CITY OF CAMBRIDGE
Community Development Department

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To: Planning Board

From: CDD Staff

Date: July 7, 2022

Re: **PB #179 – CX Parcel Q2 (151 Morgan Ave) Design Review**

This memo contains an overview of the proposed project at North Point Parcel Q2, the relevant design guidelines, and related comments.

Design Process and Staff Review

Over the past several months, the Applicant has met with staff regarding the project's design. The submission package to the Planning Board includes design changes and updates that are made in direct response to the comments and issues raised by staff during these meetings.

Planning Board Action

North Point Planned Unit Development (PUD), now known as Cambridge Crossing (CX), was originally approved by the Planning Board in 2003, and has been amended several times through the PUD process (most recently in late 2021).

DivcoWest, the developer for the project, is seeking design review approval for a non-residential building on Parcel Q2. Cambridge Crossing's special permit requires that along with design review of the building, the Planning Board shall also review and approve any associated parks, public spaces, street segment cross-sections, streetscape details, and other physical improvements directly tied to the building site under review. The approved program summary for Parcel Q2, as well as the proposed summary, is provided below:

Dimensional Requirement	Approved	Proposed	Compliant? (Y/N)
Total Parcel Area	1,976,501	1,976,501	Y
Total GFA	165,601	163,794	Y
Use:	Commercial Office	Technical Office/Laboratory	See below*
Non-Residential GFA:	165,601	163,794	Y
Retail:	1,801 (required)	1,801	Y
Residential GFA:	N/A	N/A	N/A

**Subject to Planning Board approval. See CDD Memo on Minor Amendment #10 request*

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The Planning Board's review of the buildings and landscape design is guided by the conditions of the special permit (PB-179), which includes the goals and objectives of the *Eastern Cambridge Planning Study*, the guidelines established in the *Eastern Cambridge Design Guidelines*, and utilization of the *North Point Design Guidelines* as a design reference.

Relevant Design Objectives and Guidelines

As part of the original PUD approval in 2003, design guidelines specific to Cambridge Crossing were developed and amended as recently as 2016. The most relevant North Point Design Guidelines to Parcel Q2 are summarized below:

District-Wide Goals:

- Create a lively new mixed-use district with strong visual, bicycle, and pedestrian connections to East Cambridge. The new district should be a place to live, work, and enjoy a variety of parks and public spaces.
- Create a new east-west street through the center of North Point, connecting East Cambridge with the North Point park.
- Extend First Street into North Point to connect existing and new neighborhoods.
- Create a major new public park easily accessible from the relocated Lechmere T station, First Street, and O'Brien Highway.
- Create a new retail edge at the relocated Lechmere T station and at the intersection of First Street, Cambridge Street, and O'Brien Highway that will complement, not compete with, existing retail on Cambridge Street.

Scale and Massing:

- Buildings should avoid continuous massing longer than 100 feet facing residential streets and 200 feet facing mixed-use and retail streets. If massing extends beyond this length, it should be made permeable and visually articulated as several smaller masses using different materials or colors, vertical breaks, bays, or other architectural elements.
- Buildings should have a clearly expressed base, middle, and top. This may be achieved through a variety of materials, fenestration, architectural detailing, massing, or other elements.
- Set back portions of the building above 65 feet by at least 10 feet from the principal façade where possible.

Block Guidelines:

- Create a special visual terminus to Water Street using visual articulation of base/middle and top.
- Ground floor of the building should engage the NorthPoint Boulevard, Water Street, and the pocket park to the east.
- The design of the building should recognize its significant visual presence on Parcel I open space.
- Retail frontage should be maximized along NorthPoint Boulevard and the pocket park.
- Special consideration should be made to the relationship to the MBTA Green line viaduct to the south.

- The configuration shall positively use the orientation and exposure to sun and minimize shadows on parks and surrounding buildings.
- Special corner treatment should be considered on NorthPoint Boulevard.
- Massing and articulation of the base/middle/top and horizontal articulation of the length of the façade are critical in defining character of NorthPoint Boulevard.
- The design should recognize that the building on this parcel abuts public open space, and take into consideration views, shadows, sound and the public character of these open spaces.
- Office/R&D uses are discouraged from occupying extensive ground-floor frontage. Where these uses do occur, they should occupy no more than 200 to 250 feet of continuous frontage along public streets.
- Entrances should be located on public streets, and at or near corners wherever possible. Entrances should relate well to crosswalks and pathways that lead to bus stops and transit stations.

Architectural Character:

- The design of rooftops, including mechanical equipment and cellular installations, should be conceived as integral to the rest of the architecture of the building.
- Screening is encouraged to conceal rooftop mechanicals, and the screening should be in the same idiom as the rest of the architecture.
- Careful articulation of large commercial buildings is critical in establishing a human scale at NorthPoint.
- Create varied architecture and void flat facades by using recessed or projected entryways, bays, canopies, awnings, and other architectural elements.
- Where buildings are set back at upper stories, lower roofs may be used as balconies, balustrades, and gardens.

Staff Comments

Parcel Q2 enjoys an important North Point Common edge location at the corner of Water Street and Morgan Avenue, and a pocket plaza lies immediately to the east (between Parcels Q1 and Q2). It also serves as a secondary gateway into the neighborhood, adjacent to the MBTA bus loop.

Massing and Siting

The building is approximately 280 feet long and is five floors tall plus rooftop mechanicals. It is one of the longer, more rectangular sites at North Point (CX), and the fact that all four sides have a public role, poses some design challenges. The building massing seems compatible with other buildings in the neighborhood, and the design concept is coherent and strong, particularly on the short ends of the building where the idea of the 'stacked extrusions' is most evident. These extruded volumes have clarity, visual interest and set up thoughtful relationships with the surrounding context, including the site's gateway location and smaller scale interfaces.

While the site has a horizontal alignment, the need to avoid continuous massing longer than 200 feet is a prominent aspect of the *North Point Design Guidelines*. Per the guidelines, if massing extends beyond

this length, it should be made permeable and visually articulated as several smaller masses using different materials or colors, vertical breaks, bays, or other architectural elements. On the north elevation, the articulated volumes help break down the overall scale and length of the project, yet still frame North Point Common to the north. The massing is stepped back at the fifth floor and broken vertically by a recess between the two lower volumes. The recess is centrally located above the main entrance and varies in depth. On the south elevation, there is less permeability and differentiation, and the massing is more monolithic; however, punched windows and a curtainwall element add variety and help alleviate some of the sheerness of the façade.

As the project advances, staff suggest further the study of the following:

1. The centrally located void on the north façade would be more successful if the ground floor recess depth of approximately 6 feet was carried all the way through to the top of Level 4, rather than reducing to approximately 3.5 feet.
2. Consideration of additional vertical and horizontal modulation of the south elevation to make it more permeable and less monolithic.

During the earlier stages of the staff review, staff had advocated for a double-height, north-south pedestrian connection through the building. However, due to grade changes and MBTA requirements, this was not considered feasible by the Applicant.

Façades

Detailed drawings of the façade systems have been provided, which give a clear presentation of depth, relief, scale, and shadow. The expressed volumes and curtainwall reflect a modern industrial architectural heritage. The design concept lends itself to a variety of bands, gaskets, and projecting and recessed conditions, which is supported by staff as these devices help to break down the scale of the building.

Each façade is differentiated based on solar orientation, views, and the context. As noted above, the east and west façades are quite successful and well-articulated. On the north façade, the curtainwall glazing appears to float on the surface of the extruded volumes, which advances the design concept and contrasts with the recessed glass on the east and west façades. There appears to be enough richness, texture, and liveliness on the façade to accommodate such an approach, and the centrally located recess and entrance canopy does much to help enliven the façade.

Generally, the south façade is treated as the back of the building. It has exaggerated horizontal proportions and does have an institutional feel due to the fenestration and mechanical penthouse treatment. The curtainwall helps break the monotony of the façade and creates a larger figure; however, the façade is relatively flat with only 2 inches depth at the punched windows. While this elevation is not highly visible from outside of the neighborhood, it will be from within the public environs of the MBTA station. Additionally, given the solar exposure the use of the dynamic glazing could result in the windows being quite dark much of the time.

As the project advances, Staff suggest exploration of the following:

3. The potential to either further recess or extend the extrusions on the east and west façades to create additional shading and depth.
4. While the interface with the MBTA bus loop is a constraint and attempts have been made to create visual interest, opportunities to provide greater depth, texture and richness on the south façade should be explored.

Materials, colors, and details

The material palette utilizes vertically ribbed metal panel, curtain wall and metal plate as its three basic elements. A warm grey is proposed for the metal panel, which is used to clad the extruded volumes. The gasket between the volumes is a darker gray metal plate, which creates contrast and enhances the three-dimensionality of the volumes. As recommended in the design guidelines, such an approach helps to visually articulate the masses and break down the scale of the building.

Low iron, highly transparent glass will be used on the ground floor to maximize pedestrian interest. For the curtainwall, shadow box will be used at column and floor/ceiling levels, which provides an elegant and seamless effect. Electrochromic glass/dynamic glazing will be used across the south elevation, on Levels 2 through 5. Such glass is primarily used to mitigate heat gain and enhance interior comfort. It is unclear how dark and reflective the electrochromic glass will be, and how much of the time each state is likely to be in use.

Staff looks forward to reviewing the materials in person during the continuing review process, and as customary, a materials mock-up will also be assembled prior to construction. As the project develops, staff suggest further study of the following:

5. The most attractive renderings appear to be those at nighttime when the façade materials have a warm glow. Staff are concerned that the color palette may be too drab, particularly when the electrochromic glass is in effect on the south elevation. Consideration should be given to adding warmth or color in appropriate locations to help enliven the façades.
6. Further information regarding the specific transparency and reflectance levels of the electrochromic glass and the percentage of the time that each state is likely to be in use.
7. The treatment of the mullion caps, gaskets, and other design details will be important aspects of the continuing design review process.

Ground floor design, activation and uses

The North Point Master Plan calls out the eastern end of Morgan Avenue as a designated “retail zone” and the western end for “active use”. The project slightly diverges from the guidelines by orienting the retail towards the pocket plaza, rather than Morgan Avenue. The remaining street-facing, ground floor uses will be dedicated to tenant space. As mentioned above, the main lobby is centrally located on Morgan Avenue and is well defined with a projecting canopy. A retail entrance is also proposed for Morgan Avenue. Glazed entrances to the parking garage on Water Street and the pocket plaza further animate the pedestrian environment and help break-up some of the longer portions of blank/inactive façade. The south facing, ground floor is mostly inactive due to it being the most appropriate location

for building services; however, the tenant space does include some transparency and a green screen along the edge of the parking access provides color and visual interest.

The ground floor is generally aligned with the floors above, although it is differentiated by a darker metal panel and horizontal gasket. Low iron glass will be utilized for the retail and tenant space glazing. Staff appreciate the built-in granite seat wall on Morgan Avenue, and the sunshades and the column expression at the retail end of the building. Such details establish a streetscape with variety, texture, and definition, and provide a more human scale that will hopefully be animated by retail and active uses. The tenant space at the corner of Morgan Avenue and Water Street is given a double-height character, which adds further visual interest to the ground floor, pedestrian experience. The loading dock and vehicular access doors on Water Street are recessed and transparent, which mitigates their impact on the public realm.

As the project advances, Staff suggest exploration of the following:

8. Throughout North Point, office uses are generally discouraged from occupying extensive ground-floor frontage. As suggested in the design guidelines, the applicant should consider whether the tenant should be required to provide space on the ground floor for public services, such as “fitness centers, cafeterias, daycare centers, etc.” to help enliven the building frontage where it abuts Morgan Avenue.
9. Given the extent of ground floor tenant space proposed, staff also encourage possible use of the windows for engaging art, or to display information relating to the tenant. Several recent projects in Kendall Square have successfully used this approach to create a more visually compelling pedestrian zone.
10. The first floor could be further differentiated and developed with human-scaled details, including consideration of more interesting fenestration patterns, and further differentiation from floors above, etc. In accordance with the design guidelines, Staff also encourage the ability for future tenants to adopt unique signage approaches, and differentiation in storefront design. To enhance the pedestrian environment, additional building entrances should be further studied, particularly on Morgan Avenue.
11. Careful attention to the interior design and programming of the ground floor tenant space is recommended as part of the continuing design review process.

<u>Rooftop Mechanicals</u>

The rooftop mechanical equipment will be partially housed within a penthouse and a screened enclosure that are both designed to seamlessly integrate with the architecture below. Section diagrams indicate that all equipment and appurtenances will be well concealed. Staff will continue to monitor these details as the project advances.

<u>Open Space, Public realm and Pedestrian Connections</u>

The landscape design continues the aesthetic created elsewhere in North Point (CX). The double row of trees on Water Street announces arrival into the district, visually connects with North Point Common and creates an expansive sidewalk space with opportunities for street furniture. Wide sidewalks on Morgan Avenue afford ample space for curbside street trees and bench seating.

The pocket plaza between Q1 and Q2 appears thoughtfully designed. The perspective renderings of this space are quite appealing as they successfully incorporate an alley of trees, color, vines and a well-proportioned recessed, retail space. Relocating the bicycle lockers to the Q2 building edge seems to improve the design and use of the pocket plaza, and still maintains visibility to the lockers while making good use of an inaccessible location.

The interface with the MBTA bus loop has been an aera of particular concern for staff. However, due to changes in grade and MBTA requirements, pedestrian connections have been difficult to achieve. Staff is generally pleased with the outcome, particularly the installation of a seating wall, plantings, and glass handrail in discrete locations. The Bus Starter Location does appear to create a pinch point on the Water Street sidewalk (see Sheet 140); however, the ability to address this is limited.

Staff recommend exploring:

12. Opportunities to provide more color, plantings, and variety within the wide sidewalk areas to help mitigate the expansive grey hardscape.
13. Whether the proposed sidewalk treatment on Morgan Avenue should continue the design already installed in front of the Building Q1.
14. Consideration of the use of a more robust or decorative metal screen for the vine structure. The proposed mesh will look rather mundane during the dormant season. A metal screen with depth, i.e., metal eggcrate, would be more elegant.

<u>Bicycle and vehicular connections</u>

Parking and Loading

Vehicular access and loading are sensibly located on Water Street, away from North Point Common. Parking is to be located below grade, which is a positive urban design outcome. The parking garage also has direct pedestrian access to Water Street and the pocket plaza, which is encouraged in the design guidelines to create a more animated pedestrian realm. An enclosed transformer room is proposed at the southeast corner of the building, which seems logical given the proximity of the MBTA service infrastructure.

Bicycle Parking

Short-term bicycle racks will be located in various locations around the site. Most of the long-term bicycle parking is located in the basement, with some racks provided on the first floor. Direct access to the first-floor racks and basement elevator is provided from the pocket plaza.

15. It appears that some short-term bicycle racks will be located within the future public right-of-way on Morgan Avenue, which does not meet City standards. Alternative locations within the property line should be explored.

<u>Environmental Comfort</u>

Urban heat island effect

The proposed landscape provides a good balance between new plantings and hardscape.

16. As the design advances, opportunities for additional vegetation should be considered for its moderating effects on microclimate, the shade it provides, and its aesthetic value.

Wind

Based on the Pedestrian Wind Study, wind conditions around Parcel Q2 are generally expected to improve and be comfortable for pedestrian use throughout the year, including at building entrances and sitting areas. One marginal, uncomfortable condition (location #35) will occur in the winter at the corner of Morgan Avenue and Water Street, adjacent to North Point Common. Since the wind tunnel testing was undertaken without modeling the proposed landscaping, the consultant expects that the wind speed will reduce to an acceptable level once trees are established. Staff suggest continued monitoring of the location as part of the continuing review process.

Shadows

Shadow study diagrams have been submitted with the design review materials. Given the mid-rise scale and setback upper floors on the north elevation, shadows are generally not expected to have a significant impact on North Point Common other than during the winter.

Lighting

Given the proximity of the residential building to the west, managing laboratory light spill at night may be an important design issue. Staff suggest further study of the following as the project advances:

17. Minimizing night-time lighting and light spill by such means as utilizing automated blinds, and the careful design and placement of interior light fixtures, etc.

Resiliency

The Application (refer Page 67) provides a graphic that depicts how the building entrances relate to the Flood Elevations from the Cambridge Flood Viewer. The presented Flood Elevation of 24.0 CCB does not appear to reflect the revised current flood maps. That said, the proposed established elevations of the building are still above the current, mapped Flood Elevations.

Sustainability

The Parcel Q2 project is subject to the City's Green Building requirements that were in effect in 2016, which mandated meeting the LEED Silver requirements. It is currently targeting LEED Gold, under LEEDv4 BD+C: Core and Shell and exceeding the minimum requirement with 68 credit points. The Green Building Certification Report for this project is attached.

The building structure and envelope's extensive use of metal provides a great opportunity to reduce embodied carbon and consequently reduce global warming. Staff appreciates the design team's commitment to conduct a life cycle assessment of the project structure and enclosure per LEED (Path 1). However, this stops short of committing to a tangible percentage in impact reductions compared to a baseline as would be achievable by Path 2 (5%) or Path 3 (10%) under the LEED framework. Considering the proposed building's structural system (i.e., steel framing, concrete for its underground parking and metal curtain walls), staff highly recommend that the design team conduct to a life-cycle assessment with at least 10% goal reduction in the impact categories as prescribed in LEED Path 3.

Given the limited roof area and high energy demands of the lab use, there are no plans to install Photovoltaics (PVs) at this time. A high Solar Reflectance Index (SRI) roof membrane is proposed instead. Opportunities to install green roofs on the rooftop and the setback terraces areas should also be explored.

The *North Point Design Guidelines* encourage consideration of the City's Net Zero Action Plan, including projects being built "net-zero ready", or providing a technical narrative for transitioning to net zero in the future. A Net Zero narrative has not been submitted.

Continuing Review

The following is a summary of issues that staff recommends should be further studied by the Applicant, either in preparing revised materials if the Planning Board continues the discussion to a future date, or as conditions for ongoing design review by staff if the Board decides to grant design approval:

1. Further development of elevations to address comments about enhancing façade modulation, design and color.
2. Further information regarding the specific transparency and reflectance levels of the electrochromic glass and the percentage of the time that each state is likely to be in use.
3. Review of the internal ground floor design and programming of the tenant space to ensure that the level of activation on Morgan Avenue and Water Street is maximized per the design guidelines.
4. Review of all building mechanicals and appurtenances, including the need to ensure that rooftop mechanical equipment is sufficiently shielded.
5. Review of all exterior materials, colors, and details, including joints in the panel systems, details at corners, curtainwall systems, window mullions, glazing, soffits, and a materials mock-up on the site prior to any exterior materials being ordered.
6. Continued monitoring of Location 35 in the Pedestrian Wind Study to ensure that landscaping is maximized to reduce anticipated wind speeds.
7. Review of all proposed public realm, open space and streetscape design details.
8. Review of parking, loading, bicycle parking, access and egress, and sidewalk design details by the TP&T and DPW.

Green Building Requirements

151 Morgan Ave Green Building Report – Certification for Special Permit Stage

Status: The Community Development Department (CDD) received the Green Building Report (GBR) for the Special Permit (Design Review) stage for CX Parcel Q-2 at 151 Morgan Ave. Pursuant to Section 22.25.1 of the Zoning Ordinance, CDD staff have reviewed the project's GBR and provide the following Determination, Summary of Compliance and Comments.

CDD Determination: The documentation provided by the Applicant is adequate and demonstrates compliance with the Green Building Requirements applicable to the Special Permit stage. A revised submission, with additional documentation will be required at the Building Permit and Certificate of Occupancy stages.

Project Summary: Based on the documents submitted, Parcel Q-2 is expected to achieve LEED Gold certification with 71 points. The project is seeking formal LEED certification with USGBC.

Summary of Compliance:

Green Building Professional Affidavit Certification

Peter Jefferson, PE, of BranchPattern, has been identified as the Green Building Professional for the project. The affidavit states that this professional has reviewed all relevant documents for this project and confirm to the best of their knowledge that those documents indicate that the project is being designed to meet the LEED v.4/v.4.1 requirements per Section 22.24 under Article 22.20 of the Cambridge Zoning Ordinance.

LEED Rating System Checklist, LEED and Net Zero Narrative

- Rating System: LEED v4 BD+C Core & Shell with v4.1 substitutions.
- Energy use reduction = 34% reduction compared to LEED baseline (ASHRAE 90.1-2010).
- Energy use savings = 21% reduction in using EApc 95 alternative compliance method per LEED.
- Site EUI (Stretch Code standards) = 138 kBTU/SF-yr.
- Source EUI (Stretch Code standards) = 352 kBTU/SF-yr.
- GHG emissions reduction (Proposed Design per SF) = 16 % reduction anticipated today,
- GHG emission reduction by 2035 = 29%.
- Indoor water use reduction = 26.72%, outdoor water use reduction = 56.44 below LEED baseline.
- Window-to-wall ratio = 30%.
- LEED categories and their credit points:
    - Integrative Process – 1 point
    - Location and Transportation – 18 points
    - Sustainable Sites – 9 points
    - Water Efficiency – 7 points
    - Energy and Atmosphere – 17 points
    - Materials and Resources – 4 points
    - Indoor Environmental Quality – 6 points
    - Innovation – 6 points
    - Regional Priority – 3 points

Total credit points = 71 points

Comments:

- Staff recommend setting low embodied carbon targets, benchmarks, accounting and tracking as soon as possible. At this stage of 50% CD, staff would recommend utilizing the whole building life cycle assessment to inform the selection of building materials, products and system and requiring low carbon specification to move forward to building permit and procurement. Staff will be inquiring about embodied carbon accounting and tracking as pursued in the LEED guidance at the building permit and certificate of occupancy stages.

- Considering the proposed building structure (steel framing and concrete) and building envelope's extensive use of metal, staff believe there is a great opportunity to reduce embodied carbon and consequently promote reduction in global warming. Staff appreciates the design team commitment to conduct a life cycle assessment of the project structure and enclosure per LEED's building life cycle impact reduction, Path 1. However, Path 1 stops short of committing to a tangible % in impact reductions compared to a baseline model as would be achievable by Path 2 (5%) or Path 3 (10%) under the same LEED framework. Staff highly recommend the design team to conduct a life-cycle assessment with at least 10% goal reduction in the impact categories as prescribed in LEED framework and committing to at least following Path 3 for 10% reduction. (Note: this would also provide the additional threshold points for meeting the regional priority credit for the WBLCA to gain an extra credit point)

- Staff also recommend pursuing products and materials that have life-cycle information, been responsibly extracted and sourced, and have healthy, and socially preferable impacts. Due to the extent of steel, miscellaneous metal, glass, insulation, and other elements comprising the building structure and envelop, staff highly recommend pursuing the highest % for responsible sourcing of raw materials for at least 30% of total value of permanently installed building products by cost per LEED framework.

- Staff recommend demonstrating the Applicant's commitment to occupants' health and wellbeing by pursuing the following:
    - Design and build to the standards and guidelines of WELL and Fitwel in tenant fit out.
    - Include higher than MERV 13 for air filtration in the core and shell building. Demonstrate commitment to occupants' health and wellbeing by pursuing WELL building standards, or Fitwel guidelines in tenant fit out.
    - Include material ingredient reporting of 20 different permanently installed products (HPDS) from at least 5 different manufacturers (in lieu of 10 products from 3 manufactures).
    - Pursue material ingredient optimization in addition to option 1, material ingredient reporting.

- Project specs for sustainable design requirements, EPDs/HPDs verification and tracking maybe be requested at building permit and/or certificate of occupancy stages.