



CITY OF CAMBRIDGE

Community Development Department

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To: Planning Board

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From: CDD Staff

Date: May 12, 2022

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Re: **PB #179 – CX Parcel R (221 Morgan Ave/14 N First St) Design Review**

This memo contains an overview of the proposed project at North Point Parcel R, 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 mixed-use residential building on Parcel R. 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 R, as well as the proposed summary, is provided below:

| Dimensional Requirement | Approved | Proposed | Compliant? (Y/N) |
|-------------------------|----------------------------------|---------------------|------------------|
| Total Parcel Area | 46,343 square feet | 46,343 square feet | Y |
| Total GFA | 134,211 square feet | 139,225 square feet | Y |
| Use: | Mixed-use | Mixed-use | Y |
| Non-Residential GFA: | TBD | 18,324 square feet | Y |
| Retail: | 17,660 square feet (Required) | 18,324 square feet | Y |
| Residential GFA: | 116,551 square feet | 120,901 square feet | Y |

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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 R 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:

- The layout of the North Point neighborhood is driven in large part by the desire to structure contiguous public open space, which is also well integrated into with the surrounding neighborhoods.
- 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.
- New development on mixed-use or commercial blocks should follow the below guidelines:
 - Street-level facades within the designated retail zone should include active uses
 - Ground floor frontage should generally be permeable, and massing elements and architectural details should be human scaled.
 - 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.

- Buildings should have a carefully articulated base of one or two floors with a high level of transparency and lightness (30-50 percent transparent) at the ground floors allowing views inward and outward.
- Blank walls should be avoided along all public streets, courts, and pedestrian walkways.

Block Guidelines:

- Parcel R is a small, but very important gateway building to North Point. This residential building is located prominently on North First Street, East Street, and North Point Boulevard. The parcel enjoys a very important frontage on North Point Common.
 - In designing this building, its presence as it is seen from North First Street, Msgr. O'Brien Highway and North Point Common should be carefully considered
 - Ground floor of the building should engage North First Street, North Point Boulevard and East Street
 - Retail frontage should be maximized along North First Street and North Point Boulevard
 - 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 North Point Boulevard
 - Massing and articulation of the base/middle/top and horizontal articulation of the length of the façade are critical in defining character of North First Street and North Point Boulevard

Architectural Character:

- Architectural composition should particularly emphasize a distinct identity for the building as well as for North Point. This identity should be legible from adjacent streets and critical viewpoints, as well as within the overall North Point skyline when seen from a distance. Methods of creating a distinct architectural composition include use and proportioning of materials, colors and shapes that differ from those of adjacent buildings.
- Create varied architecture and avoid flat facades by using bays, balconies, porches, and other projecting elements.
- Maximize the number of windows facing public streets to increase safety.
- Where buildings are set back at upper stories, lower roofs may be used as balconies, balustrades, and gardens.
- Utilize architectural articulation such as varied façade planes, changes in material, fenestration, architectural detailing, or other elements to break down the scale.

Staff Comments

Parcel R is one of the more prominent sites in North Point (CX), situated between North First Street, North Point Common and the recently completed Green Line viaduct. It serves as a gateway into the neighborhood and a visual anchor.

Massing and Siting

The building is approximately 150 feet long. It is eight floors tall plus rooftop mechanical, except for a small appendage at the southeastern corner of the site. The building massing seems compatible with the residential buildings to the east at Parcels S and T, and the articulated volumes and façade strategies help break down the overall scale of the project yet still frame North Point Common to the north. The volumes have clarity and set up thoughtful relationships with the surrounding context, including the site's gateway location. As recommended in the Design Guidelines, the corner of North First Street and Morgan Avenue is expressed with a cantilevered corner volume and tower elements anchor the ends of the building and help demarcate the entrance into North Point (CX). A "base, middle, top" arrangement is generally achieved, and balconies and other treatments enrich the volumes and help to provide a human scale.

The low-lying appendage at the southeastern corner of the building has been an area of concern for staff. Its single-story height is significantly lower than the recommended streetwall height of 65-feet outlined in the design guidelines and does not define the public realm at a desired urban scale. Based on staff comments, the low volume has been given a stronger presence with the addition of a rooftop trellis and articulated pilasters, which helps to mitigate some concerns.

Façades

Detailed drawings of the façade systems have been provided, which give a clear presentation of depth, relief, scale, and shadow. The relatively restrained façade approach described in the renderings is generally supported by staff. The façade system will have three inches of depth from the outer wall surface to the window glass, and an additional inch and half of depth will be created by a metal fin around openings. The façades are animated by Juliet and hung balconies, and patterned/texture panels that provide additional relief to the surface and a residential character.

The desire to create interesting and varied roof lines is another element of the design guidelines. The bronze tower volume is capped by a strong metal cornice in accord with these recommendations. Unlike most midrise residential projects, through-wall vents have been very well handled with the adoption of an integrated window system approach, which results in a clean façade.

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

- The window/bay pattern on the various façades could use some additional refinement.
 - The south elevation of the bronze tower volume as it faces the East Cambridge neighborhood appears to lack the finesse of the other façades (sheets 23 and 24). While the interface with the Green Line is a constraint and attempts have been made to create some visual interest, opportunities to provide larger windows, or grouping windows to create a larger figure, or providing windows closer to the edges of the façade should be explored.
 - Some views of the terracotta volume (from Morgan Avenue) appear a little institutional and could be further elaborated with additional architectural details.
 - Proportions on the white façade, facing north and east, could be tweaked. If the columns and floor level spandrels had narrower proportions a relationship with early 20th Century industrial concrete frame and infill buildings could be achieved. There are examples of such buildings within the surrounding context.

- The northwest corner of the grey volume could be opened-up to create a corner window effect, rather than such a wide solid panel.
- The fiber cement trellis pilasters could be further articulated with grooves or additional details. The pilasters look a little narrow in perspective and could be given more depth. Staff also note that the plan of the trellis should be shown on the first and second floor plans (Sheets 26 and 27).
- Additional hung balconies, and other architectural details such as shading devices, deeper fins/mullions, etc., could further enhance the building façades.

Materials, colors and details.

Each of the building volumes is a different color, which includes white, grey, terracotta and bronze fiber cement panels. As recommended in the design guidelines, such an approach helps to visually articulate the smaller masses and break down the scale of the building. Each volume will be further expressed with varied color shades, and varied fiber cement finishes and profiles. At the ground level, the fiber cement cladding sits atop a Ground Face Concrete Masonry Unit (CMU) base. 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:

- Given the extent of fiber cement panel, careful attention to the selection and detailing of this material is warranted. Staff is unfamiliar with the “Swiss Pearl” cementitious product and notes that materials within the North Point (CX) neighborhood have tended to be more robust and durable, such as precast concrete, brick, and metal panel.
- While the varied shades within each colorway are supported, it will be important to ensure that a well-balanced effect is achieved. Too much variation can often be garish and harsh, while too little variation can lead to flat façades without pattern/texture. From the perspective renderings and materials palette, the grey colorway may appear to be too dark and dreary, and the bronze palette may be overly brown. As such, the selection of colors, finishes, and details will need to be a key component of the future mock-up review.
- Selection of the CMU should focus on achieving a high quality, stone-like finish.
- Details of glass visible light transmittance and reflectivity, with an emphasis on the visibility of ground floor interiors, should be provided.
- The treatment of the mullion caps and other design details will also be important aspects of the continuing design review process.

Ground floor design, activation and uses

The North Point Master Plan calls out North First Street and Morgan Avenue as designated retail zones. The project successfully exceeds these requirements with retail being placed on the site’s three street frontages, including wrapping around to the station plaza. Prominent retail entrances are provided on North First Street, and the primary residential entrance on North First Street is centrally located, well-defined and clearly visible.

A significant portion of the Morgan Avenue and North First Street ground floor is set back under the cantilevered grey volume, which helps to delineate the base from the above floors. This design move creates an interesting soffit condition, which is proposed to be treated with a mirrored finish that

reflects the nearby landscape features. Bay rhythms, transparency into retail, and shadows created by the cantilevered volume establish a streetscape with variety, texture, and definition.

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

- The first floor could be further differentiated and developed with human-scaled details, including consideration of interesting fenestration patterns, definition of its upper edge, differentiation from floors above, canopies or awnings, 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 and East Street. Given the extensive retail frontage and prominent North Point Common façade, opportunities for operable walls and windows should also be explored.
- The at-grade Eversource transformer and unenclosed loading dock seem to be a missed opportunity to contribute to activating the public realm and to providing a more attractive interface with the station plaza. Additionally, citywide urban design objectives recommend enclosing transformers/electrical equipment within buildings, rather than visually exposed at-grade locations external to the building. Further consideration should also be given to locating the loading dock internal to the building, rather than within an exposed alley that creates a gap in the streetwall and a potential eyesore on East Street. From an urban design perspective, locating the transformer and loading dock entirely within the building, adjacent to the parking entrance, would be an ideal outcome.
- If the transformer and loading dock are to be maintained in a separate enclosure, the potential for that enclosure to provide more visual interest should be explored. Ideas such as art, green walls/climbing plantings, or educational/interpretative signage about the Green Line, should be studied.

Rooftop Mechanicals

The rooftop mechanical equipment is partially screened by the building parapet. While some mechanical equipment rises above the parapet line in elevation, the sightline diagrams included in the submission demonstrate that these units will not be highly visible. Staff will continue to monitor these details as the project advances.

Open Space and Public realm

The landscaping design continues the aesthetic created elsewhere in North Point (CX). The double row of trees on North First Street and the separated bicycle lane announce arrival into the district, and creates an expansive sidewalk space with opportunities for street furniture. Wide sidewalks on Morgan Avenue afford ample space for large curbside planning areas, granite seatwalls, bench seating and a playful kaleidoscope mirror installation, which is very much appreciated by staff.

Staff recommend exploring:

- Opportunities to provide more color and variety within the wide sidewalk areas to help mitigate the expansive grey hardscape.

Pedestrian, bicycle and vehicular connections

Parking and Loading

Vehicular access, loading and service functions are sensibly located on East Street, away from North First Street and 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 East Street, which is recommended in the design guidelines to create a more animated pedestrian realm. The loading area is situated at the end of the building between the single-story volume and the transformer enclosure.

As the project advances, Staff recommend consideration of the following:

- As currently proposed, the loading dock conflicts with the existing East Street pedestrian crossing from Glassworks Avenue. Alternate locations should therefore be further studied. Switching the location of the loading and electrical equipment appears to have a beneficial impact on maintaining the existing pedestrian crossing, but would need to be carefully considered to ensure that an attractive interface with the MBTA easement/station plaza is provided. Staff have been in recent discussions with the design team on alternatives, and comments from the Traffic, Parking and Transportation (T,P &T) Department below further elaborate on this issue.

Bicycle Parking

- Most of the long-term bicycle parking is located on top of the single-story volume adjacent to the residential amenity terrace. While not an ideal location given its intrusion into the amenity space, City design standards have been met.
- The two long-term, retail bicycle parking lockers located adjacent to the electrical/transformer enclosure do not appear very convenient or appealing to bicyclists. An alternative location should be considered.

TP& T comments

Parcel R is within the master-planned Cambridge Crossing mixed-use development project which includes new roadways, intersections, sidewalks, bicycle facilities, and multi-use paths. The Project's roadway and infrastructure plan has undergone many changes and modifications from when the project began to reflect evolving plans for the district, such as the new Lechmere Station, reconstruction of O'Brien Highway, and adjustments to roadway designs.

One issue with the Parcel R project is that although the proposed loading zone is in the general location as shown in the 2016 North Point Design Guidelines, the loading zone is also in the location of an existing crosswalk across East Street, which is part of the Project's 40-scale drawings. The East Street crosswalk connects to the Lechmere Station headhouse on the east side of East Street and a multiuse path along the frontage of the Avalon Bay and Archstone residential buildings, which has been temporarily closed during the construction of the Green Line Extension (GLX) viaduct but will be re-constructed and opened soon by Avalon Bay. Therefore, the important issue is the location of the Loading zone for Parcel R and the East Street crosswalk. City staff have been talking to DivcoWest about a solution and we believe further investigation is needed on different options, such as relocating the crosswalk or loading zone. There may also be an opportunity for changes to the location of the transformer and switch gear, although it may be difficult to achieve.

Staff can provide a summary of up-to-date discussions at the review session on May 17.

Environmental Comfort

Urban heat island effect

The proposed landscape provides a good balance between new plantings and hardscape. 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. Opportunities to incorporate green roofs on the rooftop and terrace areas should be explored.

Wind

Based on the Pedestrian Wind Study, wind conditions around Parcel R are expected to be comfortable for pedestrian use throughout the year, including at building entrances and sitting areas along sidewalks.

Shadows

Shadow study diagrams have been submitted with the design review materials. Given the mid-rise scale, shadows are generally not expected to have a significant impact on North Point Common.

Sustainability

The Parcel R 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 LEED v4 BD+C: Multifamily midrise and meeting the minimum requirement with 62 credit points. The Green Building Certification Report for this project is attached .

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 been submitted as part of the Green Building narrative.

While there are no plans to install Photovoltaics (PVs) at this time, portions of the roof are designated as "solar ready". Opportunities to install green roofs on the rooftop and the setback terraces areas should also be explored.

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. Revised plans addressing façade discrepancies.
2. Further development of elevations to address comments about enhancing façade design, including consideration of corner windows at North First Street and Morgan Avenue, additional balconies, and other architectural details.
3. Further study of the southeastern one-story volume, its façade design, and the location of electrical equipment and the loading dock.
4. Further information on the transparency and reflectance of glazing, with a particular focus on the visibility of retail tenant interiors.

5. Review of all building mechanicals and appurtenances, including the need that rooftop mechanical equipment is sufficiently shielded.
6. 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.
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

221 Morgan Street 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 R at 221 Morgan Street. 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: Project Parcel R is subject to the City’s Green Building requirements that were in effect in 2016, which mandated meeting the LEED Silver requirements. Based on the documents submitted, the project is expected to meet the standards of LEED Gold with 62 points.

Summary of Compliance:

Green Building Professional Affidavit Certification

Douglas Rand, AIA, LEED AP BD&C, CPHC of DiMella Shaffer, 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 has been planned and designed to meet the LEED requirements of Section 22.24 under Article 22.20 of the Cambridge Zoning Ordinance. However, the Applicant expressed reluctance to pursue a formal certification process to achieve LEED Gold certification from USGBC.

LEED Rating System Checklist, LEED and Net Zero Narrative

- Rating System: LEED v4 BD+C: Multifamily Midrise. LEED Baseline standard is ASHRAE 90.1-2010.
- Energy use reduction = 17% reduction below the Stretch code baseline (ASHRAE 90.1-2013).
- Energy use savings = 22% reduction in energy use relative to ASHRAE 90.1-2010 baseline.
- Site EUI (Stretch Code standards) = 23.9 kBtu/SF-yr.
- Source EUI (Stretch Code standards) = 40.1 kBtu/SF-yr.
- GHG emissions reduction = 11% reduction.
- LEED categories and their credit points:

- | | |
|---|--|
| ○ Integrative Process – 1 point | ○ Materials and Resources – 3 points |
| ○ Location and Transportation – 13 points | ○ Indoor Environmental Quality – 11 points |
| ○ Sustainable Sites – 4 points | ○ Innovation – 2 points |
| ○ Water Efficiency – 10 points | ○ Regional Priority – 3 points |
| ○ Energy and Atmosphere – 15 points | |

Total credit points = 62 point

Advisory Comments:

The Planning Board looks holistically at the sustainability aspects of all building types and uses including their operational and embodied carbons. While the project meets the Green Building Requirements, CDD staff do provide comments and recommendations to the Planning Board on how proposed building might further improve their energy performance, reduce GHG emissions and reduce their embodied carbons. For that reason, staff believe the following comments/recommendations are relevant to this project and should be considered:

1. It is staff's understanding that the design team will be using air source heat pumps (ASHP) for heating and cooling. We appreciate that effort. However, to reduce the global warming and ozone depletion potentials impacts of typical refrigerants, we recommend using natural refrigerants such as CO2 to the maximum extent possible.
2. Staff is also aware that the technology for ASHP for domestic hot water and recovery storage has been used for large multi-family projects and in cold climate. For that reason, staff recommend using a hybrid centralized heat pump (i.e., where individual heat pumps can be grouped together to meet the system demand) for domestic hot water in lieu of electrical resistance water heaters? Heat pump water heating would provide much higher energy efficiency as well as carbon free domestic water heating.
3. We recommend a third-party rating certification e.g., LEED rating certification. Moving forward, the established of a rating system and its trail of documentations and tracking would further facilitate and streamline CDD staff GBR reviews. In some instances, this process would expedite the multi-stage reviews and certifying the GBR report (i.e., at Design Review, SP, BP and CO). For that reason, we recommend the design team to pursue a formal LEED rating certification. Once that is done, submit the USGBC registration number to CDD.
4. Staff recommend pursuing higher number of LEED credit points and considering the following category credits:
 - a. Explore rainwater management strategies to enable achieving additional point in sustainable sites category.
 - b. Ensure that hot water distribution is energy efficient by insulating the piping system, reducing energy consumption, and gaining LEED credit points in efficient hot water distribution category.
 - c. Pursue environmentally preferable building products and components to maximize credit points in the MR category of environmentally preferable products.
 - d. Maximize LEED points in the IAQ by selecting low emitting products for interior paints, coating, sealant, and adhesive as well as for flooring materials, insulation, and composite wood.
 - e. Improve the indoor air quality for occupants, workers, and other users of the space by controlling contaminants by pursuing credit category in indoor contaminant control.
5. Provide a rationale for not pursuing enhanced compartmentalization to reduce indoor pollutants.
6. Staff recommend the use of non-emitting materials. For those certified low VOC emitting products/materials, please identify the testing standards used.
7. List emission levels for composite wood products, paints, sealants and finishes as well as those for carpet, carpet pads and adhesives (provide sustainable design specification section).

8. Staff recommend pursuing enhanced indoor air quality strategies, especially using higher filtration levels above 8 MERV preferably 10-13 MERV to do better in capturing 1-3 microns particle size.
9. Consider focusing on health and wellbeing strategies which are extremely relevant considering the residential use. For that reason, staff also recommend pursuing WELL building standards, or Fitwel guidelines to demonstrate the Applicant's commitment to occupants' health.
10. Provide updated information on any energy modeling analysis or information available as a result of the ongoing design development process. (Note: the GBR dated 1.24.2022 is presumably prepared during the schematic design/early Design Development phase.)
11. Applicant will be asked to provide information about inspected items including enclosure inspection and checklist to comply with commissioning requirements.