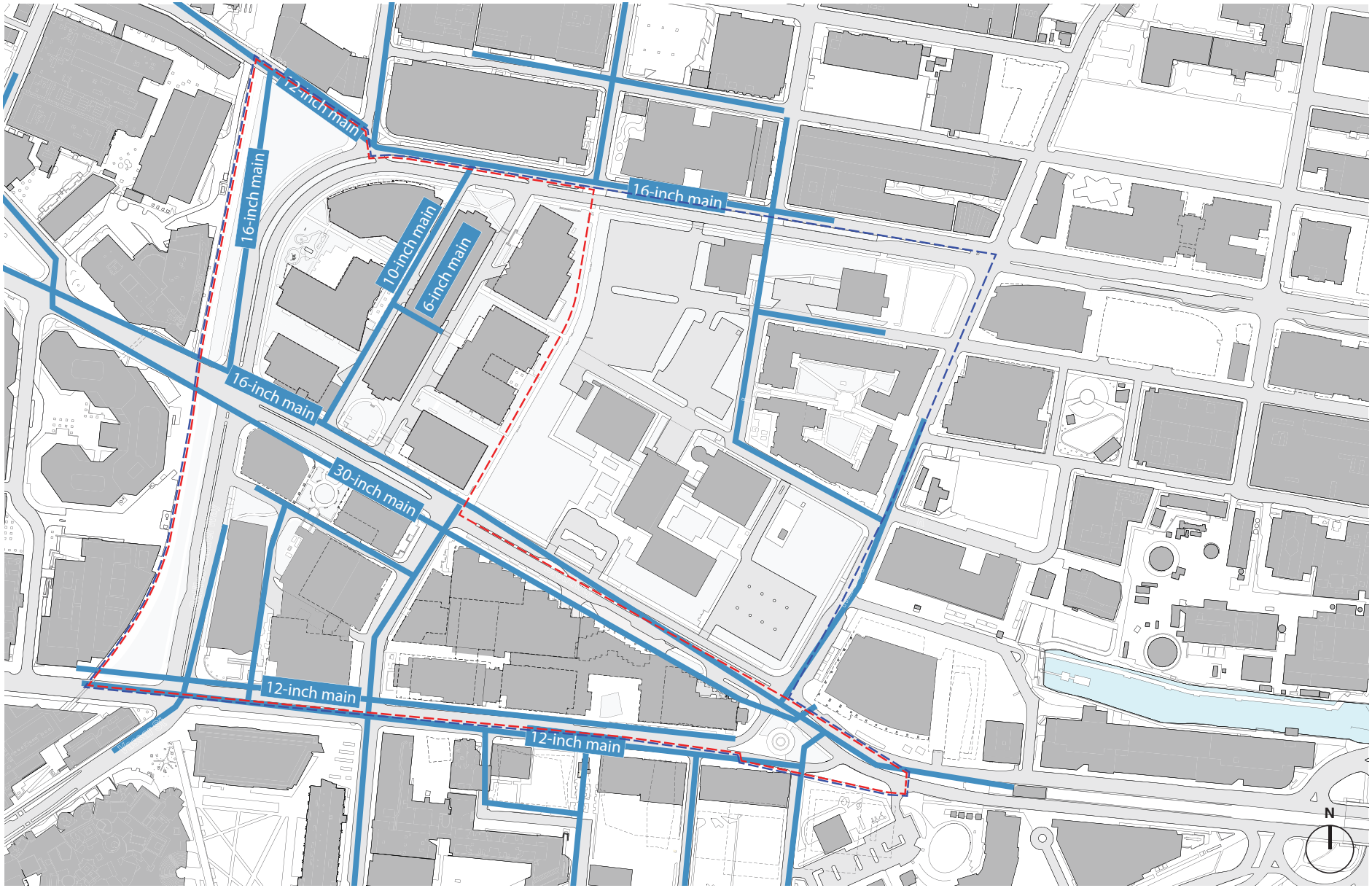
FIGURE 6.2 - EXISTING WATER INFRASTRUCTURE



6.2 PROPOSED INFRASTRUCTURE IMPROVEMENTS

6.2.1 STORMWATER IMPROVEMENTS

In addition to reviewing and approving any new private connections to existing infrastructure, the CDPW reviews and approves the stormwater management strategies of larger developments in the City. CDPW requires that new projects mitigate stormwater such that the peak rate and volume of stormwater runoff in the post-development condition during a 25-year design storm are equal to or lower than that of the pre-development condition for the 2-year design storm. In the existing condition, there are no stormwater management systems implemented throughout the project site that reduce the peak rate or total volume of runoff. Therefore, the Project will greatly improve stormwater contributions to the CDPW stormwater infrastructure by meeting the required mitigation thresholds.

To improve the quality, rate, and volume of runoff from the Project, the Applicant has designed preliminary stormwater management systems, which meet the City's requirements. As an infill project, there is limited opportunity to expand ground level landscaping to improve the hydrologic condition. Therefore, the Applicant is exploring the use of green roofs to reduce the percentage of impervious cover for the Project. In addition, the Applicant is proposing an integrated stormwater management system for the Project that includes the expansive use of permeable pavements on-site, which overflow to subsurface infiltration chambers. By applying this approach, the Applicant will meet or exceed the required stormwater mitigation standards set forth by the City of Cambridge and DEP. Table 6-2 provides the conceptual stormwater management system proposed for each Project Component. Figure 6.4 provides a graphic display of the integrated stormwater management approach from this Project.

Project Component	Proposed Site Impervious Area (SF)	Proposed Site Pervious Area (SF)[1]	Proposed Permeable Paver Area (SF)	Infiltration System Capacity (CF)[2]	Proposed Site Runoff Rate 25-year, 24-hour Design Storm (CFS)	Proposed Site Runoff Volume 25-year, 24-hour Design Storm (AF)
Phase 1 - Office Building A Net New	27,707	10,155	0	6,178	1.85	0.162
Phase 2 – Residential Building South Total	15,009	29,595	10,443	8,119	2.62	0.168
Phase 2 – Office Building B Net New	33,282	27,339	7,941	9,089	3.44	0.278
Phase 3 - Residential North Total	19,165	28,081	7,762	7,746	2.68	0.213
TOTAL	**95,163**	**95,170**	**26,146**	**31,132**	**10.59**	**.821**

1. Permeable pavements and green roofs included in proposed site pervious area
2. Permeable pavements included in infiltration system capacity, assumes 2-foot deep reservoir course with 30% voids

TABLE 6-2 PROPOSED SITE HYDROLOGY

In addition to mitigating runoff flow rates and volumes, the Applicant is responsible for reducing the Phosphorus loads from the project site to the CDPW stormwater infrastructure to comply with the Lower Charles River Total Phosphorus Total Maximum Daily Load (TMDL) that requires the removal of 80% of Total Phosphorus. Applicant has developed several methods for reducing the Total Phosphorus. These include non-structural methods, increased landscape coverage and green roof installation, enhanced street sweeping program, on-site catch basin cleaning program, and an enhanced organic waste and leaf litter collection program for fall months. These methods can reduce Phosphorus export rates by up to 17% according to Attachment 2 of Appendix F of the Massachusetts Small MS4 General Permit (MS4). These nonstructural, pretreatment Phosphorus treatment strategies will supplement the infiltration based, structural treatment systems. Permeable site pavements and subsurface infiltration structures are the most effective means for removing Phosphorus from the project site, as well as reducing peak rate and total discharge of runoff off-site. Porous pavements are evaluated as infiltration trenches when they do not include an impermeable base liner, which is the current design intent.

The permeable pavements will be designed to treat, at a minimum, 1-inch over the contributing site area, which provides a phosphorus removal rate of 82%. This is conservatively assuming that the soils on the Site are capable of the minimum infiltration rate (0.17 in/hour) evaluated by the MS4 General Permit. All areas that do not drain to the permeable pavements (mostly the building roof areas), will be directed to the subsurface infiltration structures. In order to meet the stormwater peak rate and volume requirements set by the CDPW, these structures are designed to hold and infiltrate over 1-inch of runoff from the contributing area. A 1-inch treatment capacity will reduce phosphorus loads by 92% from the impervious contributing area. The entire Project site area will drain to a structural Phosphorus mitigation measure sized to remove at least 80% of Total Phosphorus and therefore it is expected that

the Project will meet the required DEP reduction targets.

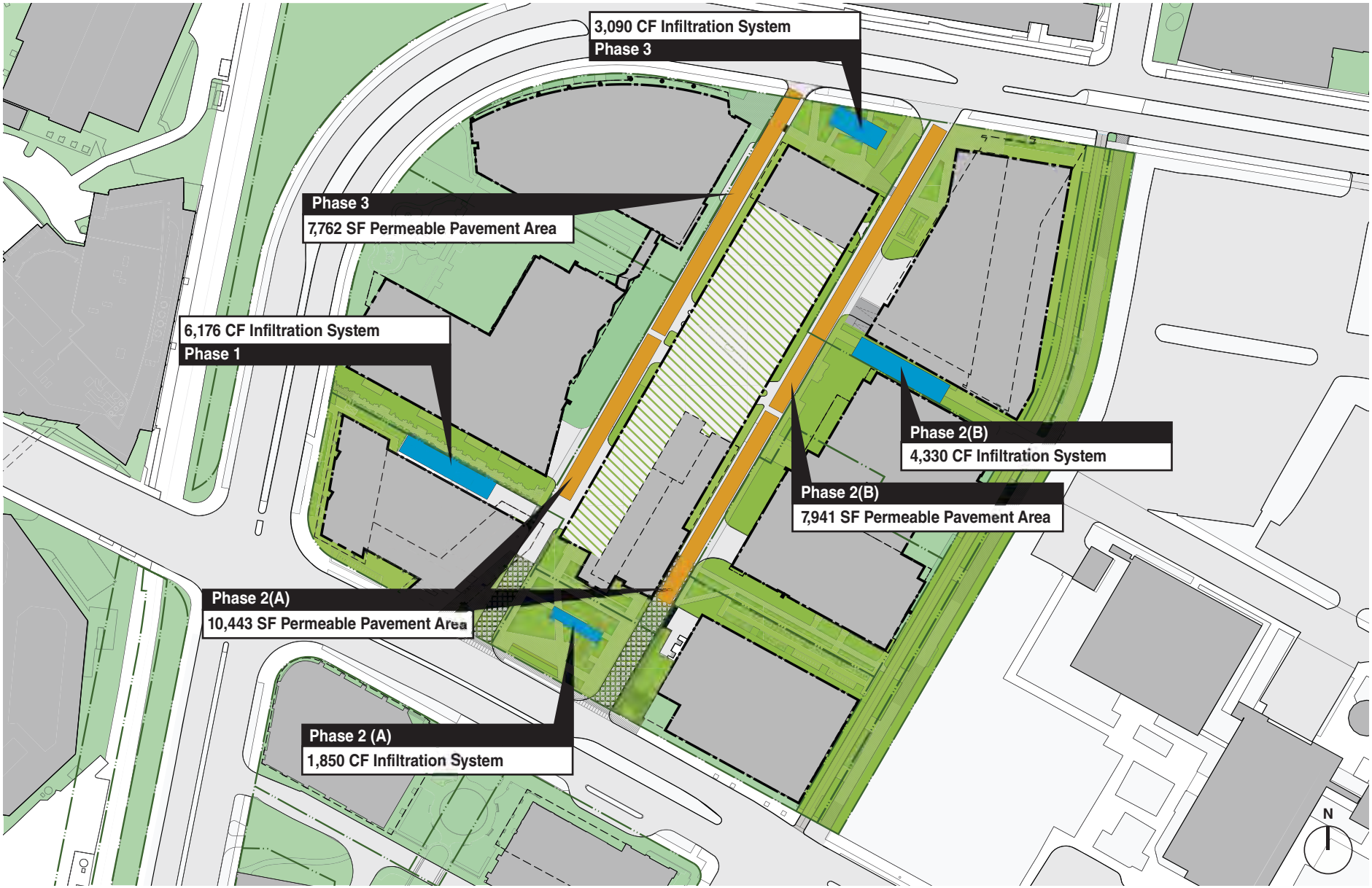
6.2.2 SANITARY SEWER

Table 6-3 details the current wastewater generation estimate based on the DEP Sewer Connection and Extension Regulations, 310 CMR 15.203.f by building use with the latest KSURP building program. The Project is estimated to generate 134,973 GPD of net new wastewater relative to the existing condition. As required by the CDPW, each Project component will have a sanitary holding tank capable of retaining the 8-hour peak sanitary flow from the building with a 1.5 factor of safety. Although the volume of each sanitary holding tank will be coordinated with the CDPW, the initial estimated size is conservatively assumed to equate to the full estimated daily flow. In addition, all drainage from enclosed vehicular parking and loading will be treated with an MWRA approved gas/oil separator. If a portion of Project's program includes restaurant use, then a grease trap will be installed to pretreat wastewater effluent, thereby minimizing the potential impact to the CDPW sanitary sewer system.

The City of Cambridge is required to remove I/Ifrom it's sanitary sewer system by the MADEP in an effort to reduce and eliminate the potential for Combined Sewer Overflows (CSOs) to Massachusetts waterways. The CDPW is responsible for coordinating I/I removal for developments in Cambridge that generate greater than 15,000 GPD of wastewater, at a ratio of 4 gallons of I/I per GPD of wastewater. As such, the Applicant will coordinate an I/I removal plan with the CDPW before the individual buildings are occupied. Table 6-4 shows the estimated I/I removal for each project Component based on the estimated wastewater generation, which totals 497,472 gallons.

Figures 6.3A and 6.3B provide graphic displays of the water/sewer improvement plan for this Project.

FIG 6.3A DISTRICT-WIDE STORMWATER MANAGEMENT PLAN


3,090 CF Infiltration System
Phase 3
Phase 3
7,762 SF Permeable Pavement Area
6,176 CF Infiltration System
Phase 1
Phase 2(B)
4,330 CF Infiltration System
Phase 2(B)
7,941 SF Permeable Pavement Area
Phase 2(A)
10,443 SF Permeable Pavement Area
Phase 2 (A)
1,850 CF Infiltration System
N
Green Spaces
Green Roofs
Permeable Pavement
Infiltration System

Project Component[1]	Use	Quantity	Flow Rate (gpd)	Sewage Generation (gpd)
New Project-Related Sewage Generation				
Phase 1 – Commercial Building A	Office	443,731	75/1,000 sf	33,280
	Restaurant	134*	50/seat	6,700
Comm. Building A Total				*39,980*
Phase 2 – Residential Building South	Residential	533**	110/bdrm	58,630
Residential South Total				*58,630*
Phase 2 – Commercial Building B	Office	310,615	75/1,000 sf	23,296
	Retail	8,029	50/1,000 sf	402
Comm. Building B *Total*				*23,698*
Phase 3 – Residential Building North	Residential	105**	110/bdrm	11,550
	Retail	1,300	50/1,000 sf	65
Residential North Total				*11,615*
Broad Institute Office Conversion	Office	14,000	75/1,000 sf	1,050
Broad Institute Total				*1,050*
Total New Project-Related Sewage Generation				**134,973**
Existing Sewage Generation to be Removed				
Eleven Cambridge Center	Commercial	78,636	(75/1,000sf)	(5,898)
Fourteen Cambridge Center	Commercial	62,576	(75/1,000sf)	(4,707)
Total Existing to be Removed				**(10,605)**
Net New Wastewater Generation				**124,368**

TABLE 6-3 ESTIMATED WASTEWATER GENERATION FOR THE CURRENT PROJECT

Project Component[1]	Net New Wastewater Generation (gpd)	I/I Removal Requirement (gallons)
Phase 1 - Commercial Building A Net New	34,082	136,328
Phase 2 – Residential Bldg. South Total	58,630	234,520
Phase 2 – Commercial Building B Net New	18,991	75,964
Broad Institute Office Conversion	1,050	4,200
Phase 3 - Residential Bldg. North Total	11,615	46,460
Total I/I Removal	**124,368**	**497,472**

1. I/I removal is not required for the Innovation Space Conversion because it will generate the same amount of wastewater as the existing office space.

TABLE 6-4 CURRENT PROJECT I/I REMOVAL BY PROJECT COMPONENTT

gpd = gallons per day

bdrm = bedroom

*assumes 10,037 SF and 50 SF/seat

**assumes 1.5 bedrooms per unit

1. The Innovation Space Conversion component is not included because it will generate the same amount of wastewater as the existing office space.

6.2.3 DOMESTIC WATER

During the MEPA review process, the CWD provided initial confirmation that the local water infrastructure should have sufficient capacity to serve the Project. The water demand for each Project component is initially estimated by applying a 10% consumption factor to the wastewater generation estimate. Therefore, the estimated Project water demand over the existing condition is equal to 136,805 GPD. The estimate for each Project Component is show in Table 6-5. As discussed in Section 8, Sustainability, to meet the Project's sustainability goals, water conservation measures will be implemented for each Project Component to greatly reduce the water demand. Preliminary discussions with the CWD during the MEPA review process did not elucidate any capacity issues in the District to serve the Project for both domestic water and fire protection services. BP will evaluate the need for domestic and fire protection booster pumps to compensate for any deficiencies in the water pressure in the water mains adjacent to each Project component. Hydrant flow tests conducted in the field will be used to make this evaluation. Where possible, redundant domestic water and fire protection services will be connected to a separate supply main, otherwise isolation valves will be installed to ensure that domestic water and fire protection services are not interrupted by isolated service issues. All existing domestic water and fire protection service lines that require removal will be cut and capped at the main, as required by the CWD.

Figures 6.3A and 6.3B provide graphic displays of the water/sewer improvement plan for this Project.

Project Component[1]	Water Demand (GPD)
Phase 1 - Office Building A Net New	37,490
Phase 2 – Residential Bldg. South Total	64,493
Phase 2 – Office Building B Net New	20,890
Broad Institute Office Conversion	1,155
Phase 3 - Residential North Total	12,777
Total Water Demand	**136,805**

1. The Innovation Space Conversion component is not included because it will have the same potable water demand as the existing office space

TABLE 6-5 ESTIMATED WATER DEMAND BY PROJECT COMPONENT

6.3 VULNERABILITY ASSESSMENT

The Applicant has coordinated with the City of Cambridge to identify the capacity issues in the stormwater infrastructure serving the District. Applicant is particularly concerned with the potential for inland flooding due to stormwater system surcharges, especially in context with the expected changes in precipitation patterns and sea level rise and storm surge. Applicant has coordinated with the City to determine the appropriate building finish floor elevations in the District to reduce the risk of the Project being impacted by flooding. For Commercial Building A and Residential Building South, the 100-year flooding event projected for the year 2030 is anticipated to be El. 19.34 Cambridge City Base (CCB). For the year 2070, the 100-year flooding event projection is El. 20.10 CCB. For Commercial Building B the Residential Building North, the 2030 and 2070 100-year flood event projections are El. 20.73 CCB and El. 20.93 CCB, respectively.

The CDPW recommends that building finish floor elevations be designed to the 2030 flooding event projections, while being designed to recover from the 2070 flooding elevations. The ability to recover was defined as locating critical infrastructure susceptible to flood damage above the 2070 elevation. These elevations do not take into consideration a precipitation event occurring concurrently with a storm surge event. For the 10-year storm with the impacts of climate change in 2070, minor flooding is expected in Broadway at Galileo Galilei Way, and stormwater infrastructure will have limited capacity for increased flows. The flooding will be greatly exacerbated during a concurrent storm surge event propagating through the stormwater system. At the time of this filing, the City has not finished evaluating the concurrent flooding and storm surge event.

Applicant intends to design all Project components to meet or exceed the recommended planning flood elevations. Figure 6.4 shows the recommended design flood elevations for the 2030 and 2070 design events as they relate to the existing topography. To account for the probability of a concurrent precipitation event with storm surge propagation in stormwater infrastructure, Applicant will study additional resiliency measures. These measures may include oversized stormwater conveyance infrastructure, backflow preventers on effluent stormwater pipes, watertight internal gravity piping to the second floor, and the district wide stormwater management strategy, which greatly reduce the rate and volume of site stormwater effluent providing capacity for runoff from the remaining catchment area.

As flooding is expected to worsen over time, the Applicant will continuously review the latest design recommendations and literature to determine if/when portable flood protection systems, such as Portadam or the Aquafence Flood Barrier System, should be implemented on-site to increase the Project's resiliency. Similarly, the sanitary sewer system is expected to experience greater capacity issues from I/I with changes in precipitation patterns. To mitigate risk from sanitary sewer surcharge, backflow preventers will be installed on building sewer laterals, internal gravity piping will be watertight to the second floor, offline sanitary holding tanks will hold building wastewater during surcharge conditions, and the Project will address I/I as outlined in Section 6.2.2.

FIGURE 6.4 FLOODING FROM 100-YEAR STORM SURGE EVENT PROPAGATION THROUGH DRAINAGE SYSTEM

100-Year/1% Annual Return Flooding Event

2030 Area of Potential Flooding

2070 Area of Potential Flooding

N

0 50 100 150 ft

7. ENVIRONMENTAL IMPACTS

7. INTRODUCTION

This section presents information on the existing environmental conditions in the vicinity of the Project site and the potential changes that may occur as a result of the Project. The goal of the Project is to better utilize the Project site and complement adjacent uses while minimizing potential adverse environmental impacts to the greatest extent feasible.

As discussed in more detail below, the Project-related impacts, which are to be expected in urban development of this scale, are counterbalanced by the significant public benefits for the adjacent neighborhoods and the City. The following sections identify Project impacts and discuss steps that have been or will be taken through design and management to avoid, minimize and/or mitigate adverse effects.

Where the current state of the design allows, this Concept Plan provides an assessment of the following Project impacts:

- Pedestrian Wind
- Shadow
- Noise

7.1 WIND

7.1.1 INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was retained by the Applicant to complete a pedestrian level wind assessment for the proposed Project. The objective of this assessment is to provide a qualitative evaluation of the potential wind conditions on the Project and the impact of the Project on the surrounding public outdoor areas in terms of pedestrian wind comfort and safety. This qualitative assessment is based on the following:

- A review of the regional long-term meteorological data from Boston Logan International Airport;
- 3D e-model received by RWDI on July 15, 2016;
- Wind-tunnel studies undertaken by RWDI for similar projects in Cambridge and the surrounding cities;
- Our engineering judgment, experience and expert knowledge of wind flows around buildings[1] [2] [3]; and,
- Use of software developed by RWDI (Windestimator[2]) for estimating the potential wind conditions around generalized building forms.

If necessary, conceptual measures to improve wind conditions will also be provided. This qualitative approach provides a screening-level estimation of potential wind conditions. In order to quantify the wind conditions and to refine wind control solutions, physical scale model tests would be required. Note that other wind issues, such as those related to thermal comfort, door operability, wind loading, etc., are not considered in the scope of the assessment.

RWDI #1603158
August 4, 2016

[1] C.J. Williams, H. Wu, W.F. Waechter and H.A. Baker (1999), "Experience with Remedial Solutions to Control Pedestrian Wind Problems", 10th International Conference on Wind Engineering, Copenhagen, Denmark.

[2] H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", ASCE Structure Congress 2004, Nashville, Tennessee.

[3] H. Wu and F. Kriksic (2012). "Designing for Pedestrian Comfort in Response to Local Climate", Journal of Wind Engineering and Industrial Aerodynamics, vol.104-106, pp.397.407.

7.1.2 SITE AND BUILDING INFORMATION

The Project site is located in Cambridge, MA in the block bound by Broadway to the south, Galileo Galilei Way to the west, Binney Street to the north and the 6th Street Connector to the east. The Project consists of four buildings ranging from 177 ft to 393 ft in height as measured to the top of their mechanical penthouses (Figure 7.2). Phase 1 encompasses Commercial Building A and Phase 2 include both Commercial Building B and Residential Building South. This latter is connected by a large garage podium to Residential Building North, which comprises Phase 3. The existing lots for each phase are occupied by low-rise buildings as shown in Figure 7.1. Publically accessible areas on and around the site include main building entrances, sidewalks and walkways between buildings.

Most public areas at grade level in the vicinity are densely landscaped with large canopy-type trees, which is positive for wind control. The site is located in a densely built up area comprised of several mid-rise buildings (similar in height to the proposed Project) in all directions and low-rise residential development in the distance to the west, north and northwest. Downtown Boston is about 1.5 miles to the southeast.

FIGURE 7.1 PROJECT SITE AND EXISTING SURROUNDINGS

7.1.3 METEOROLOGICAL DATA

The analysis was completed for two main periods of the year, namely the summer months (May to October) and winter months (November to April). Meteorological data from Boston Logan International Airport for the period from 1990 to 2015 were used as reference for wind conditions in the region.

The distributions of wind frequency and directionality for summer and winter seasons are shown in the wind roses in Figure 7.3. Winds from the southwest and west-northwest directions are predominant in the summer. In the winter, the predominant of winds are from the west through the northwest.

Strong winds of a mean speed greater than 20 mph measured at the airport (red bands) occur more often in the winter than the summer and are predominantly from the southwest, northwest and northeast quadrants. These strong winds could potentially be the source of uncomfortable or even severe wind conditions, depending upon the site exposure or development design.

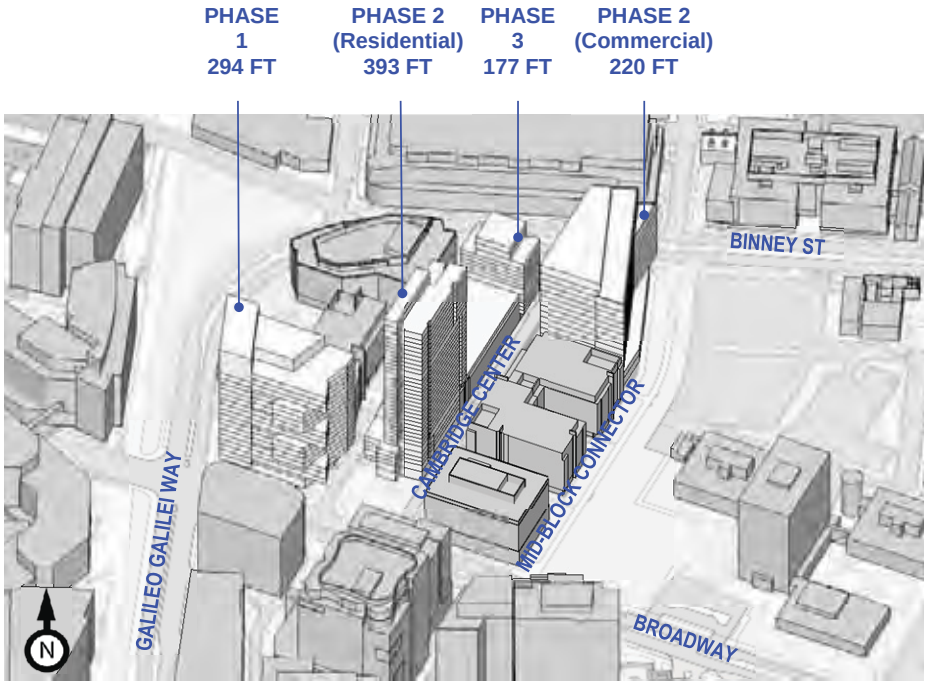
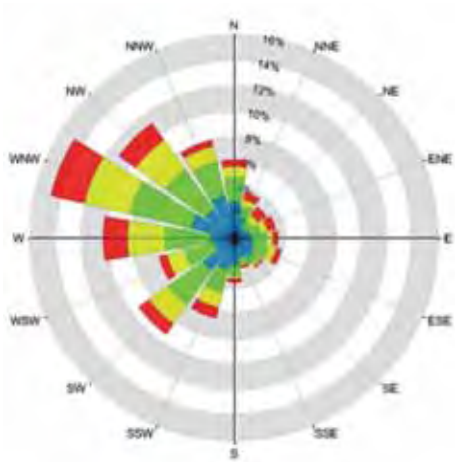


FIGURE 7.2 PROPOSED DEVELOPMENT CONTEXT AND BUILDING HEIGHTS

Summer (May to October)



Winter (November to April)

FIGURE 7.3 DIRECTIONAL DISTRIBUTION (%) OF WINDS (BLOWING FROM) BOSTON LOGAN INTERNATIONAL AIRPORT (1990 TO 2015)

7.1.4 PEDESTRIAN WIND CRITERIA

The RWDI wind comfort criteria deal with both pedestrian safety and comfort, as they relate to the force of the wind. These criteria have been developed by RWDI through research and consulting practice since 1974. They have also been widely accepted by municipal authorities as well as by the building design and city planning community.

Safety: Pedestrian safety is linked to excessive gust wind speeds that can adversely affect a pedestrian's balance and footing. If strong winds that can affect a person's balance occur more than 0.1% of the time or 9 hours per year, the wind conditions are considered severe.

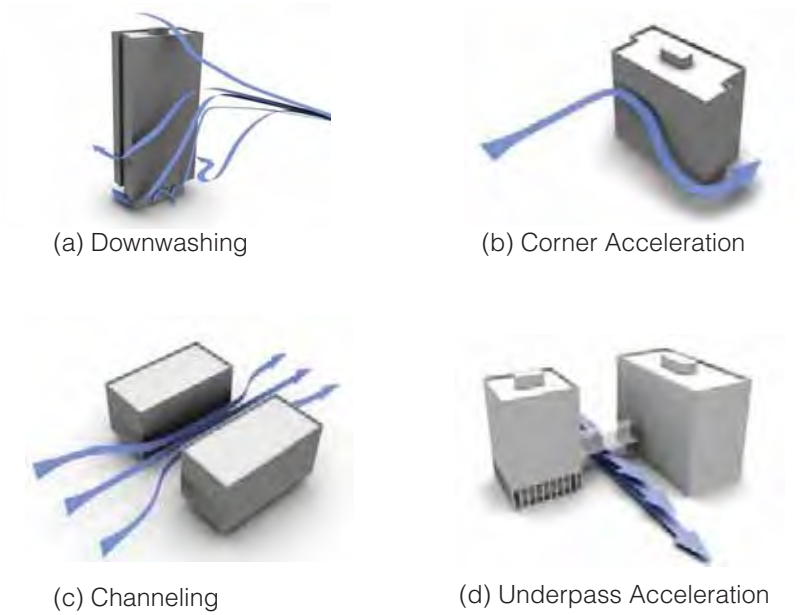
Comfort: Wind conditions are considered suitable for sitting, standing, strolling or walking if the wind speeds corresponding to the respective categories are expected for at least four out of five days (80% of the time).

- Sitting: Calm or light breezes desired for outdoor seating areas where one can read a paper without having it blown away.
- Standing: Gentle breezes suitable for main building entrances and bus stops.
- Strolling: Moderate winds that would be appropriate for window shopping and strolling along a downtown street, plaza or park.
- Walking: Relatively high speeds that can be tolerated if one's objective is to walk, run or cycle without lingering.
- Uncomfortable: None of the above comfort categories are satisfied.

Wind control measures are typically required at locations where winds are either rated as uncomfortable or exceed the wind safety criterion.

These criteria for wind forces represent average wind tolerance. They are sometimes subjective and regional differences in wind climate and thermal conditions as well as variations in age, health, clothing, etc. can also affect people's perception of the wind climate.

Pedestrians on walkways and parking lots will be active and wind speeds comfortable for walking or strolling are appropriate during the summer and winter. Lower wind speeds comfortable for standing are desired at building entrances where people are apt to linger. On playgrounds, sitting areas and other amenity spaces, low wind speeds comfortable for sitting or standing are desired during the summer. In the winter, wind conditions in these areas may not be of a serious concern due to limited usage and therefore higher wind activity may be acceptable



(a) Downwashing

(b) Corner Acceleration

(c) Channeling

(d) Underpass Acceleration

FIGURE 7.4 - GENERIC WIND FLOW PATTERNS

7.1.5 PEDESTRIAN WIND CONDITIONS

Predicting wind speeds and occurrence frequencies involves the assessment of building geometry, orientation, position and height of surrounding buildings, upstream terrain and the local wind climate. Over the years, RWDI has conducted thousands of wind-tunnel model studies on pedestrian wind conditions around buildings, yielding a broad knowledge base. This knowledge has been incorporated into RWDI's proprietary software that allows, in many situations, for a qualitative, screening-level numerical estimation of pedestrian wind conditions without wind tunnel testing. The following sections discuss the predicted impact of the proposed development on wind conditions on and around the development site.

GENERIC WIND FLOW PATTERNS

The following discussion describes the impacts of the proposed Project on wind conditions. In this discussion, references will be made to a few generic wind flow phenomena as shown in Figure 7.4. Tall buildings tend to intercept winds at high elevations and direct them down towards the street in a phenomenon called downwashing (Figure 7.4a). The downwashed winds could subsequently accelerate around building corners (Figure 7.4b), channel along street canyons (Figure 7.4c) and/or accelerate under any bridge connections (Figure 7.4d). If one or more of these wind flow phenomena occurs for the prevailing wind directions, there is the potential for higher than desired or severe wind activity at the ground level.

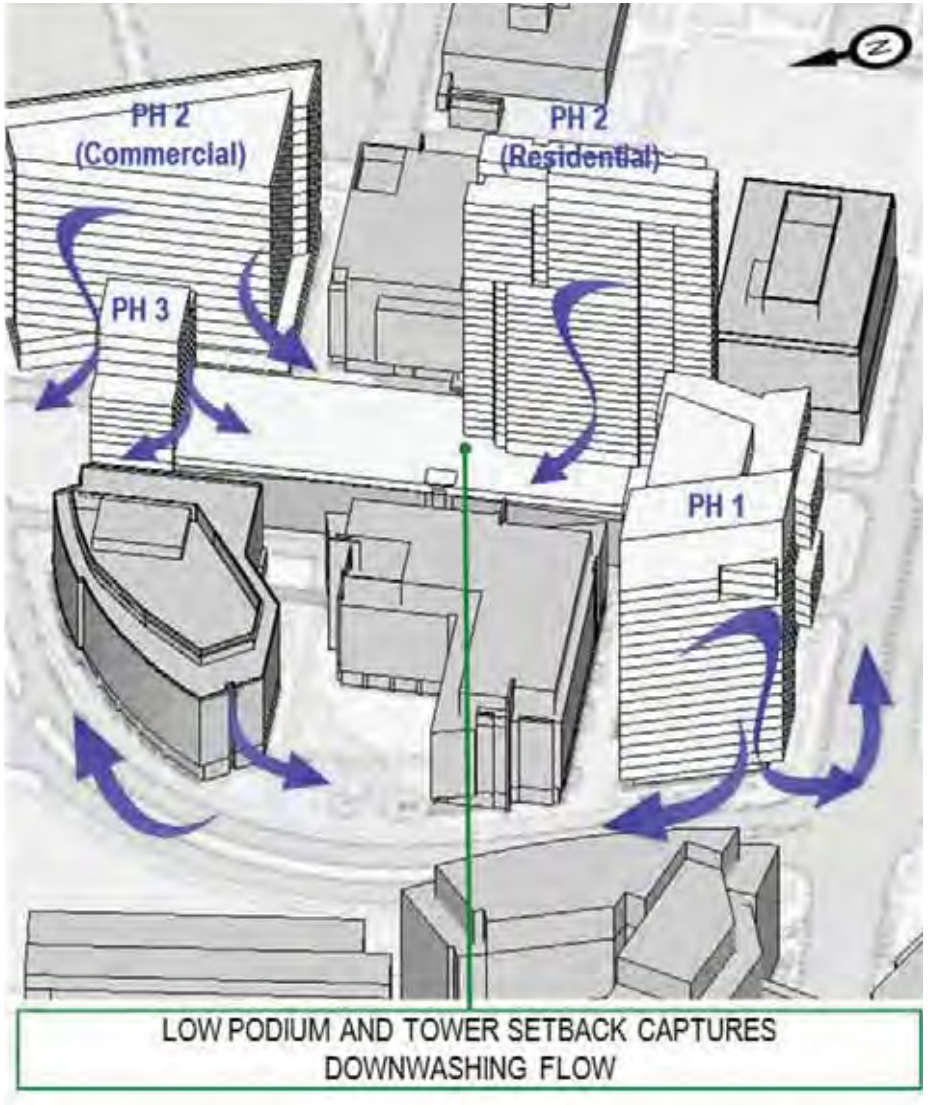
IMPACT OF THE PROPOSED DEVELOPMENT

The proposed Phase 1, 2 (Commercial Building B) and 3 buildings are fairly similar in height to several of the taller buildings in the neighborhood to the south and west. However, they are taller than existing buildings in the immediate vicinity and the surroundings to the west, northwest, north and northeast, which leaves them exposed to prevailing winds from those directions. Therefore, expected results would include downwashing and acceleration of winds on the streets surrounding the Project, as well as the walkways between them. However, the Project Component designs include mitigating measures such as deep setbacks, low podiums and closely spaced buildings which would protect the streets from high wind activity to a large extent (Figure 7.5).

The sidewalks around the Project are currently lined with canopy-type trees which serve to shelter the sidewalks from adverse wind effects in the summer and parts of spring and fall when the trees retain their foliage. During the rest of the year when the trees are bare, they are ineffective against strong winds. The predicted wind flow pattern around the proposed development is illustrated in Figure 7.5.

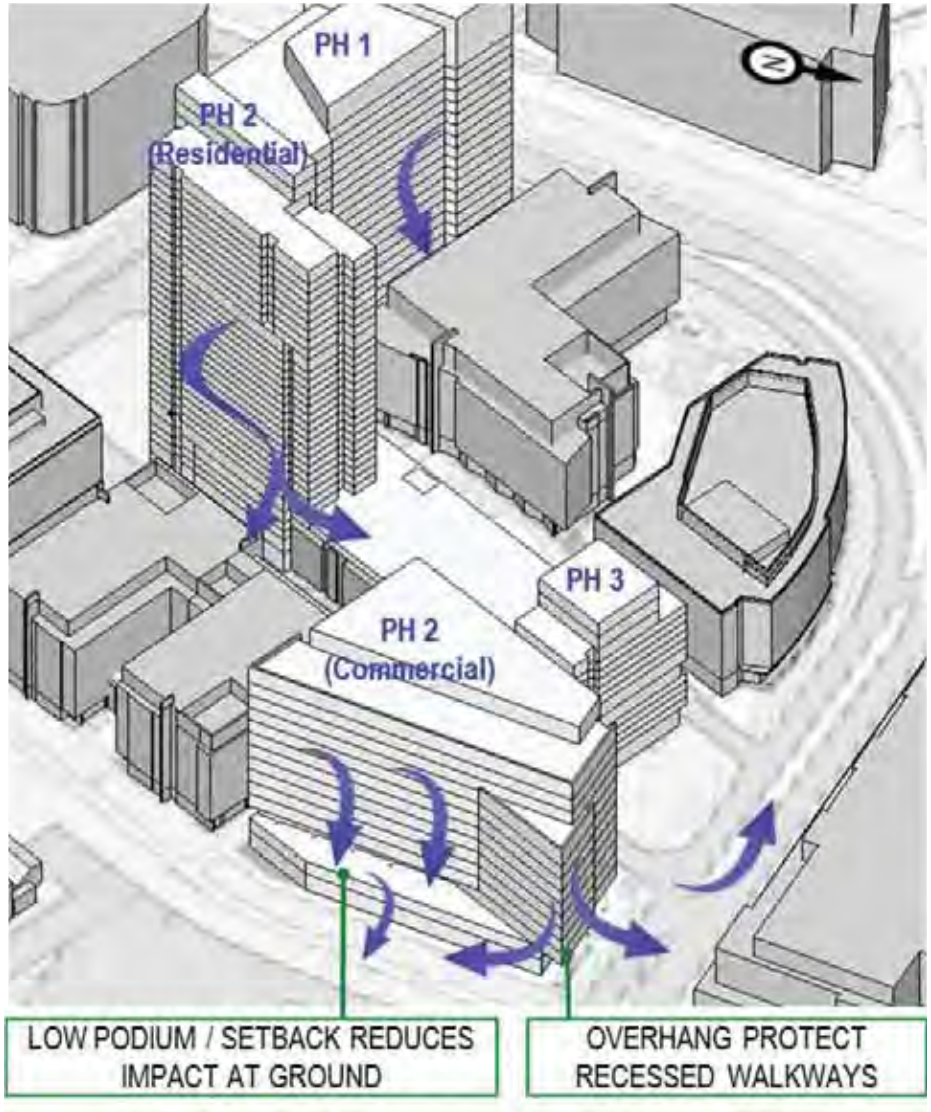
SAFETY

As is expected with any new development of this scale, the proposed buildings would increase wind activity around the Project site. However, as discussed, the densely built up surroundings protect the streets from adverse wind activity. It is expected that wind speeds at ground level on and around the Project site would meet the pedestrian wind safety criterion.



(a)

FIGURE 7.5 - PREDICTED WIND FLOW PATTERNS AROUND THE DEVELOPMENT



(b)

FIGURE 7.5 - PREDICTED WIND FLOW PATTERNS AROUND THE DEVELOPMENT

COMFORT

For the same reasons discussed under the Safety section, wind conditions around the Project are predicted to be appropriate for pedestrian activities. Overall, wind speeds at most areas are anticipated to be comfortable for standing or strolling in the summer (Figure 7.6a). Areas covered by dense street trees would be protected further and wind conditions in those areas would likely be calm and comfortable for sitting.

During the winter, deciduous trees do not retain their foliage and therefore would not be effective for wind control. Additionally, winds are seasonally stronger in the winter. Wind conditions at most areas on and around the development are predicted to be comfortable for strolling or walking (Figure 7.6b).

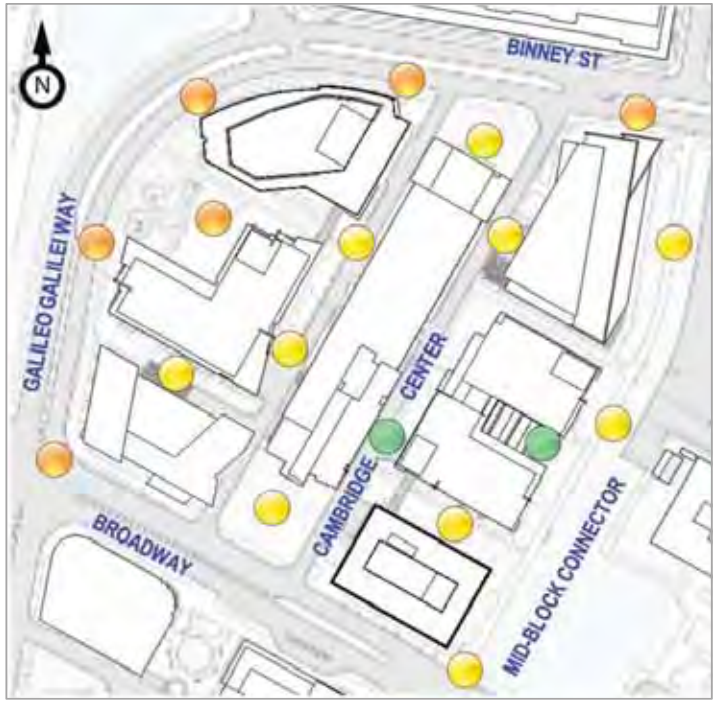
Overall future wind conditions would be fairly similar to that experienced around the existing site. Increased wind activity would be localized around the taller buildings. Although there would be an increase in wind activity at ground level, the conditions would be appropriate for pedestrian use throughout the year. During the winter, the higher wind speeds predicted would not be a concern due to limited outdoor pedestrian activity. If lower wind speeds are desired in areas rated “strolling” or “walking” in Figure 7.6 (to locate an entrance or seating benches for example), dense plants, trees or other landscaping features, or wind screens may be used for wind control. Such features would be approximately 20%-30% porous and 6-8 ft tall to be effective (See examples in Figure 7.7). It would be beneficial for main entrances to be designed with closed vestibules or large lobbies so as to provide occupants with a protected waiting area on windy days and in the winter.

Wind tunnel studies could be performed to quantify conditions and subsequently develop specific wind control measures for each area.

Fig R7.1.1 R7.1.2 represent the existing summer and winter conditions of the wind tunnel analysis as a baseline for subsequent wind tunnel studies for each project site.

Description of Wind Conditions:
Low wind speeds comfortable for passive activities — sitting or standing
Moderate wind speeds comfortable for active pedestrians — strolling or walking

(A) SUMMER
ASSUMING DENSE STREET LANDSCAPING



(B) WINTER
ASSUMING NO STREET LANDSCAPING

FIGURE 7.6 - PREDICTED WIND CONDITIONS AROUND THE DEVELOPMENT

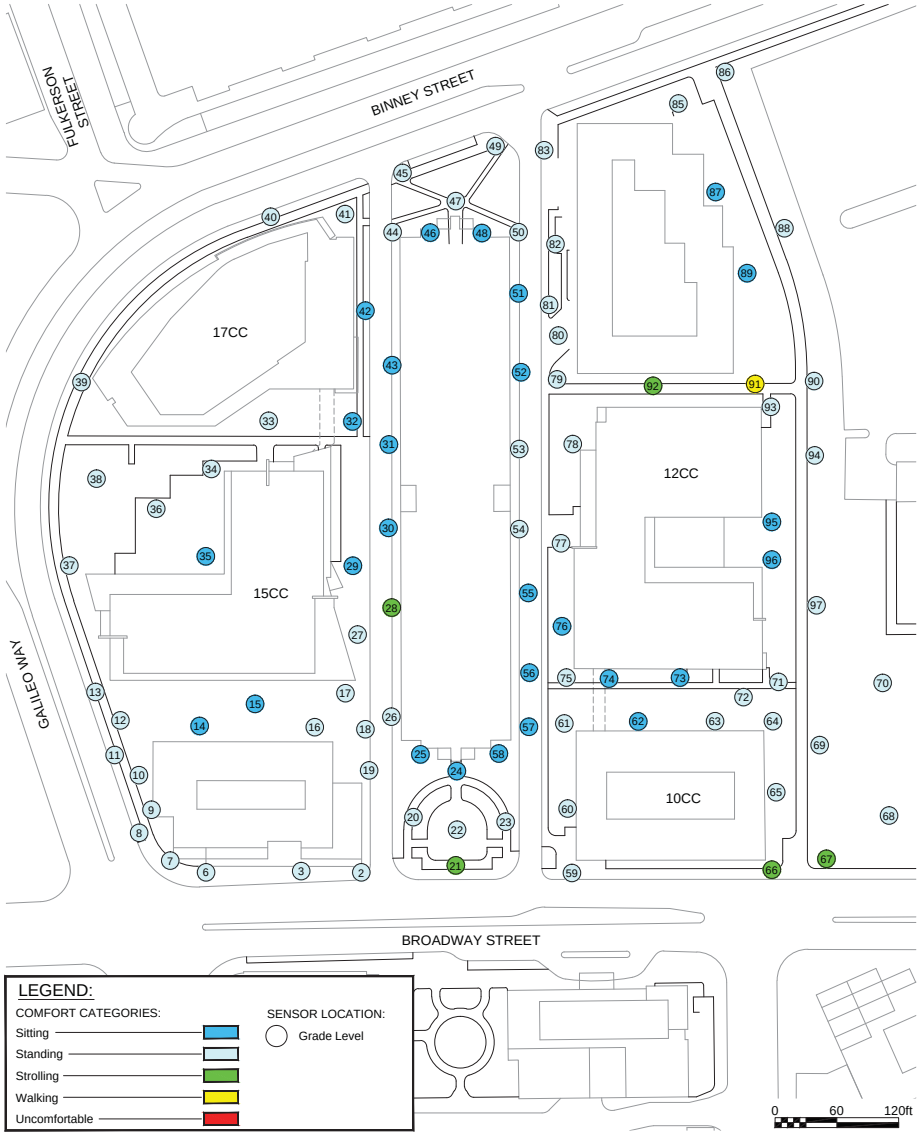
FIGURE 7.7 - EXAMPLES OF WIND CONTROL MEASURES

(a) Canopies Above Entrance

(b) Wind Screens

Wind Tunnel Study Model **Existing**	Figure No. 1a	RWDI
Kendall Square Masterplan – Cambridge, MA Project #1603158	Date: October 25, 2016	

PEDESTRIAN WIND CONDITIONS: EXISTING SUMMER



Pedestrian Wind Comfort Conditions - Existing
Summer (May to October, 6:00 to 23:00)

True North

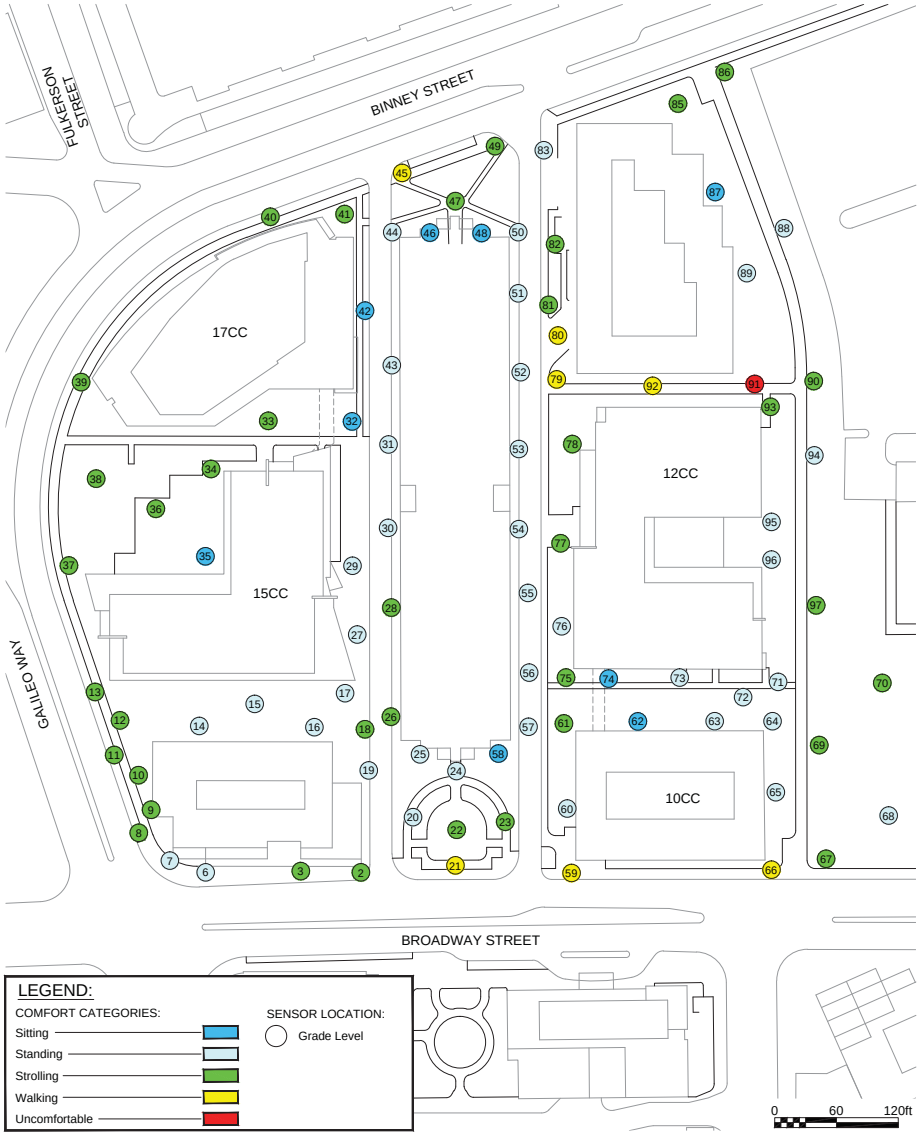
Drawn by:	ck	Figure:	3a
Approx. Scale:		1"=120'	
Date Revised:		Oct. 25, 2016	

Kendall Square Masterplan - Cambridge, MA

Project #1603158

PEDESTRIAN WIND CONDITIONS: EXISTING WINTER

FIGURE R7.1.2



Pedestrian Wind Comfort Conditions - Existing
Winter (November to April, 6:00 to 23:00)

True North

Drawn by:	ck	Figure:	4a
Approx. Scale:		1"=120'	
Date Revised:		Oct. 25, 2016	

Kendall Square Masterplan - Cambridge, MA

Project #1603158

7.2 SHADOW STUDIES

The illustrations in the following section present the estimated net new shadow as a result of the Project (shown in blue) for the times of 9:00AM, 12:00PM, and 3:00PM during the Summer and Winter Solstices, and Spring/Fall Equinox. The net new shadow depicted falls both on the ground plane and on rooftops. Based on the shadow studies, the Project creates a modest amount of new shadow commensurate with urban development of this scale and is not expected to result in significant new shadow on surrounding public open space.

EQUINOX (MARCH 21 & SEPTEMBER 21)

March 21 and September 21 are the Spring and Fall Equinoxes, respectively, on which Cambridge experiences roughly equal length of day and night. The net new shadow for these conditions are depicted at the right. At 9:00AM, some net new shadow will fall along the southern portion of Binney Street Park and across Binney Street. At 12:00 PM, the majority of Project shadow falls within the Project site, with some new shadow cast across Binney Street. At 3:00 PM, the Project is expected to cast some net new shadow across Binney Street, along the northern end of the 6th Street Connector, and onto the adjacent Volpe parcel.

New Shadow
Existing Shadow
Proposed New Building

MARCH 21, 9:00 AM

MARCH 21, 12:00 PM

MARCH 21, 3:00 PM

7.2 SHADOW STUDIES

SUMMER SOLSTICE (JUNE 21)

June 21 is the summer solstice and the longest day of the year where the sun is highest in the sky. On this day, the Project casts the least amount of net new shadow, the majority of which is cast within the Project site. At 9:00AM, some net new shadow is cast on the southernmost tip of Binney Street Park and along the southern sidewalk of Binney Street. At 12:00 PM, the majority of Project shadow falls within the Project site, with some new shadow cast across Binney Street. At 3:00 PM, the Project is expected to cast net new shadow onto Binney Street and over the northern end of the 6th Street Connector, similar to the shadow cast by existing buildings located immediately to the south.

New Shadow
Existing Shadow
Proposed New Building

JUNE 21, 9:00 AM

JUNE 21, 12:00 PM

JUNE 21, 3:00 PM

7.2 SHADOW STUDIES

WINTER SOLSTICE (DECEMBER 21)

December 21 is the winter solstice and the shortest day of the year, where the sun is low in the sky. Therefore, Cambridge experiences the longest shadows of the year on this day and many of the adjacent sidewalks and public spaces are already subsumed in shadow. At 9:00 AM, the sun is low in the southeast sky resulting in long shadows to the northwest. Net new shadows cast by the Project fall primarily over surrounding building rooftops. At 12:00 PM, the Project will create new shadow primarily over building rooftops and does cast some net new shadow onto the northern side of Binney Street Park. At 3:00 PM, the sun is low in the southwest sky and shadows are cast toward the northeast. The Project casts net new shadow within the Project site and across building rooftops to the northeast.

New Shadow
Existing Shadow
Proposed New Building

DECEMBER 21, 9:00 AM

DECEMBER 21, 12:00 PM

DECEMBER 21, 3:00 PM

7.3 NOISE

The noise impact assessment evaluated the potential noise impacts associated with the Project's activities, including mechanical equipment and loading activities. This section discusses the fundamentals of noise, noise impact criteria, noise analysis methodology, and potential noise impacts. Noise monitoring was conducted to determine existing ambient sound levels. The analysis demonstrates that the Project will comply with City of Cambridge's noise control ordinance (Municipal Code, Chapter 8.16).

7.3.1 FUNDAMENTALS OF NOISE

Noise is defined as unwanted or excessive sound. Sound becomes unwanted when it interferes with normal activities such as sleep, communication, work, or recreation. How people perceive sound depends on several measurable physical characteristics, which include the following:

- Intensity - Sound intensity is often equated to loudness.
- Frequency - Sounds are comprised of acoustic energy distributed over a variety of frequencies. Acoustic frequencies, commonly referred to as tone or pitch, are typically measured in Hertz. Pure tones have all their energy concentrated in a narrow frequency range.

Sound levels are most often measured on a logarithmic scale of decibels (dB). The decibel scale compresses the audible acoustic pressure levels which can vary from the threshold of hearing (zero dB) to the threshold of pain (120 dB). Because sound levels are measured in dB, the addition of two sound levels is not linear. Adding two equal sound levels creates a 3 dB increase in the overall level. Research indicates the following general relationships between sound level and human perception:

- A 3 dB increase is a doubling of acoustic energy and is the threshold of perceptibility to the average person.
- A 10 dB increase is a tenfold increase in acoustic energy but is perceived as a doubling in loudness to the average person.

The human ear does not perceive sound levels from each frequency as equally loud. To compensate for this phenomenon in perception, a frequency filter known as A weighted [dB(A)] is used to evaluate environmental noise levels. Table 7-1 presents a list of common outdoor and indoor sound levels.

A variety of sound level indicators can be used for environmental noise analysis. These indicators describe the variations in intensity and temporal pattern of the sound levels. The following is a list of common sound level descriptors used for environmental noise analyses:

- L90 is the sound level which is exceeded for 90 percent of the time during the time period. The L90 is generally considered to be the ambient or background sound level.
- Leq is the A-weighted sound level, which averages the background sound levels with short-term transient sound levels and provides a uniform method for comparing sound levels that vary over time.

TABLE 7-1 COMMON OUTDOOR AND INDOOR SOUND LEVELS

Outdoor Sound Levels	Sound Pressure (µPa)*		Sound Level dB(A)**	Indoor Sound Levels
	6,324,555	-	110	Rock Band at 5 m
Jet Over Flight at 300 m		-	105	
	2,000,000	-	100	Inside New York Subway Train
Gas Lawn Mower at 1 m		-	95	
	632,456	-	90	Food Blender at 1 m
Diesel Truck at 15 m		-	85	
Noisy Urban Area—Daytime	200,000	-	80	Garbage Disposal at 1 m
		-	75	Shouting at 1 m
Gas Lawn Mower at 30 m	63,246	-	70	Vacuum Cleaner at 3 m
Suburban Commercial Area		-	65	Normal Speech at 1 m
	20,000	-	60	
Quiet Urban Area—Daytime		-	55	Quiet Conversation at 1 m
	6,325	-	50	Dishwasher Next Room
Quiet Urban Area—Nighttime		-	45	
	2,000	-	40	Empty Theater or Library
Quiet Suburb—Nighttime		-	35	
	632	-	30	Quiet Bedroom at Night
Quiet Rural Area—Nighttime		-	25	Empty Concert Hall
Rustling Leaves	200	-	20	
		-	15	Broadcast and Recording Studios
	63	-	10	
		-	5	
Reference Pressure Level	20	-	0	Threshold of Hearing

7.3.2 METHODOLOGY

The noise analysis evaluated the potential noise impacts associated with the Project's mechanical equipment and loading/service activities. The noise analysis included measurements of existing ambient background sound levels and a qualitative evaluation of potential noise impacts associated with the proposed mechanical equipment (e.g., energy recovery units, cooling towers, etc.) and loading activities. The study area was evaluated and sensitive receptor locations in the vicinity of the Project were identified and examined. The site layout and building design, as it relates to the loading area and management of deliveries at the Project site were also considered. The analysis considered sound level reductions due to distance, proposed building design, and obstructions from surrounding structures.

RECEPTOR LOCATIONS

The noise analysis included an evaluation of the study area to identify nearby sensitive receptor locations, which typically include areas of sleep and areas of outdoor activities that may be sensitive to noise. The noise analysis identified six nearby sensitive receptor locations in the vicinity of the Project. As shown on Figure 7.8, the receptor locations include the following:

- R1 – Residence Inn Hotel;
- R2 – Marriott Hotel;
- R3 – Eastgate Apartments;
- R4 – Lofts at Kendall Square Apartments;
- R5 – Pedestrian Walkway (connecting Broadway and Binney St); and
- R6 – Public greenspace south of Cambridge Center garage.

These receptor locations, selected based on land use considerations, represent the most sensitive locations in the vicinity of the Project site.

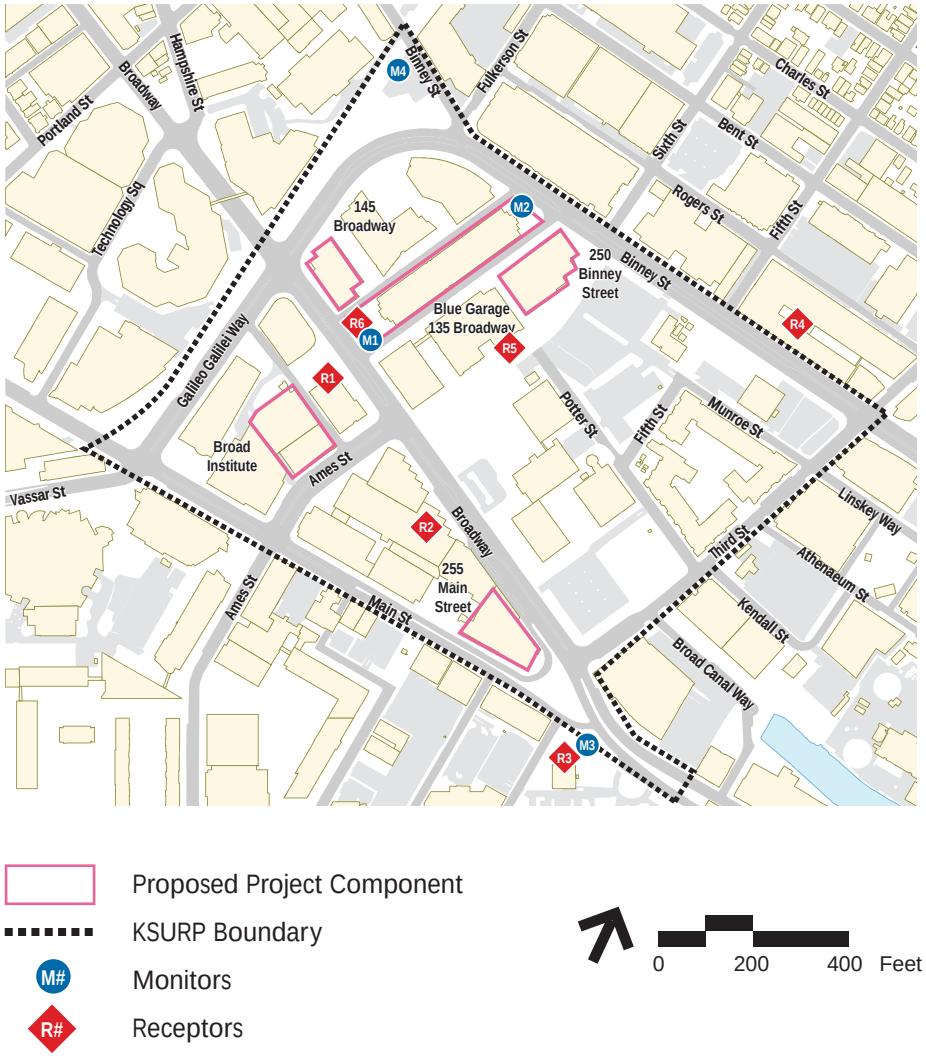


FIGURE 7.8 - RECEPTOR LOCATIONS

7.3.3 CITY OF CAMBRIDGE NOISE IMPACT STANDARDS

The City has developed noise standards that establish noise thresholds deemed to result in adverse impacts. The noise analysis for the Project used these standards to evaluate whether the proposed development will generate sound levels that result in potential adverse impacts.

The noise standards are provided under Chapter 8.16 of the City of Cambridge Municipal Code (Noise Ordinance). These standards establish maximum allowable sound levels based upon the land use affected by the proposed development. Table 7.2 summarizes the maximum allowable sound levels that should not be exceeded.

For a residential zoning district, the maximum noise level affecting residential uses shall not exceed the Residential Noise Standard. The single number equivalent noise standard for a residential use is 60 dB(A) for daytime periods (7:00 AM to 6:00 PM) and 50 dB(A) during other times of the day.

The City of Cambridge noise control regulation considers construction sound levels to be an impact to residential land uses if the L10 sound level is in excess of 75 dB(A) or the Lmax sound level is in excess of 86 dB(A) measured at the lot of the affected property.

TABLE 7.2 CITY OF CAMBRIDGE NOISE STANDARDS BY ZONING DISTRICT

	Residential Area		Residential in Industrial		Commercial Area	Industry Area
Octave Band Center Frequency (Hz)	**Daytime**	**Other Times**	**Daytime**	**Other Times**	**Anytime**	**Anytime**
31.5	76	68	79	72	79	83
63	75	67	78	71	78	82
125	69	69	69	69	69	69
250	62	52	68	57	68	73
500	56	46	62	51	62	67
1,000	50	40	56	45	56	61
2,000	45	33	51	39	51	57
4,000	40	28	47	34	47	53
8,000	38	26	44	32	44	50
Single Number Equivalent, dB(A)	60	50	65	55	65	70

Source: City of Cambridge Municipal Code, Chapter 8.16, Table 8.16.060E.

7.3.4 EXISTING NOISE CONDITIONS

A noise monitoring program was developed to establish existing ambient sound levels. The existing sound levels were measured using Type 1 sound analyzers (Larson Davis 831 and SoundExpert LxT). Measurements were conducted during the weekday daytime period (approximately 9:00 AM to 11:00 AM) and late night period (1:00 AM to 3:00 AM) in the vicinity of the Project Site on July 21, 2016. The monitoring program consists of three short-term monitoring locations, as shown in Figure 7.3. In addition, a 24-hr measurement was conducted in an open lot located at the corner of Binney Street and Fulkerson Street. During the daytime period, the measured sound levels data under existing conditions were composed of noise from construction activities and vehicles on local roadways, such as Binney Street and Broadway. The nighttime period sound levels were generally associated with mechanical equipment from nearby buildings. The existing measured sound level data are presented in Table 7.3.

The measured L90 sound levels range from approximately 58 dB(A) to 62 dB(A) during the daytime period and from 55 dB(A) to 59 dB(A) during the nighttime period. The result of the noise monitoring program indicates that the daytime sound levels within the study area are currently exceeding the City of Cambridge's daytime standard of 60 dB(A) along Broadway. The existing sound levels during the nighttime period exceed the City's nighttime standard of 50 dB(A) for residential use at all evaluated locations.

TABLE 7.3 EXISTING AMBIENT SOUND LEVELS, DB(A)

	City of Cambridge Residential District Noise Standard*		**Measured L_{90} Sound Levels**	
Monitoring Location	**Daytime**	**Nighttime**	**Daytime**	**Nighttime**
M1 –Broadway	60	50	**62**	**59**
M2 – Binney Street	60	50	60	**59**
M3 – Main Street	60	50	58	**55**
M4 – Lot at Binney St/Fulkerson St	60	50	60	**58**

7.3.5 FUTURE NOISE CONDITIONS

The noise analysis evaluated the potential noise impacts associated with the Project's proposed mechanical equipment and loading activities. The analysis determined the potential sound level impacts at the nearby sensitive receptor locations.

MECHANICAL EQUIPMENT

Since the Project is in the early stages of the design process, the specific details related to the final selection of mechanical equipment are unknown at the time of this noise assessment. Based on preliminary design plans, the anticipated mechanical equipment associated with the Project are expected to include the following:

- Energy recovery units
- Cooling towers
- Emergency generators
- Co-generation units

The mechanical equipment will be located within screening walls on the rooftop or in mechanical rooms of the proposed buildings. During the design and selection process, the appropriate low-noise mechanical equipment will be selected, including potential noise mitigation measures, such as acoustical enclosures and/or acoustical silencers. The Project will incorporate noise attenuation measures necessary to comply with City of Cambridge's noise criteria at the sensitive receptor locations.

In addition to being located within acoustical screening walls, the mechanical systems would be strategically located on the rooftop, utilizing the height of the buildings in providing noise attenuation. Noise attenuation could be achieved by the Project's building design as the heights of the Project's buildings are similar or greater than the height of nearby sensitive receptors. The rooftops of the Project's buildings will serve as a barrier and break the direct line of exposure between the noise sources and receptors. As such, the sound levels associated with the Project's mechanical equipment are expected to be negligible at the surrounding sensitive receptor locations. With greater distances and impeding building structures, receptors located further away from the Project are expected to experience lower sound levels associated with the Project's noise sources.

The Project may require an emergency generator for life safety purposes, such as emergency exit lighting. The determination of specific generator parameters, such as the sizes and locations will be made during the building design process. The Project will be required to adhere to Massachusetts Department of Environmental Protection's (MassDEP's) regulations that require such equipment to be certified and registered. As part of the air permitting process, the Project will be required to meet additional noise requirements described in MassDEP regulations under the Codes of Massachusetts Regulations (310 CMR 7.00). When the details of the emergency generator are developed, the Applicant will submit the appropriate permit application to MassDEP, which would include noise mitigation measures (such as acoustic enclosures and exhaust silencers) that are necessary to meet MassDEP's noise criteria.

SERVICE AND LOADING ACTIVITIES

Off-street designated loading area will be provided for loading and service activities associated with the Project. The loading areas will be located within the ground level of the proposed buildings. The loading dock activities will be managed so that service and loading operations do not impact traffic circulation on the adjacent local roadways. Since loading and service activities will be enclosed within the proposed buildings and operations will be managed, noise impacts to nearby sensitive receptor locations are expected to be negligible.

IMPACT ON PROPOSED RESIDENTIAL USE

The results of the noise monitoring program indicate existing exterior sound levels exceed the City's noise standards. Noise attenuation measures are limited since the Project consists of multi-level residential buildings and noise walls are not a feasible measure for receptors at high heights. The Project will consider measures to minimize the impacts to interior sound levels even though the City's noise ordinance does not provide interior noise standards.

The proposed buildings will be designed to incorporate building materials with the appropriate sound transmission class to minimize the impacts to the interior sound levels of the proposed residential units. Substantial sound level reductions are considered achievable since general construction material typically provides 20 decibels of attenuation. The building design would

consider restricting exposure to exterior noise environment, such as limiting operable windows or balconies and providing central climate control systems.

CONSTRUCTION ACTIVITY

The construction activity associated with the Project may temporarily increase nearby sound levels due to the use of heavy machinery. Heavy machinery is expected to be used intermittently throughout the Project's construction phases, typically during daytime periods. The construction activities that will generate the highest sound levels may include demolition, site excavation and grading, and construction of the foundation for the proposed building. A construction management program will be developed with the City to ensure that the applicable noise regulation is met.

The Project will implement mitigation measures to reduce or minimize noise from construction activities. Construction vehicles and equipment would be required to maintain their original engine noise control equipment. Specific mitigation measures may include the following:

- Construction equipment would be required to have installed and properly operating appropriate noise muffler systems.
- Appropriate traffic management techniques would be implemented during the construction period would mitigate roadway traffic noise impact.
- Proper operation and maintenance, and prohibition of excessive idling of construction equipment engines, would be required.

Therefore, construction noise levels are proposed to be mitigated to the greatest extent possible.

CONCLUSION OF NOISE IMPACT ASSESSMENT

The noise analysis evaluated the sound levels associated with the Project. This analysis determined that the sensitive receptor locations in the vicinity of the Project site currently experience sound levels exceeding the City's daytime and nighttime noise standards. Due to the anticipated location of the proposed equipment within screening walls on the rooftop, the sound levels associated with the Project's mechanical equipment are expected to have no adverse noise impacts at nearby sensitive receptor locations. While impacts of the emergency generator are also expected to be negligible, a separate MassDEP permitting process will allow for further review of this equipment at a later date. The Project is designed such that the loading areas will be enclosed, which will attenuate sound levels associated with the loading activities. As a result of the preliminary design, the Project's operations will have no adverse noise impacts at nearby sensitive receptor locations.

The noise evaluation demonstrates that the existing ambient sound levels exceed the City's noise standards. As a result, the design of the residential buildings will incorporate sufficient acoustical material with the appropriate sound transmission class rating to minimize impacts to interior sound levels.

7.4 EXHAUST RE-ENTRAINTMENT REVIEW

Because the proposed buildings are adjacent to several existing laboratory buildings with exhaust stacks, the Applicant engaged RWDI to evaluate the potential air quality impacts that these neighboring buildings might have on the Project (refer to Figure 1 of Appendix C).

The results of the modeling, presented more fully in Appendix C, predict minimum dilution levels, or unacceptable impact at all buildings facing the exhaust stacks. Boiler stacks on any of the new roofs are not expected to be a significant concern. To mitigate predicted air impacts on the proposed buildings from existing exhaust stacks, air intakes will be limited to the locations shown in Figure 4 of Appendix C. These areas are protected from the surrounding sources by the building forms.

A representative kitchen exhaust was modeled on the roof of Commercial Building A (referred to as 11CC in the report) to determine its impact on Residential Building South. The results found predicted emissions to be well below the dilution required to eliminate odor impacts. Therefore, kitchen exhausts of Commercial Building A will be equipped with odor reduction equipment.

8. SUSTAINABILITY PLAN

8. INTRODUCTION

This section presents the Project's overall approach to sustainability and addresses the specific areas of the topic, per Article 14.74. Additionally, in accordance with Article 22.20 of the Ordinance, this section demonstrates how the Project Components of the Concept Plan are being designed to achieve a Leadership in Energy and Environmental Design (LEED®) Gold level or better.

8.1 APPROACH TO SUSTAINABILITY

Sustainable principles are integral to the Project's design. Viewed through a land use planning lens, the sustainability approach includes repurposing previously developed land rather than building on untouched land, as well as locating new development within a high density urban area with excellent access to public transportation, pedestrian circulation systems and a robust bicycle network. New commercial and residential space will be located on previously developed sites, a portion of which will be constructed above an existing garage. By reusing existing sites, the Project will achieve energy savings associated with lower embodied energy and reduced Greenhouse Gas (GHG) emissions through the construction process.

As a Transit Oriented Development (TOD), the Project will integrate into the existing public transportation and mode share infrastructure to further reduce traffic and indirect air emissions, including mobile source GHG emissions. TOD is environmentally, economically, and socially sustainable; it promotes greater mobility, walking and biking, healthy lifestyles; value for property owners, businesses, local governments, transit authorities and residents. A recent study by the Center for Transit-Oriented Development shows that TOD produces approximately 43 percent less emissions than conventional suburban development.

The Project will promote the design and construction of high-performance, green buildings through an integrated design approach where all project disciplines are engaged early and throughout the design process in order to meet sustainability goals. The Project's design will prioritize sustainability as a core strategic imperative and will implement state-of-the-art high performance green building technologies, construction, and operating procedures. Sustainability planning with an integrated design team during conceptual design will establish a pathway to Gold-level certification under the Leadership in Energy and Environmental Design (LEED®) Green Building Rating System. The project design teams will use iterative energy modeling and life cycle analysis to consider the long-term value of sustainable property investment decisions.

The integrated design approach will address best practices in energy and emissions, water management, reduced urban heat island effect (cool roofs), energy use monitoring and rooftop mechanical equipment noise mitigation, as set forth in Article 14.74. The Applicant is looking beyond these zoning requirements by addressing climate change preparedness, implementing sustainable tenant guidelines, and considering the health and wellness of its future occupants and users through the potential use of the WELL Building Standard® (WELL) design and operation principles.

In addition, the Applicant is studying the feasibility of connecting one or more of the Project Components to an existing co-generation facility located within Parcel 2. As the facility is not controlled by the Applicant, any connection to it will require an agreement with a third party. If feasible, incorporating this measure could further contribute to additional energy savings and reduce CO2 emissions.

Furthermore, the Applicant will work with its design teams to evaluate and incorporate, where feasible and reasonable, strategies that support the Cambridge Net Zero Action Plan.

8.2 ENERGY CONSERVATION APPROACH

Buildings are significant consumers of energy, and building mechanical and electrical systems are the chief consumers within any building. The Project Components will be designed to be energy-efficient, green buildings, and renewable energy strategies will continue to be evaluated as the design evolves and will be included in each Project Component's design review submission. As previously referenced, the Applicant proposes that for each square foot of solar-ready rooftop provided, a square foot of occupiable green roof be permitted as exempt GFA (a 1:1 ratio).Renewable energy credits can also be purchased on a building-by-building basis to support off-site renewable energy production and offset non-renewable electricity use on site.

8.2.1 REGULATORY CONTEXT

All Project Components will meet the current Stretch Energy Code requirement to achieve at least a 20 percent overall reduction in annual energy use compared to a baseline. The current Stretch Energy Code requires that the Project show at least 20 percent overall reduction in energy used as compared to the IECC2009/ASHRAE 90.1-2007 code compliant baseline model. Since the IECC 2012 and ASHRAE 90.1-2010 is more stringent than the current Code, the proposed HVAC and lighting systems and the Energy Conservation Measures (ECMs) were selected so that the overall energy savings fall within 25 and 30 percent better than 90.1-2007 and, therefore, also meet the future Stretch Energy Code requirements.

In accordance with Article 22.20, all new project buildings will also meet the LEED minimum building performance requirement of a 10% improvement in energy use by cost when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007.

8.2.2 DESIGN STAGE - REDUCE ENERGY DEMAND

Success in reducing energy demand from these systems follows a four-step approach. This basic approach will be followed for each Project Component.

- Step 1 - Reduce Demand: Challenge assumptions to right size equipment, reduce plug and lighting loads, and improve the building shell.
- Step 2 - Harvest Site Energy: Orient the building to maximize passive solar and daylighting opportunities. Harvest waste energy on site through heat recovery and other means.
- Step 3 - Maximize Efficiency: Beyond simply reducing loads, use efficient equipment to maximize benefit.
- Step 4 - Efficient Operations and Maintenance: Building commissioning, training of staff, and ongoing preventative maintenance, combined with monitoring of on-going performance will be implemented to ensure energy efficiency gains are realized.

8.2.3 DESIGN STAGE – SET ENERGY TARGETS

These energy conservation targets are met by the selection of efficient building systems, equipment, and a lighting power density that is below code. Additionally, an improved building envelope design is required. The design teams will develop whole building energy models to demonstrate the expected energy performance of each designed building.

A variety of ECMs will continue to be evaluated as design progresses. ECM's to be considered include, but are not limited to, the following:

- High-performance mechanical systems, including chilled beams in office and laboratory spaces.
- High-performance building envelope
- Reduced window-to-wall ratio
- Reduced lighting power density
- Building orientation and window locations shall be suited for improved energy efficiency
- Cogeneration
- Rooftop Solar PV
- Energy Star appliances and equipment
- Occupancy and daylight sensors and controls
- Demand Response / Peak Load Reduction / Smart Grid Compatibility

A preliminary energy analysis and GHG study was completed for each Project Component. The summary of findings is represented in the Preliminary Energy Analysis and Greenhouse Gas Study shown on the opposite page.

COMMERCIAL BUILDING A - 145 BROADWAY

Based on preliminary design strategies being considered, the estimated energy use reduction for the building is approximately 28.1 percent, which equates to a 23.4 percent reduction (446.8 tons per year) in stationary source CO2 emissions when compared to the Base Case. Key energy savings features include improved glazing properties, improved roof and wall insulation, improved lighting power densities, variable volume condensing water pump, a high efficiency DW heater, and a high efficiency gas boiler.

RESIDENTIAL BUILDINGS NORTH AND SOUTH (BLUE GARAGE)

Based on preliminary design strategies being considered, the estimated energy use reduction for Residential buildings is 24.1 percent, which equates to a 15.5 percent reduction (319.1 tons per year) in stationary source CO2 emissions when compared to the Base Case. Key energy savings features include improved glazing properties, improved roof and wall insulation, improved lighting power densities, high efficiency heat pumps, high efficiency ventilation systems, and a high efficiency gas boiler.

COMMERCIAL BUILDING B - 250 BINNEY STREET

Based on preliminary design strategies being considered, the estimated energy use reduction for the new commercial building is approximately 27.0 percent, which equates to a 21.0 percent (417.5 tons per year) reduction in stationary source CO2 emissions when compared to the Base Case. Key energy savings features include improved glazing properties, improved roof and wall insulation, improved lighting power densities, variable volume condensing water pump, a high efficiency DW heater, and a high efficiency gas boiler.

Project Component	Energy Consumption (MBtu/yr)			CO_2 Emissions (tons/yr)		
	Base Case	Design Case	Percent Savings	Base Case	Design Case	Percent Reduction
Commercial Building A - 145 Broadway	21,977	15,812	28.1%	1,909.4	1,462.6	23.4%
Residential Buildings (North and South) – 135 Broadway Street	25,883	19,643	24.1%	2,053.6	1,734.5	15.5%
Commercial Building B - 250 Binney Street	22,140	16,167	27.0%	1,984.4	1,566.9	21.0%

tons/yr = short tons per year

8.2.4 OPERATIONS STAGE BUILDING COMMISSIONING

In addition, building commissioning will be conducted prior to and during occupancy to ensure the building systems are operating efficiently and as designed. Tenant green building guidelines will engage and educate building users and influence occupant behavior toward more energy (water and material) efficient practices.

8.2.5 OPERATIONS STAGE ENERGY TRACKING AND MONITORING

The Applicant has a robust internal program for tracking building energy use over time, using Energy Star Portfolio Manager and other tools. In addtion, the Applicant has committed to reducing average building EUI by 15%, and is currently a strong supporter of the City's Building Energy Use Disclosure Ordinance.

The Applicant will implement a Measurement and Verification (M&V) plan that will utilize the base building energy management system to monitor operation of equipment or systems that are not already directly metered for electric or gas use. Core and shell projects will include a centrally monitored electronic metering network in the base building design that is capable of being expanded to accommodate and document the future tenant sub-metering.

In compliance with the Cambridge Building Energy Use Disclosure Ordinance, Chapter 8.67 of the Municipal Code, the Applicant will report energy use.

8.2.6 ON-SITE CLEAN/RENEWABLE ENERGY GENERATION

The Project Components will be constructed to be solar-ready, including designing the roof structure to support the weight and wind loads associated with solar energy collectors as well as providing space to accommodate associated infrastructure, including conduit to the roof and space in the electrical room for an inverter. Each building will be individually analyzed for solar opportunities as the design develops. In addition, innovative strategies such as solar roadways will be considered.

Small-scale co-generation systems will also be considered to provide domestic hot water and a portion of the electricity for the residential buildings.

8.2.7 DISTRICT-WIDE ENERGY CONSERVATION

The City secured major grant funding to support the development of a Kendall Square EcoDistrict and to initiate a study of district energy opportunities. This Project as part of the KSURP is deeply involved in both of these initiatives. The EcoDistrict will provide a framework for the utilities, the City, and the developers to work together to right size projects and infrastructure, with a goal of minimizing energy usage, water usage, and GHG generation.

The Kendall Square EcoDistrict would provide opportunities for combined heat and power and shared generation, provided projects are co-located that can utilize the heat and power generated. The Kendall Square EcoDistrict is intended to incorporate renewable energy generation, and should promote combined/cooperative development with shared information about project needs and contributions.

8.3 WATER CONSERVATION

The Project will reduce overall potable water use and reduce wastewater generation compared to a conventional development through installation of low-flow plumbing fixtures and high-efficiency irrigation systems. All Project Components are currently targeting a minimum 30% water use reduction compared to conventional plumbing fixtures (per Energy Policy Act of 1992 fixture performance requirements).

The landscape design will incorporate native and adaptive vegetation and the design of the irrigation system will target, at minimum, a 50% reduction in potable water use when compared to a mid-summer baseline through the use of high-efficiency irrigation systems with controllers and moisture sensors. Non-potable water use strategies, such as rainwater reuse will be considered for irrigation. In addition, the landscape design will consist mostly of local, drought resistant species to minimize or eliminate the need for irrigation over the lifetime of the Project. Landscape areas will be designed to hold as much rainwater as practicable. The Applicant is also considering the use of rainwater capture for irrigation and the incorporation of green roofs and rainwater harvesting tanks for each individual building design.

Each Project Component will largely maintain the existing site drainage, replacing existing impervious rooftop and hardscape in kind on-site. The Project will be required to mitigate stormwater runoff to comply with City and MassDEP standards. Stormwater infrastructure will be designed and installed for each Project Component to reduce the runoff discharge rate and improve the quality of the runoff to the City's stormwater system and the Charles River basin.

8.4 RECYCLING AND SOLID WASTE MANAGEMENT

Recycling and reuse programs will be developed and implemented by all construction contractors to reduce the amount of waste that is sent to landfill throughout construction. Prior to the start of construction, the construction management team will prepare and submit a Construction Waste Management plan which will be implemented on site. By keeping the Blue Garage overwhelmingly intact, a significant amount of construction waste associated with demolition and new construction to rebuild a garage structure is eliminated by the Project. A minimum of 75% of C&D waste will be diverted, as required by Massachusetts' law.

Storage of collected recyclables will be accommodated on the ground floor of the new buildings in a designated recycling area. A contracted waste management company will collect the recyclables on a regular basis. It is anticipated that approximately 100% of paper, corrugated cardboard, glass, plastic and metal would be recycled during operations. The Tenant Design and Construction Guidelines (discussed further below in Section 8.8) will include strategies to reduce waste through recycling and reuse programs.

8.5 REDUCE HEAT ISLAND EFFECT

Over the design life of the Project, climate change is expected to significantly increase the duration and frequency of heat waves. The anticipated change in average temperatures is exacerbated by the development density of Cambridge, which results in urban heat island effect. In an effort to mitigate urban heat island effect, the Applicant is considering a number of site and building design strategies, including light colored roof materials, light colored hardscape materials, landscaped areas, and green roofs.

8.5.1 SITE DESIGN

Site landscaping will be designed with tree canopy cover, low-level plantings, discontinuous impervious covers, reflective materials and permeable pavements in an effort to reduce the capture of energy from sunlight while promoting evaporation and plant transpiration. This design approach will not only reduce the increased heat associated with heat island effect, but will provide for a more comfortable pedestrian environment.

8.5.2 BUILDING DESIGN

To further reduce the heat island effect and mitigate stormwater runoff, the Applicant is exploring the use of green roof cover, where feasible. Vegetation and shading structures will also be employed to shade buildings and outdoor spaces, where possible. The roof membrane on all Project Components will be a high albedo roof product with a minimum Solar Reflectance Index (SRI) value of 78, covering a minimum of 75% of the total roof area, excluding any green roof areas. All Project Components include covered parking in garage structures, greatly reducing the uncovered and impervious surface area needed for the Project's required parking. In conjuction with the development of the Residential Project Components, the uncovered area on the top level of the Blue Garage will be upgraded to include light-colored materials and landscaping, where feasible.

8.6 RESILIENCY IN BUILDING DESIGN

The Applicant has studied the vulnerability of the infill development sites for the potential of precipitation-based inland flooding events. Potential building design resiliency measures being considered include limiting basement areas, and other improvements that may mitigate potential flooding. Additionally, ground floor finish elevations for all Project Components will be raised to the greatest extent possible to reduce the risk of internal flooding. Flood-resilient materials will be specified for first floor uses, where practicable.

Since the Residential Buildings are proposed to be constructed primarily over the existing Blue Garage structure, ground floor exposure to the effects of extreme weather events, such as flooding is greatly minimized. Other flood prevention techniques could include: sealed wall penetrations for cable and electrical lines; watertight door barriers; septic line backflow prevention valves, sump pumps, and discharge pumps—all of which could be connected to auxiliary external generator connections or resilient backup power. In addition, the Project is anticipated to include green roofs/roof gardens and roofing membranes with high SRI to reduce the volume of stormwater runoff and reduce solar heat gain/minimize air conditioning loads, respectively. Additionally, high-performance curtain wall is being considered to maximize views and daylighting of interior spaces, thus reducing overall lighting loads and associated internal heat gains, which has a direct impact on the space cooling load. As the climate change analysis shows, the rising temperature increases the space cooling demand in the Cambridge climate; therefore, any strategy that can reduce the space cooling demand is considered an adaptive strategy for climate change.

The Project's climate change mitigation includes the incorporation of several ECMs to reduce GHG emissions associated with energy use beyond what is required by Code. (Refer to Appendix D for further details on such measures.) Some of these measures can also be considered adaptive design approaches to mitigate the potential impacts of climate change on the Project. These GHG emissions mitigation and climate change adaptation measures are considered mutually re-enforcing and, therefore, cannot be considered in isolation. As an example, the window area in the Residential Project Components will be designed at an appropriate ratio to reduce energy use while still providing enough daylight and opening area for natural ventilation. This is an adaptive strategy in response to potential future increases in mean temperature. Other climate change adaptive strategies considered will include improved envelope insulation and high performance glazing in response to increasing temperatures. The design team will continue to investigate the feasibility of renewable energy sources and highly energy-efficient technologies, such as solar PV, wind, and co-generation. As climate change is not limited only to temperature increase, but may also include flooding, intensified downpours, and/or hail events, the design team will continue to consider ways in which the architectural elements selected for the Project can reduce the vulnerability to these extreme events.

OTHER POTENTIAL RESILIENCY MEASURES

On-site renewable energy, a district energy network, and combined heat and power (CHP) systems also provide opportunities for added resiliency during periods of power loss during storms. While the KSURP area is served by underground utility power lines and gas mains, and as such, is not normally effected by storms that disrupt power or gas transmissions, according to DOER, the Kendall Square CHP district plant has been registered by the ISO-NE as a black start generation asset that can operate in island mode to provide both electricity to the Cambridge grid and thermal energy to the KSURP area in the event of a grid outage.

On-site CHP, or solar PV, generally will operate in phase with the incoming utility power, and needs incoming power to synchronize phase delivery. In “island mode”, generators and CHP systems can be made to operate independently of the grid and self-synchronize power phasing with on-site solar. However, this approach is normally used in large-scale shelter locations only, when long-term operation may be needed to protect a group of people.

In most cases, the proposed commercial buildings will shut down and send occupants home in storm-related power failure scenarios. Any generators provided will most likely be optional standby generators that are sized to maintain server room or process operations only. In the case of the residential components, the generators provided will be for life-safety uses only (stairway pressurization, egress elevators, fire pump, etc.) and cannot by Code be used for ordinary ongoing operations in a building. The capacity provided by solar PV, even if the available space is maximized, will not be more than 10 percent of the power needed by the building, and cannot provide all power needed for normal operations. A CHP system could be used to provide limited ongoing operation, but the economics of such a system when compared to the likelihood of repeated power outages in the Kendall Square area would not be favorable. Storm response actions and resiliency measures will be incorporated into leasing agreements or tenant guidelines, including guidance related to tenant fit-out of commercial space, particularly those located on the lower floors.

8.7 HEALTH AND WELLNESS

Human health and wellness is addressed in the Project through design, operations, and occupant behavior. Within each Project Component, special attention will be given to address human health and comfort during construction and once the building is occupied. This will be accomplished by implementing pollutant reduction strategies, using non-toxic materials, providing fresh air to occupants, installing individual lighting and heating controls, and by providing natural daylight and views to outdoor green spaces. Tenant Design and Construction Guidelines will include comfort related requirements such as installing CO2 sensors in all regularly occupied spaces.

The Applicant is also exploring the use of principles of the WELL Building Standard, which place human health and wellness at the center of design and can encourage and educate future tenants on healthy living practices. Active design principles, encouraging physical and social activity, will be employed where possible. The Project's master site and individual building sites will be vibrant spaces where people can safely walk, bike, use transit, and access open spaces. Individual buildings will be designed wherever possible to include visible, attractive and well-lit stairs, communal services such as break areas and copy services, and a variety of public gathering spaces and individual relaxation spaces. Ground level outdoor spaces will be easily accessible to both building occupants and visitors alike.

8.8 SUSTAINABLE TENANT GUIDELINES

Tenant Design and Construction Guidelines will be provided to office and retail tenants as a guide to use when fitting out their spaces. The intent of these guidelines is to educate tenants about implementing sustainable design and construction features in their tenant improvement build-out as well as adopting green building practices that support the overall sustainability goals of the Project. The guidelines will also communicate the sustainable and resource-efficient features incorporated into the base building(s) and provide specific suggested sustainable strategies enabling tenants to coordinate their leased space design and construction with the rest of the building systems.

In summary, the guidelines may include the following information:

- Descriptions of sustainable design, construction and operations features of the proposed building(s), including resource conservation goals and features for tenant fit-out spaces (e.g., low-flow plumbing fixtures, sub-metered systems, lighting controls) as well as building certifications (i.e., LEED certification).
- Encourage tenant commitments for meeting various energy and water conservation goals.
- Descriptions of current regulatory requirements that pertain to leasable spaces.
- Strategies for energy efficiency, such as those for HVAC equipment recommendations, lighting and lighting controls, and low-flow, high-efficiency plumbing fixture recommendations.
- Information on the various high performance building rating systems, such as EPA's ENERGY STAR and LEED for Commercial Interiors (CI) as well as information on how the design of the base building(s) can contribute towards these certifications.
- Waste reduction goals and recycling facilities/programs.
- Information on green cleaning guidelines and policies.
- Information regarding project-wide features that aim to encourage alternative transportation and TDM measures.
- Information on how to train and inform maintenance staff and employees on operations related to sustainable design features and systems.

8.9 OTHER DISTRICT-WIDE SUSTAINABLE STRATEGIES

Following the EcoDistrict model, in addition to district-wide energy and water management strategies and transportation efforts, other innovative, scalable solutions such as composting and urban farming will be considered. A composting program, as a strategy to reduce waste and ultimately reduce GHG emissions at landfills, will be studied as an additional measure to the existing waste management and recycling programs that are already included in the district. Composting can be addressed on a building-by-building basis and large-scale collection can be implemented district-wide. In addition to the network of farmers markets, a local urban farming initiative will be considered to engage community members in building a healthier and more locally based food system. Sites for urban garden plots could be identified in the district for businesses and community members who want to grow their own food.

8.10 LEED CREDIT NARRATIVE

Refer to the Sustainability Support Documentation in Appendix D for individual Project Component reports.

9. PHASING PLAN

9.1 PHASING PLAN

The evolution of the Project is expected to occur over three major phases consisting of the following generally described components:

- Phase 1 (Commercial Building A) The commercial space and associated ground floor retail or active use at 145 Broadway
- Phase 2 (Residential Building South) The residential space on the South side of the existing Blue Garage consisting of both rental apartments and home ownership units
- Phase 2 (Commercial Building B) The commercial space and associated ground floor retail or active use at 250 Binney Street
- Phase 3 (Residential Building North) The residential space on the North side of the existing Blue Garage consisting of either rental apartments or home ownership units.

The specific timing of each of the phases depends upon the duration required for permitting, the leasing conditions within the Cambridge sub-market and the construction logistics associated with staging and the demolitipon of portions of the Blue Garage. Additionally, the phasing plan is governed by the requirements of 14.32.1 of the Zoning Ordinance that requires the commencement of construction of at least 200,000 square feet of residential preceding any commercial development that exceeds 375,000 of Infill GFA.

As of the date of this submission, market conditions allow for the immediate commencement of Phase 1 as soon as a special permit is received for the Concept Plan and the associated approval of the Design Review Submission for Commercial Building A.

Table 9-1 summarizes the approximate GFA and program by phase along with the public benefits associated with each phase of development.

ANTICIPATED PHASING PLAN WITH PUBLIC BENEFITS				
	Phase 1	**Phase 2**		**Phase 3**
	Commercial Bldg A (145 Broadway)	Commercial Bldg B (250 Binney Street)	Residential South (Blue Garage)	Residential North (Blue Garage)
Commercial GFA	443,731	310,615	0	0
Residential GFA	0	0	350,000	70,000
Active Use/Retail GFA	10,037	8,029	0	1,300
Existing GFA	*(78,636)*	*(62,576)*	0	0
NET NEW GFA	**375,132**	**256,068**	**350,000**	**71,300**
Open Space Improvements	6th Street Connector	E/W Connector	Broadway Park & E/W Connector	Binney Park
Innovation Space at 255 Main	62,522	42,678	0	0
Vehicle parking	374	650	(156)	(59)
Long Term Bike Parking	112	75	372	74
Short Term Bike Parking	33	24	36	9
Market Rate Housing	0	0	266,666 GFA	53,334 GFA
Affordable Housing	0	0	66,667 GFA	13,333 GFA
Middle Income Housing	0	0	16,667 GFA	3,333 GFA

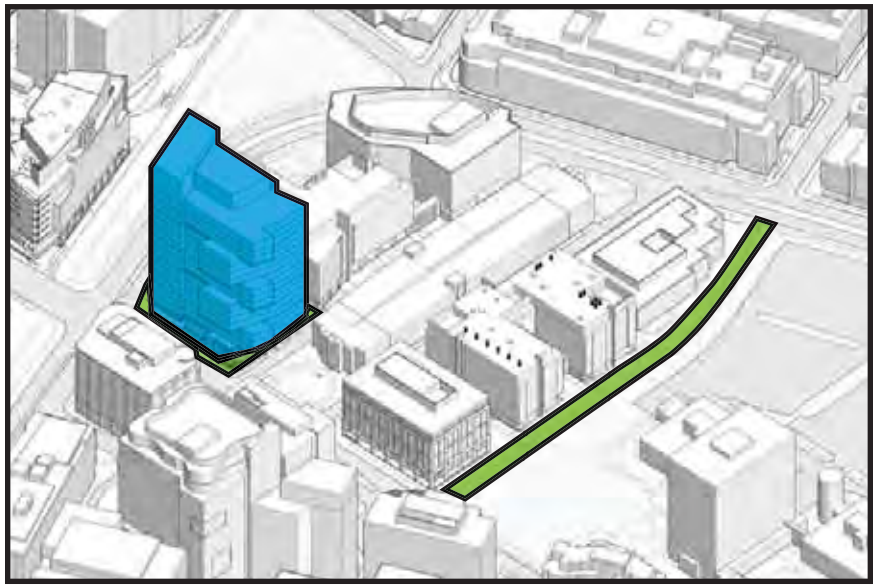
TABLE 9-1 GROSS FLOOR AREA

PHASE 1

9.1 PHASING TIMELINE

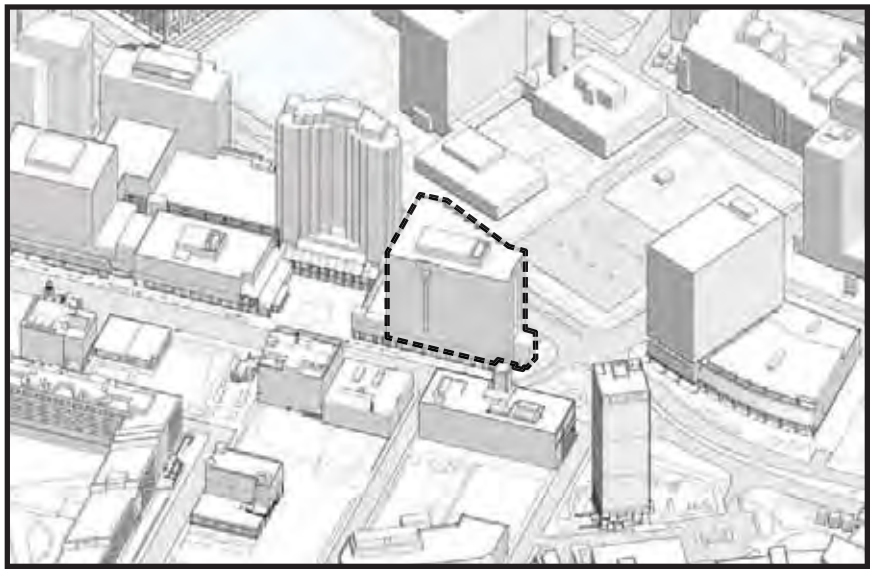
PHASE 1

FIGURE R9.1.1



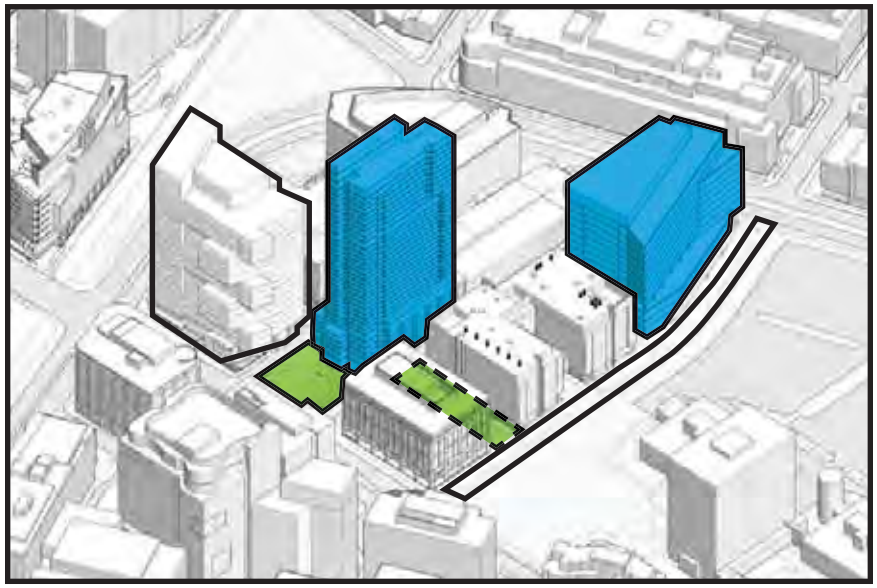
PROJECT PHASING FORECAST									
	2016	2017	2018	2019	2020	2021	2022	2023	2024
Phase 1									
Phase 2									
Phase 3									

PHASE 1 will consist of the demolition of the existing building at 145 Broadway and the construction of the Commercial Building A. In addtion Phase 1 will include the planned enhancements to the 6th Street Connector and the East/ West connector to the west of the West Service Drive. Innovation Space will be made available in 255 Main Street. As required by zoning, the MXD IDCP plan commits that a portion of the space will be offered at below market rate.



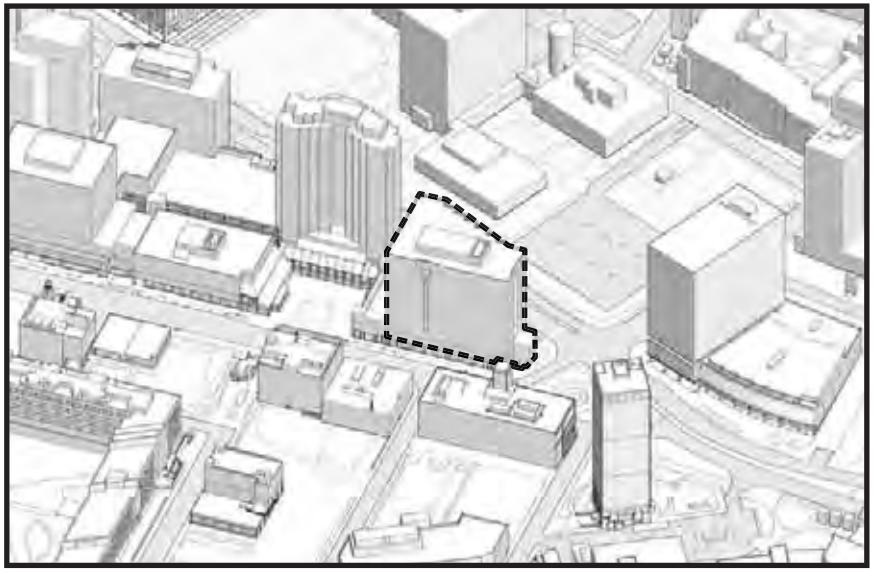
PHASE 2

FIGURE R9.1.2



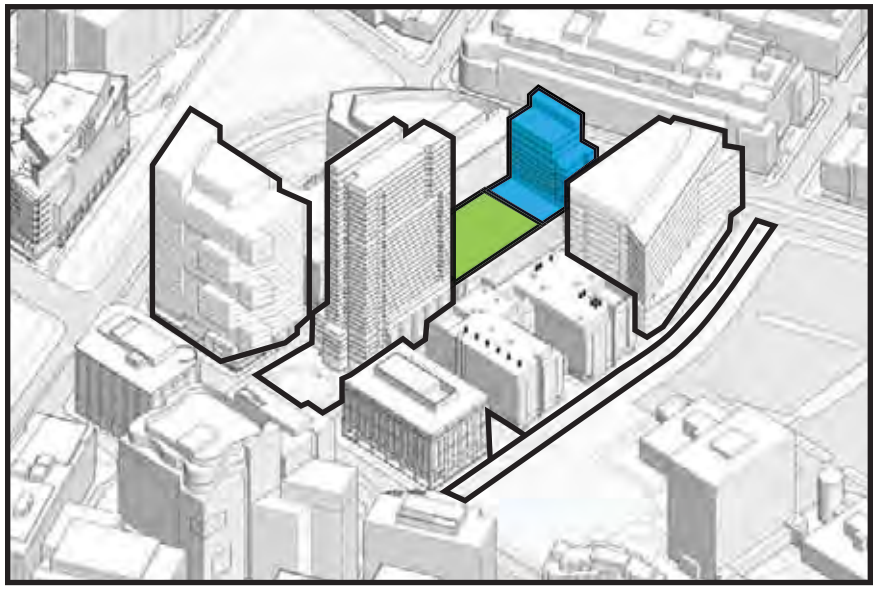
PROJECT PHASING FORECAST									
	2016	2017	2018	2019	2020	2021	2022	2023	2024
Phase 1									
Phase 2									
Phase 3									

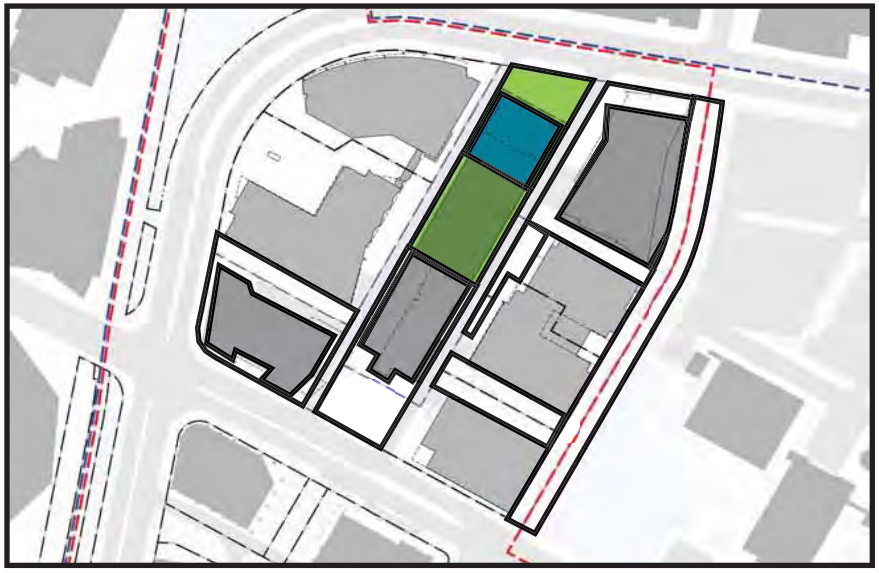
PHASE 2 will consist of both the Residential Building South and Commercial Building B which will likely start construction at different times depending on site logistics, relative complexity of each building, and market conditions. The Residential Building South will require demolition and reconfiguration of the south side of the Blue Garage. Commercial Building B will require demolition of the existing building at 250 Binney. Phase 2 will also include the planned enhancements to Broadway Park and the East / West Connectors from the 6th Street Connector. The remaining Innovation Space will be provided in conjuction with the completion of Commercial Building B at 250 Binney Street.



PHASE 3

FIGURE R9.1.3





PROJECT PHASING FORECAST									
	2016	2017	2018	2019	2020	2021	2022	2023	2024
Phase 1									
Phase 2									
Phase 3									

PHASE 3 will consist of the demolition and reconfiguration of the north portion of the Blue Garage and the construction of Residential North Building. Phase 3 will also include the planned enhancements to Binney Park.

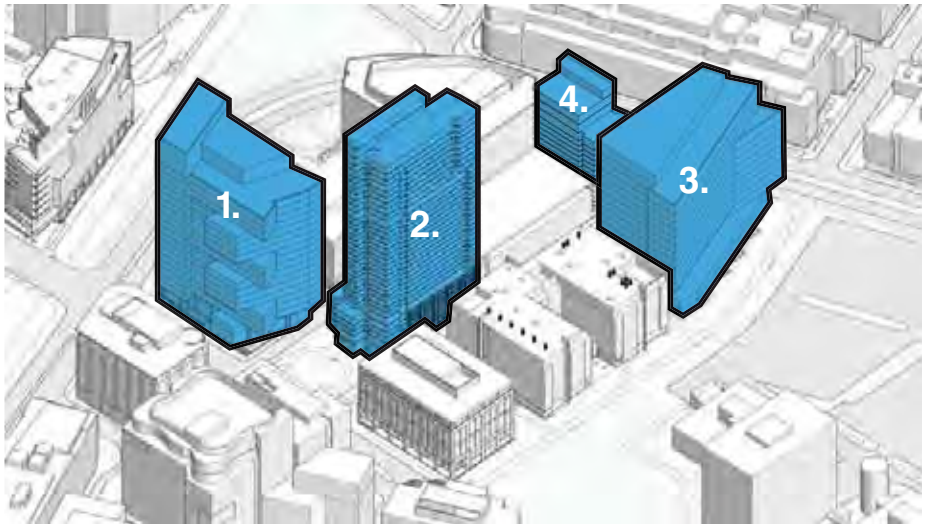
10. DESIGN GUIDELINES

10.1 URBAN REALM DESIGN GUIDELINES

Referencing the Kendall Square Design Guidelines of 2013 (K2) and Kendall Square Urban Renewal Plan of 2015, the four proposed buildings of the MXD Concept Plans are programmed and designed to ensure a lasting contribution to the character and vitality of the surrounding community and public realm. The following design guidelines establish foundational design principles in order to provide a clear blueprint for creating a robust mix of uses and vibrant public realm and open spaces, further contributing to the unique character and vitality of Kendall Square.

The following Urban Realm Design Guidelines graphically communicate the complete spectrum of existing regulations, site assumptions, architectural and urban design principles through a series of clear diagrams and associated annotations.

The specific building massing shown responds to the directives and suggestions outlined in this document and the final architectural scheme will conform to the design guidelines, but may evolve as the design of specific project components is developed. Unless otherwise noted, illustrations in this document represent existing development surrounding the Project site.



1. Commercial Building A (145 Broadway)
2. Residential Building South
3. Commercial Building B (250 Binney St.)
4. Residential Building North

The following Guidelines and associated imagery consist of:

I. Urban Realm Design Guidelines
II. Landscape Material Guidelines
III. Specific Building Guidelines
IV. Façade Guidelines

PURPOSE

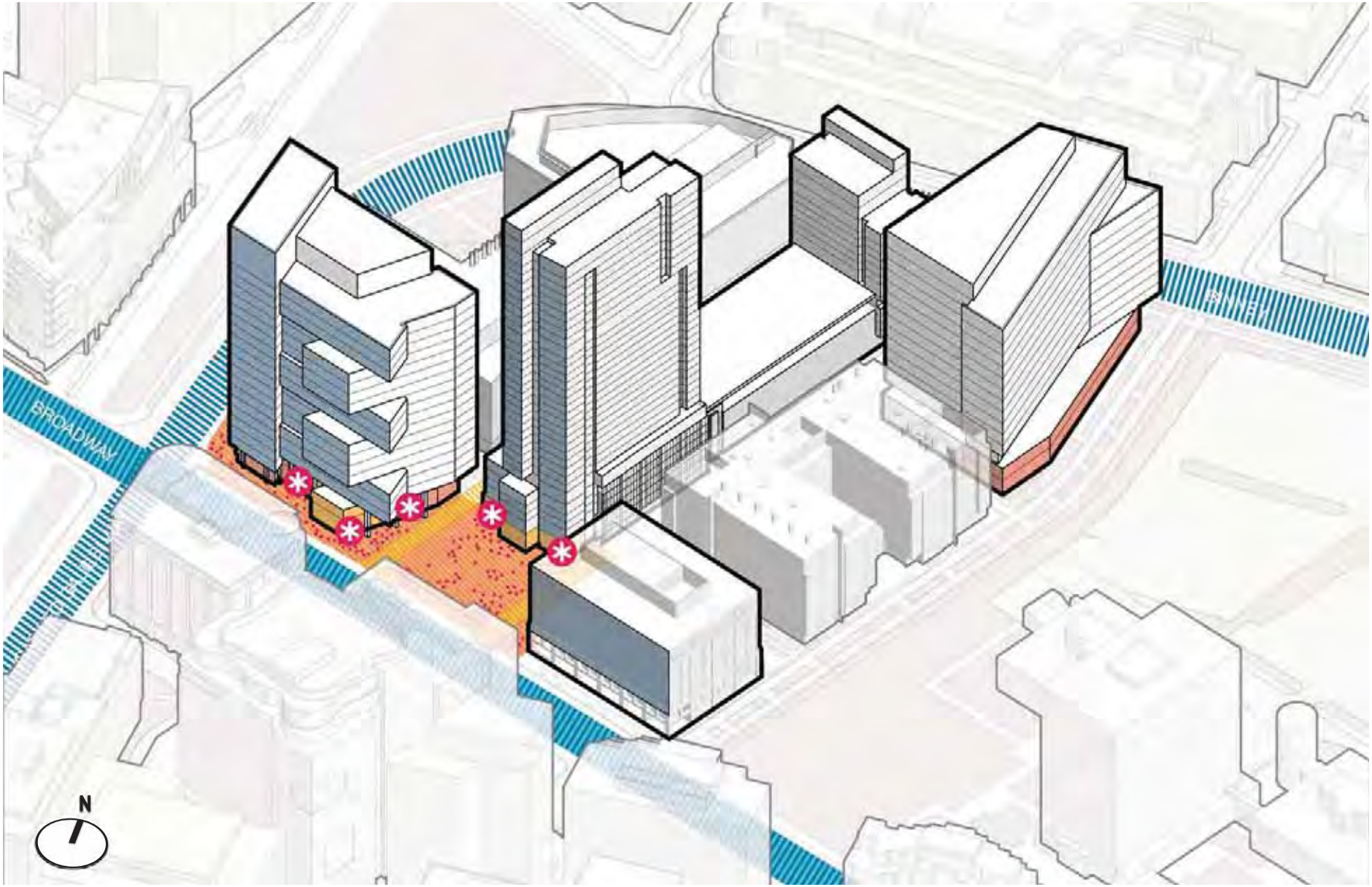
The Guidelines and objectives presented here are not intended to be limiting or prescriptive in nature but are instead intended to inform important design considerations in a cohesive and thoughtful manner. The associated images, in particular, are intended as illustrative precedents and not literal examples of a specific proposal. In the interest of supporting continued evolution in design thinking and approaches throughout the life of the MXD IDCP Project, additional or alternative design solutions may be presented to The Planning Board, CRA Board CDD Staff or the CRA staff.

I. URBAN REALM DESIGN GUIDELINES

The following Urban Realm Guidelines are provided to guide decisions at the IDCP master plan level including public street engagement, walkability and permeability of public spaces and built forms including massing, setbacks and visual interest. The objective is to ensure a functional project with deliberate, destination based pedestrian and vehicle routes and visually interesting and contextually appropriate built forms.

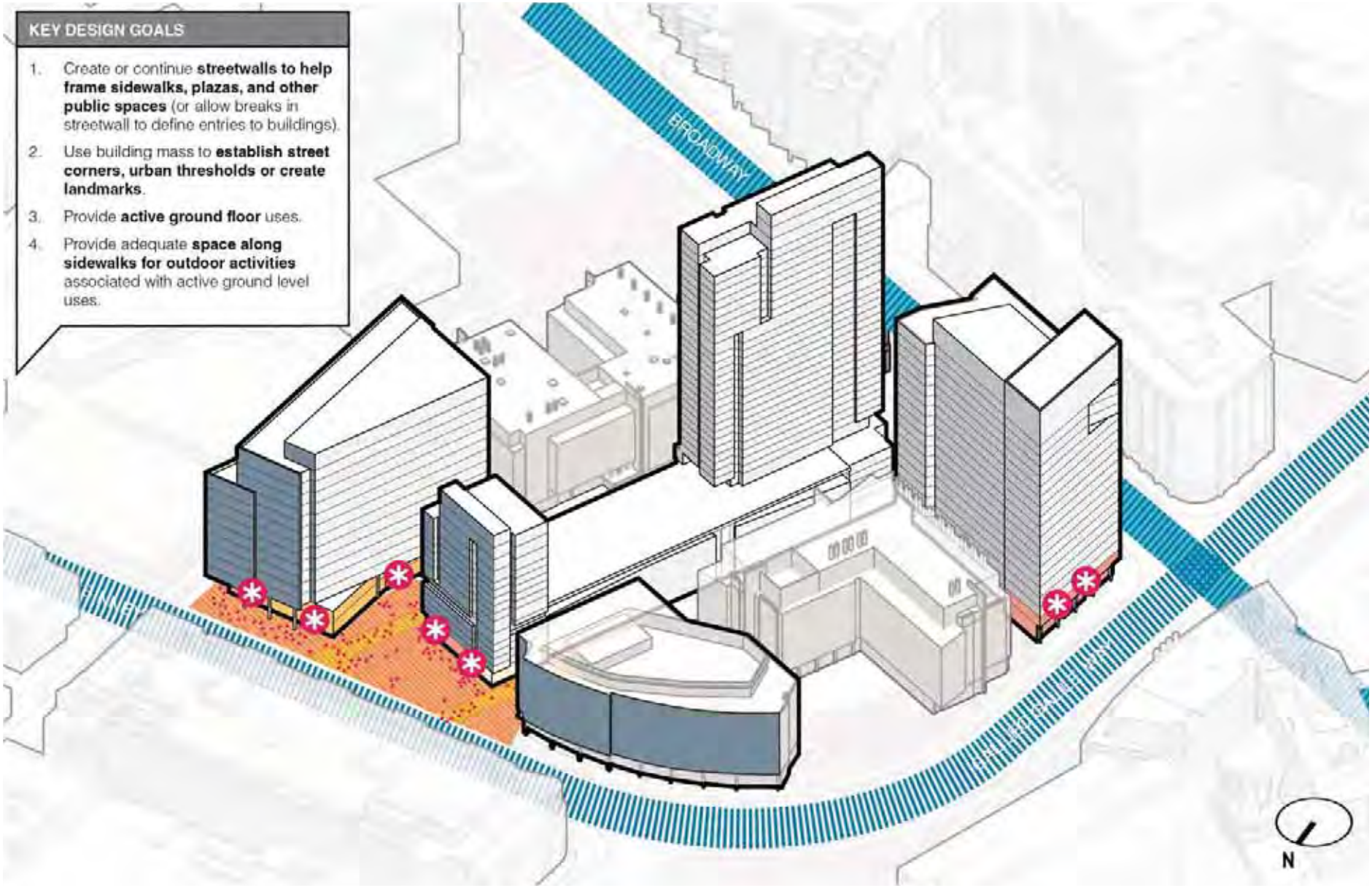
I. URBAN REALM DESIGN GUIDELINES

MAJOR PUBLIC STREET ENGAGEMENT



SOUTH EAST AXON

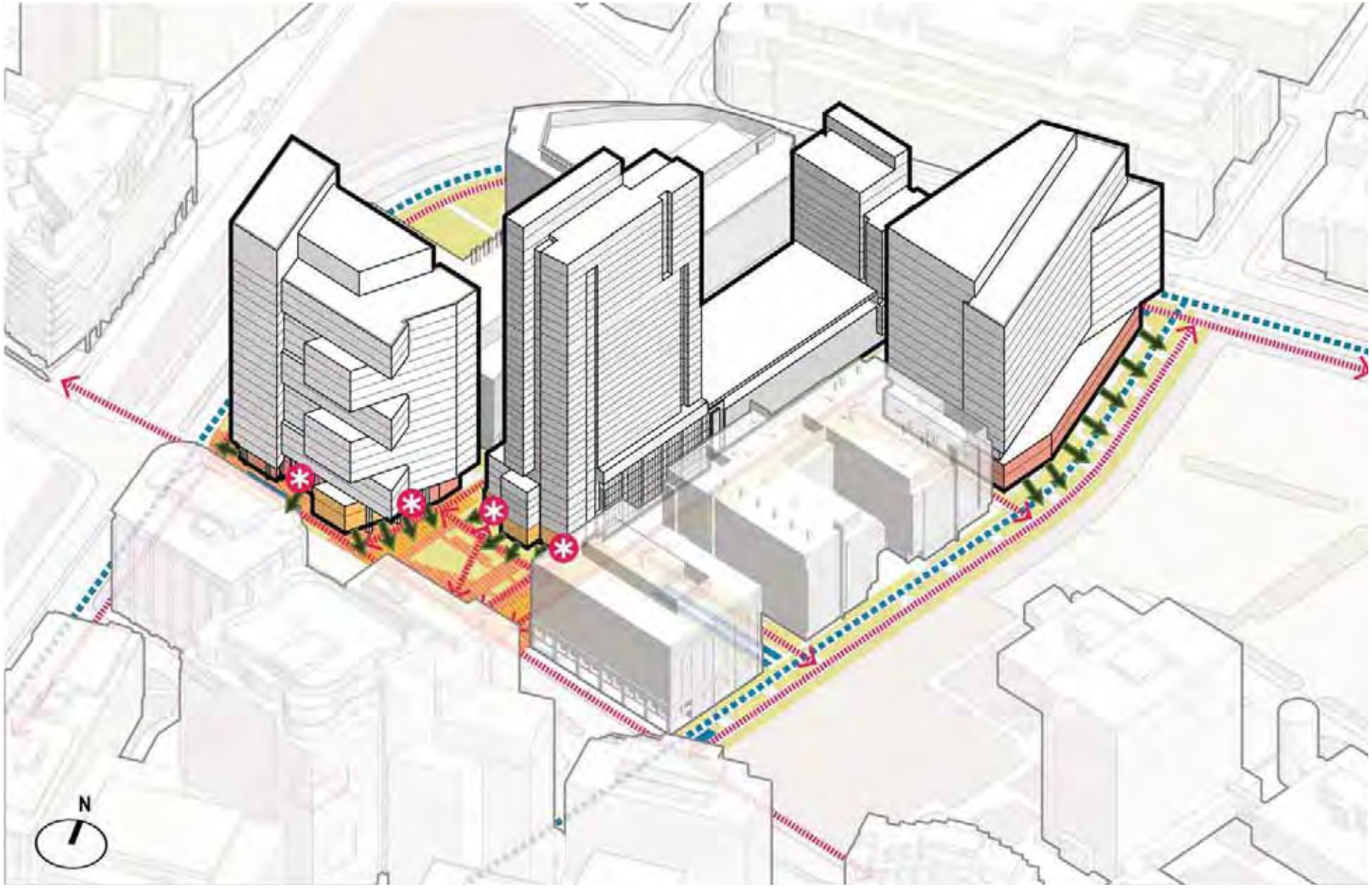
Major Public Street
Primary Retail Corridor
Lobby
Active Use
Streetwall
Public Outdoor Space
Pedestrian Activity
Building Entry



NORTH WEST AXON

I. URBAN REALM DESIGN GUIDELINES

WALKABILITY, PERMEABILITY, AND PUBLIC REALM



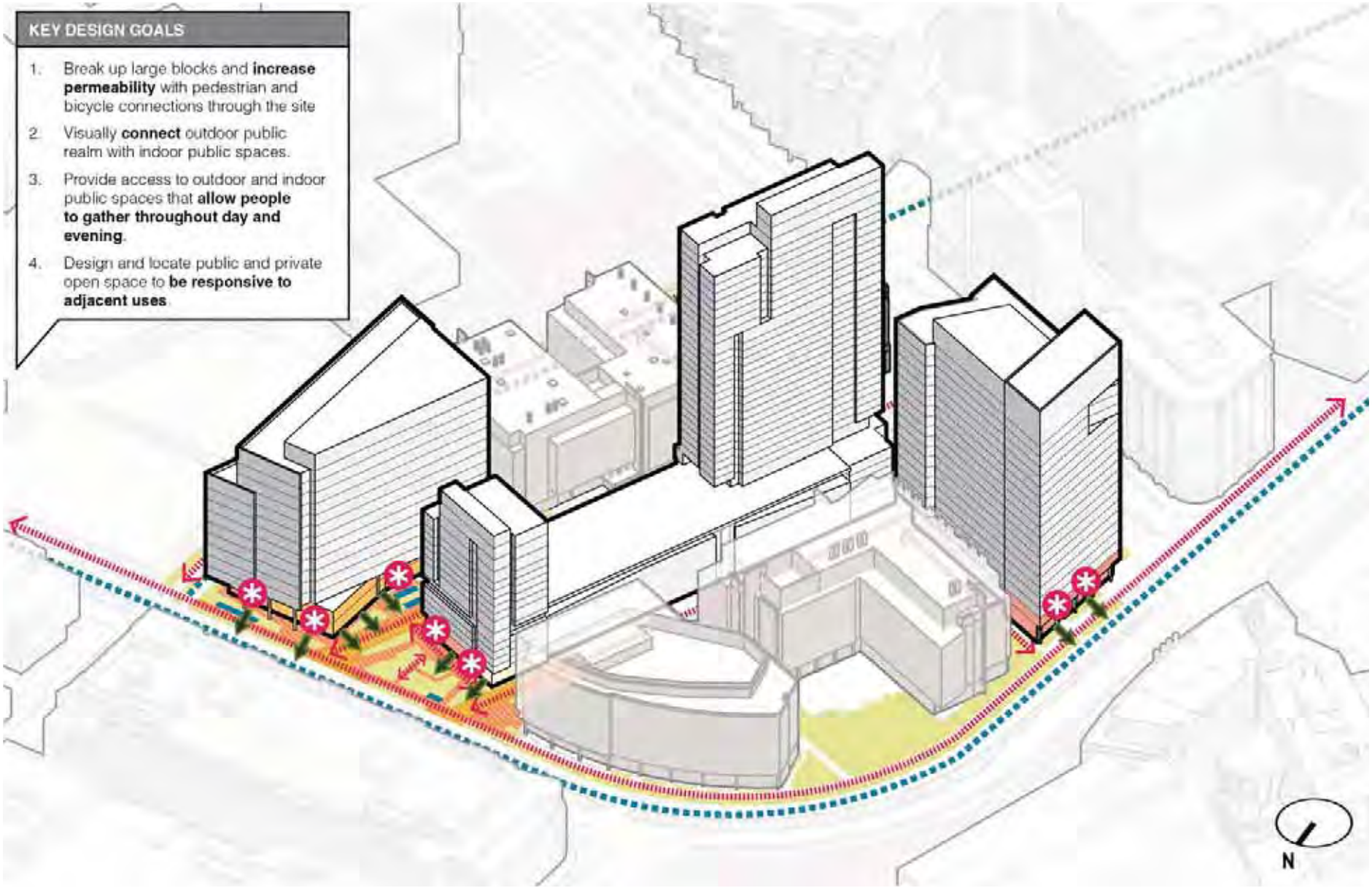
SOUTHEAST AXON

Bicycle Path
Bicycle Parking

Pedestrian Path
Lobby

Active Use
Public Outdoor Space

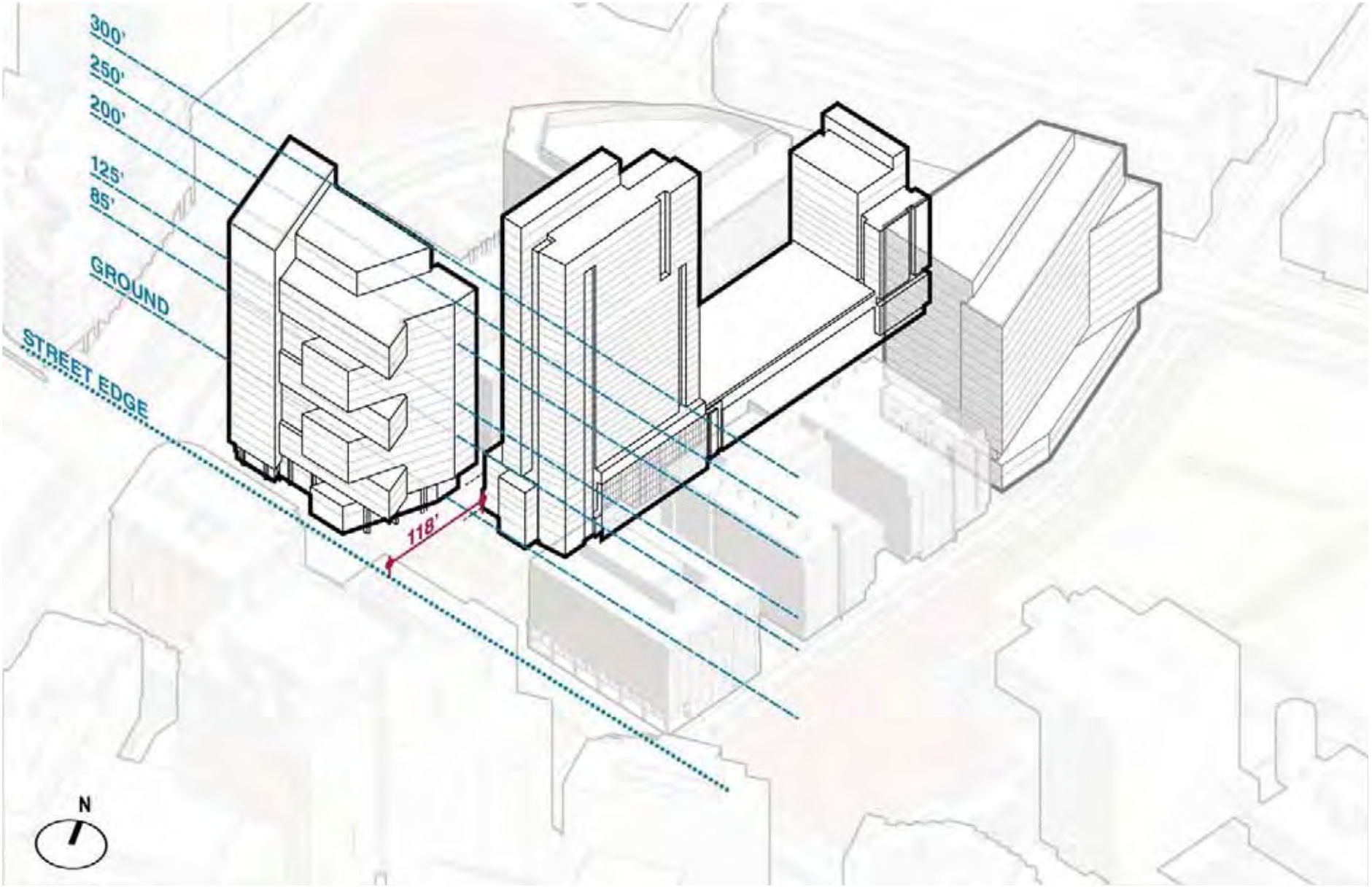
Building Entry
Indoor/Outdoor Visual Connection



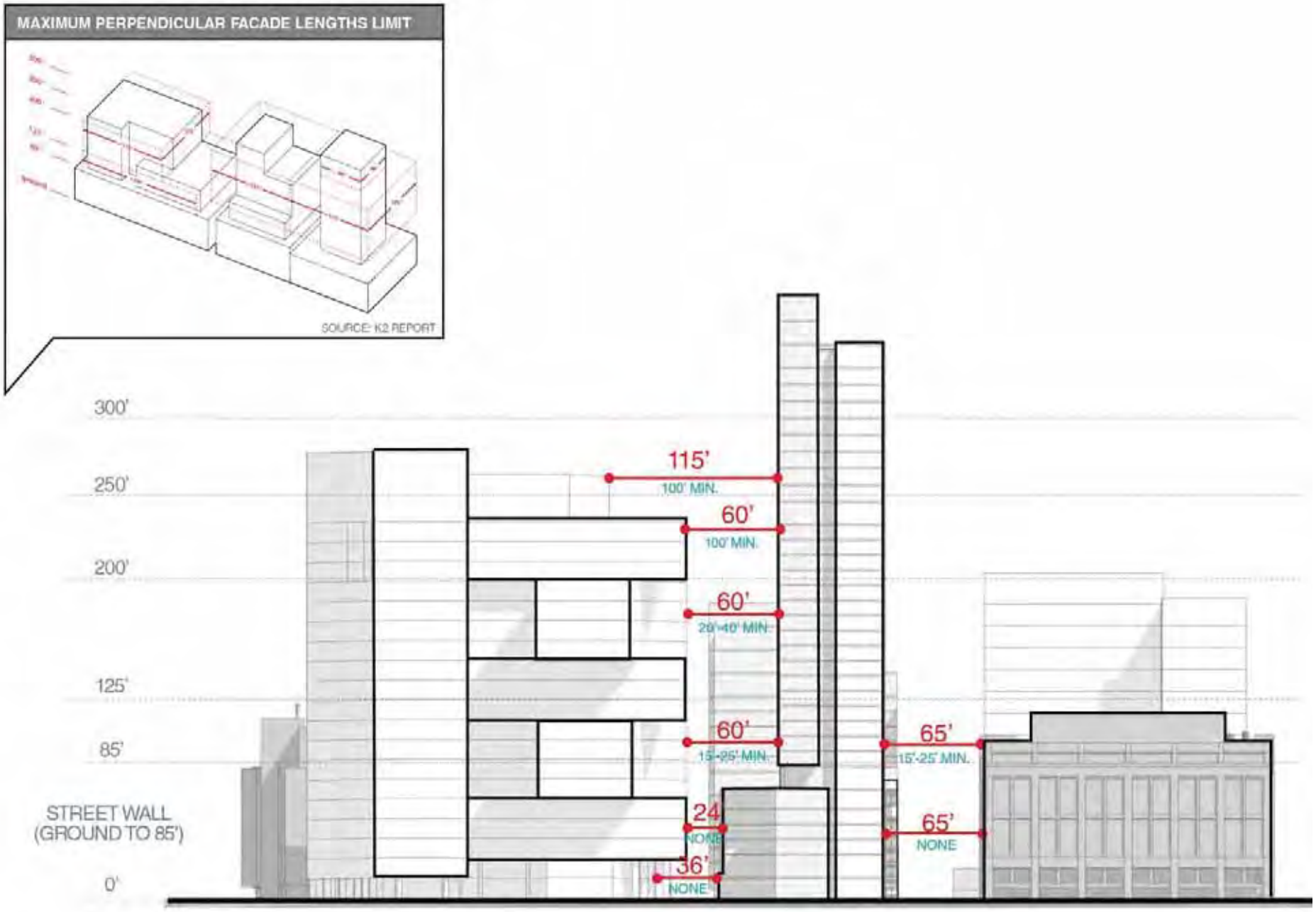
NORTHWEST AXON

I. URBAN REALM DESIGN GUIDELINES

BUILT FORM - BUILDING SEPARATION AND FACADE LENGTHS



SOUTHEAST AXON



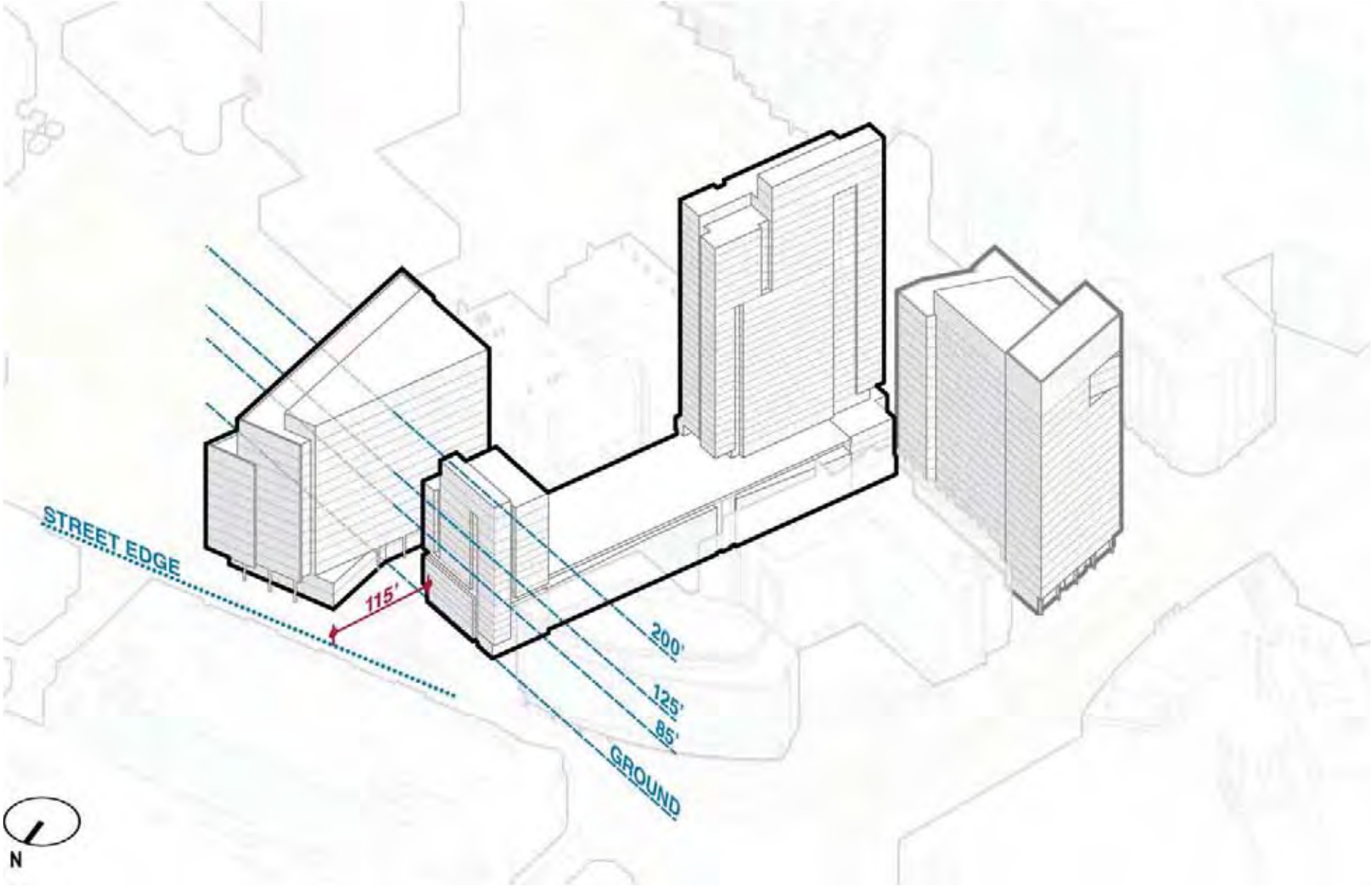
PROPOSED DIMENSION
K2 REPORT SUGGESTED DIMENSION

BROADWAY STREET

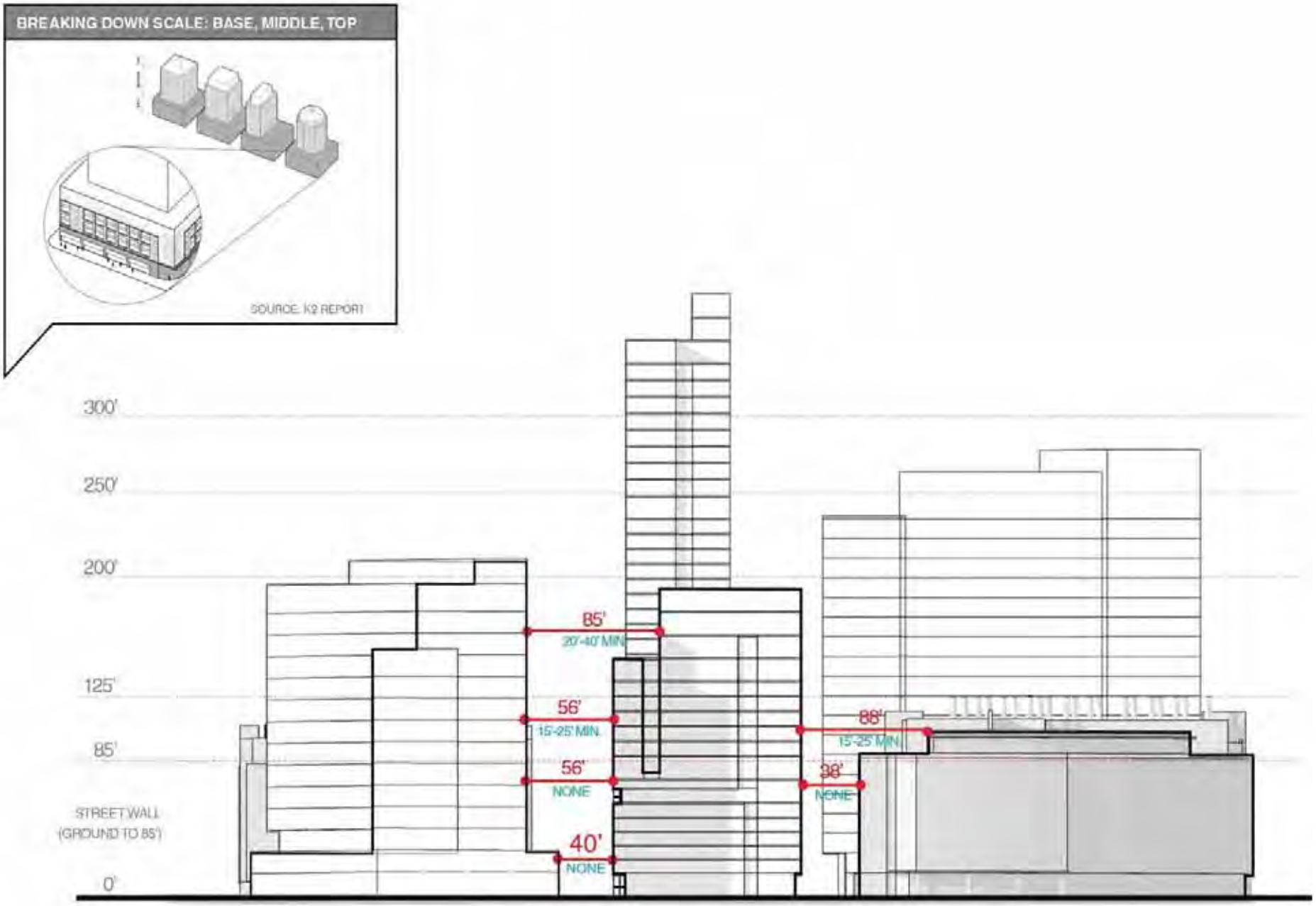
SOUTH ELEVATION

I. URBAN REALM DESIGN GUIDELINES

BUILT FORM - BUILDING SEPARATION AND FACADE LENGTHS



SOUTH EAST AXON



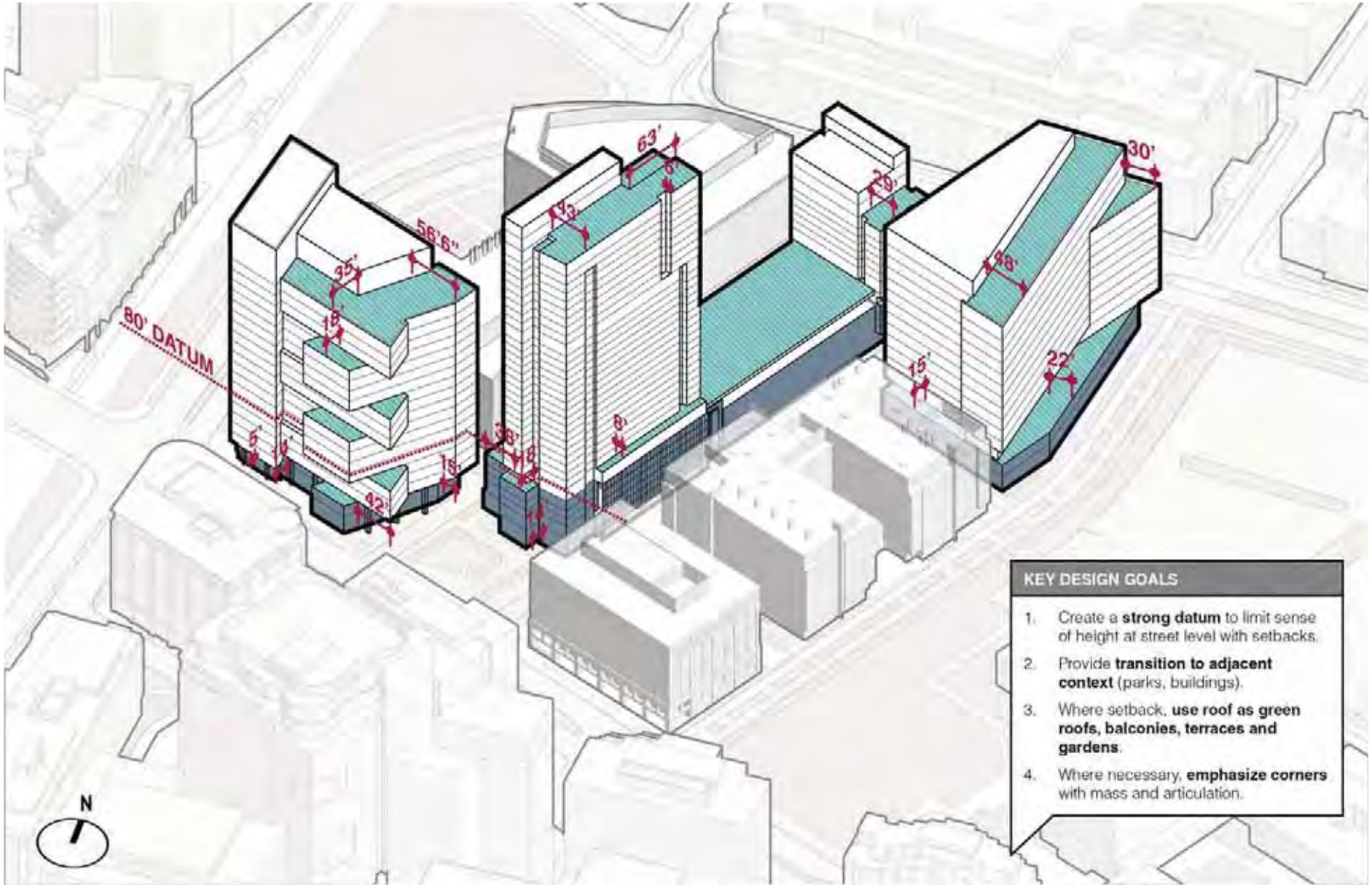
PROPOSED DIMENSION
K2 REPORT SUGGESTED DIMENSION

BINNEY STREET

NORTH ELEVATION

I. URBAN REALM DESIGN GUIDELINES

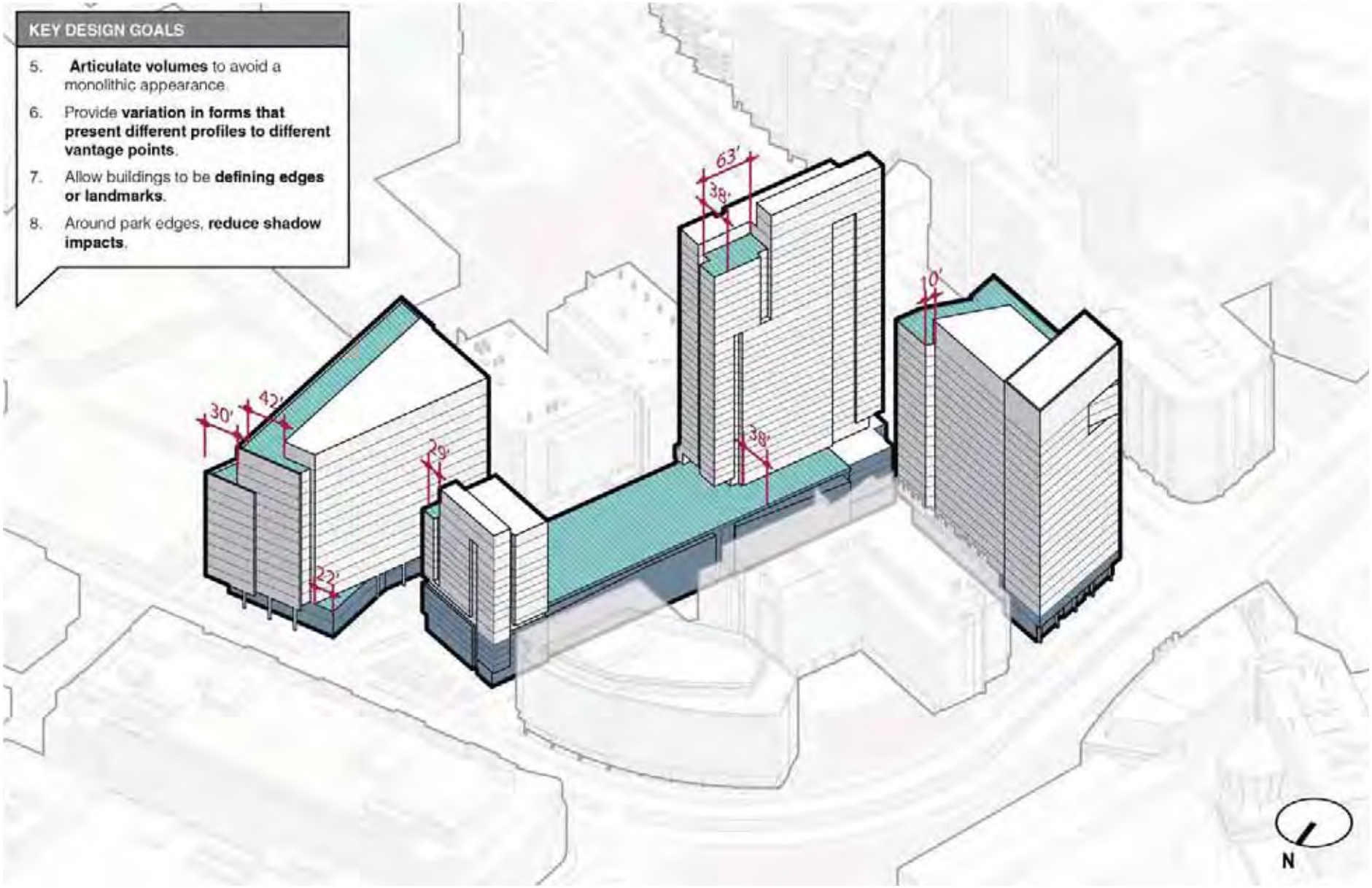
BUILT FORM - MASSING, SETBACKS, AND DATUM



SOUTH EAST AXON

Roof Amenity Opportunity

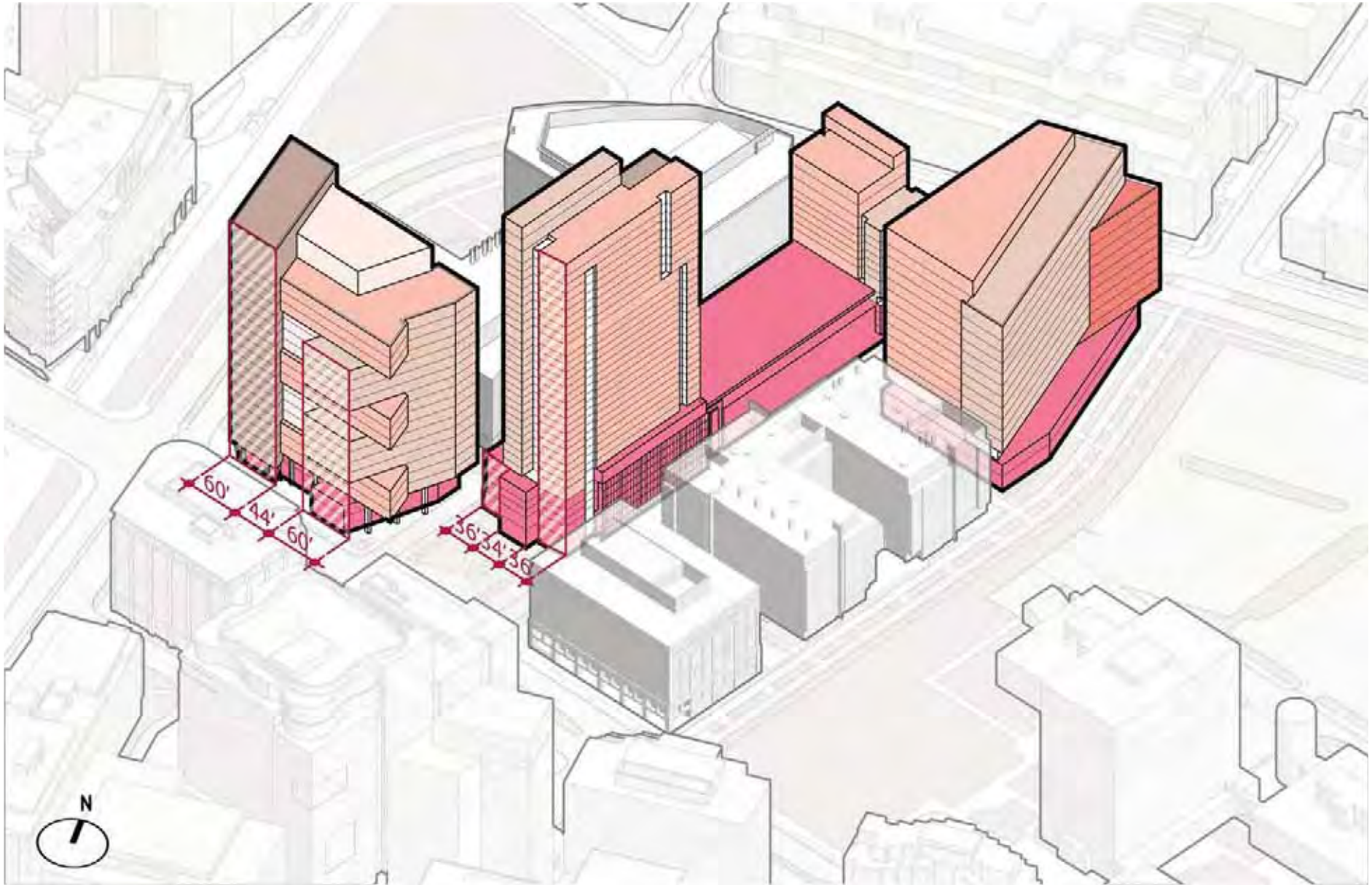
Ground Floor or Base Condition



NORTH WEST AXON

I. URBAN REALM DESIGN GUIDELINES

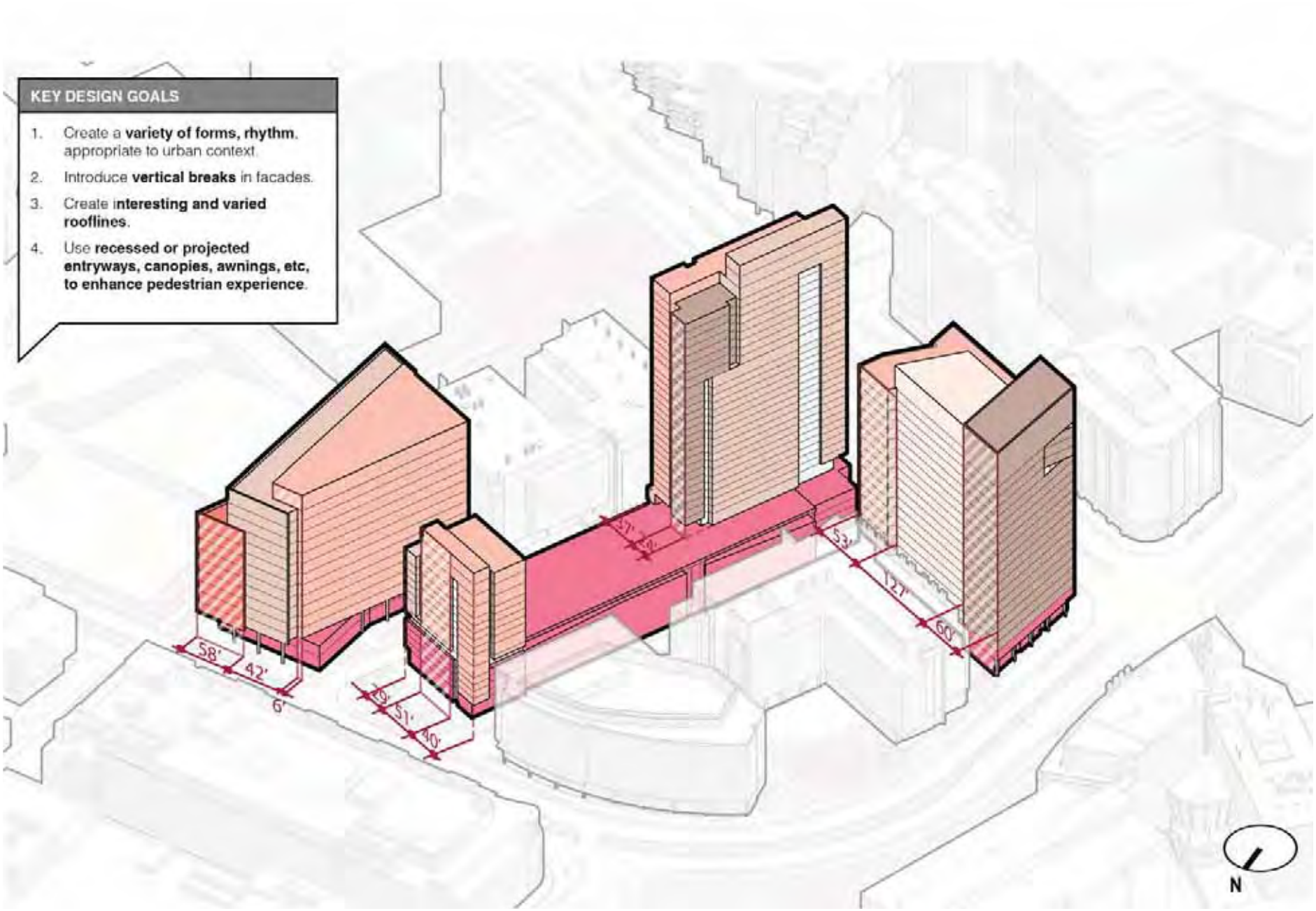
BUILT FORM - MASSING AND VISUAL INTEREST



SOUTH EAST AXON

Base volume
Distinct volume
Distinct volume

Distinct volume
Distinct volume
Vertical bay



NORTHWEST AXON

II. LANDSCAPE MATERIALS DESIGN GUIDELINES

The following Landscape Materials Guidelines are provided to ensure a visually interesting and cohesive ground plane that emphasizes native and drought resistant plantings, comfortable and visually interesting site furnishing and functional lighting that provides safe lighting coverage but is respectful of neighborhood concerns. The objective is to ensure safety focused function while providing a well planned mixture of sustainable planted material and green space and inviting furnishings that encourage public use and enjoyment of the parks and walkways.

PAVING

All paving materials should be able to withstand high volumes of pedestrian movement and harsh weather conditions. Paving should be able to accommodate garage entrances, retail loading areas, vehicular crossings, and potentially de-icing treatments, if needed. In the event of damage, repair or utility work, paving should be easily repairable. Pavements must be slip resistant and safe for pedestrian traffic. Paving that utilizes lighter coloring can help reduce heat island effect and can count towards LEED credits. The following are pavement recommendations:

Field paving should be predominantly used to minimize tripping hazards along the pedestrian movements. Pave the sidewalk predominantly with field paving to minimize tripping hazards in the pedestrian travel way.

Specialty paving should be used to highlight entries to buildings or park, mid block crossings or even public art. Paving over tree spaces should be porous, either by utilizing porous pavers, setting unit pavers on a pervious setting bed or using tree grates.

Within the district, concrete pavers may be used along the eastern facade of 145 Broadway, adjacent to Broadway Park to signify primary building entries and stairs. Sidewalks along Broadway, and Galileo Galilei Way will typically be cast in place concrete with saw cut joints, scoring patterns, and/or texture. Decomposed granite and or a Flexi-pave surface material could be considered an option for surfacing below bicycle parking.

CONCRETE UNIT PAVER

DECOMPOSED GRANITE

CAST-IN-PLACE CONCRETE

CONCRETE UNIT PAVER

II. LANDSCAPE MATERIALS DESIGN GUIDELINES

FURNISHINGS

BENCHES, TABLES, AND SEATING

Benches, tables and other types of seating should be located in a variety of settings to allow a choice of scenery and social settings. Within the district, a mix of fixed and movable chairs, as well as tables will be provided to allow for informal gatherings, outdoor eating, studying and socializing.

If located in sunny areas, umbrellas or shading devices will be considered.

In addition to movable tables and chairs, fixed benches may be used along the East West Connector, or potentially near building entrances, including vestibules, and other covered spaces.

SEAT WALLS

Within the district core, seat walls or colored concrete benches (with or without wooden seats) will be used to provide seating in or around the edges of these spaces. Walls shall be concrete and be compatible in material, pattern and color with immediately adjacent buildings. Capstones will be granite or precast concrete. Seat walls should be set level.

LITTER AND ASH RECEPTACLES

The litter receptacle that should be used throughout the district is the 'collect' as supplied by "landscapeforms," with top or side opening, or similar. Finish shall be polyester powder coat in color 'silver,' 'titanium,' or 'black,' matching the color chosen for the benches.

BICYCLE RACKS

In all district areas, the 'Bola Rack', or similar, shall be used. Racks should be anchored to a concrete base, and shall preferably be stainless steel, receive a hot dipped galvanized finish, or a powder coat finish in black. Spacing of the ranks shall conform to Bicycle Rack Cambridge Standards.

LITTER RECEPTACLES

SEATING WALLS

BIKE RACKS

LIGHTING

The primary function of exterior lighting is the safety of drivers, cyclists and pedestrians at night, but it plays an equally important role in complementing architecture and urban form to provide a sense of place before and after sunset. Exterior lighting sources shall be light emitting diode (LED), unless approved by city staff. All exterior lighting fixtures must be submitted and approved by the CRA and city staff. Developments in the district shall observe the following guidelines with respect to exterior lighting:

Building lighting – Exterior walls of buildings should be illuminated at a regular interval by wall-bracketed or accent up light fixtures, and such fixtures should complement the building's architectural expression. Where a feature such as a soffit or arcade is employed in the architectural design of a building, lighting should be recessed into that feature. Exposed light sources shall not be permitted around buildings.

Pedestrian lighting – Pedestrian light fixtures should be no more than 14 feet (14') tall, and be anchored by a pedestal base that is of proportion to the height and circumference of the pole of a complementary material.

AMENITY LIGHTING

FULL CUTOFF STREETLIGHT / PEDESTRIAN LIGHT

POST TOP PEDESTRIAN LIGHT

POST TOP PEDESTRIAN LIGHT

II. LANDSCAPE MATERIALS DESIGN GUIDELINES

WATER FEATURE

Water features of the proposed public realm can play a vital role in providing places to create visual interest and serve as a landmarks or focal points. Within Broadway Park, a water feature will serve the purpose of distinguishing the park from buildings along the Broadway streetscape. The design will integrate water features in the urban landscape as stormwater collection, storage and or circulation. Guiding principles for introducing water features into the pedestrian realm are as follows:

1. Use of high-quality stone products and applications that complement adjacent architecture.

2. Locate water features with the landscape zone, building zone, or open space locations. Water features should be kept out of the sidewalk zone of the streetscape, in order to not impede pedestrian movement.

3. Design considerations should take into account the appearance during winter months or during periods of drought.

4. Increase the recycling, storage and recirculation of stormwater.

5. Compliance with the City of Cambridge Standards for drainage.

WATER FEATURE / RUNNEL

RUNNEL SIGNAGE

DECOMPOSED GRANITE

WATER SPOUTS

EXISTING / ADAPTED GARAGE STRUCTURES

FIGURE R10.1.1A

Within the MXD district, recent developments have proposed to mask existing garage structures with new building proposals. For exposed parking garage surfaces, murals and screening devices or the continuation of building facade fenestration can be introduced when appropriate to mask or enliven these existing structures without impacting necessary open area for ventilation of the garage fuctions.

Within existing parking structures opportunities for enhanced wayfinding graphics can be applied to surfaces for greater pedestrian safety and information

III. BUILDING GUIDELINES

The following Specific Building Guidelines are intended to inform the individual buildings relationship within the wider MXD Project and surrounding neighborhood. The objective is to provide context and define how the buildings relate to each other, the neighborhood and the public realm.

COMMERCIAL BUILDING A (145 BROADWAY)

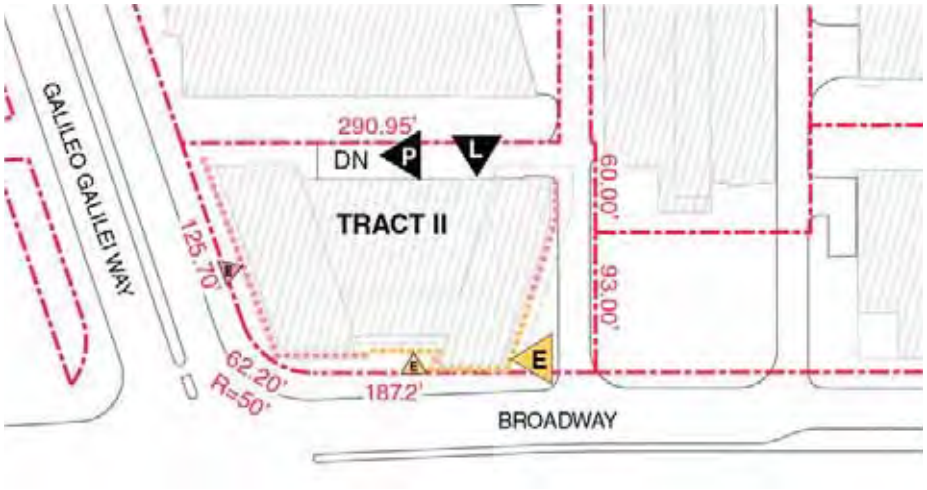
Located at the intersection of Broadway & Galileo Galilei Way, Commerical Building A at 145 Broadway Street is proposed to be an office building. It is a highly visible gateway, as it occupies two major public streets, Broadway and Galileo Galilei Way. The following are the design guidelines for Commercial Building A:

- Activate the adjacent public realm with public plaza, active use, and lobby spaces.
- Active use space on the ground floor extends along Broadway and wraps the corner of Galileo Galilei Way .
- Enhance the connection to the proposed Broadway Park and Binney Street Park.
- Massing at the corner of Broadway and Galileo Galilei Way establishes a strong urban presence and highlights the entry into the district.
- Interlocking forms face Broadway Park to reduce a monolithic reading of the building, multiple roof terraces and to provide visual interest to the adjacent public space.
- Capitalize on relationship to West Service Road by tucking loading and service access away from Broadway and in the service roadway.

COMMERCIAL BUILDING A (145 BROADWAY)

LOT Size Existing:	37,862 SF
LOT Size Proposed:	56,760 SF
GFA:	443,731*
FAR:	8
USE:	Commercial
PARKING:	337
MAXIMUM HEIGHT:	250 FT
LOT COVERAGE:	39%*

*Numbers reflect revised lot.



PARCEL BOUNDARY

P Parking Entrance
L Loading
E Entrance (per use type)
Active Face (per use type)

Lot Boundary
First Floor Outline
Roof Line Above

SAMPLE MASSING- SOUTHEAST AXON

Bicycle Parking
Public Outdoor Space
Lobby
Active Use
Landscaped Area
Indoor/Outdoor Visual Connection

III. BUILDING GUIDELINES

RESIDENTIAL BUILDINGS NORTH AND SOUTH (BLUE GARAGE)

Located in the center of Parcel 2, the proposed Residential Buildings North and South contributes to the housing needs of the City of Cambridge through the offering of a broad spectrum of residential units. Comprised of two standalone buildings, one facing Binney Street to the North and the other facing Broadway Street to the South, the new construction will mask the existing parking deck, significantly improving the streetscape and pedestrian exerience within the neighborhood. The following are the design guidlines for South and North Buildings:

South Building

- Setback from Broadway Street, fronting the Broadway Park.
- Standing at 350 feet, provides an opportunity for a landmark building and can be seen from afar.
- Provides home ownership and rental units.
- Dedicated loading off West Service Road, away from major pedestrian and traffic paths.
- Two active lobbies on ground floor facing Broadway Park.
- Massing of building emphasize slender, vertically-oriented proportions and vertical breaks as necessary to minimize monolithic form.
- Social space/roof deck atop

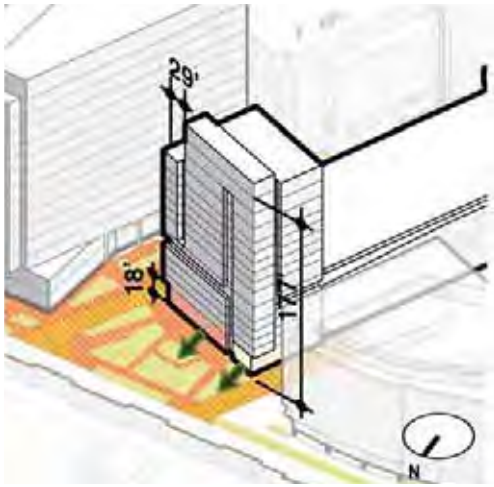
North Building

- Setback from Binney Street, fronting Binney Park.
- Stands at 157 feet, in respect to lower height of the neighborhood to north.
- Accomodates a proportionate share of affordable, middle-income and three-bedroom units.
- Ground floor plan contains active lobby as well as dedicated retail or active use space.
- Dedicated service and loading off East Service Road.
- Vertical breaks in the facade regulate massing.
- Social space/roof deck atop

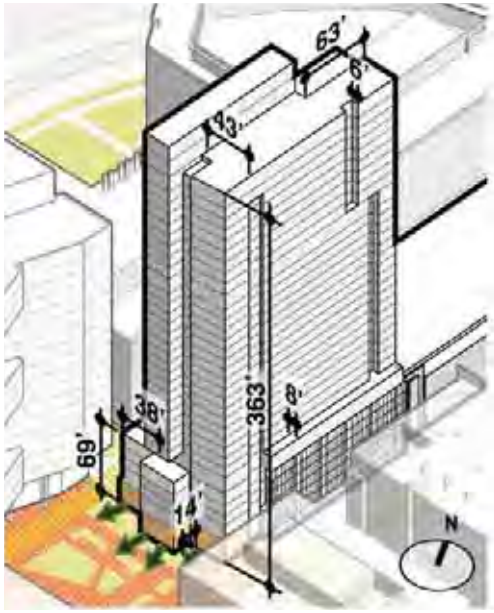
RESIDENTIAL BUILDINGS NORTH AND SOUTH (BLUE GARAGE)

Lot Size Existing:	91,848 SF
Lot Size Proposed:	72,950 SF
GFA:	421,053
FAR:	8
USE:	Residential
PARKING:	1,170
MAXIMUM HEIGHT:	350 FT
LOT COVERAGE:	71%*

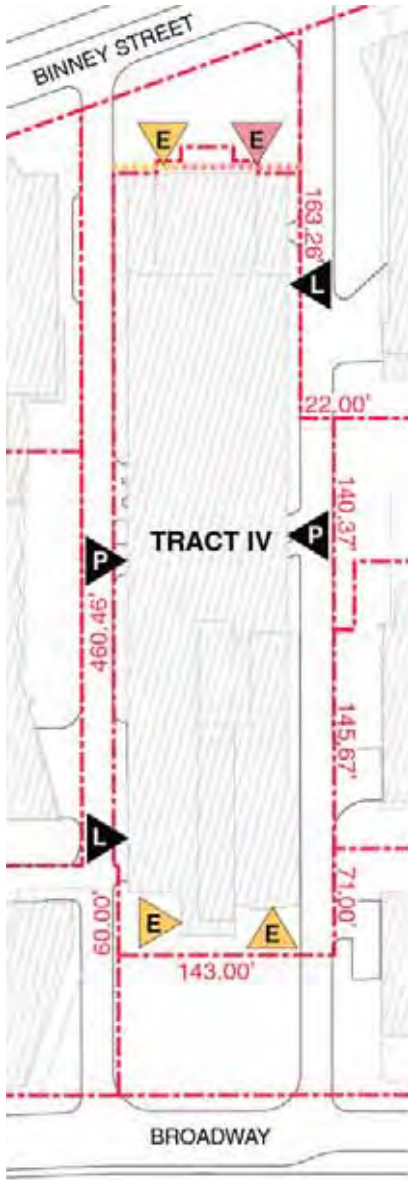
*Number reflects revised lot.



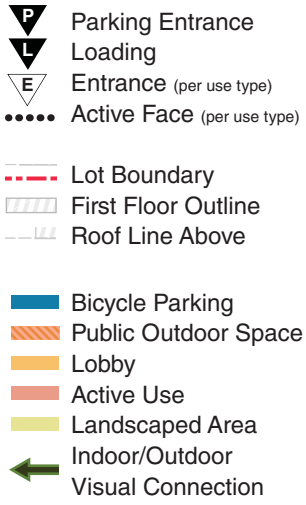
NORTH WEST AXON



SOUTH EAST AXON



GROUND FLOOR LOT BOUNDARY



III. BUILDING GUIDELINES

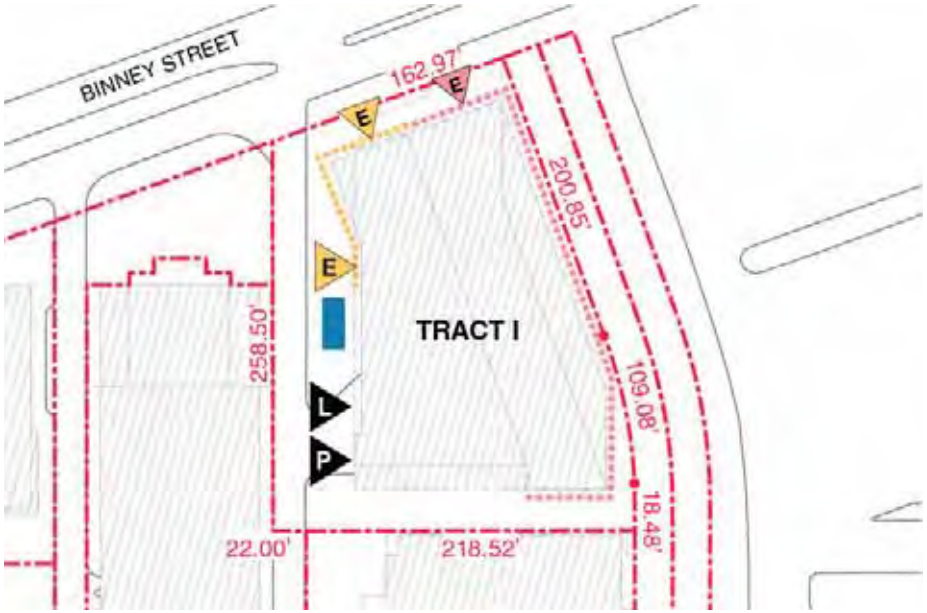
COMMERCIAL BUILDING B (250 BINNEY STREET)

Located along Binney Street, next to the 6th Street Connector, the proposed scheme for Commercial Building B responds to the site's irregular perimeter resulting in a trapezoidal floor plate and building form, while individual facades respond to site-specific conditions on each side of the building. The following are the design guidlines for Commercial Building B:

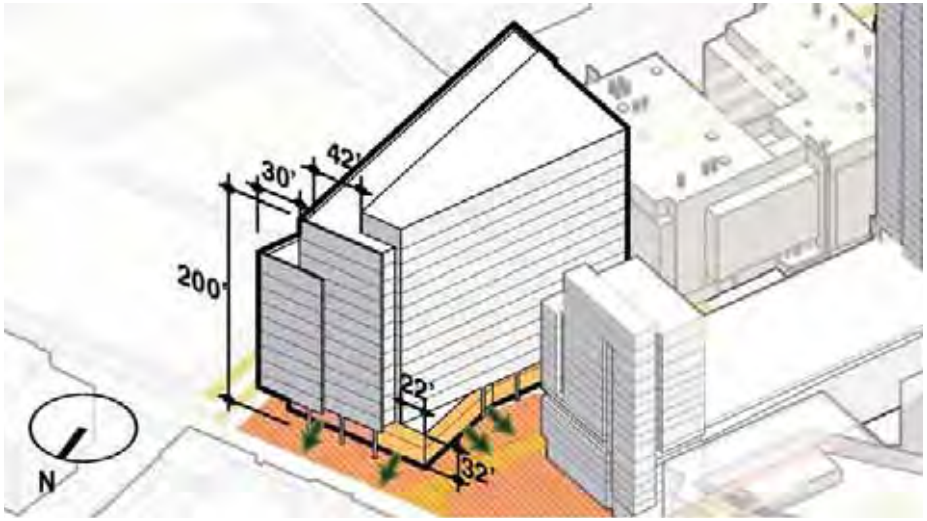
- Ground floor steps back to provide a more generous path of travel for pedestrians and cyclists.
- Active use space facing Binney Park angles to align to Binney Street and to provide a frontage to the public realm.
- Massing of volume is read as a series of overlapping conditions and setbacks.
- Building steps down toward 6th Street Connector with green roof amenities.
- Vertical breaks alleviate the reading of the volume.
- Active use and active lobby establishes the program on the ground floor.
- Service and loading is located on East Service Road.

COMMERCIAL BUILDING B (250 BINNEY STREET)

Lot Size:	60,622 SF
GFA:	318,644 SF
FAR:	5.25
USE:	Commercial
PARKING:	Up to 650
MAXIMUM HEIGHT:	Up to 200’
LOT COVERAGE:	58%



PARCEL BOUNDARY



SAMPLE MASSING- NORTHWEST AXON

Parking Entrance
Loading
Entrance (per use type)
Active Face (per use type)

Lot Boundary
First Floor Outline
Roof Line Above

Bicycle Parking
Public Outdoor Space
Lobby
Active Use
Landscaped Area
Indoor/Outdoor Visual Connection

IV. FACADE GUIDELINES

The following Façade Guidelines are designed to help define the different strategies necessary to differentiate street level facades, upper level facades and the characteristics of commercial exteriors and residential exteriors. The objective is to select a mix of materials that help make a building architecturally distinct but contextually appropriate, clearly define a building as residential or commercial, are visually interesting from the street level, reinforce broader design principles that define the proposed building and strike a balance between sustainability and architectural interest.

IV. FACADES GUIDELINES - COMMERCIAL

STREET LEVEL CONDITIONS:

Ground Floor - Transparency at the ground floor level reveals the activity within the building, extending the public realm and enlivening the streetscape.

CURTAIN WALL PANELS:

FIGURE R10.1.1B

Curtain Wall Panels - Variation in glazing types, frame depths and scales of horizontal and vertical expressions heightens visual interest.

GLAZED VOLUMES:

Glazed Volumes - Reveals and recesses in the facade breakdown the proportions of large facades. Plane changes on the facade allow opportunities for exterior spaces and introduce a smaller scale of inhabitation on the façade

OPAQUE WALL AREAS:

FIGURE R10.1.1C

Opaque Wall Areas -Introducing solid wall cladding embeds the scale of occupants and interior spaces on the elevations in addition to allowing for complementary materials to the urban context. Opaque wall areas will incorporate depth, scaling elements and create shadow.

IV. FACADES GUIDELINES - RESIDENTIAL

STREET LEVEL CONDITIONS:

FIGURE R10.1.1D

Transparency at the ground floor highlights the residential lobby and animates the streetscape.

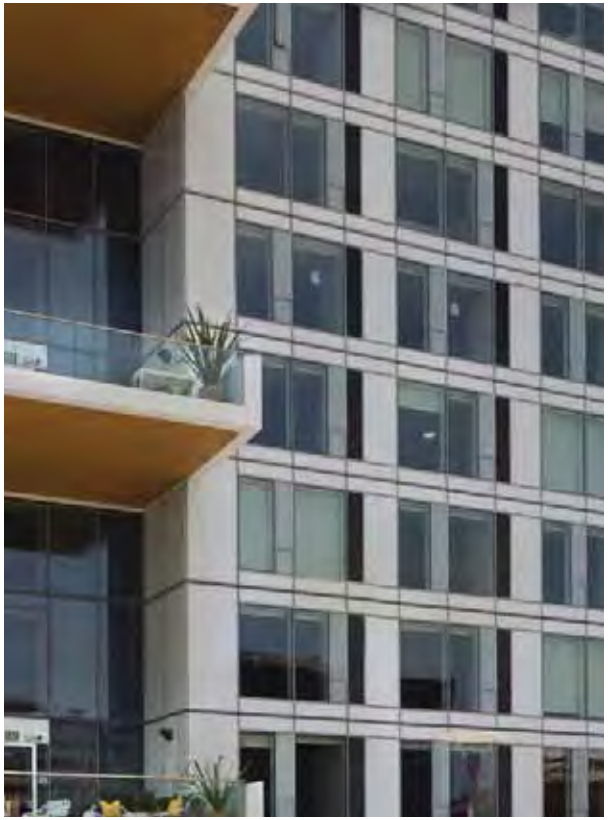
Well lit visible lobbies at the ground floor are designed to be the entrance to someone's new home. By creating a transparent and welcoming lobby, a strong sense of activity that is very inviting can be established along the street.

A podium and tower expression is enhanced through material changes and various breaks in the building. This strategy helps to reduce the scale of the building as it comes to the ground floor.

UPPER LEVEL CONDITIONS:

FIGURE R10.1.1E

Inset balconies create visual interest and relief in large facades helping to break down the scale of the building as well as providing an outdoor space for residents to enjoy.



Punched window openings in the facade is a sustainable design approach that seeks to increase energy efficiency to meet the energy code and LEED requirements; while also respecting adjacencies to surrounding buildings. This is achieved through a combination of window glass and opaque materials which can be used architecturally to create interesting visual patterns.

Horizontal spandrels and other pattern facades can be used to accentuate thinner proportions within the building These strategies work in combination to break down the scale of the mass.

APPENDIX

CONSOLIDATED COMMENT LIST / RESPONSE TO COMMENTS NOVEMBER 2016

The following pages list the consolidated comments from the Cambridge Redevelopment Authority and the Cambridge Community Development Department. These comments accompany the Response to Comments Figures submitted Nov 2016. Selected figures have now been consolidated into the IDCP Rev. 2 Document. Design Review Level Comments and Figures should reference the Response to Comments Figures submitted Nov 2016 or Individual Building Design Review Documents.

APPENDIX ITEMS: SEPARATE DOCUMENTS

Items A through D are original Appendix Items found in Separate documents for the IDCP submitted Aug 2016. Item E is an additional document for the IDCP Rev.2 Submitted February 2017.

A. STUDY SUPPORTING DOCUMENTATION

B. CERTIFIED TIS

C. ENVIRONMENTAL IMPACT STUDIES

D. SUSTAINABILITY SUPPORTING DOCUMENTATION

E. STEAM UTILIZATION FEASIBILITY REVIEW

RTC 1. PROPOSED DEVELOPMENT PLAN

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.1 145 BROADWAY (COMMERCIAL BUILDING A)

R1.1.1 Retail and Active Use in Lobby

CRA6	145 Broadway - Consider reconfiguring retail space at ground level: Office lobby could be moved to center of Broadway frontage instead of southeast corner.	145 Broadway - Retail/Active use
CRA9	145 Broadway- An additional entry point off Broadway might be provided to the retail space located at the corner of Broadway & Galileo for more flexibility	145 Broadway - Retail/Active use
CRA14	145 Broadway - Consider adding another retail area facing Broadway by shifting the building entrance under the cantilevered office floors above and reducing the size	145 Broadway - Retail/Active use
CDD6	145 Broadway- Retail edge along new park is compromised by the parking elevator lobby and awkward layout for the space	145 Broadway - Retail/Active use
CDD7	145 Broadway - 68% active edge along Broadway is below 75% requirement	145 Broadway - Retail/Active use

R1.1.2 West Façade on Galileo and Broadway

CRA1	West (Galileo) façade of 145 Broadway (another puncture)	145 Broadway - Western Façade
CRA2	West façade (Galileo) should better reflect this major western gateway entry into Kendall and better relate to context. Broad flat minimally articulated façade visually reads as a large wall	145 Broadway - Western Façade
CRA10	The Galileo corner misses the opportunity to create a proper Gateway experience. One might consider the form of the Marriott by Safdie to add interest and pick up the existing rhythm	145 Broadway - Western Façade
CDD3	Re-evaluate sheer façade on west side	145 Broadway - Western Façade

R1.1 145 BROADWAY (COMMERCIAL BUILDING A)

R1.1.1 RETAIL AND ACTIVE USE IN LOBBY: Applicant received several comments and questions about the configuration of the lobby, retail and active use space. The lobby entrance is designed to be oriented toward the corner of Broadway Park both to provide an active use element and to provide further strength to the concept of reconfiguring Broadway Park as an open plaza that connects the entrances of 145 Broadway, 105 Broadway and the South Residential Tower as shown in **FIG. R1.1.1A**, ensuring an active plaza, all times of the day. An updated ground floor plan for 145 Broadway that relocates the garage shuttle elevators to the interior of the building **FIG R1.1.1B**. The result is increased glass line along the park for the northeast retail suite. In addition, the plan provides for outdoor seating along Broadway to increase the active use edge percentage from the 68% detailed in the MXD IDCP August 09, 2016 submission to 75% see **FIG. R1.1.1C.** The retail will be designed with flexibility to ensure multiple options for entrances to accommodate various uses and potential demising plans. **FIG. R1.1.1C** Represents the concept plan's active frontage on Broadway being Retail and Consumer Services or Active Public Gathering Space for a cohesive response to the proposed developments and the public realm

ZONING REFERENCE: 14.38 Active Ground Floors. The ground floor of newly constructed buildings utilizing 50,000 square feet or more of Infill GFA, where that ground floor fronts onto Main Street, Broadway or Ames Street, must be occupied by (i) Retail and Consumer Service uses, as listed in Section 14.21.3, or (ii) active public gathering space (whether enclosed or open), along a minimum length of seventy-five percent (75%) of the building façade along this frontage. Dimensional variations and alternate uses may be approved by the Planning Board upon determining that the specific uses and designs proposed are consistent with the purpose and intent of this Section 14.36. Alternatively, if a Concept Plan provides for the redevelopment of existing buildings to include new Retail and Consumer Service uses along the ground floor of any of the identified street frontages, then the Planning Board may permit a reduction in the required length of active street frontage for new buildings for up to fifty percent (50%) of the length of new active street frontage provided in existing buildings and only if the Board finds that it results in a better outcome for the District as a whole.

Exhibit Reference: FIG. R1.1.1A, FIG. R1.1.1B, FIG. R1.1.1C
Comment Reference: CRA6, CRA 9, CRA14, CDD6, CDD7

R1.1.2 WEST FAÇADE ON GALILEO AND BROADWAY: Applicant received comments and questions about the west façade and its form as a gateway. The relative simplicity of the west facade is intended to contrast with the interlocking joinery of the eastern façade and makes a definitive marker on the prominent corner of Galileo and Broadway that will be further supported by lighting and facade articulation further defined in design review. As requested in the comments, a study was conducted to review the impact of a second "puncture" on the Western facade **FIG. R1.1.2.** Applicant advocates for the preservation of the Western façade with a single "puncture" and welcomes additional feedback during the design review process on how the proposed façade and lighting articulation will reinforce the gateway concept.

Exhibit Reference: FIG. R1.1.2
Comment Reference: CRA1, CRA2, CRA10, CDD3

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.1.3 Massing and Cantilevers

CRA3	145 Broadway - Upper floor massing appears to cantilever out over the west service drive on some drawings but not others. Please clarify.	145 Broadway Massing
CRA4	145 Broadway - Relate better to nearby existing buildings, Contextual base height datum line not reflected	145 Broadway massing
CDD4	145 Broadway -Concerned about cantilevers over service road and new park	145 Broadway Massing
CDD5	145 Broadway - Dimensions and floorplate above the 125 ft. mark	145 Broadway massing
CDD9	145 Broadway - K2 Design Guidelines prefer a strong podium setback tower or a distinct horizontal articulation at datum height	145 Broadway massing
CRABoard9	We do not need to respect this 85 ft. Datum line, it is mythical, it doesn't exist across the street. Diagram in the design guidelines 5.14 is a pretty horrifyingly incoherent diagram with buildings stacked on top of each other with no vertical continuity not something we should be emulating.	Form/Massing: Datum line

R1.1.3 MASSING AND CANTILEVERS: Applicant received comments about the impact of the 145 massing and cantilevers on the western service drive and Broadway Park. Applicant has made active efforts to ensure 145 Broadway is not only designed to ensure internal usability and flexibility but is also visually interesting from the street with multiple expansions and contractions. In addition, the design as proposed provides a distinctive and interesting approach to the scaling goals that are part of the K2 datum height and podium guidelines. Applicant has reviewed the proposed massing in the context of creating a functional and interesting building, along with K2 guidelines and concerns over cantilevers expressed in the comments. **FIG. R1.1.3A** and **FIG. R1.1.3B** shows a massing that reduces the cantilevers along the western service drive by 10 feet, reorients the southeast cantilevers towards the street to create visual connection and still maintains the interest and scaling inherent in the original design intent.

Exhibit Reference: FIG. R1.1.3A, FIG. R1.1.3B
Comment Reference: CRA3, CRA4, CDD4, CDD5, CDD9, CRABoard9

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.2 250 Binney

R1.2.1 Floor Plate Size

CDD14	250 Binney: Reconsider overhang along Binney Street	250 Binney Design/Massing
CRA2	Overhang on massing proposal for 250 Binney building may limit success of retail/active use	250 Binney Design/Massing
PLNBoard10	Board Member 2: 250 Binney feels big at the moment.	250 Binney Design/Massing
PLNBoard13	Board Member 3: The 250 Binney feels a bit big.	250 Binney Design/Massing
CRABoard10	250 Binney - the floorplates are the exact same width as 145 Broadway - 40' clear span space surrounding the core in all directions. Do not agree with calling for a reduced floorplate size on 250 Binney Street.	250 Binney Design/Massing
CDD13	250 Binney: Floorplate feels bulky/large	250 Binney Design/Massing

R1.2 250 BINNEY STREET

R1.2.1 FLOOR PLATE SIZE: Applicant has received comments regarding the size of the floor plates at of 250 Binney Street. The 250 Binney building is being designed to support programmatic flexibility for both potential office and laboratory tenants. In the current market context, both within the Kendall Square submarket and the broader Boston market, many creative and technology firms are seeking large, open floor plates in order to foster connectivity and communication between their workforce and ease of configuration for a variety of space planning possibilities. The typical floor plate at 250 Binney Street is targeted at 30,000 Gross Square Feet, which is consistent with current market demand. The floor plate is also a product of efficient and effective core to exterior wall dimensions that foster the kind of programmatic flexibility necessary to be competitive in the market and attract excellent long-term tenants.

Exhibit Reference: FIG. R1.2.1
Comment Reference: CDD14, CRA2, PLNBoard10, PLNBoard13, CRABoard10, CDD13

Chapter	Source	Comment (paraphrased)	Topic
R1.2.2 Massing			
	CDD12	250 Binney: Break down overall massing especially large sheer faces along Binney and Sixth Walkway	250 Binney Design/Massing
	CDD15	250 Binney: Height of podium on Sixth Walkway seems low	250 Binney Design/Massing
	CRA1	Massing proposal for 250 Binney building (east façade) reflects a human scale toward the Sixth Walkway but perhaps to detriment of broader east facing elevation	250 Binney Design/Massing

R1.2.2 MASSING: Applicant has received comments about the massing and form of 250 Binney Street. Two comments were received regarding the Binney Street façade, the proposed overhang and the pedestrian experience along the street. As shown in **FIG. R1.2.2**, a number of design evolutions have been made to address these concerns. The entire Binney Street façade has been pulled south 5'-3" to provide more setback from the property line and street **(A)**. The first two floors have also been pulled in on the northern and western sides to allow for increased pedestrian circulation and to create a more generous arcade **(A')** and gathering space on the site across from the Binney Park. In addition, the edge of the western façade element has been pulled south to create a deeper reveal between two of the volumes and a more cohesive relationship with the opposite end of the revised western façade. Lastly, as further discussed below, the proportions of the overhanging volume have been adjusted to make it feel more integrated into the overall design. Other comments focused on the height of the podium component along the 6th Street Connector and the length of the eastern façade**. FIG. R1.2.2** shows proposed massing modifications designed to address these concerns. The podium has been increased from 2 to 3 stories **(B)** and the projecting volume at the corner of Binney Street and the 6th Street Connector has been modified to pull the intersection point between the two eastern volumes further south **(C)**. This had the effect of decreasing the uninterrupted length of the eastern façade and by differentiating the two components, creating a dynamic and visually interesting corner at Binney Street. Additionally, comments were received on the proximity of the southern façade to the abutting building and the uninterrupted length of the western façade along the service drive. As shown in **FIG. R1.2.2**, to address these comments, the southern façade has been angled in at the center **(D)** creating more visual separation along the pedestrian connector and giving the façade more movement. Along the western façade, the team has modified the design to include an inset corner at the southwest corner of the building. This strategy helps to break down the massing and length of the façade **(E)**.

Exhibit Reference: FIG. R1.2.2, FIG. R1.2.3
Comment Reference: CDD12, CDD15, CRA1

Chapter	Source	Comment (paraphrased)	Topic
R1.2.3 Height			
	PLNBoard10	Board Member 2: 250 Binney feels big at the moment.	250 Binney Design/Massing
	PLNBoard13	Board Member 3: The 250 Binney feels a bit big.	250 Binney Design/Massing
	CRABoard10	250 Binney - the floorplates are the exact same width as 145 Broadway - 40' clear span space surrounding the core in all directions. Do not agree with calling for a reduced floorplate size on 250 Binney Street.	250 Binney Design/Massing
	CDD13	250 Binney: Floorplate feels bulky/large	250 Binney Design/Massing
R1.2.4 Loading Docks			
	CDD17	250 Binney: loading dock does not conform to K2 guidelines, wider than 30 ft. and no architectural doors	250 Binney Design/Massing

R1.2.3 HEIGHT: 250 Binney Street has been designed with flexible floor to floor heights to allow for multiple possible configurations of the on-floor mechanical systems that may be necessary depending upon whether the building is used as an office, a laboratory, or both. To respond to concerns raised about height, the number of stories has been reduced to twelve and the maximum height of the last occupied floor has been reduced from 200’ to 185’, as shown in **FIG. R1.2.3** and **FIG. R1.2.4** this reduction will allow the building to respond more sensitively to the surrounding context **(F)**. In comparison to other proposed buildings on Binney Street the end façade has much less impact given the relative width.

Exhibit Reference: FIG. R1.2.2, FIG. R1.2.3, FIG. R1.2.4
Comment Reference: PLNBoard10, PLNBoard13, CRABoard10, CDD13

R1.2.4 LOADING DOCKS: CDD staff has noted that the curb cut at the loading dock is wider than the 30’ recommended by K2. The loading dock has been thoughtfully located at the interior most corner of the site, off of the internal service drive, which protects it from view from the public streets. It is located directly adjacent to the garage access, so that the impact of these two uses on the overall façade and pedestrian experience can be minimized as much as possible. The design will include loading dock doors and additional design measures have been implemented to minimize its visual impact along the service drive, such as recessing it from the primary façade and forming the streetscape to minimize the curb cut as much as possible. A buffer has been added between the garage entry and the loading dock and the curb cut has been narrowed to 30’ by extending the sidewalk zone further south and angling the drive leading to the loading dock. **FIG. R1.2.1**

Exhibit Reference: FIG. R1.2.1
Comment Reference: CD17

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.3 RESIDENTIAL BUILDINGS

R1.3.1 Balconies

CRA3	There should be balconies on residential buildings	Balconies
CDD11	Residential building needs balconies	Balconies
PLNBoard2	Board Member 1: For balconies, is there an adequate safe railing?	Balconies

R1.3.2 Residential Lobbies

CRA33	Realistic evaluation of south residential building's need for two lobbies. Retail use of a portion of this façade would help activate the park if the lobbies could be combined.	Residential lobbies
PLNBoard15	Board Member 4: Concerned about the separation of the lobbies - would like to understand that in much greater detail.	Residential Lobbies
CDD9	Concerns about realistic need for a double-lobby space for residential building- limiting ability to activate edge of open space in the future and east-west visual	Residential - Lobbies

R1.3.3 Exterior Character of Residential Buildings

CRA4	The visual relationship between the two residential buildings should be evaluated	Residential Building Design

R1.3.4 Character of Binney Street Frontage

CRA5	Conflicting info regarding parking vs. residential uses make up the frontage of the Binney St. Residential	Residential Building Design

R1.3 RESIDENTIAL BUILDINGS

R1.3.1 BALCONIES: Applicant received three suggestions that the residential buildings include balconies. As indicated in the Residential Facades and Fenestration Guidelines, the residential buildings will provide balconies. The exact size and location will be included with the Design Review submission for the residential buildings. **FIG. R1.3.1** represents a conceptual study of the North Residential building with such proposed balconies in the slots per the design guidelines.

Exhibit Reference: FIG. R1.3.1, Design Guidelines: Residential Facades and Fenestration Guidelines
Comment Reference: CRA3, CDD11, PLNBoard2

R1.3.2 RESIDENTIAL LOBBIES: Applicant received multiple questions and comments about the proposal for two, separate lobbies for the South Residential building. The space for ground floor use in the South Residential building is tightly constrained by the locations of parking circulation ramps required within the Blue Garage and shows as **FIG. R1.3.2** Further, the internal programming of the lobby, including USPS required package room dimensions and ADA access dimensions, results in a lobby size that is well below comparably sized lobby spaces as presented in **FIG. R1.3.2A** for a Condo Lobby comparison and **FIG. R1.3.2B** for a Rental Lobby comparison. The lobbies as designed are already constrained by dimensional requirements. Consolidation or further reduction from the proposed lobby size would call into question the viability of the residential project which is a critical element to creating a successful and dynamic mixed use development. A letter from our residential brokerage and marketing expert describing the necessity of the two-lobby proposal is included in the **Appendix: Exhibit A**. In addition, the lobbies are separated to allow for different maintenance and elevator service contracts between a condo home owners association and a multifamily property owner who often have different standards and requirements. For clarity, there is no distinction between affordable and market rate housing lobbies. The lobbies are distinguished by the ‘for rent’ housing and the ‘for sale’ housing, both of which contain an equal proportion of affordable and market rate units.

Exhibit Reference: FIG. R1.3.2, FIG. R1.3.2A, FIG. R1.3.2B
Comment Reference: CRA33, PLNBoard15, CDD9

R1.3.3 EXTERIOR CHARACTER OF RESIDENTIAL BUILDINGS: CRA staff asked for further clarity on whether the two, proposed residential buildings will look similar or distinct. Applicant proposes that the two buildings be visually distinct from each other but consistent with the proposed Residential Facades and Fenestration Guidelines. The specifics of the exterior of the building will be further detailed in the required Design Review process for each building.

Exhibit Reference: Design Guidelines: Residential Facades and Fenestration Guidelines
Comment Reference: CRA4

R1.3.4 CHARACTER OF BINNEY STREET FRONTAGE: The CRA staff has inquired about the relationship of parking within the Blue Garage to the Binney Street façade. **FIG. R1.3.1** represents a conceptual study of the proposed North Residential building with the parking masked in the same building fenestration. Screening elements will be consistent with the design guidelines for parking structure screening.

Exhibit Reference: FIG. R1.3.1, Design Guidelines: Residential Facades and Fenestration Guidelines/Adapted Garage Structures
Comment Reference: CRA5

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.3 RESIDENTIAL BUILDINGS

R1.3.5 Blue Garage Façade

CRA25	Consider other means of softening the Blue Garage façade, other than re-planting trees	Blue Garage Façade
CDD10	Revisit Blue Garage screening and façade treatment on all sides of the building, especially those that are the terminating views of each of the east-west pedestrian corridors	Blue Garage Façade
CRABoard11	Screening the garage is not necessary. Screening might trigger a need for mechanical ventilation. Let it be a garage, it is what it is. Cities have service roads, cities have alleys.	Blue Garage Façade

R1.3.6 Blue Garage Bicycle Location

PLNBoard20	Board Member 5: Bicycle parking should be addressed- concerned about the number of spaces on upper floors and required the use of an elevator, need to keep working on this.	Bicycle Parking
CRA15	Residential building should have a portion of bike parking at ground level for the most frequent bike users to avoid extensive demand for the bike elevator	Bike Parking
TPT3	Not all long-term bike parking spaces should be located on upper floors of Blue garage, some should be in a more convenient location	Bike Parking

R1.3.7 Bicycle Transportation Routes

CRA14	Further study to improve transportation routes for bicyclists to and from designated long-term parking areas within each structured parking facility	Bike Parking

R1.3.8 Exact Locations of Short and Long Term Bike Parking

TPT4	Exact locations of short-term bike parking needs more detailed review. Final plan for locations of short and long term bike parking in IDCP (subject to continuing design review for each building)	Bike Parking

R1.3.5 BLUE GARAGE FAÇADE: Applicant received multiple comments with differing points of view on treating the Blue Garage façade**.** Applicant proposes a combination of landscaping and graphic treatments on the east face of the garage focusing on the surfaces visible from the proposed east-west pedestrian connections. Additional enclosure or screening of the garage has the potential to require substantial lighting and mechanical upgrades to the Blue garage which would substantially increase equipment requiring energy consumption which is inconsistent with overall district sustainability goals. Applicant proposes that the specific nature of these treatments be included as part of the Design Review process for the South Residential building in Phase II. Potential percent examples of strategies to enliven the façade of the Blue Garage are included in the Design Guidelines: Adapted Garage Structures.

Exhibit Reference: Design Guidelines: Adapted Garage Structures
Comment Reference: CRA 25, CDD10, CRABoard11

R1.3.6 BLUE GARAGE BICYCLE PARKING LOCATION: Applicant has received multiple comments about the location of long term residential bike parking in the Blue Garage. As shown in attached **FIG. R1.3.6A**, a location for 10% of the total long term bike parking is located on the ground floor in addition to a plan to accommodate the existing car and van pool parking spots, EV charging stations and accessible vehicle parking spots. Applicant proposes that the exact location within the first floor for long term bike parking be reviewed as part of the Design Review process for the South Residential building. **FIG. R1.3.6B** represents the remaining long term bike parking distributed in accordance with the phases of the North and South Residential Buildings.

Exhibit Reference: FIG. R1.3.6A, FIG. R1.3.6B
Comment Reference: PLNBoard20, CRA15, TPT3.

R1.3.7 BICYCLE TRANSPORTATION ROUTES: CRA staff advocated for the continued study of the transportation routes of bicycles from the site to short and long term bike parking. Applicant proposes that further study of bicycle routes beyond what was specified in the MXD IDCP Submission of August 9, 2016 take place during the Design Review process for each individual building. In general, Applicant is committed to providing efficient bicycle routes that allow for safe circulation and prevent potential safety hazards and conflicts between pedestrian, vehicle and bicycle circulation.

Exhibit Reference: N/A
Comment Reference: CRA 14

R1.3.8 EXACT LOCATIONS OF SHORT AND LONG TERM BIKE PARKING: TP&T staff recommended additional specific information about the location of short and long term bike parking facilities. **FIG. R1.3.6A** In addition to details included in the MXD IDCP submission of August 9, 2016 and the details that will be provided as part of the required PTDM plan, applicant will present specific location for all long and short term parking locations during Design Review of each building. **FIG. R5.3.3** shows a combined long and short term bike location plan with existing and proposed Hubway locations.

Exhibit Reference: FIG. R1.3.6A, FIG. R5.3.3
Comment Reference: TPT4

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 1 DEVELOPMENT COMPONENTS

R1.4 INNOVATION SPACE

R1.4.1 Conceptual Design and Operational Details

CDD34	Innovation Space: need an operational plan that summarizes how the proposed space is planned to function and a reporting process to allow for monitoring. Either prior to the permit, or as a condition of the ongoing review process submitted prior to the development of 145 Broadway and 250 Binney	Innovation Space
CRA6	More info regarding Innovation Space proposal on Main St: entry and façade renovations, programmatic organization, details of below market program.	Innovation Space

R1.4 INNOVATION SPACE

R1.4.1 CONCEPTUAL DESIGN AND OPERATIONAL DETAILS: CRA and CDD staff memos requested additional detail about the character and operation of the innovation space at 255 Main Street. Conceptual details on the character and phasing of the innovation space can be found in **FIG. R1.4.1- FIG. R1.4.4** Additional details about the entry design and interior character will be included as part of a separate Design Review Packages prepared specifically for the Innovation Space at 255 Main Street. Identity and entry opportunities are represented in **FIG. R1.4.4**

In addition, the specific operations plan will be presented at the Design Review phases. Specifics in operation depend upon whether Boston Properties manages the Innovation space directly or subleases the space to a third party operator of innovation space. As required by zoning, the MXD IDCP plan commits that a portion of the space will be offered at below market rate.

Exhibit Reference: R1.4.1 - R1.4.4
Comment Reference: CDD34, CRA6

Chapter	Source	Comment (paraphrased)	Topic
R1.5 URBAN DESIGN			
R1.5.1 Distance Views of the Project			
	CRABoard5	The residential building being the tallest building in the City it would be useful to get renderings from several key viewing points both inside and outside the City.	Residential Building Design

R1.5 URBAN DESIGN

R1.5.1 DISTANCE VIEWS OF THE PROJECT: The CRA Board has requested additional massing views of the project from various distances, especially the South Residential tower. **FIG. R1.5.1A-F** represents views from similar locations to the requested views from 88 Ames Street Residences Project. Massing views include the proposed MIT PUD Projects to represent the future context of the MXD proposed buildings.

The views are listed as follows:

FIG. R1.5.1A MASSING VIEW KEY
FIG. R1.5.1B VIEW FROM HARVARD BRIDGE LOOKING NORTH
FIG. R1.5.1C VIEW FROM CHARLES RIVER ESPLANADE LOOKING NORTH
FIG. R1.5.1D VIEW FROM LONGLELLOW BRIDGE LOOKING WEST
FIG. R1.5.1E VIEW FROM 1-93 LOOKNIG SOUTH
FIG. R1.5.1F VIEWS ON BROADWAY AND BINNEY STREET

Exhibit Reference: R1.5.1 A-F
Comment Reference: CRABoard5

RTC 3. OPEN SPACE PLAN

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 3 OPEN SPACE

R3.1 BLUE GARAGE ROOF

CRABoard3	Kathy Born: More consideration of open space, a more active use of the roof of the Blue Garage. Possibilities for programming in open spaces including the garage.	Blue Garage Rooftop
CRABoard7	Margaret: Would like to encourage the roof of the Blue Garage to be a place for the people in the two residential buildings to meet their neighbors.	Blue Garage Rooftop
PLNBoard18	Board Member 5: Concept of doing something interesting in terms of open space on the garage - consider something.	Blue Garage Rooftop
CRA10	Explore further scenarios for the utilization of the green roof on the north garage - the publicness of it, or use of it as an amenity by residents or both	Blue Garage Rooftop
CRA26	Further explore scenarios for providing public and private residential access on the Blue Garage roof	Blue Garage Rooftop

R3.2 BROADWAY PARK

R3.2.1 Level of Design of Parks

PLNBoard4	Board Member 2: Both the north and south open spaces are not designed thoroughly enough, need to advance the designs further. Need more movable chairs.	Broadway and Binney Street Park

R3.2.2 Emergency Call Boxes

Public1	Blue police pull boxes should be identified	Broadway Park

IDCP RESPONSE TO COMMENTS

CHAPTER 3 OPEN SPACE

R3.1 BLUE GARAGE ROOF

Applicant received several comments and questions about whether the Blue Garage will include open space for residents and what other uses may be considered in areas that are not private. As shown in **FIG. R3.1.1**, the Blue Garage will include two, separate private open spaces immediately abutting each residential project on the north and south sides of the garage. The area in between both open spaces is proposed as a solar array that will provide energy generation specifically for the residential projects.

Exhibit Reference: FIG.R3.1.1, FIG.R3.1.1B
Comment Reference: CRABoard3, CRABoard7, PLNBoard18, CRA10, CRA26,

R3.2 BROADWAY PARK

R3.2.1 LEVEL OF DESIGN OF PARKS: Applicant received a comment that the north and south parks are not designed thoroughly enough and that the parks should include moveable chairs.

Applicant agrees that the design is not finished but recommends that public spaces undergo the nest stage of design at the time of Design Review of their associated phase consistent with the MXD IDCP Chapter 9 Phasing Plan and approved as a condition of that phase. For example, the 6th Street connector would be presented and reviewed during Design Review for Commercial Building A and approved as a condition of Phase I. This process will allow for the conceptual design of the parks to be approved with the IDCP but will also provide for additional review in the future, as the phases get developed, that can accommodate potential changes in community needs or preferences.

Exhibit Reference: N/A
Comment Reference: PLNBoard4

R3.2.2 EMERGENCY CALL BOXES: Applicant received a public request that Broadway Park include Emergency Call Boxes. Broadway Park will include an Emergency Call Boxes. A proposed location has been identified for the concept plan and can be subject to further review during Design Review.

Exhibit Reference: FIG.R3.2.2
Comment Reference: Public1

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 3 OPEN SPACE

R3.2.3 Diagonal Pathways

CDD6	Diagonal pathways through the new Broadway park	Broadway Park
CRABoard4	Diagonals through the park: Sasaki has dealt with. No new diagonals are necessary, would wreck a useable space. It is pretty well tuned	Broadway Park

R3.2.4 Community Table Location

CDD8	Community table location evaluation	Broadway Park

R3.2.5 Park Plantings

Public5	Lush nature of current Broadway Park should be recognized and preserved if possible	Broadway Park

R3.2.6 Extension of West Service Drive Pavement

CDD7	Extension of pavement treatment further north along 145 Broadway	Broadway Park

R3.2.3 DIAGONAL PATHWAYS: Applicant received different comments about the diagonal pathways and desire lines through the park. Applicant notes the comments and is willing to study desire lines further but recommends that this level of review occur at the time of design review for Phase II consistent with the MXD IDCP Chapter 9 Phasing Plan.

Exhibit Reference: FIG.R3.2.1
Comment Reference: CDD6, CRABoard4

R3.2.4 COMMUNITY TABLE LOCATION: Applicant received a comment that the location of the community table should be studied. Applicant notes the comments and is willing to study table composition and location further but recommends that this level of review occur at the time of design review for Phase II consistent with the MXD IDCP Chapter 9 Phasing Plan.

Exhibit Reference: N/A
Comment Reference: CDD8

R3.2.5 PARK PLANTINGS: Applicant received a public comment stating that the lush nature of the existing park should be preserved. Applicant notes the comment and is willing to provide further details on plantings but recommends that this level of review occur at the time of design review for Phase II consistent with the MXD IDCP Chapter 9 Phasing Plan.

Exhibit Reference: N/A
Comment Reference: Public5

R3.2.6 EXTENSION OF WEST SERVICE DRIVE PAVEMENT: Applicant received a comment about extending the plaza paving condition further North along the West Service drive to create connection with the pathway located to the North of 145 Broadway. **FIG 3.2.2** shows the extension of the paving.

Exhibit Reference: FIG R3.2.2
Comment Reference: CDD7

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 3 OPEN SPACE			
R3.3 PLAN FOR OTHER OPPORTUNITIES FOR PUBLIC REALM WITHIN MXD			
	CDD1	Infill proposed by Broad Institute calls for review of surrounding public spaces on south block	South Block
	CRA11	Explore options to enhance the public realm in other parts of the MXD Zoning district beyond what was presented in the IDCP, in collaboration with other property owners.	Open Space Design/South Block
R3.4 ENCLOSED WINTER GARDEN SPACE			
	PLNBoard19	Board Member 5: Consider if an enclosed indoor winter garden somewhere in the project may work, or explain why it doesn't make sense.	Winter Garden

R3.3 PLAN FOR OTHER OPPORTUNITIES FOR PUBLIC REALM WITHIN MXD

Applicant received a request to define other areas in the MXD where other property owners may explore public realm enhancements as part of a broader planning framework. **FIG R3.3.1** shows future potential areas of public realm enhancement that may be considered by other property owners. Applicant will coordinate with other property owners but is not recommending specific plans or proposing any of the areas shown in Applicant's proposal other than those listed in Section 3.2.

Exhibit Reference: FIG R3.3.1, IDCP revisions 3.2 Proposed Open Space
Comment Reference: CDD1, CRA11

R3.4 ENCLOSED WINTER GARDEN SPACE

Applicant was asked to explore the possibility for other enclosed indoor spaces similar to the Winter garden that was explored in earlier proposals. During many community meetings, Applicant heard that there was a strong preference TO maintain as much open space as possible. As a constrained urban infill site, there are many demands on the limited ground floor space and Applicant is unable to locate a suitable space for indoor public gardens.

Exhibit Reference: N/A
Comment Reference: PLNBoard19

RTC 4. RETAIL PLAN

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 4 RETAIL			
R4.1 RETAIL MARKET ANALYSIS BOUNDARY			
	CRA7	Retail Plan: clarify geographic boundaries between market analysis, maps, and composition analysis from Graffito SP.	Retail Plan
R4.2 RETAIL VIABILITY			
	CRA21	Retail space at 250 Binney as proposed will be difficult to lease. While designed for future retail, a plan for another initial use may be necessary.	Retail Plan
	CDD33	Retail: a greater diversity of retail uses should be explored as Kendall has reached market saturation for food service	Retail Plan
	PLNBoard22	Board Member 5: Regarding retail, concerned about the viability of retail in this area where rents are very high and some companies provide amenities to employees, need to address those two things.	Retail Plan

IDCP RESPONSE TO COMMENTS

CHAPTER 4 RETAIL

R4.1 RETAIL MARKET ANALYSIS BOUNDARY

Applicant was asked to clarify the boundaries of the market analysis that was provided**. FIG R4.1.1** supplements the IDCP maps included on page 165 of the MXD IDCP submitted on August 9, 2016.

Exhibit Reference: FIG.R4.1.1
Comment Reference: CRA7

R4.2 RETAIL VIABILITY

Applicant received a number of comments expressing concern about retail viability in light of existing low traffic areas at 250 Binney, high rents, dining amenities provided by companies within their office buildings and the general idea that Kendall has reached a saturation point for food service.

Applicant also has concerns about general retail viability but believes the continued growth of the neighborhood, the addition of residential space and the potential future development of the Volpe site offer opportunities that will strengthen future retail viability. Further, the concerns being expressed in comments reflect a common understanding that the MXD has materially less traffic than Main Street and, even after being built out, will likely reflect a lower market rent. Applicant is also aware that some employers provide dining amenities but observes that employees often regard these amenities principally as a time saving conveniences and not a preferred dining option, minimizing their potential adverse impact on surrounding retailers. Finally, Applicant agrees that there are abundant dining options in the market area and is planning the proposed retail space with as much flexibility as possible in terms of space division, options and infrastructure should other viable retail opportunities present themselves at the time of marketing and leasing. Retail is a very dynamic use with constantly changing concepts and consumer preferences. Applicant will continue to monitor the evolution of Kendal Square's retail market to maximize the potential for complementary uses within the market area and consistent with the requirements found in Article 14.

Exhibit Reference: N/A
Comment Reference: CRA21, CDD33, PLNBoard22

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 4 RETAIL

R4.3 RETAIL RETROFITS AT 105 BROADWAY, 150 BROADWAY AND 255 MAIN STREET

CRA9	The description of retail retrofits does not provide a written update on the Main Street retail opportunity illustrated in the plan document	Retail Plan/255 Main Design
CRA23	Retail Plan: in 105 and 150 Broadway existing buildings, would accessibility ramps be required to convert to retail or, could the retail level be lowered to grade?	Retail Plan

R4.4 SIZE OF RETAIL SPACES

CRA22	Retail Plan: should identify where larger retailers could be accommodated should MIT's leasing efforts fall short. If not necessary, they could be subdivided.	Retail Plan
CDD32	Retail: To ensure local and independent retail remains viable, spaces in 250 Binney will have to be smaller than 3,000 SF	Retail Plan

R4.5 RETAIL AND ACTIVE USE REQUIREMENTS IN ARTICLE 14

CRA8	Retail Plan: provide details or cross-reference to other chapters, describing how the active street frontage requirement in MXD zoning	Retail Plan

R4.3 RETAIL RETROFITS AT 105 BROADWAY, 150 BROADWAY AND 255 MAIN STREET

Applicant was asked to provide further detail about the future potential retail at 105 Broadway, 150 Broadway and 255 Main Street. As previously stated, these retail spaces are not part of this proposal and were included at the direction of CRA staff for the purposes of district wide planning. If in the future these spaces are converted to retail, they would require substantial retrofits. Both 105 Broadway and 150 Broadway's lobbies are above sidewalk grade and will likely require accommodations for accessibility that could potentially include ramps but will be subject to future design efforts. The retail at 255 Main Street is a potential two story opportunity located behind a set of decommissioned venting louvres. The space is comparatively shallow but could accommodate a limited restaurant or café use, convenience or service retail or other boutique or dry goods uses. Additional details about 255 Main Street can be found on page 164 of the MXD IDCP submitted on August 9, 2016.

Exhibit Reference: N/A
Comment Reference: CRA9, CRA23

R4.4 SIZE OF RETAIL SPACES

Applicant received a comment indicating that 250 Binney should restrict its retail suite sizes to 3,000 square feet to ensure local retail and a comment asking Applicant to identify where larger blocks of space could be located to accommodate larger retailers (including grocery and pharmacy) should other recent proposals for the district not achieve the anticipated uses in their proposals. The retail spaces are being designed for maximum flexibility to ensure they will be responsive to the evolution of the retail market and with a clear understanding of the community preference for local retail, nighttime uses and convenience retail like drycleaners, pharmacy and barber shops or salons. At this time, Applicant does not propose any specific division of space within the two larger retail spaces on the west side of 145 Broadway and east side of 250 Binney in order to preserve the opportunities for larger retail or multiple smaller retailers depending on the future conditions of the constantly evolving retail market. **FIG R1.1.1B** shows the areas for Active Use/Retail at 145 Broadway being approximately 7,225 sf and 1,300 sf respectively. **FIG R1.2.1** shows the areas for Active Use/Retail at 250 Binney Street of approximately 8,029 sf.

Exhibit Reference: FIG.R1.1.1B, FIG.R1.2.1
Comment Reference: CRA22, CDD32

R4.5 RETAIL AND ACTIVE USE REQUIREMENTS IN ARTICLE 14

Applicant was asked to provide cross references to other chapters in the MXD IDCP submission of August 9, 2016 related to the active use requirements and whether the retail spaces are being designed and programmed as exempt retail spaces. Additional information about active use edges can be found in the MXD IDCP submission of August 9, 2016 in Chapter 1.3.1 Overall Vision, Chapter 1 Development Components page 45, page 58, page 71 and Chapter 4. The retail spaces are being designed with flexibility for multiple potential uses including uses that qualify as Exempt Commercial Space under Article 14. However, it is premature to commit to programming at this stage as most retailers will not commit to space until the physical space is built. Also, retail concepts and consumer preferences constantly change based on broader trends and local market dynamics. The Applicant will continue to monitor the retail market throughout the development of the proposed project.

Exhibit Reference: N/A
Comment Reference: CRA8

RTC 5. TRANSPORTATION

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 5 TRANSPORTATION			
R5.1 WALKWAYS AND SERVICE DRIVES			
	CDD3	Upgrading service roads including wider sidewalk, uniform paving treatment, upgraded façade treatment for Blue Garage	Service Drives
	CRABoard12	Sidewalk on the service roads are quite wide enough, it is the same width as Broadway's new sidewalk in front of Volpe, seem perfectly adequate for the volume of pedestrians.	Service Drives
	CRA16	Greater detail for pedestrian experience improvements along east and west service drives	Service Drives
R5.2 PARKING LOCATION AND PUBLIC ACCESS			
	CRA13	Maintaining a portion of parking capacity across the district for visitor parking needs to be reflected	Parking
	CRA27	Clarify whether all 3 north parcel garages (Blue, 250 Binney, 145 Broadway) will be open for public parking and if nighttime as well.	Parking
	CRA28	Clarify how many spaces the three north parcel garages will be solely dedicated to residential and commercial tenants vs. how many public or visitor spots remain available	Parking
	TPT2	TPT is requesting an updated parking demand analysis with a final minimum and maximum number of auto parking spaces and a stand-alone parking management plan	Parking

IDCP RESPONSE TO COMMENTS

CHAPTER 5 TRANSPORTATION

In addition to the responses below, applicant is completing the required PTDM plan and providing the technical memo updating the TIS trip generation as discussed with TP&T.

R5.1 WALK WAYS AND SERVICE DRIVES

Applicant received various comments about the East and West Service Drives that serve as the primary loading and vehicular access through the site and how they might be modified to enhance the pedestrian experience. **FIG. R5.1.1** shows a typical section of the East Service Drive. Applicant reviewed the width of the sidewalks and service drives and determined that the existing sidewalk width is adequate to service current and future projected pedestrian requirements. More importantly, the width of the service drives needs to be maintained to allow for traffic to continue to circulate in the event of a drop off, breakdown or fast delivery. While technically one lane service drives, the existing width ensures that any of the aforementioned events can occur and traffic is able to continue to circulate without causing back up onto city streets. **FIG. R5.1.2** shows truck turning studies for different truck sizes and illustrates the fact that the service drives need to maintain their current width for operations. Applicant will provide additional signage and site furnishings, including benches, to enhance the pedestrian experience.

Exhibit Reference: FIG. R5.1.1, FIG. R5.1.2
Comment Reference: CDD3, CRABoard12, CRA 16

R5.2 PARKING LOCATION AND PUBLIC ACCESS

Applicant received questions on whether the Blue Garage as well as the garage at 145 Broadway and 250 Binney Street are planned to be publicly accessible **FIG. R5.2.1** and where visitor parking will be accommodated. The Blue Garage is publicly accessible and currently has 500 spaces allocated for commercial use. 145 Broadway and 250 Binney Street are not planned for public use but will be designed to accommodate visitor parking. The parking for the residential buildings is planned in the Blue Garage. Additional specific information on parking will be provided in the PTDM plan to be submitted by Applicant.

Exhibit Reference: FIG. R5.2.1
Comment Reference: CRA13, CRA27, CRA28, TPT2

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 5 TRANSPORTATION

R5.3 PEDESTRIAN CIRCULATION

CDD4	A more direct pedestrian connection along northern edge of park on Broadway across front of garage - visual connection	East/West Ped Circulation
CDD5	Add new or enhancements to existing pedestrian path through the Blue Garage	East/West Ped Circulation
TPT1	Additional analysis and design is also needed on the proposed east-west pedestrian connections on the north parcel including through the Blue Garage	East/West Ped Circulation
CRA30	Clarify where Blue Garage pedestrians enter the blue garage on Binney and on Broadway.	Circulation
CRABoard2	Pedestrian circulation should filter down to Broadway before going to Galileo - past the struggling retail on Broadway, therefore a connection through the Blue Garage is unnecessary. Length of the garage end to end is 600ft, a bit more than a typical DC block, a lot less than a midtown Manhattan block and about the same as a Back Bay Block - it's not an enormous length to go around.	Blue Garage Pedestrian Access

R5.4 LOADING MANAGEMENT PLAN

CRA31	A service/loading management plan will be required to minimize daytime delivery times and to keep loading dock rolling doors closed for as much of the day as possible	Loading and Service Plan

R5.5 TURNING RADIUS

PLNBoard16	Board Member 4: Turning radius into the driveways on Binney are far too large.	Streetscape Design

R5.6 PEDESTRIAN ACCESS TO BLUE GARAGE

CRA30	Clarify where Blue Garage pedestrians enter the blue garage on Binney and on Broadway.	Circulation
CRA32	How will pedestrian access to the Blue Garage be maintained at Binney and Broadway during construction of all of the buildings, especially the residential.	Phasing/Construction

R5.3 PEDESTRIAN CIRCULATION

Applicant received various comments about internal pedestrian pathways and circulation within the project particularly as it relates to pedestrian circulation from east to west. **FIG. R5.3.1A** and **FIG. R5.3.1B** shows the proposed pedestrian circulation plan that is deliberately designed to reinforce activation of the parks, ensure retail viability and provide paths to logical connection points within the district, for example the corner of Galileo and Broadway. The existing pedestrian path, **FIG. R5.3.2** through the center of the Blue Garage will be enhanced to include new signage and a differentiated paving pattern to reinforce the crosswalk across the service drives. Applicant proposes that additional design of the Blue Garage pedestrian path and the pathways on the east west connectors take place during the Design Review of the phase that is outlined in the MXD IDCP phasing plan in Chapter 9 as a condition of Design Approval.

Exhibit Reference: FIG. R5.3.1A, FIG. R5.3.1B, FIG. R5.3.2
Comment Reference: CDD4, CDD5, TPT1, CRA30, CRABoard2

R5.4 LOADING MANAGEMENT PLAN

Applicant was asked to provide a service/loading management plan to minimize the amount of time when loading doors are open. Applicant will commit to providing a service/loading management for each of the residential and commercial buildings prior to issuance of a building permit for each building. This is consistent with the Applicant's recent project at 88 Ames Street.

Exhibit Reference: N/A
Comment Reference: CRA31

R5.5 TURNING RADIUS

Applicant received the comment that the turning radius form Binney into the site was too large. The radius of that connection is designed to accommodate deliveries from trucks with 53' trailers as shown in **FIG. R5.5.1**

Exhibit Reference: FIG. R5.5.1
Comment Reference: PLNBoard16

R5.6 PEDESTRIAN ACCESS TO BLUE GARAGE

Applicant received comments requesting clarification on pedestrian access to the Blue Garage both during and after construction. The construction access plan will be developed in Phase II with other construction logistics plans in conjunction with other factors including vehicular traffic, bicycle circulation, construction staging and safety considerations that require further details that will be submitted through the Design Review Process. Pedestrian access for the Blue Garage in the final built condition is shown in **FIG. R5.2.1** with further refinement to occur when the Residential Projects submit a full Design Review package.

Exhibit Reference: FIG.R5.2.1
Comment Reference: CRA32, CRA30

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 5 TRANSPORTATION			
R5.7 DROP OFF LOCATIONS			
	CRA29	Clarify how passenger, visitor, and taxi drop-offs and delivery drop-offs will be provided, particularly residential building lobbies, including any drop off / pull off spaces provided on adjacent streets or service roads	Circulation
R5.8 HUBWAY AND SHORT TERM BIKE PARKING			
	TPT5	Final location and commitments for Hubway need more detailed review and approval by the City's Hubway manager	Hubway
R5.9 ON GOING CRA ACTIVITY			
	CRA17	IDCP should recognize commitment of CRA to continue to monitor and report traffic and transportation data as described in MEPA documents.	IDCP Edit
	CRA18	Open space illustrations and circulation plans should conceptually acknowledge CRA's streetscape redesign effort currently under way	IDCP Edit
R5.10 KSTEP			
	TPT6	A final MOU for the KSTEP program prior to issuing permit	KSTEP
	Public2	Transit Advisory Committee (see letter): KSTEP funds should be used for a proposed new bus route from Sullivan to Kenmore via Kendall. Urge BP to require tenants to provide transit passes to employees, and require tenants to charge full parking cost to employees unless they have a parking cash-out program. BP should take steps to avoid proliferation of employer based shuttle system. Request that KSTEP disbursement of funds be revisited to delay the timing.	KSTEP
R5.11 SIZE OF UNDERGROUND PARKING STRUCTURES			
	CRA12	Assess the realistic need for five floors of new below grade parking	Parking

R5.7 DROP OFF LOCATIONS

Applicant was asked to provide greater detail on visitor and delivery drop off for the residential and commercial projects. As shown on **FIG. R3.2.1**, a multi-use lay-by/drop off area is planned for the West Service drive in Phase II. This area is designed to accommodate a truck with a 53' lay by area as well as taxi and ride share drop offs, short term deliveries and pedestrian loading and unloading. In addition the service drives that exist today are designed to be wide enough to accommodate drop offs, breakdowns or deliveries while allowing for the continued circulation of traffic.

Exhibit Reference: FIG. R3.2.1
Comment Reference: CRA29

R5.8 HUBWAY AND SHORT TERM BIKE PARKING

Applicant was asked to provide further information on the location of Hubway stations and provide for greater clarity on short term parking. **FIG. R5.8.1** shows the location a 27 dock Hubway built into the existing planter structure along Broadway in front of 150 Broadway and an expanded Hubway dock along the existing locating at Binney Street. In addition, **FIG. R5.8.1** shows the short term bike parking for 145 Broadway has been distributed in smaller pods along Galileo and Broadway to accommodate for multiple, potential, future retail entrances. Further, short term bike parking that is part of the requirement for 145 Broadway and the South Residential building have been moved into Broadway Park at the direction of CDD staff. Short term Bike parking that is part of the requirement for the North Residential has been moved into Binney Park as well. The final location of the short term bike parking in both the Broadway and Binney Parks will be in a visible location and agreed upon during Design Review for the Phase II and III open spaces.

R5.9 ON GOING CRA ACTIVITY

Applicant was asked to include information about some of the Cambridge Redevelopment Authority's ongoing activities including traffic monitoring and the redesign of surrounding roadways. As required and further descried, in the MEPA submission and approvals, the Cambridge Redevelopment Authority has made an ongoing commitment to continue to monitor and report on traffic and transportation data. In addition, the CRA has commissioned planning studies associated with the surrounding streetscape. **FIG. R3.3.1**

Exhibit Reference: FIG.R3.3.1
Comment Reference: CRA17,CRA18

R5.10 KSTEP

Applicant received a public comment about the use of KSTEP funds and various potential transit enhancements recommendations including a rubber tire bus from Sullivan Square to Kenmore Square via Kendall Square. Further, applicant received recommendations about encouraging tenants to engage in various behavioral and incentive programs, like charging full price for parking and requiring employers to provide transit passes to employees. Applicant acknowledges the comments and notes that the use of KSTEP funds is governed by the multiple parties in the MOU and that the Applicant will be working with the City to establish a PTDM plan that will address employer and tenant transit commitments.

Exhibit Reference: N/A
Comment Reference: TPT6, Public2

R5.11 SIZE OF UNDERGROUND PARKING STRUCTURES

Applicant was asked whether there was a realistic need for five floors of subgrade parking. Given the size of the building footprints and below grade infrastructure requirements, five floors of parking are required. The only alternative to accommodate additional parking that is not below grade is the addition of levels onto the Blue Garage.

Exhibit Reference: N/A
Comment Reference: CRA12

RTC 6. INFRASTRUCTURE

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 6 INFRASTRUCTURE

R6.1 STORMWATER

	Public3	Charles River Watershed Association (see letter)	Stormwater
	PLNBoard23	Board Member 5: Issues previously discussed regarding Stormwater management are important and should be addressed.	Stormwater

R6.2 GROUNDWATER IMPACTS

	PLNBoard3	Board Member 1: Water retention and sustainability - would like to see if there is any study on groundwater deflection caused by these buildings.	Stormwater

R6.3 CAPACITY STUDY

	DPW2	Anticipate undertaking a capacity study, which includes a metering program to evaluate current flow conditions in the system.	Sanitary Sewer

IDCP RESPONSE TO COMMENTS

CHAPTER 6 INFRASTRUCTURE

R6.1 STORMWATER

Applicant received comments and a letter about storm water management. To manage the storm water, the landscaping guidelines and current plans call for indigenous drought resistant plantings and pervious paving surfaces, where possible, to maximize the opportunities for storm water retention and infiltration onsite. The specifics on planting schedules and locations will be provided during Design Review of the appropriate phase. In addition, each project will provide a proportionate amount of I&I mitigation that will be determined in consultation with the Department of Public Works after Design Review and prior to the issuance of a Certificate of Occupancy. Finally, as part of the district solution to storm water both Commercial Building A and B will provide onsite water storage tanks that will retain storm water and be used as process make up water for each building's cooling tower. In the event of overflow, injection wells will ensure that outflow to the City storm water system is minimized.

Exhibit Reference: N/A
Comment Reference: Public3, PLNBoard23

R6.2 GROUNDWATER IMPACTS

Applicant received an inquiry about potential impacts that foundations may have on groundwater deflection. **Appendix: Exhibit B** is a letter from our Geotechnical Engineer, Haley & Aldrich, stating that the foundation designs present no adverse impact to the ground water.

Exhibit Reference: N/A
Comment Reference: PLNBoard3

R6.3 CAPACITY STUDY

Applicant received a letter from the Department of Public Works about a metering program to evaluate current flow conditions. Applicant awaits additional details but is prepared to evaluate existing flow conditions.

Exhibit Reference: N/A
Comment Reference: DPW2

RTC 7. ENVIRONMENTAL IMPACTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 7 ENVIRONMENTAL IMPACTS

R7.1 WIND ANALYSIS

CRABoard13	Wind is a real concern in the winter at the west corner of the 145 building. If indeed that requires some sort of alteration of the façade at the corner to shed the vortex that is worth doing, although would hate to clip off or round the corner.	Wind
PLNBoard6	Board Member 2: The wind analysis is pretty soft, not a lot of hard data, would like to see the more detailed wind study.	Wind

IDCP RESPONSE TO COMMENTS

CHAPTER 7 ENVIRONMENTAL IMPACTS

R7.1 WIND ANALYSIS

Applicant received general questions about wind and comments about the sufficiency of the desktop wind study provided in the MXD IDCP submission from August 9, 2016. Chapter 7 of the MXD IDCP included a selection of the desktop wind model run by RWDI on the initial massing of all four proposed buildings. In addition to these select elements of the analysis, the entire desktop study can be found in the appendices located on the CD rom attached in the back sleeve of the MXD IDCP book and submitted electronically to the Community Development Department. Applicant understands the concern about wind, however, wind tunnel analysis is sensitive to changes in massing. Accordingly, Applicant proposes that each building provide a wind tunnel analysis during Design Review after massing has been approved as part of the Infill Development Concept Plan and at a time when the building design can be appropriately altered to respond to a wind tunnel study. For the purposes of comparison, Applicant has included a wind tunnel analysis of existing summer and winter conditions **FIG. R7.1.2** serve as a baseline for future review.

Exhibit Reference: FIG.R7.1.1, FIG.R7.1.2
Comment Reference: CRABoard13, PLNBoard6

RTC 8. SUSTAINABILITY

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 8 SUSTAINABILITY			
R8.1 RESILIENCE			
	DPW3	Evaluate how the proposed development has been designed to mitigate potential for impact to the site from surface flooding in the anticipated 2030 100-yr storm event flood depths found in the Nov 2015 Climate Change Vulnerability Assessment	Climate Change/Resiliency
	DPW4	Evaluate how the proposed development will recover from a surface flooding event consistent with the potential 2070 100-yr storm event flood depths found in the Nov 2015 Climate Change Vulnerability Assessment	Climate Change/Resiliency
	PLNBoard5	Board Member 2:Is the entrance to the garage at 145 Binney is protected against flooding in the 2070 vulnerability assessment scenario?	Climate Change/Resiliency
	CDD29	Sustainability standards: Incorporation of resiliency strategies that are protective of building occupants, activities and systems	Sustainability Guidelines
R8.2 INNOVATIVE SUSTAINABILITY DETAILS			
	CRABoard2	Conrad: Like to hear some creative an innovative detail what the sustainability plans for the district are. Materials, Stormwater, and planting regimen around open space, reflect performance in the buildings. What people inside are doing in terms of waste and energy usage. Future presentations need to dive deeper.	Sustainability

IDCP RESPONSE TO COMMENTS

CHAPTER 8 SUSTAINABILITY

R8.1 RESILIENCE

Applicant received inquiries about the plans to mitigate flooding associated with the potential 2030 100 year storm and 2070 100 year storm. As shown on page 206 Figure 6.4 of the MXD IDCP submission of August 9, 2016, the site benefits from an existing elevation that projects little to no flooding throughout the site. However, as also shown on the plan, the surrounding streets are projected to retain standing water. Applicant is exploring raised floors in transformer and switch gear rooms to add additional clearance from potential floodwaters subject to review and approval by applicable utility providers. Additionally, Applicant may employ mobile, water filled or other type of temporary dam solutions as a secondary precaution to prevent potential flooding of the garage structure or major entrances. Ultimately, the recovery for any building will be dependent upon the duration and severity of a potential weather event but the combination of the natural elevation benefits and strategies listed above will allow for an efficient recovery.

Exhibit Reference: FIG.6.4 IDCP p 206
Comment Reference: DPW3. DPW4, PLNBoard5, CDD29

R8.2 INNOVATIVE SUSTAINABILITY DETAILS

Applicant received inquiries about specific and creative sustainability strategies being proposed. In addition to the proposed solar array over a portion of the Blue Garage as well as the storage and use of Strom water in cooling towers, Applicant has provided additional details on Sustainability Guidelines in this IDCP Response Submission that will apply to Design Review for all future buildings. Given the relatively distinct nature and proposed use of each building and the zoning requirements for further review, the creative and in depth sustainability strategies will be specifically outlined as part of the Design Review process. The concepts and guidelines listed in the MXD IDCP submission from August 9, 2016 and in this response, are intended to outline possibilities and standards that each building will follow in future submissions.

Exhibit Reference: N/A
Comment Reference: CRABoard2

Chapter	Source	Comment (paraphrased)	Topic
CHAPTER 8 SUSTAINABILITY			
R8.3 GREEN ROOF AND SOLAR GENERATION			
	CDD21	More detail on how solar ready design will be balanced with utilization of green roofs and considering the feasibility of on-site solar generation	Sustainability
R8.4 COGENERATION FEASIBILITY STUDY			
	CDD22	A commitment to complete a feasibility study of using the existing co-generation facility within a particular time frame	Sustainability
R8.5 STRETCH CODE			
	CDD23	Clarify whether the newly adopted Stretch Code effective January 2017 will be used.	Sustainability
R8.6 TARGET LEED VERSION			
	CDD24	Clarify whether LEED Version 4 Gold will be utilized	Sustainability

R8.3 GREEN ROOF AND SOLAR GENERATION

Applicant was requested to provide an approach on balancing solar and green roofs. Green roof and solar generation cannot exist in the same, exact space and serve their intended purpose. The exact balance and presence of either or both green roofs and solar generation facilities will depend upon the solar conditions that apply to each building. **FIG. R3.1.1** shows the balance between solar and occupied, green roof top space that applies to the Residential Buildings on the North Garage. In general, green roof treatments will be concentrated on roof top areas that are in shade but still allow for plant growth but are less productive potential locations for solar generation. Additionally, solar facilities may be vertically installed on rooftops with proper solar orientation. Details for Commercial Building A and B will be provided during Design Review.

Exhibit Reference FIG.R3.1.1
Comment Reference: CDD21

R8.4 COGENERATION FEASIBILITY STUDY

Applicant was requested to provide a specific time frame for a feasibility study to use the existing cogeneration facility located onsite. The cogeneration facility is not owned by the Applicant but is instead a privately-owned facility that would require approval and consent from the existing owner. Applicant will commit to completing the study as part of the Design Review for Commercial Building B in phase II.

Exhibit Reference: N/A
Comment Reference: CDD22

R8.5 STRETCH CODE

Applicant was asked whether the 2017 Stretch Energy Code will be employed. All buildings will comply with the newly adopted Stretch Energy Code for 2017.

Exhibit Reference: N/A
Comment Reference: CDD23

R8.6 TARGET LEED VERSION

Applicant was asked to clarify which version of LEED Gold will be employed. Design for each building began in January of 2016 and all buildings were registered under LEED V3 in April of 2016, the current standard. As of October 2016, new projects register under LEED V4 but the USGBC will maintain LEED V3 as an active standard until it's eventual sunset of June 30, 2021. However, Applicant will commit that all buildings will be designed to LEED V4 Gold standards.

Exhibit Reference: N/A
Comment Reference: CDD24

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 8 SUSTAINABILITY

R8.7 ADDITIONS TO SUSTAINABILITY GUIDELINES

CDD25	Sustainability standards: Assess feasibility of geothermal for each new building including shared geothermal	Sustainability Guidelines
CDD26	Sustainability standards: Consider energy storage as part of each new building	Sustainability Guidelines
CDD27	Sustainability standards: Commissioning program for each building (following the LEED Enhanced Commissioning credit)	Sustainability Guidelines
CDD28	Sustainability standards: Analysis of pathways to net zero - ways in which each new building could be adapted to be carbon-neutral as technologies advance over time	Sustainability Guidelines
CDD30	Sustainability standards: Incorporate evolving sustainability standards as established at time that an individual building is going through the design review process	Sustainability Guidelines
CDD31	Tracking of GHG emissions over time	Sustainability Guidelines

R8.7 ADDITIONS TO SUSTAINABILITY GUIDELINES

Applicant was asked to incorporate specific study obligations in addition to the proposed Sustainability Guidelines in chapter 8 of the MXD IDCP submitted on August 9, 2016. For clarity, specific sustainability strategies and commitments for each building will be provided during Design Review. The following study obligations and preferences will be added to the Sustainability Guidelines:

Geothermal Assessment: The Design Review submission for each building will include a feasibility assessment for geothermal systems including the potential for shared geothermal with other building sites.

Energy Storage: Incorporating energy storage systems into the building or sites, either at the time of construction or in the future, is encouraged.

Commissioning: Each project will incorporate mechanical, electrical, plumbing, envelope and renewable energy systems commissioning standards that are required of the LEED Enhanced Commissioning credit.

Pathways to Net Zero: Each Design Review submission will include a conceptual assessment of how the building can be adapted to net zero greenhouse gas emissions in anticipation of future technologies and in consideration of technology that exists at the time of the Design review. Potential means of reaching net zero greenhouse gas emissions may include building retrofits, incorporation of new technologies and alternative energy procurement or generation.

Resilience: Each project will provide a resilience narrative that outlines asset level and potentially district wide strategies that protect building systems and occupants in the event of major storm events or long term power outages and potential impacts associated with climate change including floods, storm surges, changes in sea level.

Evolving Standards: Each building's Design Review will incorporate the most recent standards set forth in applicable zoning to accommodate future evolutions in sustainability strategies.

Tracking Greenhouse Gas Emissions: Each Design Review submission will include a Greenhouse Gas emissions assessment for both the building being reviewed and an update of Greenhouse Gas emissions for the building that was reviewed and approved in the prior Design Review process.

Exhibit Reference: N/A
Comment Reference: CDD25, CDD26, CDD27, CDD28, CDD29, CDD30, CDD31

RTC 9. PHASING PLAN

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 9 PHASING

R9.1 OPEN SPACE PHASING

CDD18	Phasing: phase two should include the new park on Broadway, and upgrades to the east-west pedestrian paths, except for the one at 250 Binney which would be phase 3	Phasing
CDD19	Phase 3 should include the upgrades to both north-south service drives	Phasing
DPW1	Consider construction logistics and operations of each phase of the project early in design development	Phasing
CDD2	145 Broadway- Construction phasing for the east-west path north of 145 Broadway needs to be clarified	Phasing

CHAPTER 10 DESIGN GUIDELINES

R10.1 DESIGN GUIDELINES

CDD20	Design guidelines should add additional language, images, and diagrams addressing architectural character and materials; ground floor design and uses; character of streets and pathways, and how the project will enhance this character	Design Guidelines

IDCP RESPONSE TO COMMENTS

CHAPTER 9 PHASING

R 9.1 OPEN SPACE PHASING

Applicant received multiple requests for clarification on the phasing of each open space related to the project including the parks and east to west pedestrian connector paths. A color-coded plan showing greater detail of the open spaces that will accompany each building and phase is represented in **FIG. R9.1.1** for Phase I, **FIG. R9.1.2** for Phase II and **FIG. R9.1.3** for Phase III. Also, describing the Open space related to project phasing is **IDCP revisions 3.2 Proposed Open Space**. Each phase indicates the required open space per allotted GFA for that phase and demonstrates that through provided open space and enhanced existing open space that each phase provides more than the necessary open space area.

Applicant proposes that a greater detail of design, beyond what is shown in the MXD IDCP August 9, 2016 submission accompany each building phase based on **IDCP revisions 3.2 Proposed Open Space**. For example, the 6th Street connector Design Review would accompany the Commercial Building A-Phase I Design Review process. This approach would allow the design of the proposed open spaces to evolve at the same time as the building associated with that phase, ensuring continuity in the evolution of design ideas and community interests.

Exhibit Reference: FIG.R9.1.1, FIG.R9.1.2, FIG.R9.1.3, IDCP revisions 3.2 Proposed Open Space
Comment Reference: CDD18, CDD19, DPW1, CDD2

RTC 10. DESIGN GUIDELINES

RESPONSE TO COMMENTS

Chapter	Source	Comment (paraphrased)	Topic

CHAPTER 10 DESIGN GUIDELINES

R10.1 DESIGN GUIDELINES

	CDD20	Design guidelines should add additional language, images, and diagrams addressing architectural character and materials; ground floor design and uses; character of streets and pathways, and how the project will enhance this character	Design Guidelines

IDCP RESPONSE TO COMMENTS

CHAPTER 10 DESIGN GUIDELINES

R10.1 DESIGN GUIDELINES

R10.1.1 DESIGN GUIDELINES: CDD staff has requested the addition of more information about the architectural and urban design character of the building façade treatments.

The additional guidelines are listed as follows:

FIG. R10.1.1A	**GARAGE STRUCTURES**
FIG. R10.1.1B	**COMMERCIAL FACADES AND FENESTRATION (STREET LEVEL CONDITIONS/ CURTAIN WALL PANELS)**
FIG. R10.1.1C	**COMMERCIAL FACADES AND FENESTRATION (GLAZED VOLUMES/ OPAQUE WALL AREAS)**
FIG. R10.1.1D	**RESIDENTIAL FACADES AND FENESTRATION GUIDELINES (STREET LEVEL CONDITIONS)**
FIG. R10.1.1E	**RESIDENTIAL FACADES AND FENESTRATION GUIDELINES (UPPER LEVEL CONDITIONS)**

Exhibit Reference: R10.1.1 A-E
Comment Reference: CDD20

Chapter	Source	Comment (paraphrased)	Topic
GENERAL COMMENTS			
	CRA11	145 Broadway - The jenga pieces appear to have glass atria on three cantilevers on page 11, but not reflected in floorplans	145 Broadway - Design
	PLNBoard12	Board Member 3: Do not sacrifice all aesthetics on the alter of LEED points.	145 Broadway - Façade
	CRA19	History section of IDCP needs discussion of K2C2 planning process and evolution of Kendall as mixed-use district over the past decade	IDCP Edit
	CRA20	IDCP should describe amendment to KSURP and MXD zoning and list all the progressive changes brought by those two documents	IDCP Edit
	CDD16	250 Binney: Needs to include further improvements to the east-west path on the south side of the building	250 Binney Design/Massing
	CRA15	Additional seating areas might be considered facing the park itself	145 Broadway - landscaping


SASAKI