



# MIT VOLPE FINAL DEVELOPMENT PLAN

## Design Guidelines

Planning Board Number - PB368

June 4, 2021

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City of Cambridge

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# Table of Contents

Preface .....	8	Interesting Retail .....	50
Purpose .....	8	Recreation, Community, Arts and Creative Enterprise .....	51
Organization .....	9	Programmed and Activated Open Space ..	52
Consistency with Planning Documents .....	10	<b>C. Transportation and Public Transit .....</b>	<b>53</b>
Planning Principles .....	10	Connections to Transit Routes .....	54
Design Principles .....	14	Pedestrian Connectivity .....	54
<b>A. Urban Structure .....</b>	<b>19</b>	Pedestrian Circulation .....	54
The Neighborhood .....	20	Connections to Bicycle Routes .....	54
Urban Design Goals .....	20	Bicycle Circulation .....	54
Green Connections .....	20	Vehicular Circulation .....	55
View Corridors and Landmarks .....	20	<b>D. Public Realm .....</b>	<b>63</b>
Street Typologies .....	22	Open Space Character and Programming .....	66
<b>B. Built Form .....</b>	<b>31</b>	Third Street Park .....	68
Built Form .....	32	Sixth Street Park .....	70
Build-to-Line .....	32	Passage to Loughrey Walkway .....	70
Building Height .....	34	Community Center Park .....	72
Building Form .....	34	Binney Street Pocket Park .....	74
Building Massing and Articulation .....	38	Street Character and Circulation .....	76
Architectural Character .....	43	Typical Street Components .....	76
Existing Landmarks and Context .....	44	Fifth Street .....	78
Residential Buildings .....	45	Broadway .....	84
Commercial Buildings .....	46	Binney Street and Third Street .....	88
Lighting .....	47	Potter Street .....	92
Street Level Uses and Design .....	48	Broad Canal Way .....	96
Accessible, Inventive, and			

Kendall Way .....	102
Street Trees and the Urban Forest .....	106
Streetscape Paving .....	110
<b>E. Block Guidelines.....</b>	<b>113</b>
Block Guidelines - R1/CC .....	118
Block Guidelines - R2 .....	120
Block Guidelines - R3 .....	122
Block Guidelines - R4 .....	124
Block Guidelines - C1 .....	126
Block Guidelines - C2 .....	128
Block Guidelines - C3 .....	130
Block Guidelines - C4 .....	132
<b>F. Environmental Guidelines .....</b>	<b>135</b>
Net Zero Emissions Strategy .....	136
LEED .....	136
Wind.....	137
Shadow .....	137
Lighting .....	138
Heat Island Effect .....	138
Noise .....	139
Climate Resiliency .....	140

# List of Figures

Figure 1: Precedent Urban Design Guidelines . . . . .	11	Architectural Character	
Figure 2: Volpe Working Group - Planning Principles . . . . .	13	Figure B8: Architecture Character - Existing Context . . . . .	44
Figure 3: Volpe Working Group - Design Principles. . . . .	15	Figure B9: Architecture Character - Residential Buildings. . . . .	45
Figure 4: Volpe Working Group - Built Form. . . . .	17	Figure B10: Architecture Character - Commercial Buildings. . . . .	46
<b>A. Urban Structure</b>		Street Level Uses and Design	
Figure A1: Illustrative Connections Plan . .	21	Figure B11: Ground Floor Activation . . . . .	49
Figure A2: Street Typologies . . . . .	24	Figure B12: Accessible, Inventive, and Interesting Retail Precedents. . . . .	50
Figure A3: Conceptual Renderings . . . . .	25	Figure B13: Recreation, Community, Arts and Creative Enterprise Precedents. . . . .	51
<b>B. Built Form</b>		Figure B14: Programmed and Activated Open Space Precedents . . . . .	52
Built Form		<b>C. Transportation and Public Transit</b>	
Figure B1: Site Development Plan - Uses . . . . .	33	Figure C1: Connections to Transit Routes .	56
Figure B2: PUD-7 Zoning Heights . . . . .	35	Figure C2: Connections to Surrounding Context . . . . .	57
Figure B3: Building Massing . . . . .	37	Figure C3: Pedestrian Connectivity Plan . .	58
Figure B4: Massing and Articulation - Residential Buildings. . . . .	39	Figure C4: 2015 Cambridge Bicycle Network Plan . . . . .	59
Figure B5: Massing and Articulation - Commercial Buildings. . . . .	40	Figure C5: Bicycle Connectivity Plan . . . . .	60
Figure B6: Massing and Articulation - Community Center. . . . .	41	Figure C6: Vehicular Plan. . . . .	61
Figure B7: Massing and Articulation - Pavilions . . . . .	42	Figure C7: Vehicular Plan - Curb Utilization . . . . .	62

## D. Public Realm

### Public Realm

Figure D1: Public Realm Precedent . . . . .	64
Figure D2: Public Realm . . . . .	65
Figure D3: Open Space Character Precedents . . . . .	66
Figure D4: Open Space Typologies . . . . .	67
Figure D5: Third Street Park Plan . . . . .	68
Figure D6: Third Street Park Precedents . . . . .	69
Figure D7: Sixth Street Park Plan . . . . .	70
Figure D8: Sixth Street Park Precedents . . . . .	71
Figure D9: Community Center Park Plan . . . . .	72
Figure D10: Community Center Park Precedents . . . . .	73
Figure D11: Binney Street Pocket Park Plan . . . . .	74
Figure D12: Binney Street Pocket Park Precedents . . . . .	75

### Street Character and Circulation

Figure D13: Typical Street Components . . . . .	77
Figure D14: Fifth Street Precedents . . . . .	78
Figure D15: Fifth Street Plan . . . . .	79
Figure D16: Fifth Street Corridor . . . . .	80
Figure D17: Street Section - Fifth Street South of Potter . . . . .	81
Figure D18: Fifth Street at Binney Street . . . . .	82

Figure D19: Street Section - Fifth Street at Binney . . . . .	83
Figure D20: Broadway Precedents . . . . .	84
Figure D21: Broadway Plan . . . . .	85
Figure D22: Broadway Porch at Fifth Street . . . . .	86
Figure D23: Street Section - Broadway . . . . .	87
Figure D24: Binney and Third Street Plan . . . . .	89
Figure D25: Binney Street Detailed Plan . . . . .	90
Figure D26: Street Section - Binney Street . . . . .	91
Figure D27: Potter Street Precedent . . . . .	92
Figure D28: Potter Street Plan . . . . .	93
Figure D29: Potter Street Detailed Plan . . . . .	94
Figure D30: Street Section - Potter Street . . . . .	95
Figure D31: Broad Canal Way Precedents . . . . .	96
Figure D32: Broad Canal Way Plan . . . . .	97
Figure D33: Broad Canal Way Plan at Third Street Park Detailed Plan . . . . .	98
Figure D34: Street Section - Broad Canal Way East . . . . .	99
Figure D35: Broad Canal Way Mid-Block Detailed Plan . . . . .	100
Figure D36: Street Section - Broad Canal Way West . . . . .	101
Figure D37: Kendall Way Precedent . . . . .	102
Figure D38: Kendall Way Plan . . . . .	103
Figure D39: Kendall Way Detailed Plan . . . . .	104

Figure D40: Street Section - Kendall Way . . . . .	105
Figure D41: Street Tree Typologies . . . . .	106
Figure D42: Street Tree Character . . . . .	107
Figure D43: Street Trees . . . . .	109
Figure D44: Streetscape Paving Precedents . . . . .	111

## E. Block Guidelines

Figure E1: Site Development Plan - Massing Strategy . . . . .	114
Figure E2: Site Development Plan - Block Plan . . . . .	116
Figure E3: Site Development Plan - Build to Line . . . . .	119
Figure E4: Block Guidelines - R1/CC . . . . .	118
Figure E5: Block Guidelines - R2 . . . . .	120
Figure E6: Block Guidelines - R3 . . . . .	122
Figure E7: Block Guidelines - R4 . . . . .	124
Figure E8: Block Guidelines - C1 . . . . .	126
Figure E9: Block Guidelines - C2 . . . . .	128
Figure E10: Block Guidelines - C3 . . . . .	130
Figure E11: Block Guidelines - C4 . . . . .	132

## **Preface**

The overarching goal of the Volpe Development Plan is to create a welcoming, connected innovation environment, establishing a vibrant, diverse, inclusive, mixed-use district that provides opportunities for shared discovery, community and collaboration. It will be a social mixing bowl of people, events and activity.

The Volpe Development Plan is conceived as an interconnected whole, made up of streets, park space, urban plazas and passageways, which together constitute a civic framework and connect the site to the surrounding neighborhoods. Integral to weaving the proposed development into the fabric of Cambridge is a diverse, connected network of open spaces, strategically located to draw the public into and through what will be a new swatch of that fabric. It will be green, permeable and porous.

The Volpe Development Plan is an extraordinary opportunity within a mature city and neighborhood to develop significant new buildings and public realm infrastructure that will define inclusive pathways, open spaces and civic gathering spaces, all for diverse stakeholders. The buildings will relate to human scale by means of their massing, material selection, street level accessibility, fenestration patterns and construction details. They will be specific to context, climate and

orientation. The design objective is outstanding architecture – innovative, sustainable and tangibly part of Cambridge.

## **Purpose**

The purpose of these Design Guidelines for the Volpe Development Plan is to establish and document both overarching planning and design intentions and specific dimensional guidelines that are to be followed in the future design and development of individual buildings and landscapes on the defined parcels, and development-wide public realm infrastructure. Dimensional guidelines apply primarily to the locations of use types and dimensional bulk limitations. These guidelines are not intended to impose a strict limitation on the building form and style. Other creative design solutions or measures may also be utilized if the Planning Board finds that they further the goals of these guidelines, especially in the interest of enhancing architectural richness in the area. Within those guidelines, individual design teams will find broad leeway to be creative, inventive and responsive to the enormous opportunity to craft a significant piece of the City of Cambridge.

## **Organization**

The Design Guidelines document is organized in six sections:

### **A. Urban Framework**

This section outlines the context of the Volpe Development Plan and the overall urban planning and design intentions. It emphasizes the overarching goal of connectivity and the importance of the public realm.

### **B. Built Form**

Urban design guidelines regarding street and building alignments, building heights, stepbacks, and massing are addressed, as are guidelines for the form and articulation of the various building typologies that will be developed within the Volpe Development Plan.

### **C. Transportation Network**

This section documents the master plan intentions with regard to transportation access and connectivity around and through the Volpe Development Site. Public Transit, pedestrian, bicycle and vehicular circulation are diagrammed and described.

### **D. Public Realm**

The open space network of the Volpe Development Plan, including streets, parks and pocket parks,

is critical to the overarching goal of connectivity. This section describes the vision, principles, design character and detail intentions for the public realm.

### **E. Block Guidelines**

Diagrams and narrative text for each parcel within the master plan outline parcel-specific intentions for use and design and define dimensional guidelines.

### **F. Environmental Guidelines**

Development-wide strategies regarding sustainability, resiliency and urban environmental considerations are described within this section for incorporation by future parcel-specific design teams.

1. Kendall Square (K2) Final Report / Cambridge CDD and Goody Clancy, 2013
2. Connect Kendall Framework Plan / Richard Burck Associates, 2015
3. PUD-7 Zoning Ordinance and Volpe Site Design Guidelines / City of Cambridge and Cambridge Planning Board, 2017
4. Volpe Working Group Planning and Design Principles / Cambridge CDD and Michael Dennis Associates, 2017
5. Net Zero Action Plan / City of Cambridge, 2017
6. Climate Change Vulnerability Assessment / City of Cambridge, 2017
7. Kendall Square Mobility Task Force Final Report / City of Cambridge / MassDOT 2017
8. Envision Cambridge / Cambridge CDD, 2019
9. Climate Resilience Zoning Task Force Recommendations / Cambridge CDD, 2020
10. Cambridge Urban Forest Master Plan / Cambridge Department of Public Works and Reed Hilderbrand, 2020

## Consistency with Planning Documents

City of Cambridge Ordinance Number 1398, in amendment to the Zoning Ordinance of the City of Cambridge, established Article 13.90 of the Zoning Ordinance and entitled Planned Unit Development 7 District, to define the zoning guidelines for the Volpe Site. Introductory paragraph 13.91, Purpose, states that: Development should be generally consistent with the policy objectives set forth in the then current Kendall Square (“K2”) Planning Study and Design Guidelines (2013), The Planning and Design Principles established by the City’s Volpe Working Group (2017) and Volpe Site Design Guidelines (2017), collectively, the “PUD-7 Guidelines and Principles.”

This Design Guidelines document is consistent with, reinforces and supplements the referenced PUD-7 Guidelines and Principles. It connects their recommendations to the Volpe Site Development Plan and codifies general guidelines for individual future parcel and infrastructure development, all with the goal of bringing the City of Cambridge planning aspirations to fully compliant fruition.

The following text and illustrations are guided by the planning and design principles articulated by the Volpe Working Group. Some of the images and drawings included are the work of Michael Dennis & Associates on behalf of the Volpe Working Group.

## Planning Principles

A successful urban development plan equally celebrates buildings and open space. Buildings in which people live, work, and play should be graceful, elegant, and welcoming in themselves, and should contribute to the grace, elegance, and welcome of the streets, squares, plazas, and parks whose edges they define.

### 1. Civic Life

The varied size, scale, and type of open spaces planned throughout the Volpe Development Plan will provide a very intentional mix of civic experiences - from busy urban street, to wide tree-lined street, to the dense tree canopy of a linear urban passageway, to the perimeter landscape of the new Volpe Building, to four public parks - the variety of these urban space types will contribute to the permeability and urbanity of East Cambridge.

### 2. Connectivity & Permeability

By establishing a block size and street pattern that is responsive to the surrounding street grid, the future development of the Volpe site will weave seamlessly into the urban fabric of Cambridge. Street widths, open spaces, building scale and the mix of residential and commercial uses will all serve to connect future development to the communities of East Cambridge, Wellington-Harrington, The Port, and MIT to the Kendall

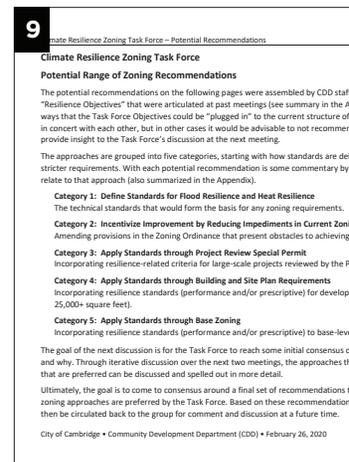
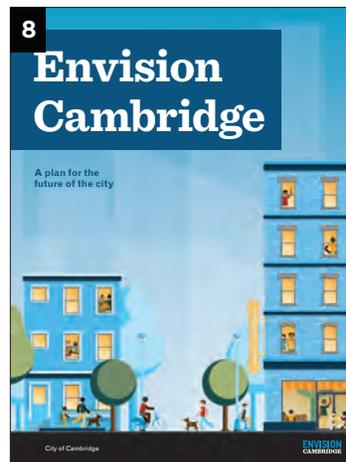
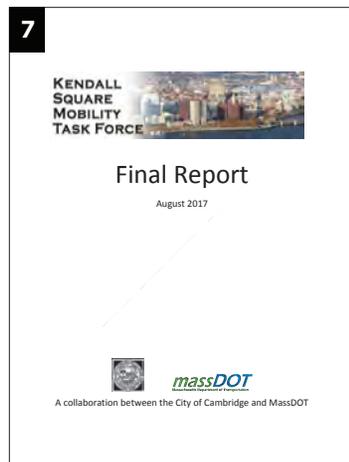
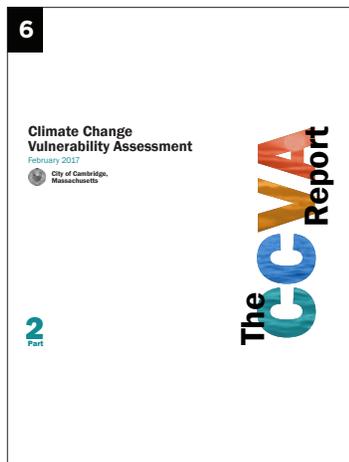
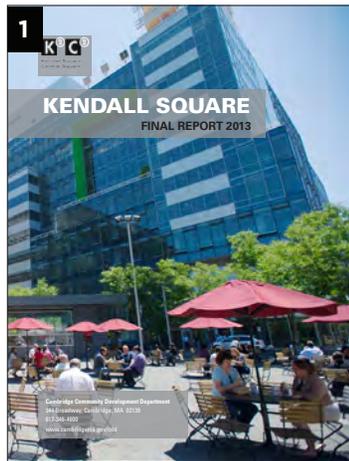


Figure 1: Precedent Urban Design Guidelines

Square T, neighborhood amenities, the Broad Canal, open space, and the waterfront.

### **3. Activation**

The proposed extent and location of publicly beneficial open space, combined with significant retail area targeted toward small, local businesses and the combination of commercial and residential buildings will all serve to activate the entire district, providing enjoyment and recreation to residents, neighbors, and visitors across multiple timeframes. Various venues for gathering, the arts, entertainment, recreation, and innovation will create a place that fosters community and opens up social and economic opportunities.

### **4. Inclusiveness**

Diverse housing options, consumer services, recreational amenities, multicultural programming, and engagement among different demographic groups will draw a broad range of community members and provide opportunities for companies and others in the innovation community to reach out and provide benefits to the broader public. MIT's intention to incorporate the Job Connector program as part of the Community Center will encourage local residents to participate in the local innovation economy.

### **5. Comfort**

The mix of uses and variety of landscape spaces and street types proposed will all extend a sense of welcome to residents, neighbors, and visitors. Public pathways, recreational spaces, and gathering areas will range in scale from intimate to grand, offering niches for individuals, small groups, and large gatherings.

### **6. Sustainability**

The Volpe Development Plan commits to the design of all buildings within the PUD-7 district to achieve LEED Gold certification. The development will have the largest number of all-electric residential units in the region with zero on-site emissions to support a net-zero carbon future. An integrative sustainable design process will be utilized to ensure that best practices will be employed in the design of exterior envelopes, building energy and water-use systems, site planting, and site storm water management systems.

1. **Connectivity and Permeability**
2. **Civic Life**
3. **A Place for Opportunity**
4. **Sustainability**
5. **Activation**
6. **Inclusiveness**
7. **Comfort**

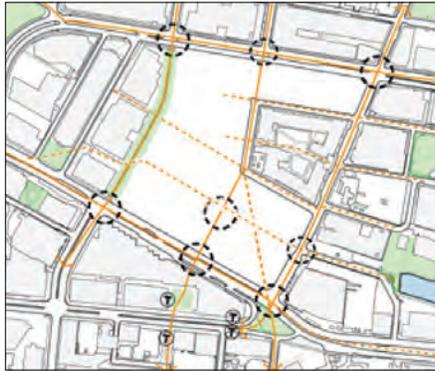


Figure 2: Volpe Working Group - Planning Principles  
\*IMAGES AND SKETCHES FROM MICHAEL DENNIS & ASSOCIATES (MODIFIED)

## **Design Principles**

The framework established by this Development Plan for the massing and articulation of its open spaces and buildings will reinforce the successful weaving of the master plan into the fabric of Kendall Square and East Cambridge.

### **1. Buildings that Frame the Public Realm**

Buildings and urban open space jointly define the quality and character of the public realm of cities. They are the specific built manifestation of urban design principles. The public realm of a city becomes inviting and welcoming when its buildings and open spaces exist in equilibrium, each contributing equally to the definition and charm of the other.

### **2. Vegetative Cover to Reduce Heat Island Effect**

Significant green spaces will lead people into and through the neighborhood, taking advantage of both sun and shade. Shade from the canopy of trees – more than 200 new trees will be planted – will further temper the pedestrian environment, particularly by preserving and supplementing existing mature trees along Loughrey Walkway/Sixth Street Park and in what will become the new Third Street Park.

### **3. Facades Engage the Context**

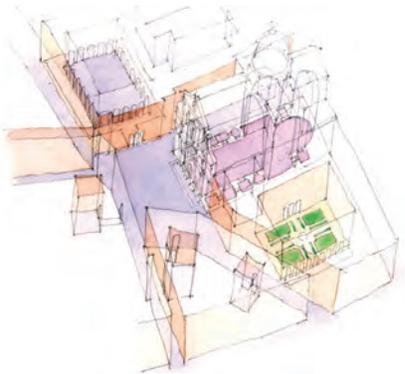
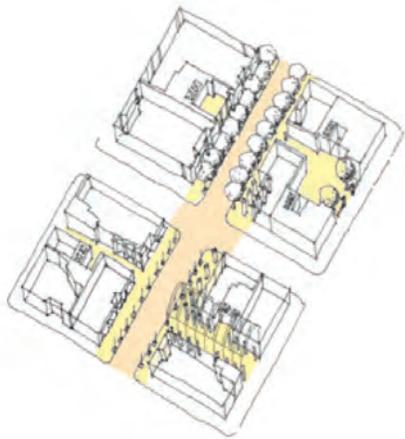
Buildings relate to human scale by means of material selection, fenestration patterns and construction details and articulation. These buildings will be specific to the context, climate, and urban and solar orientations of their specific sites. This is Kendall Square, in East Cambridge, with a specific building history and tradition, material and color palette, and organizational composition.

### **4. Building Massing Responds to Open Space**

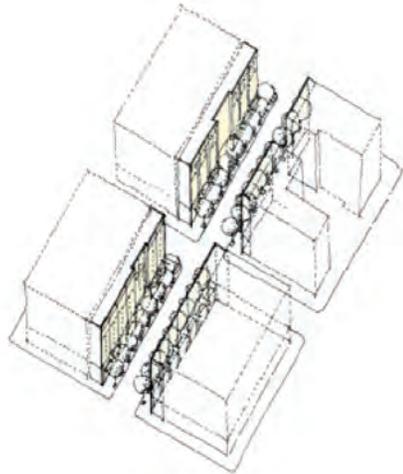
A primary design goal of the Volpe Development Plan is to create human-scaled streets and open spaces and a district where the built form contributes to an overall sense of place by simple, shared urban design principles. The design objective is outstanding architecture – innovative, sustainable and tangibly part of Cambridge.

- **Pedestrian Zone:** The Volpe Development Plan relies on two fundamental tenets to enliven its streets and public places. First, buildings will be built to the urban build-to line, establishing a continuous streetwall that connects the development to the surrounding neighborhood. Second, the inclusion of largely transparent retail, dining and recreation uses at street level will serve to blur the boundary between inside and outside, energizing both.

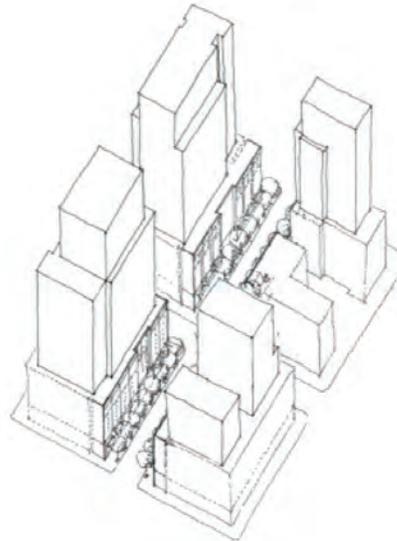
**1** Buildings that Frame the Public Realm



**2** Vegetative Cover to Reduce Heat Island Effect



**3** Facades Engage the Context



**4** Building Massing Responds to Open Space

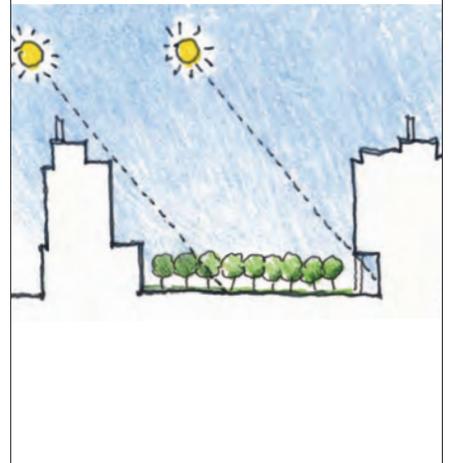
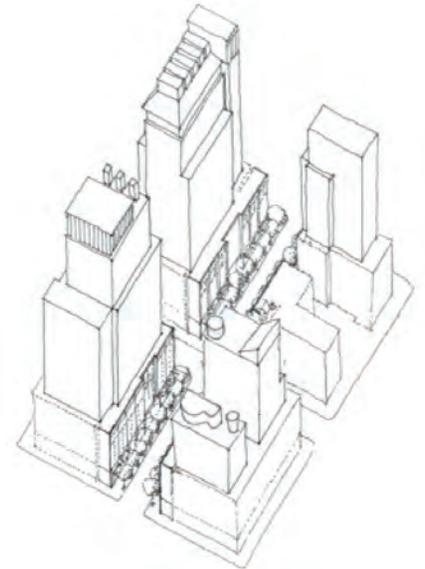


Figure 3: Volpe Working Group - Design Principles

\*IMAGES AND SKETCHES FROM MICHAEL DENNIS & ASSOCIATES

Continuous retail, dining and entertainment will line Broad Canal Way, Broadway and Third Street.

- **Streetwall:** Within the new buildings that will comprise the Volpe Development Plan, each building will be built to the build-to line for approximately 80% of the length of its facades, defining the urban streetwall up to a height of approximately 85 feet above grade for commercial buildings and approximately 45 feet for residential buildings. Floors within this zone may utilize less overall transparency than the retail and entry elements of the pedestrian frontage zone, as they serve to reflect the specific functional use of the overall building and define the urban scale of streets and open spaces.
- **Tower:** Defining the majority of the building's presence above the streetwall zone, the building tower participates at the scale of the district and contributes to the sense of density and vitality of the city. The Development Plan

suggests that building towers are stepped back from the streetwall zone by a minimum of 10 feet over approximately 50% of the total horizontal dimension of the streetwall, and that they should be further broken down into vertically articulated elements by the use of additional plan offsets or reveals wherever the overall horizontal façade length exceeds 100 feet.

- **Building Top:** The building top operates on the scale of the city and lends identity to the building and its occupants and compositional character to the profile of the city skyline. The Development Plan suggests that building tops, typically mechanical penthouses, be stepped back from the plane of the building tower zone by at least 5 feet.

In addition, the diverse sculptural forms of these building tops afford an opportunity to establish an identity for Kendall Square from a distance.

1 Pedestrian Zone



2 Pedestrian Zone



3 Streetwall



4 Streetwall



5 Building Tower



6 Building Tower



7 Building Top



8 Building Top



Figure 4: Volpe Working Group - Built Form

\*IMAGES AND SKETCHES FROM MICHAEL DENNIS & ASSOCIATES

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# A: Urban Structure

## The Neighborhood

Key to establishing connectivity to both the existing network of streets and to the scale of the surrounding neighborhood is the idea of breaking up the superblock of the existing Volpe site. By extending Fifth Street to connect Broadway to Binney Street, the master plan re-establishes both a neighborhood scale and an urban pathway that has not existed for 50 years. By extending Broad Canal Way deeply into the site as a multi-modal, pedestrian-focused street, the plan gives emphasis to the Broad Canal and increases connectivity to the Charles.

## Urban Design Goals

By planning for a diverse mix of uses, including residential, lab and office, retail and community, the Volpe Development Plan will become part of the neighborhood and a piece of the city. Where there is currently an isolated parcel, there will be an extension of the existing fabric, in which the edges between existing neighborhood and new development are intentionally blurred.

## Green Connections

The master plan's highly interconnected and differentiated network of public realm spaces— its streets, squares, parks, and courts — constitute the plan's fundamental organizing principle. It maximizes permeability for pedestrians, cyclists,

workers, residents and neighbors. It emphasizes both solar exposure and the development of a long-term urban tree canopy throughout.

A series of significant open spaces establishes a network that permeates the Volpe site while being intentionally open along the site's perimeter – at Third Street Park, at Sixth Street Park, at Community Center Park and at Binney Street Pocket Park – creating urban green space that is openly shared with neighboring buildings and streets.

## View Corridors and Landmarks

The public realm network of the master plan has been intentionally designed to explode the impermeable superblock of the existing Volpe site and create and enhance a series of view corridors into, through, and around the site. The most significant of these will be the one which draws the eye from the corner of Third and Broadway, through Third Street Park, and through Community Center Park, to the Volpe Art Lawn and the new Volpe National Transportation Center.

Similarly, the introduction of Fifth Street, connecting Binney Street to Broadway, will provide a tree-lined street visually connecting the neighborhood fabric of East Cambridge to Kendall Square.



Figure A1: Illustrative Connections Plan

The extension of Broad Canal Way as a pedestrian-focused street across Third Street and into the Volpe development site will serve to visually connect the development to a unique urban element of Cambridge and accentuate the connection to the Charles.

Along the western edge of the site, Loughrey Walkway will be enhanced by the adjacent Sixth Street Park, preserving, emphasizing, and embracing a beloved but somewhat hidden allée within the city.

### **Street Typologies**

The streets are designed to enhance public life by constituting a continuous and welcoming circulation network that is shaded, comfortable, safe and lively. The streets, courts and squares will support a wide range of outdoor uses, and they will be enlivened by pedestrian-oriented functions located in the ground floors of the surrounding buildings. These spaces will create a varied yet continuous public realm that gives the district permeability, porosity, strong view corridors, and a palpable and unique place identity. All streets have been planned to support high-performance street tree installation to insure the presence of a long-term urban canopy, such that as the development is built out and matures, it will attain or exceed the city's goals for continuous tree canopy on its streets and open spaces. The site's

streets, squares, and parks will be public in use and character.

The components of streets provide opportunities to support local businesses through retail frontage and spillover, while creating spaces for relaxation and gathering and weaving the urban circulation network through the fabric of the city. In order to accommodate their varied functions, the streets are to be developed as several different typologies, as described below.

**Commercial Street** is typically characterized by a consistent urban streetwall. A dense line of street trees is intended to provide pedestrian scale and ample shade for the active retail frontage, and ground floor and streetscape design should convey a transparent, urban commercial edge. At Broadway, to develop resiliency against future potential flooding, the building ground floor will be raised in response to the City's flood risk guidelines. This is an opportunity for the Broadway buildings to have elevated porches that provide compelling retail premises, particularly for food and beverage uses, with heightened sight lines, robust outdoor seating and display areas. Examples: Broadway; Binney Street.

**Neighborhood Connector** is a two-way neighborhood street with active retail. Curb lines and materials are to define distinct areas of travel for pedestrians, bicycles and vehicles.

The vehicular street width is to be consistent, with asymmetrical planting, walkway and bicycle zones. Example: Fifth Street.

**Shared Street** is a paved, multi-modal, pedestrian-focused street that acts as both terrace and promenade, blurring the edge between inside and outside. Canopy trees are intended to provide a ceiling for the street, bringing the scale down to pedestrian life. It is intended to be a controlled access street with active retail. The roadway should be pedestrian-oriented, with flush curbs and uniform materials creating a continuous surface for free mobility along its entire length. Example: Broad Canal Way. Broad Canal Way will be one way west from Third Street to Fifth Street and one way east from Kendall Way to Fifth Street.

**Residential Street** will provide parking access and curbside front door addresses to residential buildings in the development. The street section is to provide a wide continuous pedestrian sidewalk with active curbs contributing to a quieter residential feel. Example: Potter Street.

**Shared Use Way** serves multiple functions, accommodating service traffic to adjacent buildings and pedestrian connections. The elimination of raised curbs and dedicated parking zones is intended to emphasize the pedestrian experience. Primary retail and active spaces at building corners will enliven the street with music/entertainment and inclusive public programming. Examples: Kendall Way.

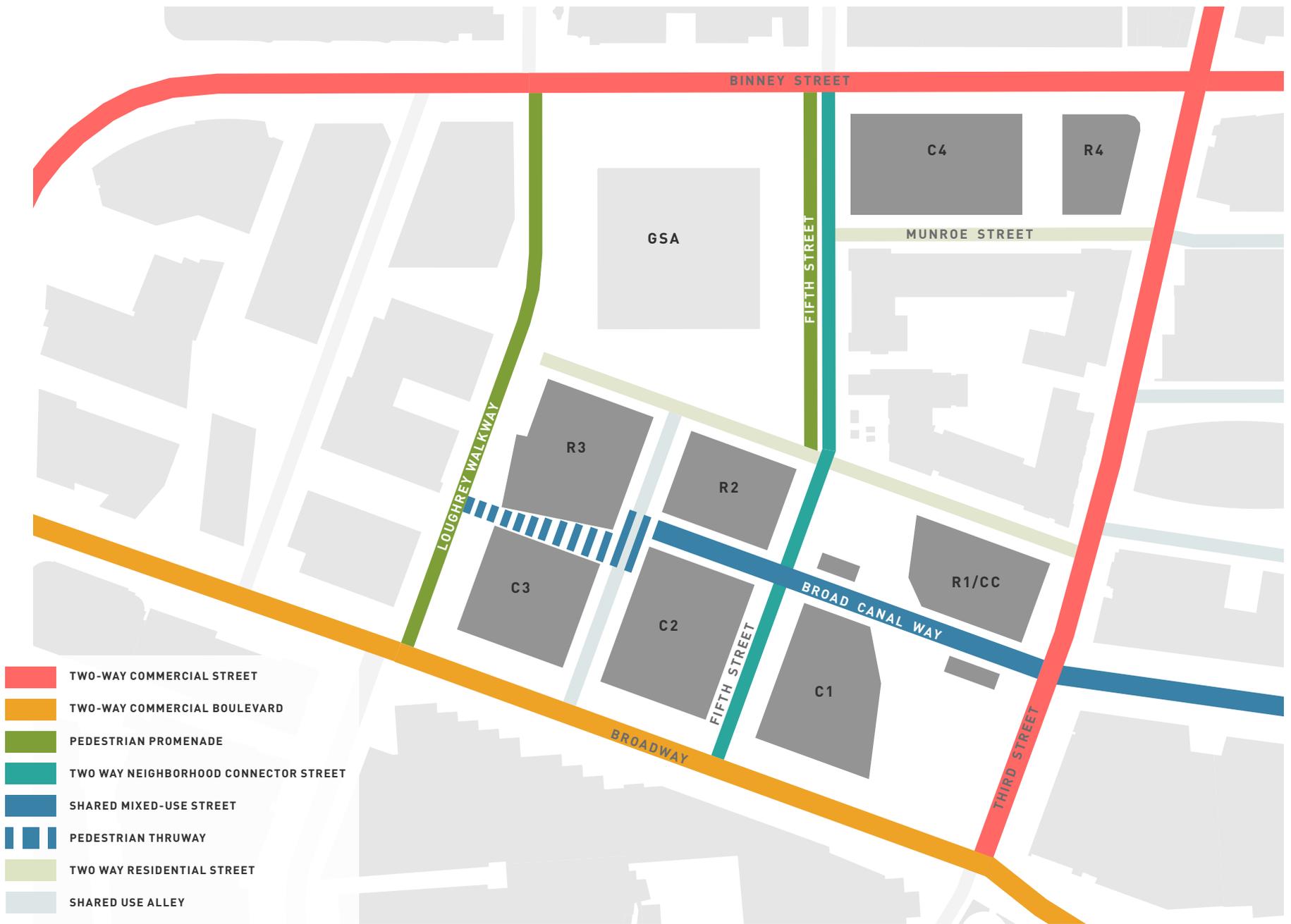


Figure A2: Street Typologies





- 1. Third Street Park
- 2. Loughrey Walkway and Sixth Street Park

Figure A3: Conceptual Renderings



- 3. Community Center Park
- 4. Broad Canal Way
- 5. Fifth Street and Broad Canal Way
- 6. Entertainment Venue





- 7. Broadway
- 8. Potter Street
- 9. Binney at Third Street





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## B: Built Form

### Build-to-Line

The locations and dimensions of the streetwall envelopes of the buildings proposed in the Volpe Development Plan have been very carefully considered with regard to the open space network and specific street typologies of the master plan. The establishment of a continuous build-to line running from building to building is critical to successfully establishing the different street typologies and connecting the development to the surrounding neighborhood.

As indicated in **Figure E2: Site Development Plan - Build to Line**, each building is to be built

to the build-to line, defining the urban streetwall. The streetwall will align to the build-to line for approximately 80% of the length of a building's individual facades. Where the master plan building geometry varies from the orthogonal geometry of the adjacent existing and planned streets, whether as an angle or a curve, this should be considered more diagrammatic than prescriptive – it is the representation of an intention to introduce building form that responds directly and inventively to specific, significant pathways, view corridors, and urban nodes.

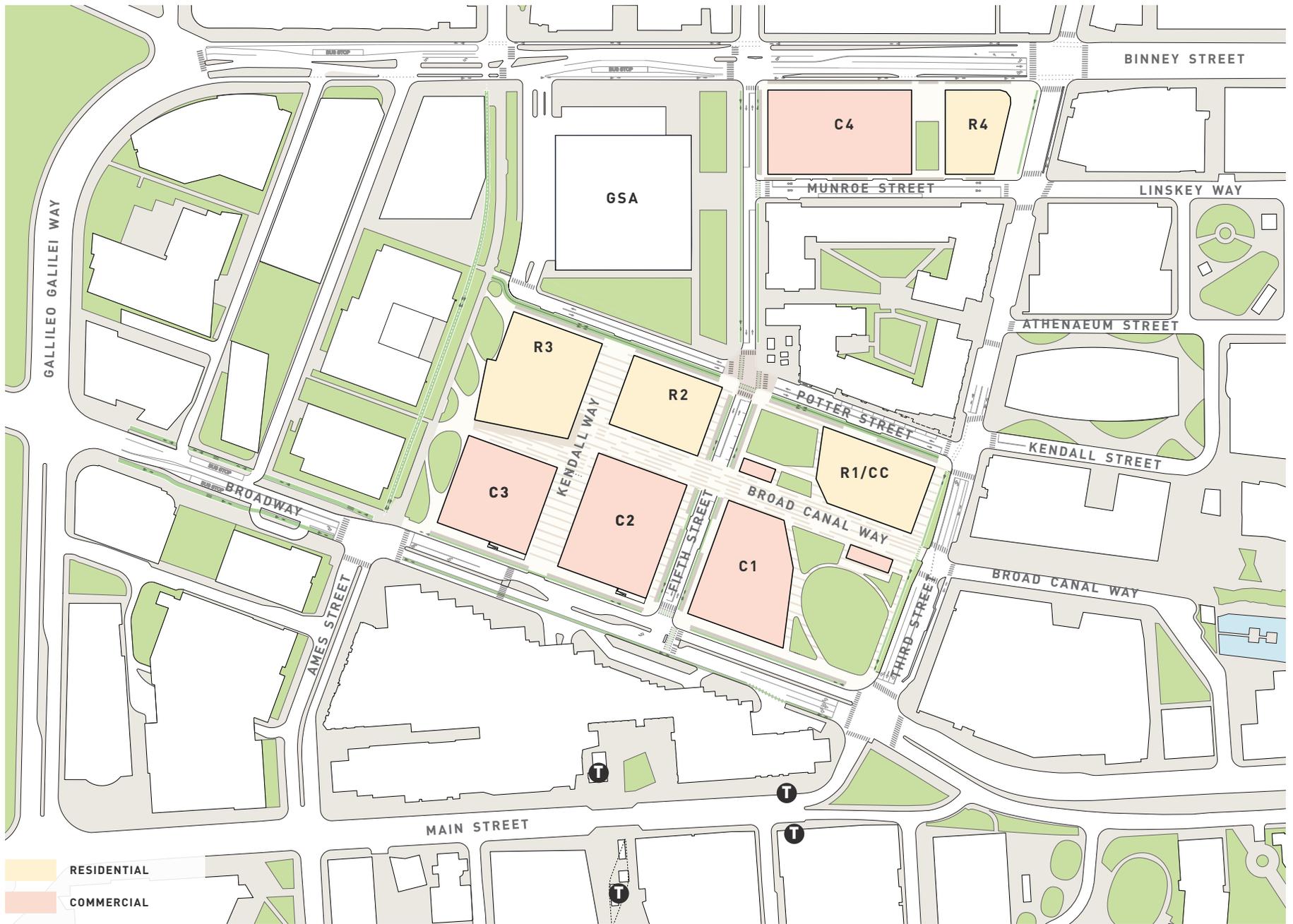


Figure B1: Site Development Plan - Uses

## Building Height

Building heights within the overall Volpe Development Plan are limited by the dimensional regulations of the PUD-7 zoning (Article 13.90 of the Cambridge Zoning Ordinance). Within the PUD-7 zoning, the overall site is zoned to allow heights of 170' to 250' in the northeast quadrant (between Binney and Munroe, from Third Street to Fifth Street), 250' in the northwest quadrant (the Volpe National Transportation Center site), and 250' to 500' on the southern half (between Potter and Broadway, from Third Street to Loughrey Walkway).

Overall building heights (exclusive of mechanical penthouses) as shown on the Development Plan documents are in full compliance with the dimensional regulations of the PUD-7 zoning. Future variations in building height (as well as in average floor plate areas) on one development parcel will have an impact on the square footage available to be developed on remaining parcels and on meeting the required ratio of residential development to total development. Variations from the defined building heights must comply with the PUD-7 zoning and will be subject to review and approval through the Article 19 design review process.

## Building Form

The primary planning goal of the Volpe Development Plan is to create human-scaled streets and open spaces and a district where the built form contributes to an overall sense of place by employing simple, shared urban design principles. The design objective is outstanding architecture – innovative, sustainable and tangibly part of Cambridge. The massing envelopes of each of the eight high-rise buildings proposed are conceived with four horizontal zones: pedestrian frontage, streetwall, tower, and building top.

- **Pedestrian frontage:** This street level zone activates the public realm. This frontage should be carefully articulated with a high level of transparency, lightness, and detail at the ground floors allowing views inward and outward.
- **Streetwall:** The streetwall defines the scale of the street. Floors within this zone may utilize less overall transparency than the pedestrian frontage zone, as they reflect the specific functional use of the overall building and define the urban scale of streets and open spaces. Variation in streetwall height may be desirable to help differentiate between buildings.

Use of massing articulation, material variation and architectural detailing will humanize the

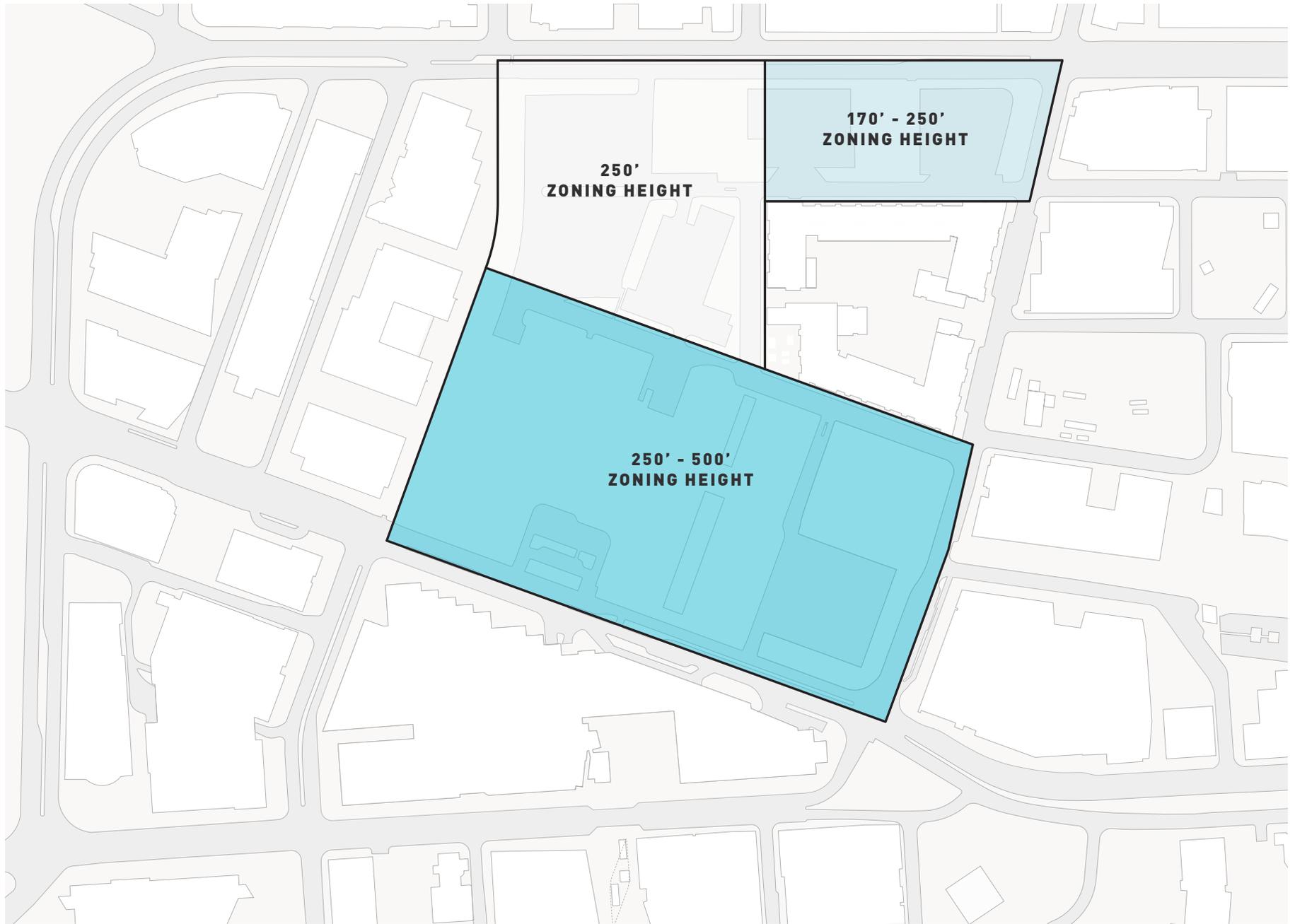


Figure B2: PUD-7 Zoning Heights

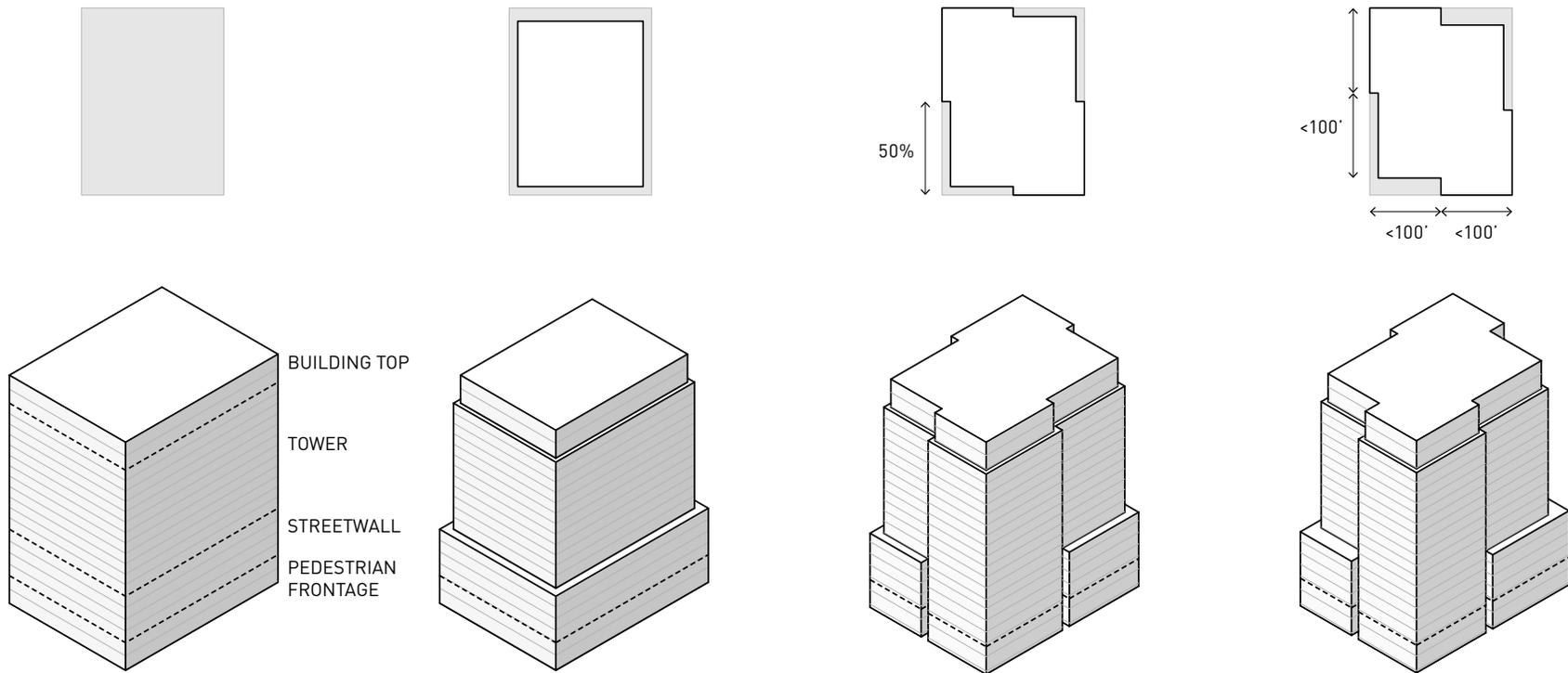


scale of the streetwall and create an intimate pedestrian experience.

- **Tower:** Defining the majority of the building's presence above the streetwall zone, the building tower participates at the scale of the district. Fenestration patterns in this zone will relate to the primary function of the building, and it is in the tower massing that the most opportunity exists to manipulate bulk and proportion.
- **Building top:** The building top operates on the scale of the city, and lends identity to the building and its occupants and compositional character to the profile of the city skyline. The goal is to realize the potential of the tower for landmark/ distant views. Consider legibility of the building top both by day and night, while carefully avoiding light pollution.

The proposed building forms within the master plan document depict the suggested stepbacks between streetwall and tower (at an approximate height of 85 feet for commercial buildings and approximately 45 feet for residential buildings) and between tower and building top. Typical stepback dimensions are to be 8 to 10 feet, and to exist at approximately 50% of the building perimeter. Penthouses will stepback an additional 5 feet. Additional stepback dimensions are to be provided adjacent to 303 Third Street, Loughrey Walkway, and Third Street Park. Vertical changes in plane are to be provided at all streetwalls that are more than 100 feet uninterrupted in plan.

Use variations in height and architectural elements such as parapets, cornices and other details to create interesting and varied roof lines and to clearly express the tops of buildings.



Buildings should consist of up to four different, but integrated zones - the pedestrian frontage zone, the streetwall, the tower, and the building top.

Tower frontage should be set back 8 - 10 ft from the streetwall. Building Tops should be stepped back a minimum of 5 ft from the plane of the tower façade.

50 - 80% of tower frontage should be set back 8 - 10 ft from the streetwall with greater setbacks provided at open spaces, Loughrey Walkway, and the 303 Third Street.

On towers greater than 100 ft in horizontal length, create vertical zones, differentiated by changes in plane of at least 8 ft.

Figure B3: Building Massing

### **Building Massing and Articulation**

Buildings should reflect a rhythm and a variation appropriate to the urban context. For example, this can be achieved by expressing bay widths of 16 to 27 feet for residential buildings and 30 to 40 feet for mixed-use and retail buildings.

### **Residential Buildings**

Residential building architecture should reflect the private nature of individual units and residential spaces, emphasizing a relatively high wall-to-window ratio and a diversity of fenestration, responding to unit organization and solar orientation. Residential floor plates are inherently thinner than commercial floor plates, and accentuating the slender proportions of the residential plates is to be encouraged. Balconies, whether projecting from the typical plane of the exterior facade or recessed into it, may be utilized to lend scale and variety to the massing.

### **Commercial Building**

The proposed commercial buildings will differ from residential buildings by virtue of their larger floor plates, greater floor to floor heights, rigorous structural bay spacing, and more uniform pattern of fenestration. The four commercial buildings will have primary addresses on Broadway and Binney Street, two of the primary commercial streets in Kendall Square. Building massing and envelope

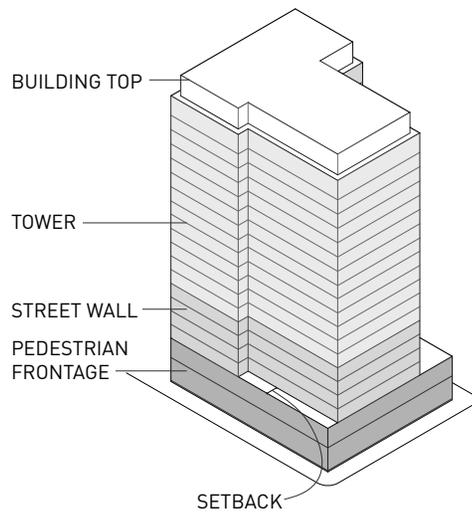
details should respond to distinctions between primary front facades and secondary facades and to differences in solar orientation.

### **Community Center**

The community center is planned at the base of building R1, located at the heart of the district, adjoining public open space to invite and encourage use by the community. The architecture of this base in terms of configuration, formal expressiveness and transparency should reinforce this welcoming approach. Massing and architectural elements should take advantage of the building's location at the intersection of multiple significant view corridors, and details that blur the line between inside and outside are to be encouraged.

### **Retail Pavilions**

The master plan envisions the placement of two retail pavilions along Broad Canal Way bordering the northern edge of Third Street Park, and the southern edge of Community Center Park. The pavilions are intended to be single-story in scale and highly transparent. A very light, tectonic aesthetic is to be encouraged. The retail pavilions are intended to provide both separation and connection between Broad Canal Way, Third Street Park, and Community Center Park, simultaneously allowing the street to be part of the park and the park to be part of the street.



### Common Features

- Simple definition of pedestrian frontage, tower and top (3,4)
- strong expression of frame and legibility of scale (1, 2, 3, 4)
- architectural language of residential (2, 4)

1. Lantern House / New York, NY
2. Residential Complex on Zeeburger Island / Amsterdam, The Netherlands
3. 1 Flatbush Ave / Brooklyn, NY
4. Echelon Seaport / Boston, MA

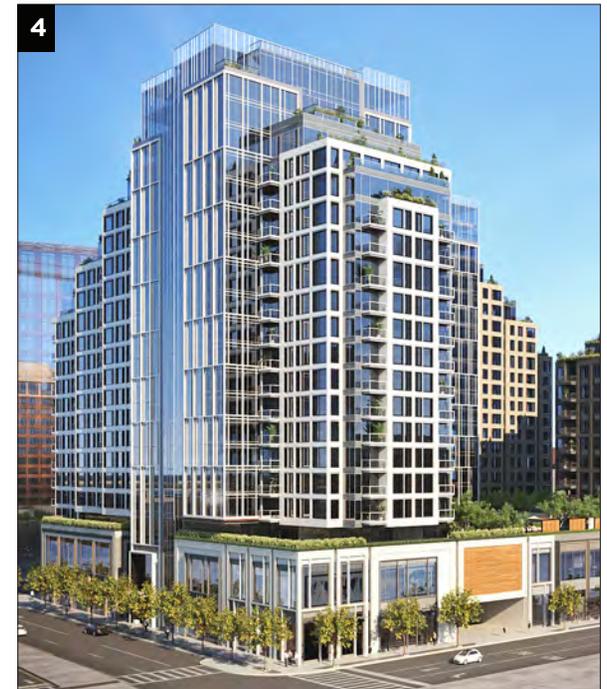
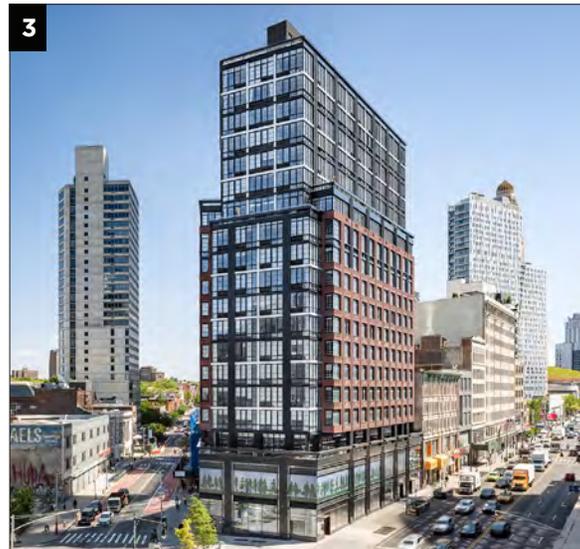
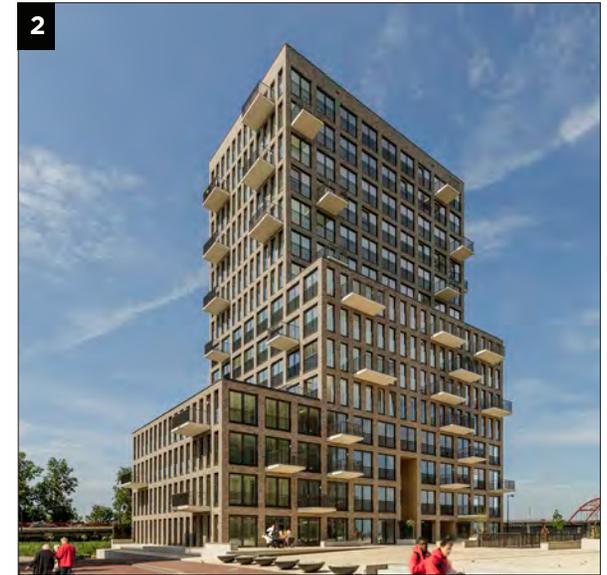
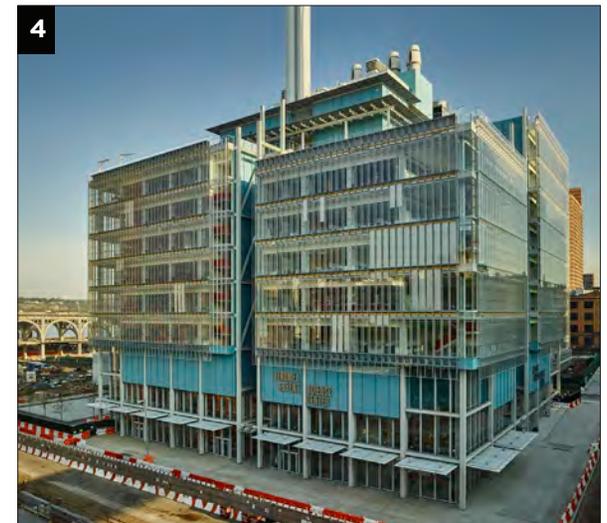
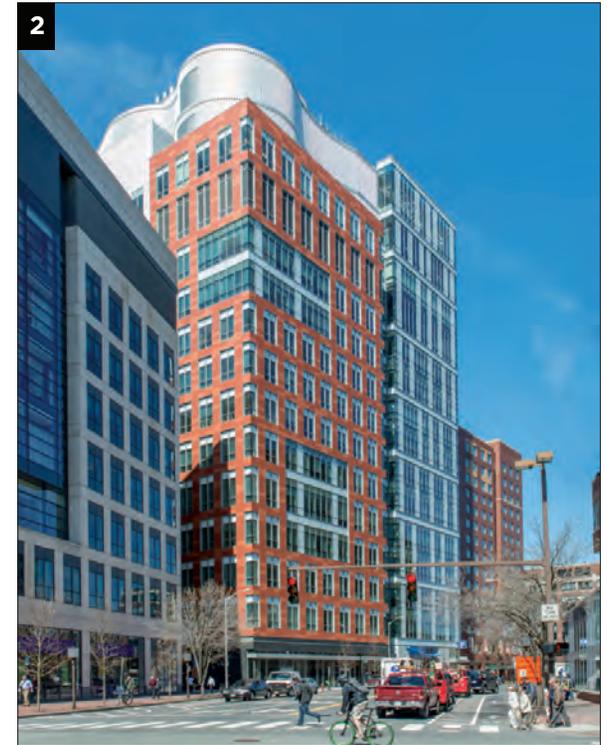
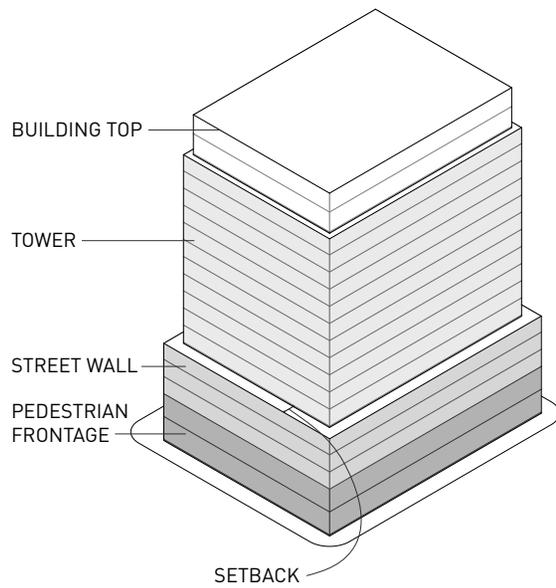


Figure B4: Massing and Articulation - Residential Buildings

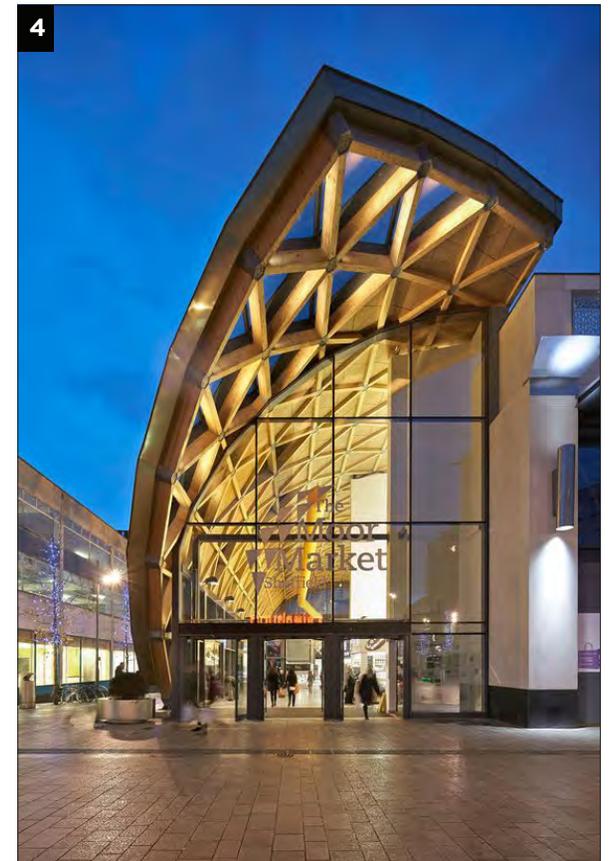
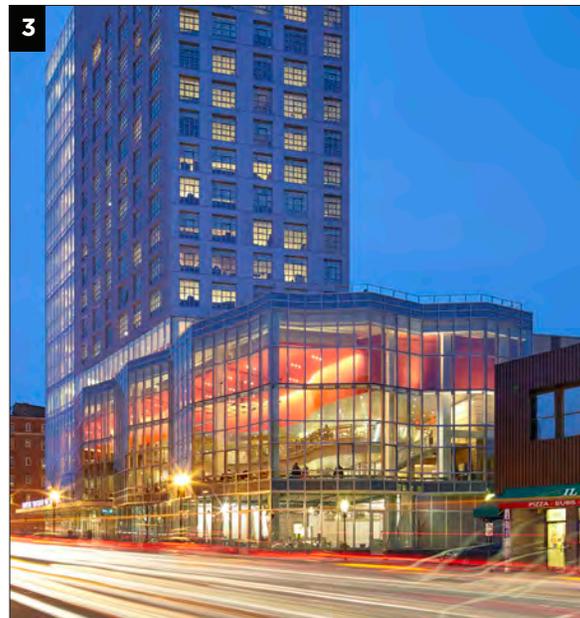
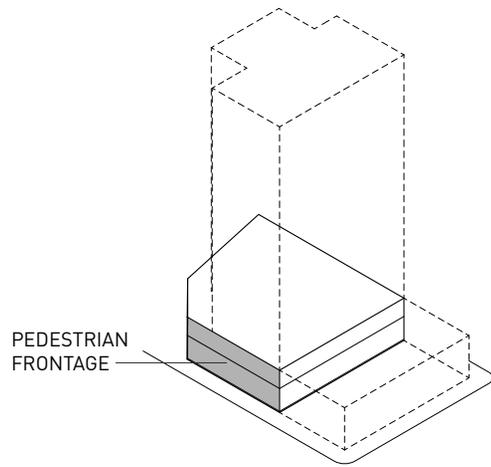


**Common Features**

- Simple definition of pedestrian frontage, tower and top (1, 2, 3)
- strong expression of frame and legibility of scale (1, 2, 3)
- confident use of color (1, 2, 3)
- legibility of commercial use, universal and flexible space (1, 2, 3, 4)

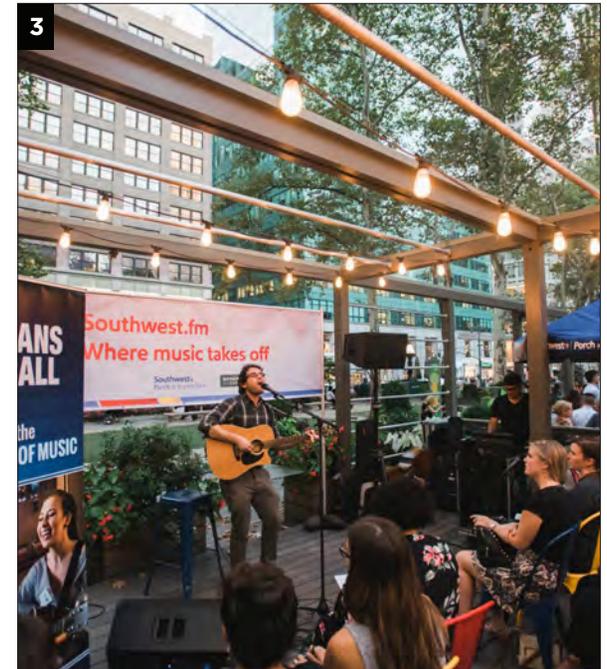
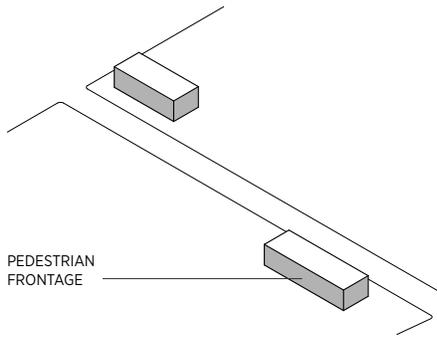
1. Four Hudson Square / New York, NY
2. Broad Institute / Cambridge, MA
3. R7 Kings Cross / London, UK
4. Jerome Science Center / New York, NY

Figure B5: Massing and Articulation - Commercial Buildings



1. ICA Watershed / Boston ,MA
2. 837 Washington Street / New York, NY
3. Berklee College of Music / Boston, MA
4. The Moor Market / United Kingdom

Figure B6: Massing and Articulation - Community Center



1. Coffee Kiosk / Lelystad, Netherlands
2. Trillium Fenway / Boston, MA
3. Southwest Porch / New York, NY

Figure B7: Massing and Articulation - Pavilions

# Architectural Character

Architectural character and composition should emphasize a distinct identity for each building while also expressing a consistent level of quality, proportional elegance and detail throughout the Volpe Development Plan. Architectural character should weave into the history and tradition, material and color palette, and compositional organization evident in Kendall Square and East Cambridge. Attributes that create distinct architectural composition include the proportions of major massing elements and cohesive or contrasting use of materials and color. Individual building identity and character should be legible from adjacent streets and critical view corridors, while the collective Volpe redevelopment skyline should be recognizable when seen from a distance.

The architectural character should support these objectives:

- Provide diversity and variety within a community of buildings;
- Contribute to the definition and beauty of the public realm;
- Address scale at the pedestrian, building and district level;
- Respond to surrounding context of Kendall Square and East Cambridge;

The architecture character should consider the following:

- Buildings should reflect a rhythm and variation appropriate to the urban context. For example, this can be achieved by expressing bay widths of 16 to 25 feet for residential buildings and 25 to 50 feet for mixed-use and retail buildings;
- Identify facades within critical view corridors and consider design enhancement to support the project's architectural quality;
- Use variations in height and architectural elements such as parapets, cornices and other details to create interesting and varied roof lines and to clearly express the tops of buildings;
- Taller buildings should emphasize vertically-oriented proportions and should consider the variety of vantage points from which they may be seen.

## Existing Landmarks and Context

Building design should consider the existing architecture of Kendall Square and East Cambridge as presenting a vocabulary of contextual precedent which may be drawn upon to heighten the perception that the new buildings that populate the Volpe Development Plan weave into the existing city fabric. That fabric is by no means uniform – multiple materials, colors, and proportions of massing elements and fenestration exist nearby and may be lessons in developing compositional strategies for new buildings. While strict imitation is discouraged, a strategy of reference and interpretation is encouraged, with individual design teams at liberty to study elements of the Cambridge vocabulary for inspiration. A city consists of both background buildings and foreground buildings. As an ensemble, the ultimate build-out of the Volpe site should be comprised of neither all foreground nor all background buildings.

1. Volpe National Transportation Systems Center / Cambridge, MA
2. MIT 238 Main Street / Cambridge, MA
3. 675 Kendall Street / Cambridge, MA
4. 181 Massachusetts Avenue / Cambridge, MA
5. 75 Amherst Street / Cambridge, MA



Figure B8: Architecture Character - Existing Context

## Residential Buildings

Compositional strategies for residential buildings should include:

- Creating varied architecture and avoiding uniform box-like proportions by including stepbacks, bays, balconies, porches, and other projecting or recessed elements.
- Maximizing the number of windows facing public streets to increase a sense of safety and security.
- Where buildings employ stepbacks at upper floors, lower roofs may be used to create balconies, terraces, and gardens.
- Utilizing massing and articulation, such as varying the plane of the façade, modulating the proportions of fenestration, introducing more than one cladding material, and employing architectural detail – all to break down the overall scale of the buildings while maintaining a cohesive architectural expression.

1. 10 Bond / New York, NY
2. 500 W21st Street / New York, NY
3. Residential Building / Tehran, Iran
4. 360 East 89th Street / New York, NY
5. MIT 290-292 Main Street / Cambridge, MA

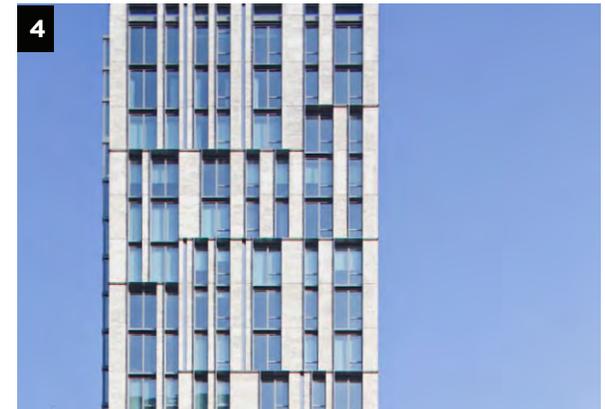
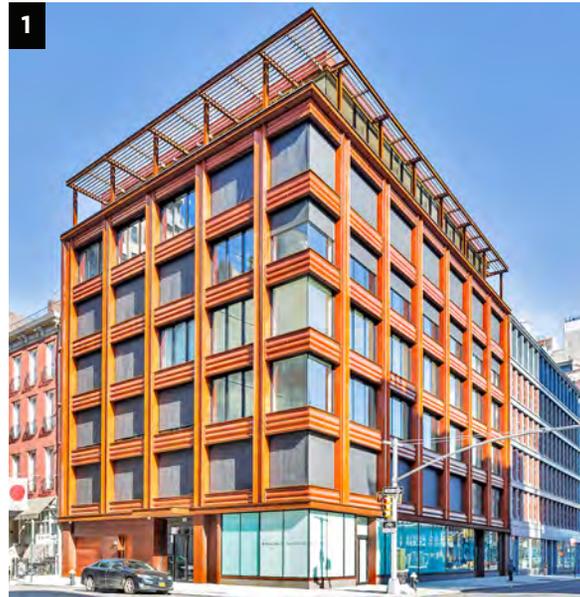


Figure B9: Architecture Character - Residential Buildings

## Commercial Buildings

Careful articulation of large commercial buildings is critical to enable the buildings to relate to the scales of the city, the neighborhood, and the pedestrian. Compositional strategies for commercial buildings should include:

- Creating varied architecture and avoiding monolithic, bulky proportions by using stepbacks (both in plan and section), recessed or projected bays and entryways, canopies, awnings and other detail elements, and articulating changes in use (ground floor retail, upper level mechanical floors, etc.).
- Varying the architectural massing and character of individual buildings to create diversity and identity.
- Where buildings employ stepbacks at upper floors, lower roofs may be used to create useable balconies and terraces.

1. Bruce C Bolling Municipal Building / Boston, MA
2. Dogok Office / Seoul, South Korea
3. 610 Main / Cambridge, MA
4. Shinsegae International / Seoul, South Korea

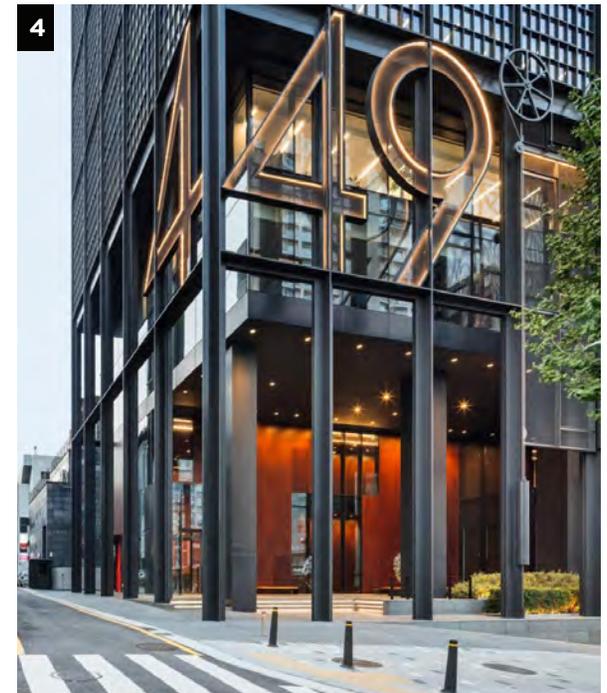
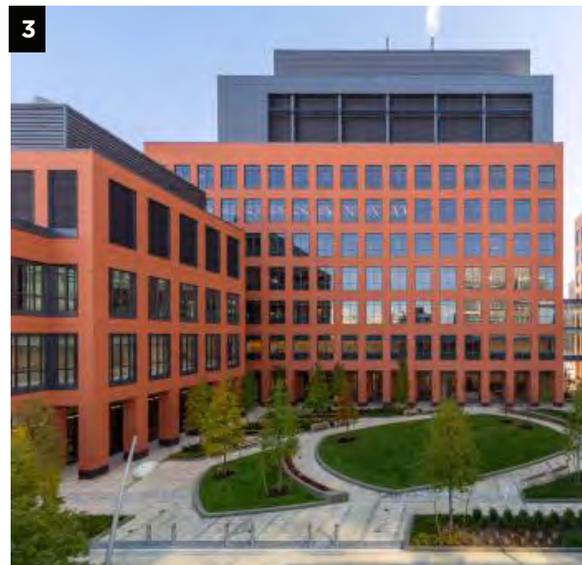
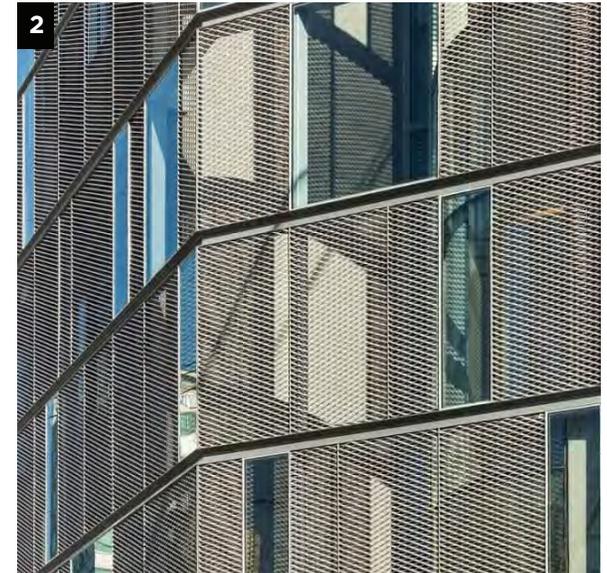


Figure B10: Architecture Character - Commercial Buildings

- Utilizing massing and articulation, such as varying the plane of the façade, modulating the proportions of fenestration, and employing architectural detail - all to provide appropriate hierarchy of scale for the buildings while maintaining a cohesive architectural expression.

### **Lighting**

On-building lighting throughout the development parcels should consistently be high quality, durable, simple and modern. On-building lighting should be generally located within the Pedestrian Zone, defining building primary entries, retail or dining venues and illuminating exterior egress

and service doors. Additional on-building lighting should be limited to areas of architectural significance. Uplighting of building tops is not appropriate. Fixture selection should conform to the following general criteria:

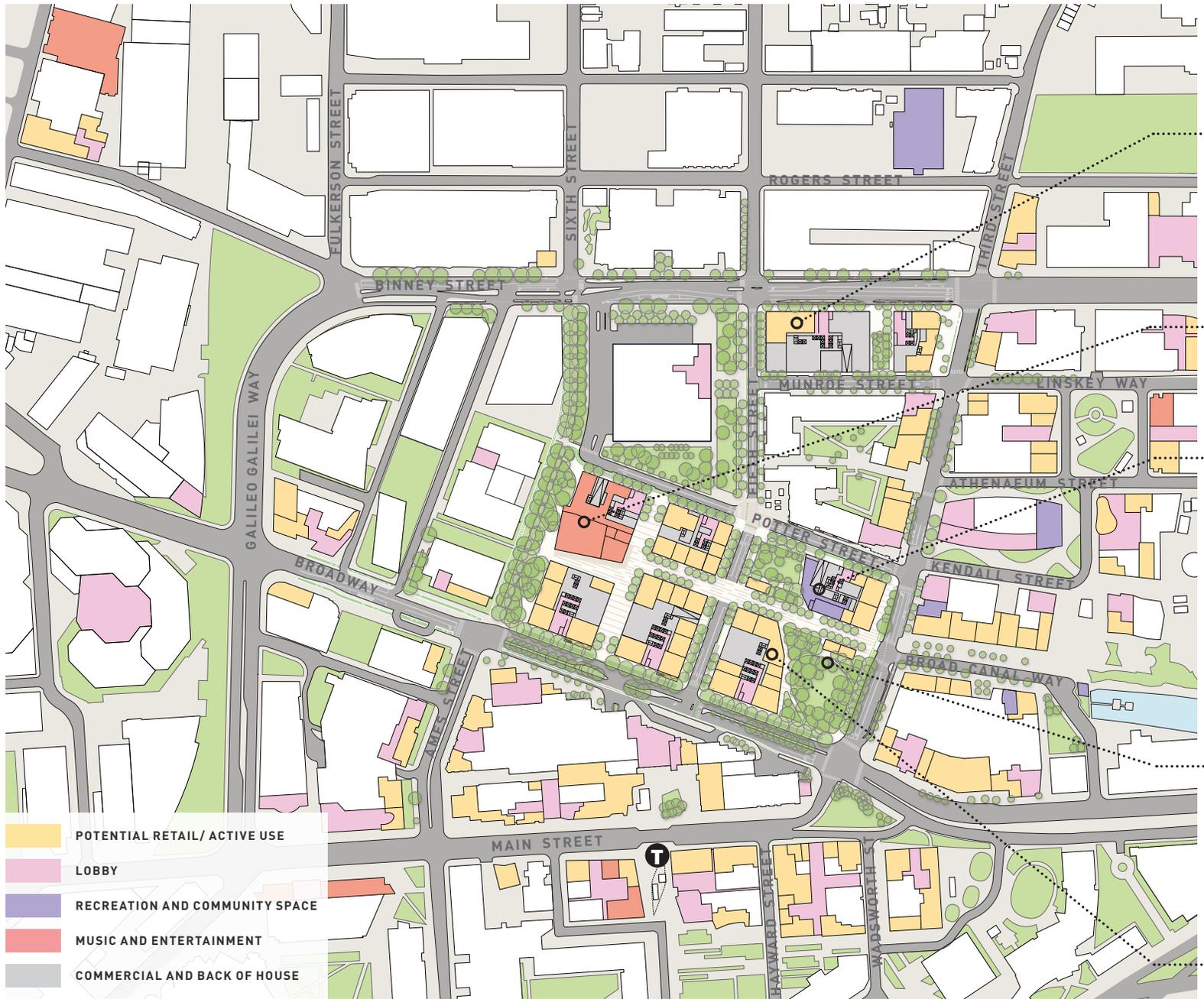
- Clean, simple, modern aesthetic;
- Highly durable;
- Across the overall Volpe site, a variety of on-building lighting fixture types is encouraged to reinforce individual building identity;
- Avoid any uplighting that will contribute to light pollution.

## Street Level Uses and Design

The Project, as an interconnected mixed-use development, is intended to be an inclusive and equitable urban environment that nurtures, inspires and links arts and science, as well as people and events. To meet this intent, the Project is designed to include an array of workplaces, residences, retail, restaurants, arts and entertainment, recreation and active open space where people of all ages, abilities, incomes and backgrounds can live and feel welcome. The entire development is planned to be an integral part of Cambridge.

The extent and location of more than 3.5 acres of publicly beneficial open space, combined with significant retail areas targeted toward small,

local, independent businesses will activate the entire district, providing enjoyment and recreation to residents, neighbors, and visitors. The various venues for gathering, the arts, entertainment, recreation, and innovation will create a place that fosters community and opens up social and economic opportunities. Largely transparent, active places of public accommodation, located at street level, are intended to blur the boundary between inside and outside, energizing both. The diverse mix of retail, dining, recreation and community uses will extend the activity, vibrancy and security of both the immediate site and the neighborhood across the day, week, and year.



**INNOVATION SPACE**



**ARTS AND ENTERTAINMENT**



**RECREATION AND COMMUNITY SPACE**



**ACTIVE CIVIC SPACE**



**RETAIL AND ACTIVE USE**

**Figure B11: Ground Floor Activation**



## Accessible, Inventive and Interesting Retail

Ground floor retail and active use space is an integral component of the Volpe Development Plan. It will contribute to the vibrancy and inclusiveness of the district, foster a sense of security across many hours of the day, and provide venues for both planned and serendipitous social and intellectual interaction to occur. By focusing on small, local, independent retail businesses, the sense of neighborhood and of connectivity to greater Cambridge will be amplified. The commitment to provide 100,000 square feet of active places of public accommodation at street level will infuse significant street activity throughout the site and attract a broad range of users to the district. As written in the PUD-7 Master Plan criteria (13.91.4.11), design should, "...harness the spirit of innovation and creativity in Kendall Square and [reinforce] a Cambridge sense of place."



1. La Fabrica / Cambridge, MA
2. University Stationery / Cambridge, MA
3. Veggie Galaxy / Cambridge, MA
4. Brothers Marketplace / Cambridge, MA
5. Cambridge Bicycle / Cambridge, MA
6. Shy Bird Restaurant / Cambridge, MA

Figure B12: Accessible, Inventive and Interesting Retail Precedents

## Recreation, Community, Arts and Creative Enterprise

Located at the heart of the district, the Community Center adjoins public open space to invite and encourage use by the community. Scale, inventive form and transparency should all be utilized to convey a sense of welcome and a spirit of recreation, creativity and community. It has been intentionally proposed in tandem with Community Center Park, blurring inside and outside, relating to the public nature of the park while shielding the Center from the bustle of Broadway and Third Street and serving to draw the public into the new urban district. Championed by neighborhood residents, this will be a public Community Center. Its programmatic intent is to attract a diverse set of users through activities that encourage community and informal interactions between residents and workers.

Community, arts and creative enterprise spaces will be a key component of the Volpe Development Plan in places and spaces in addition to the Community Center. These uses will contribute to the vibrancy and inclusivity of the district, provide social anchors for the neighborhood, complement traditional retail uses, and be programmed to attract a range of diverse participants.

1. Bolt, Boston's Startup Accelerator / Boston, MA
2. Agora Gallery Fine Art Exhibitions / Denver, CO
3. Q Division Studios / Somerville, MA
4. Soundbox / San Francisco, CA
5. War Memorial Recreation Center / Cambridge, MA
6. MuckyKids Art Studio / Cambridge, MA



Figure B13: Recreation, Community, Arts and Creative Enterprise Precedents

## Programmed and Activated Open Space

The site's highly interconnected and differentiated public realm spaces are to be designed to support a wide range of outdoor uses. Enlivened by the ground floor of the buildings, and enhanced by inclusive public programming, the open spaces are intended to be wholly welcoming and public in use and character.

The varied size, scale, and type of open spaces distributed throughout the Volpe Development Plan will provide an intentional mix of civic experiences - from busy commercial street, to wide tree-lined street, to the dense tree canopy of a linear urban promenade, to the shared landscape of the new Volpe National Transportation Center, to a public park - the variety of these urban space types will contribute to the permeability and urban spirit of Kendall Square and East Cambridge. They will encourage residents, neighbors, and visitors to linger, relax, recreate, and to simply enjoy walking through an urban neighborhood.



1. Assembly Row / Somerville, MA
2. Shade Structure / San Antonio, TX
3. Basketball Court / Venice Beach, CA
4. Raoul Wallenberg Square / Stockholm
5. Sunset Triangle Plaza / Los Angeles, CA
6. Community Wellness at MIT Medical / Cambridge, MA
7. Place des Festivals / Montreal, Canada
8. BoxPark / London, UK



Figure B14: Programmed and Activated Open Space Precedents



## C: Transportation and Public Transit

### Connections to Transit Routes

The Volpe Development Site is accessible by MBTA's Red Line, Green Line, as well as MBTA Bus lines #1, #64, #68, #85 and #CT2. In addition, several shuttle services such as the CRTMA's EZRide, CambridgeSide Shuttle and MIT shuttles are also available near the Site.

A graphic illustration of the study area transit lines is presented in the Connections to Transit Routes Figure.

### Pedestrian Connectivity

The Volpe Development Plan prioritizes connectivity and permeability with the site connecting not only to the immediate area, but also further out to other Cambridge neighborhoods as well as Boston and Somerville. Key destinations and places of interest are called out in the Pedestrian Connectivity Figure, and include a combination of landmarks, recreational and open spaces.

### Pedestrian Circulation

Pedestrian circulation is encouraged around the site as well as through the site. Circulation paths will follow sidewalks and crosswalks and lead to general entry locations for the proposed buildings. The figure also highlights pedestrian connections including to the north, crossing Binney Street to

the adjacent neighborhood, multiple connections across Third Street to the existing retail and commercial buildings, and connections on the south, crossing Broadway to Main Street and MIT's SoMa campus as well as the four Kendall/MIT Red Line head houses. The important pedestrian link through the Marriott hotel will remain. The diagram also highlights the west side of the Volpe site and its connection to the Loughrey Walkway and the Kittie Knox Bike Path, as well as MXD district and beyond.

### Connections to Bicycle Routes

The 2015 Cambridge Bicycle Network Vision looks at broad urban connectivity of bicycle routes and illustrates how the site connects to the East Cambridge bike network, and how it will establish good connections to transit lines and connections to Boston and Somerville. Volpe's bicycle connectivity will be coordinated with the city's bicycle network vision and CRA's streetscape improvement plans.

### Bicycle Circulation

The diagram illustrates the Volpe Development Plan's proposed buildings and street network with expected bike circulation overlaid. The placement of bike racks will meet zoning requirements, including distance from entries and offsets from other racks.

### **Vehicular Circulation**

The Vehicular Circulation Plan illustrates how vehicular traffic accesses the Volpe Development Plan. The Truck Circulation Plan illustrates service vehicle access.

**Passenger vehicles entering the development site to park (either in a garage or on-street):** the site is planned to include two garages - a north garage between Binney and Munroe Streets and a south garage between Potter Street and Broadway. Preliminary design capacity of the two garages is based on a shared parking demand analysis. Garage entrances are indicated with blue triangles. One garage entrance on Munroe Street, two garage entrances on Potter Street, and one garage entrance on Fifth Street are proposed. The opportunity exists to introduce some on-street parking along the proposed new streets. On-street parking locations have not been finalized, but proposed locations are indicated in the Curb Utilization Plan. The gray solid lines indicate existing on-street parking that is either

public (Munroe Street) or private (west and south sides of 303 Third Residences).

**Passenger vehicles entering the development site to pick up or drop off passengers (but not to park longer-term):** flexible curb or active curb spaces for drop-off and pick-up activities are indicated - taxis, ride app vehicles, or future automated vehicles. Along Broadway, it is anticipated that some length of curb could be designated for this type of temporary activity. Internal to the redevelopment site, Broad Canal Way is also expected to include sections of active curb. Additional, building-specific curbside drop-off zones are anticipated on Fifth Street.

**Service vehicles entering the redevelopment site to pick up or drop off goods (mail and packages, trash, supplies, etc.):** Red triangles indicate general locations of proposed loading docks. Service vehicle routes to and from the loading docks are indicated.



Figure C1: Connections to Transit Routes

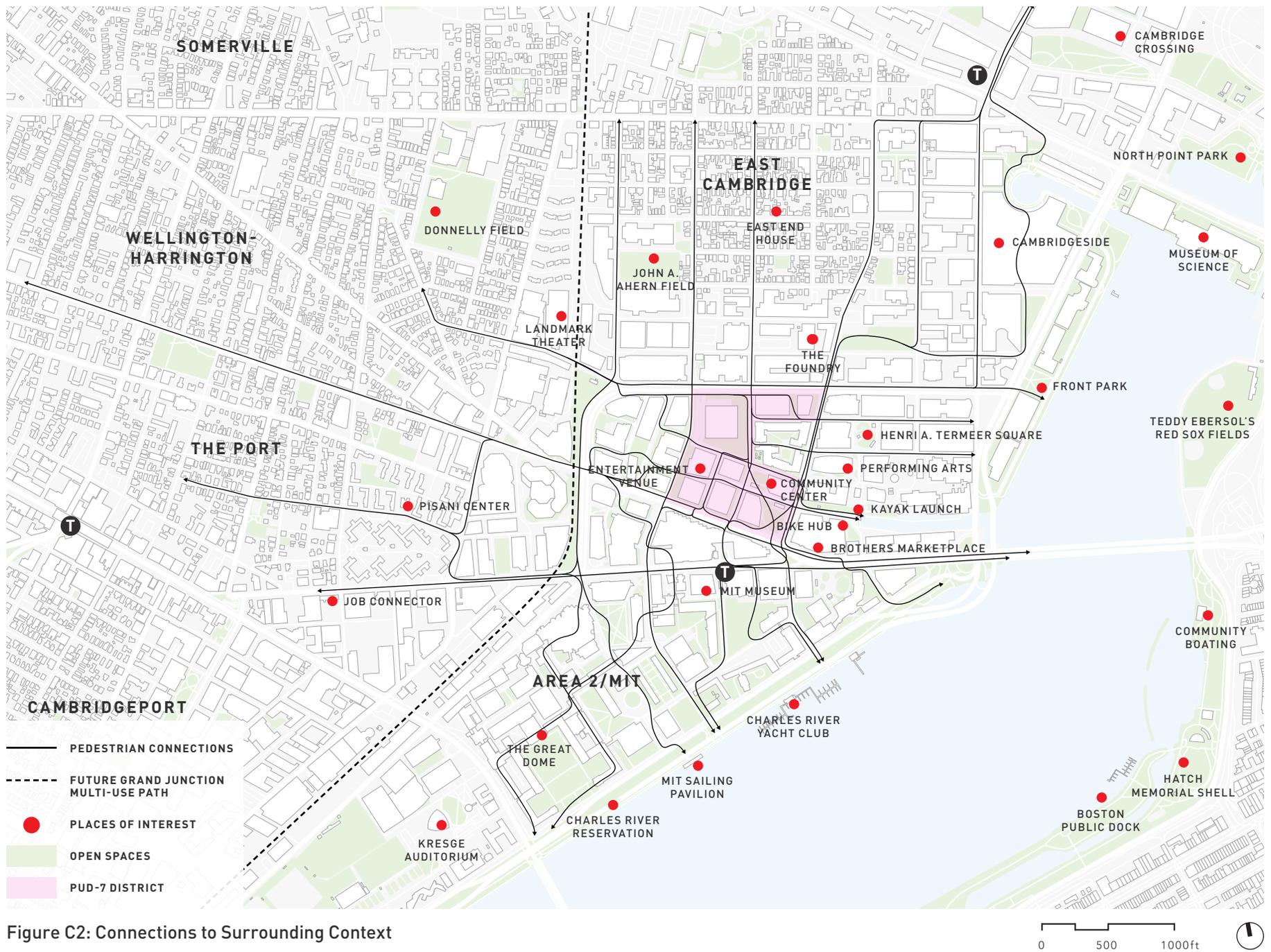


Figure C2: Connections to Surrounding Context

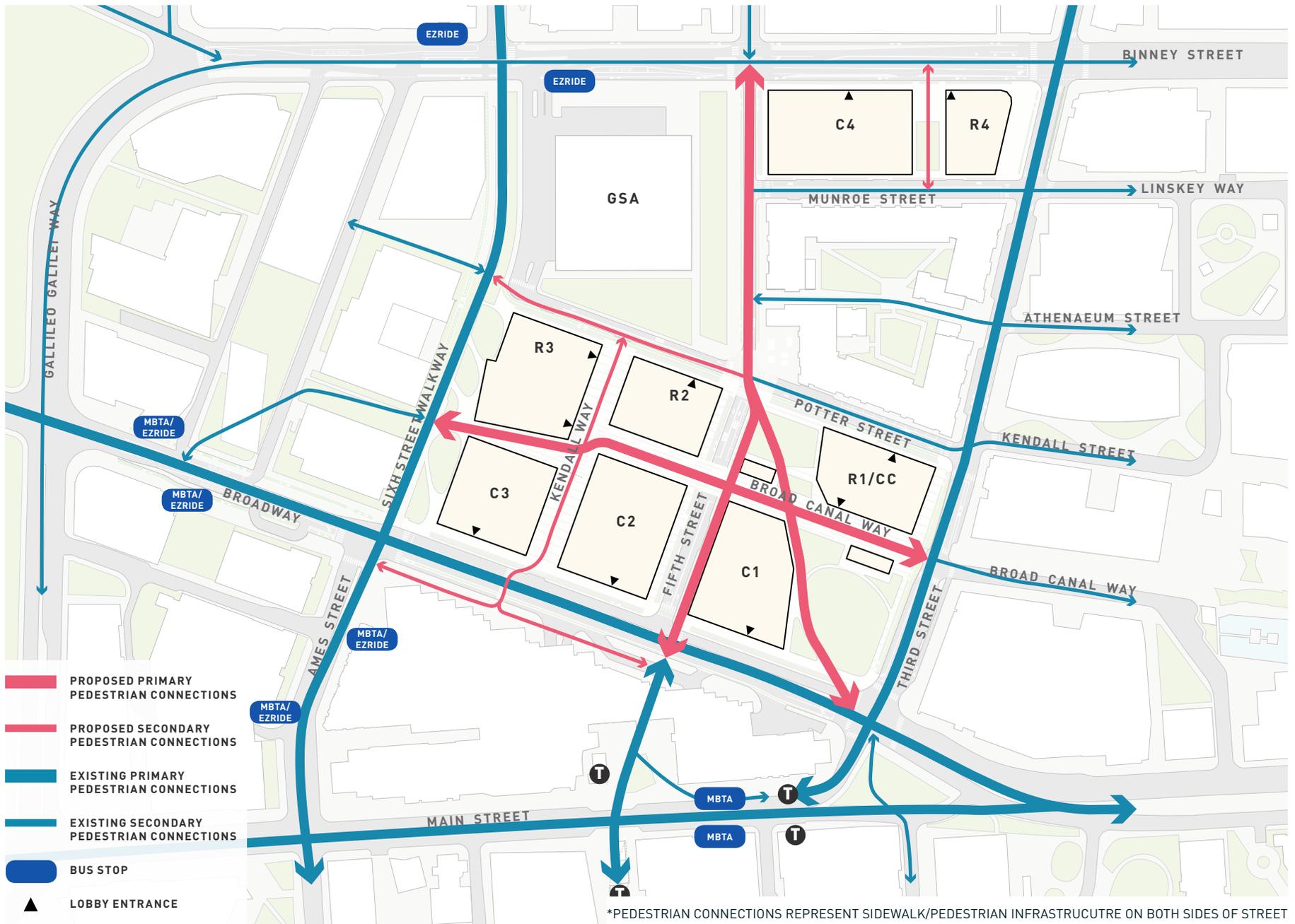


Figure C3: Pedestrian Connectivity Plan



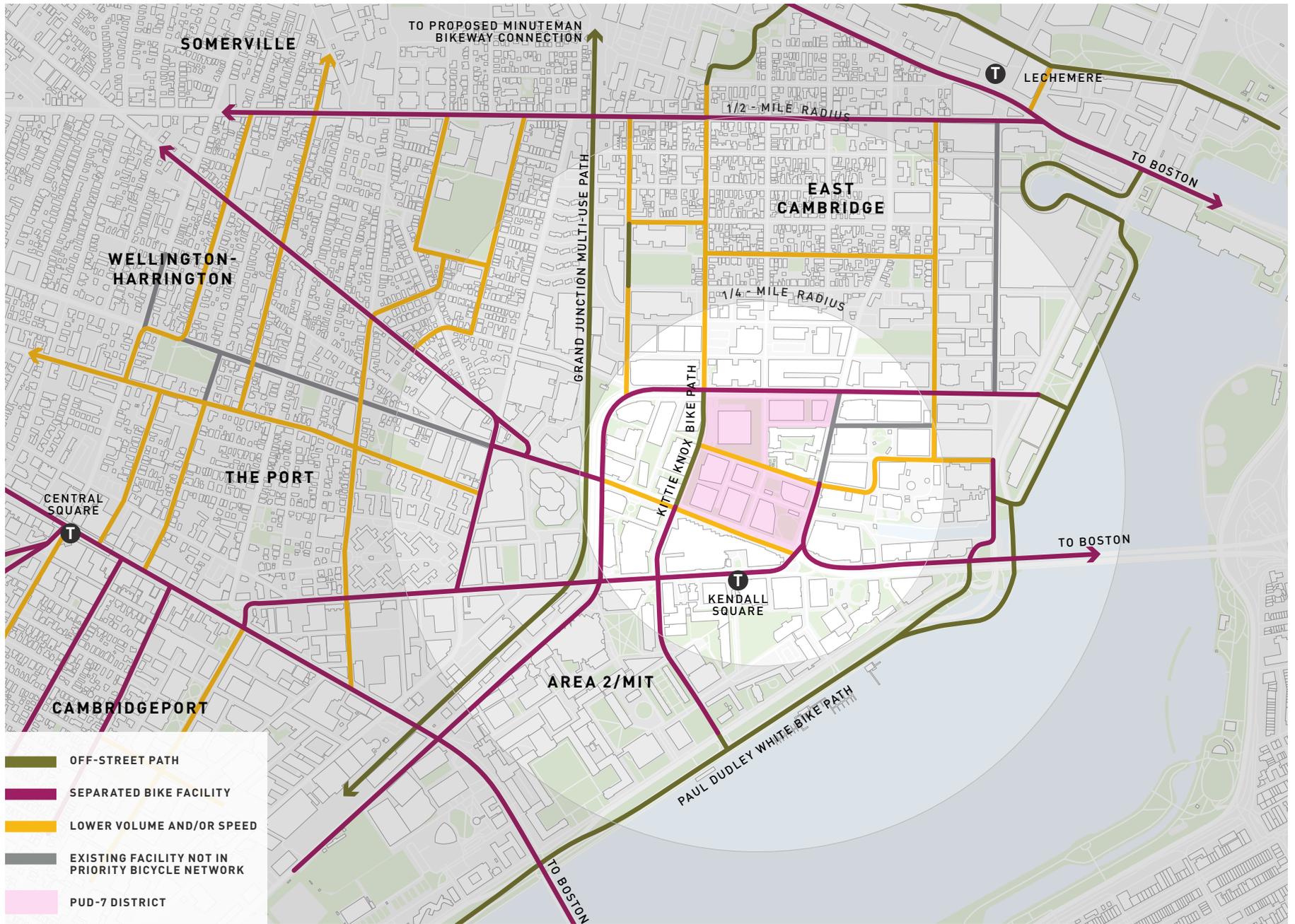


Figure C4: 2015 Cambridge Bicycle Network Vision

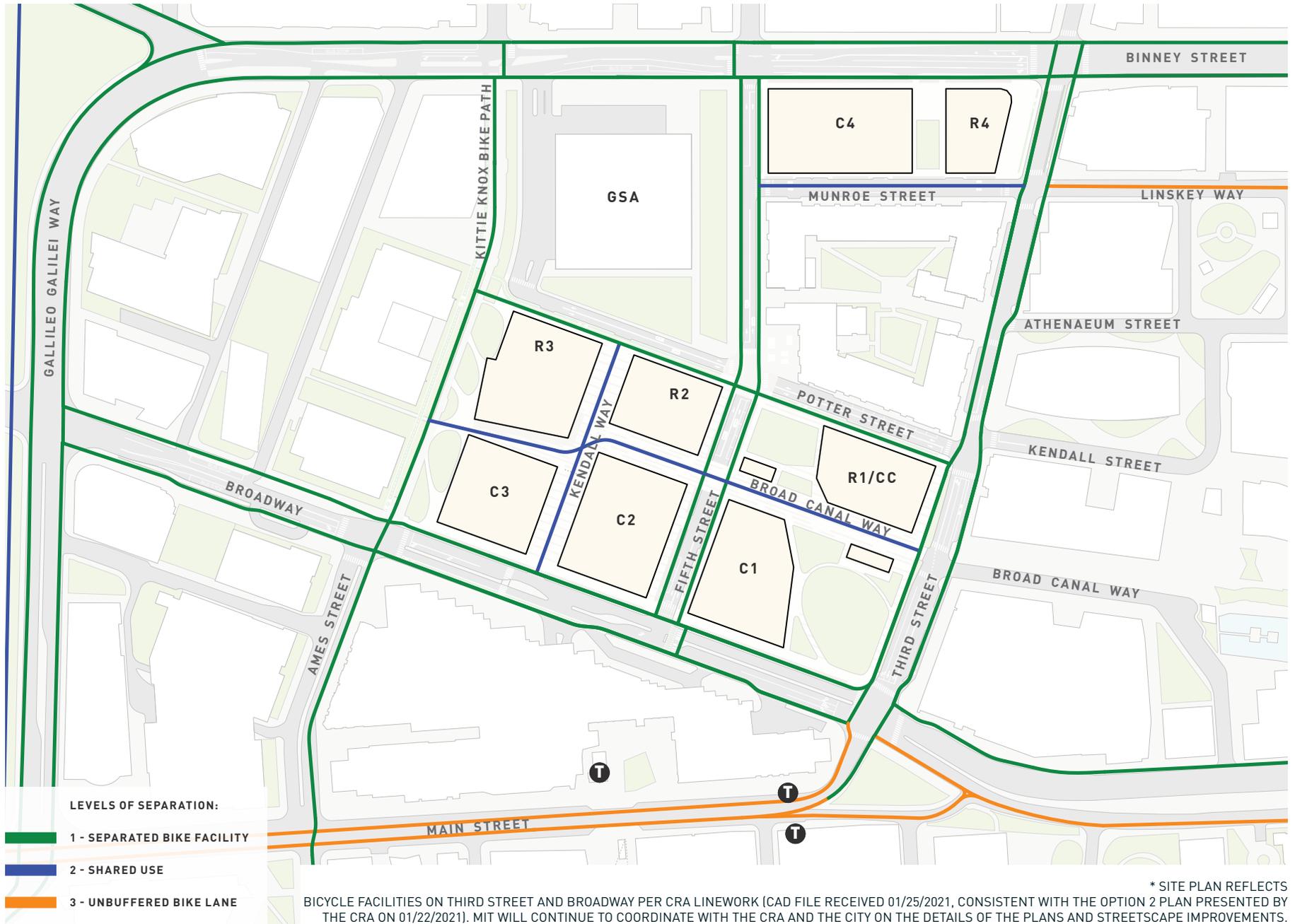


Figure C5: Bicycle Connectivity Plan



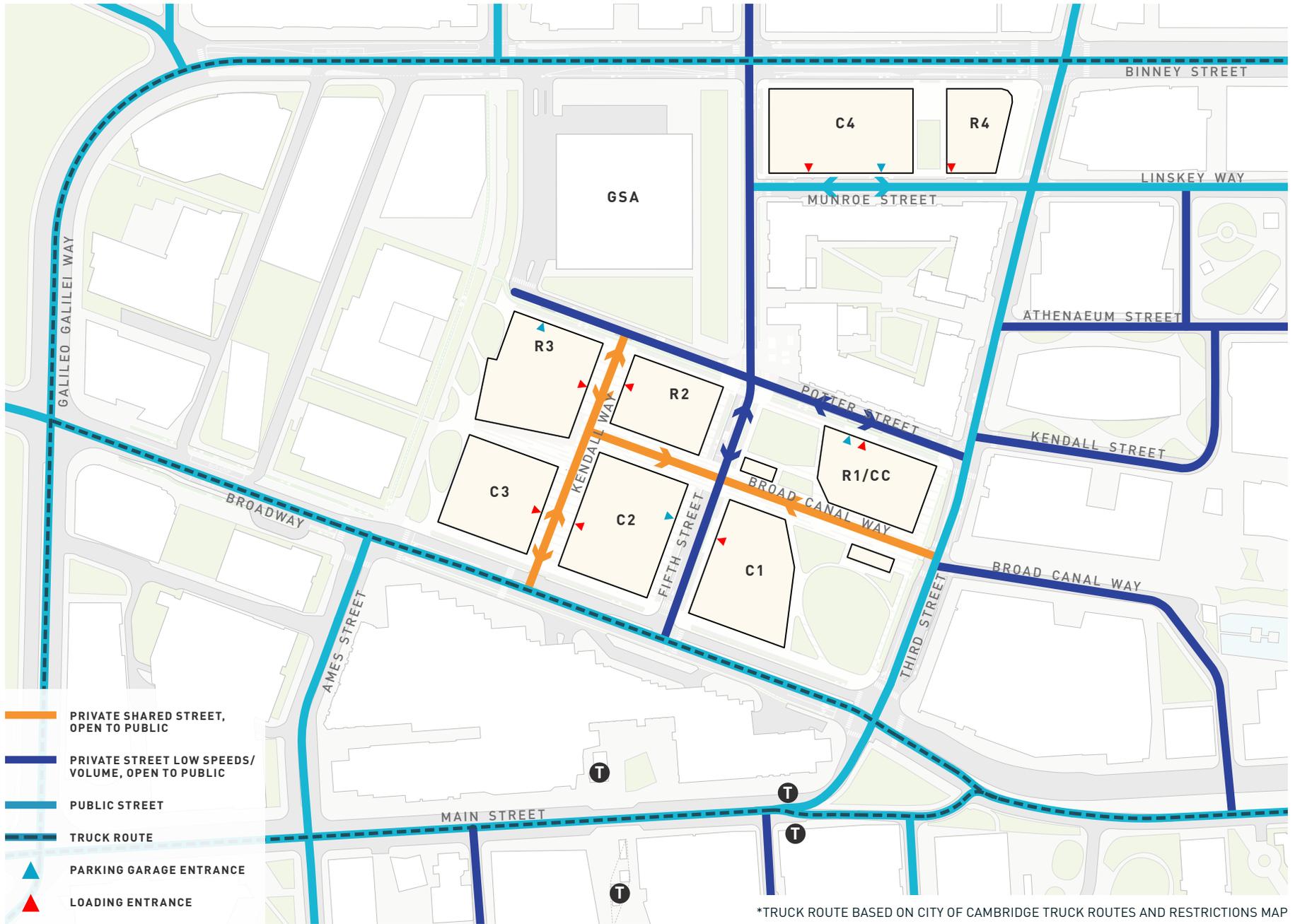


Figure C6: Vehicular Plan





Figure C7: Vehicular Plan - Curb Utilization

