



CITY OF CAMBRIDGE

Community Development Department

To: Planning Board

From: CDD Staff

Date: September 21, 2021

Re: Special Permit **PB-315 Amendment 2, MXD Infill Development Concept Plan (IDCP)**

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Overview

Submission Type: Special Permit Application

Applicant: Boston Properties Limited Partnership

Zoning District(s): Mixed Use Development (MXD) District: Kendall Center

Proposal Summary: Alter the IDCP by increasing the commercial Gross Floor Area (GFA) by 800,000 square feet through the addition of two new commercial building sites, siting a below-grade electrical transformer substation for the public utility company on-site, consolidating required residential GFA from two building sites into one building site, modifying the locations and amounts of open space, demolishing an existing above-grade parking garage with approximately 1,170 parking spaces and constructing approximately 1,558 below-grade parking spaces.

Special Permits Requested: Major Amendment to IDCP in MXD District (14.32.2.5);
Reduction of Bicycle Parking Requirements (6.108.1);
Reduction of Green Roofs requirement (22.35.3)

Other City Permits Needed: PTDM plan amendment

Planning Board Action: Grant or deny requested special permits.

Memo Contents: CDD Zoning Report & Urban Design Report

Other Staff Reports: Parking and Transportation Dept. (TP+T), Department of Public Works (DPW), in separate documents.

Requested Special Permits	Required Planning Board Findings <i>(Summary - see appendix for zoning text excerpts)</i>
Major amendment to IDCP special permit (Section 14.32.2)	<p>The IDCP meets the criteria in Section 12.35.3(3):</p> <ul style="list-style-type: none"> • Conforms with general PUD development controls and district development controls [in this case, requirements of Article 14.000]. • Conforms with adopted policy plans or development guidelines for that portion of the city. [Per Section 14.32.2.2: “In making its findings, the Board shall consider the objectives set forth in the Kendall Square Final Report of the K2C2 Planning Study (“K2 Plan”) and the Kendall Square Design Guidelines.” Those documents can be found at: https://www.cambridgema.gov/CDD/Projects/Planning/K2C2.] • Provides benefits to the city which outweigh its adverse effects, considering: <ul style="list-style-type: none"> ○ quality of site design ○ traffic flow and safety ○ adequacy of utilities and other public works ○ impact on existing public facilities ○ potential fiscal impact <p>The IDCP meets the criteria in Section 19.25:</p> <ul style="list-style-type: none"> • The project will have no substantial adverse impact on city traffic within the study area, upon review of the traffic impact indicators analyzed in the Transportation Impact Study and mitigation efforts proposed. • The project is consistent with the urban design objectives of the City as set forth in Section 19.30 (see following page).
Reduction of Green Roofs Requirement (Section 22.35.3)	<ul style="list-style-type: none"> • The Planning Board may grant a special permit to reduce the required Green Roof Area, Biosolar Green Roof Area, or Solar Energy System below the area required by Section 22.35.2, provided that each square foot so reduced be compensated by a unit price contribution to the Cambridge Affordable Housing Trust.
Special Permit to modify bicycle parking standards (Section 6.108)	<ul style="list-style-type: none"> • The proposal is consistent with the purpose of Section 6.100 and that the Bicycle Parking Plan proposes a quantity, design and arrangement of bicycle parking that will serve bicycle users in a way that is sufficiently comparable, given the circumstances of the specific project, to the bicycle parking that would be required under the regulations of Section 6.100. • The Bicycle Parking Plan will satisfactorily serve the needs of all expected users, based on quantitative and/or qualitative evidence provided by the Applicant.

<p>General Special Permit Criteria (Section 10.43)</p>	<p>Special permits will be normally granted if the zoning requirements are met, unless it is found not to be in the public interest due to one of the criteria enumerated in Section 10.43:</p> <ul style="list-style-type: none"> (a) It appears that requirements of this Ordinance cannot or will not be met, or (b) traffic generated or patterns of access or egress would cause congestion, hazard, or substantial change in established neighborhood character, or (c) the continued operation of or the development of adjacent uses as permitted in the Zoning Ordinance would be adversely affected by the nature of the proposed use, or (d) nuisance or hazard would be created to the detriment of the health, safety and/or welfare of the occupant of the proposed use or the citizens of the City, or (e) for other reasons, the proposed use would impair the integrity of the district or adjoining district, or otherwise derogate from the intent and purpose of this Ordinance, and (f) the new use or building construction is inconsistent with the Urban Design Objectives set forth in Section 19.30.
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19.30 Citywide Urban Design Objectives [SUMMARIZED]

Objective	Indicators
<p>New projects should be responsive to the existing or anticipated pattern of development.</p>	<ul style="list-style-type: none"> • Transition to lower-scale neighborhoods • Consistency with established streetscape • Compatibility with adjacent uses • Consideration of nearby historic buildings
<p>Development should be pedestrian and bicycle-friendly, with a positive relationship to its surroundings.</p>	<ul style="list-style-type: none"> • Inhabited ground floor spaces • Discouraged ground-floor parking • Windows on ground floor • Orienting entries to pedestrian pathways • Safe and convenient bicycle and pedestrian access
<p>The building and site design should mitigate adverse environmental impacts of a development upon its neighbors.</p>	<ul style="list-style-type: none"> • Location/impact of mechanical equipment • Location/impact of loading and trash handling • Stormwater management • Shadow impacts • Retaining walls, if provided • Building scale and wall treatment • Outdoor lighting

	<ul style="list-style-type: none"> • Tree protection (requires plan approved by City Arborist)
Projects should not overburden the City infrastructure services, including neighborhood roads, city water supply system, and sewer system.	<ul style="list-style-type: none"> • Water-conserving plumbing, stormwater management • Capacity/condition of water and wastewater service • Efficient design (LEED standards)
New construction should reinforce and enhance the complex urban aspects of Cambridge as it has developed historically.	<ul style="list-style-type: none"> • Institutional use focused on existing campuses • Mixed-use development (including retail) encouraged where allowed • Preservation of historic structures and environment • Provision of space for start-up companies, manufacturing activities
Expansion of the inventory of housing in the city is encouraged.	<ul style="list-style-type: none"> • Housing as a component of large, multi-building development • Affordable units exceeding zoning requirements, targeting units for middle-income families
Enhancement and expansion of open space amenities in the city should be incorporated into new development in the city.	<ul style="list-style-type: none"> • Publicly beneficial open space provided in large-parcel commercial development • Enhance/expand existing open space, complement existing pedestrian/bicycle networks • Provide wider range of activities



CITY OF CAMBRIDGE

Community Development Department

Date: September 21, 2021

Zoning Report: **PB-315 Amendment 2, MXD Infill Development Concept Plan (IDCP)**

Area Planning and Zoning

Project Overview

Boston Properties (the Applicant) has proposed an amendment to the Infill Development Concept Plan (IDCP) for the Mixed-Use Development: Kendall Center (MXD) zoning district, first approved in early 2017. This is the second Major Amendment proposed to the IDCP; the most recent [Amendment #1](#) was approved in early 2019.

As currently approved, the IDCP includes the following major components:

- New Commercial Building "A" – 145 Broadway (completed)
- New Commercial Building "B" – 325 Main Street (under construction)
- Two New Residential Buildings – "North" and "South" of existing Blue Garage (not started)
- Required Innovation Space – Conversion of existing space in 255 Main Street (completed)
- Broad Institute – Conversion of 14,000 square feet of mechanical to usable space (not started)
- Improvements to several public open spaces owned by the Applicant, including the Kendall Rooftop Garden and spaces along Broadway and Binney Street.

The proposed amendment affects the present site of the Kendall Square Blue Garage between Broadway and Binney Street and its environs, shown below.



Source: Nearmap, 2021

The proposed amendment would involve the demolition of the Blue Garage and 250 Binney Street (the latter of which was contemplated in the original IDCP, but not in the most recent amendment). In their place, the proposal includes the following new elements:

- Construction of a vault to accommodate a below-grade electrical transformer substation for the public utility company Eversource.
- Residential Building South, a new 400' residential building along Broadway consisting of approximately 420,000 gross square feet and up to 465 residential dwelling units, which consolidates the required housing that the current IDCP permits as two separate buildings.
- Commercial Building "C", a new 250' commercial office/laboratory building along Binney Street consisting of approximately 400,000 gross square feet.
- Commercial Building "D", a new 250' commercial office/laboratory building at the present site of 250 Binney Street, consisting of approximately 400,000 gross square feet.
- A new interior public open space called "Center Plaza", consisting of approximately 18,000 gross square feet, which would be situated above the electrical transformer substation vault and replace the current open spaces situated north and south of the Blue Garage.

In addition to these elements, the site plan also includes the construction of two underground, connected parking garages below Commercial Buildings C and D to serve the users of the new buildings.

This zoning report will provide an overview of the proposed Amendment in the context of the approved IDCP and recently approved zoning amendment to Article 14.000 of the Cambridge Zoning Ordinance (CZO). This report will also identify key issues for consideration and elements which may require further study and review by staff and/or the Planning Board.

IDCP Overview

The IDCP provides the site planning and permitting process for development within the MXD district. It was instituted as part of an amendment to Article 14.000 of the CZO in 2015, and controls new development permitted in the MXD district since that time but does not affect development that was previously permitted. Similar to Planned Unit Development (PUD) zoning and approval, the IDCP approves development at a schematic site plan level; with particular focus on the locations of building sites and the zoning characteristics of each site (such as Gross Floor Area, height, open space, and parking), as well as the plan-level characteristics that tie building sites together (such as ingress/egress, circulation and mobility, and public realm improvements). At the IDCP stage, each building and open space is presented at a conceptual level, subject to later design review and approval by the Planning Board prior to the issuance of a building permit.

The IDCP also requires separate review and approval by the Cambridge Redevelopment Authority (CRA) Board as part of the Kendall Square Urban Redevelopment Plan (KSURP). While the special permit is solely within the Planning Board's jurisdiction, the review process occurs in a joint session with the CRA Board to ensure compatibility between the special permit and the urban renewal plan, and the ongoing

review and implementation of the special permit (including design review and approval of individual sites) is expected to occur through a similar coordinated process.

Article 14: Mixed Use Development District (MXD) Kendall Center Rezoning

Earlier this year, the Planning Board positively recommended, and the City Council adopted, amendments to Article 14.000 of the CZO. The primary change was to authorize an additional 800,000 square feet of nonresidential development (called “Infill GFA” or “Utility Project GFA”) in exchange for the siting of an Eversource electrical transformer substation within the District (called the “Substation Project”). The following table provides a summary of amendments to Article 14.000:

Zoning Element	Previous Requirement	Updated Requirement
Total GFA	4,273,000 SF	5,073,000 SF
Building Height	Generally, 250’ & two buildings up to 350’ with residential and floorplate limitations above 250’	Generally, 250’ and one building up to 400’ with residential and floorplate limitations above 250’
Active Ground Floors	Minimum 75% ground floor occupancy by active uses along Main Street, Broadway, or Ames Street	Reduced requirement to 40% for buildings with a façade length of 100’ or less.
Automobile Parking	Per 14.52; residential development minimum 0.4 spaces per dwelling unit	Per 14.52; residential development minimum 0.25 spaces per dwelling unit
Bicycle Parking	Per 6.100	Flexibility in providing alternate bicycle parking plans subject to approval by Planning Board
Innovation Space	Minimum 10% of office/lab GFA for development of 100ksf or more; up to 50% exempt from GFA calculations	Exempts new Infill GFA from requirement. Up to 20,000 SF of Educational Lab, Classroom or Training Facility uses may be exempt
Residential Phasing	Portion of residential completed prior to occupancy of 325 Main Street, with remainder completed at a later date	Residential must obtain building permit prior or concurrently with issuance of a building permit for any project utilizing Utility Project GFA

Aside from these changes, much of the zoning remains substantially consistent with the [2015 rezoning](#) following the Kendall Square (“K2”) Study. The physical development of the substation is exempt from Planning Board review and approval due to its status as a public utility. Nevertheless, the location and

characteristics of the substation are expected to play an important role in the shaping and development of the other elements of the overall site.

Comments on Proposal

Site Plan & Proposed Development Program

The proposal is largely consistent with the development plan contemplated when the Planning Board reviewed the most recent zoning amendment at the end of 2020.

The proposed development program is further detailed as follows:

Building Site	Proposed Use	Proposed Height	Proposed GFA
Commercial Building C (290 Binney St)	Office/Lab, potential Active Use fronting Center Plaza	250' (Approx. 17 stories)	412,000
Commercial Building D (250 Binney St)	Office/Lab, potential Active Use fronting Center Plaza	250' (Approx. 17 stories)	388,000
Residential Building South	Residential, Active Use	400' (Approx. 38 stories)	420,700

The proposed commercial buildings will have primary entrances fronting Binney Street but may also contain ground-floor active uses along the perimeter of the interior Center Plaza. The residential building will have its primary entrance along Broadway and will share a portion of its ground story with a nonresidential active use at its eastern corner (labeled “Café”).

The site will be accessible using the existing East Plaza Dr. and West Plaza Dr. at the eastern and western boundaries of the site. Loading operations for the commercial buildings are located along East Plaza Drive, adjacent to the vehicle entrances to the parking garages. The residential building contains planned loading operations along East Plaza Drive near the Center Plaza open space.

If the Board approves the Development Plan, staff would suggest the following considerations:

- As is already the case with the conditions of the IDCP, each building will be subject to design review approval by the Planning Board prior to issuance of a building permit, following the typical joint PB/CRA design review procedure for IDCP projects, and in accordance with the design guidelines referenced in Article 14.000 of the Zoning Ordinance and as discussed in IDCP Amendment Application (Urban Design section).
The design of the Center Plaza (further discussed below) should also be subject to Planning Board design review and approval.

Open Space

The MXD district requires a minimum of 100,000 square feet of public open space within the district. This requirement has already been satisfied with past public spaces, and the reorientation of the existing open space around the Blue Garage into the proposed Center Plaza helps to create a more contiguous public space and increases the overall open space within the District by approximately 17,000 square feet. The proposed Center Plaza will be a key public space amenity that will serve residents of Residential Building South as well as future tenants of Commercial Buildings C & D. The planned active uses along the perimeter will help to enliven the edges of this public space. Further, this reorientation of open space creates the opportunity for pedestrian connections from the North Parcel eastward to the future Volpe site.

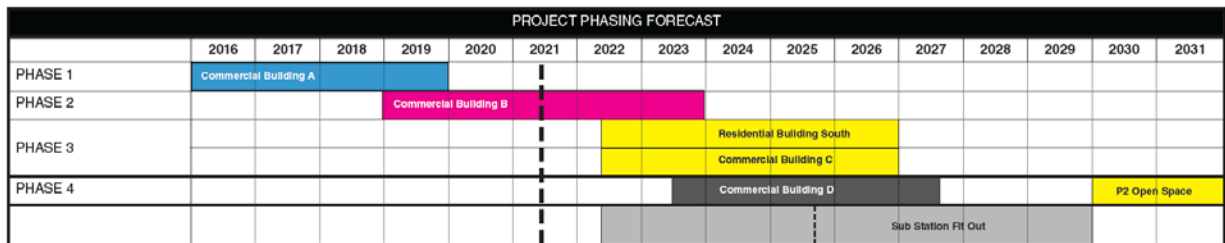
In further analyzing this open space, staff would highlight a few elements the Planning Board could consider should the project proceed:

- Section 14.21.1 of the CZO requires that Public Open Space be guaranteed through a legal mechanism to ensure its perpetual reservation for public use. The actual legal mechanism and timing has not been specified in the Development Plan, but a condition could be included that the mechanism be identified and submitted to the City at the time of Design Review for the Center Plaza. The existing public use covenants for the existing Public Open Space on the south (Broadway) and north (Galileo) sides of the Blue Garage will also need to be modified.

Phasing

The proposal includes a Phasing Plan that illustrates the total project to be completed in two phases, as follows:

Site Element	Phase	Est. Initiation	Est. Completion
Eversource Vault	3	Q2 2022	Q3 2025
Residential Building South	3	Q2 2022	Q4 2026
Commercial Building C	3	Q2 2022	Q4 2026
Eversource Substation Fit-Out	4	Q3 2025	Q4 2029
Commercial Building D	4	Q2 2023	Q3 2027
Center Plaza	4	Q1 2030	Q4 2031



Source: IDCP Figure 9.5, P. 257

The updated Article 14.000 zoning requires that a building permit be issued for Residential Building South prior to or concurrently with a building permit being issued for a nonresidential portion of the Project.

The Board should consider the following if it chooses to approve this Development Plan:

- Development would be expected to proceed generally in accordance with the proposed phasing plan, with the buildings, open spaces, and planned substation work being completed in Phase III prior to or concurrently with the start of Phase IV. However, because long-term projects often go through changes, staff suggests that the Planning Board authorize modifications to the phasing plan to be approved as Minor Amendments, provided that a revised phasing plan continues to comply with the requirements of Article 14.000 and is found by the Board to remain in conformance with the goals and objectives of the zoning.
- A key consideration is how the Center Plaza site will be managed between the end of Phase III and IV, when Commercial Building C and Residential Building South are completed. Staff recommends an approval condition that the Construction Management Program addresses how the site (and specifically, the Center Plaza area) will be managed and secured during this time period, subject to review and approval by the City’s Department of Public Works.
- Staff suggests that notwithstanding the Phasing Plan, the completion of any residential buildings, open spaces, or other public improvements could occur earlier in time if the developer chooses to advance them. Because these elements help to fulfill key City planning objectives, the special permit conditions should not create an impediment if the market conditions are favorable for completing those improvements.
- This proposal is made especially difficult by the coordination and public improvements required to facilitate the development of the Eversource substation. The existing PB-315 Decision provides for a ten-year completion horizon of the development authorized under the Special Permit, provided that if construction on a particular Phase has commenced prior to that date, such Phase may proceed to a Certificate of Occupancy. Given the anticipated phasing, the duration of the special permit may need to be extended for an additional ten years from the current amendment.

Traffic & Transportation

The MXD district currently supplies 3,336 parking spaces in four off-street parking garages. There are currently approximately 1,170 existing parking spaces in the Kendall Blue Garage, which will be demolished, to be replaced by two underground parking garages with a total of 1,584 parking spaces beneath commercial buildings C and D. Therefore, this Amendment would add 414 spaces to the district,

for a total of 3,750 parking spaces serving about 5 million square feet of development. The parking complies with the maximum parking ratios in the MXD district, and will be shared among commercial, residential, and other uses as currently permitted by the IDCP. In order to meet temporary parking demands, Commercial Building A will utilize a combination of self-parking and managed/valet parking to accommodate up to 457 vehicles.

The IDCP requires a Transportation Impact Study (TIS) and Transportation Mitigation Program. An initial TIS for the project was completed in 2016, and an updated TIS was completed in 2018 for the previous amendment. Another update was submitted earlier this year. Information and comments on the TIS submission and Transportation Mitigation Program are included in the memo from TP+T.

This Amendment #2 is subject to Parking & Transportation Demand Management (PTDM) requirements under Chapter 10.18 of Title 10 of the City of Cambridge Ordinances, because new parking is being created. Under this Chapter, no special permit may be issued by the Planning Board until the Planning Officer has issued a written decision indicating approval of the project proponent’s PTDM Plan. At the time of this memorandum, the proposal has not received its PTDM approval but is expected to receive it in the near future.

Bicycle Parking

The zoning amendments to the MXD district included a new Section 14.52.6 which included a means of reducing the overall required minimum bicycle parking from Article 6.000 by utilizing alternative strategies as follows:

Alternative Strategy	Substitution Rate
Public Bike Share within 500’ of Site	1 bike dock = 2 required bike parking spaces
Centralized Public Bike Storage	1 storage space = ½ required bike parking spaces
Countercyclical (Shared) Bike Parking	1 qualifying space = 2 required spaces
Complimentary Valet Bike Parking	Subject to Planning Board approval

A coordinated, “campus style” approach to bicycle parking in larger, mixed-use developments is something that is supported by the City’s area planning documents such as K2. A more flexible approach to meeting the demand for bicycle parking can allow for a more efficient use of space, and also provide the opportunity for more creative solutions when site-specific constraints make it difficult to meet the traditional standards. However, such alternative approaches could require greater scrutiny to ensure they will function as intended. At the time of the MXD zoning amendment, the Applicant indicated that alternative approaches would be pursued because the constraints of the electrical utility infrastructure would make it uniquely challenging to accommodate the required number of bicycle parking spaces, particularly for the residential use.

The first two buildings in the IDCP were designed to conform to the requirements of Section 6.100. Applying the Section 6.100 requirements for bicycle parking across the proposed new buildings would result in the following required spaces for the three new buildings as proposed:

Proposed Building	Req'd. Long-Term Spaces per 6.100	Req'd. Short-Term Spaces per 6.100	Total Required per 6.100
Commercial Building C	93	25	118
Commercial Building D	108	27	135
Residential Building South	518	49	567
		Subtotal:	820*

**Based on a proposed breakdown of land uses and square footage as submitted in Table 10 of the TIS Update, dated June 25, 2021.*

The Application proposes twenty (20) long-term bike parking spaces in Residential Building South, and thirty-six (26) short-term bike parking spaces distributed throughout the parcel. In addition, the majority of anticipated bike parking demand is proposed to be met utilizing a facility that will be managed as a complimentary “bicycle valet” that, once fully operational, will support parking of up to 610 bicycles at a time. The proposed valet will be temporarily located in the ground-floor of Commercial Building C, fronting Center Plaza, and will then move into the ground-floor of Commercial Building D. It is presumed that the valet facility and service is intended to reduce the number of required bicycle parking spaces because it will serve different uses that have different peak demand times, but precise information about the anticipated reduction due to “shared” or “countercyclical” bicycle parking demand has not been provided at this time. It is also not clear if Public Bicycle Sharing Stations (i.e., Bluebikes) are proposed to offset the reduction in bicycle parking as provided for by zoning.

Prior to moving forward, Staff would highlight the following for the Planning Board’s consideration:

- A bike valet of this size and scale is a first-of-its-kind for the City. City staff have been working with the Applicant to understand how it would function and how to ensure the proposed program can satisfy demand and operate effectively. Discussion is ongoing on topics including facility design, hours of operation (and access outside normal hours), protection of users’ property and privacy, and ongoing monitoring and evaluation. Additional information is included in the TP+T memo.

Sustainability

Development in the MXD district is subject to the City’s Green Building Requirements as set forth in Section 22.20 of the CZO, which require that new buildings meet minimum design performance standards using the LEED, Passive House, or Enterprise Green Communities rating system. As proposed, the new buildings would be designed to meet the requirements by achieving a minimum of Gold-level certification under the LEED v4 rating system.

Article 14 of the CZO also establishes sustainability standards related to new development within the MXD district. New buildings must undergo Enhanced Commissioning from a Commissioning Authority, and incorporate best practices for sustainability in five (5) key areas:

Sustainability Area	Specific Techniques
Energy and Emissions	Evaluate potential for on-site energy generation/co-generation within the district; make buildings solar-ready.
Water Management	Explore opportunities for potable water use reduction, open space stormwater management, indigenous plantings, and stormwater reuse.
Cool Roofs	Functional Green Roofs or high-albedo “white” roofs
Monitoring	Buildings must conform to Chapter 8.67 Building Energy Use Disclosure Ordinance
Rooftop Mechanical Noise Mitigation	Use best practices in location and size of equipment and sound attenuation techniques

The proposal includes utilizing an integrated design approach for the development of each building site, including techniques such as iterative energy modeling and life cycle analysis of building materials. The proposal also incorporates a district-wide approach to stormwater management. A full assessment of compliance with Section 22.20 requirements will be conducted as part of continuing design review for individual building sites. Some proposed Energy Conservation Measures (ECM) for individual buildings include high-performance building envelopes, reduced window-to-wall ratios, reduced lighting power density, high efficiency heat pumps and ventilation systems, cogeneration, rooftop solar PV, occupancy and daylight sensors and controls, and smart grid compatibility.

The City’s Green Roofs Ordinance, adopted in May of this year, would apply to new buildings under this proposal. The Applicant has requested a special permit from the Planning Board to reduce the required Green Roof Area for the Project, but at the current stage of master plan review it is unclear the extent of the relief being requested and/or from which buildings. Prior to moving forward, the Planning Board could consider the following:

- The Planning Board could incorporate a condition into the Decision that provides for the Planning Board to determine the permitted extent of the reduction in the Green Roof Requirement at the

time of design review approval, after reviewing the building plans and assessing what effort has been made to meet the requirements of the Ordinance.

Housing

This Application is subject to the typical requirements related to affordable housing in Cambridge, including Incentive Zoning for non-residential development and Inclusionary Housing requirements for residential development per Article 11.200 of the CZO. In addition to Inclusionary Housing, which requires 20% of the residential development to be for low-to-moderate income households, 5% of the residential GFA shall be devoted to middle-income units and a minimum of 5% of residential GFA shall also be devoted to family-sized units of at least three bedrooms.

Of the approximately 420,000 square feet of proposed residential uses and 465 units, approximately 90-100 units will be affordable, and 20-25 units are proposed to be middle income units. The Applicant has committed to having all of the family-sized units be reserved as middle-income and affordable units.

The [Letter of Commitment](#) dated January 28, 2021 accompanying the MXD Zoning Amendment in February of this year includes a commitment from the CRA to build a minimum of 20,000 square feet of Below Market Rate Home Ownership Units in one or more projects. It is expected that the CRA will identify a site(s) for this development within three (3) years of the date of approval of this Special Permit and secure entitlements within seven (7) years.

A full analysis of compliance with the applicable housing provisions of the CZO will be conducted prior to issuance of a building permit for each of the proposed new buildings, but after design review approval by the Planning Board.

Continuing Review

Like a PUD special permit, the IDCP special permit contains conditions that govern how the development is authorized to proceed on a building-by-building basis, as well as conditions related to phasing, mitigation, public improvements, and other aspects of the development at a site level.

The following is a summary of conditions of the original PB-315 Decision, as amended by Amendment #1, and describes how they would need to be updated to reflect the proposed Amendment #2:

- **Approved Development Program.** The permitted development sites, and the development characteristics of each (e.g., GFA, height, open space), would need to be updated to reflect the expanded development plan for the District.
- **Open Space.** The location, quantity and characteristics of the proposed open spaces within the District will be updated to reflect the adjustments made to open space within the North Parcel, and the increase in open space from the new Center Plaza.
- **Ongoing Detailed Design Review.** Development is permitted as a multi-site phased master plan, with individual building sites requiring independent design review. Final designs will be subject to

future Planning Board and CRA approval according to the process that has been previously employed for development that is part of the IDCP. Because the proposed plan includes the Center Plaza, a new stand-alone open space that will be completed after much of the other development on the site takes place, staff suggests that that open space should have its own design review and approval process that would take place concurrently with the building design but might be subject to revisions over time.

- **Parking.** This condition will be updated to reflect the change in overall parking spaces within the District, and note any specific requirements for the management of temporary parking between the time the Blue Garage is demolished and new underground parking garages beneath Commercial Buildings C & D are completed.
- **Transportation Management/Mitigation.** As discussed in the TP+T memo, the most current transportation mitigation program will be updated to include any changes resulting from the new development program.
- **Sustainability.** This condition currently identifies the future green building and sustainability strategies to be employed by the development on a site-wide and building-by-building basis, which will continue to apply to the new buildings. This section will also incorporate conditions for how the Planning Board reviews and approves the reductions in required Green Roof Area for individual buildings through the design review process.
- **Construction Management.** Because of the complex nature of the proposed project and its interface with a major utility installation, the special permit conditions could require that a detailed construction management program be submitted to the City for review and approval, which is typical for large-scale development projects.
- **Bicycle Parking.** As discussed above, the special permit conditions would incorporate any operational requirements for the proposed bike valet, if approved, and how it would be monitored and evaluated over time. Detailed discussions about appropriate conditions are ongoing.
- **Phasing.** The existing Decision establishes requirements for the overall phasing of the development, which would need to be updated to include the new Phasing Plan, if approved. The conditions could incorporate flexibility in the phasing plan over time as discussed earlier in this memo. Also, the duration of the special permit may need to be extended as discussed earlier in this memo.
- **Amendments.** The existing Decision allows for modification of the development plan over time by approval of Major or Minor Amendments, similar to the process for PUDs.



CITY OF CAMBRIDGE

Community Development Department

Date: September 21, 2021

Urban Design Report: **PB-315 Amendment 2, MXD Infill Development Concept Plan (IDCP)**

Introduction

The proposed multiphase project for the northwestern portion of the MXD District – between Binney Street, Broadway, Galileo Galilei, and the Sixth Street Walkway – will transform the site from a congested superblock penetrated only by narrow alleys and driveways to a permeable urban district, related to and complementing the anticipated development of the adjoining Volpe site. Major Amendment 2 proposes demolition of the existing garage with parking relocated underground, and a major new, central public open space at its replacement that will create a sense of arrival and give the district a memorable identity. Three buildings will be grouped around this space: Commercial Buildings C and D fronting onto Binney Street at the north edge of the site, and Residential Building South fronting onto Broadway at its south edge. . It will provide a major improvement to Cambridge’s infrastructure: the construction of a new underground substation to serve the city’s growing need for electrical power.

The detailed design of landscape and individual buildings will follow the amendment; therefore these comments focus primarily on the overall organization and character of the site’s open spaces, and on the role of the site’s buildings in defining and activating those spaces.

Overall Urban Design Concept

The new commercial and residential buildings on Binney Street and Broadway will replace the existing low scaled parking garage and a small commercial building with buildings of a scale more consistent with the developing character of Kendall Square, and present the opportunity to increase the spatial definition and programmatic activation to the surrounding streets. The project maintains the vehicular drives within the site in their current locations while enhancing their pedestrian character, and maintains the existing pedestrian paths connecting the site to the Sixth Street Walkway, the Volpe Site, and to Galileo Galilei Way. The new open space in the middle of the block will transform the ways the site is used and perceived: ventilating it at its center and providing space for gathering, events, and passive uses.

Urban Form of the Central Plaza

The Central Plaza will be a welcome contrast to the density of the existing and new building around it, a memorable space in the center of the block, giving light and air to the site’s residents and workers, enriching the site’s spatial structure, and complementing and connecting to the adjoining Volpe Site’s open spaces. The character and quality of the entire open space at the heart of the site - not only the proposed plaza directly above the substation vault, but also the East and West Plaza Drives with their pedestrian emphasis, and the landscaped yards of the adjoining buildings - will be fundamental to the site’s contribution to the life of the area.

In addition to serving as an amenity for the occupants of the surrounding buildings, the Plaza will incorporate large ventilation structures for the electrical equipment in the underground vault - the intake structure will be at the south end of the plaza by the residential building, and the exhaust structure by Commercial Building C at the north end of the plaza. These will be treated as sculptural elements, designed to visually enhance the space.

Staff supports the application's intention to create an "open central space with defined edges", a flexible space that will accommodate a wide range of uses including play, performance, gatherings, and passive relaxation. Consideration could be given to more fully realizing this vision by:

- Addressing the entire length and width of the open space at the center of the scheme, from façade to façade: more clearly and richly defining the edges of the Central Plaza and the areas framing it, including East and West Plaza Drives and the setback yards of the existing buildings along them. Means could include:
 - Providing considerably more planting, trees, low plantings, and ground cover in the plaza, in other words, treating the space more as a park and less as a plaza. Benefits would include moderation of the plaza's microclimate, the aesthetic value of vegetation, and the spatial definition that canopy trees could give to the plaza and the East and West Plaza Drives.
 - If the depth of soil above the underground vault is a limiting factor for trees or ground cover, consideration should be given to raising the proposed ground level over the vault, with appropriate ramps, steps, site walls, etc., well incorporated in the design, or to excavating the vault more deeply into the ground.
 - If the area over the vault needs to be primarily paved to minimize concerns about the long term integrity of the vault's waterproofing system, consideration could be given to more clearly defining the edges of the Plaza by increasing the amount of tree coverage and other vegetation along the sides of the Plaza and along the East and West Plaza Drives. Additional street trees, furniture, low plantings, specialized paving, and amenities such as trellises could all contribute to the creation of edges that both frame the central open space and provide smaller, more sheltered and intimate places.
 - Providing denser and more consistent landscaping in the setback yards of the existing buildings along East and West Plaza Drives.
- Considering reducing the prominence of the exhaust ventilation structure at the north end of the plaza by integrating it more fully into the design of the adjoining Commercial Building C or by extending the building's ground floor active use space to the south to align with the ventilation structure's south side.
- Providing more detail on the proposed recreation and performance programs, their technical requirements, and how they will be accommodated while retaining the flexibility that the application rightly stresses.
- Developing principles for the design, character, and use of the plaza to ensure that as potentially unforeseen changes are made due to engineering considerations, it provides appropriate spatial, aesthetic, social, recreational, and circulation benefits to the district.

The plaza's design needs to accommodate large hatchways needed for the infrequent but critical insertion and removal of electrical equipment, with unobstructed routes for the heavy equipment needed for these operations. The application shows that hatchways and other entrance points to the

vault will be elevated above anticipated 2070 flood levels; details and elevations should be revised as data on flooding is updated.

The drawings of the substation vault show these hatchways in the central north/south zone of the Plaza. They indicate that while the hatchways and other access points to the vault need to be at a minimum of 25.0' CBE, the corners of the plaza on the East and West Plaza Drives range from 20.1' CBE to 23.3' CBE. The sections through the plaza, however, show it as level and only slightly above the level of the Drives. As the design is developed, various means should be explored to resolve the differences in grade and ensure accessibility, including raising the level of the plaza's eastern and western sides closer to that of the hatch openings (with appropriate ramps, steps, low walls, designed as integral parts of the design with careful attention to accessible routes and pedestrian desire lines, as well as to access routes to the hatches for heavy equipment).

In summary, consideration could be given to instead giving the plaza a more unified and memorable form. Despite the application's intention to create an "open central space with defined edges", the Central Plaza is depicted as a large paved field supporting a loosely arranged and disparate variety of objects: ventilation structures, planters, and an irregularly shaped seating area. The space could instead be conceived as a room-like place at the heart of the site – a unique place of arrival around which the existing and proposed buildings are organized. As its design is developed, an investigation of similarly sized urban open spaces may be informative. Potential examples include the plaza at Rockefeller Center in New York, whose accommodations for ground level life complement the height of the buildings; the lawn at Bryant Park in New York with its surrounding frame of tree shaded seating areas; the lawn at Technology Square in Cambridge with its simplicity of form, canopy trees, and logical path structure; and Copley Square in Boston and Place Saint Suplice in Paris with their combinations of canopy trees, ground cover, and broad paved areas.

East and West Plaza Drives

Consideration should be given to enhancing the of spatial definition of the Drives, and the shading of pavement areas, by providing continuous and aligned canopy trees on both their sides for their full lengths from Broadway to Binney Street, except where precluded by service or garage entrances. While the proposed pedestrian-friendly woonerf continues for the full length of West Plaza Drive, the northern portion of East Plaza Drive serves the loading docks of both commercial buildings and their parking garages. It appears to be more of a service yard than a pedestrian friendly space, yet this northern portion of the drive is proposed as a secondary pedestrian route. Consideration should be given to giving this portion more continuity with its central and southern portions by providing plantings and continuous sidewalks, by limiting the lengths of curb cuts, and by continuing the pedestrian pavement of the Drive through the loading zone to Binney Street.

Perimeter Streets – Binney and Broadway

The landscape design of the project's Binney Street and Broadway frontages should prioritize the quality and continuity of the pedestrian and bicycle experience. Curb locations, bicycle lanes, sidewalks, street furniture, and street trees should be coordinated with the City's plans. Additional planting, including canopy trees, should be considered in the Broadway setback of the residential building, unless precluded by the electrical duct banks feeding the substation.

Comfort - urban heat island effect & shade, noise, and wind,

- The proposed landscape is almost entirely paved., and the application’s Tree Mitigation and Protection Plan appears to show a net reduction in the number of trees. As the design proceeds, additional vegetation should be considered for its moderating effects on microclimate, the shade it provides, its aesthetic value, and for the spatial definition and intimate scale it can provide.
- Care should be taken to minimize the potential noise (both from air flow and equipment) of the Eversource vault’s intake and exhaust vents. The application includes a study of the anticipated noise from equipment in the proposed buildings, but not from the vault’s ventilation structures. Given the adjacency of the intake and exhaust vents to the commercial and residential buildings and the intended uses of the plaza for gathering, performance, sport, and play, as well as more passive activities, a full study of the noise they may create and its impact on uses of the plaza and on workers and residents should be provided, along with proposed mitigation measures if needed.
- The application’s wind study indicates that the Central Plaza will be comfortable for standing and strolling, but not for sitting. Consideration should be given to providing more protection from wind, such as additional canopy trees, pedestrian scaled structures, and setbacks in tall building facades to impede downdrafts.

Built Form:

The proposed building heights seem appropriate for the developing character of Kendall Square. Their siting along Binney Street and Broadway creates space for the Central Plaza as well as the Eversource substation vault. The general alignment of their street facades with those of the adjoining buildings will reinforce the coherence of the streets.

Massing:

Building massings are conceptual at this point; multiple variations are shown; the designs will evolve as the buildings more fully programmed and designed.

A clearer explanation of how building massings and facades are meant to respond to the unique contexts of each building would inform the review process, Aspects of built form, such as the definition of the edges of streets and other open spaces, the locations of setbacks and setbacks relative to open spaces or buildings, the character of facades relative to views and adjoining spaces, the location of ground floor activating uses, impacts on microclimate, exterior amenities such as balconies or terraces, response to solar conditions, etc. could be addressed.

In addition to the K2 Design Guidelines (2013), consideration could be given to the Design Guidelines created for the adjoining Volpe Site (2017), Both sets of guidelines stress the importance of architecture’s role in defining, shaping, and activating the site’s streets and other open spaces. They are based on the premise that despite the heights and large floorplates needed to satisfy programmatic requirements and project feasibility, new buildings can create a positive and welcoming urban district by responding to the varied scales of the urban environment: their ground floors uses and design activating and visually enriching the adjoining streets and open spaces; their streetwall zones (their lower approximately 80 to 100 feet) framing those spaces with facades; and their towers responding to adjoining spaces and buildings and also distant views. To mitigate the visual bulk of large buildings, they recommend the use of slender vertical proportions in massing and façade design, the differentiation of

the facades of large floor plate buildings by changes in plane, materials, or façade pattern, and the provision of stepbacks in deference to adjoining streets and other open spaces.

Architectural Character

The application's examples of materials and façade systems are generally appealing. Note, however, that they emphasize precedents with relatively high window to wall ratios, perhaps most applicable to building towers. Consideration could also be given to the materials and details of pedestrian level facades, to broader areas of solid wall, and to details such as entrances, balconies, mechanical areas, etc.

Residential Building:

The relatively simple massing and vertical emphasis of the proposed Residential Building seems an effective counterpoint to the horizontal emphasis of the projecting bay windows of the existing Akamai building to the west. In accord with the K2 guidelines' recommendation that buildings create streetwalls aligned with those of adjoining buildings, the distinct streetwall zone shown in the application will give spatial definition to the Central Plaza and to Broadway, and help mediate between the scale of the Akamai Building on the west and the lower existing building on the east.

- Consideration could be given to stepping the building's north façade away from the Central Plaza to relate to the heights of the existing buildings on the east and west sides of the plaza, and to reduce wind impacts on the plaza.
- Greater consideration should be given to the activation and visual enrichment of Broadway and the Central Plaza by the design and programming of the building's ground floor.
- Additional detail regarding unit types, sizes, and quantities, and the amenities provided for residents will be needed as the project's inclusionary housing component is reviewed.

Commercial Buildings C and D:

The two commercial buildings on Binney Street have a bulky appearance, and the space between them appears to be narrow in comparison to its height.

- Consideration could be given to creating more variety along Binney Street by making the two buildings different heights or by differentiating their facades by as the use of different materials or façade strategies.
- Consideration could be given to a more expansive treatment of the northern portion of East Plaza Drive between the two buildings.
- Upper-level connectors are proposed between the two buildings. Their form, location, and size should minimize the perception of buildings C and D as a single large building.
- Consideration could be given to stepping building C back from the Central Plaza to relate to the existing buildings on the east and west sides of the plaza, and to reduce wind impacts on the plaza.

Ground Floors and Retail Space:

Most of the ground floor spaces fronting onto Broadway, Binney street, East and West Plaza Drives, and the Central Plaza are occupied by non-active uses: large residential and commercial lobbies, mechanical space, back-of-house spaces, the Eversource exhaust tower, loading docks, etc., leaving little space for retail or other active uses. A small retail space is provided on Broadway next to the residential lobby. The ground floor of Commercial Building C adjoining the the north end of the Central Plaza is designated as "active use" space, and is proposed as the initial location of the Valet Bicycle parking

system. With the construction of Building D, the second commercial building, the valet system is proposed to be relocated there, and the ground level space of Building C will then be available to other active uses, including retail.

- To enhance the adjoining city streets and the open spaces internal to the site, consideration should be given to increasing the amount of space available for retail and amenity space facing Broadway and Binney, West Plaza Drive, and the Central Plaza.
- Consideration could be given to reducing the width of the undercut loggia-like passage under the upper floors of the residential building and instead incorporating retail in that location.
- A fuller explanation of whether and how the Valet Bicycle Parking systems will activate the adjoining plaza would be helpful.
- If building lobbies remain as large as currently shown, perhaps they could be designed as shared work spaces for residents and workers.

Bicycle Parking:

The application proposes a valet bicycle parking system, initially located in the southern portion of Commercial Building C's ground floor and moving to the ground floor of Building D once the latter has been constructed. This system is intended to not only accommodate long term bicycle parking, but also to reduce the number of short-term spaces needed.

- Numerous questions remain regarding the feasibility of the valet system, its features, hours of operation, convenience for users, the monitoring of level of service, etc.
- Consideration could be given to locating the valet system's storage area either in below grade space or at the second level so as to free up the ground level space for uses such as retail.
- In addition, as the project develops, careful consideration should be given to the increasing the amount of short-term bicycle parking areas, locating them in convenient locations and to providing a sufficient number of Bluebike stations for the district's population.

Sustainability

Urban Heat Island

- A fuller explanation of the project's strategies to reduce the urban heat island effect would inform the review process.
- Consideration should be given to increasing tree canopy and other vegetative cover on the site, and to the selection of architectural and paving materials to minimize heat retention.
- Note that a comparison of existing trees, tree removals, and proposed trees in the application's Tree Study seems to indicate a net reduction in canopy.
- As the design proceeds, additional vegetation should be considered for its benefits to the site's microclimate.
- Will the heat produced by the Eversource electrical equipment be a significant component of the site's overall heat signature?
- Could ways to utilize this waste heat be explored? Possibilities may include using it to heat buildings, moderating the microclimate in winter, melting snow, heating greenhouses, and powering kinetic sculpture.

Continuing Review

The following are additional recommendations for ongoing design review by staff if the Board decides to grant the special permit:

- Detailed review of landscape design, including overall layout, paving and plant materials, location of trees and other plantings, vehicular pavement, sidewalks and other pedestrian pavement, grading/topography, accessibility, site walls, lighting, bicycle lanes, bicycle parking, Bluebike stations, lighting, furniture, all visible structures associated with the Eversource substation, structures, accommodations for recreational activities, changes to existing sidewalks, curbs, and bike lanes on Binney Street and Broadway, and the project's impact on the urban heat island effect. Scale and design comparisons to well-known and exemplary urban spaces would help convey the project's design intentions. Presentations should include a model showing the proposed landscape design of the plaza, drives, and frontages on public streets in context.
- Review of the impact of the proposed buildings and landscape design on traffic and transportation systems.
- Review of bicycle parking arrangements, including the facilities, operation, and monitoring of the proposed bicycle valet system; numbers and locations of additional short and long term bicycle spaces and their design; and the size and locations of Bluebike stations.
- Detailed review of building architecture of each building as its design is developed, including massing, façades, materials, layout and programming of ground floors, locations of entrances, accommodation of active uses, unit types, sizes and mix, loading and parking access, mechanical systems and their visual and acoustical screening, exterior lighting, flood resilience, energy use, and impact on the urban heat island effect. Presentations should include physical models of the entire MXD district between Broadway and Binney Street, with the adjoining buildings on opposite sides of these streets and the Volpe site.
- Information on glass transparency and reflectivity should be provided.
- Prior to the final selection of colors and textures for façade materials, the construction of exterior wall mock-ups near the building sites, to be reviewed by the Community Development Department for comment. Members of the Planning Board shall be notified when the mock-ups are erected and given an opportunity to view the materials and transmit any comments to the Community Development Department.