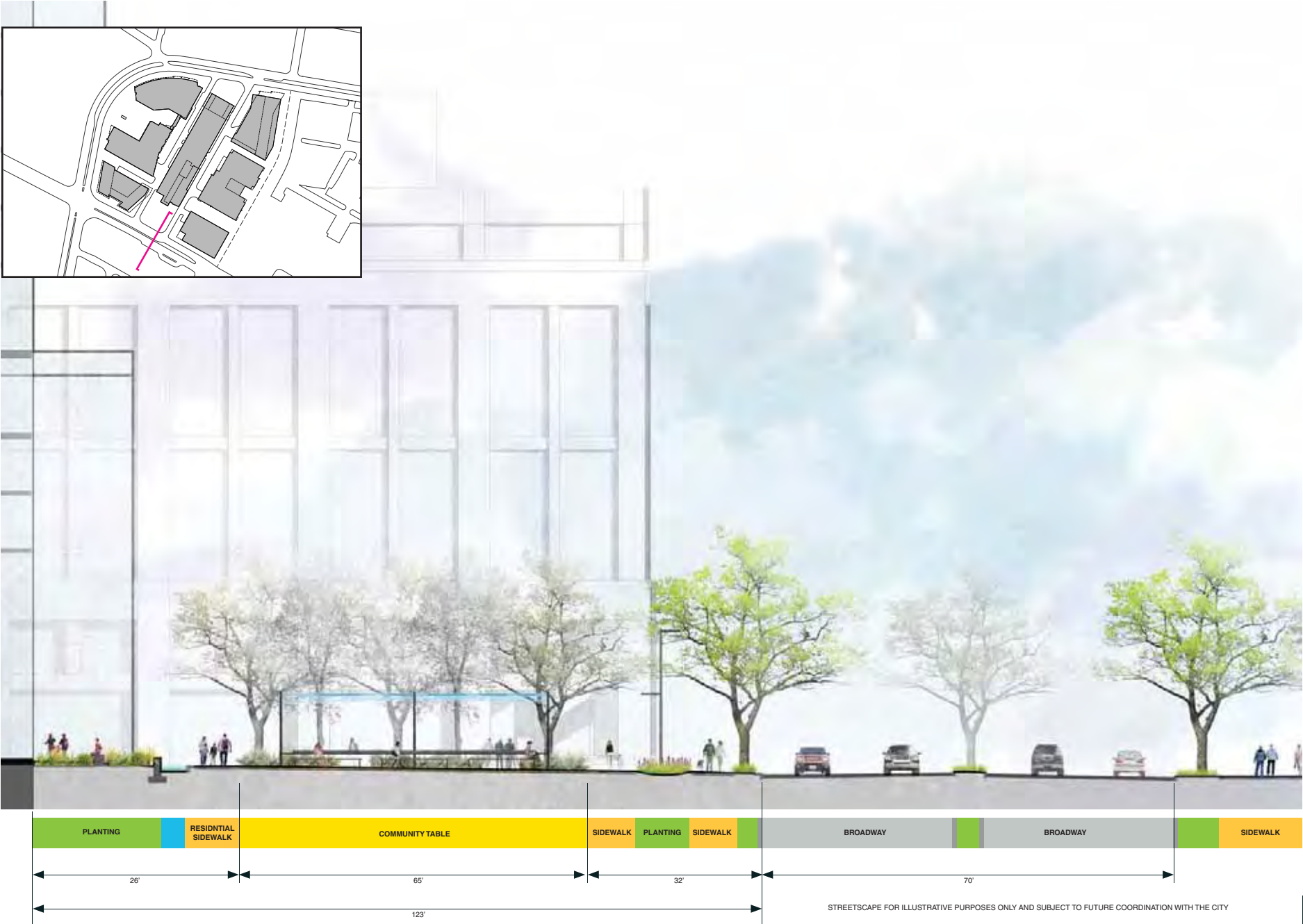
### COMMERCIAL BUILDING B - STREETSCAPE ON BINNEY STREET

The existing streetscape at 250 Binney Street consists of green space in a setback from the street. The new active ground floor uses proposed for both 250 Binney Street and the new north residential building contribute toward making Binney Street a more vital urban street with multiple entries to buildings in the streetscape zone. While the Binney Park is predominantly a green space, the design of the streetscape shifts to a more urban expression with paved areas extending to the proposed buildings and to eastward to make a connection to the Sixth Street Connector.

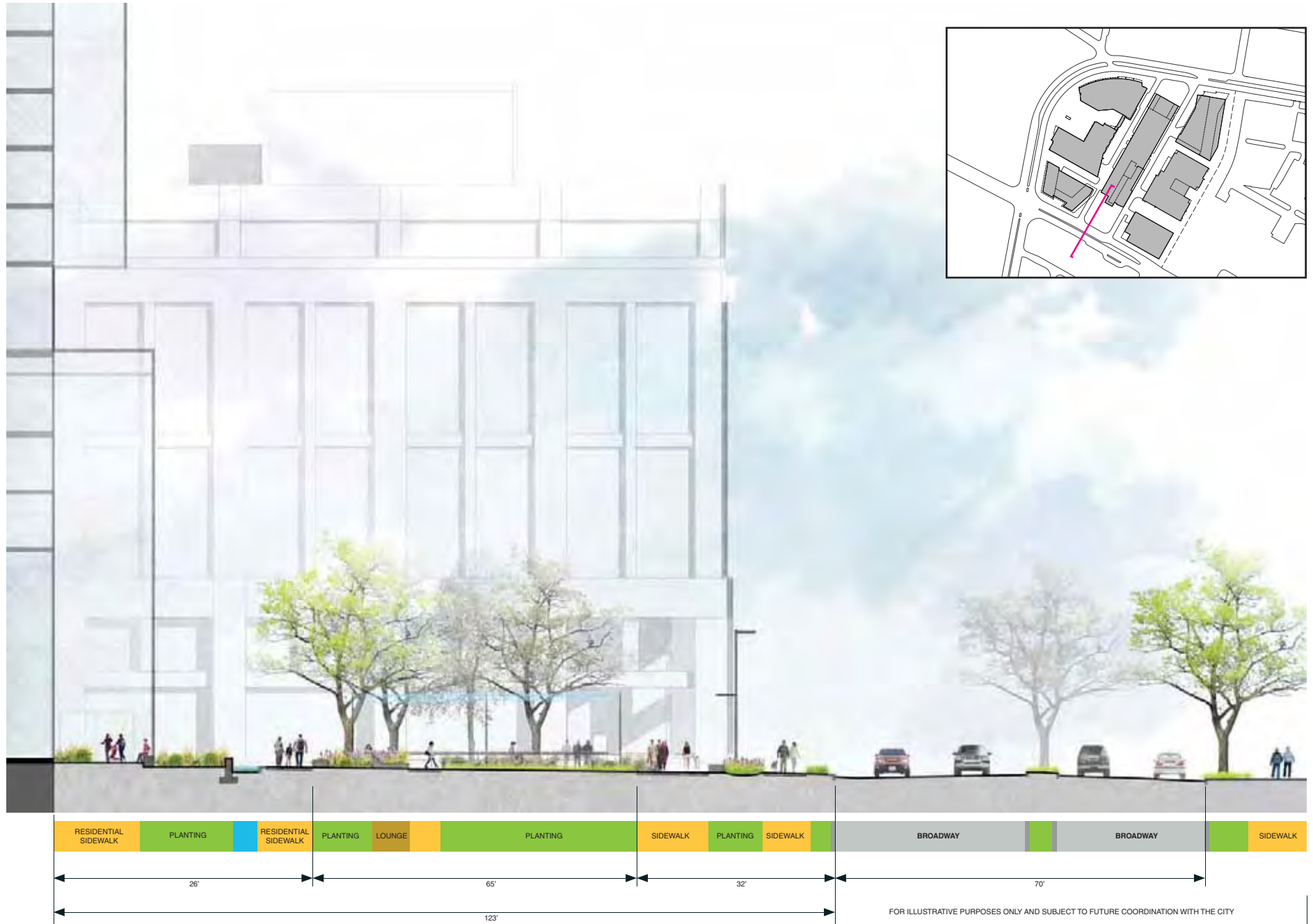
The existing Hubway bike zone is integrated into the streetscape design along Binney Street with planting separating the building lobby from the bike area. Binney Street has a continuous green planting zone with street trees between the sidewalk and the curb which will extended along Binney Street at the park and at 250 Binney Street.

# 3.3 STREETSCAPE / LANDSCAPE IMPROVEMENTS

BROADWAY PARK



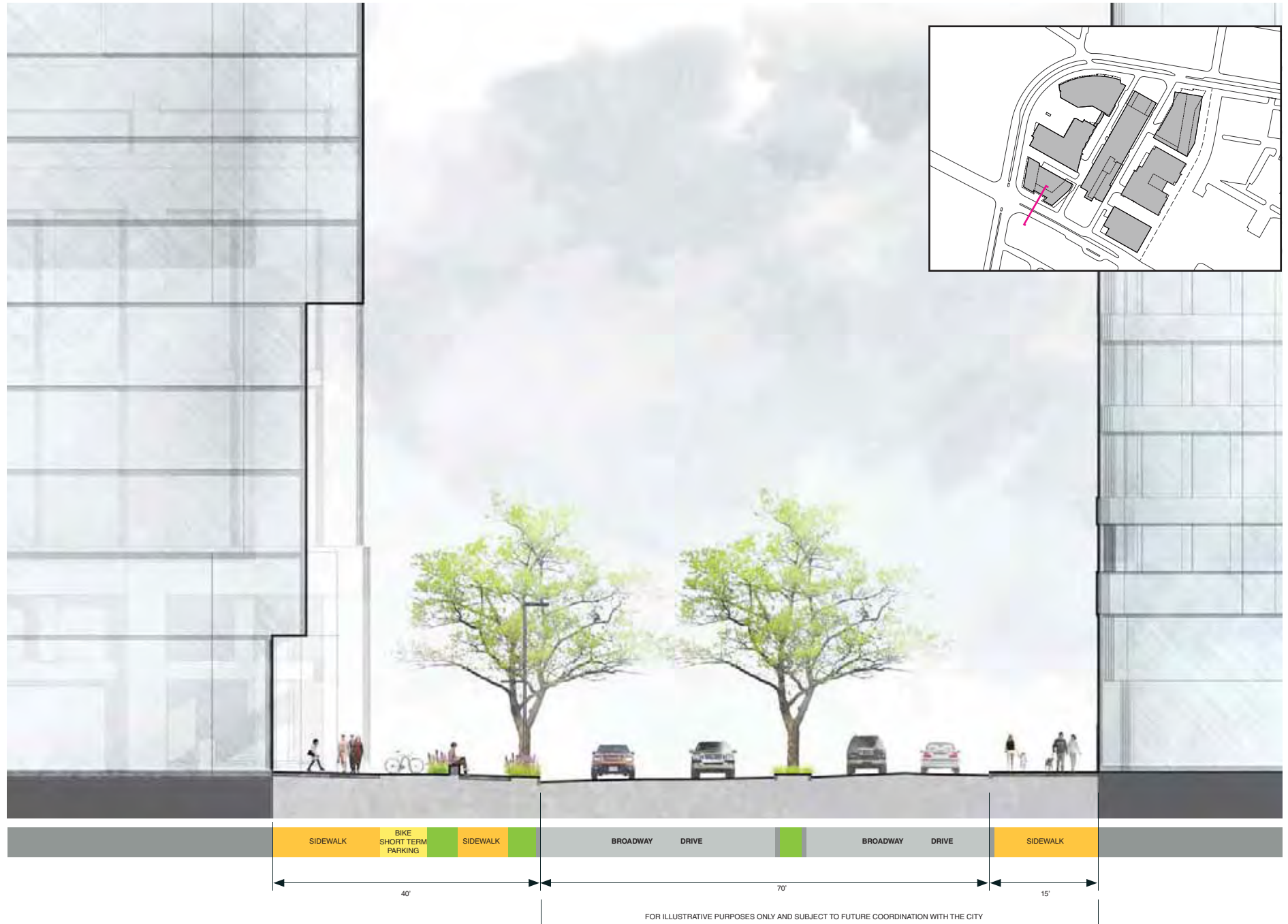




BROADWAY AT 105 BROADWAY

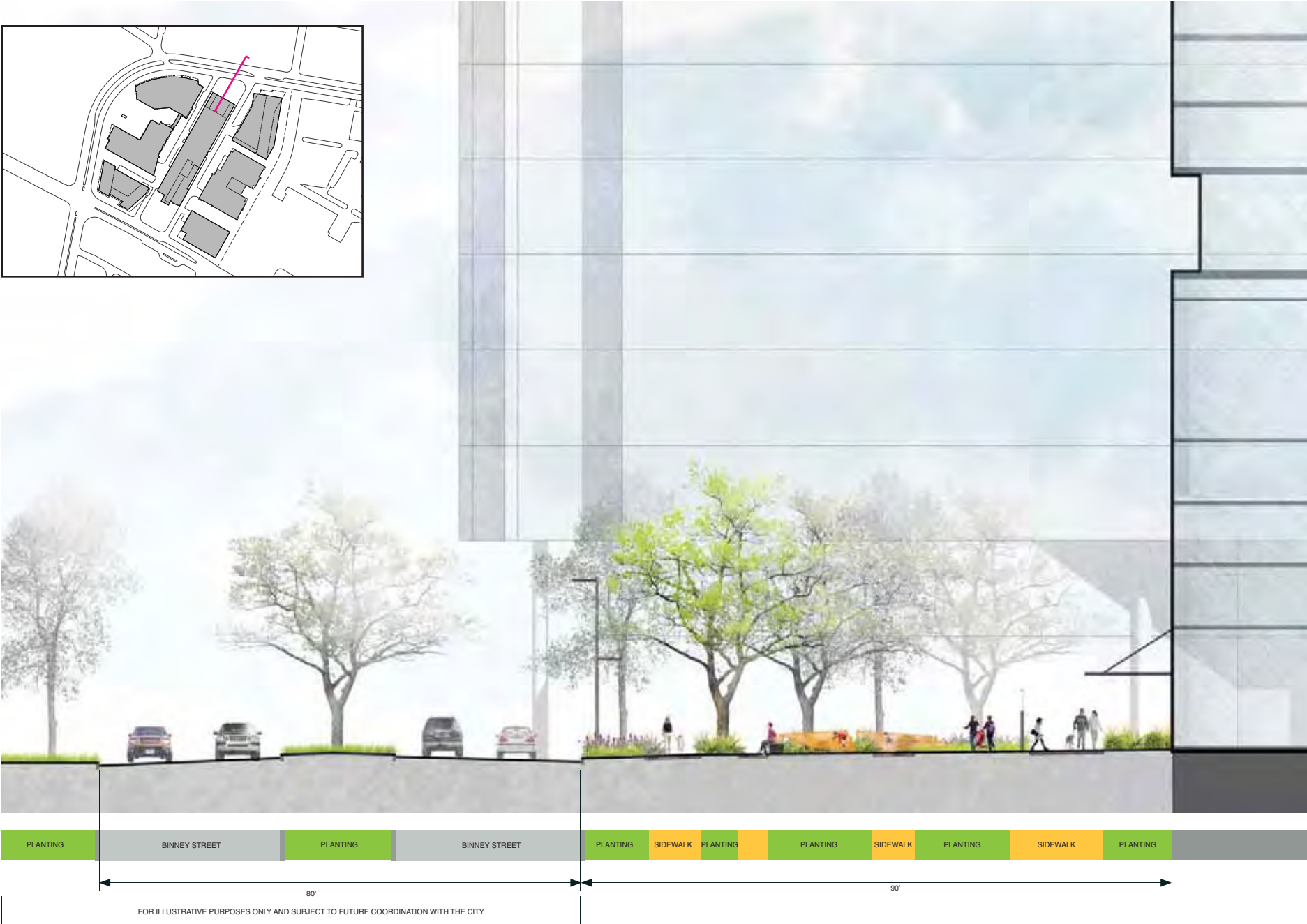






# 3.3 STREETSCAPE / LANDSCAPE IMPROVEMENTS

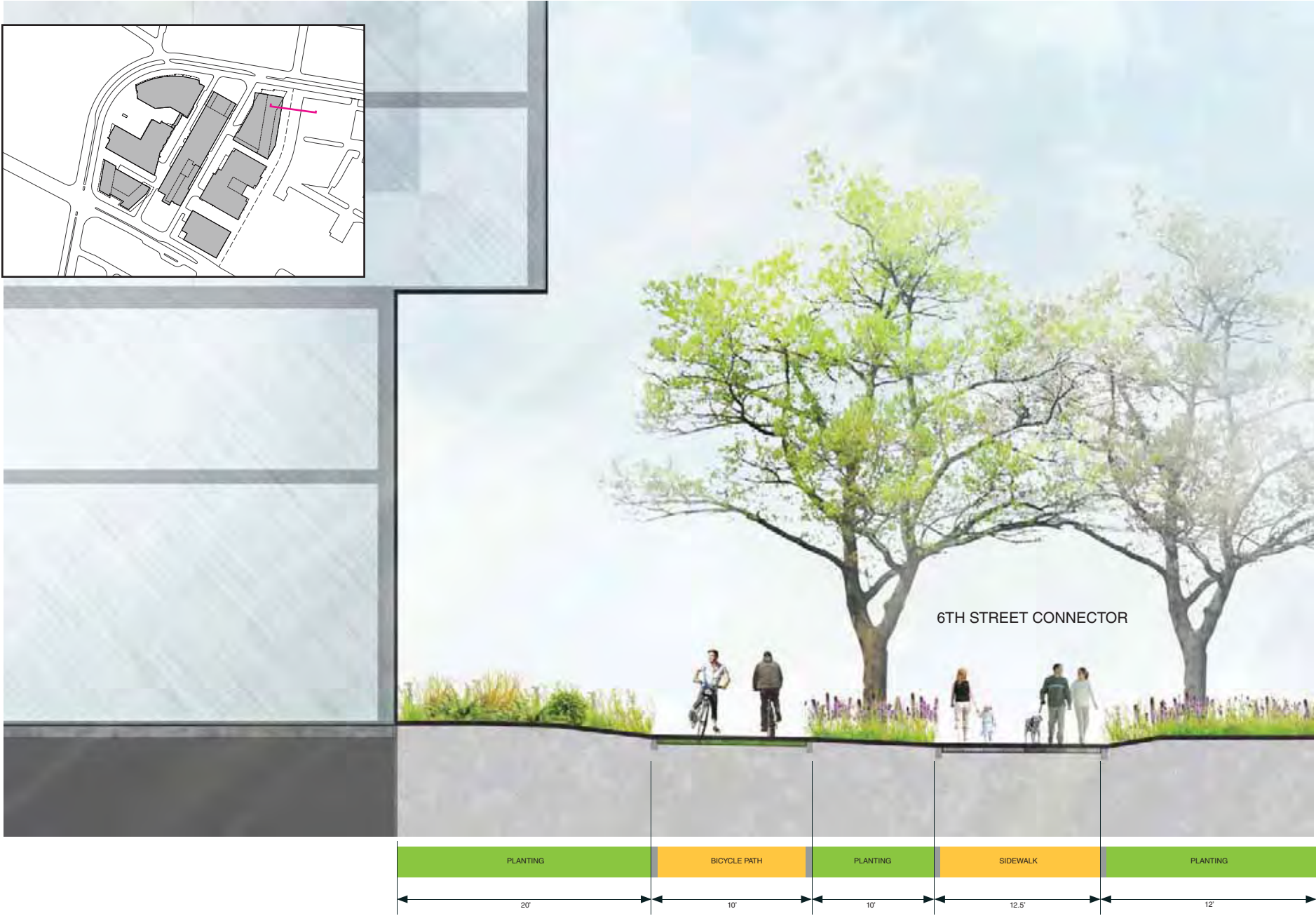
BINNEY PARK AND BINNEY STREET



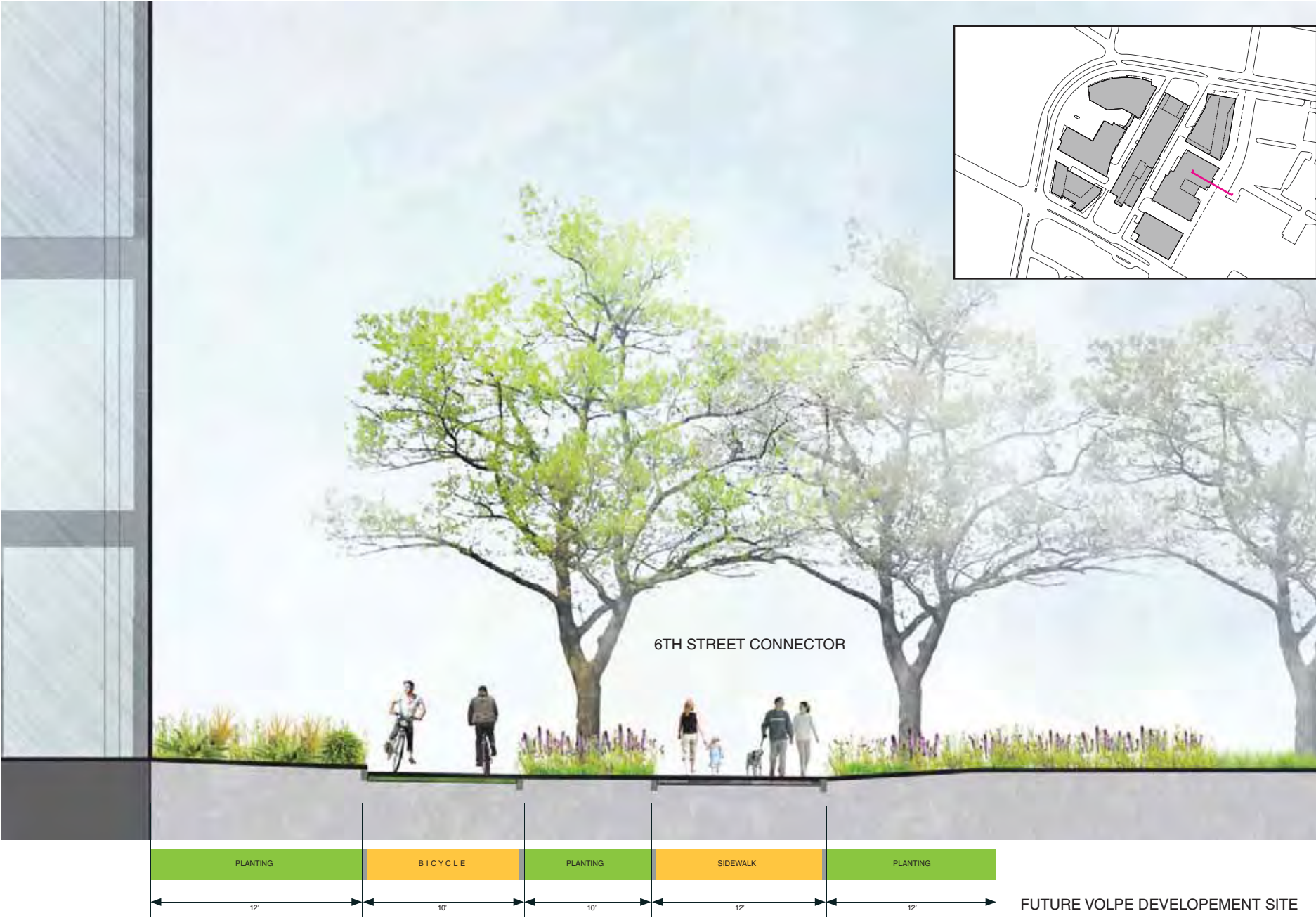




6TH STREET CONNECTOR AND 250 BINNEY STREET

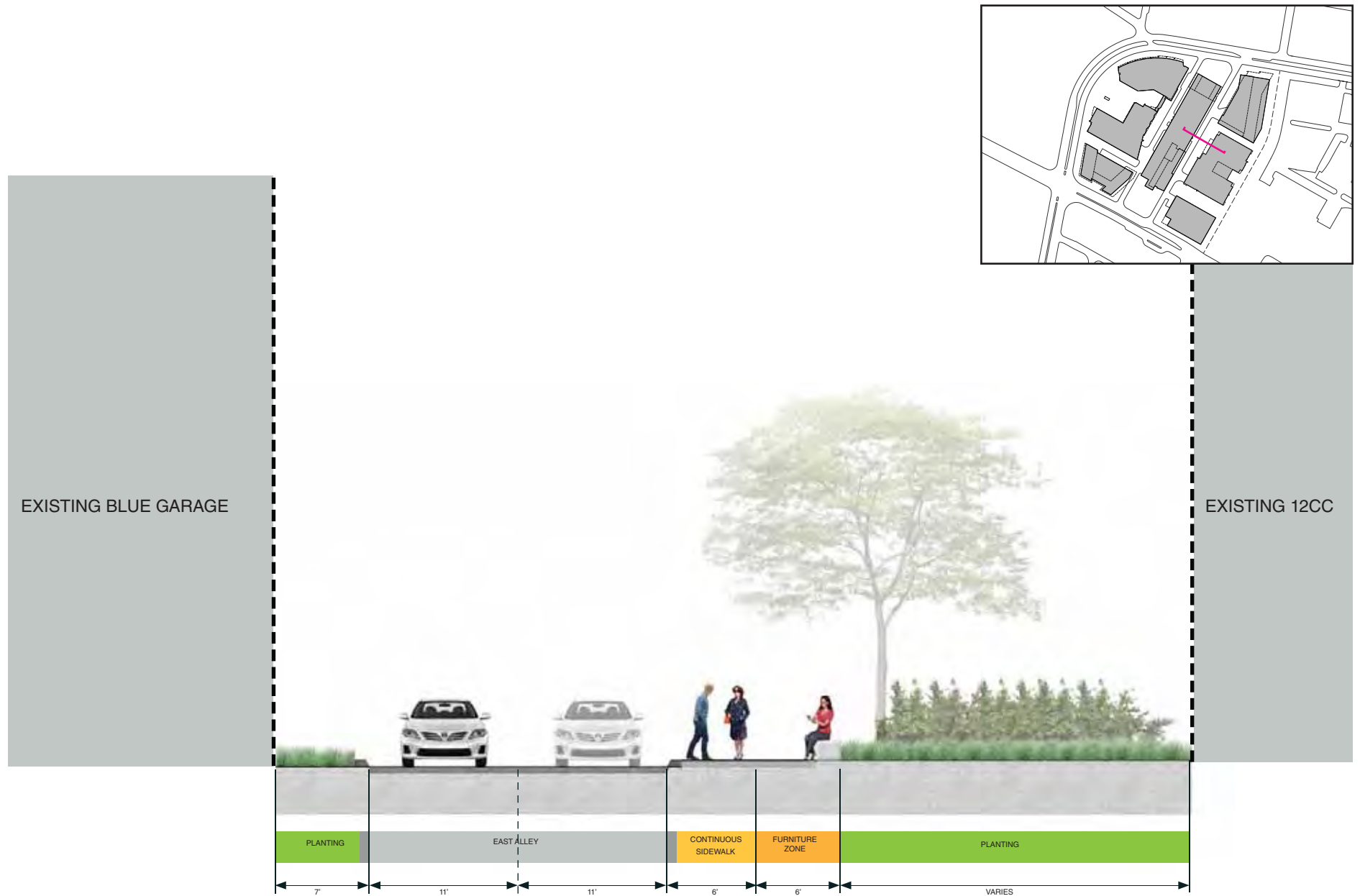












# 3.3 WAYFINDING

## KENDALL SQUARE IDENTITY BRANDING AND WAYFINDING

The Kendall Square area is in the midst of implementing a new civic wayfinding system, intended to clarify navigation around the area and to enhance its identity as a vibrant, innovative community. This effort, led by the Kendall Square Association (KSA) in partnership with the CRA, is a welcome addition to the community, which has traditionally lacked a comprehensive, district-wide system. Simultaneously, other signage projects, in various stages of completion, create new visual layers and visual complexity. Notably the Biogen campus is revising building and amenity identification, with new freestanding signs, directionals, and building graphics (See image 2 - Biogen Omloop). Surrounding properties, collectively known as Kendall Center, are likewise in the process of revising building identity, tenant signage, and directories. Visible elements, such as large-scale parking structure graphics, bring more visual stimulation. (See image 1- Blue garage)

In this context, the Concept Plan will be sensitive to existing and ongoing efforts. As the site develops, it will align with the visual language and messaging of district-wide wayfinding, while enabling individual buildings and tenants to express their identity. The Concept Plan is an opportunity to not only align with, but also to enhance, district-scale wayfinding. Taking visual cues from the KSA system, the Project can welcome visitors to public spaces clearly marking parks and privately-owned park space (POPS) and enliven the 6th Avenue Connector with environmental graphics. There are additional opportunities for storytelling and interpretive elements that introduce pedestrians to the unique culture of the Kendall Square community while maintaining a sense of continuity within the district. (See Image 3 Lawn On D)



IMAGE 1 BLUE GARAGE PLACEMAKING AND IDENTIFICATION



IMAGE 2 BIOGEN OMLOOP



IMAGE 3 LAWN ON D



BRANDING AND WAYFINDING EXMPLES AROUND THE MXD / KSURP AREA



## 3.3 WAYFINDING

### KENDALL SQUARE IDENTITY BRANDING AND WAYFINDING

A key part of implementing the Concept Plan wayfinding system will be an assessment and inventory of proposed and existing signage. An investigation will document all municipal and private signage in order to provide recommendations for enhancing, removing, consolidating, or updating elements. This is essential to contribute to a harmonious, legible, and navigable urban experience, any new signage will be sensitive to existing visual and urban cues -- from streetscape elements to building signs.

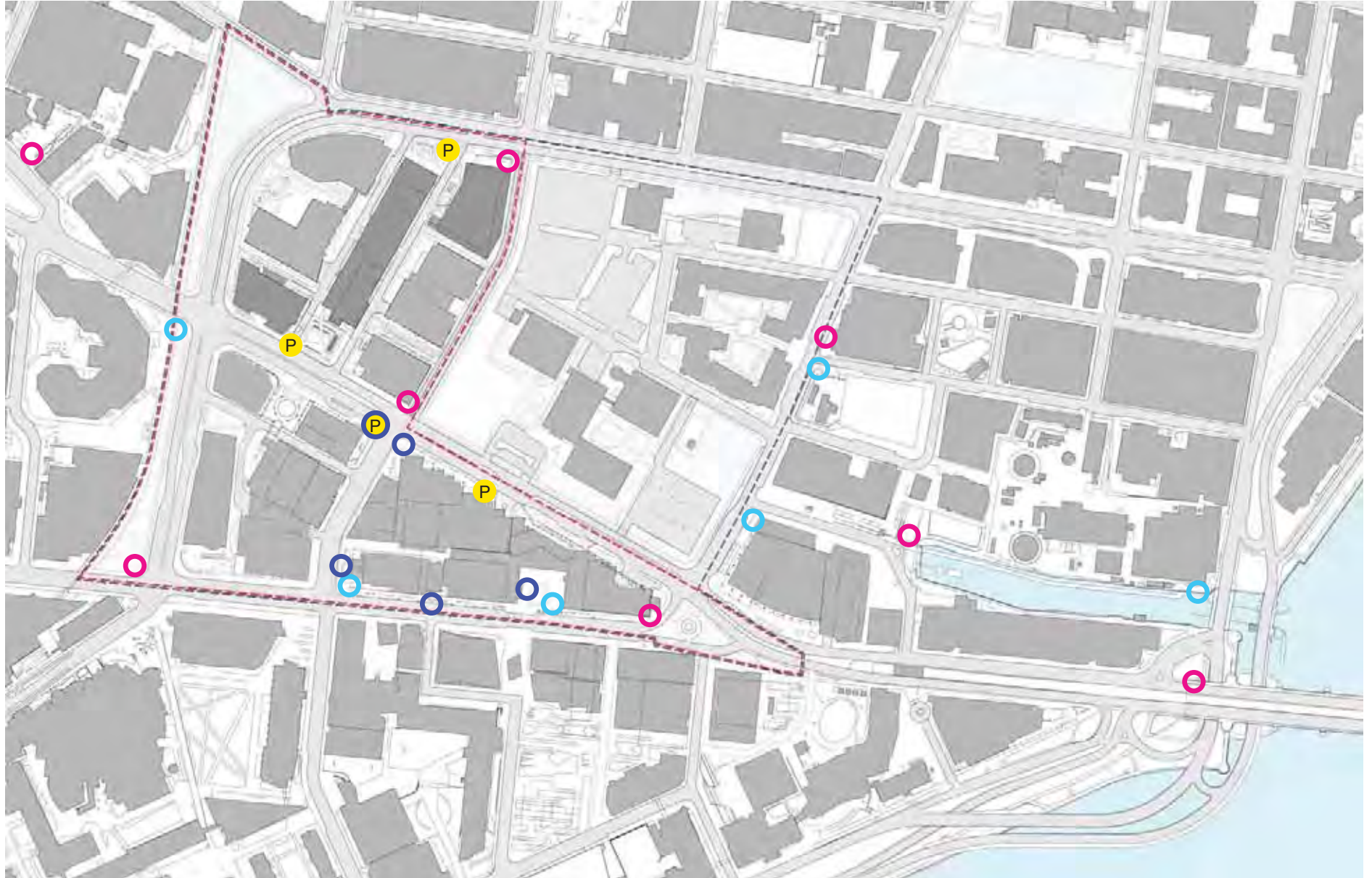
An established set of visual guidelines, along with a toolkit, will encourage and enable building tenants to maintain consistency throughout the system. As tenants implement components of the system, the guidelines will govern the overall esthetic, including both stylistic and material aspects. Such a system may also incorporate requirements for individual tenants to maintain and update relevant components, ensuring that the system remains current and functional.

This system is meant to function within established review and approval processes, with oversight from the CRA and KSA. Its intent to enhance current wayfinding and contribute to a strong, coherent sense of place in Kendall Square.



KSA DISTRICT SIGNAGE





- Pilot Kiosk Locations
- Potential Kiosk Locations
- Freestanding Directory Locations
- Public Parking Sign

# 3.4 TREE MITIGATION AND PROTECTION PLAN

## ASSESSMENT OVERVIEW

The assessment of existing trees on the project site-MXD Parcel 2 and adjacent Lowry Walkway (also known as 6th Street Connector)-was conducted by Barlett Tree Experts. Barlett assessed the conditions of the said trees based on the species, their growing conditions, and the current constraints impacting the trees. The following points were used in considering the conditions and the future viability of the trees on the site:

1. Life span of species
2. Constraints on soil depth
3. Soil compaction
4. Tree canopy competition
5. Insect damage
6. Impact of Sasaki's design intent

Additional information regarding diameter at breast height (DBH) of trees are referenced in existing survey (Appendix SV-1).

## LOWRY WALKWAY (6TH STREET CONNECTOR)

The red oaks (*Quercus rubra*) along this portion of the site were assessed to be in good condition. The intended materials of Sasaki's design for the walkway (primarily concrete pavers with sand joints and pervious asphalt systems) would allow for proper water penetration and gas exchange, while minimizing negative impacts on the existing root structure and system, beneficial to the long-term lifespan of the trees. Additional measures to be taken to ensure the long-term health of the trees along the walkway will be as follows:

1. Maintain a minimum of 10-foot radius of uncovered, natural soil around each tree.
2. Allow for an expanded soil zone for the existing oak trees by raising the sidewalk to the height of the existing curb.

Additional information regarding the management of the trees within the 6th Street Connector are located within the management plan from the arborist (Appendix A).

## BROADWAY (STREET)

The little-leaf lindens (*Tilia cordata*) along Broadway were identified to be in poor condition due to their limited root zone and soil compaction.

## BROADWAY PARK

The Japanese Elms (*Zelkova Serrata*) within the existing Broadway Park, in front of the North Garage, were evaluated to be in fair condition, though several of the trees have become constrained due to canopy competition amongst other existing Japanese elm in the area.

## EASEMENT C (EXISTING TRACT II)

The birch trees (*Betula*) north of Commercial Building A were evaluated to be in poor condition. Due to birch trees being an early successional tree species, the trees have lived past their life expectancy.

## BLUE GARAGE

The Red Maples (*Acer rubrum*) along the North Garage were evaluated to be in poor condition, suffering from limited root zone and soil compaction. Due to the red maple trees being an early successional tree species, these trees have lived past their life expectancy.

## PROPOSED TREES – GENERAL STRATEGY

Trees being placed in for the proposed landscape will be positioned and located for optimal growing conditions. Larger tree spacing between trees, maximum soil volumes and depth will be employed as part of the design solution. At constrained soil conditions, structural soil will be deemed suitable for use.



# TREE MITIGATION AND PROTECTION PLAN

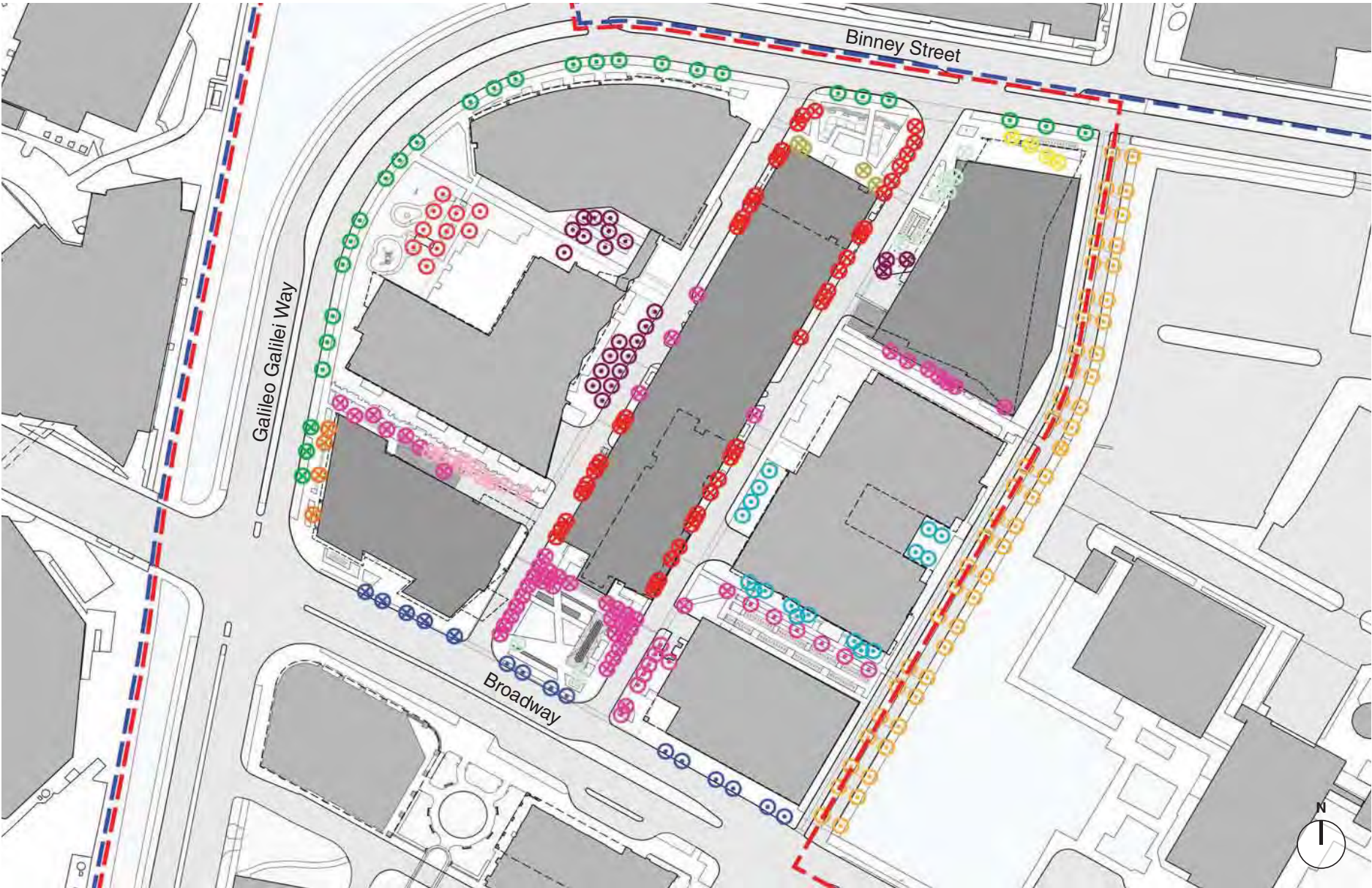
TREE PROTECTION PLAN



- Trees for Protection
- Trees for Removal



EXISTING TREE IDENTIFICATION AND SPECIES TYPE



- |  |   |   |  |
|--|---|---|--|
| <span style="color: red;">■</span> <i>Acer rubrum</i> (Red Maple)            | <span style="color: purple;">■</span> <i>Gleditsia triacanthos</i> (Honey Locust)     | <span style="color: magenta;">■</span> <i>Zelkova serrata</i> (Zelkova)       | <span style="color: olive;">■</span> <i>Pinus Nigra</i> (Austrian Pine)    |
| <span style="color: yellow;">■</span> <i>Acer Japonicum</i> (Japanese Maple) | <span style="color: pink;">■</span> <i>Betula papyrifera</i> (White Birch)            | <span style="color: blue;">■</span> <i>Tilia Cordata</i> (Little-Leaf Linden) | <span style="color: orange;">■</span> <i>Malus coronaria</i> (Crabapple)   |
| <span style="color: orange;">■</span> <i>Quercus rubra</i> (Red Oak)         | <span style="color: cyan;">■</span> <i>Crataegus crus-galli</i> (Thornless Hawthorne) | <span style="color: green;">■</span> <i>Platanus occidentalis</i> (Sycamore)  | <span style="color: lightgreen;">■</span> <i>Prunus serrulata</i> (Cherry) |







EXISTING SIGNIFICANT TREES (8" DBH+)



- Significant Tree to Remain (Trees with a DBH of 8" or higher)
- Removal of Significant Tree (Trees with a DBH of 8" or higher)
- Tree to Remain (DBH of Lower than 8")
- Removal of Tree(DBH of Lower than 8")





- Trees for Protection
- Proposed Trees





## 4. RETAIL PLAN







## 4. INTRODUCTION

Retail will play an important role in helping to define the success of the Concept Plan by enlivening the streetscape and establishing the Project's relationship with the surrounding community. The ground floors of all proposed buildings will be designed to accommodate functional active use space, which may include retail where appropriate. Further, buildings that are not part of the Concept Plan—including 105 Broadway, 150 Broadway and the Broadway side of the 255 Main Street—are contemplated in this plan as future potential retail in order to offer additional context to envision Broadway as a retail corridor.

The following goals will be pursued when designing the retail program:

- Locating retail in visible well-traveled areas that will help ensure its viability.
- Examining the broader market mix of current and proposed retail in Kendall Square to ensure that potential retailers are complementary of existing offerings
- Identifying retailers that can serve the diverse, 24/7 needs that come with a mixture of residential and commercial development from convenience and consumer service retail to place making dining offerings
- Selecting retailers with a viable business model and material operational experience
- Creating a retail program consistent with the requirements of Article 14

In order to realize the goals above, the Project as a whole needs to be designed to ensure retail is viable by directing major pedestrian and bicycle access corridors to and past proposed retail locations. This important design guideline will help reinforce the City's chosen retail corridors along Broadway and create a dynamic and enlivened streetscape.

Further, the potential program needs to reflect the existing and newly proposed retail in other projects in Kendall Square to minimize programmatic redundancy and potential market conflicts. For example, it is commonly agreed that Kendall Square would benefit from a grocery store or pharmacy. As of the date of this submission, it is understood that the MIT NOMA SOMA project is actively pursuing both a grocery store and a pharmacy. Accordingly, the Concept Plan does not contemplate a grocery store or pharmacy at this time, as it would directly conflict and potentially impair the future success of the planned MIT grocery and pharmacy.

## 4.1 EXISTING RETAIL

The Kendall Square retail market is composed of a diverse mix of offerings, the majority of which are food and beverage establishments. In addition, the majority of the retailers in the area are local or independent, as opposed to national chains. The existing retail in and around Kendall Square can be divided into uniquely defined zones offering a different mix of tenants and retail experiences. This context will help inform the retail planning within the Project.

### MAIN STREET

The area along Main Street in proximity to the Kendall Square MBTA Red Line stop is composed mostly of restaurants, bars and fast casual offerings split between local retailers and national chains. The restaurants are defined by a diversity of culinary offerings that serve the local neighborhood and visitors alike. In addition, Kendall Square features boutique and national hotels as well as the MIT Coop bookstore.

### BROAD STREET AND THIRD CANAL

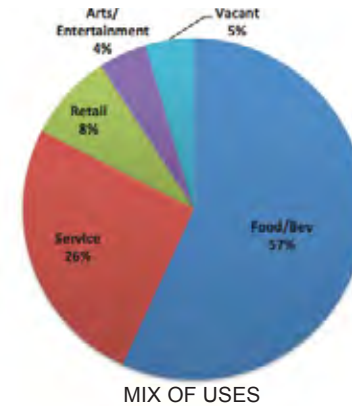
This developing retail area features a mix of restaurants with abundant outdoor seating situated along a landscaped plaza.

### ONE KENDALL SQUARE

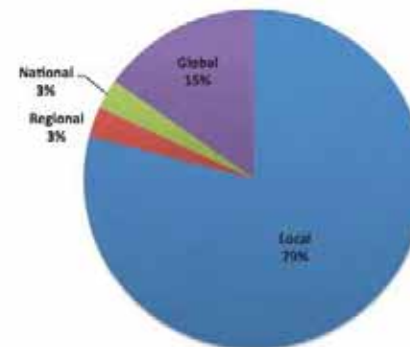
The area around the mixed use One Kendall Square project includes a movie theater, mix of restaurants and a brew pub.

### CAMBRIDGESIDE GALLERIA

The nearby Cambridgeside Galleria is a traditional anchored retail mall with established national chains offering apparel, electronics, consumer goods and fast casual dining.



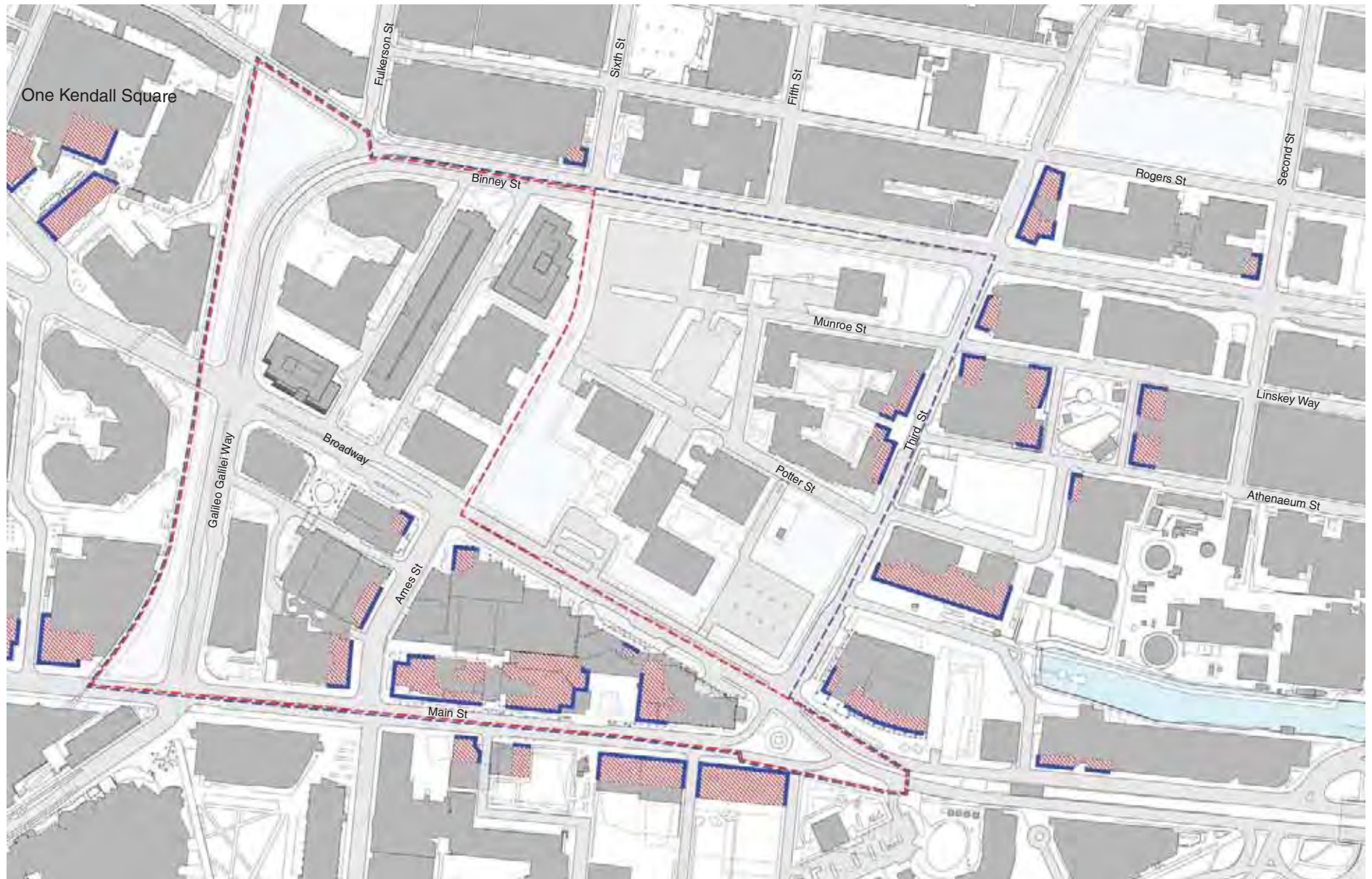
MIX OF USES



CHAIN VS. LOCAL

\*The graphics and analysis above are provided by Graffito SP





 Existing Retail

## 4.2 FUTURE RETAIL PLAN

### 4.2.1 TARGET RETAIL OPPORTUNITIES BY BUILDING:

The following descriptions of potential retail and active use space attempts to offer context to the future retail program for long range planning purposes. The market conditions, retail concepts and needs of the Cambridge community will evolve between the time of this submission and the delivery of physical, ready to lease, retail space.

#### COMMERCIAL BUILDING A (145 Broadway)

145 Broadway contains two active use spaces that could accommodate retail uses. The larger, approximately 8,317 GFA space is located on the corner of Broadway and Galileo with potential entrances and visibility on both streets. The space could be maintained as one retail suite or subdivided into two or more smaller retail suites offering a range of flexible configurations. The space will be designed with the necessary infrastructure to include a restaurant or bar, as well as dry good uses to allow for programmatic flexibility. Potential uses could include restaurant and/or bars including casual dining options, consumer service retail and dry goods. The eastern side of the building contains one, smaller retail space consisting of approximately 1,756 GFA facing Broadway park. This space will benefit from proximity and connection to the proposed park and potential uses could include, but are not limited to, a café or coffee shop, fast casual restaurant space and convenience retail potentially including a sundry store, barber shop or salon.

#### COMMERCIAL BUILDING B (250 Binney Street)

250 Binney contains an active use zone situated along the 6th street connector and fronting Binney Street. The approximately 8,000 GFA space could be a contiguous use or divided into an approximately 3,000 GFA retail suite fronting Binney and an approximately 5,000 GFA active use space fronting the 6th Street connector that could be used for active space in the near term and repurposed to retail in anticipation of a potential redevelopment of the Volpe site. The space will be designed in anticipation of the necessary infrastructure to accommodate restaurant and bar users as well as dry good uses to allow for programmatic flexibility. Depending on the future configuration, potential uses may include, but are not limited to, restaurant or bars, casual dining, bicycle oriented retail, consumer service or convenience retail.

### 4.2.1 POTENTIAL FUTURE RETAIL

For clarity, the following potential retail spaces are not formally part of the Concept Plan. Both spaces are currently leased to long term tenants with no plans to convert their ground floors to retail uses. However, in the interest of long term planning and context, they are presented as potential future retail spaces to help further the understanding of how Broadway could evolve into a more active retail corridor.

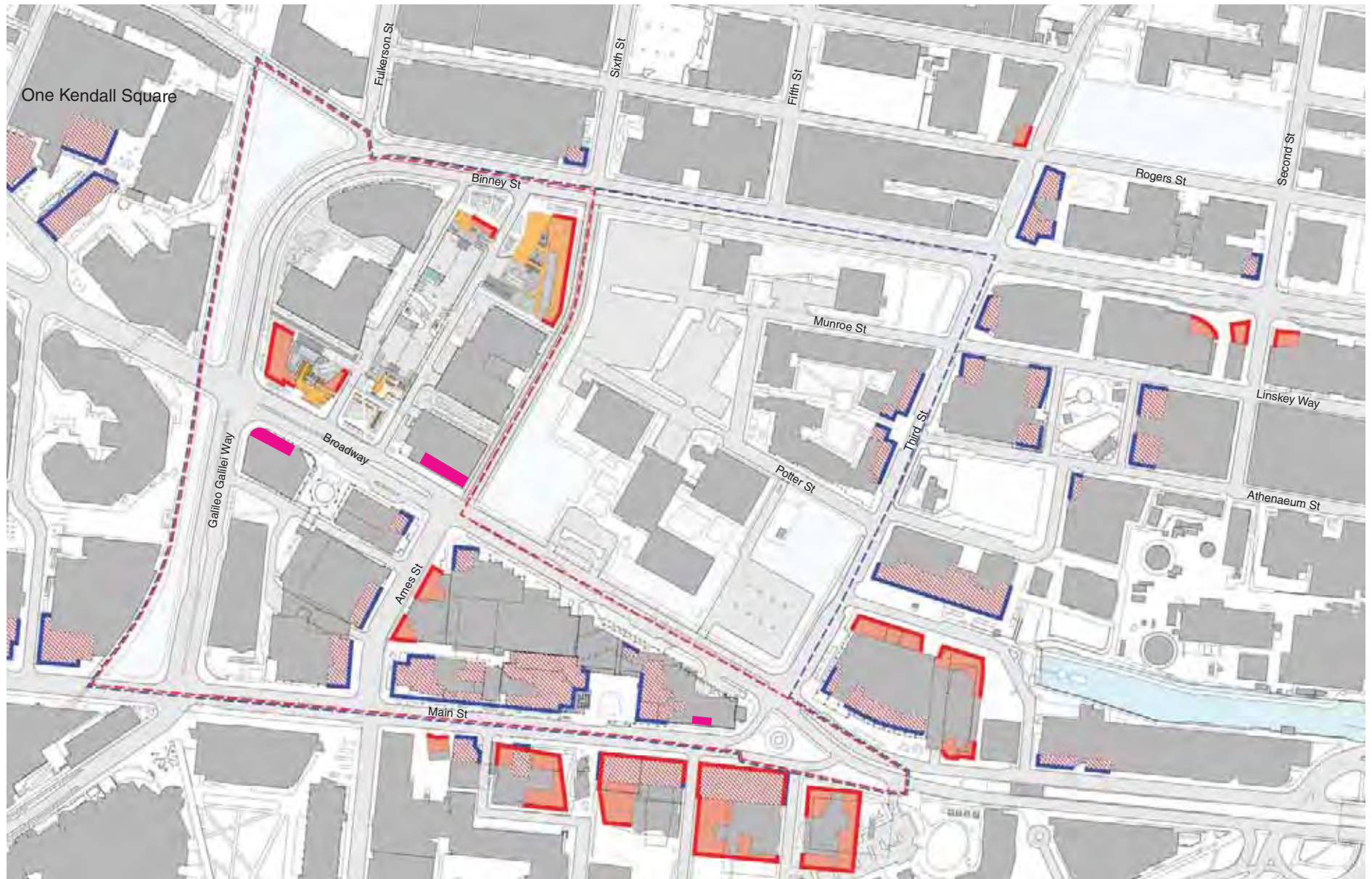
#### 105 Broadway

The ground floor space shown at 105 Broadway on the Future Retail Exhibit offers context for where potential retail and active uses could be located. While 105 Broadway benefits from pedestrian traffic along Broadway and the 6th Street connector, the potential future retail would be elevated above the street. The challenges of visibility and code compliant access would have to be addressed in future design.

#### 150 Broadway

The potential future retail space at 150 Broadway benefits from visibility along both Broadway and Galileo as well as immediate access to the Danny Lewin Park. Similar to 105 Broadway the finished floor elevations would be located above the street elevation presenting access and visibility challenges that would need to be addressed.





- Existing Retail
- Proposed Retail
- Future Potential Retail

## **4.2.2 IMPLEMENTATION AND POINT OF CONTACT**

The Applicant initially designates Michael Tilford, Project Manager – Development, as the point of contact for monitoring and implementation of retail planning. He can be reached at [mtilford@bostonproperties.com](mailto:mtilford@bostonproperties.com)

## **4.2.3 INCENTIVES FOR LOCAL RETAIL**

In an effort to ensure the goals outlined above and the requirements outlined in Article 14 for local and independent retailers, the Applicant may consider certain economic incentives depending on market conditions and the location of the space. The following economic incentives may be explored and included in a lease with a desirable local or independent retailer:

- Rent that is set below the market rent for national chains
- Flexible initial lease durations and extension options
- Tenant Improvement allowances
- Using a percentage of sales structure as part of the total rent

## **4.2.4 STREET ACTIVATION APPROACH**

see following pages

## **4.2.5 MONITORING**

The Applicant will initially meet annually with the CRA and at least twice each year after the issuance of a building permit to discuss the retail market, new retail concepts, emerging local and independent retailers, and general leasing activity.





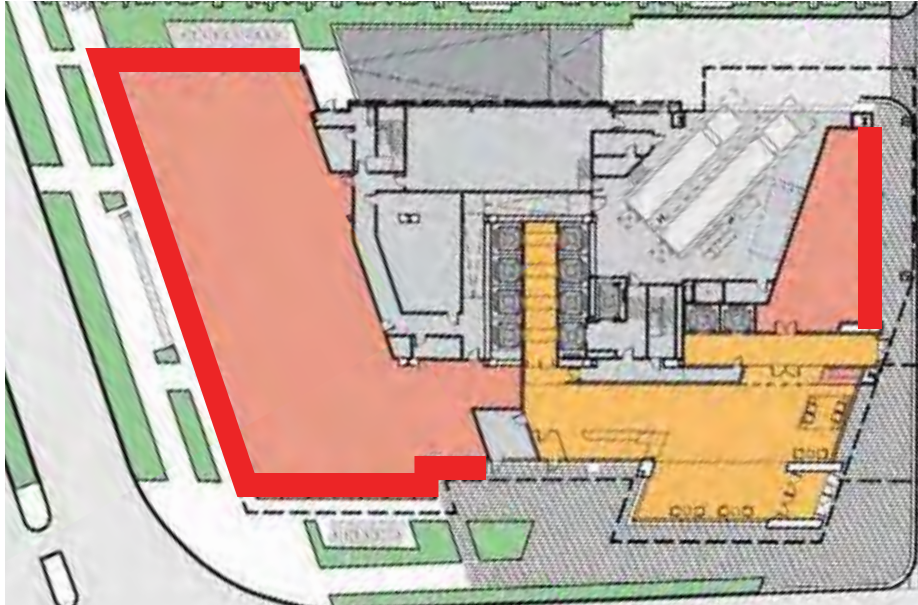
## 4.2.4 STREET ACTIVATION APPROACH

### 145 BROADWAY STREET ACTIVATION

The ground floor of 145 Broadway Street is designed with an emphasis on capitalizing on the close relationship the building has with the proposed Broadway Park, in addition to taking advantage of the relatively high volume of pedestrian traffic along the major public street conditions provided by Broadway Street and Galileo Galilei Way. The following items highlight the street activation approach:

- Ground level plaza to continue the public realm from Broadway Park along Broadway Street, wrapping around the corner to Galileo Galilei Way.
- Presence of the plaza will allow for the active use indoor program to spill outdoors.
- Presence of the plaza will allow for high visibility for the active use program.
- Active use space at the corner of Broadway and Galileo Galilei Way, with entry points along Galileo Galilei Way, will anchor the ground floor activity, activating the street corner.
- Service and loading is accessed along the northern side of the site, accessed from West Service Road, hidden away from major pedestrian paths and ground floor activity along Broadway.
- Use of transparency to maximize the visual connection between pedestrians and the active use spaces.





ACTIVE USE ALONG BROADWAY, GALILEO GALILEI WAY AND BROADWAY PARK



LOOKING NORTHWEST TOWARDS ACTIVE USE ALONG BROADWAY PARK



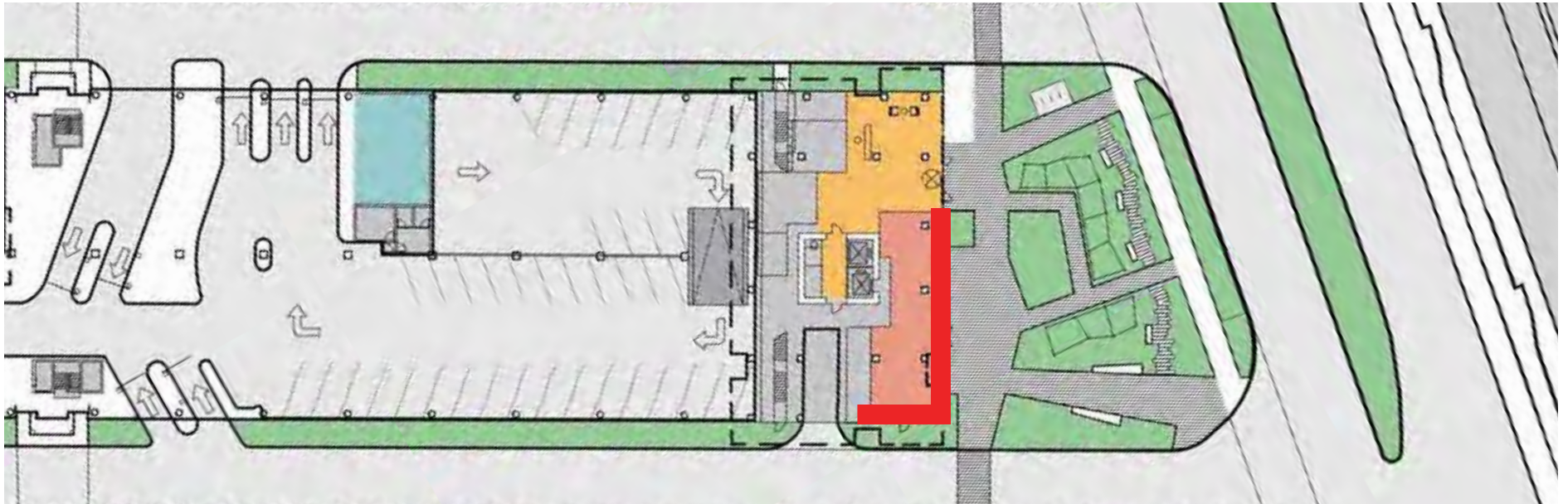
LOOKING NORTHEAST TOWARDS ACTIVE USE ALONG GALILEO GALILEI WAY AND BROADWAY

## **RESIDENTIAL BUILDING NORTH (BLUE GARAGE)**

The ground floor of Residential Building North has been designed to activate the streetscape fronting Binney Park through an active lobby as well as space dedicated to active use or retail. The following items will highlight the street activation approach:

- Presence of Binney Park will afford high visibility for the active use program.
- Binney Park will allow for the active use indoor program to spill outdoors.
- Service and loading function will occur along East Service Road, away from major pedestrian paths and ground floor activity along Binney Street.
- Use of transparency to maximize the visual connection between pedestrians and the active use spaces.





ACTIVE USE ALONG BINNEY PARK



LOOKING SOUTHEAST TOWARDS ACTIVE USE ALONG BINNEY PARK

## **COMMERCIAL BUILDING B (250 BINNEY STREET)**

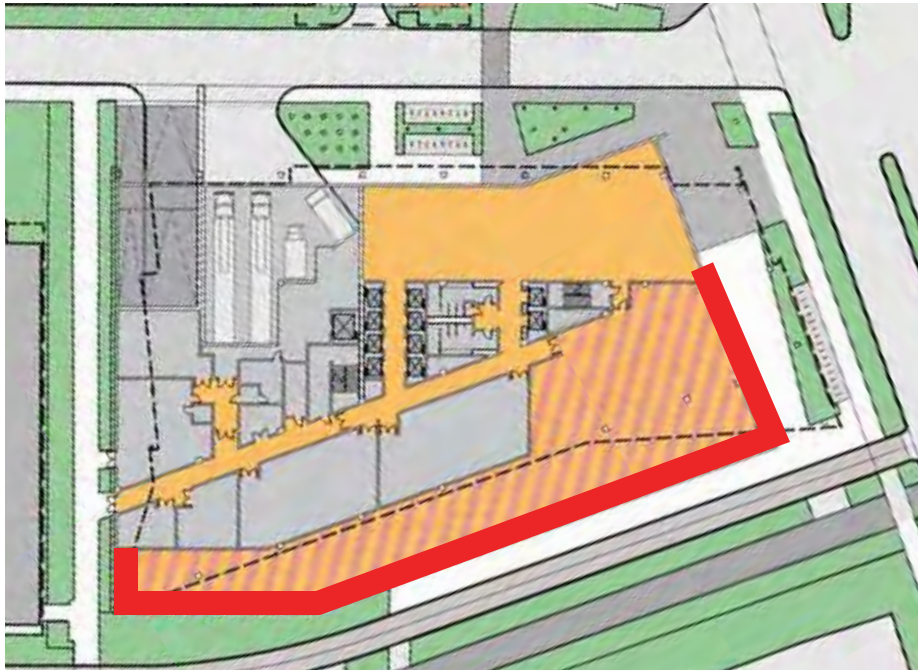
The ground floor of 250 Binney Street is designed for the possibility of active ground floor use or retail on Binney Street and 6th Street Connector frontage. Both Binney Park and the 6th Street Connector are seen as important public realm elements that will catalyze and be catalyzed by proposed active use spaces, if viable.

Active use/retail spaces fronting Binney Street and the 6th Street Connector, when viable.

Service and loading is tucked away along East Service Road, away from major pedestrian paths and ground floor activity along Binney and 6th Street Connector.

Use of transparency to maximize the visual connection between pedestrians and the active use spaces.





ACTIVE USE ALONG BINNEY STREET AND 6TH STREET CONNECTOR



LOOKING SOUTHEAST TOWARDS ACTIVE USE ALONG BINNEY STREET



LOOKING SOUTHWEST TOWARDS ACTIVE USE ALONG BINNEY STREET AND 6TH STREET CONNECTOR

## 105 BROADWAY & 150 BROADWAY

In addition to the proposed active use programming mentioned in previous sections, additional spaces in 105 Broadway and 150 Broadway were taken into consideration for a holistic view of the future of the retail environment. The inclusion of these two additional spaces as active use spaces will only serve to augment the vision of Broadway as an active retail corridor.

### 105 BROADWAY

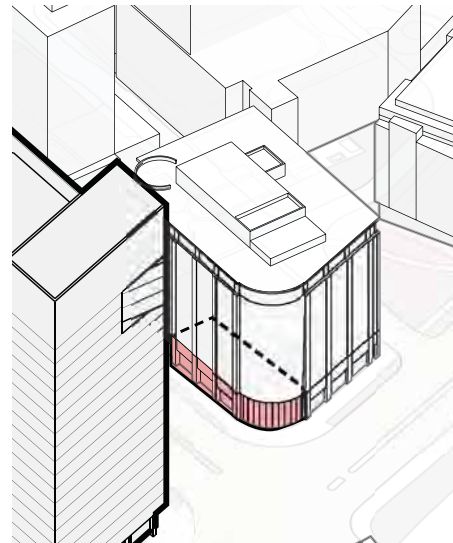
- Potential opportunity to “book-end” public realm of the Broadway Park with an active use space, should this become viable at some point in the future.
- Close relationship to 6th Street Connector and outdoor space provided and the proposed active use space in 250 Binney Street Building.
- Opportunity to activate the corner of project parcel (at Broadway and 6th Street Connector).

### 150 BROADWAY

- Opportunity to create an active use and retail corridor “gateway” from corner of Galileo Galilei and Broadway.
- High visibility location being on two major public streets.



POTENTIAL ACTIVE USE AT 105 BROADWAY



FUTURE ACTIVE USE AT 150 BROADWAY

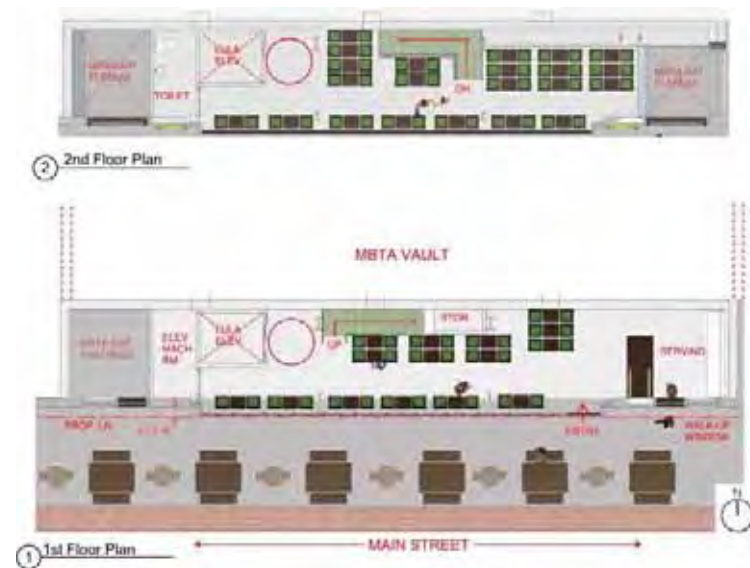


## 255 MAIN STREET (IN PLANNING STAGES)

255 Main Street contains a void space consisting of approximately 1,000 GFA situated behind existing venting louvers that were formerly part of MBTA infrastructure. While the space benefits from its prominent location on Main Street, it is also shallower than a typical retail suite. Potential uses could include, but are not limited to, fast casual dining, a bar, gift shop or consumer service retail like a drycleaner.

Broadway Facing Retail: At some point in the future the lobby of the Marriott Hotel could be reconfigured to include retail. Depending upon the design and program, some retail may be located northwest of the existing loading dock.

- Active use space on Main Street with outdoor cafe seating
- Use Awning to reinforce tenant identity
- Take advantage of existing pedestrian volumes and traffic



# 4.3 ECONOMIC FEASIBILITY

## RETAIL MARKET OVERVIEW

With proximity to MIT and densely populated surrounding neighborhoods, existing Kendall Square retailers benefit from strong market fundamentals, proximity to diverse population groups and major infrastructure including:

- 22,000 students faculty and staff at MIT.
- Over 1,700 apartment homes within a 5 minute walk from Main Street.
- The Kendall MBTA Redline station.
- An average household income of \$113,022 within a 1 mile radius.
- A residential population of 57,874 within 1 mile.
- A robust and diverse group of employers.
- A Walk Score of 81 and a bike score of 89 indicating broad and uninhibited circulation around the area.

While the local market has promising contributing elements, retail activity is largely concentrated on Main Street, Binney and Third Street and Broad Canal Way. The area immediately surrounding the project remains an aspirational retail corridor without the benefit of established activity. Accordingly, retail must be thoughtfully pursued in phases that depend upon the timing of delivery for individual projects and based upon the goals and guidelines outlined above.

According to the American Community Survey “ACS,” the most accurate and up-to-date census data from 2015, Kendall Square has the following demographic profile:

Radius	1/2-Mile	1-Mile
Residential Population	4,610	57,874
Avg. Household Income	\$91,251	\$113,022
Median Age	31.2	31.5
Bachelor's Degree (or higher)	79.7%	76.7%



Diagram courtesy of CBT Architects

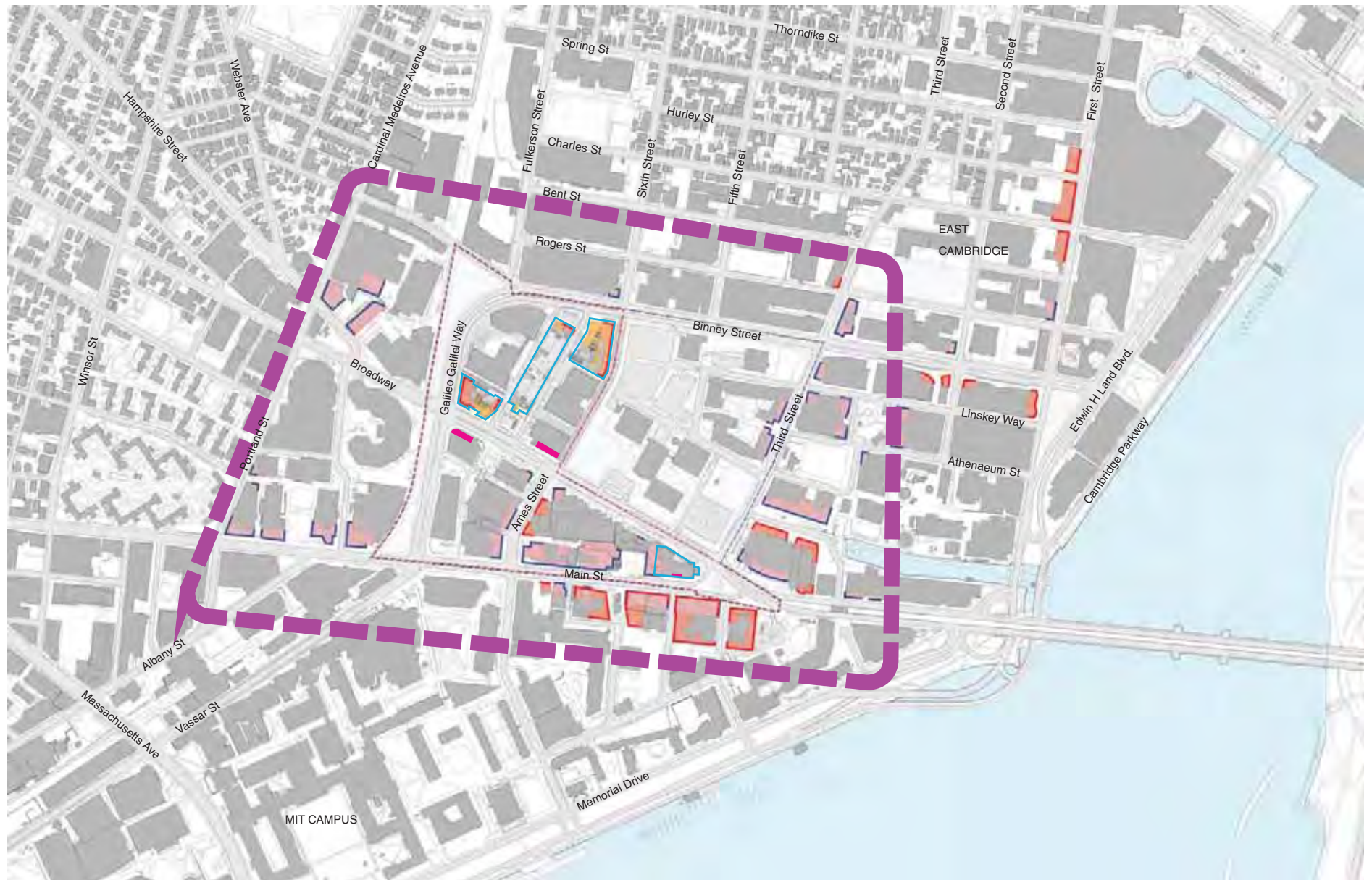
2015 CENSUS DATA OF KENDALL SQUARE



KENDALL SQUARE BASE RENTS

\*The graphics above were provided by Graffito SP





- Existing Retail
- Proposed Retail (by others)
- Future Potential Retail
- Proposed Project Retail
- Retail Market Analysis Boundary
- MXD Boundary
- KSURP Boundary





A blue-tinted photograph of a city street intersection. In the foreground, a crosswalk with white stripes is visible on the road. A person is walking across the crosswalk. To the left, a traffic light pole extends over the road, with a sign that reads "STOP ON RED". In the background, there are trees, a multi-story building, and a cloudy sky. The text "5. TRANSPORTATION" is overlaid in white, bold, sans-serif font in the center of the image.

# 5. TRANSPORTATION





## 5. INTRODUCTION

This section describes the existing and proposed transportation conditions surrounding the Project Site and presents an overview of the Traffic Impact Study (TIS) conducted to assess potential traffic impacts associated with the Project. The TIS, dated June 23, 2016, was Certified by the City of Cambridge Traffic, Parking and Transportation (TP&T) Department on July 14, 2016. Refer to Appendix B for a copy of the Certification.

## 5.1 CERTIFIED TIS OVERVIEW

As required by Section 14.32.2.1(5) of the zoning ordinance, a TIS was prepared for the Project in conformance with Section IV, “Guidelines for Presenting Information to the Planning Board” of the City of Cambridge “Transportation Impact Study Guidelines,” Sixth Revision dated November 28, 2011. The TIS responds to the Scoping Letter dated May 19, 2016 issued by the TP&T Department in response to a Request for Scoping dated April 19, 2016. A copy of the full TIS, including the City’s scoping letter (which is included in the TIS technical appendix) is provided in Appendix B.

The TIS document consists of three components, as follows:

- Introduction and Project Overview, describing the framework in which the transportation component of this Project was evaluated;
- Transportation Impact Study, presenting the technical information and analysis results as required under the guidelines; and
- Planning Board Special Permit Criteria, summarizing the evaluation of the Project as defined under the guidelines.

The TIS includes inventories of physical and operational conditions in the study area including roadways, intersections, crosswalks, sidewalks, on-street and off-street parking, transit facilities, and land uses. Transportation data is presented, including automatic traffic recorder counts, intersection turning movement counts, pedestrian and bicycle counts, vehicle crash data, and transit service data. Traffic volumes were evaluated for a 2016 Theoretical Existing Condition, a 2016 Build Condition, and a 2021 Build Scenario Loading that include future background growth and other developments, as well as Project trips, and off-site roadway improvements. The required TIS Summary Sheets and Planning Board Criteria Performance Summary are included in Appendix B.

The TIS analysis identified impacts that the Project will have on the transportation network and is used by the City to identify possible mitigation to offset these impacts. Applicant, the CRA and the City are continuing the process of developing and discussing the mitigation program associated with this Project. The TIS identified policies and programs that could potentially be implemented as Project mitigation.

## 5.2 KENDALL SQUARE TRANSIT ENHANCEMENT PROGRAM (KSTEP) TDM PLAN

The CRA and Applicant remain focused, as they have been throughout the development of Kendall Center, on preserving and enhancing the favorable transportation mode split in Kendall Square that has played such an important role in the successful redevelopment of the KSURP area. It is acknowledged and well-documented that approximately 70 percent of all trip making in Kendall Square utilizes transit, walking, biking, shuttle and carpool. This remarkable factor is at the core of the opportunity for the Project. The importance of preserving and enhancing this condition cannot be overstated and is central to the CRA's plans for expansion of the KSURP.

The CRA and Applicant, in conjunction with the City and State are committed to developing an expanded program of transportation enhancements designed to both preserve the favorable mode share balance in Kendall Square and provide additional improvements to support local efforts to further reduce the vehicle trips generated as a result of the Project and the broader Kendall Square area. The Kendall Square Transit Enhancement Program (KSTEP) will be developed in conjunction with the many stakeholders engaged in transportation planning and operations in Kendall Square, including the MBTA, MassDOT, and others.

The CRA and Applicant have engaged in multiple discussions with MassDOT and the MBTA regarding the Project, its impacts, and potential transportation mitigation and enhancements in the Kendall Square area. A range of issues have been identified and potential improvement opportunities considered for inclusion in the KSTEP. The KSTEP would be designed to enhance access to and mobility around Kendall Square, which the CRA believes is critical to the long-term economic success of the area. It is expected that the KSTEP will be focused on major transportation initiatives that will improve the existing transit options, as shown in Figure 5.1, and services in Kendall Square. They will include a range of projects, programs, and services directed at improving and enhancing transit and related options for people working, living, and visiting the Kendall Square area. The KSTEP would focus on enhancements to transit. Transit and transit-related improvements options to be considered would include both capital and operational investments that would result in service level improvements and capacity expansion in Kendall Square.

The CRA and Applicant recognize that the development of the KSTEP will require detailed consideration and analysis of the enhancement alternatives as well as careful coordination with the stakeholders and service providers. The CRA believes that this analysis can be undertaken by a Working

Group, which would include the CRA, Applicant, the MBTA, MassDOT and other stakeholders as may be designated. The analysis will be designed to coordinate with the City's Transit Strategic Plan, which is focused on improving transit capacity and quality throughout the City. The CRA, in coordination with the City, will work with Mass DOT and the MBTA to develop the elements of the KSTEP, which can be refined supplemented over time as the Working Group completes its work.

The KSTEP would be supported by immediate and long-term funding commitments facilitated by the CRA and Applicant in connection with the approvals for the Project. It is the expectation of the CRA that consultations with the MBTA, MassDOT, and the City will continue to examine a range of potential transit improvements for Kendall Square to be included in the KSTEP and on the appropriate mechanism(s) for making commitments for these improvements and incorporating the program elements into the transportation planning processes at the City and state level. The CRA recognizes the extensive demands and limited resources available to MassDOT and the MBTA for service improvements throughout the system.

The CRA has developed a Memorandum of Understanding (MOU) with MassDOT and the MBTA, together with Applicant and the City, as a mechanism to identify and implement appropriate transit improvements consistent with the KSTEP. The Draft MOU was filed with MEPA on June 30, 2016.

Over the coming months, the key stakeholders will continue to work closely to refine the MOU, including potential additional details on the process for allocation of funds and the range of transit enhancement projects and program options for consideration. As provided in the MOU, the funding for the KSTEP Fund will be provided through an Initial Payment in the sum of six million dollars (\$6,000,000). The Working Group shall meet to decide on recommendations for initial funding allocations, as set forth in the MOU. Within a year of the Initial Payment to the KSTEP Fund the Working Group shall recommend longer term funding allocations for enhanced transit services in Kendall Square, potentially leveraging additional resources from an expanding KSTEP Fund or from other sources for more significant service enhancements in the future.



Potential transit mitigation projects and program options being considered include:

- **MBTA Red Line Kendall Station Improvements**

Immediate operating and capital improvements to the existing transit infrastructure at Kendall Station, including station capacity and egress, Kendall Square transit information, communications and way-finding, Red Line ticketing, climate change adaptation/resiliency, bus and bicycle connectivity, and overall station functionality and appearance.

- **Kendall Station / Kendall Square Connection Enhancements**

Capital support for improving existing or new ground transportation via non-MBTA shuttles and/or MBTA buses or Bus Rapid Transit (BRT) aimed at facilitating access to and from Kendall Square.

- **MBTA Red Line Service Modernization and Improvements**

Signal, track and other technology improvements designed to increase capacity and reliability especially at peak-of-the-peak including enhancing headways (time between service) and other improvements that will positively impact the quality of transit service and the customer experience.

- **Long-Range Feasibility Investigations**

Planning for and potential capital investment toward new public transit services.

## **PROPOSED MBTA BUS AND EZRIDE SHUTTLE IMPROVEMENTS**

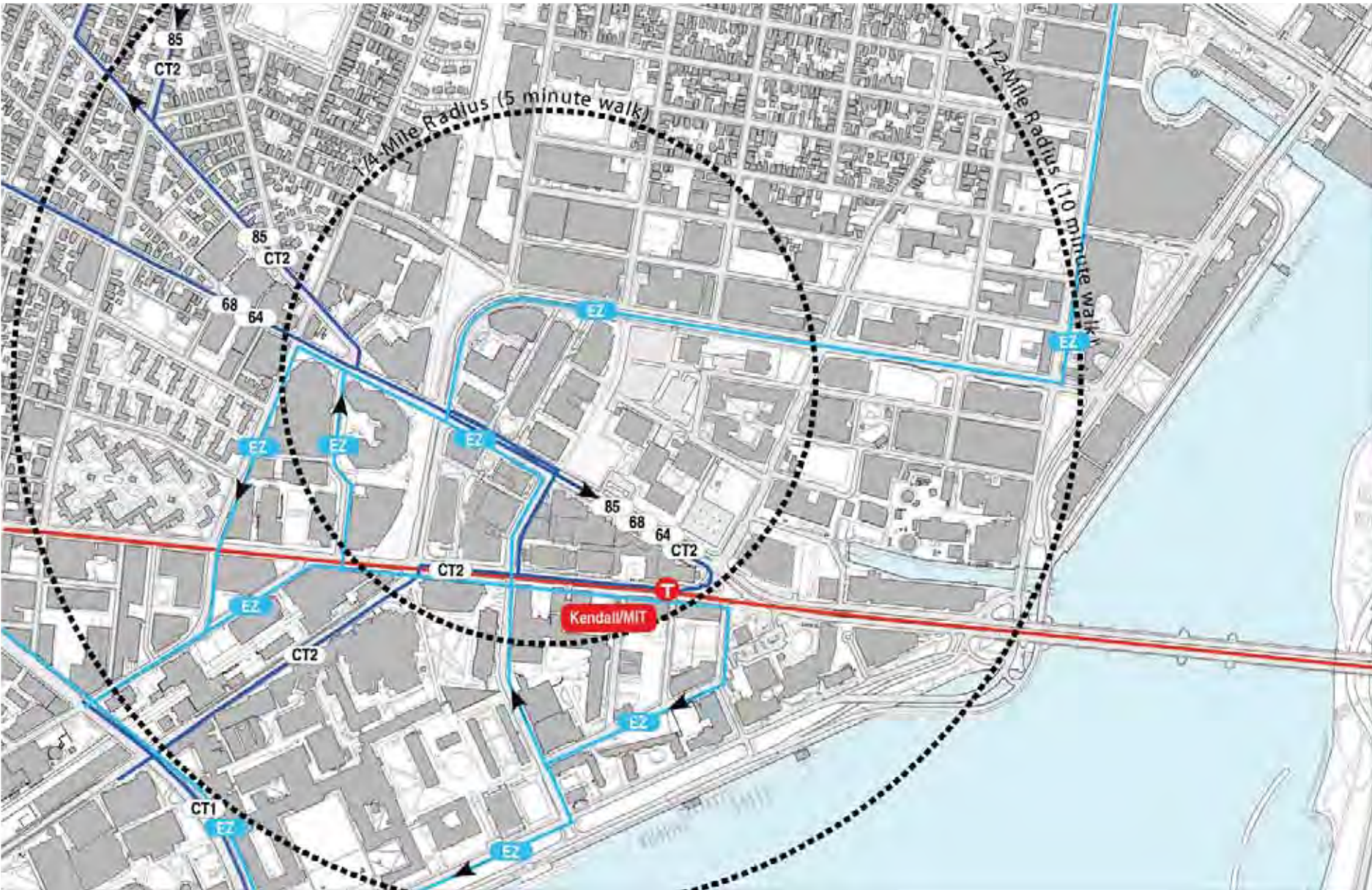
The CRA and Applicant understand the importance of the bus system within the Kendall Square area, including both the MBTA and the EZRide Shuttle systems. As indicated in the TIS analysis, bus operations will be affected by Project-generated traffic, particularly the EZRide Shuttle. The CRA will work with the MBTA, City, and Charles River TMA to evaluate potential bus operations improvements in the KSURP area, including:

- Studying and partially funding the increase in EZRide service. The CRA will work with the Charles River TMA to devise a plan as to how EZRide can best serve the community in the future and provide support to the expansion of EZRide service including, but not limited to:
  - Decreasing headways
  - Increasing bus fleet
  - Optimizing bus routes

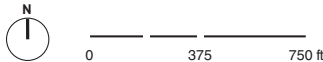
- Discussing, with the City, the implementation of the proposed local roadway intersection signal improvements, discussed and analyzed in the SEIR which will decrease delay at specific intersections that MBTA buses pass through. The bus routes anticipated to experience reductions in delay include Routes 64, 68, 85 and EZRide at the intersections of Broadway at Galileo Galilei Way and Main Street at Galileo Galilei Way/Vassar Street, respectively.
- Discussing with the City, MBTA and MassDOT as part of the MOU process, the study and possible implementation of the following bus mitigation measures along the bus routes serving the area:
  - Bus Priority Signals
  - Bus Lanes
  - Bus Shelter Improvements
- Implementing the extension of bus routes from Central Square to Kendall Square.

The August 25, 2014 draft report, Central Square Access and Circulation Study Existing Conditions Analysis (Task 1), indicates that there is a potential need for a bus connection between Central Square and Kendall Square. Many passengers riding buses that terminate at Central Square use the Red Line to make their last connection to Kendall Square. With the extension of MBTA bus route(s) to Kendall Square demand could be shifted away from the Red Line and a vital second connection would be made between Central Square and Kendall Square. The study was completed and a report compiled July 2015 to address the bus issues within Central Square. While the near-term and longer-term recommendations do not discuss, in-depth, the possibility of extending one or two bus lines to Kendall Square, from the Existing Conditions Analysis Study, this connection is vital. The CRA is interested in exploring and discussing the possibility of providing another Central Square/Kendall Square connection through an MBTA bus route.

FIGURE 5.1 - EXISTING PUBLIC TRANSPORTATION



- # — MBTA Bus Route
- EZ — EZ Ride Route
- MBTA Red Line





## 5.3 ACCESS AND CIRCULATION

The proposed development of the Residential Building South will continue to provide vehicle access and egress off Broadway and Binney Street using the existing Blue Garage east and west service roads. As currently planned, implementation of these two buildings will result in the parking supply in the Blue Garage to decrease from 1,170 spaces to 955 spaces (a reduction of 215 parking spaces). These driveways will also provide access to loading and service in the Residential Buildings. Pedestrian access to the Residential Building North will be provided via a main entry along Binney Street. Similarly, pedestrian access to the Residential Building South will be provided along Broadway. Both respective entrances will be located adjacent to and integrated into adjacent mature open spaces located at each end of the Blue Garage. Refer to Figure 5.2 for a vehicular, bicycle and pedestrian access and circulation plan.

The Blue Garage service drives will also serve as public access points to the new parking garages and loading docks that will service Commercial Building A and Commercial Building B. Commercial Building A is intended to have a prominent entrance at the corner of Broadway and Galileo Galilei Way with a significant activation opportunity along Broadway via the implementation of ground floor retail uses. Commercial Building B is anticipated to have a prominent entrance at the corner of Binney Street and the East Alley and ground floor activation along Binney Street and the adjacent 6th Street connector.

TABLE 5-1 REQUIRED BICYCLE PARKING

REQUIRED BICYCLE PARKING SUMMARY					
		LONG-TERM		SHORT-TERM	
PROJECT COMPONENT	SIZE	RATIO	SPACES	RATIO	SPACES
<i>Commercial Building A</i>					
Office/Lab	365,095 GFA	0.30 spaces per 1,000 GFA	110	0.06 spaces per 1,000 GFA	22
Retail	10,037 GFA	0.10 spaces per 1,000 GFA	2	1.00 spaces per 1,000 GFA	11
<i>Residential Building South</i>					
Residential	355 Units	1.05 space per Dwelling Unit <sup>1</sup>	372	0.10 space per Dwelling Unit	36
Retail	0 GFA	0.10 spaces per 1,000 GFA	0	1.00 spaces per 1,000 GFA	0
<i>Commercial Building B</i>					
Office/Lab	248,039 GFA	0.30 spaces per 1,000 GFA	74	0.06 spaces per 1,000 GFA	15
Retail	8,029 GFA	0.10 spaces per 1,000 GFA	1	1.00 spaces per 1,000 GFA	9
<i>Residential Building North</i>					
Residential	70 Units	1.05 space per Dwelling Unit <sup>1</sup>	73	0.10 space per Dwelling Unit	7
Retail	1,300 GFA	0.10 spaces per 1,000 GFA	1	1.00 spaces per 1,000 GFA	2

1. 1.00 space per dwelling unit for the first 20 units in a building; 1.05 spaces per dwelling unit thereafter.

2. All bicycle parking is subject to Section 14.72 of the Zoning Ordinance

FIGURE 5.2 - VEHICULAR, BICYCLE, PEDESTRIAN ACCESS AND CIRCULATION PLAN

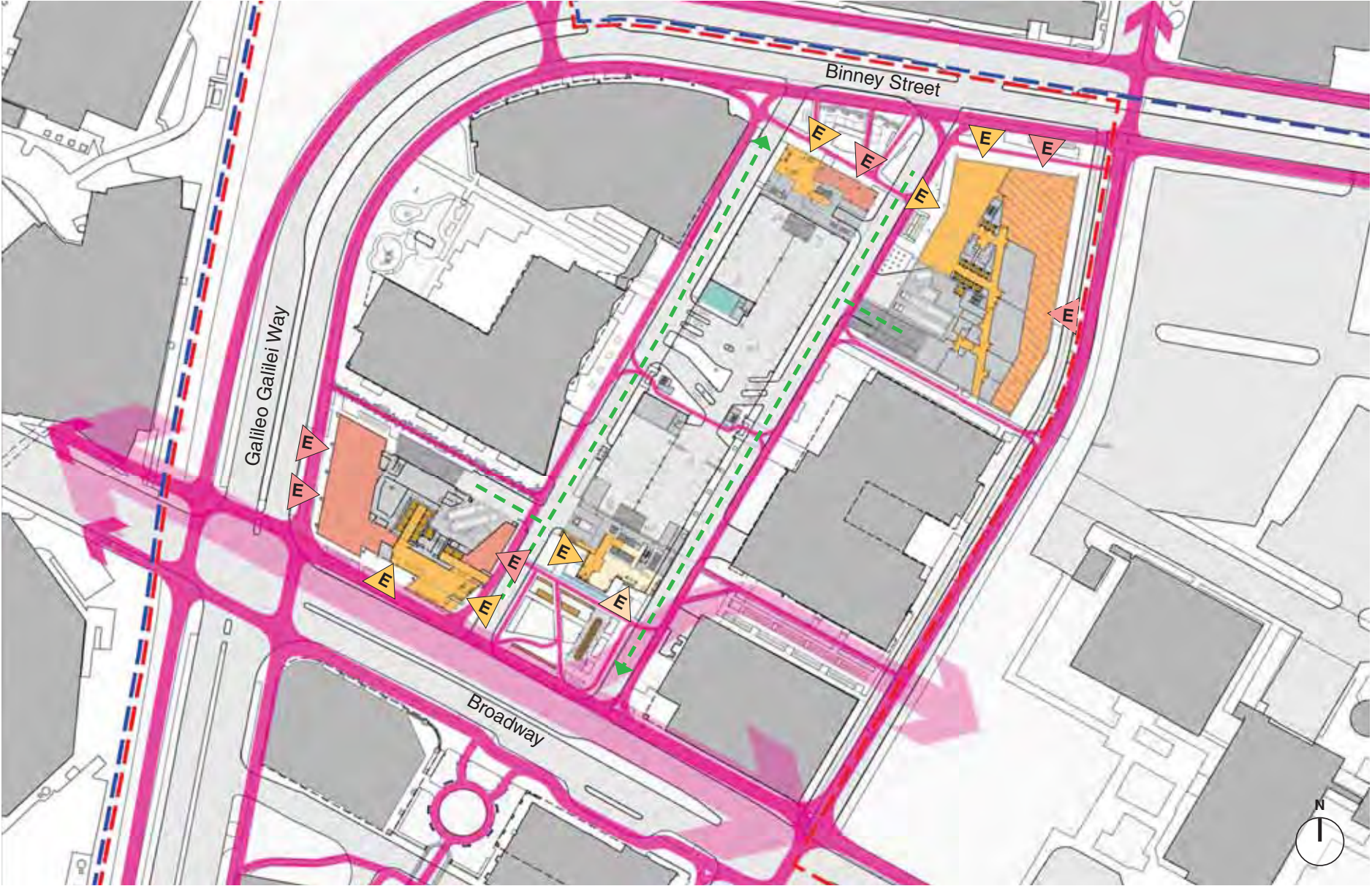
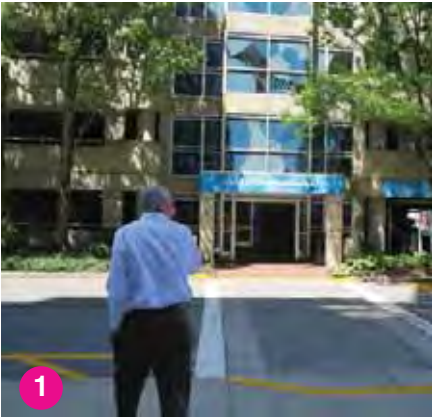


FIGURE R5.3.1B

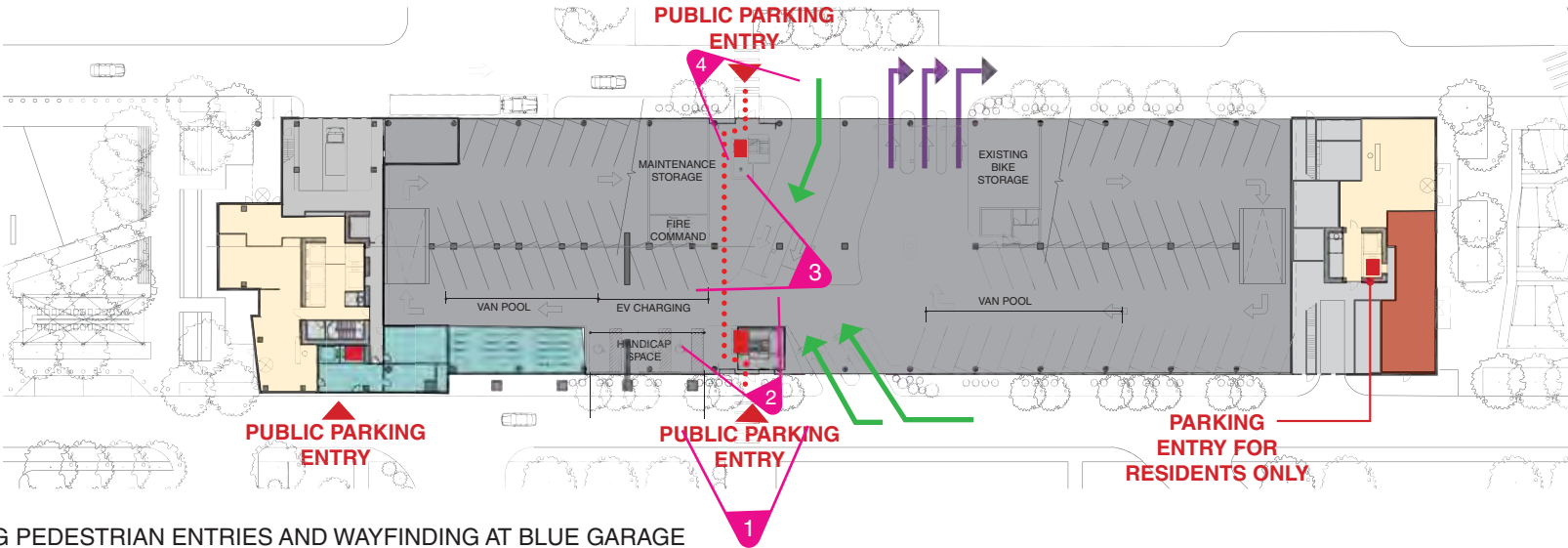




EAST SERVICE DRIVE ENTRY



WEST SERVICE DRIVE ENTRY

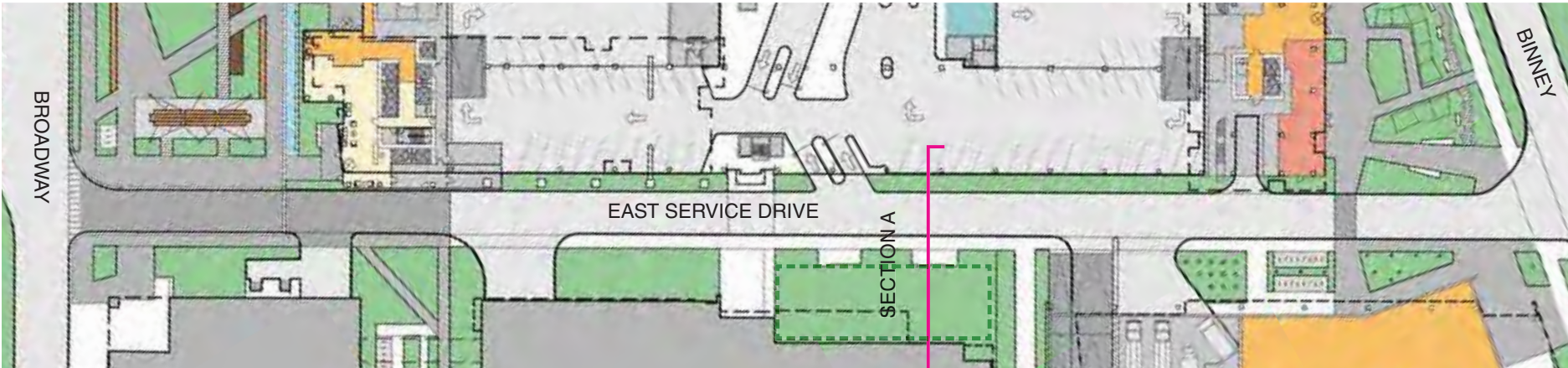
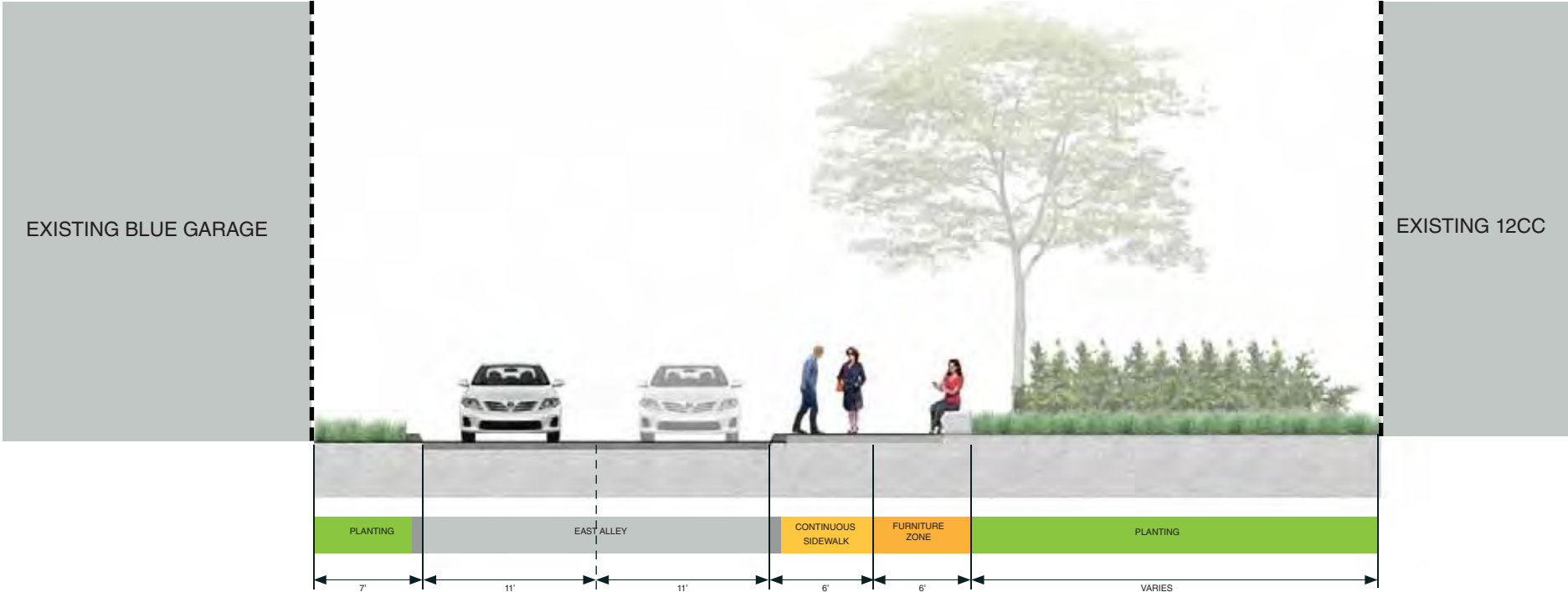


EXISTING PEDESTRIAN ENTRIES AND WAYFINDING AT BLUE GARAGE

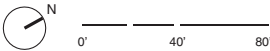
- ← Vehicular Circulation Entry
- ← Vehicular Circulation Exit
- ▲ Pedestrian Entry

EAST SERVICE DRIVE SECTION THROUGH TYPICAL WALKWAY

FIGURE R5.2.1



- Circulation Routes
- Lobby
- Active Use





### **5.3.1 BICYCLE ACCOMODATIONS**

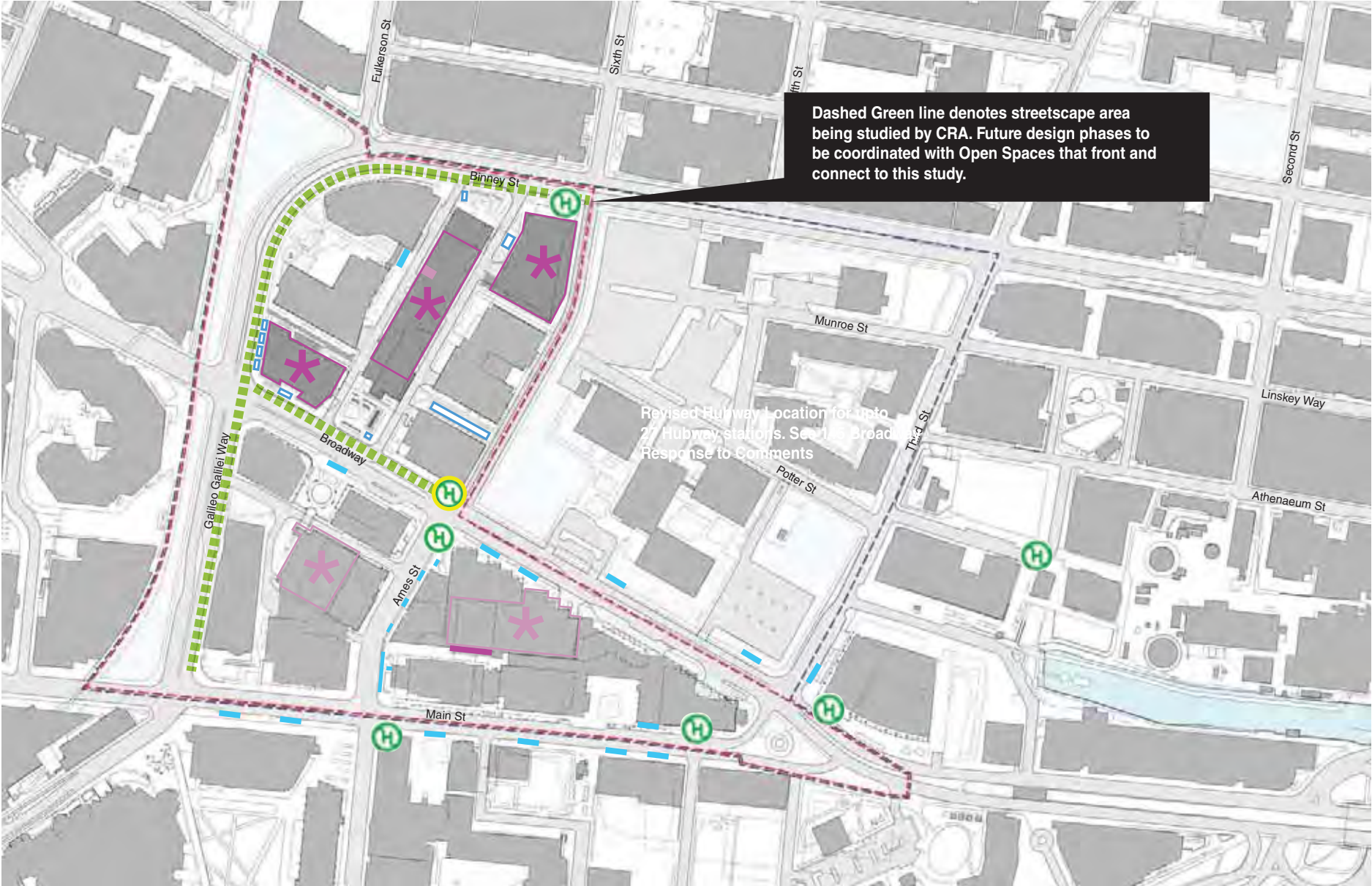
The new bicycle parking associated with the Project has been determined by applying the ratios established by the City of Cambridge Bicycle Parking Guide. The ratios and number of bicycle parking spaces being provided by the Project are shown in Table 5-2. Figure 5.3 and Figure 5.4 depicts the bicycle parking plan and layout.

The Project will provide approximately 633 covered and secure long-term bicycle spaces within the vicinity of the Project components. As the individual buildings are still in the design phase, preliminary bicycle parking layouts are provided for each building in Figures 5.5A-E. The Project intends to provide a variety of long-term bicycle parking options to accommodate all types of users. For employees looking to ride their bike every day, the convenience of having a bicycle parking spot inside their office building might be very important. These spaces are provided within the below grade parking structures at Commercial Buildings A and B. For less frequent employee riders, spaces will be available within the Blue Garage where a secure shared bicycle area is provided. Residents will also have varying needs and wants for bicycle storage. Residents who use their bicycle daily will have the convenience of storing their bicycle at grade level within the Blue Garage in existing facilities and new areas within close proximity of their particular building. Other residents may want to store their bicycle in a more remote location such as one of the top floors of the parking garage. The variety of long-term bicycle parking options will accommodate a variety of users.

Approximately 102 short-term spaces will be accommodated throughout the site, focusing on the areas near retail and along the 6th Street Connector and various access point off of the pathway. Different options for the locations of the short-term bicycle parking will be discussed with the City to allow for parking spaces to be further from the building entrance points than zoning allows in order to preserve important open space in Broadway Park. All bicycle racks, short- and long-term will be compliant with required standards.

MXD DISTRICT BIKE PARKING LOCATION PLAN

FIGURE 5.3 - DISTRICT BIKE PARKING PLAN  
FIGURE R5.8.1

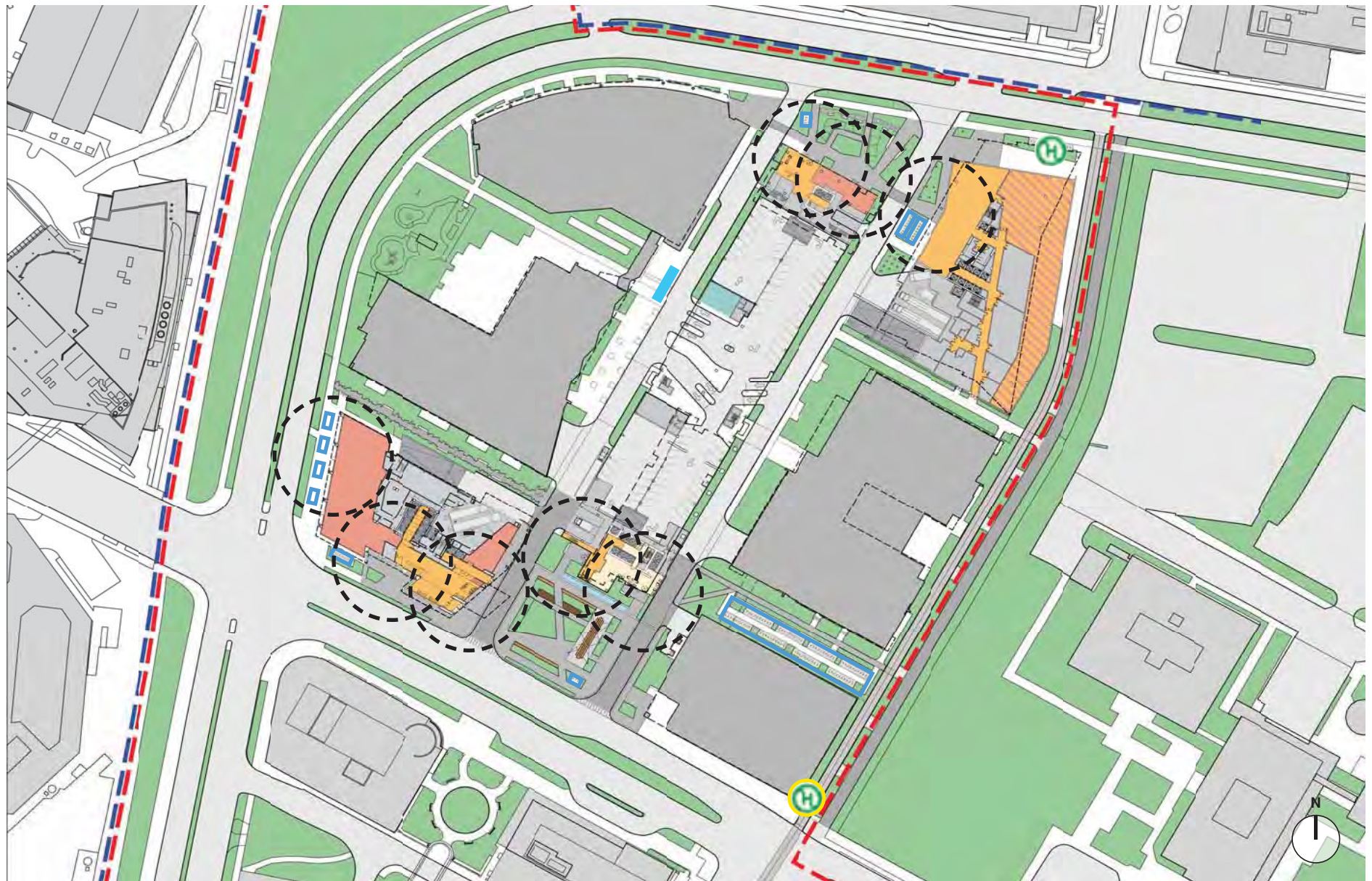


- |                                  |                                 |                                     |
|----------------------------------|---------------------------------|-------------------------------------|
| Existing Short Term Bike Parking | Existing Long Term Bike Parking | Hubway Existing Locations           |
| Proposed Short Term Bike Parking | Proposed Long Term Bike Parking | Hubway Proposed Potential Locations |
| Within Parking Structure         |                                 |                                     |



## BIKE PARKING LOCATIONS

FIGURE 5.4 - BIKE PARKING LOCATIONS

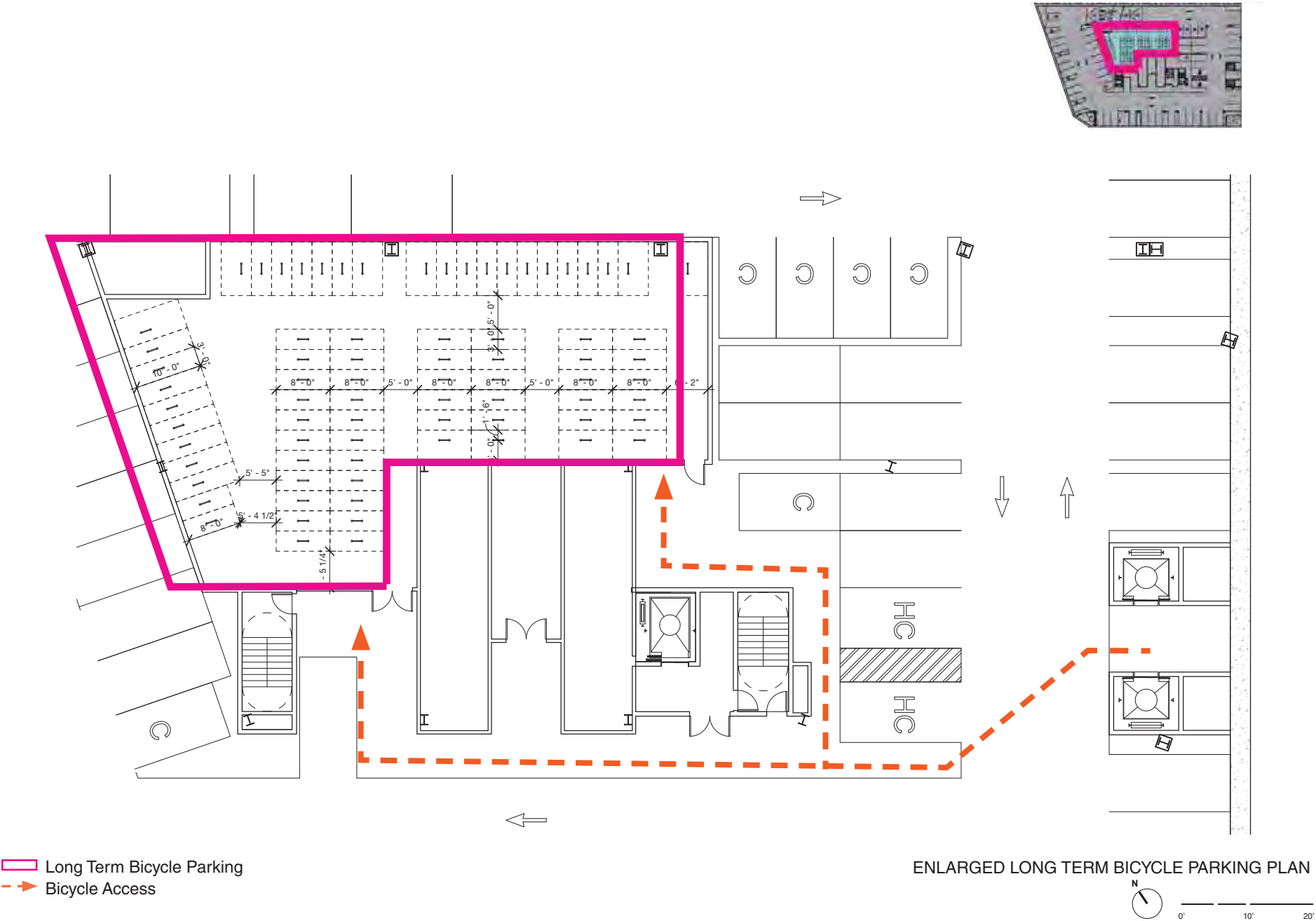


Existing Bike Location  
Proposed Bike Location

Hubway Existing Location  
Hubway Proposed Potential Location

COMMERCIAL BUILDING A- LONG TERM BICYCLE PARKING

FIGURE 5.5A



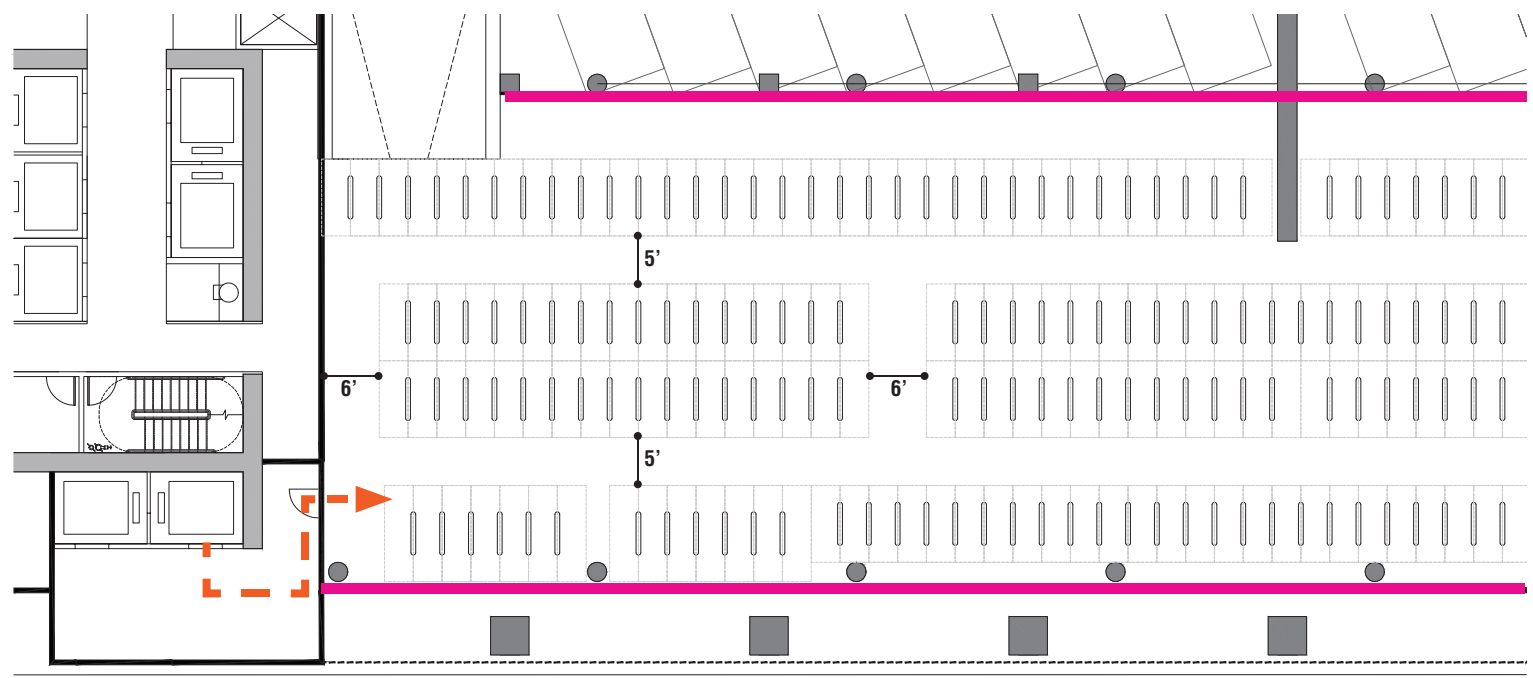


## FIGURE 5.5B



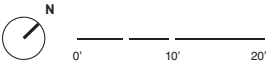
RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING

FIGURE 5.5C



Long Term Bicycle Parking  
Bicycle Access

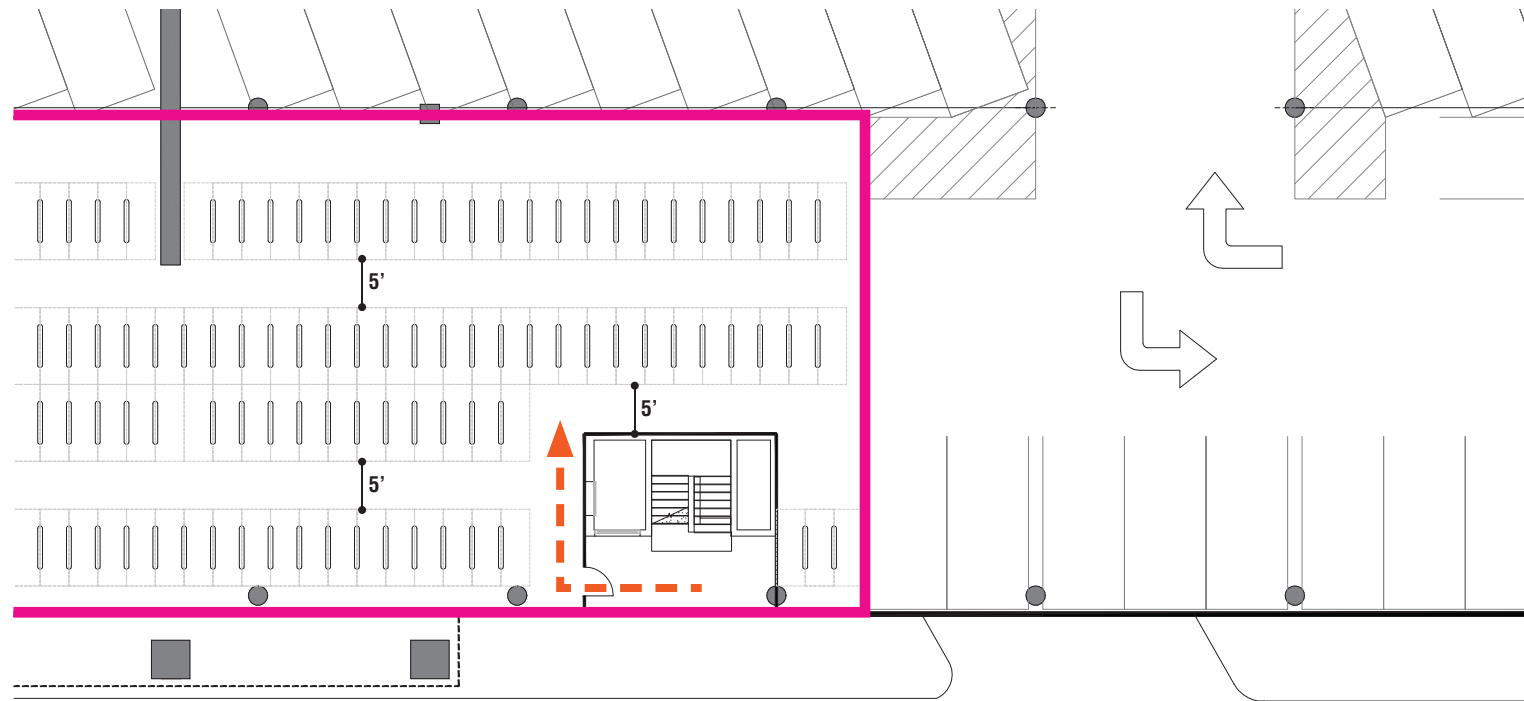
ENLARGED LONG TERM BICYCLE PARKING PLAN





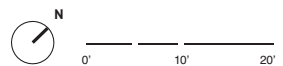
# RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING

FIGURE 5.5D



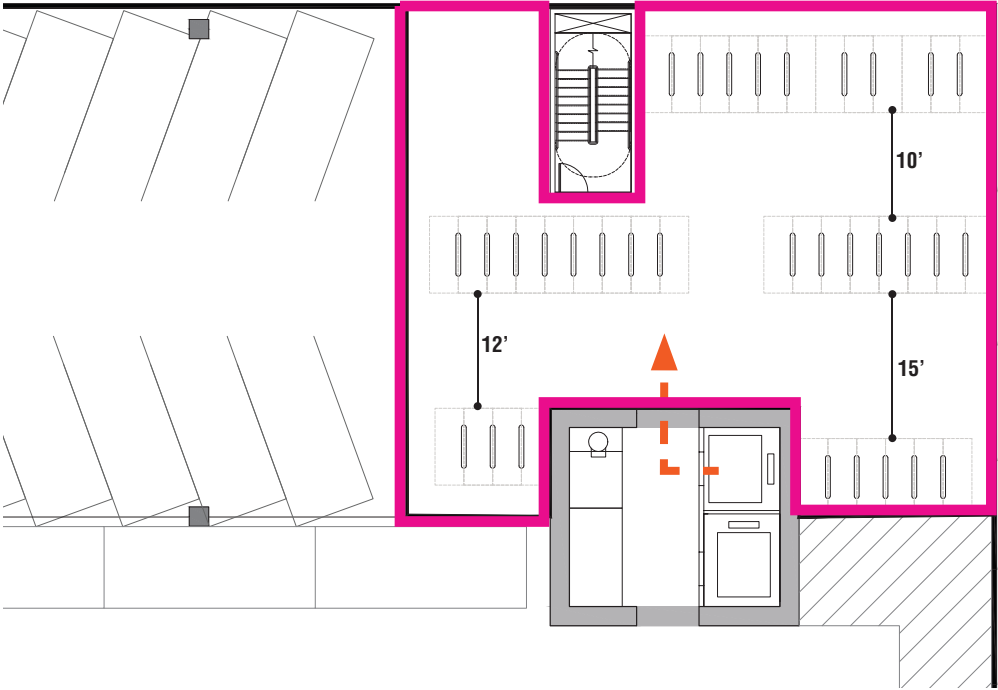
█ Long Term Bicycle Parking  
- - - - - Bicycle Access

ENLARGED LONG TERM BICYCLE PARKING PLAN



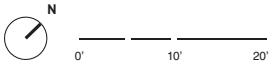
RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING

FIGURE 5.5E



Long Term Bicycle Parking  
Bicycle Access

ENLARGED LONG TERM BICYCLE PARKING PLAN





## 5.4 TRAFFIC DEMAND MANAGEMENT PLAN

The proposed Traffic Demand Management measures aim to reduce drive-alone trips, or single occupancy vehicles (SOVs), by encouraging employees, residents and visitors to use alternative modes of transportation. The proposed TDM plan for the Project includes consideration of enhanced TDM measures outlined in the K2 Final Report 2013, where applicable and feasible, the commitments made through the SEIR and NPC, as well as Project-specific measures, with the goal of surpassing SOV of 41 percent for office and 32 percent for residential. While current data and survey of KSURP tenants suggest the existing area meets and surpasses the office goal with only 34 percent of employees driving, the new goal will be to maintain this low driving rate as additional office and residential land uses are built in the area. Overall, the goal of the proposed TDM Plan is to reduce the use SOVs by encouraging carpooling and van pooling, bicycle commuting and walking, and increased use of the Kendall Square public transportation system by employees and residents. The following TDM measures are proposed to be implemented as part of the Project:

- Appropriate pricing of parking – market rate paid by employees and residents.
- Encourage employers and tenants to provide transportation benefits paid to all employees for commuter expenses regardless of mode, or 100 percent transit subsidy.
- Offer new residents an initial or partial transit subsidy (exact terms to be based on City coordination).
- Provide free access to EZRide shuttle to Lechmere and North Station.
- Encourage employers and tenants to provide private employee shuttles.
- Provide adequate bicycle parking and benefits including Hubway availability and possible membership subsidy.
- Maintain ten (10) parking spaces for ZipCar® car share parking currently in the Green Garage and determine the feasibility of implementing or sponsoring additional car-sharing programs.
- Provide designated car-share parking spaces within and/or nearby KSURP parking garages to the car-share business, if deemed feasible.
- Provide preferential parking to carpool and van pool participants.
- Provide additional electric vehicle (EV) charging stations and preferential parking to alternative fuel vehicles, as dictated by market.
- Designate a Transportation Coordinator to oversee all transportation-related operational matters at each Project Component site, including vehicular operations, servicing and loading, parking and implementation of the TDM Plan. The Transportation Coordinator will act as the contact and liaison for the City, local Transportation Management Association (TMA) and tenants of the Project.
- Post and make available transit maps, schedules and other information relevant to commuting options in the office and residential building lobbies.
- Provide real-time transportation information in all new and “significantly” renovated/improved lobbies within the Project Components using Transit Screen or other similar products including online platforms.
- Display real-time transit information in the public plaza framed by the Marriott Hotel at 50 Broadway, and 255 and 325 Broadway on Parcel 4.
- Continue to participate in the Charles River TMA who’s membership includes, but not limited to:
  - Emergency Ride Home,
  - NuRide – Ridematching system from MassRIDES, and
  - Carpool and vanpool matching.
- Implement shared parking strategies to reduce the number of new parking spaces needed to support the Project.
- Implement new parking pricing strategies to discourage parking in the area and reduce vehicle trips to the area.
- Monitor mode share goals identified as part of the K2 planning process though the proposed Traffic Monitoring Program (described further in the next subsection).

### 5.4.1 PROPOSED TRAFFIC MONITORING

The CRA has been conducting an annual traffic study and analysis of Kendall Square for the past 20 years, since implementation as compliance with the 1994 Section 61 Findings. The CRA plans to update the scope of the monitoring program to reflect the evolution of Cambridge's transportation priorities in a complex multi-modal urban environment such as Kendall Square. The improved study shall utilize the most up to date development square footage and traffic projections as well as more holistically consider additional data on bicycles, pedestrians, travel behavior and transit service, as it becomes available.

Changes that may be considered in a new scope of work to be developed by the CRA in the near future may include, but are not limited to the following:

- Obtain and utilize basic data on ridership at the MBTA Kendall Square/MIT station for both subway and bus services.
- Include boarding information from EZRide shuttle and other bus services in the area, as data becomes available.
- Update the tenant questionnaire to be more specific on the mode split – differentiating the type of bus (MBTA, EZRide) or new systems, such as Bridge™ and Uber.
- Differentiate between transient and monthly parkers in the garage data collection process.
- Evaluate new bicycle count locations in response to installation of new bicycle facilities.
- Evaluate the annual traffic data collected by other parties and investigate collaborative reporting over a broader geographic scope.
- Utilize emerging pedestrian, bicycle, and traffic counting technologies as they become feasible and fully comparable to existing dataset.



## 5.5 PARKING

The Project will add up to an additional 809 structured parking spaces to the KSURP area. As currently planned, the two proposed residential buildings will include the elimination of approximately 215 parking spaces within the Blue Garage, to support the construction of those facilities (including adequate lobbies and cores that can intercept the ground plane while maintaining existing adjacent open space). The net elimination of the 215 parking spaces is a direct result of eliminating approximately 246 existing parking spaces due to construction of the two residential buildings and adding approximately 31 spaces on level 6 upon construction of the Residential Building North. Commercial Building A will include up to 374 below grade parking spaces and the Commercial Building B will include up to 650 below grade parking spaces. In total, the Project provides up to 809 new parking spaces to support planned changes in building program.

With the addition of the new Project vehicle parking there will be approximately 3,517 vehicle parking spaces within the KSURP area. Figure 5.6 and Table 5-2 summarizes the existing and future parking supply in the area.

A shared vehicle parking analysis was conducted for the TIS to understand the Project's ability to share new parking spaces and possibly reduce the overall number of spaces built. In addition, the analysis was expanded to include the entire KSURP development to understand the shared parking ability this area has. As indicated above the KSURP currently supplies 2,708 parking spaces in three garages and with the construction of the Project, 809 vehicle spaces will be added to the KSURP Area. This brings

the number of total parking spaces to approximately 3,517 spaces. This new total supply is below the original maximum approved 4,300 vehicle parking spaces under the 1977 FEIR and the revised 3,545 spaces under Amendment No. 3.

The shared parking analysis was conducted using two different methodologies for two different shared parking scenarios. The first methodology follows a similar methodology to the one presented in the KSURP SEIR and updates the existing parking demand with current May 2016 data and follows a holistic parking strategy. The second methodology follows the standard practices suggested by the Urban Land Institutes Shared Parking report, second edition (2015, latest available report), as requested in the Scoping Letter. The two scenarios include a concentration on a shared parking demand based just on the Project, while the second scenario encompasses the entire KSURP development.

Detailed descriptions and tables for these analysis are presented in the TIS, Appendix B. These analyses indicate that the new parking being supplied will provide enough parking to meet demand with the implementation of the TDM strategies. The analysis also indicated that the overall parking demand within the KSURP area will be able to provide enough parking for the area residents, tenants and visitors with the proposed TDM measures and close monitoring of each garage.

Project Component/Garage	Existing Parking	Proposed New Parking for Project	Future Parking
135 Broadway Residences/Blue Garage	1,170	(-215)	955
Yellow Garage	734	0	734
Green Garage	804	0	804
145 Broadway Office Building	0	374	374
250 Binney Street Office Building	0	650	650
<b>Total</b>	<b>2,708</b>	<b>809</b>	<b>3,517</b>

TABLE 5-2 FUTURE PARKING SUPPLY IN THE KSURP AREA

## 5.5.1 LONG-TERM PARKING MONITORING PROGRAM

All parking facilities are monitored daily to ensure monthly cardholders are parking in the appropriate garages and transient parkers are dispersed efficiently among the three garages. Tenants of the area are provided a limited number of parking passes, as outlined in each individual lease, and are charged the full monthly cardholder price. Other employees or visitors without monthly passes are subject to the daily rates, up to \$40.00 per day.

New tenants of the Project will negotiate the number of parking permits and the specified amount will be within the individual lease. All new monthly parking passes will be charged the full monthly rate. This will encourage more employees to take alternative modes of transportation and reduce the number of monthly parkers parking in the area on a regular basis.

Residential parkers will be provided the opportunity to buy a monthly parking pass at full price. This will encourage a low auto-ownership rate and could further reduce the demand for parking in the area.

A portion of the existing parking demand is from transient users. It is assumed that these users are comprised of employees who do not buy a monthly pass, visitors to area businesses and retail customers. These specific users would therefore be classified as infrequent users of the garage. Under future conditions it is estimated that the parking demand for these users will slightly increase. It will be important to monitor the influx of transient users to the area garages and limit the number of spaces available to these transient parkers. There are many other commuting and parking options within the area including on-street parking and other parking garages in which lots that transient parkers, and retail patrons in particular can utilize. By limiting the number of transient parking available, the garages can operate at an appropriate capacity.

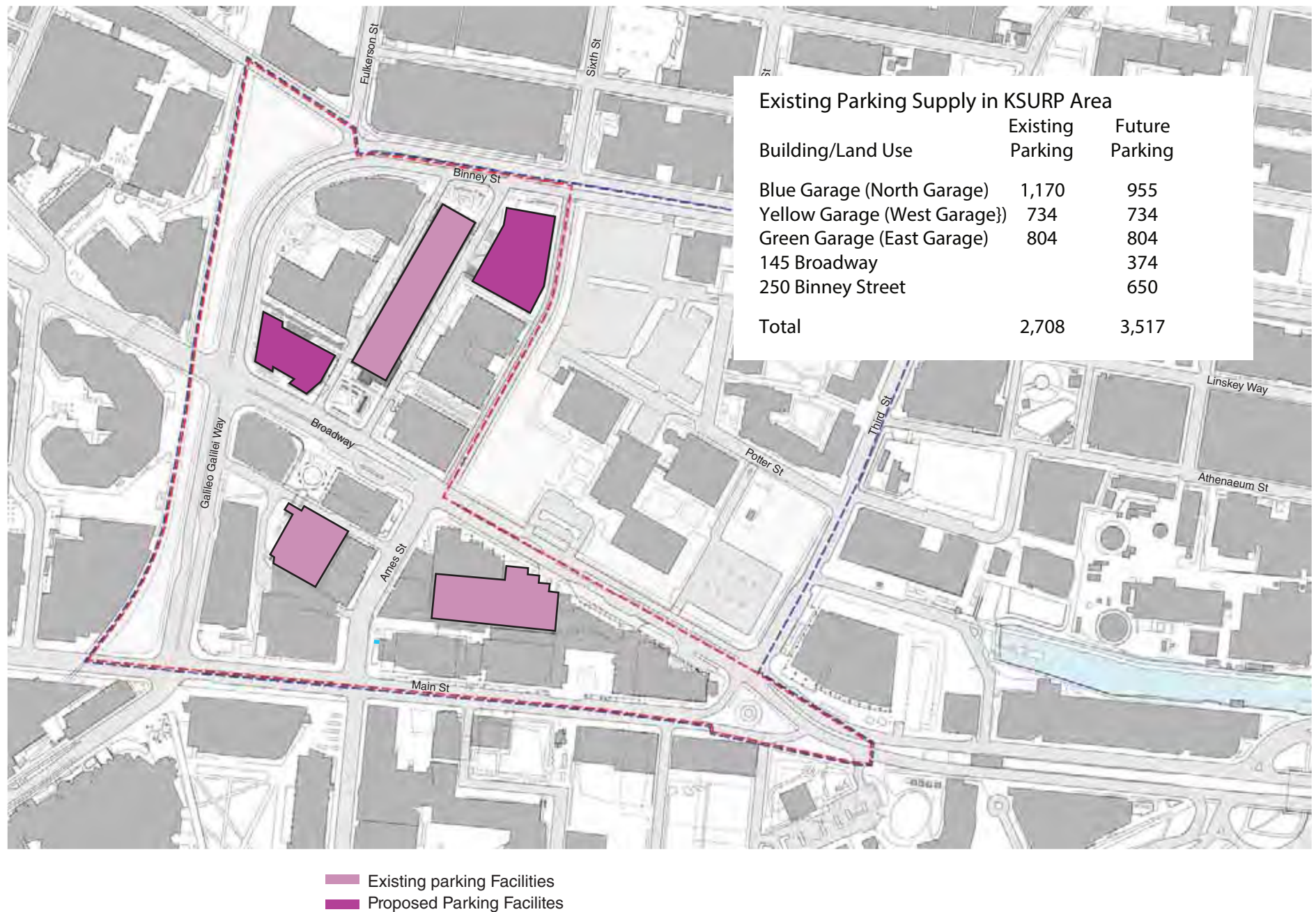
### PRICING STRATEGY

Currently the Kendall Center garages have a time-sensitive pricing strategy that discourages driving and parking in the area. A monthly cardholder pays up to \$400.00 per month for a space within the Kendall Center garages and a transient parker pays up to \$40.00 per day. It should be noted that the three garages have some of the highest parking rates in the immediate area with other garages having all-day parking for \$23.00 to \$30.00.

Due to the increasing parking demand within the area, Applicant and other stakeholders are in discussions about implementing new pricing strategies to further discourage vehicle trips to the area. It is the intent of the draft MOU, documented in the KSURP NPC filed on June 30, 2016, to continue to include a proactive parking strategy to discourage vehicle trips to the area as well as help offset other mitigation costs outlined in the MOU.

## PARKING FACILITIES

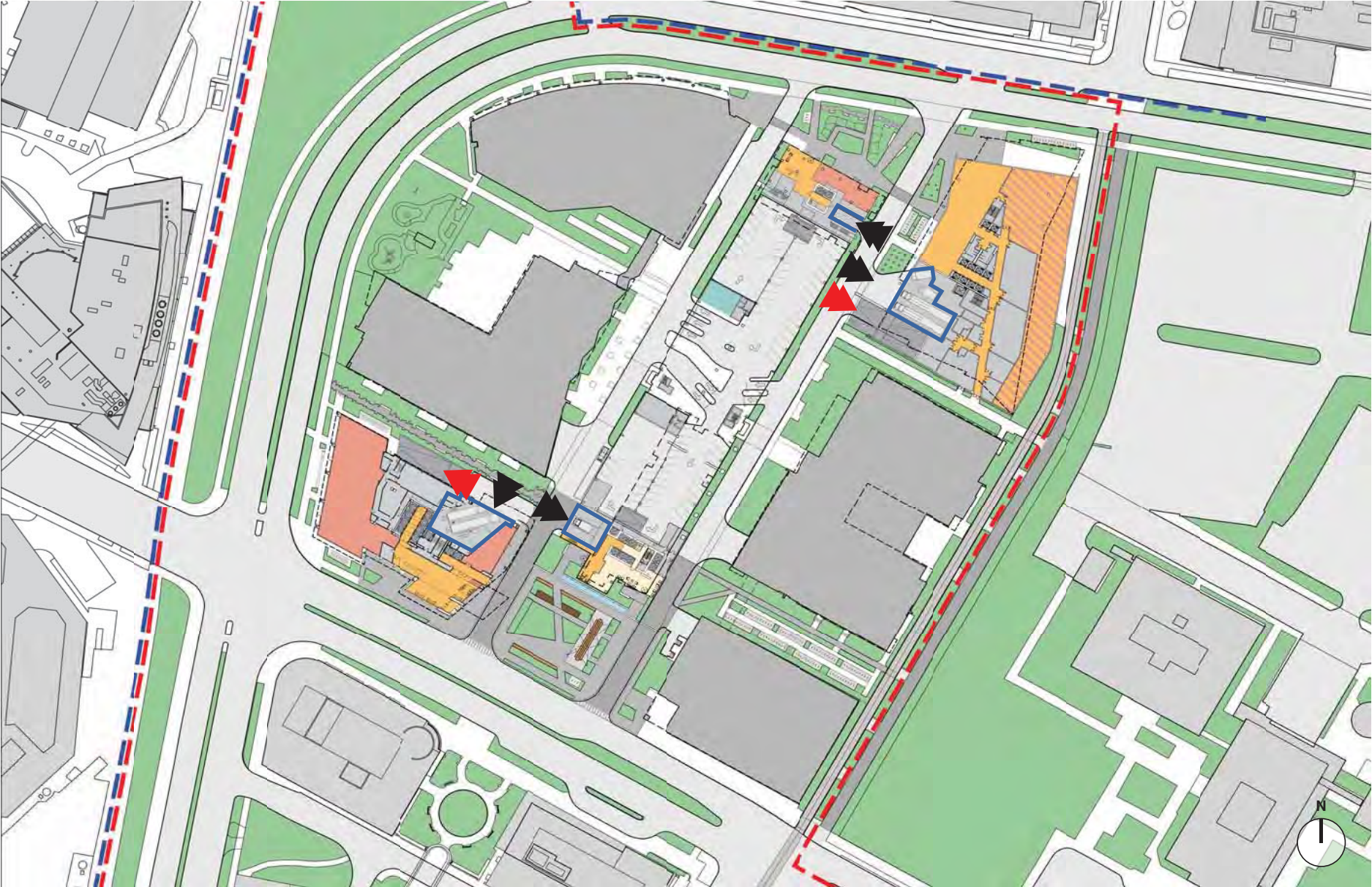
FIGURE 5.6







# 5.6 SERVICE AND LOADING

FIGURE 5.6 - PROPOSED SERVICE AND LOADING PLAN



  
 Parking Entrance  
Loading Dock

All service and loading will be conducted within the Project site, accessed from existing service drives between Broadway and Binney Street.

## 5.7 PROPOSED PEDESTRIAN ACCESS, SAFETY, AND STREETSCAPE IMPROVEMENTS

As discussed previously, the KSURP Area provides excellent pedestrian accommodations, including sidewalks on all study area roadways and crosswalks at all study area intersections. The City is ahead of many other communities in utilizing pedestrian countdown timers with Leading Pedestrian Interval (LPI) programming and many of the signalized intersections within the District have pedestrian countdown timers with such technology.

Both the CRA and Applicant are committed to creating a cohesive integrated network of open spaces and connecting pathways while improving pedestrian safety, access and circulation within the KSURP area. The CRA and Applicant will work in conjunction with the City to identify areas of improvement. Measures could include the following:

- Provide additional pedestrian countdown timers at study area intersections.
- Implement LPI programming at study area intersection.
- Incorporate a new mid-block pedestrian crossing at the Broadway crossing between the proposed Residential Buildings North and South and Danny Lewin Park on the south side of Broadway
- Improve the Sixth Street Connector by increasing driver awareness of the pedestrian crossing with advanced warning signs. In addition, this connection should be studied in connection with the Sixth Street Connector Pathway improvements, possibly improving upon or enhancing the existing HAWK system or other pedestrian crossing systems. The Project proposes to redesign the Sixth Street Connector Pathway to provide separated pedestrian and bicycle facilities while maintaining the mature trees along the existing pathway.
- Review all pedestrian crossings within the KSURP boundaries to assess their potential for sidewalks “bulb-outs”, raised crossings, pedestrian refuge islands, Rectangular Rapid Flashing Beacons (RRFB's), re-aligned non-apex ramps and/or other treatments to enhance the comfort and visibility of crosswalks.
- Enhance the Main Street streetscape between Ames Street and Galileo Galilei Way.
- Enhance the Broadway streetscape from Ames Street to Galileo Galilei Way.

- Enhance the Binney Street and Galileo Galilei Way streetscape from Sixth Street to Broadway.
- Improve pedestrian safety by enhancing lighting along sidewalks and pathways for safer pedestrian accommodations.
- Enhance open spaces with multiple outdoor connections to buildings within the KSURP area.

The CRA is currently in the process of selecting a project team to redesign Binney street and Galileo Galilei Way between Third Street and Broadway, including a cycle track along Galileo Galilei Way and the Grand Junction Multi-Use Path. Applicant is also committed to improving the Sixth Street Connector by providing separate bicycle and pedestrian facilities included a grade separated cycle track to be aligned with the future cycle track on Ames Street. Additionally, in close coordination with the City, Applicant, and Other Developers, the CRA will also explore opportunities to create a full-service bike station within the area.

Through the City's design review and planning board meeting process, the CRA, Applicant and the City will agree upon mitigation for the Project. This process has begun with the certification of the TIS on July 14, 2016 and will continue through review of the Concept Plan and subsequent review of each Project component design.





The image shows a complex site plan for a park or public space. The plan is overlaid with a large, semi-transparent blue rectangle. The text "6. INFRASTRUCTURE" is prominently displayed in the center of this rectangle. The site plan includes various infrastructure elements such as paths, easements, trees, and buildings. Key features include:

- Easements:** Labeled areas like "EASEMENT 'A-5'", "EASEMENT 'B-5'", "EASEMENT 'D-2'", "EASEMENT 'B-4'", "EASEMENT 'G-6'", "EASEMENT 'D-1'", and "OPEN SPACE EASEMENT".
- Paths and Walkways:** "CONC. WALK", "BRICK WALK", "METAL STEPS", "GRANITE STEPS", "WOOD PLANTERS (TYP)", "BENCHES (TYP)".
- Structures and Features:** "TRASH COMPACTOR", "TRENCH DRAIN", "BITUMINOUS PAVEMENT", "CONCRETE PAD", "LOADING DOCK", "ENTRANCE", "ENTRANCE FFE=23.67", "WADSWORTH IRON FENCE", "BRICK WALL TOPPED WITH WROUGHT IRON FENCE", "WOOD PLANTERS (TYP)", "BENCHES (TYP)".
- Utilities and Landscaping:** "AUTO SPRINKLER", "HOODED WATER=18.0", "REFUSAL=17.5", "R=20.11", "I=18.0", "8" CI", "WATER=18.0", "REFUSAL=17.5", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.81", "I=14.4", "24" RCP", "I=15.1", "12" RCP", "I=15.6", "12" RCP", "I=14.6", "24" RCP", "R=19.81", "I=16.9", "10" DI", "I=14.8", "24" RCP", "I=15.0", "24" RCP", "I=14.5", "24" RCP", "R=19.63", "I=16.6", "8" CI", "I=16.6", "12" RCP", "R=19.31", "I=16.5", "10" DI", "R=19.40", "HOODED WATER=11.0", "REFUSAL=10.6", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=15.9", "8" CI", "R=20.60", "I=15.7", "8" CI", "I=15.8", "8" CI", "I=15.8", "8" CI", "I=17.0", "12" RCP", "I=15.8", "12" RCP", "I=15.9", "8" CI", "I=15.6", "15" RCP", "R=19.54", "12" RCP", "R=18.45", "SWL", "R=19.84", "DRY WELL", "REFUSAL=14.9", "R=19.89", "DRY WELL", "REFUSAL=14.9", "R=20.26", "I=15.3", "12" RCP", "I=15.6", "15" RCP", "I=15.4", "12" RCP", "I=15.3", "15" RCP", "R=20.73", "8" PVC", "R=20.80", "HOODED WATER=15.8", "REFUSAL=15.0", "I=15.



## 6. INTRODUCTION

This chapter details the existing and proposed utility infrastructure that will service the Project. In addition to presenting the existing infrastructure and outlining early discussions with the City of Cambridge, the anticipated utility demands and impact on the local infrastructure is discussed. Early phases of the Concept Plan include investments by the City in the local infrastructure to improve utility capacity for development. The Applicant will implement measures to reduce impacts of the proposed infill development on the existing utility systems. These include employing a district-wide stormwater management approach to reduce the stormwater effluent off-site, mitigating Infiltration and Inflow (I/I) in the sewer system to increase available capacity for new wastewater flows, and applying water conservation measures to reduce demands on the potable water system.



# 6.1 EXISTING INFRASTRUCTURE

## 6.1.1 STORMWATER

The existing MXD District is a densely developed, predominantly impervious urban area. The majority of the roadways in the area have separated storm drainage utilities for private and public stormwater runoff conveyance. The Cambridge Department of Public Works (CDPW) owns and maintains the extensive system of catch basins, manholes, and drain pipes. The District's catchment area drains to the Lower Charles River Basin via a 54-inch drain outfall at Broad Canal Way.

The following is a list of existing storm drain services that are located adjacent to each project Component, which are also shown in Table 6-1.

Commercial Building A (145 Broadway):

- A 54-inch main in Broadway
- A 30-inch main in Galileo Galilei Way

Residential Building South (Blue Garage):

- A 54-inch main in Broadway

Commercial Building B (250 Binney Street):

- A 24-inch main in Binney Street
- A 24-inch main in the former 6th Street Connector

Residential Building North (Blue Garage):

- A 24-inch main in Binney Street

conditions, some capacity issues arise as I/I takes capacity in the system from the wastewater. This will be mitigated through a program to remove I/I relative to the estimated wastewater generation of the Project.

The following is a list of the existing sanitary sewer mains adjacent to each Project Component:

Commercial Building A (145 Broadway):

- A 21-inch main in Broadway
- A 24-inch main in Galileo Galilei Way

Residential Building South (Blue Garage):

- A 21-inch main in Broadway

Commercial Building B (250 Binney Street):

- A 30-inch main in Binney Street
- A 98-inch combined sewer main in Binney Street
- A 8-inch main in the former 6th Street Connector

Residential Building North (Blue Garage):

- A 30-inch main in Binney Street
- A 98-inch combined sewer main in Binney Street
- A 21-inch main in Broadway

The Project will be required to meet the Stormwater Management standards of both the CDPW and the Massachusetts Department of Environmental Protection (DEP). To evaluate the proposed hydrologic conditions, an existing condition model was created in HydroCAD as a baseline for evaluation. Table 6-1 shows the impervious and pervious land covers in the existing condition, as well as the resulting runoff rate and volume for the 2-year design storm.

## 6.1.2 SANITARY SEWER

The District is serviced by several separated sewer systems, as well as a large combined sewer main, as shown in Figure 6.1. The CDPW owns and maintains the local sanitary sewer system, which discharge to the Massachusetts Water Resources Authority (MWRA) conveyance system to the Deer Island Wastewater Treatment Plant. Wastewater flows from the Project will travel northeasterly by CDPW gravity flow sanitary sewer mains to the MWRA's system located in Cardinal Medeiros Avenue. During dry-weather conditions, the gravity mains in the area have sufficient capacity to support the Project. During wet weather

## 6.1.3 DOMESTIC WATER

Domestic water and fire protection services in the District provided by infrastructure owned and maintained by the Cambridge Water Department (CWD) are shown in Figure 6.2. There are several transmission and local supply lines throughout the neighborhood to service the various Project components. The local supply system generally has high flow rates, but has water pressure that is typically lower than that required for tall developments. Booster pumps may be required to achieve nominal pressure in the domestic water and fire protection services for each Project component.

The following is a list of the existing water mains adjacent to each Project Component:

Commercial Building A (145 Broadway):

- A 16-inch main in Broadway
- A 30-inch main in Broadway
- A 16-inch main in Galileo Galilei Way

Residential Building South (Blue Garage):

- A 16-inch main in Broadway
- A 30-inch main in Broadway

Commercial Building B (250 Binney Street):

- A 16-inch main in Binney Street
- A 12-inch main in Binney Street
- A 12-inch main in the former 6th Street Connector

Residential Building North (Blue Garage):

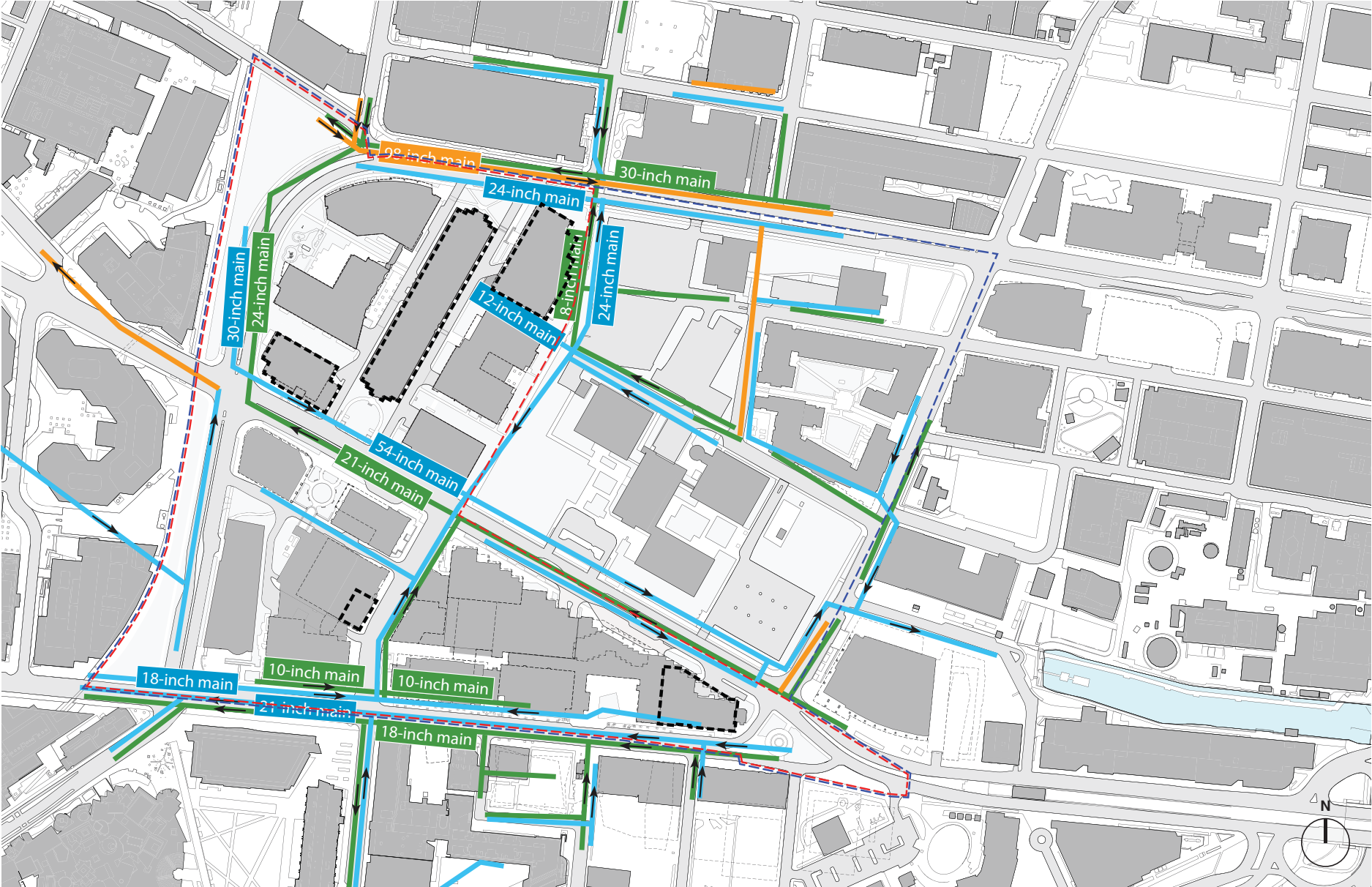
- A 16-inch main in Binney Street
- A 12-inch main in Binney Street

In addition, there are several water and fire protection services, which serve the existing buildings in the District. Services that are intended to remain active will be protected during the construction phase of this Project. There is also an existing private hydrant that is serviced by a water line running under the Blue Garage. This line will be maintained as part of this Project, and the CDW will be allowed unrestricted access to the line and hydrant at all times.

TABLE 6-1- EXISTING SITE HYDROLOGY

<b>Project Component</b>	<b>Existing Site Impervious Area (SF)</b>	<b>Existing Site Pervious Area (SF)</b>	<b>Existing Site Runoff Rate 2-year, 24-hour Design Storm (CFS)</b>	<b>Existing Site Runoff Volume 2-year, 24- hour Design Storm (AF)</b>
Phase 1A - Office Building A	27,707	10,155	2.09	0.164
Phase 2 – Residential Building South	38,630	5,974	2.68	0.217
Phase 2 – Office Building B	51,223	9,398	3.55	0.284
Phase 3 - Residential North	37,406	9,840	2.69	0.213
<b>TOTAL</b>	<b>154,966</b>	<b>35,367</b>	<b>11.01</b>	<b>0.878</b>

FIGURE 6-1 EXISTING STORMWATER AND SEWER INFRASTRUCTURE



- Existing Sanitary Sewer System
- Existing Storm Drain
- Existing Combined Sewer
- Project Sites