

2

Urban Design

The following section demonstrates that the Project conforms with Article 19.30: Citywide Urban Design Objectives. Section 2.2 below provides supplemental information to demonstrate how the Project conforms to area-specific urban design guidelines.

2.1 Citywide Urban Design Objectives (Article 19.30)

2.1.1 19.31: Responsive to Existing or Anticipated Development

As discussed in section 1.3.4 of Chapter 1, *Project Description* of this application, the potential future redevelopment of the existing City-owned parking lot located behind Buildings B-1 and B-2 is anticipated by the design of the Project. By incorporating a series of thru-block pedestrian passageways and residential lobbies, ground floor retail, and landscaped public realm, the Project provides access to a variety of uses for the City parking lot, including the potential future shared public courtyard contemplated by the City. This courtyard could be connected to Lafayette Square by the new public passageway (Central Market) to be provided by the Project.

The creation of a 2-story parking garage beneath Building B-1 allows for the demolition of the existing garage at 47 Bishop Allen Drive so that parcel can then become new residential development, which is a long-term goal of the City for Bishop Allen Drive.

2.1.2 19.32: Pedestrian and Bicycle-Friendly; Relationship to Surroundings

The Project will provide up to 42 short-term, exterior at-grade bicycle parking spaces located throughout the Project Site (locations shown on Figure 5.4). Although the short-term spaces are shown on private land, the Applicant is discussing alternate locations on City land to enhance the retail plaza experience. Long-term, covered and secure bicycle parking will be provided in two-level bicycle rooms in each new building, totaling 298 spaces, with access from the back of the proposed buildings. Refer to Figures 5.5a and 5.5b, and Figure 5.6 for the long-term bicycle parking plans for the Project.

Creating a vibrant and exciting ground floor plane has continued to be a key priority for the Project throughout the permitting process. The Applicant has worked closely with the community and City to create a preliminary retail plan that will include a diversified mix of retail uses that seamlessly blends with the public domain. The retail spaces are designed with porous storefronts that allow for a multitude of activities merging the private and public spaces. Creating an uninterrupted avenue at the confluence of indoor and outdoor spaces immediately adjacent to the front façade encourages/enacts natural retail activity and flow where people will be shopping, eating, and recreating.

2.1.3 19.33: Environmental Impacts and Mitigation

The Project has been designed to minimize impacts to adjacent properties.

Noise Mitigation

The Project is expected to comply with City of Cambridge Noise Ordinance. The site layout and building design, as it relates to the service/loading area and management of deliveries and location of building mechanical equipment at the Project Site were also considered.

Building Mechanical Equipment

Since the Project is in the early stages of the design process, the full extent and specific details of the building mechanical equipment are unknown at this time. Based on preliminary design plans, the anticipated mechanical equipment associated with the Project are expected to include the following:

- Energy recovery units,
- Cooling towers,
- Cogen units, and
- Emergency generators.

For both Buildings B-1 and B-2, all major building mechanical equipment will be strategically located on the roof behind a screenwall, which will be sized to prevent both visual and audible impact by the units. Building B-1 utilizes the proposed height of the structure to provide noise attenuation. The rooftop of this building 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 residential uses.

Because Building B-2 is lower in height than Building B-1, appropriate low-noise mechanical equipment will be selected during the design development process, as well as potential noise mitigation measures will be considered, such as acoustical enclosures and/or acoustical

silencers. The Project will incorporate noise attenuation measures as necessary to comply with City of Cambridge's noise criteria.

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 design development 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.

Building Service and Loading

Loading and trash removal will be conducted at the rear of Building B-1, as shown on Figure 5.3b. Building B-1 is equipped with a loading dock also accessed via the rear allowing for retail deliveries to both buildings and residential move in/move out to occur without any impact to city streets.

Impact on Proposed Residential Use

The proposed residential 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 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.

Stormwater Management

The Project Site is primarily impervious roof area. Under proposed site conditions, the Project will not produce changes in either the pattern of, or rate of, stormwater runoff. The stormwater management approach controls will be established in compliance with CDPW standards. As discussed in section 6.2 of Chapter 6, *Infrastructure* of this application, the Project will not result in the introduction of any peak flows, pollutants, or sediments that would potentially impact the receiving water of the local municipal stormwater drainage system.

The primary method for stormwater management for the Project Site will be infiltration, which will be incorporated as part of the stormwater management system to reduce site peak flows, replenish groundwater and provide quality treatment for building roof and site runoff. The

proposed on-site detention/infiltration system design complies with the City's Low Impact Development Guidelines. For the current design, the infiltration systems will be sized respective to each building and site area tributary to the system. The sizing of each system will comply with the City's standard of recharging the total volume of runoff generated between the pre-development 2-year 24-hour storm discharge and the post-construction 25-year 24-hour storm discharge. The Project will include overflow connections from the infiltration systems to the City-owned 10-inch storm drain, which discharges downstream into the Charles River.

Shadow Impacts

Net new shadow cast by the Project is illustrated in Figures 2.1a through 2.1c. Summer, Fall, and Spring shadows have limited impact on private property. Shadow impact on the adjacent City parking lot is mitigated by shifting Building B-1 towards Mass Ave and by rotating the eastern façade in plan. During the winter months, the longer shadows reach Clement G. Morgan Park for 1 hour per day from 2:30pm to 3:30pm. For other seasons, the park is not impacted.

Changes in Grade

The Project Site comprises of primarily impervious surface area with a small area designated as outdoor space located adjacent to the City-owned parking (the Lot 6 parcel). The Project consists of demolishing the existing buildings on-site (except the historic building at 411-413 Mass Ave), and providing a pedestrian corridor between the proposed buildings in a location where a building currently exists (Figure 1.3). The proposed grading at this location will tie into existing grades at the Project Site limits with a continuous slope that meets ADA requirements for both cross and longitudinal slope. Proposed grades generally slope from elevation 19.50 CCB at the back of the Project Site adjacent to the City parking lot towards Mass Ave at elevation 19.00 CCB. The Project will include a small section of vertical curbing within the "pocket park" adjacent to the City parking lot. The grading at this location will slope towards low points on-site that will discharge into the proposed stormwater infiltration system.

The first floor elevations for the proposed buildings will be coordinated to tie into existing grades in the public way, maintaining existing elevations to the maximum extent practicable. Proposed grades will slope away from the proposed building to low points in the Project Site, or across public sidewalks that slope towards existing roadway drainage.

Building Scale and Materials

The scale of the retail base and residential podium of Building B-1 reinforce the existing Central Square context, with the tower portion of the building set back to minimize impact on the public realm and abutters. Building B-1 is proposed to be in keeping with the character of Central Square. The proposed massing and cladding for Building B-2 is in keeping with the low-rise residential character of the Columbia Street and Bishop Allen Drive neighborhood.

Outdoor Lighting Design

Outdoor building and landscape lighting will provide sufficient light levels for safety and an active public realm, but respect the dark-sky requirements of LEED and City's Draft Outdoor Lighting Ordinance.

Tree Protection

The Project will retain one existing London Plan at Douglass Street. The tree will be protected during construction with tree protection fencing, comprised of snow fencing on 2-foot by 4-foot lumber framing, set 6 feet from the trunk of the tree. Likewise, the four trees in planters along the north end of Lafayette Square will be protected with tree protection fencing due to proximity of the trees to construction. Note that all proposed tree removals from the streetscape are pending public tree hearings. Refer to Attachment 4 for the complete tree study.

Pedestrian Wind Conditions

Careful study of the changes in pedestrian-level wind patterns as a result of the Project has been completed. The No-Build and Build Condition pedestrian-level wind conditions are shown on Figures 2.2a through 2.2d for the winter and summer seasons.

The results of the wind study show there are no uncomfortable conditions expected as a result of the Project. Under the Build Condition in the summer months, all studied locations are expected to be comfortable for sitting, standing, and/or strolling. In the winter months, conditions at some sensor locations (mostly on the periphery of the Project Site with the exception of location #10 within the Marketplace Retail Corridor) are degraded, but remain comfortable for walking.

Canopies have all been incorporated into building and site design to ensure that wind conditions are within comfortable ranges for the activities envisioned for the various public and private uses planned for the entire Project Site. Refer to the full pedestrian wind study provided in Attachment 1 for more information.

2.1.4 19.34: Adequate City Infrastructure Services

The Project will connect to existing city and utility company systems in the adjacent public streets abutting the Project Site. Based on initial investigations and consultations with the appropriate agencies and utility companies, all existing infrastructure systems are adequately sized to accept the incremental increase in demand associated with the redevelopment and operation of the Project. The following utilities have been evaluated for the Project in combination with the 47 Bishop Allen Drive project: sanitary sewer; water; stormwater management; natural gas; electricity; and telecommunications, as presented in Chapter 6, *Infrastructure*. As design progresses, all required engineering analyses will be conducted where

the final design will adhere to all applicable protocols and design standards ensuring that the proposed redevelopment of the building is properly supported by and properly utilizes city infrastructure. These systems include those owned or managed by the CDPW, CWD, and private utility companies.

2.1.5 19.35: Reinforce and Enhance Urban and Historical Context

The on-site existing medical office buildings have long been a zone of blank facades on the Mass Ave sidewalk with minimal activity contributing to the public realm experience of Lafayette Square/Jill Brown-Rhone Park. Furthermore, the medical office use contributes to a large number of vehicle trips for both employees and medical couriers, both of which occupied and traversed Block B and the parking structure at 47 Bishop Allen Drive.

The Project will replace these existing structures with a highly active public realm, including additional public space connected to Jill Brown-Rhone Park, 17,000 square feet of new ground level retail, and two (2) public thru-block passageways, thus improving pedestrian access through the Project Site from Bishop Allen Drive to Mass Ave.

Architecturally, the podium of Building B-1 is scaled to match both the height and setback of the existing street wall along Mass Ave, and its masonry and metal cladding in keeping with the Central Square context. A series of canopies will be provided to both shelter and welcome pedestrians to the development.

The Project is sensitive to the architectural character of the Central Square National Register historic district in which the Project Site is located. While the Project includes removal of one of the largest non-contributing buildings in the historic district—a c. 1980 masonry office building located at 425 Mass Ave—the historic building at 411-413 Mass Ave will be retained and reused in consultation with CHC. The historic district, listed in the National Register in 1990, features commercial and institutional buildings, most under five stories in height and of masonry construction. The retention of the historic building at 411-413 Mass Ave will reinforce the historic district's character as the building's original brick and stone elements on the façade will be restored with pointed brick replacing the non-original stucco finish on portions of the building.

The historic district encompasses a wide variety of styles and heights of buildings, indicative of the successive waves of development in this commercial corridor. The new buildings will have a podium base that is consistent with the height of the existing buildings, with the upper stories set back to minimize the height from the sidewalk view. Their construction of brick and masonry is consistent with the predominant masonry construction present in the historic district. The proposed buildings maintain the continuous building wall out to the sidewalk, one of the major unifying features of the historic district.

2.1.6 19.36: Expand Housing Inventory

As contemplated by the Mass and Main Residential Mixed Income Subdistrict, the Project is responsive to planning efforts aimed at encouraging housing and the creation of a “buffer zone” for existing residential neighborhoods adjacent to Central Square and will provide low-, moderate- and middle-income affordable housing in amounts above those currently required by the City’s inclusionary housing requirements in Section 11.200 of the Cambridge Zoning Ordinance. Specifically, the Project will bring much needed residential units (approximately 283 units total) to the Central Square neighborhood, replacing the vacant Quest buildings with residents, retail, and 24-hour activity to enliven this key location. The Project will provide a diverse range of unit types from micro-housing to family units. Seventeen percent (17%) of the units at the Project (48 units total) will be Affordable Units for low- and moderate-income households meeting the requirements of Section 11.200 for such Affordable Units. An additional three percent (3%) of the total number of units at the Project (8 units total) will be Middle-Income Units available for households whose total income does not exceed one hundred twenty percent (120%) of the area median income. In response to the clear need for family housing in Cambridge and, specifically, in Central Square, ten percent (10%) of the units at the Project (28 units total) will be 3-bedroom units. Finally, as required by the Letter of Commitment that accompanied zoning approval for the Mass and Main Residential Mixed Income Subdistrict (and incorporated by reference in Section 20.307.13 of the Cambridge Zoning Ordinance), the Applicant has agreed to convey a portion of the parcel of real estate situated at 65 Bishop Allen Drive (Assessor’s Lot # 4750-91-98) consisting of the front portion of such lot (excluding reasonable access to the parking spaces on the rear portion of the lot) through a fee transfer, ground lease or other mutually acceptable mechanism to the City of Cambridge or a third party to be designated by the City of Cambridge to be used, in perpetuity, for affordable housing uses, which conveyance will be conditioned upon: (i) the ability of the Applicant to retain ownership of the rear portion of the lot for surface parking or other purposes, together with reasonable access thereto; and (ii) receipt of a Special Permit or other required zoning relief permitting the reduction of parking required for the Project.

2.1.7 19.37: Enhance and Expand Open Space

As described in section 1.3.2 of Chapter 1, *Project Description* of this application, the Project will provide over 5,000 square feet of publicly accessible open space. Figure 1.15 presents the proposed ground plan improvement plan, which includes the following key elements:

- Central Market;
- Mass Ave Streetscape;
- New Coolidge Place; and
- Columbia Street Streetscape.

The public realm will be activated by new/expanded retail space and enhanced by an improved Mass Ave streetscape (Figure 1.19). Directly adjacent to existing Lafayette Square,

the streetscape improvements will enhance the successful aspects of the existing Square while creating a public space truly unique to the Project.

2.2 Supplemental Guidance Regarding Area-Specific Urban Design Guidelines

This section demonstrates how the Project is consistent with respect to certain area-specific urban design guideline documents that may be considered in conducting a Large Project Review. Such area-specific urban design guidelines include those developed as part of the Project-specific rezoning (10.307.12) and for Central Square.

2.2.1 Design Guidelines Applicable to Residential Mixed Income Projects Pursuant to Section 20.307.12

Consider the variety of vantage points from which tall buildings will be seen, especially from significant public spaces and nearby low-scale residential neighborhoods, as well as city skyline views.

The top of Building B-1 is expressed architecturally, all mechanical equipment is screened and the tower's mass is broken down vertically. The eastern façade of the tower has been rotated to minimize its visual and shadow impact on the adjacent residential neighborhood.

Similarly, Building B-2 steps down as it approaches the corner of Columbia and Bishop Allen and the low-rise residential context of the surrounding neighborhood.

Tall buildings should be articulated to avoid a monolithic appearance, and should emphasize slender, vertically-oriented proportions.

The footprint of Building B-1 is approximately 10,000 square feet, creating a slender tower compared to most similar developments. The mass of the building is further broken down by its podium, which varies in elevation and mass and by the tower being clad in two contrasting materials and its variation in the rooftop parapet height, creating the appearance of two more slender volumes.

Avoid broad "slab" volumes that make the building appear bulky and visually dominant. Point towers expressing vertical volumes are preferred.

The footprint of Building B-1 has been carefully shaped by several urban design principles. The mass of the tower is set back 12 feet from the typical Mass Ave street wall, as well as over 30 feet from the rear property line and in order to minimize the impact of the tower's mass on abutters and the public realm. The width of the tower facing the neighbors to the north is minimized by angling the east façade in plan.

Locate and shape tower elements to minimize shadows on existing or proposed public open space and streets.

The shadow impact of the tower facing the neighbors to the north is minimized by angling the east façade in plan and by pushing the mass of the tower over 30 feet from the northern property line. Similarly, the shadows cast by the mid-rise are minimized by the building stepping down towards Bishop Allen Drive.

Configure towers to maximize sky views from public open space and enhance visual connections through sites.

The setbacks for Building B-1 allow for maximum sky views from both Lafayette Square/Jill Brown-Rhone Park and the adjacent City-owned parking lot (potential future public open space). Additionally, the tower is set back over 30 feet from the public passageway connecting the two public spaces.

Consider variation in forms that present different profiles to different vantage points.

Building B-1's varied top, multiple setbacks both in plan and elevation provide a constantly changing profile as one circulates around the block.

If appropriate, step down tall buildings where they interface with adjoining historic buildings.

The mass of Building B-1 is set back over 30 feet at the public passageway, creating a varied height moving from the tower, to the podium, to the passageway, to the 411-413 Mass Ave site and, finally, to Building B-2.

Minimize impacts on the environmental performance and amenity of adjoining residential buildings.

On building levels 5 and 6, Building B-2 is pushed 26 feet from the north property line and 5 feet from the west property line on the upper residential floors to provide minimal visual impact to the residential abutters on Douglass Street.

Consider the appearance of the building top both by day and night, while demonstrating responsible use of lighting and energy consistent with sustainability requirements.

The design of the proposed building's parapets, headhouses, and architectural lighting will provide varied height, shadow and massing to create a distinctive design and visual interest while maintaining dark sky sustainability principles.

Design buildings to minimize negative wind impacts on streets and public spaces.

As discussed previously in Section 2.1.3, careful study of the wind pattern impacts of the new development has been completed. Canopies will be employed to ensure that wind conditions are within comfortable ranges for the activities envisioned for the various public and private

uses planned for the entire Project Site. Refer to the full pedestrian wind study provided in Attachment 1 for more information.

2.2.2 Central Square Design Guidelines

Pursuant to Section 20.307.12, the Planning Board shall look to the Central Square Design Guidelines dated February 2013 (updated May 2013) for guidance and direction in assessing the Project's conformance with the applicable project review criteria set forth in the Ordinance, provided that in the event of any conflict, the provisions of the Ordinance will govern.

The design of the development has been carefully crafted to comply with the goals set forth by the Central Square Design Guidelines. Specifically, the improvement and enlargement of public spaces, thru-block passageways and retail storefronts on and adjacent to Mass Ave will significantly improve this block and the local environs. Sidewalks are designed per guidelines to allow for seating and street furniture. Active Ground floor uses are envisioned for all public-facing facades.

Building massing has been carefully calibrated to minimize impact of adjacent residential neighborhoods, to maintain the Mass Ave streetwall, to minimize the impact of the tower and to respect the scale of adjacent properties.

Building materials have been carefully considered to be both attractive and contextual, with a significant amount of human scaled elements at the Ground floor.

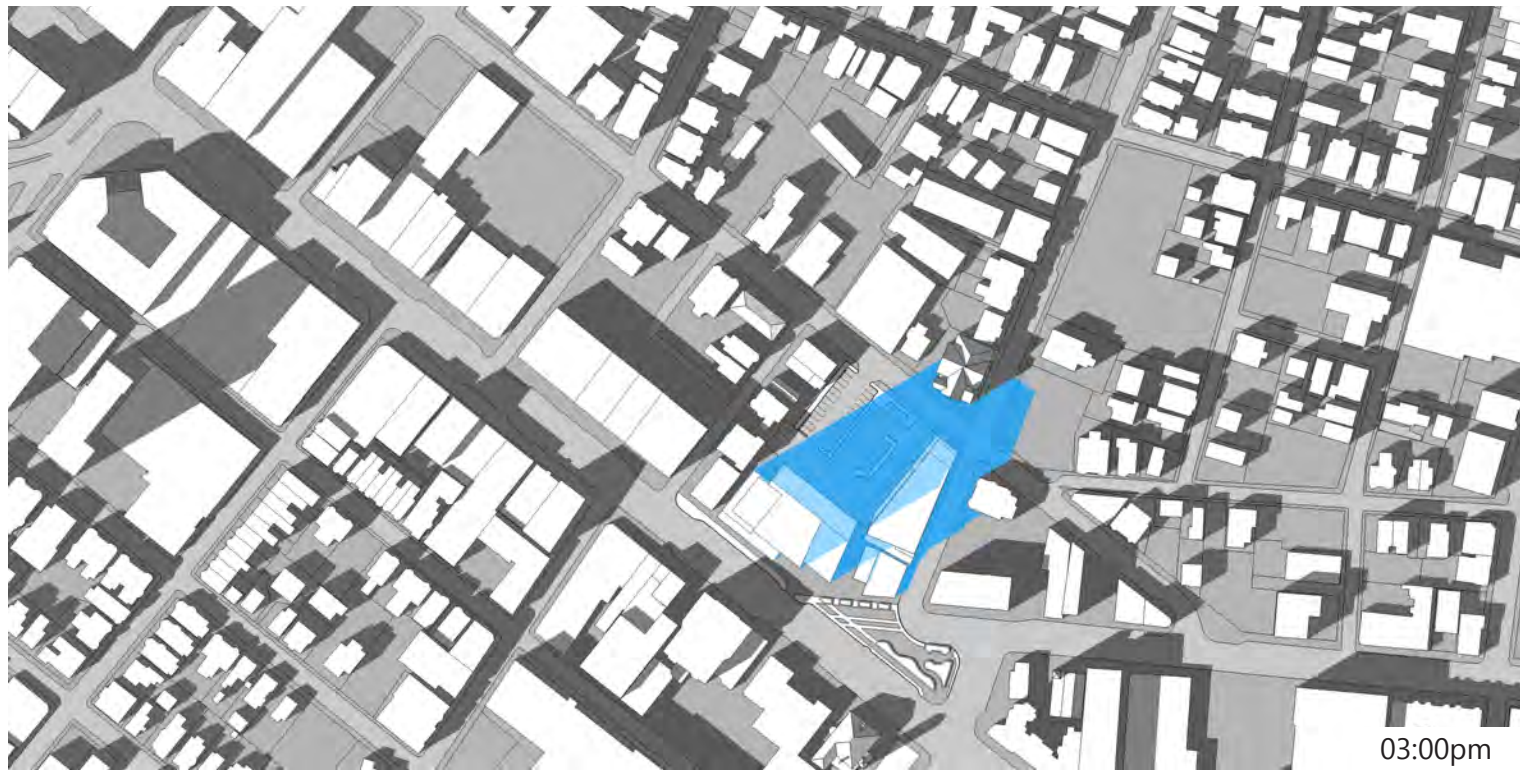
Both parking and service areas have been carefully considered. Most off-street parking is below-grade, significantly minimizing its impact. Building service/loading is provided on the north side of the building via an easement through the adjacent City-owned parking lot, preventing the need to load off of Mass Ave or Columbia Street.



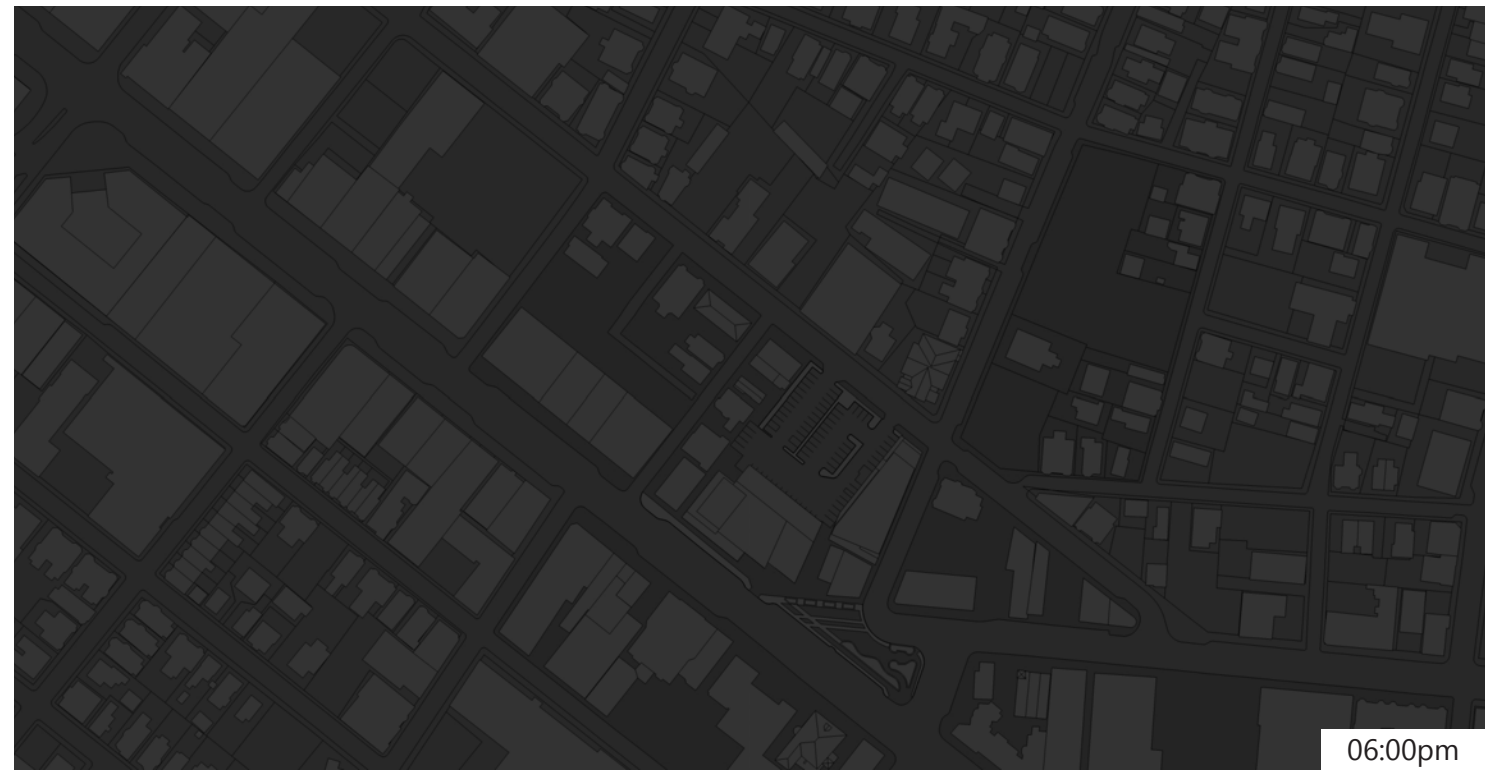
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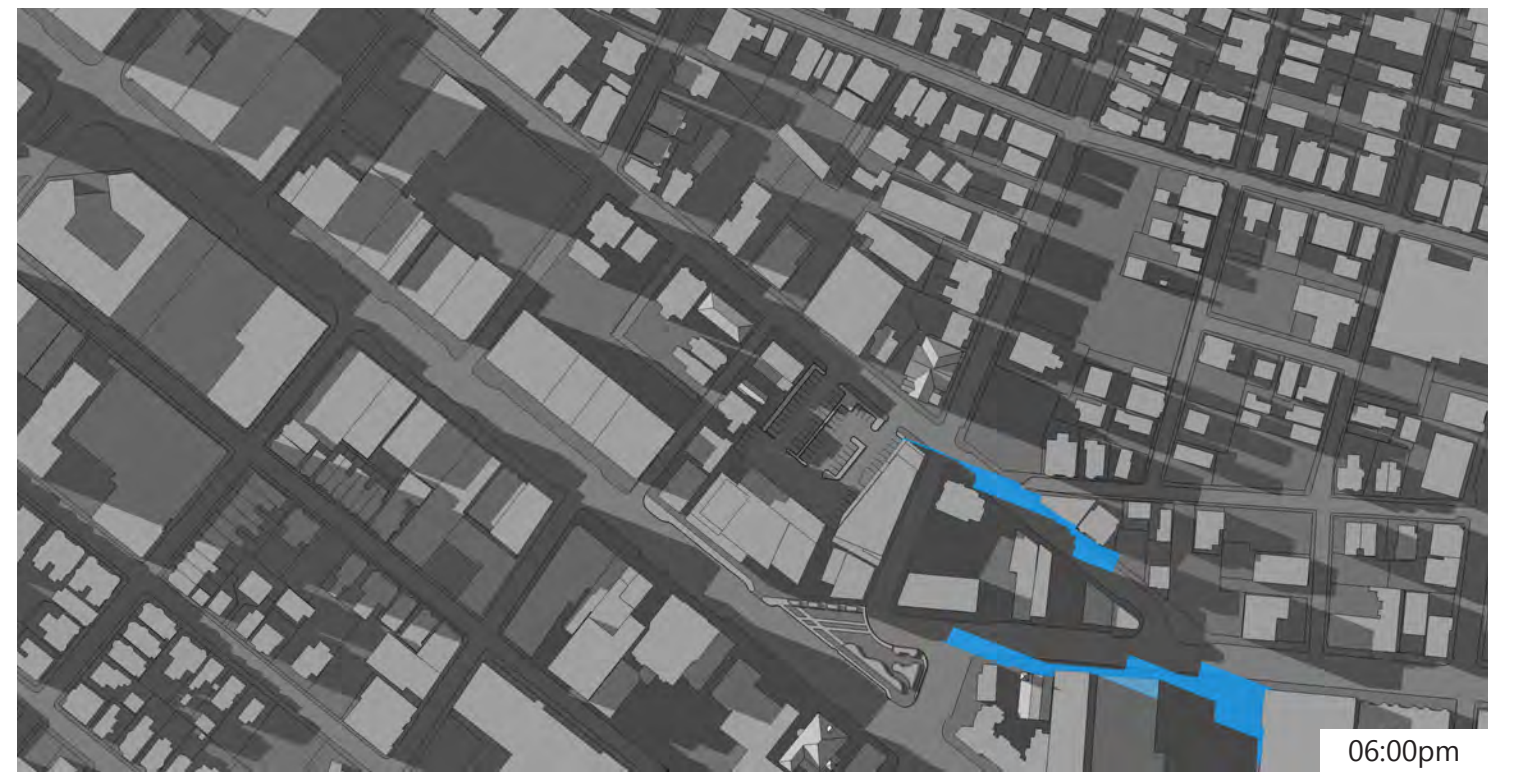


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Prepared By: CBT Architects
Figure 2.1a
Shadow Studies - Spring/Fall [March 20]

Mass + Main
Cambridge, Massachusetts

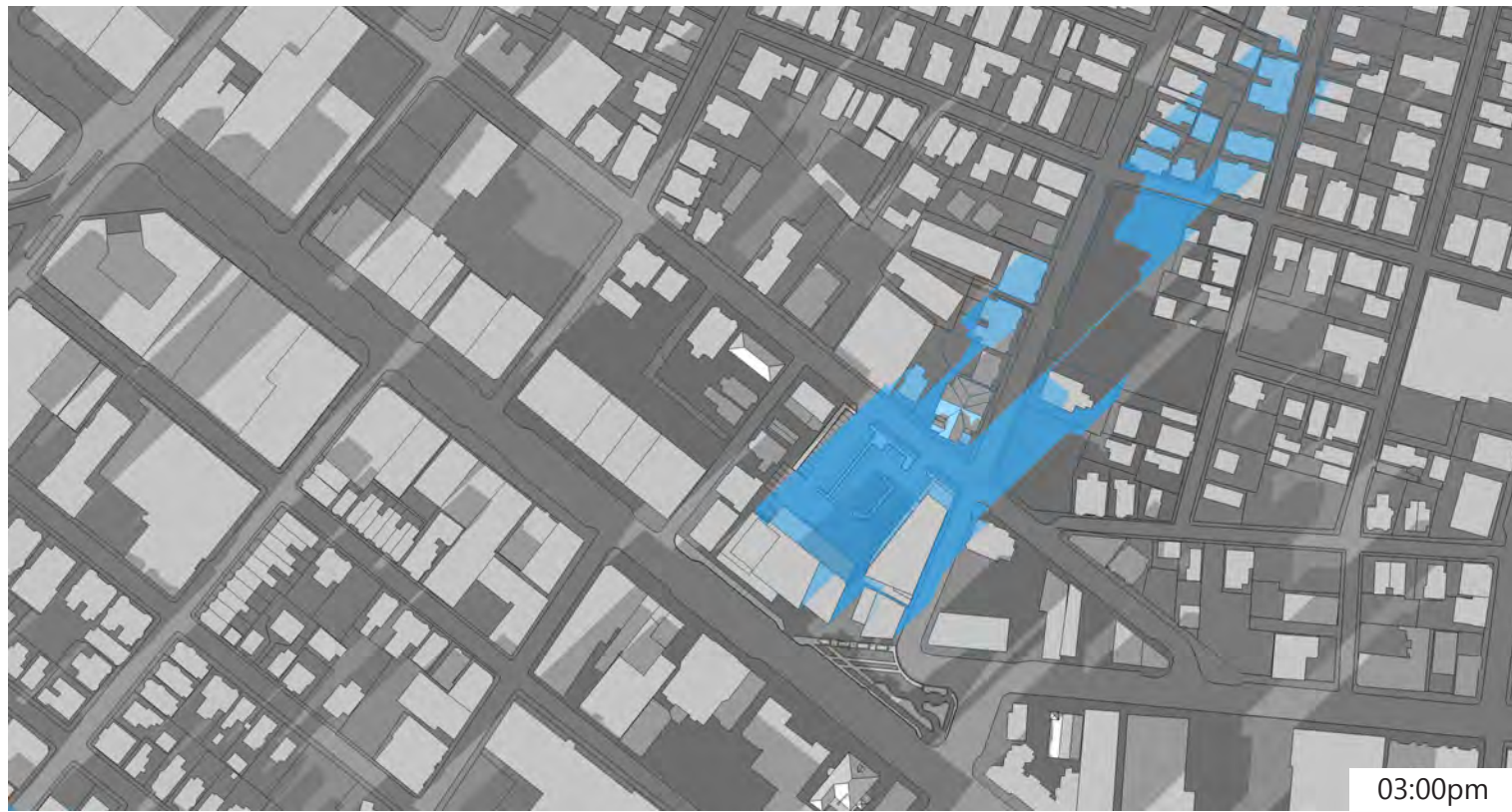


Prepared By: CBT Architects

Figure 2.1b

Shadow Studies - Summer [June 21]

Mass + Main
Cambridge, Massachusetts

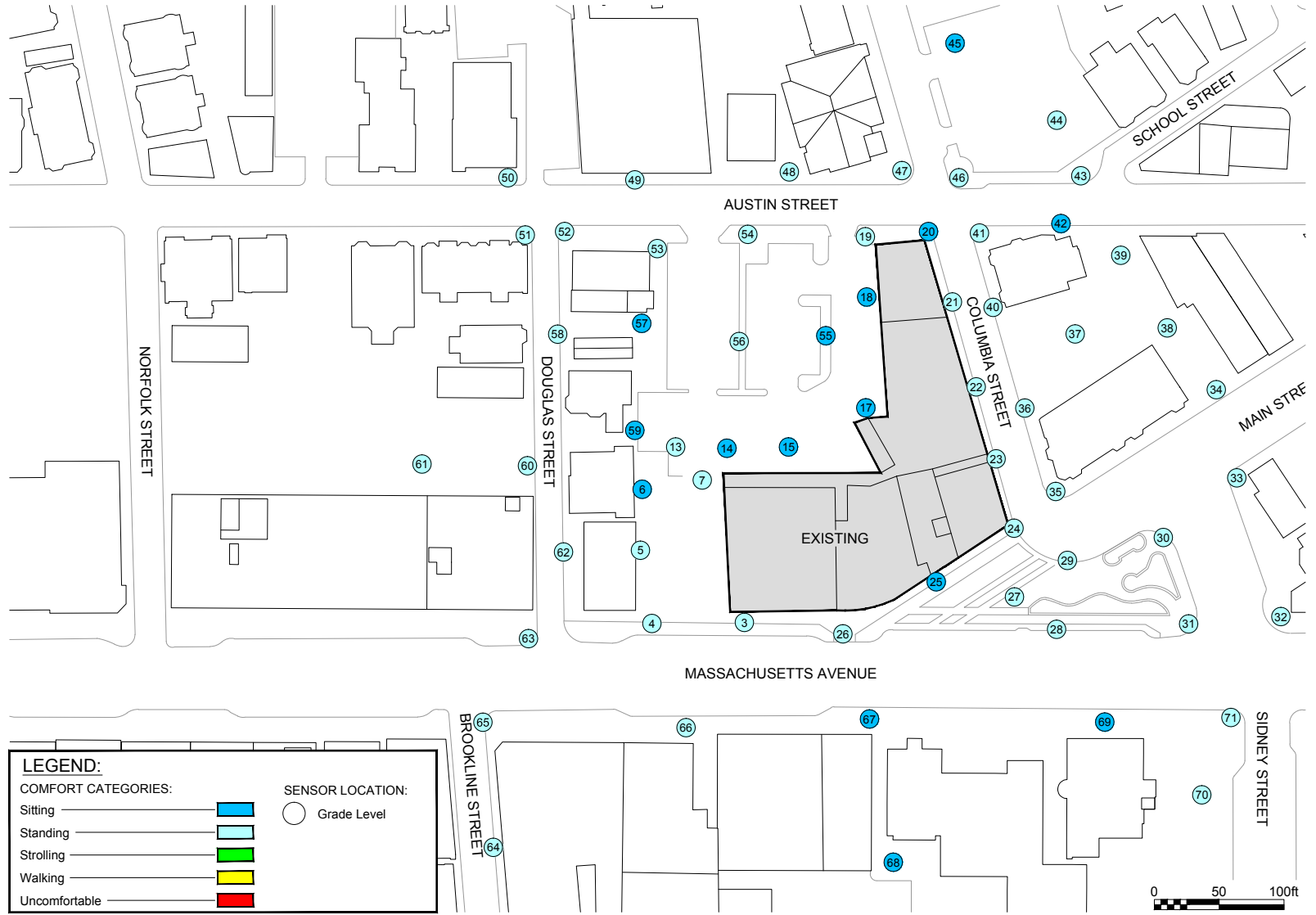


Prepared By: CBT Architects

Figure 2.1c

Shadow Studies - Winter [Dec 22]

Mass + Main
Cambridge, Massachusetts



Source: RWDI



Figure 2.2a
Pedestrian Wind Conditions
No-Build Condition (Winter)

**Mass + Main Project
Cambridge, Massachusetts**

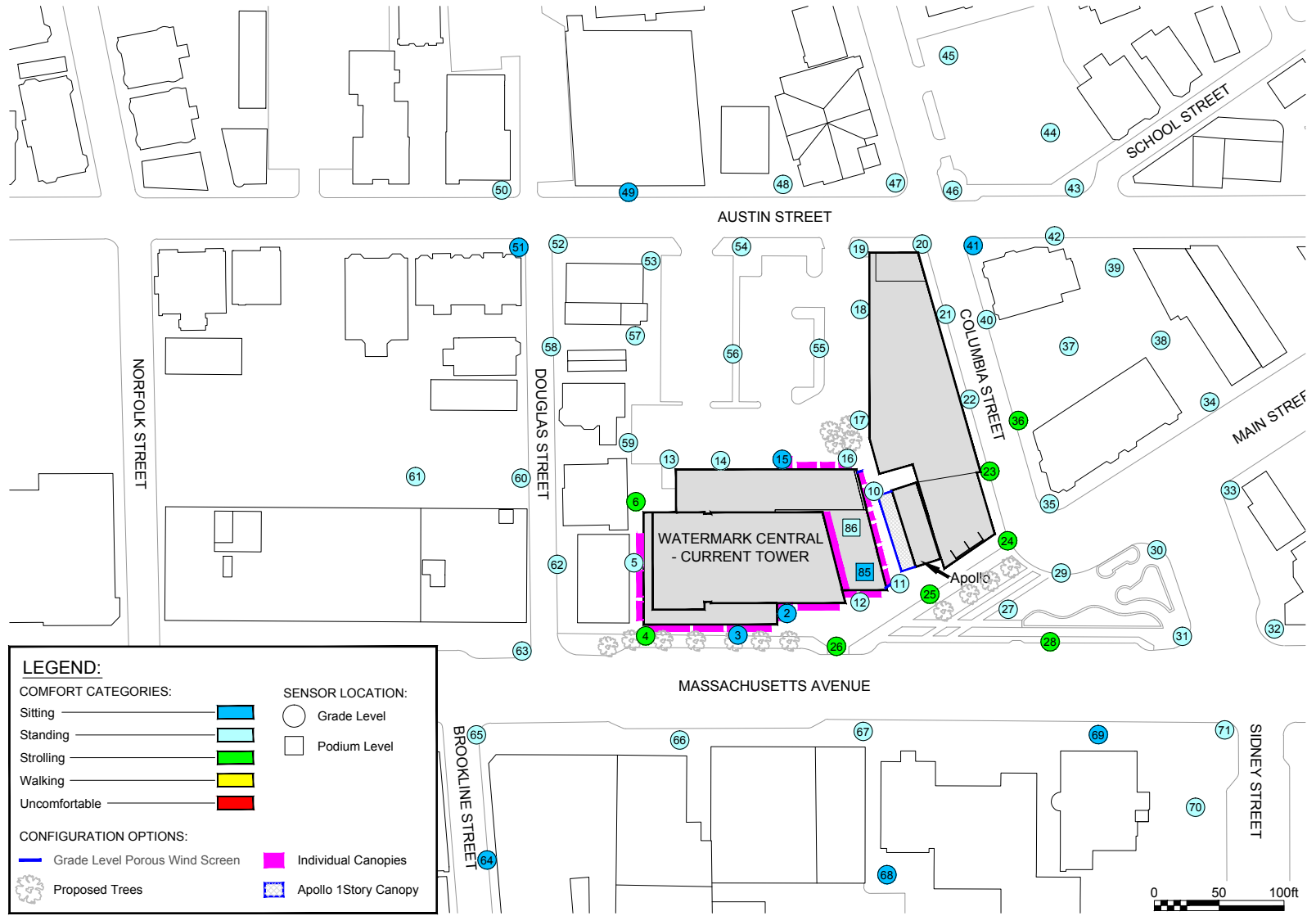


Figure 2.2b
Pedestrian Wind Conditions
Build Condition (Winter)

**Mass + Main Project
Cambridge, Massachusetts**

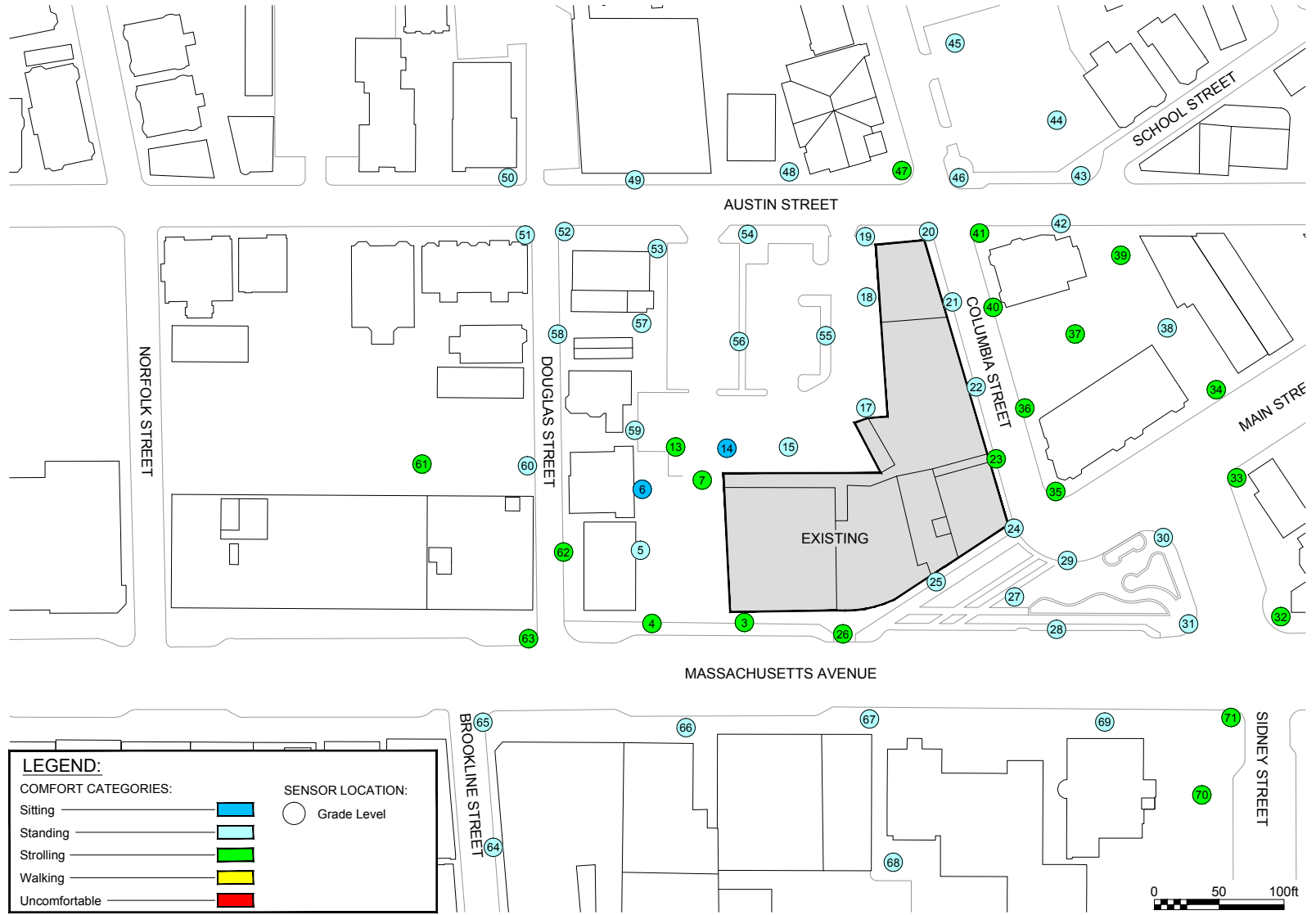


Figure 2.2c
Pedestrian Wind Conditions
No-Build Condition (Summer)

**Mass + Main Project
Cambridge, Massachusetts**

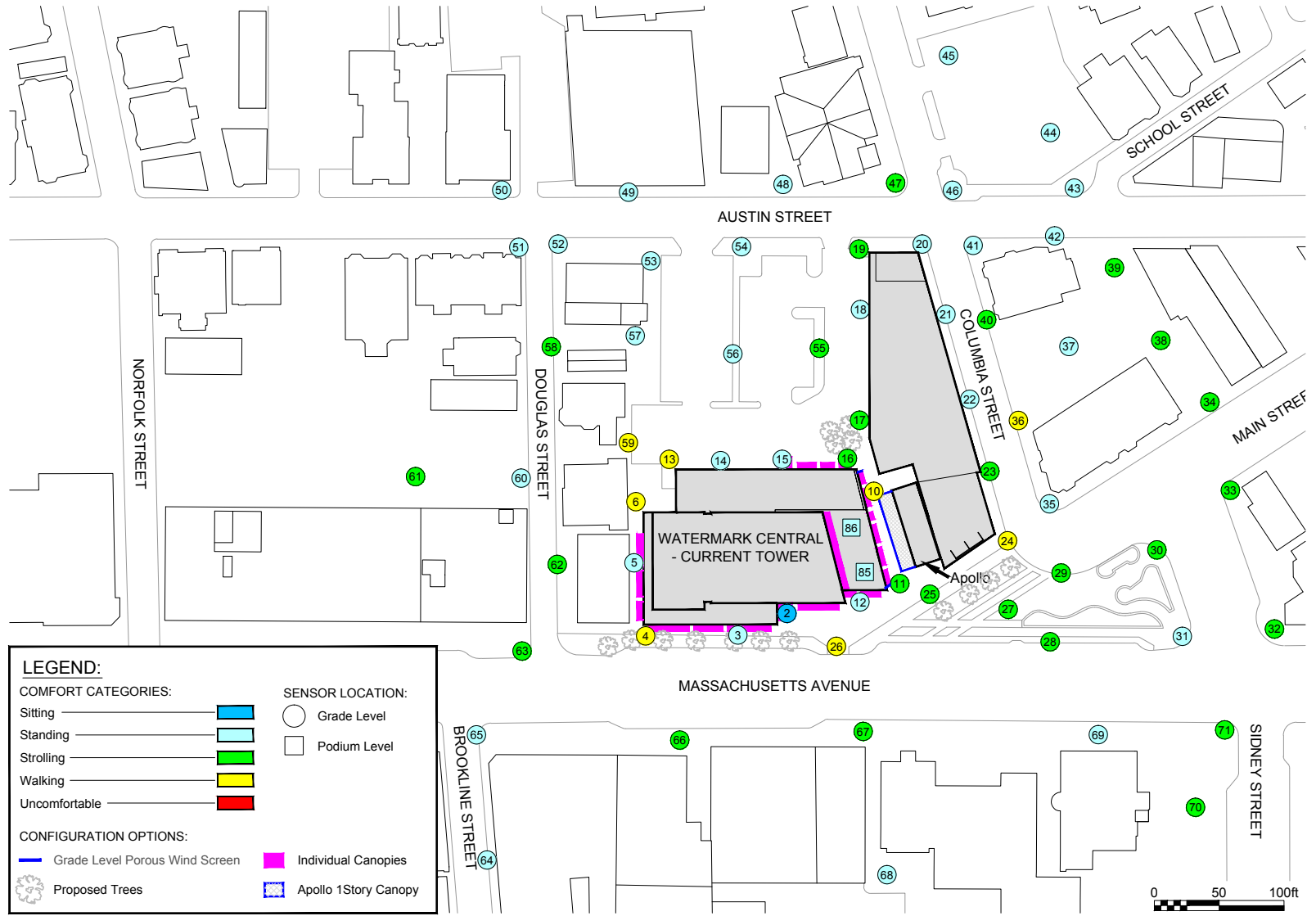


Figure 2.2d
Pedestrian Wind Conditions
Build Condition (Summer)

**Mass + Main Project
Cambridge, Massachusetts**

3

Criteria for Issuance of Special Permits (Section 10.43)

The following section demonstrates how the Project conforms with Section 10.43: Criteria for Issuance of Special Permits.

3.1 Conformance with Section 10.43

3.1.1 Compliance with Requirements of Ordinance

As demonstrated by the Table 1 Dimensional Form and the list of requested Special Permits presented in the *Special Permit Application Form Supplemental Documentation* section of this application, the Project will meet all applicable requirements of this Ordinance.

3.1.2 Project-Related Traffic and Access

As demonstrated by the TIS provided in Attachment 2, the Project is not expected to generate traffic or patterns of access or egress that would cause congestion, hazard, or substantial change in established neighborhood character.

Vehicular access to Buildings B-1 and B-2 will be through the adjacent City-owned parking lot under an access agreement contemplated by the MOA with the City described in Section 1.1.4. Pursuant to the MOA, the Applicant agreed to modify its existing easement rights over City Parking Lot 6 to reconfigure access to the Project in a manner consistent with future development of the City Parking Lot 6, while maintaining all vehicular access to the Project at the rear, away from City streets.

Both Buildings B-1 and B-2 provide internal pedestrian walkways from their entrances on Mass Ave and Columbia Street, respectively, to the adjacent to the City lot to the rear of the buildings. Retail access is provided at various entrances along Mass Ave and Lafayette Square as well as along the new proposed pedestrian way between the buildings that connects Mass Ave to Bishop Allen Drive.

3.1.3 Impact to Adjacent Uses

Adjacent parcels include predominately commercial, residential, retail and restaurant. The addition of a dense, mixed use development with new residential supports the existing uses within Central Square and is exactly the type of development envisioned by the Mass and Main Residential Mixed Income Subdistrict. The ground-floor retail uses will provide additional services that support the adjacent residential uses along Bishop Allen Drive and Columbia Street.

3.1.4 Health, Safety, and/or Welfare of Occupants and Public

Both Buildings B-1 and B-2 will be designed to a high level of life safety, accessibility and sustainability with particular emphasis on internal air quality, sustainable and locally sourced materials, and energy efficient systems. The Project has been designed in conformance with the current state building code, including the Stretch Energy Code. Additionally, the Project will be operated in compliance with all health and safety regulations of the City of Cambridge.

3.1.5 Project-Related Impacts to the District or Adjoining Districts

The proposed residential and retail/restaurant uses are exactly the type of development envisioned by the Mass and Main Residential Mixed Income Subdistrict, per Section 20.307 of the Cambridge Zoning Ordinance (the "Subdistrict"). These uses are consistent with the intent and purpose of the Subdistrict, as well as with the uses of adjacent properties and with neighboring zoning districts.

3.1.6 Consistency with Urban Design Objectives

As proposed, the design of the new mixed use building and its integration with Mass Ave, and the existing buildings along Columbia Street and Bishop Allen Drive is consistent with the Urban Design Objectives addressed in Chapter 2, *Urban Design*. Chapter 2 also addresses Project compliance with the specific design guidelines applicable to Residential Mixed Income Projects pursuant to Section 20.307.12.

4a

Sustainable Design and Development – Building B-1

In compliance with Article 22.23, the following chapter outlines the LEED certification goals for Building B-1 and describes the strategies employed to meet the targeted LEED credits based on this stage of conceptual design. Using LEED for New Construction version 4 (LEEDv4) rating system, the draft LEED checklist, presented as Figure 4a.1 for Building B-1, is tracking to Gold Certification, or 60+ points for both buildings. There are also 26 additional points currently under investigation listed in the “maybe” column. The project team is anticipating achieving a minimum of 20% energy use reduction as compared to ASHRAE 90.1 2010 in alignment with MA Stretch Code, and 12-15% energy cost reduction as compared to ASHRAE 90.1 2010 Appendix G for LEED. Refer to Attachment 3 for an affidavit by the project LEED Accredited Professional.

4.1 Conformance with Article 22.23

4.1.1 Integrative Process

The Project is currently targeting 1 point total under the LEED NC v4 Integrative Process (IP) category.

IP Credit 1: Integrative Process

The design team will perform a preliminary simple box energy model, assessing site conditions, massing and orientation, basic envelope attributes, plug and process load needs, programmatic and operational parameters. This analysis will then inform the design and the Owner's Project Requirements and Basis of Design. In addition, water-related systems will be assessed and a preliminary water budget will be created before the completion of Schematic Design that explores how to reduce potable water loads in the building. Further, the team will evaluate and estimate the potential non-potable water supply sources and water demand volumes, including indoor and outdoor water demand; process water demand; supply sources.

4.1.2 Location and Transportation

The Project is currently targeting 14 points total under the LEED NC v4 Location and Transportation (LT) category.

LT Credit 2: Sensitive Land Protection (1 point)

The Project Site is located on a previously developed urban site in Cambridge, MA and therefore complies with this credit.

LT Credit 4: Surrounding Density and Diverse Uses (5 points)

The Project Site is located on a previously developed site surrounded by mixed uses and over eight (8) services and community facilities, including proximity to the Massachusetts Institute of Technology within 1/2 mile walking distance. It is located in an area with residential density over 30 dwelling units / acre. The credit is targeting 3 points under this credit.

LT Credit 5: Access to Quality Transit (5 points)

The MIT/Kendall Square Red Line station is approximately 0.2 miles from the Project Site. The 64, 68 and 85 bus lines also run adjacent to the Project Site.

LT Credit 6: Bicycle Facilities (1 point)

The project is in comfortable biking distance to the MIT campus, Harvard University campus, and several tech companies; all are within 3 miles and the biking network is well defined in the area. One long term bicycle storage space will be available for each unit, at minimum.

LT Credit 7: Reduced Parking Footprint (1 point)

The project will provide at least 40% fewer parking spaces than recommended by the Parking Consultants Council.

LT Credit 8: Green Vehicles (1 point)

5% of new parking spaces will be designated as preferred parking for green vehicles, which are defined as having a minimum score of 45 on the ACEEE rating guide. Electric Vehicle Charging Stations will be provided in at least 2% of all parking spaces used by the project.

The following LT 2 points will continue to be under investigation:

- *Credit LT3: High –Priority Site - Brownfield Redevelopment (2 points)*

4.1.3 Sustainable Sites

The Project is currently targeting 5 points total under the LEED NC v4 Sustainable Sites (SS) category.

SS Prerequisite 1: Construction Activity Pollution Prevention

The Construction Manager (CM) shall submit and implement and Erosion and Sedimentation

Control (ESC) Plan for construction activities related to the demolition of existing site elements and construction of the new building. The ESC Plan shall conform to the erosion and sedimentation control requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Cambridge.

SS Credit 1: Site Assessment (1 point)

The project team will create and document a site survey that shall including information on Topography, Hydrology, Climate, Vegetation, Soils, Human use and Human health effects on the site. The team will provide a completed Site Assessment Worksheet, describing the relationships between the site features and characteristics and how these influenced the project design.

SS Credit 2: Site Development - Protect or Restore Habitat (1 point)

The project team will provide Financial Support to nationally or locally recognized land trust (accredited by the Land Trust Alliance) or conservation organization within the same EPA Level III ecoregion or the project's home state (or within 100 miles of the project for international projects of at least \$0.40 per square foot of the site area.

SS Credit 3: Open Space (1 point)

The building footprint will be at least 25% vegetated, and the overall site area, including the footprint, will be at least 30% vegetated.

SS Credit 5: Heat Island Reduction (2 points)

Both non-roof and roof surfaces will either be vegetated shaded or will have an SRI of a minimum of 29. In addition, parking will be designed below the building. This strategy also earns an exemplary performance point in the Innovation and Design category.

The following 5 SS points will continue to be under investigation as design progresses:

- *Credit 2: Site Development - Protect or Restore Habitat (additional 1 point)*
- *Credit 4: Rainwater Management (3 points)*
- *Credit 6: Light Pollution Reduction (1 point)*

4.1.4 Water Efficiency

The Project is currently targeting 8 points total under the LEED NC v4 Water Efficiency (WE) category.

WE Prerequisite 1: Outdoor Water Use Reduction (Required)

Vegetated areas both at the street level and on building roofs will be planted primarily with native and/or adapted vegetation, requiring limited permanent irrigation. Where irrigation will be required an ultra-efficient system will be integrated into the vegetation, and the entire

project will achieve a minimum of 30% outdoor water use savings as calculated by the EPA WaterSense Budget tool.

WE Prerequisite 2: Indoor Water Use Reduction (Required)

Low-flow and high-efficiency plumbing fixtures, including faucets, toilets, urinals and showerheads, will be specified to achieve the 20% water use reduction prerequisite as compared to the building baseline calculated per the EPA 1992 fixture flow rates.

WE Prerequisite 3: Building-Level Water Metering (Required)

A master water meter will be installed for the building, and connected to the Building's Portfolio Manager Account.

WE Credit 1: Outdoor Water Use Reduction (2 points)

The project team is confident in achieving a minimum of 50% landscape water use as calculated by the EPA WaterSense Budget tool.

WE Credit 2: Indoor Water Use Reduction (3 points)

In order to meet the 35% water use reduction goal, a careful study of high water use plumbing fixtures will be carried out to determine the most water efficient strategy. The design of the plumbing systems will include the use of low flow fixtures to reduce the water use of the building. In residential units, low flow shower heads (which flow approximately 1.5 GPM) will significantly reduce residential water use. Additionally, residential water closets which operate at 1.28 GPF will be installed further improving water efficiency.

WE Credit 3: Cooling Tower Water Use (2 points)

The design team will incorporate controls and maintenance policies to limit the cooling tower cycles. The design will maximize use of recycled and/or non-potable water.

WE Credit 4: Water Metering (1 point)

In addition to a master water meter to the building, sub meters will measure domestic hot water use on the central hot water system, irrigation water use, and cooling tower water.

The following 3 WE points will continue to be under investigation as design progresses:

- WE Credit 2: Indoor Water Use Reduction (additional 3 points)

4.1.5 Energy and Atmosphere

The Project is currently targeting 12 points total under the LEED NC v4 Energy and Atmosphere (EA) category.

EA Prerequisite 1: Fundamental Commissioning and Verification (Required)

The Applicant will engage the services of a third party Commissioning Agent to provide both Fundamental and Enhanced Commissioning for energy related systems such as HVAC, lighting

and domestic hot water. The Commissioning Agent will verify that building systems are purchased as specified, installed as intended and calibrated to perform in accordance with the Basis of Design and the Owner's Project Requirements.

EA Prerequisite 2: Minimum Energy Performance (Required)

The Project will be designed with Energy Conservation Measures (ECMs) to meet and exceed the requirements of ASHRAE 90.1 – 2010 Appendix G by at least 5%.

EA Prerequisite 3: Building-Level Energy Metering (Required)

The Project will be designed with Energy Conservation Measures (ECMs) to meet and exceed the requirements of ASHRAE 90.1 – 2010 Appendix G by at least 5%.

EA Prerequisite 4: Fundamental Refrigerant Management (Required)

The specifications for refrigerants used in the building HVAC & R systems shall NOT permit the use of CFC-based refrigerants.

EA Credit 1: Enhanced Commissioning (3 points)

The Applicant will engage the services of the Commissioning Agent early in the design process in order to ensure that enhanced commissioning is carried out. This includes reviews and comments on design development and construction documents and submittal reviews. In addition, the Commissioning Authority will review performance of the systems 10 months after project completion, and ensure that facility operator training has been carried out.

EA Credit 2: Optimize Energy Performance (4 points)

The proposed building systems shall target a performance level which is a minimum of improvement over a baseline building performance rating. The project will achieve Stretch Code, which is measured in actual energy use. We anticipate the resultant LEED energy savings as measured in energy cost to be in a range of 12-15%. The project design team is developing a whole building energy model to demonstrate the expected performance rating of the designed building systems. The following energy conservation measures will continue to be evaluated through design:

- Condensing Boilers
- Condensing Domestic Water Heaters
- Energy Recovery Units
- Lighting power density reductions in common areas, residential corridors and residential units (where fixed lighting is provided)
- Envelope improvements
- Co-generation

EA Credit 3: Advanced Energy Metering (1 point)

The Project will include metering for all whole-building energy sources used by the building and any individual energy end uses representing >10% of the total annual consulting of the building.

EA Credit 6: Enhanced Refrigerant Management (1 point)

The Project team will calculate the potential refrigerant impact and design to minimize or eliminate emission of compounds that contribute to ozone depletion and climate change.

EA Credit 7: Green Power and Carbon Offsets (2 points)

The Applicant will purchase green power via Renewable Energy Certificates to account for 100% of the building's estimated electricity use for five years. The estimated electricity use will be calculated through the energy model.

The following 6 EA points will continue to be under investigation as design progresses:

- *Credit 1: Enhanced Commissioning - Envelope (2 additional points)*
- *Credit 2: Optimize Energy Performance - 16%-18% (2 additional points)*
- *Credit 4: Demand Response (2 additional points).*

4.1.6 Materials and Resources

The Project is currently targeting 4 points total under the LEED-NC v4 Materials and Resources (MR) category.

MR Prerequisite 1: Storage and Collection of Recyclables

The building will provide dedicated spaces for collection, storage and transport of recyclable materials. At a minimum, mixed paper, corrugated cardboard, glass, plastics and metals will be recycled along with any two of the following materials: batteries, mercury-containing lamps and/or e-waste.

MR Prerequisite 2: Construction and Demolition Waste Management Planning

The project will develop and implement a CWM plan that establishes waste diversion goals for five materials targeted for diversion (structural and non-structural). The plan will be specifying if materials will be commingled or separated on site, the diversion strategies planned and descriptions on where materials are to be taken and how they'll be processed. A final report detailing all major waste streams generated, including disposal and diversion rates will be produced at the end of the project.

MR Credit 2: Building Product Disclosure & Optimization- Environmental Product Declarations (1 point)

The project will use more than 20 different permanently installed products sourced from at

least five (5) different manufacturers that have either a product-specific declaration, an ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 conformance EPD, or a USGBC-approved program EPD. The project is targeting one point under this credit.

MR Credit 4: Building Product Disclosure & Optimization- Material Ingredients (1 point)

The project will use more than 20 different permanently installed products sourced from at least five (5) different manufacturers that demonstrate the chemical inventory of the product to at least 0.1% (1000ppm). The project is targeting 1 point under this credit.

MR Credit 5: Construction and Demolition Waste Management (2 points)

The construction contract for the project will require achieving a minimum of 75% construction waste diversion from landfill for 4 of the waste streams. Prior to the onset of construction, the CM will prepare a Construction Waste Management plan, and provide monthly logs to the Applicant and the sustainability consultant.

The following 4 MR points will continue to be under investigation as design progresses:

- *Credit 1: Building Life-Cycle Impact Reduction (3 points)*
- *Credit 3: Building Product Disclosure & Optimization- Sourcing of Raw Materials (1 point).*

4.1.7 Indoor Environmental Quality

The Project is currently targeting 11 points total under the LEED NC v4 Indoor Environmental Quality (IEQ) category.

IEQ Prerequisite 1: Minimum Indoor Air Quality Performance

The building mechanical systems shall be designed to meet or exceed the requirements of ASHRAE 62.1-2010 sections 4 through 7 and applicable codes.

IEQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control.

The project design team will design partitions and separations and air delivery between residential units to ensure minimum infiltration levels as required by ASTM E779-03 or ASTM E1827-11.. The CM will be required to hire a testing agency to conduct blower doors tests and ensure that all tested units comply with the maximum infiltration thresholds.

IEQ Credit 1: Enhanced Indoor Air Quality Strategies (1 point)

The project will install permanent entryway systems at least 10ft in primary direction of travel, separate exhaust for point sources of air contaminants, install deck-to-deck partitioning and create negative pressure in spaces; air intakes will use MERV 13 filtration or Class F7 or higher filtration.

IEQ Credit 2: Low –Emitting Interiors (2 points)

The specifications will include requirements for paints, coatings , adhesives and sealants to meet low VOC content in products.

IEQ Credit 3: Construction IAQ Management Plan (1 point)

The CM will be required to develop an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the Project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3). Absorptive materials stored on site shall be protected from moisture damage. MERV 8 filters will be used if AHU are run during construction and tobacco use will be prohibited on-site during construction.

IEQ Credit 4: Indoor Air Quality Assessment (2 points)

The CM will be required to conduct a Air quality Testing on sampling of units after construction and punch-list items are complete but prior to move-in. Alternatively, a building flush-out after construction completion and prior to building occupancy could also be performed. This will require a total air volume of 14,000 cubic feet of outdoor air per square foot at an internal temperature of at least 60° F and relative humidity no higher than 60%.

IEQ Credit 5: Thermal Comfort (1 point)

The HVAC systems and the building envelope will be designed to meet the requirements of ASHRAE Standard 55–2010, Thermal Comfort Conditions for Human Occupancy.

IEQ Credit 6: Interior Lighting Control (1 point)

Lighting control will be provided for 90% occupants with at least three lighting levels and multi-zone control systems for all shared multi-occupant spaces. Lighting for any presentation or projection wall will be separately controlled.

IEQ Credit 7: Daylight (2 point)

The project will perform Simulation and demonstrate through annual computer simulations that at least 55% of regularly occupied spaces achieve Spatial Daylight Autonomy and Annual Sunlight Exposure.

IEQ Credit 8: Quality Views (1 point)

All regularly occupied rooms in the residential units will provide views to at least 75% of regularly occupied areas that meet the LEED criteria for a direct line of sight to the outdoors in different directions 90 degrees apart and achieve two of the following kinds of views: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet from the exterior of the glazing.

The following 3 IEQ points will continue to be under investigation as design progresses:

- IEQ Credit 6: Interior Lighting Control (additional 1 point)
- IEQ Credit 9: Acoustic Performance (1 point).

4.1.8 Innovation and Design Process

The Project is currently targeting 6 points total under the LEED NC v4 Innovation and Design Process (ID) category.

Exemplary Performance – Heat Island reduction or Other (1 point)

The Project will target to achieve heat island reduction by specifying high SRI roofing and site paving. It will achieve the exemplary performance by meeting the Roof & non roof SRI requirement and providing all the parking for the project underground.

Exemplary Performance – Low emitting materials or Other (1 point)

The project will specify 100 % of the products (flooring, composite wood, furniture and exterior applied products) to meet the low emitting requirement and target to achieve 1 additional point for exemplary performance. If this is not achieved, the Applicant will prepare an alternative Innovation Credit.

Pilot Credit - Walkable Project Site (1 point)

Owing to the location of buildings in heart of the city, the design team is investigating the implementation of this pilot credit to incorporate design elements that promote walking, biking, and other non-motorized transportation on the project site and in the surrounding community to reduce vehicle distance traveled, increase public health, and enhance community participation.

Innovation Credit - Green Education Program (1 point)

In collaboration with the project design team, the Applicant will develop a sustainable education program to highlight the Project's sustainable features. This may include a system dashboard at the building entry, website, and signage and/or guided tours of the project.

Innovation Credit - Green cleaning policy/program (1 point)

The project will have in place a green cleaning policy for the building and site by purchasing sustainable cleaning products and materials, use of alcohol based waterless hand sanitizers, training maintenance staff to hazards of use, disposal and recycling of cleaning chemicals, dispensing equipment and packaging etc.

Innovation Credit - Purchasing lamps - Low Mercury Lighting (1 point)

The project design team will specify lighting fixtures with no or low mercury content in order to meet the requirements of the Low Mercury Lighting credit in LEED for Existing Buildings Operations and Maintenance (EBOM.) This will enable the Project to benefit for an Innovation credit. Use of LED lighting fixtures in the majority of spaces will help reduce overall mercury in lighting fixtures.

LEED Accredited Professional (1 point)

Several project team members are LEED Accredited Professionals

4.1.9 Regional Priority Credits

Based on its location, the Project is investigating to achieve 4 points under the LEED-NC Regional Priority Credits (RPC) category .The following RPC credits are applicable to the Project:

- *Renewable Energy Production (1 point)*
- *Optimize Energy Performance (1 point)*
- *High Priority Site (1 point)*
- *Rainwater Management (1 point)*
- *Indoor water use reduction (1 point)*

Since these credits are still being evaluated, the Project does not automatically achieve additional points at this stage in preliminary design.



LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name: **MASS & MAIN - BUILDING 1**
Date: 9/29/2016

Y	M	N		
1			Credit	Integrative Process 1
14 2 0 Location and Transportation 16				
			Credit	LEED for Neighborhood Development Location 16
1			Credit	Sensitive Land Protection 1
	2		Credit	High Priority Site 2
5			Credit	Surrounding Density and Diverse Uses 5
5			Credit	Access to Quality Transit 5
1			Credit	Bicycle Facilities 1
1			Credit	Reduced Parking Footprint 1
1			Credit	Green Vehicles 1
5 5 0 Sustainable Sites 10				
Y			Prereq	Construction Activity Pollution Prevention Required
1			Credit	Site Assessment 1
1	1		Credit	Site Development - Protect or Restore Habitat 2
1			Credit	Open Space 1
	3		Credit	Rainwater Management 3
2			Credit	Heat Island Reduction 2
1			Credit	Light Pollution Reduction 1
8 3 0 Water Efficiency 11				
Y			Prereq	Outdoor Water Use Reduction Required
Y			Prereq	Indoor Water Use Reduction Required
Y			Prereq	Building-Level Water Metering Required
2			Credit	Outdoor Water Use Reduction 2
3	3		Credit	Indoor Water Use Reduction 6
2			Credit	Cooling Tower Water Use 2
1			Credit	Water Metering 1
11 6 15 Energy and Atmosphere 33				
Y			Prereq	Fundamental Commissioning and Verification Required
Y			Prereq	Minimum Energy Performance Required
Y			Prereq	Building-Level Energy Metering Required
Y			Prereq	Fundamental Refrigerant Management Required
3	2	1	Credit	Enhanced Commissioning 6
4	2	11	Credit	Optimize Energy Performance 18
1			Credit	Advanced Energy Metering 1
	2		Credit	Demand Response 2
		3	Credit	Renewable Energy Production 3
1			Credit	Enhanced Refrigerant Management 1
2			Credit	Green Power and Carbon Offsets 2

Y	M	N		
4 4 5 Materials and Resources 13				
Y			Prereq	Storage and Collection of Recyclables Required
Y			Prereq	Construction and Demolition Waste Management Planning Required
	3	2	Credit	Building Life-Cycle Impact Reduction 5
1		1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations 2
	1	1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials 2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients 2
2			Credit	Construction and Demolition Waste Management 2

Y	M	N		
11 2 3 Indoor Environmental Quality 16				
Y			Prereq	Minimum Indoor Air Quality Performance Required
Y			Prereq	Environmental Tobacco Smoke Control Required
1		1	Credit	Enhanced Indoor Air Quality Strategies 2
2		1	Credit	Low-Emitting Materials 3
1			Credit	Construction Indoor Air Quality Management Plan 1
2			Credit	Indoor Air Quality Assessment 2
1			Credit	Thermal Comfort 1
1	1		Credit	Interior Lighting 2
2		1	Credit	Daylight 3
1			Credit	Quality Views 1
	1		Credit	Acoustic Performance 1

Y	M	N		
6 0 0 Innovation 6				
5			Credit	Innovation 5
1			Credit	LEED Accredited Professional 1

Y	M	N		
0 4 0 Regional Priority 4				
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1

60	26	23	TOTALS	Possible Points: 110
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Y M N

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



Figure 4a.1

Preliminary LEED Scorecard - Building B-1

Mass+Main
Cambridge, Massachusetts

4b

Sustainable Design and Development – Building B-2

In compliance with Article 22.23, the following chapter outlines the LEED certification goals for Building B-2 and describes the strategies employed to meet the targeted LEED credits based on this stage of conceptual design. Using LEED for New Construction version 4 (LEEDv4) rating system, the draft LEED checklist, presented as Figure 4b.1 for Building B-1, is tracking to Gold Certification, or 60+ points for both buildings. There are also 27 additional points currently under investigation listed in the “may be” column. The project team is anticipating achieving a minimum of 20% energy cost reduction as compared to ASHRAE 90.1 2010, in alignment with MA Stretch Code. Refer to Attachment 3 for an affidavit by the project LEED Accredited Professional.

4.1 Conformance with Article 22.23

4.1.1 Integrative Process

The Project is currently targeting 1 point total under the LEED NC v4 Integrative Process (IP) category.

IP Credit 1: Integrative Process

The design team will perform a preliminary simple box energy model, assessing site conditions, massing and orientation, basic envelope attributes, plug and process load needs, programmatic and operational parameters. This analysis will then inform the design and the Owner's Project Requirements and Basis of Design. In addition, water-related systems will be assessed and a preliminary water budget will be created before the completion of Schematic Design that explores how to reduce potable water loads in the building. Further, the team will evaluate and estimate the potential non-potable water supply sources and water demand volumes, including indoor and outdoor water demand; process water demand; supply sources.

4.1.2 Location and Transportation

The Project is currently targeting 12 points total under the LEED NC v4 Location and Transportation (LT) category.

LT Credit 2: Sensitive Land Protection (1 point)

The Project Site is located on a previously developed urban site in Cambridge, MA and therefore complies with this credit.

LT Credit 4: Surrounding Density and Diverse Uses (5 points)

The Project Site is located on a previously developed site surrounded by mixed uses and over eight (8) services and community facilities, including proximity to the Massachusetts Institute of Technology within 1/2 mile walking distance. It is located in an area with residential density over 30 dwelling units / acre. The credit is targeting 3 points under this credit.

LT Credit 5: Access to Quality Transit (5 points)

The MIT/Kendall Square Red Line station is approximately 0.2 miles from the Project Site. The 64, 68 and 85 bus lines also run adjacent to the Project Site.

LT Credit 6: Bicycle Facilities (1 point)

The project is in comfortable biking distance to the MIT campus, Harvard University campus, and several tech companies; all are within 3 miles and the biking network is well defined in the area. One long term bicycle storage space will be available for each unit, at minimum.

The following LT 4 points will continue to be under investigation:

- LT Credit 3: High –Priority Site - Brownfield Redevelopment (2 points)
- LT Credit 7: Reduced Parking Footprint (1 point)
- LT Credit 8: Green Vehicles (1 point)

4.1.3 Sustainable Sites

The Project is currently targeting 6 points total under the LEED NC v4 Sustainable Sites (SS) category.

SS Prerequisite 1: Construction Activity Pollution Prevention

The Construction Manager (CM) shall submit and implement and Erosion and Sedimentation Control (ESC) Plan for construction activities related to the demolition of existing site elements and construction of the new building. The ESC Plan shall conform to the erosion and sedimentation control requirements of the 2003 EPA Construction General Permit and specific municipal requirements for the City of Cambridge.

SS Credit 1: Site Assessment (1 point)

The project team will create and document a site survey that shall including information on Topography, Hydrology, Climate, Vegetation, Soils, Human use and Human health effects on the site. The team will provide a completed Site Assessment Worksheet, describing the relationships between the site features and characteristics and how these influenced the project design.

SS Credit 2: Site Development- Protect or Restore Habitat (1 point)

The project team will provide Financial Support to nationally or locally recognized land trust (accredited by the Land Trust Alliance) or conservation organization within the same EPA Level III ecoregion or the project's home state (or within 100 miles of the project for international projects of at least \$0.40 per square foot of the site area.

SS Credit 3: Open Space (1 point)

The building footprint will be at least 25% vegetated, and the overall site area, including the footprint, will be at least 30% vegetated.

SS Credit 5: Heat Island Reduction (2 points)

Both non-roof and roof surfaces will either be vegetated shaded or will have an SRI of a minimum of 29. In addition, parking will be designed below the building. This strategy also earns an exemplary performance point in the Innovation and Design category.

Credit 6: Light Pollution Reduction (1 point)

The project will design the exterior lighting to meet the LEED requirements for up light and light trespass. This will increase night sky access, improve nighttime visibility, and reduce the consequences of development for wildlife and people.

The following 4 SS points will continue to be under investigation as design progresses:

- *Credit 2: Site Development - Protect or Restore Habitat (additional 1 point)*
- *Credit 4: Rainwater Management (3 points)*

4.1.4 Water Efficiency

The Project is currently targeting 8 points total under the LEED NC v4 Water Efficiency (WE) category.

WE Prerequisite 1: Outdoor Water Use Reduction (Required)

Vegetated areas both at the street level and on building roofs will be planted primarily with native and/or adapted vegetation, requiring limited permanent irrigation. Where irrigation will be required an ultra-efficient system will be integrated into the vegetation, and the entire project will achieve a minimum of 30% outdoor water use savings as calculated by the EPA Water Sense Budget tool.

WE Prerequisite 2: Indoor Water Use Reduction (Required)

Low-flow and high-efficiency plumbing fixtures, including faucets, toilets, urinals and showerheads, will be specified to achieve the 20% water use reduction prerequisite as compared to the building baseline calculated per the EPA 1992 fixture flow rates.

WE Prerequisite 3: Building-Level Water Metering (Required)

A master water meter will be installed for the building, and connected to the Building's Portfolio Manager Account.

WE Credit 1: Outdoor Water Use Reduction (2 points)

The project team is confident in achieving a minimum of 50% landscape water use as calculated by the EPA Water Sense Budget tool.

WE Credit 2: Indoor Water Use Reduction (3 points)

In order to meet the 35% water use reduction goal, a careful study of high water use plumbing fixtures will be carried out to determine the most water efficient strategy. The design of the plumbing systems will include the use of low flow fixtures to reduce the water use of the building. In residential units, low flow shower heads (which flow approximately 1.5 GPM) will significantly reduce residential water use. Additionally, residential water closets which operate at 1.28 GPF will be installed further improving water efficiency.

WE Credit 3: Cooling Tower Water Use (2 points)

The design team will incorporate controls and maintenance policies to limit the cooling tower cycles. The design will maximize use of recycled and/or non-potable water.

WE Credit 4: Water Metering (1 point)

In addition to a master water meter to the building, sub meters will measure domestic hot water use on the central hot water system, and irrigation water use.

The following 3 WE points will continue to be under investigation as design progresses:

- *WE Credit 2: Indoor Water Use Reduction (additional 3 points)*

4.1.5 Energy and Atmosphere

The Project is currently targeting 12 points total under the LEED-NC Energy and Atmosphere (EA) category.

EA Prerequisite 1: Fundamental Commissioning and Verification (Required)

The Applicant will engage the services of a third party Commissioning Agent to provide both Fundamental and Enhanced Commissioning for energy related systems such as HVAC, lighting and domestic hot water. The Commissioning Agent will verify that building systems are

purchased as specified, installed as intended and calibrated to perform in accordance with the Basis of Design and the Owner's Project Requirements.

EA Prerequisite 2: Minimum Energy Performance (Required)

The Project will be designed with Energy Conservation Measures (ECMs) to meet and exceed the requirements of ASHRAE 90.1 – 2010 Appendix G by at least 5%.

EA Prerequisite 3: Building-Level Energy Metering (Required)

The Project will be designed with Energy Conservation Measures (ECMs) to meet and exceed the requirements of ASHRAE 90.1 – 2010 Appendix G by at least 5%.

EA Prerequisite 4: Fundamental Refrigerant Management (Required)

The specifications for refrigerants used in the building HVAC & R systems shall NOT permit the use of CFC-based refrigerants.

EA Credit 1: Enhanced Commissioning (3 points)

The Applicant will engage the services of the Commissioning Agent early in the design process in order to ensure that enhanced commissioning is carried out. This includes reviews and comments on design development and construction documents and submittal reviews. In addition, the Commissioning Authority will review performance of the systems 10 months after project completion, and ensure that facility operator training has been carried out.

EA Credit 2: Optimize Energy Performance (4-6 points)

The proposed building systems shall target a performance level which is a minimum of improvement over a baseline building performance rating. The project will achieve Stretch Code, which is measured in actual energy use. We anticipate the resultant LEED energy savings as measured in energy cost to be in a range of 14-17%. The project design team is developing a whole building energy model to demonstrate the expected performance rating of the designed building systems. The following energy conservation measures will continue to be evaluated through design:

- High Performance Apartment HVAC
- High Performance Domestic Hot Water
- Energy Recovery Units
- Lighting power density reductions in common areas, residential corridors and residential units (where fixed lighting is provided)
- Envelope improvements

EA Credit 6: Enhanced Refrigerant Management (1 point)

The Project team will calculate the potential refrigerant impact and design to minimize or eliminate emission of compounds that contribute to ozone depletion and climate change.

EA Credit 7: Green Power and Carbon Offsets (2 points)

The Applicant will purchase green power via Renewable Energy Certificates to account for 100% of the building's estimated electricity use for five years. The estimated electricity use will be calculated through the energy model.

The following 6 EA points will continue to be under investigation as design progresses:

- *Credit 1: Enhanced Commissioning - Envelope (2 additional points)*
- *Credit 2: Optimize Energy Performance - 18% (1 additional points)*
- *Credit 3: Advanced Energy Metering (1 additional point)*
- *Credit 4: Demand Response (2 additional points).*

4.1.6 Materials and Resources

The Project is currently targeting 4 points total under the LEED-NC v4 Materials and Resources (MR) category.

MR Prerequisite 1: Storage and Collection of Recyclables

The building will provide dedicated spaces for collection, storage and transport of recyclable materials. At a minimum, mixed paper, corrugated cardboard, glass, plastics and metals will be recycled along with any two of the following materials: batteries, mercury-containing lamps and/or e-waste.

MR Prerequisite 2: Construction and Demolition Waste Management Planning

The project will develop and implement a CWM plan that establishes waste diversion goals for five materials targeted for diversion (structural and non structural). The plan will be specifying if materials will be commingled or separated on site, the diversion strategies planned and descriptions on where materials are to be taken and how they'll be processed. A final report detailing all major waste streams generated, including disposal and diversion rates will be produced at the end of the project.

MR Credit 2: Building Product Disclosure & Optimization- Environmental Product Declarations (1 point)

The project will use more than 20 different permanently installed products sourced from at least five (5) different manufacturers that have either a product-specific declaration, an ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 conformance EPD, or a USGBC-approved program EPD. The project is targeting one point under this credit.

MR Credit 4: Building Product Disclosure & Optimization- Material Ingredients (1 point)

The project will use more than 20 different permanently installed products sourced from at least five (5) different manufacturers that demonstrate the chemical inventory of the product to at least 0.1% (1000ppm). The project is targeting 1 point under this credit.

MR Credit 5: Construction and Demolition Waste Management- (2 points)

The construction contract for the project will require achieving a minimum of 75% construction waste diversion from landfill for 4 of the waste streams. Prior to the onset of construction, the CM will prepare a Construction Waste Management plan, and provide monthly logs to the Applicant and the sustainability consultant.

The following 4 MR points will continue to be under investigation as design progresses:

- *MR Credit 1: Building Life-Cycle Impact Reduction (3 points)*
- *MR Credit 3: Building Product Disclosure & Optimization- Sourcing of Raw Materials (1 point)*

4.1.7 Indoor Environmental Quality

The Project is currently targeting 11 points total under the LEED-NC Indoor Environmental Quality (IEQ) category.

IEQ Prerequisite 1: Minimum Indoor Air Quality Performance

The building mechanical systems shall be designed to meet or exceed the requirements of ASHRAE 62.1-2010 sections 4 through 7 and applicable codes.

IEQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Control

The project design team will design partitions and separations and air delivery between residential units to ensure minimum infiltration levels as required by ASTM E779-03 or ASTM E1827-11.. The CM will be required to hire a testing agency to conduct blower doors tests and ensure that all tested units comply with the maximum infiltration thresholds.

IEQ Credit 1: Enhanced Indoor Air Quality Strategies (1 point)

The project will install permanent entryway systems at least 10ft in primary direction of travel, separate exhaust for point sources of air contaminants, install deck-to-deck partitioning and create negative pressure in spaces; air intakes will use MERV 13 filtration or Class F7 or higher filtration.

IEQ Credit 2: Low –Emitting interiors (2 points)

The specifications will include requirements for paints, coatings , adhesives and sealants to meet low VOC content in products.

IEQ Credit 3: Construction IAQ Management Plan (1 point)

The CM will be required to develop an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the Project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3). Absorptive materials stored on site

shall be protected from moisture damage. MERV 8 filters will be used if AHU are run during construction and tobacco use will be prohibited on-site during construction.

IEQ Credit 4: Indoor Air Quality Assessment (2 points)

The CM will be required to conduct an Air quality Testing on sampling of units after construction and punch-list items are complete but prior to move-in. Alternatively, a building flush-out after construction completion and prior to building occupancy could also be performed . This will require a total air volume of 14,000 cubic feet of outdoor air per square foot at an internal temperature of at least 60° F and relative humidity no higher than 60%.

IEQ Credit 5: Thermal Comfort (1 point)

The HVAC systems and the building envelope will be designed to meet the requirements of ASHRAE Standard 55–2010, Thermal Comfort Conditions for Human Occupancy.

IEQ Credit 6: Interior Lighting Control (1 point)

Lighting control will be provided for 90% occupants with at least three lighting levels and multi-zone control systems for all shared multi-occupant spaces. Lighting for any presentation or projection wall will be separately controlled.

IEQ Credit 7: Daylight (2 points)

The project will perform Simulation and demonstrate through annual computer simulations that at least 55% of regularly occupied spaces achieve Spatial Daylight Autonomy and Annual Sunlight Exposure.

IEQ Credit 8: Quality Views (1 point)

All regularly occupied rooms in the residential units will provide views to at least 75% of regularly occupied areas that meet the LEED criteria for a direct line of sight to the outdoors in different directions 90 degrees apart and achieve two of the following kinds of views: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet from the exterior of the glazing.

The following 3 IEQ points will continue to be under investigation as design progresses:

- *IEQ Credit 6: Interior Lighting Control (additional 1 point)*
- *IEQ Credit 9: Acoustic Performance (1 point)*

4.1.8 Innovation and Design Process

The Project is currently targeting 6 points total under the LEED-NC v4 Innovation and Design Process (ID) category.

Exemplary Performance – Low emitting materials or Other (1 point)

The project will specify 100 % of the products (flooring, composite wood, furniture and exterior applied products) to meet the low emitting requirement and target to achieve 1

additional point for exemplary performance. If this is not achieved, the Applicant will prepare an alternative Innovation Credit.

Pilot credit – Walkable Project Site (1 point)

Owing to the location of buildings in heart of the city, the design team is investigating the implementation of this pilot credit to incorporate design elements that promote walking, biking, and other non-motorized transportation on the project site and in the surrounding community to reduce vehicle distance traveled, increase public health, and enhance community participation.

Innovation credit -Green Education Program (1 point)

In collaboration with the project design team, the Applicant will develop a sustainable education program to highlight the Project's sustainable features. This may include a system dashboard at the building entry, website, and signage and/or guided tours of the project.

Innovation credit : Green cleaning policy/program (1 point)

The project will have in place a green cleaning policy for the building and site by purchasing sustainable cleaning products and materials, use of alcohol based waterless hand sanitizers, training maintenance staff to hazards of use, disposal and recycling of cleaning chemicals, dispensing equipment and packaging etc.

Innovation credit: Purchasing lamps -Low Mercury Lighting (1 point)

The project design team will specify lighting fixtures with no or low mercury content in order to meet the requirements of the Low Mercury Lighting credit in LEED for Existing Buildings Operations and Maintenance (EBOM.) This will enable the Project to benefit for an Innovation credit. Use of LED lighting fixtures in the majority of spaces will help reduce overall mercury in lighting fixtures.

LEED Accredited Professional (1 point)

Several project team members are LEED Accredited Professionals.

4.1.9 Regional Priority Credits

Based on its location, the Project is investigating to achieve 4 points under the LEED-NC Regional Priority Credits (RPC) category .The following RPC credits are applicable to the Project:

- *Renewable Energy Production (1 point)*
- *Optimize Energy Performance (1 point)*
- *High Priority Site (1 point)*
- *Rainwater Management (1 point)*

➤ *Indoor water use reduction (1 point)*

Since these credits are still being evaluated, the Project does not automatically achieve additional points at this stage in preliminary design.



LEED v4 for BD+C: New Construction and Major Renovation
Project Checklist

Project Name: **MASS & MAIN - BUILDING 2**
Date: 9/29/2016

Y	M	N		
1			Credit	Integrative Process 1
12	4	0	Location and Transportation 16	
			Credit	LEED for Neighborhood Development Location 16
1			Credit	Sensitive Land Protection 1
	2		Credit	High Priority Site 2
5			Credit	Surrounding Density and Diverse Uses 5
5			Credit	Access to Quality Transit 5
1			Credit	Bicycle Facilities 1
	1		Credit	Reduced Parking Footprint 1
	1		Credit	Green Vehicles 1
6	4	0	Sustainable Sites 10	
Y			Prereq	Construction Activity Pollution Prevention Required
1			Credit	Site Assessment 1
1	1		Credit	Site Development - Protect or Restore Habitat 2
1			Credit	Open Space 1
	3		Credit	Rainwater Management 3
2			Credit	Heat Island Reduction 2
1			Credit	Light Pollution Reduction 1
8	3	0	Water Efficiency 11	
Y			Prereq	Outdoor Water Use Reduction Required
Y			Prereq	Indoor Water Use Reduction Required
Y			Prereq	Building-Level Water Metering Required
2			Credit	Outdoor Water Use Reduction 2
3	3		Credit	Indoor Water Use Reduction 6
2			Credit	Cooling Tower Water Use 2
1			Credit	Water Metering 1
12	6	15	Energy and Atmosphere 33	
Y			Prereq	Fundamental Commissioning and Verification Required
Y			Prereq	Minimum Energy Performance Required
Y			Prereq	Building-Level Energy Metering Required
Y			Prereq	Fundamental Refrigerant Management Required
3	2	1	Credit	Enhanced Commissioning 6
6	1	11	Credit	Optimize Energy Performance 18
	1		Credit	Advanced Energy Metering 1
	2		Credit	Demand Response 2
		3	Credit	Renewable Energy Production 3
1			Credit	Enhanced Refrigerant Management 1
2			Credit	Green Power and Carbon Offsets 2

Y	M	N		
4	4	5	Materials and Resources 13	
Y			Prereq	Storage and Collection of Recyclables Required
Y			Prereq	Construction and Demolition Waste Management Planning Required
	3	2	Credit	Building Life-Cycle Impact Reduction 5
1		1	Credit	Building Product Disclosure and Optimization - Environmental Product Declarations 2
	1	1	Credit	Building Product Disclosure and Optimization - Sourcing of Raw Materials 2
1		1	Credit	Building Product Disclosure and Optimization - Material Ingredients 2
2			Credit	Construction and Demolition Waste Management 2

Y	M	N		
11	2	3	Indoor Environmental Quality 16	
Y			Prereq	Minimum Indoor Air Quality Performance Required
Y			Prereq	Environmental Tobacco Smoke Control Required
1		1	Credit	Enhanced Indoor Air Quality Strategies 2
2		1	Credit	Low-Emitting Materials 3
1			Credit	Construction Indoor Air Quality Management Plan 1
2			Credit	Indoor Air Quality Assessment 2
1			Credit	Thermal Comfort 1
1	1		Credit	Interior Lighting 2
2		1	Credit	Daylight 3
1			Credit	Quality Views 1
	1		Credit	Acoustic Performance 1

Y	M	N		
6	0	0	Innovation 6	
5			Credit	Innovation 5
1			Credit	LEED Accredited Professional 1

Y	M	N		
0	4	0	Regional Priority 4	
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1
	1		Credit	Regional Priority: Specific Credit 1

Y	M	N		
60	27	23	TOTALS Possible Points: 110	

Certified: 40 to 49 points, Silver: 50 to 59 points, Gold: 60 to 79 points, Platinum: 80 to 110



Figure 4.1b
Preliminary LEED Scorecard - Building B-2

Mass+Main
Cambridge, Massachusetts

5

Transportation

This section represents a cumulative discussion of the existing and proposed transportation conditions for the Project in combination with the 47 Bishop Allen Drive site, which is being submitted for Special Permit Project Review under a separate filing by the Applicant. Although technically two separate projects, the Applicant, in consultation with CDD and CDPW, has agreed to present a cumulative discussion of the impacts of both projects (referred to collectively herein as the "Project") in order to enable the Planning Board to consider them simultaneously. This approach is consistent with the Traffic Impact Study (TIS), which was conducted to assess potential cumulative impacts on transportation facilities associated with the Project (including redevelopment of 47 Bishop Allen Drive). Therefore, the TIS assumed approximately 300 residential units within three buildings: Buildings B-1 and B-2, including approximately 17,000 square feet of ground floor retail on Block B as part of the Mass+Main project; and a third residential building at 47 Bishop Allen Drive. Cumulatively, approximately 146 physical parking spaces will be provided for residents in underground below-grade garage under Building B-1 and an off-site surface lot located at 65 Bishop Allen Drive.

The TIS, dated August 1, 2016, was certified by the City of Cambridge Traffic, Parking and Transportation (TP&T) Department on August 11, 2016. Attachment 2 provides a copy of the TIS and Certificate from TP&T.

5.1 Transportation Study Summary

5.1.1 Traffic Capacity Analysis Overview

A TIS was developed for the Project that is consistent with Section IV, "Guidelines for Presenting Information to the Planning Board" of the City of Cambridge "Transportation Impact Study Guidelines," Sixth Revision dated November 28, 2011. The TIS responds to the Scope dated May 4, 2016 defined by the City of Cambridge Traffic, Parking, and Transportation (TP&T) Department in response to a Request for Scoping dated April 4, 2016. A copy of the full TIS, including the City's scoping letter (which is included in the TIS technical appendix) is provided in Attachment 2.

The TIS has been prepared in conformance with the current City of Cambridge Guidelines for Transportation Impact Study required under the Article 19 Special Permit Project Review. The TIS document comprises three components, as follows:

- Introduction and Project Overview, describing the framework in which the transportation component of this project was evaluated;
- Transportation Impact Study, presenting the technical information and analysis results as required under the guidelines; and,
- Planning Board Special Permit Criteria, summarizing the evaluation of the proposed project as defined under the guidelines.

The TIS includes inventories of physical and operational conditions in the study area including roadways, intersections, crosswalks, sidewalks, on-street and off-street parking, transit facilities, and land uses. Transportation data that were collected and compiled are presented, including automatic traffic recorder counts, intersection turning movement counts, pedestrian and bicycle counts, vehicle crash data, and transit service data. Traffic volumes were evaluated for a 2016 Existing Condition, a 2016 Build Condition, and a 2021 Build scenario that include future background growth and other developments, as well as Project trips. The required TIS Summary Sheets and Planning Board Criteria Performance Summary are also included in Attachment 2.

The study area for the TIS comprises of eleven intersections, including intersections along Mass Ave, Bishop Allen Drive, Main Street, Columbia and Sidney Street. Figure 5.1 shows the traffic study area intersections. The traffic capacity Level-of-Service (LOS) analysis indicated that the Project will have a negligible impact on the transportation network at all study area intersections.

5.1.2 Existing Public Transportation

The Project Site is well served by multiple public transportation options in the area, as shown in Figure 5.2. The Project Site is located within a ¼-mile from the Central Square MBTA Red Line Station. The MBTA Red Line provides service to/from Alewife to the northeast and both Braintree and Ashmont to the south. The MBTA Red Line also provides connections to the Green Line at the Park Street Station and the Orange and Silver Lines at Downtown Crossing Station. A connection to the Fitchburg Commuter Rail Line is provided at the nearby Porter Square MBTA Red Line Station. The MBTA operates eight bus routes within the study area, including the following:

MBTA Route #1 – Harvard/Holyoke Gate – Dudley Station via Mass Ave

MBTA Route #1 connects Harvard Square and Central Square in Cambridge to Dudley Square via Mass Ave. The nearest bus stop to the Project Site is located at the corner of Mass Ave and Sidney Street. Various stops along this route connect with other bus lines, the Red Line, Orange Line, and Green Line. The bus route runs on weekdays from 4:37 AM to 1:27 AM with

8 to 10 minute headways during peak hours. On Saturday, service runs from 4:40 AM to 1:40 AM, and Sunday services is from 6:00 AM to 1:32 AM.

MBTA Route #47 – Central Square, Cambridge – Broadway Station via B.U. Medical Center, Dudley Station & Longwood Medical Area

MBTA Route #47 connects Central Square in Cambridge to Broadway Station in South Boston via Fenway and the South End. The nearest bus stop to the Project Site is located at the corner of Brookline Street and Green Street. Various stops along this route connect with other bus lines, the Red Line, Orange Line, and Green Line. The bus route runs on weekdays from 5:15 AM to 1:24 AM with 10 to 22 minute headways during peak hours. On Saturday, service runs from 5:00 AM to 1:40 AM, and Sunday services is from 7:30 AM to 1:04 AM.

MBTA Route #64 – Oak Square – University Park, Cambridge or Kendall/MIT via North Beacon Street

MBTA Route #64 connects Oak Square in Brighton and University Park and Kendall/MIT Station in Cambridge via North Beacon Street. The nearest bus stop to the Project Site is located at the corner of Mass Ave and Sidney Street. Various stops along this route connect with other bus lines and the Red Line. The bus route runs on weekdays from 5:31 AM to 1:13 AM with 14 to 30 minute headways during peak hours. On Saturday, service runs from 5:20 AM to 1:15 AM, and Sunday services is from 8:18 AM to 6:59 PM.

MBTA Route #68 – Harvard/Holyoke Gate – Kendall/MIT via Broadway

MBTA Route #68 connects Harvard Square and Kendall Square in Cambridge via Mass Ave. The nearest bus stop to the Project Site is located at the corner of Broadway and Columbia Street. Various stops along this route connect with other bus lines and the Red Line. The bus route runs on weekdays from 6:35 AM to 6:54 PM with 40 minute headways during peak hours. There is no service on the weekends.

MBTA Route #70/70A – Cedarwood, North Waltham or Watertown Square – University Park via Central Square, Cambridge, Arsenal St. & Western Ave.

MBTA Route #70/70A connects Waltham and Watertown to Central Square in Cambridge via Western Avenue Arsenal Street, and Main Street. The nearest bus stop to the Project Site is located at the corner of Mass Ave and Sidney Street. Various stops along this route connect with other bus lines, the Red Line, and Fitchburg Commuter Rail. The bus route runs on weekdays from 4:50 AM to 1:04 AM with 10 to 15 minute headways during peak hours. On Saturday, service runs from 5:00 AM to 1:27 AM, and Sunday service is from 6:00 AM to 1:23 AM.

MBTA Route #83 – Rindge Ave. – Central Square, Cambridge via Porter Square Station

MBTA Route #83 connects Rindge Avenue near Alewife Station and Porter Square to Central Square via Mass Ave, Somerville Avenue, and Beacon Street. The nearest bus stop to the Project Site is located at Magazine Street and Green Street. Various stops along this route connect with other bus lines, the Red Line, and Fitchburg Commuter Rail. The bus route runs on weekdays from 5:10 AM to 1:20 AM with 20 to 30 minute headways during peak hours. On Saturday, service runs from 5:10 AM to 1:29 AM, and Sunday service is from 7:25 AM to 1:22 AM.

MBTA Route #91 – Sullivan Square Station – Central Square, Cambridge via Washington Street

MBTA Route #91 connects Sullivan Square Station in Charlestown and Central Square in Cambridge via Washington Street and Union Square in Somerville. The nearest bus stop to the Project Site is located at the corner of Magazine Street and Green Street. Various stops along this route connect with other bus lines, the Red Line, and Orange Line. The bus route runs on weekdays from 5:15 AM to 1:10 AM with 30 minute headways during peak hours. On Saturday, service runs from 5:00 AM to 1:05 AM, and Sunday service is from 6:30 AM to 12:54 AM.

MBTA Route CT1 – Central Square, Cambridge – B.U. Medical Center/Boston Medical Center via M.I.T.

MBTA Route CT1 connects Central Square in Cambridge to the Boston University Medical Center via Mass Ave and MIT Campus. The nearest bus stop to the Project Site is located at the corner of Mass Ave and Sidney Street. Various stops along this route connect with other bus lines, the Red Line, Orange Line, Green Line, and Silver Line. The bus route runs on weekdays from 6:00 AM to 7:41 PM with 20 to 23 minute headways during peak hours. There is no service on weekends and most holidays.

Private Transit Services

In addition, the Charles River Transportation Management Association (CRTMA) operates the EZRide shuttle service between North Station, Lechmere, Kendall Square, University Park, and Cambridgeport. The shuttle thereby provides connections to the Green Line at Lechmere Station and the northern commuter rail services, as well as the Green and Orange lines at North Station. The shuttle operates every 8 to 10 minutes from North Station to Cambridgeport via Kendall Square during morning (6:20 AM to 10:50 AM) and evening (3:00 PM to 8:00 PM) commutes, and the midday (10:44 AM to 3:00 PM) shuttle operates every 20 minutes between Kendall Square and Northwest Campus. The shuttle runs Monday through Friday with no weekend and holiday service. EZRide stops closest to the Project area is Mass Ave at Landsdowne Street. The shuttle has a varying payment structure separate from the MBTA pass, as EZRide and the CRTMA are not affiliated with the MBTA. All EZRide Shuttle

buses feature front-mounted bike racks for up to two standard bicycles. This service is open to the public with the fares as follows: \$2 cash fare for adults, \$1 for children/students age 12 to 17 years old, college students with ID, senior citizens (65+), and persons with disabilities, and EZRide is free for those with a member pass sticker, MIT ID, and children under 12 years old. Multi-ride ticket books may be purchased online or by mail order by the general public.

Existing Pedestrian and Bicycle Facilities

Pedestrian amenities surrounding the Project Site include sidewalks along Bishop Allen Drive, Columbia Street, and Mass Ave. Pedestrians are primarily provided concurrent walk times at signalized intersections. An unsignalized crosswalk is provided across Mass Ave at Lafayette Square.

The Project Site is adjacent to the bicycle lanes along Mass Ave and at Sidney Street. The Sidney Street southbound approach to the intersection with Mass Ave provides a bicycle lane for right turns only and a lane for through or left movements. Bicycle boxes are provided at the Main Street westbound approach to the intersection with Columbia Street and Sidney Street. Additionally, two bicycle racks exist in the parking structure at 47 Bishop Allen Drive.

Hubway, which provides more than 1,500 bikes at 159 stations throughout Cambridge, Boston, Brookline, and Somerville, provides three (3) stations within walking distance of the Project Site. The station closest to the Project Site is located on Mass Ave at Lafayette Square. Another station is available on Sidney Street at University Park. A third station is located at the intersection of Mass Ave and Essex Street.

Proposed Vehicular Access, Circulation, Service/Loading

Buildings B-1 and B-2 will be accessed by vehicles through the rear of Building B-1 where a loading dock and underground garage entrance/egress has been designed. Pursuant to the MOA described in section 1.1.4, the Applicant has agreed to modify its existing easement rights over City Parking Lot 6 to reconfigure access to the Project in a manner consistent with future development of the City Parking Lot 6, while providing for all vehicular access to Buildings B-1 and B-2 to occur at the rear, off of City streets.

Pedestrian access to the residential components of the building are at the front of the buildings facing Mass Ave and Lafayette Square as well as through entry ways accessed from the City Lot. Retail access is provided at various entrances along Mass Ave and Lafayette Square as well as along the new proposed pedestrian way between the two sites. This pedestrian way provides access from Lafayette Square to the back of the Project Site and through the City's Parking Lot 6 all the way to Bishop Allen Drive.

The proposed 47 Bishop Allen Drive residential building provides pedestrian access off of Bishop Allen Drive with vehicle parking at the surface lot at 65 Bishop Allen Drive.

The Project will provide one loading dock at the back of Building B-1. The loading dock will be used for early morning trash and recycle pick-up as well as scheduled retail deliveries. Trash and recycling from Building B-2 will be wheeled over to the loading dock on trash pick-up days and then wheeled back to the trash room at the back of Building B-2 after pick-up. Retail deliveries will be through the back of the building at the loading dock.

Move-in/move-out activities will also be accommodated along the back of the building within the agreed upon access zone. These activities will be scheduled through the building management and occur during non-peak hour times as to minimize this impact to the residents and tenants of the buildings and to the City Lot.

Bicycle parking will be provided within the buildings and at various locations around the site, as described in section 5.2 below.

Figure 5.3a shows the site vehicular access and circulation, and Figure 5.3b shows the building service and loading locations for the Project, as discussed above.

Proposed Traffic Mitigation

The Applicant will support a program of transportation demand management (TDM) actions to reduce automobile trips generated by the Project. The goal of the Project's TDM plan is to reduce the use of single occupant vehicles (SOVs) by encouraging carpooling and vanpooling, bicycle commuting and walking, and increased use of the area's public transportation system by residents.

The Applicant will consider the following TDM programs as part of the proposed Project to encourage residents to use alternatives to SOV travel:

- Make available up to 5 carshare parking spaces for a vehicle-sharing company.
- Offer a transit subsidy to residents
- Offer a Hubway membership subsidy to residents.
- Provide air pumps and other bike tools, such as a "fix-it" stand in the bicycle storage areas.
- Join the Charles River Transportation Management Association (TMA).
- Offer subsidized EZ Ride Shuttle stickers to residents
- Charge parking separately from the residential rent.
- Install a real-time multimodal transportation display screen providing transit, Hubway and other current transportation information.
- Designate a transportation coordinator (TC) for the site to manage the TDM program.
- Post information in a prominent location in the building and on the building's website, social media and property newsletters promoting the use of transportation options and service information.

5.2 Compliance with Bicycle Parking Requirements

The Project will provide bicycle parking in accordance with the City of Cambridge's Bicycle Parking Zoning Ordinance, as shown in Table 5-1 below.

TABLE 5-1 BICYCLE PARKING

Land Use	Long-Term Bicycle Parking			Short-Term Bicycle Parking		
	Code	Rate	Spaces	Code	Rate	Spaces
Residential (Mass+Main; 283 units)	R2	1.05 spaces per dwelling ¹	296	R2	0.10 spaces per dwelling	28
Residential (47 Bishop Allen Drive; 23 units)	R2	1.0 space per dwelling	23	R2	0.10 spaces per dwelling	2
Retail (17,000 GSF)	N4	0.10 spaces per 1,000 sf ²	2	N2	0.60 spaces per 1,000 sf	11
Total			321			41

Source: City of Cambridge Zoning Ordinance Article 6.0

1 per city guide – 1.00 spaces per unit for the first 20 units for a residential building

2 per city guide – up to 4 retail long-term spaces may be provided as short-term

To satisfy the short-term bicycle parking requirement, a total of 42 spaces will be provided throughout the development to support the retail and residential patrons accessing the Project Site (39 spaces for the Mass+Main project and two (2) spaces for the 47 Bishop Allen Drive project), as shown on Figure 5.4. Building B-1 will provide 234 long-term bicycle parking spaces in one large bike room on the ground floor with a mezzanine level accessed from an elevator, as shown on Figures 5.5a and 5.5b, respectively. Building B-2 will provide one 64-space, two-level bike room, as shown on Figure 5.6. The 47 Bishop Allen Drive residential building will provide 26 on-site long-term bicycle storage spaces exceeding the overall requirement of 321 long-term bicycle spaces for the projects combined.

The specific long-term and short-term bicycle racks will be selected at a time closer to the construction and installation of the racks and will comply with all bicycle parking requirements in place at the time of the TIS certification. Short-term bicycle racks are shown on the Mass+Main property in Figure 5.4. However, these locations cannot be reasonably accommodated without displacing other desirable public space and retail activities, such as relaxing, dining and shopping. Pursuant to Art. 6.104.2.b, the Applicant would like to discuss with the City options to locate a portion of the short-term bicycle racks on public land with the goal of enlivening the sidewalk frontage with a vibrant retail environment, one of the goals of the newly adopted Mass+Main zoning subdistrict. As depicted in Figure 5.4, all of the available building frontage on Mass Ave, Columbia Street, and the Central Marketplace is lined with active retail with no breaks in the façade. The retail spaces are designed with porous storefronts that allow for a multitude of activities merging the indoor and outdoor realms. Locating some of the short-term bicycle racks on nearby public land would preserve the

confluence of indoor and outdoor space for the pedestrian without compromising convenient bicycle parking.

The current site design shows short-term bicycle parking on private land in full compliance with Art. 6.104.2. However, the Applicant will continue to coordinate with City staff to identify alternative locations for short-term bicycle parking that serves both the Project and City objectives.

5.3 Parking/Shared Parking Analysis

The parking requirements for the Project, as described in Section 20.307 and provided in Attachment 2, state that the minimum required parking for the Project is 0.5 parking spaces per residential units with a maximum parking ratio of 0.75 spaces per residential unit. In addition the "...Project shall provide, at a minimum, one (1) parking space for every 100 residential units that shall be dedicated for use by a carsharing organization...Each Carsharing Space within a Residential Mixed Income Project shall allow the required number of residential parking spaces to be reduced by five (5) spaces..." In addition, the ordinance states that "No separate off-street parking shall be required for ground-floor retail uses..."

As shown in Figure 5.7, the Project will provide 95 residential parking spaces in the Building B-1 underground garage and 51 residential parking spaces in the 65 Bishop Allen Drive surface parking lot for a total of 146 physical parking spaces. In compliance with zoning, this total parking supply is broken down as follows:

- Up to 95 spaces are proposed for the garage below Building B-1 to support the Mass+Main project, with 3 spaces being provided as carshare spaces. (Per Section 20.307.7.d, the Project is required to provide a minimum of two (2) carshare spaces and each of the carshare spaces will equate to a credit of 5 spaces.)
- Up to 39 spaces in the existing surface parking lot at 65 Bishop Allen lot will be allocated to the Mass+Main project.
- Up to 12 spaces in the existing surface parking lot at 65 Bishop Allen Drive will be allocated for the 47 Bishop Allen Drive project.

Based on the above breakdown, a total parking supply of 158 "parking spaces" are being provided for the 306 units, which equates to an overall parking ratio of 0.52.

The Applicant will work with the carsharing service to understand the demand for carsharing services within the area and provide at least three (3) carshare spaces with the initial opening of Building B-1, and increase to a total of five (5) carsharing spaces if demand exists.

Of the total 146 physical parking spaces provided, initially 143 will be allocated to residential tenants and three (3) will be used by carshare vehicles. In the future, up to five (5) parking spaces may be used by carsharing vehicles and the remaining 141 spaces allocated to residential tenants.

The Project estimated parking demand to be slightly lower than the provided parking supply. This is due to the information collected from American Commuter Survey 5-year estimates, in which car ownership within the area of the Project Site is 49 percent and in particular, people who take public transportation as their main mode of transport, only 30 percent of these people own cars. It is expected, that due to the location of the site, the majority of residents will use public transportation as their main mode of transportation. The residents will also have the convenience of having carsharing options within the Project.

Figures 5.8a and 5.8b present the parking plans for the garage under Building B-1. The proposed parking spaces will be managed through a key-card access gate system at the garage entrance and at the 65 Bishop Allen Drive surface lot. A transportation coordinator will be available to residents for parking and transportation information. To discourage car-ownership, residents will be required to pay market price for a Project parking space, this amount will be determined upon the opening and occupancy of the building. Visitors to the residential units will be able to park at the 65 Bishop Allen Drive lot with the use of a visitor pass, while retail patrons will use the various short-term parking options available along Mass Ave or within the City's Parking Lot 6.



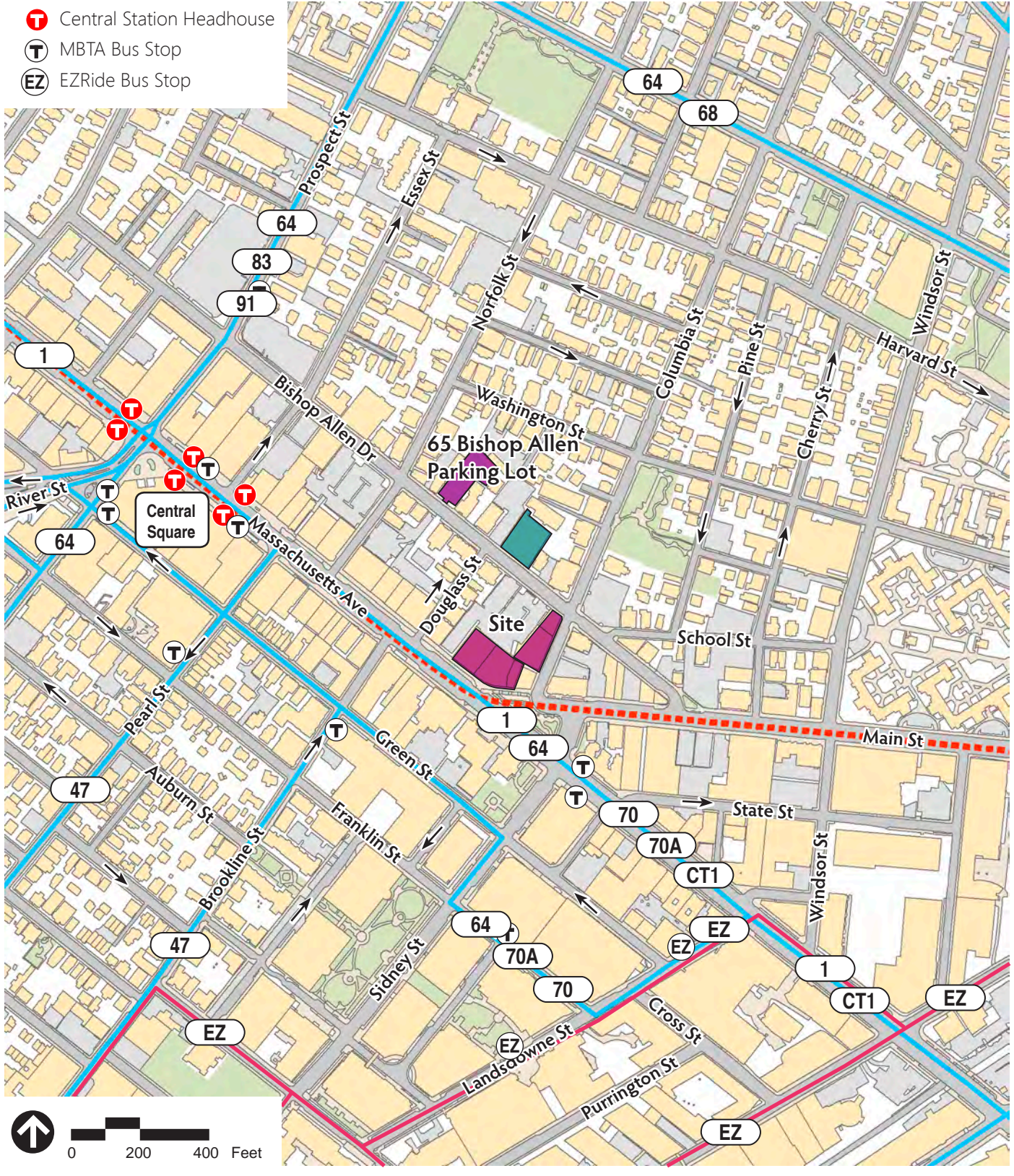
Source: City of Cambridge GIS

- Project Site
- 47 Bishop Allen Drive Project Site
To be approved under a separate Special Permit Project Review submission



Figure 5.1
Site Plan and Study Area Intersections

**Mass + Main Project
Cambridge, Massachusetts**



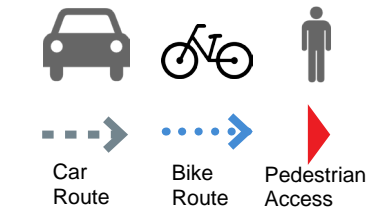
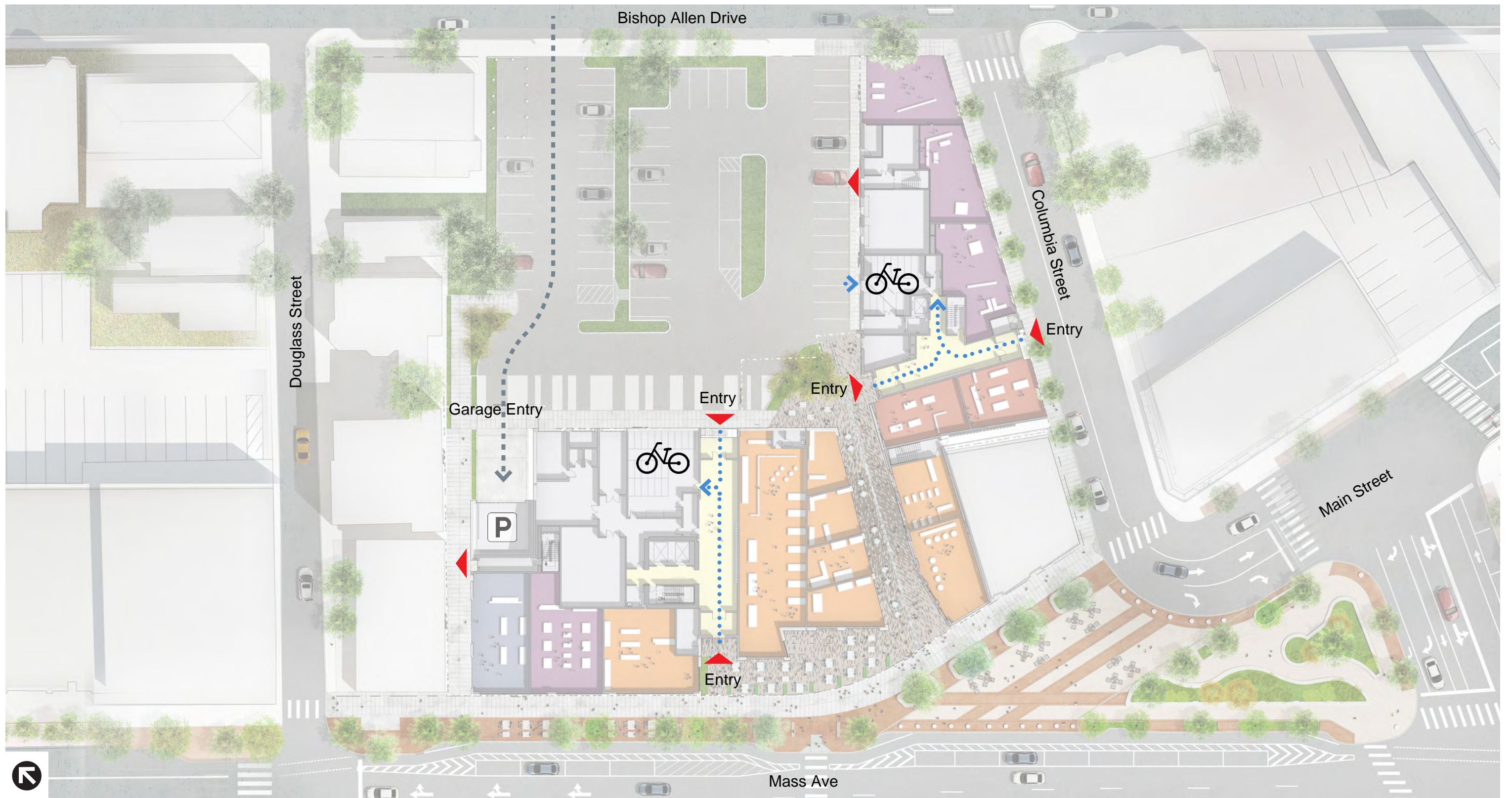
Source: City of Cambridge GIS

- Project Site
- 47 Bishop Allen Drive Project Site
To be approved under a separate Special Permit Project Review submission



Figure 5.2
Public Transportation

**Mass + Main Project
Cambridge, Massachusetts**



Prepared By: CBT Architects

Figure 5.3a
Vehicular Access and Circulation

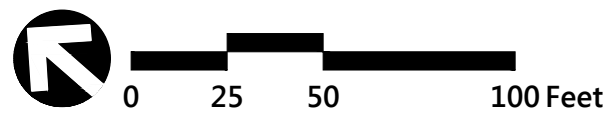
Mass+Main
Cambridge, Massachusetts



Source: Twining Properties



Prepared By: VHB
Figure 5.3b
Loading Vehicle Access



Mass+Main
Cambridge, Massachusetts



Source: Twining Properties and cbt Architects

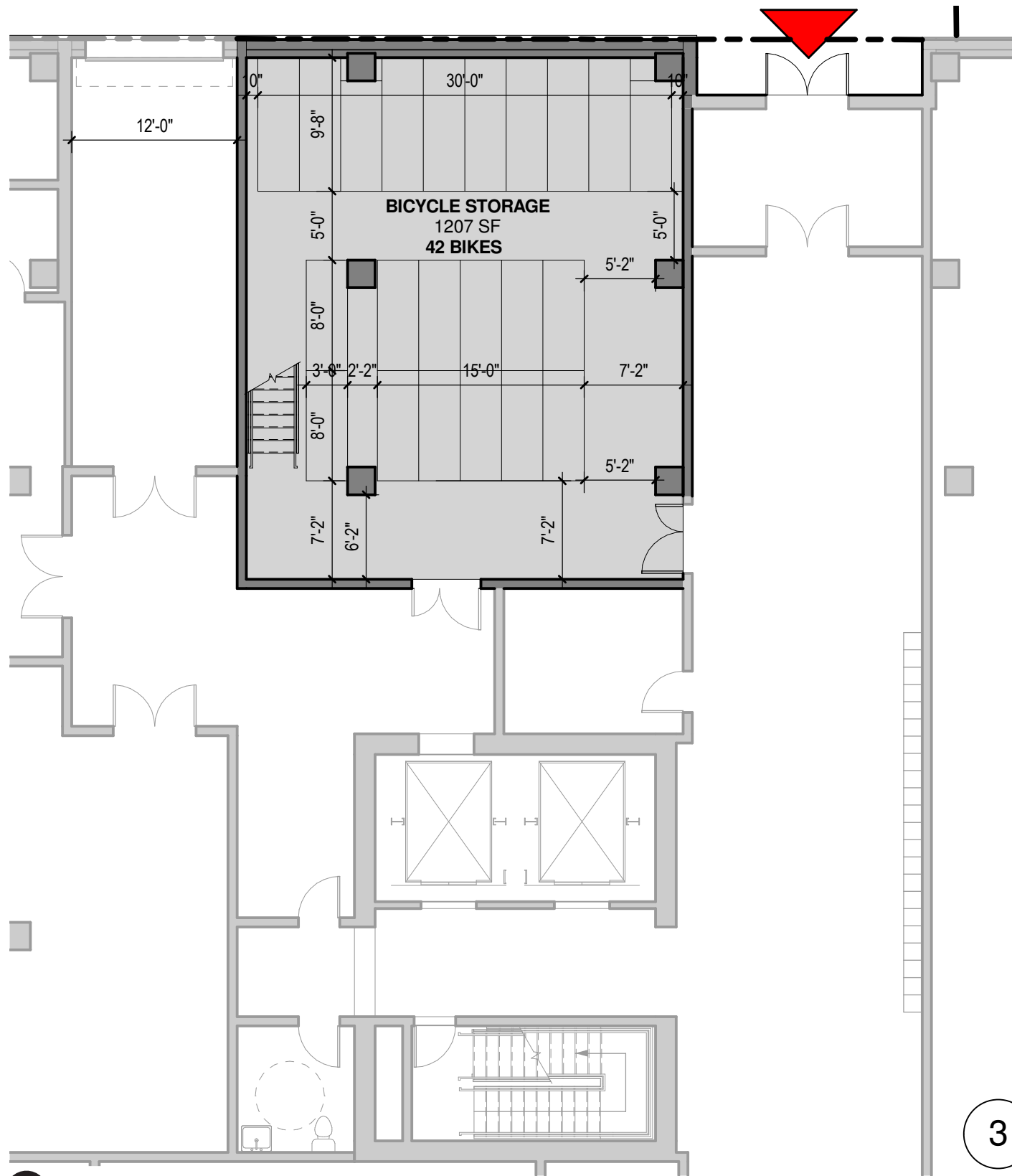
- Bicycle Racks (2 Bikes / Rack)
21 Racks, Total of 42 Spaces
(Location to be confirmed with the City)



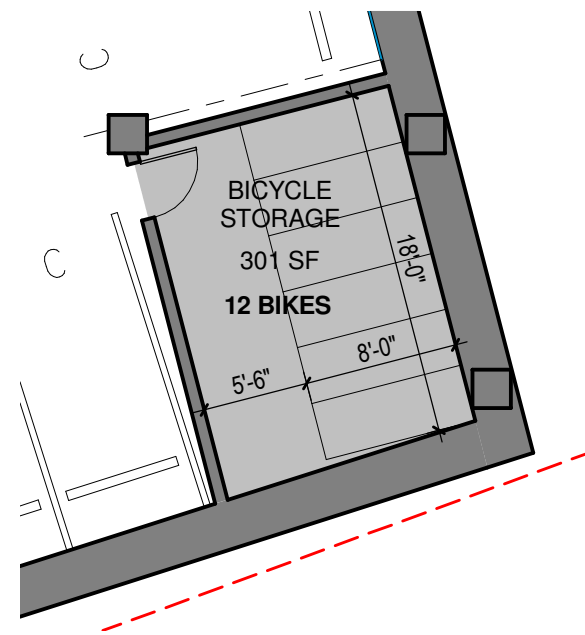
Prepared By: VHB

Figure 5.4
Short-Term Bicycle Parking

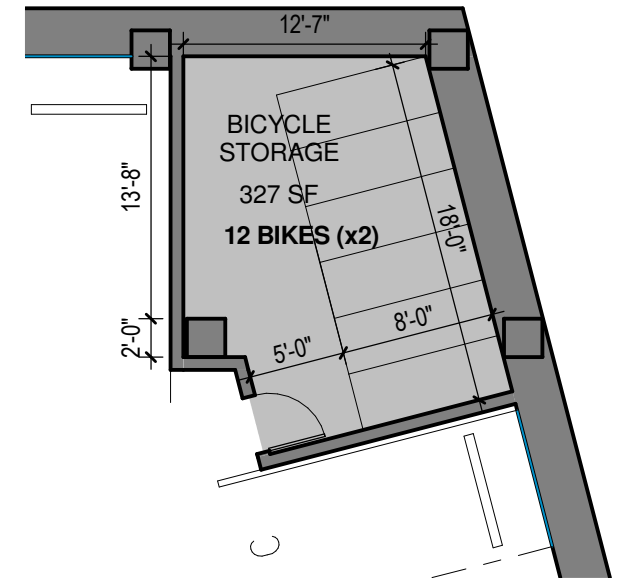
Mass+Main
Cambridge, Massachusetts



SCALE: 1" = 10'-0"
 0 5' 10' 20'



1 BICYCLE STORAGE ON P-2
 1" = 10'-0"



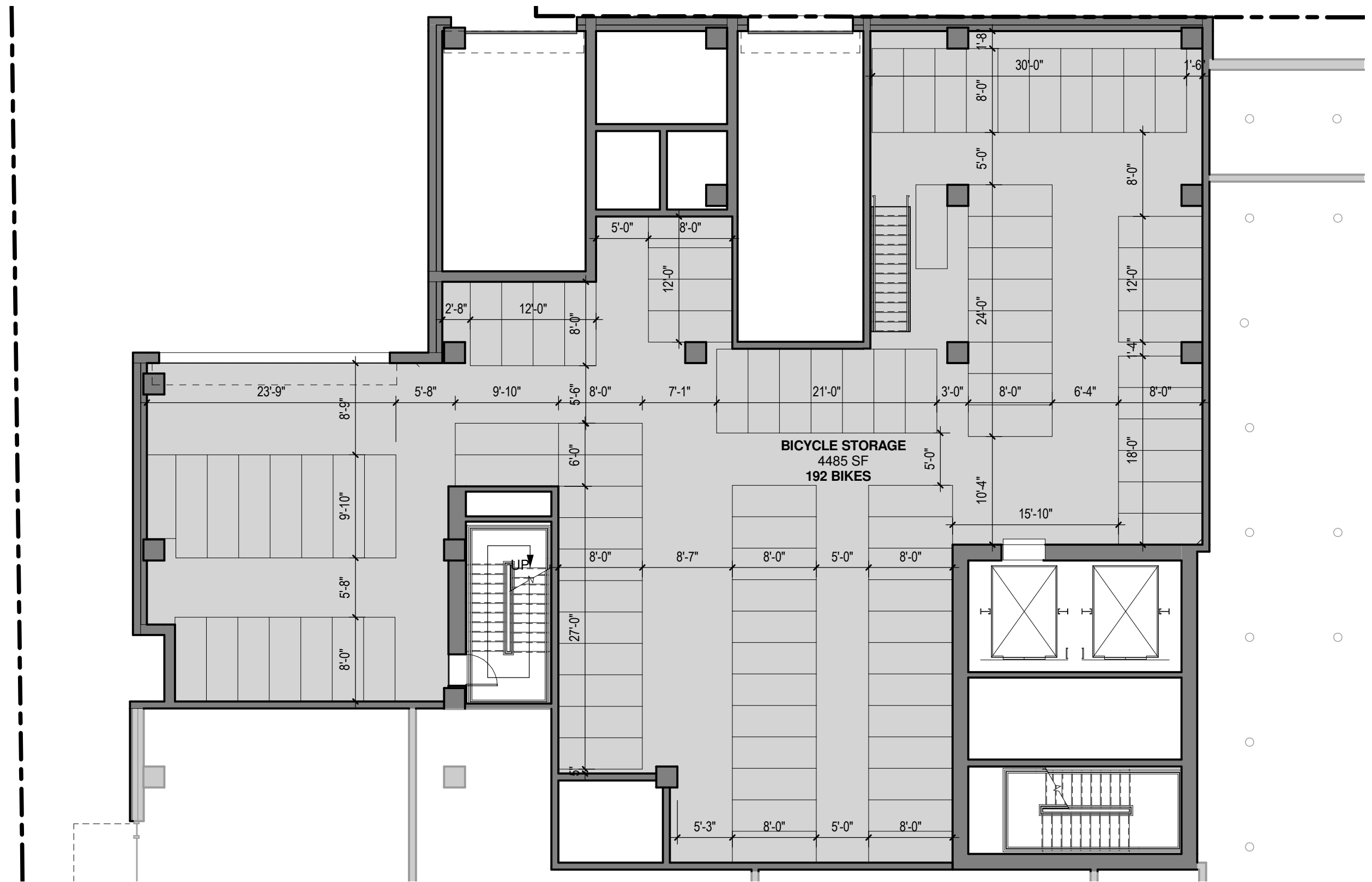
2 BICYCLE STORAGE ON BOTH P-1 AND P-2
 1" = 10'-0"

Garage Plan Details

3 BICYCLE STORAGE ON LEVEL 1
 1" = 10'-0"



Prepared By: CBT Architects
 Figure 5.5a
 Building B-1 Long-Term Bicycle Parking
 Ground Floor
Mass+Main
Cambridge, Massachusetts



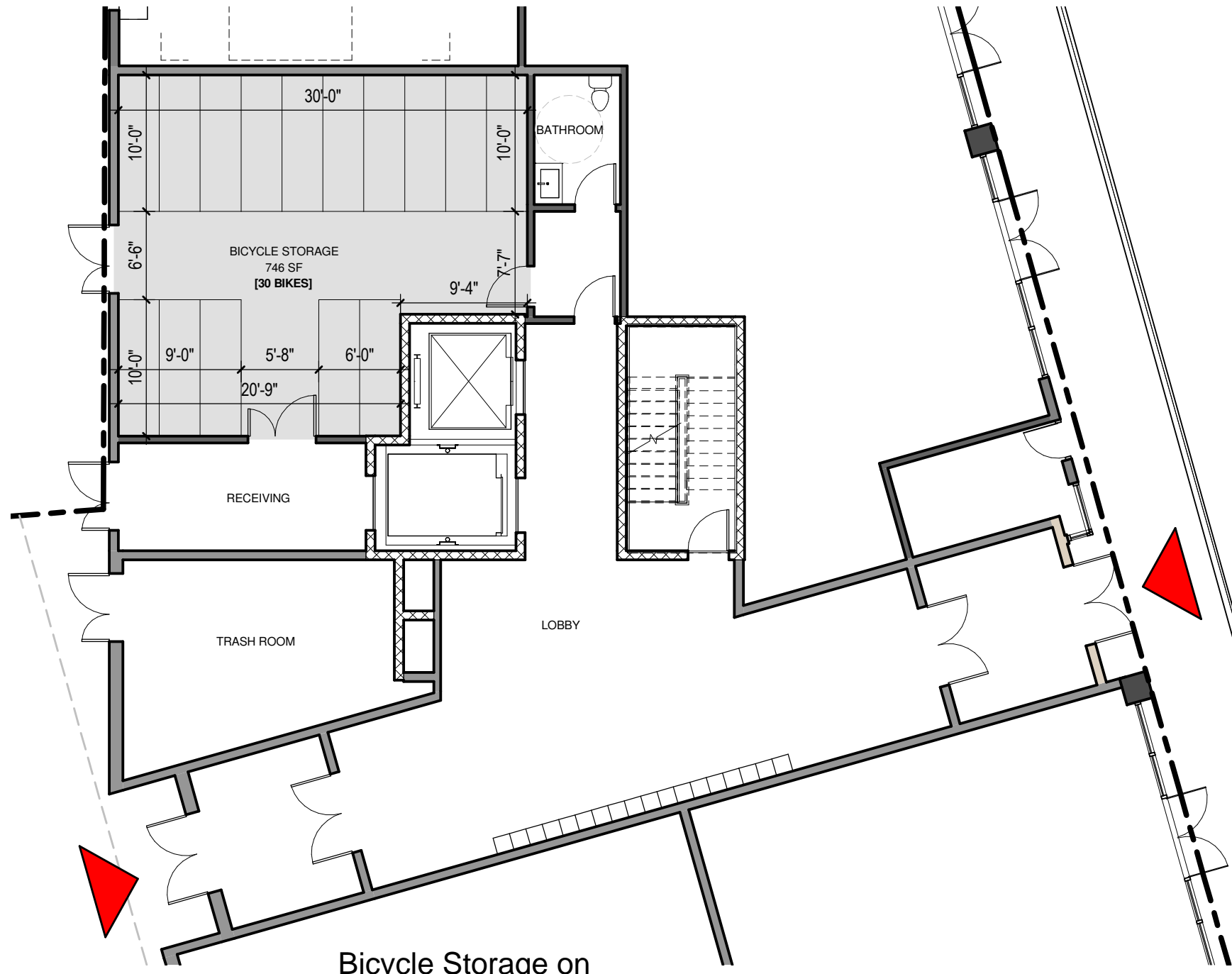
BICYCLE STORAGE
 4485 SF
 192 BIKES



Bicycle Storage on Mezzanine B-1



Prepared By: CBT Architects
 Figure 5.5b
 Building B-1 Long-Term Bicycle Parking
 Mezzanine Level
Mass+Main
 Cambridge, Massachusetts



Bicycle Storage on
1st Floor B-2



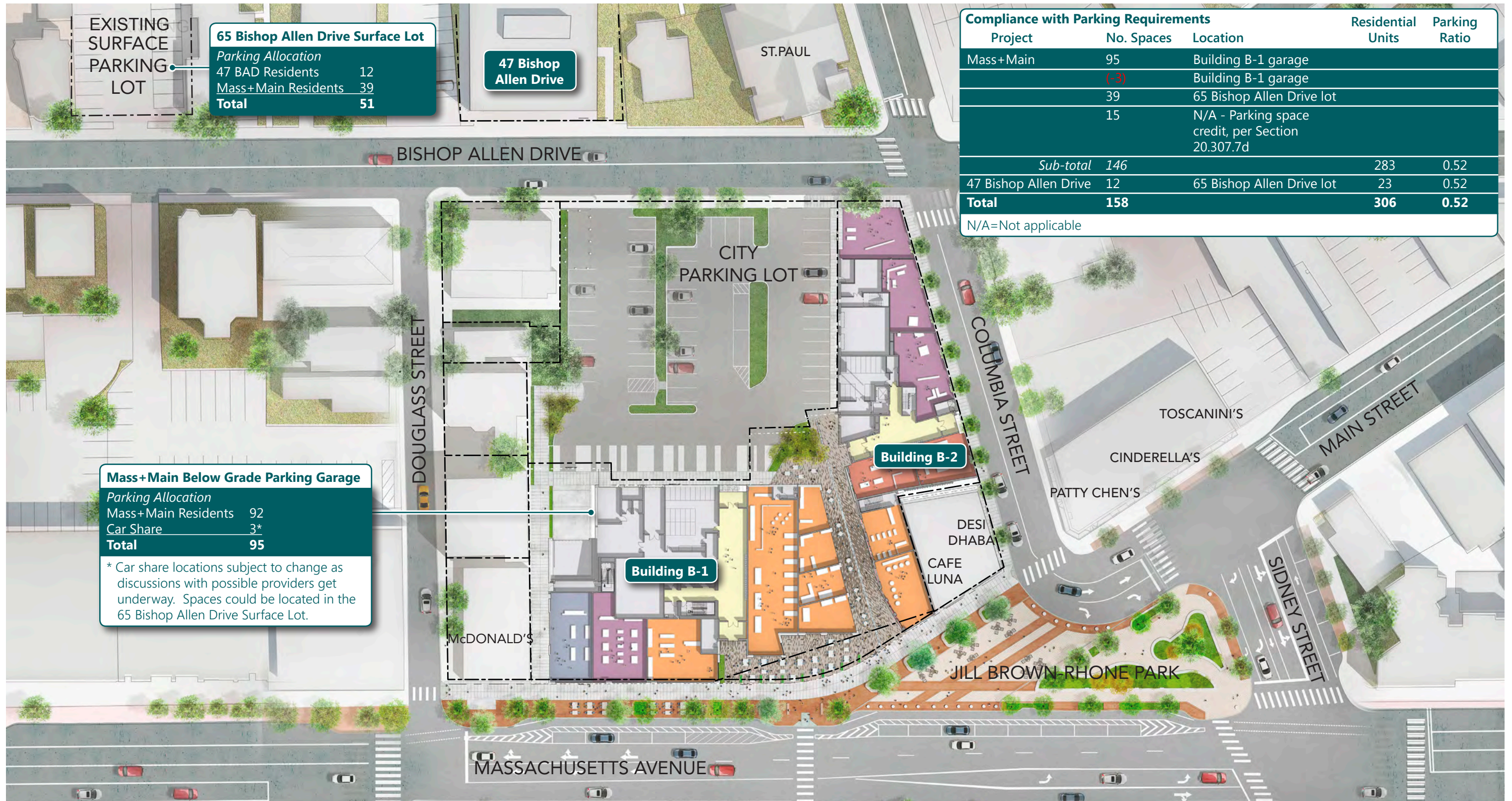
SCALE: 1" = 10'-0"
 0 5' 10' 20'



Prepared By: CBT Architects

Figure 5.6
 Building B-2 Long-Term Bicycle Parking

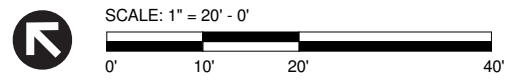
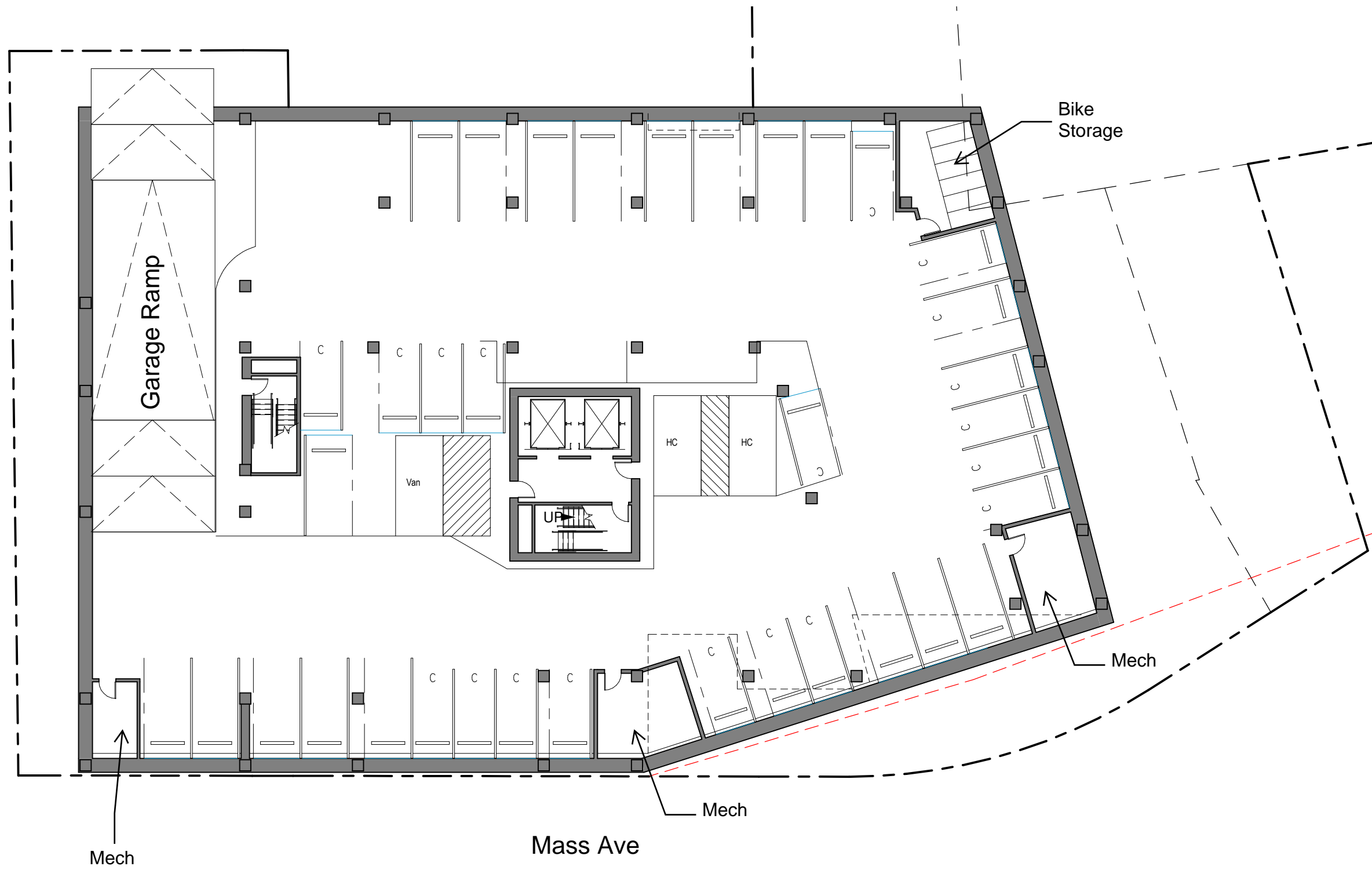
Mass+Main
 Cambridge, Massachusetts



Source: Twining Properties

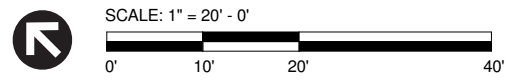
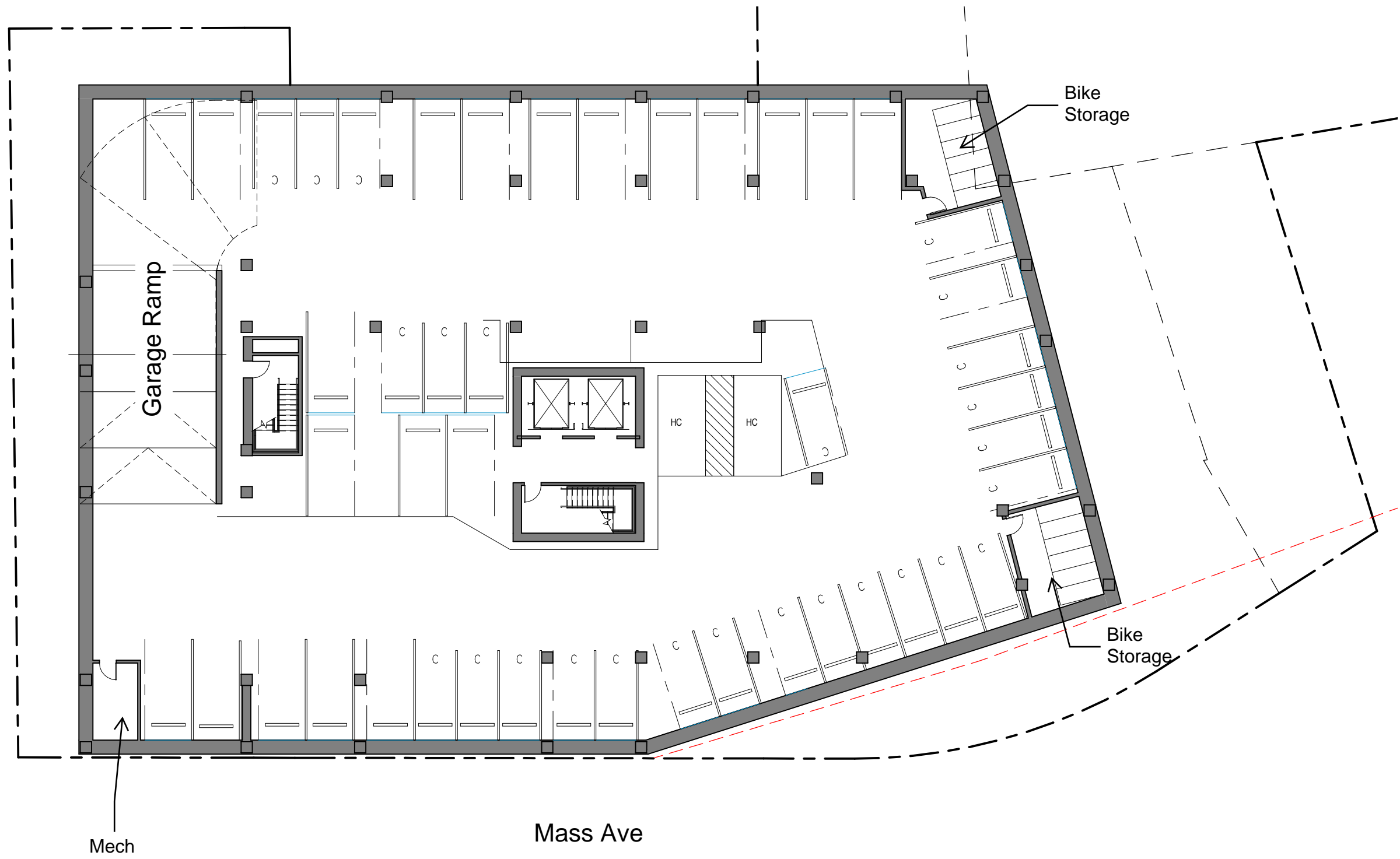


Figure 5.7
Proposed Shared Parking Plan



Prepared By: CBT Architects
 Figure 5.8a
 Building B-1 Level P1 Plan

Mass+Main
 Cambridge, Massachusetts



Prepared By: CBT Architects
 Figure 5.8b
 Building B-1 Level P2 Plan

Mass+Main
 Cambridge, Massachusetts

6

Infrastructure

This section represents a cumulative discussion of the existing infrastructure systems and infrastructure needs for the Project in combination with the 47 Bishop Allen Drive project, which is being submitted for Special Permit Project Review under a separate filing by the Applicant. Although technically two separate projects, the Applicant, in consultation with CDD and CDPW, has agreed to present a cumulative discussion of the impacts of both projects (referred to collectively herein as the "Project") in order to enable the Planning Board to consider them simultaneously.

The following utilities have been evaluated: sanitary sewer; water; stormwater management; natural gas; electricity; and telecommunications. Figures 6.1a-c show the existing utilities that are available to the Project. Figures 6.2a-c show the schematic design for the proposed infrastructure systems and connections for the Project.

The Project will connect to existing city and utility company systems in the adjacent public streets abutting each site. Based on initial investigations and consultations with the appropriate agencies and utility companies, all existing infrastructure systems are adequately sized to accept the incremental increase in demand associated with the redevelopment and operation of the Project. As design progresses, all required engineering analyses will be conducted where the final design will adhere to all applicable protocols and design standards ensuring that the proposed redevelopment of the building is properly supported by and properly utilizes city infrastructure. Detailed design of the Project's utility systems will proceed in conjunction with the design of the buildings and interior mechanical systems.

The systems discussed herein include those owned or managed by the CDPW, CWD, private utility companies and on-site infrastructure systems.

6.1 Sewer and Water Infrastructure

6.1.1 Existing Sanitary Sewer Service

The City provides separate sanitary and stormwater sewer collection systems in the vicinity of each site (Figures 6.1a-c). It is assumed that the existing buildings currently discharge through

separated sanitary sewer and stormwater services, although this will need to be confirmed by the project team prior to construction, as requested by CDPW. The City provides an existing 12-inch sewer main and 10-inch storm drain in Mass Ave; an 8-inch sewer main and 15-inch storm drain in Columbia Street; and a 15-inch sewer main and 36-inch storm drain in Bishop Allen Drive.

6.1.2 Proposed Sanitary Sewer Generation and Connections

New sanitary sewer connection(s) are required for all three buildings (Buildings B-1 and B-2, and Bishop Allen Drive). For the current design, sanitary flows from Building B-1 will discharge through two (2) proposed 8-inch services into the existing 12-inch sewer main in Mass Ave (Figure 6.2a). Building B-2 will discharge through two (2) proposed 8-inch services into the existing 8-inch sewer main in Columbia Street (Figure 6.2b). 47 Bishop Allen will discharge through one (1) proposed 8-inch service into the existing 15-inch sewer main in Bishop Allen Drive (Figure 6.2c).

Buildings B-1 and B-2 will contain a grease trap for any restaurant space within the garage level of Building B-1 or exterior to the building, and under the first floor slab of Building B-2 prior to discharge into the City sewer. The Project will provide a cured-in-place-pipe (CIPP) sewer rehabilitation for the existing 12-inch sewer main adjacent to the red line tunnel within the limits shown along Mass Ave.

As discussed in a meeting held at CDPW on Wednesday March 30th, 2016, the sites are outside the area of combined sewer surcharge concern during a rain event. Therefore, the proposed buildings will not require an on-site retention tank to hold back peak sanitary sewer flows.

The Project's wastewater generation rate was estimated using design sewage flow rates obtained from 310 CMR 15.000, The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage. The City provided recent water/sewer bills for the existing buildings. The existing sewer flows were determined using the most recent bills over a 365-day timeframe. Table 6-1 below displays existing and proposed sanitary flows.

Table 6-1 Estimated Wastewater Generation

Program Type	Quantity	Generation Rate	Total (GPD)
<i>Existing Flow</i>			
Building B1			
City Water/Sewer Bills			7,393
Building B2			
Office	11,512 SF	75 GPD/KSF	863
47 Bishop Allen			
Garage			0
Total			8,256
<i>Proposed Flow</i>			
Building B1			
Residential	320 Beds	110 GPD/Bed	35,200
Restaurant	220 seats	35 GPD/Seat	7,700
Lobby Space	1,469 sq. ft.	50 GPD/KSF	73
Retail	3,354 sq. ft.	50 GPD/KSF	168
Total			43,141
Building B2			
Residential	100 Beds	110 GPD/Bed	11,000
Restaurant	170 seats	35 GPD/Seat	5,950
Lobby Space	1,104 sq. ft.	50 GPD/KSF	55
Retail	2,600 sq. ft.	50 GPD/KSF	130
Total			17,135
47 Bishop Allen			
Residential	45 Beds	110 GPD/Bed	4,950
		Total Proposed	65,226
		NET NEW	56,970

The net average daily flow generated by the proposed buildings is estimated to be 56,970 gallons per day.

6.1.3 Mitigation

The project team has reviewed the Inflow and Infiltration (I/I) 4:1 reduction requirement with CDPW staff. Working closely with CDPW staff, the Applicant will meet the I/I requirement.

6.1.4 Domestic Water and Fire Protection

The Project will make primary connections for fire protection and domestic use to available City owned water infrastructure in Mass Ave for Building B-1 (Figure 6.2a), Columbia Street and Bishop Allen Drive for Building B-2 (Figure 6.2b), and Bishop Allen Drive for the 47 Bishop

Allen Drive project (Figure 6.2c). The existing water services for all existing building to be demolished will be permanently cut and capped, per CWD standards.

It is anticipated that Buildings B-1 and B-2 will require a 6-inch primary domestic water service, and an 8-inch fire protection service. Both buildings are larger than 50 residential units which will require a secondary domestic water service with an intermediate mainline gate valve for domestic water redundancy, per CWD standards. Because Building B-2 is on a corner lot, domestic water service will be provided on each street in lieu of providing a mainline gate valve. 47 Bishop Allen Drive is a small residential building less than 50 units. It is anticipated that this building will require one 4-inch domestic water and one 6-inch fire protection service.

The proposed water room for Building B-1 will be located adjacent to a foundation wall within the garage level. All proposed services will connect to the 12-inch main within Mass Ave towards the southwest corner of the building (Figure 6.2a). Building B-2 will not contain a subsurface level; therefore, the proposed services will enter the building below the foundation slab with bends provided at the building face to allow for water meter access. The primary domestic water and fire protection services for Building B-2 will connect to the 12-inch main within Columbia Street, while the secondary domestic water service will connect to the 12-inch main within Columbia Street (Figure 6.2b). The domestic water and fire protection services for 47 Bishop Allen Drive will enter the building below the foundation slab to an adjacent water room. The services will connect to the 8-inch water main within Bishop Allen Drive (Figure 6.2c).

Building B-1 is estimated to require 47,455 gallons per day of water demand, Building B-2 is estimated to require 18,849 gallons per day, and 47 Bishop Allen Drive is estimated to require 5,445 gallons per day; totaling 71,749 gallons per day of water demand for the proposed project. As discussed in Chapter 4, *Sustainable Design and Development*, the Project includes a project design goal to reduce potable water use by at least 40 percent (using the Energy Policy Act of 1992 as a baseline) through a combination of low-flow fixtures in residential and non-residential spaces, and, possibly rainwater reuse. Additionally, no permanent irrigation system is currently planned for the Proposed Project further reducing potable water usage.

The Applicant will work with CWD on the development of the project design and submit plans for formal approval prior to the issuance of the Building Permit for the Project.

6.2 Stormwater Management

The site Buildings B-1 and B-2 (Figures 6.1a-b) is predominated by building roof area and is primarily impervious, while the existing 47 Bishop Allen Drive parcel (Figure 6.1c) is an existing zero-lot-line building and currently contains zero pervious area. The majority of all existing building roof area is drained via a closed pipe drainage system discharging to the City's storm drain. The exact connection locations will be confirmed via dye testing prior to demolition, as requested by CDPW.

Since both sites are primarily impervious roof area, the Project will not produce changes in either the pattern of, or rate of, stormwater runoff. Stormwater management controls will be established in compliance with the CDPW standards. The Project will not result in the introduction of any peak flows, pollutants, or sediments that would potentially impact the receiving waters of the local municipal stormwater drainage system.

The primary method for stormwater management for the Project will be infiltration, which will be incorporated as part of the stormwater management system to reduce site peak flows, replenish groundwater and provide quality treatment for building roof and site runoff. The proposed on-site detention/infiltration system design complies with the City's Low Impact Development Guidelines.

The proposed site design will provide additional outdoor space allowing for a pedestrian connection from Mass Ave to Bishop Allen Drive. This space will be utilized for infiltration and improved pervious areas (Figure 6.2a). Supplemental infiltration will be provided for the roof area of Building B-2 below the first floor building slab (Figure 6.2b). Infiltration will be provided to the exterior of 47 Bishop Allen Drive (Figure 6.2c), as the proposed building footprint is smaller than the existing zero-lot-line building.

The design groundwater elevation for the Project will be Cambridge City Base EL. 10.0. Existing grades range from approximately elevation 18.0 to elevation 20.0 on-site. Maintaining the required 2-foot vertical separation from bottom of system to groundwater and appropriate cover to allow for H-20 loading, this allows for a maximum 5-foot vertical on-site infiltration system.

For the current design, the infiltration systems will be sized respective to each building and site area tributary to the system. The sizing of each system will comply with the City's standard of recharging the total volume of runoff generated between the pre-development 2-year 24-hour storm discharge and the post-construction 25-year 24-hour storm discharge. The Proposed Project will include overflow connections from the infiltration systems to the City owned storm drain. Final connections to this system will be reviewed and approved by the CDPW prior to construction. Additionally, the project will provide a cured-in-place-pipe (CIPP) storm drain rehabilitation for the existing 10-inch storm drain adjacent to the red line tunnel within the limits shown along Mass Ave (Figure 6.2a).

The Project is reviewing the alternative of stormwater re-use within Building B-1 for the purposes of landscape irrigation. Re-use of stormwater is beneficial as it will contribute to the reduction of peak storm flows, and the reduction of potable water use from the City's water system. The feasibility of this alternative will be vetted out during design development.

The final design will incorporate facilities to reduce phosphorus on-site by 65 percent compared to the existing conditions, in compliance with CDPW standards. The Project will provide stormwater Best Management Practices (BMPs) in conformance with DEP's Stormwater Management Standards.

The Project's construction documents will include measures and specifications regarding erosion and sediment controls and barriers (e.g. silt fence, silt sacks). Construction dewatering discharges will be appropriately controlled and discharged in accordance with National Pollutant Discharge Elimination System (NPDES) and state and local dewatering standards.

6.3 Other Utilities

In addition to stormwater management, sanitary sewer, domestic water and fire protection; each building within the proposed project will also require electrical, natural gas, and telecommunication services which are immediately available adjacent to each site.

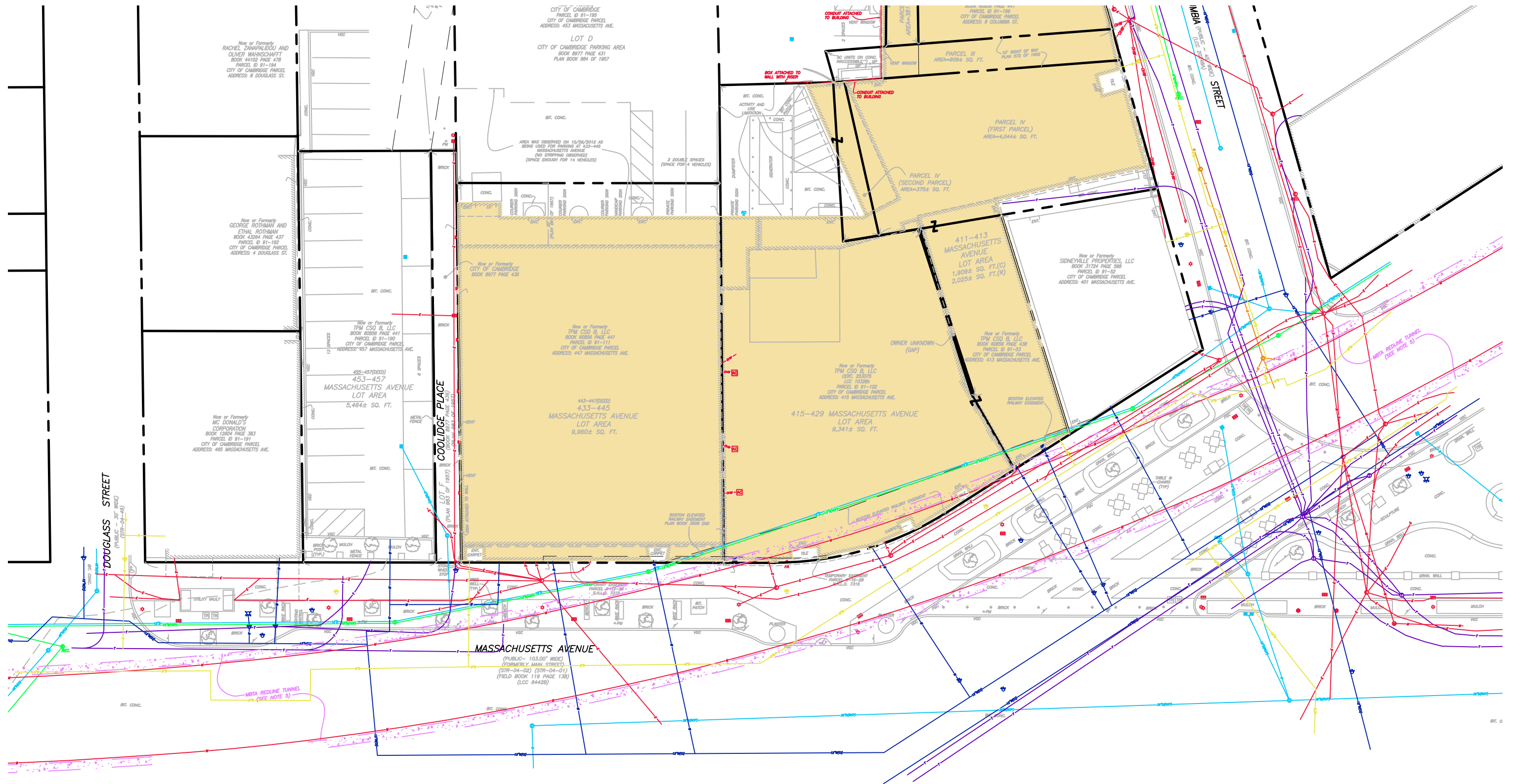
The design team will work with the respective private utility authorities on sizing and configuration of services. The design of these utilities will be included on the CDPW and CWD submission drawings to ensure that the work is coordinated as part of the public review process.

As discussed in Chapter 4, *Sustainable Design and Development*, the Project includes a design goal to reduce overall energy demand. Based on the preliminary building energy modeling results, the current design is more efficient than a conventional building, in compliance with the MA Stretch Energy Code requirements. Additionally, extensive building commissioning will be implemented to ensure optimal energy performance is realized.

6.3.1 Private Utility Services

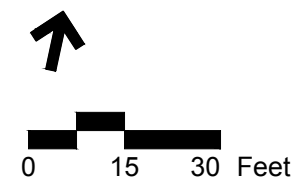
Buildings B-1 and B-2 will both require electrical and telecommunication service from Columbia Street due to the existing MBTA red line tunnel immediately adjacent to Building B-1 within Mass Ave. Both utility connections will take place within Columbia Street and feed under the first floor slab of Building B-2. Building B-2 will feed Building B-1 through separate concrete encased duct banks within private property to the exterior of the buildings. The 47 Bishop Allen building will operate independently from Buildings B-1 and B-2, and provide separate electrical and telecommunications services.

The natural gas services for all three proposed buildings will connect independently from each other with connections made in Mass Ave for Building B-1, Columbia Street for Building B-2, and Bishop Allen Drive for the proposed 47 Bishop Allen Drive building.

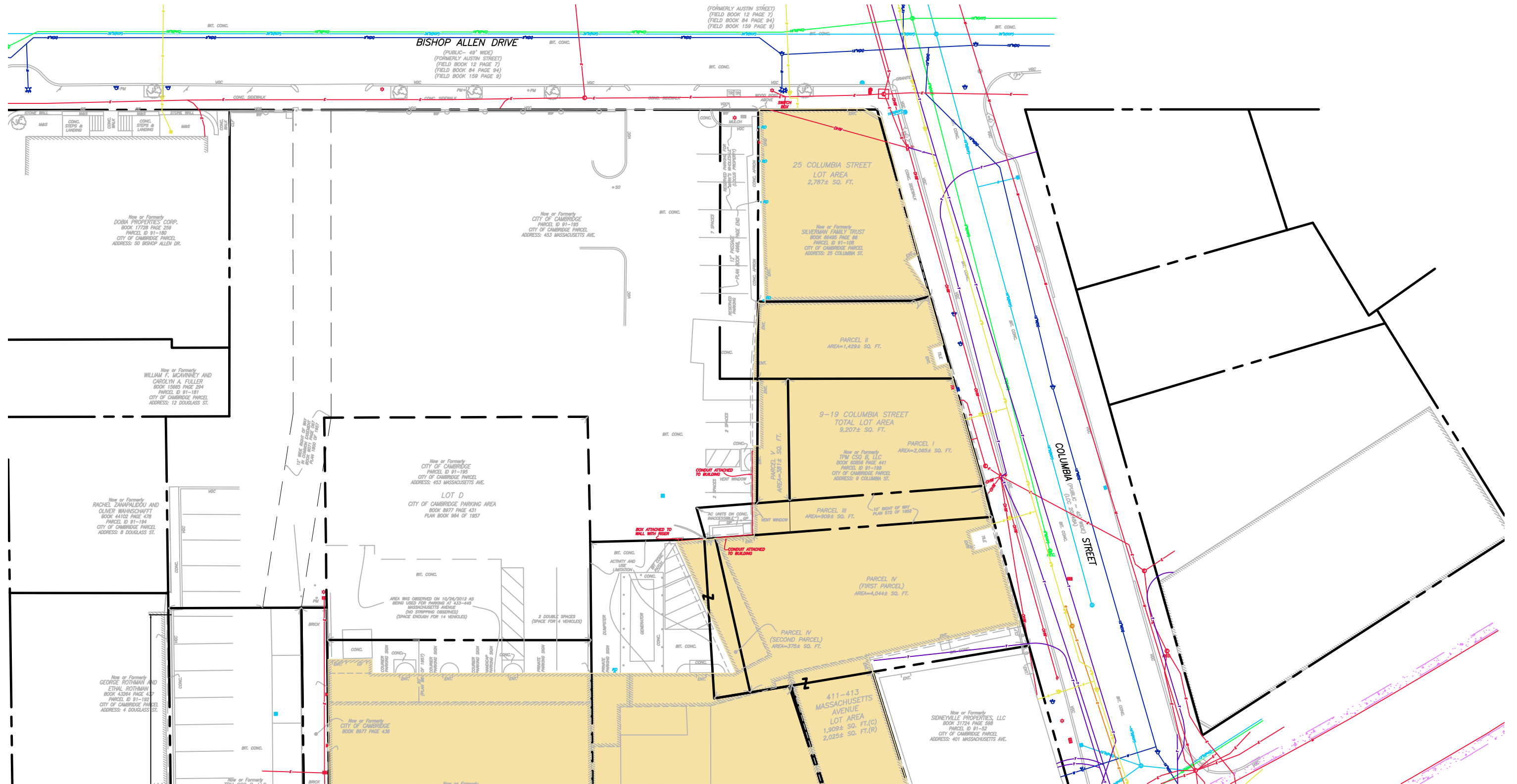


Source: VHB

Electric		MBTA Tunnel		Existing Building	
Cable TV		Water		Project Site Boundary	
Telephone/Data		Sewer			
Natural Gas		Combined Sewer			
		Storm Drain			

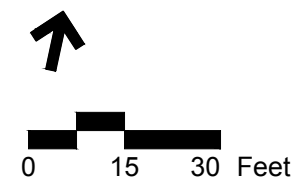


Prepared By: VHB
 Figure 6.1a
 Existing Utilities
 Building B-1
Mass+Main Project
Cambridge, Massachusetts

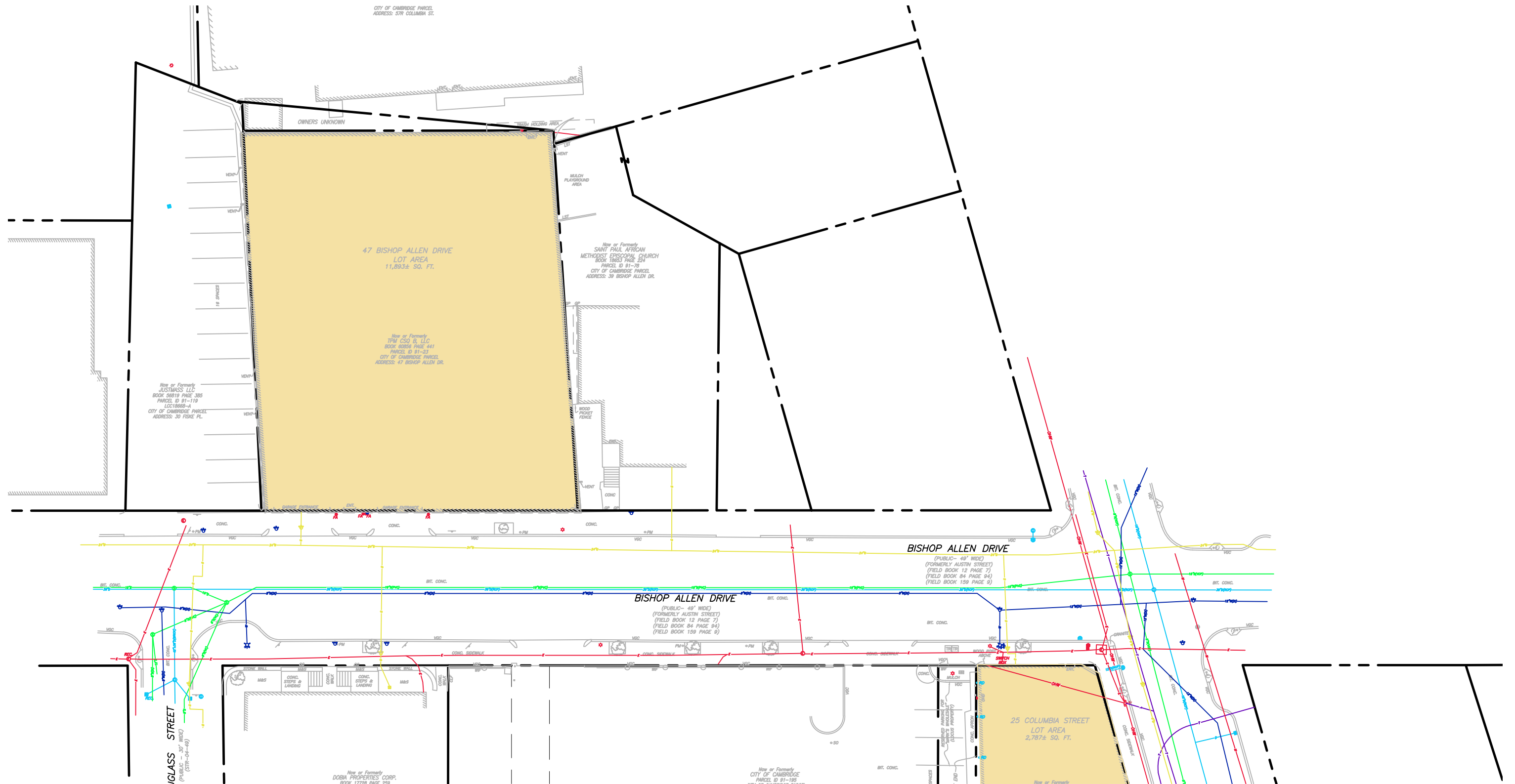


Source: VHB

Electric		MBTA Tunnel	
Cable TV		Water	
Telephone/Data		Sewer	
Natural Gas		Combined Sewer	
		Storm Drain	
		Existing Building	
		Project Site Boundary	

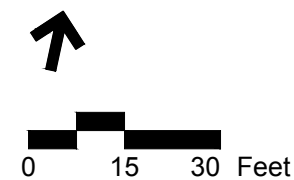


Prepared By: VHB
 Figure 6.1b
 Existing Utilities
 Building B-2
Mass+Main Project
Cambridge, Massachusetts

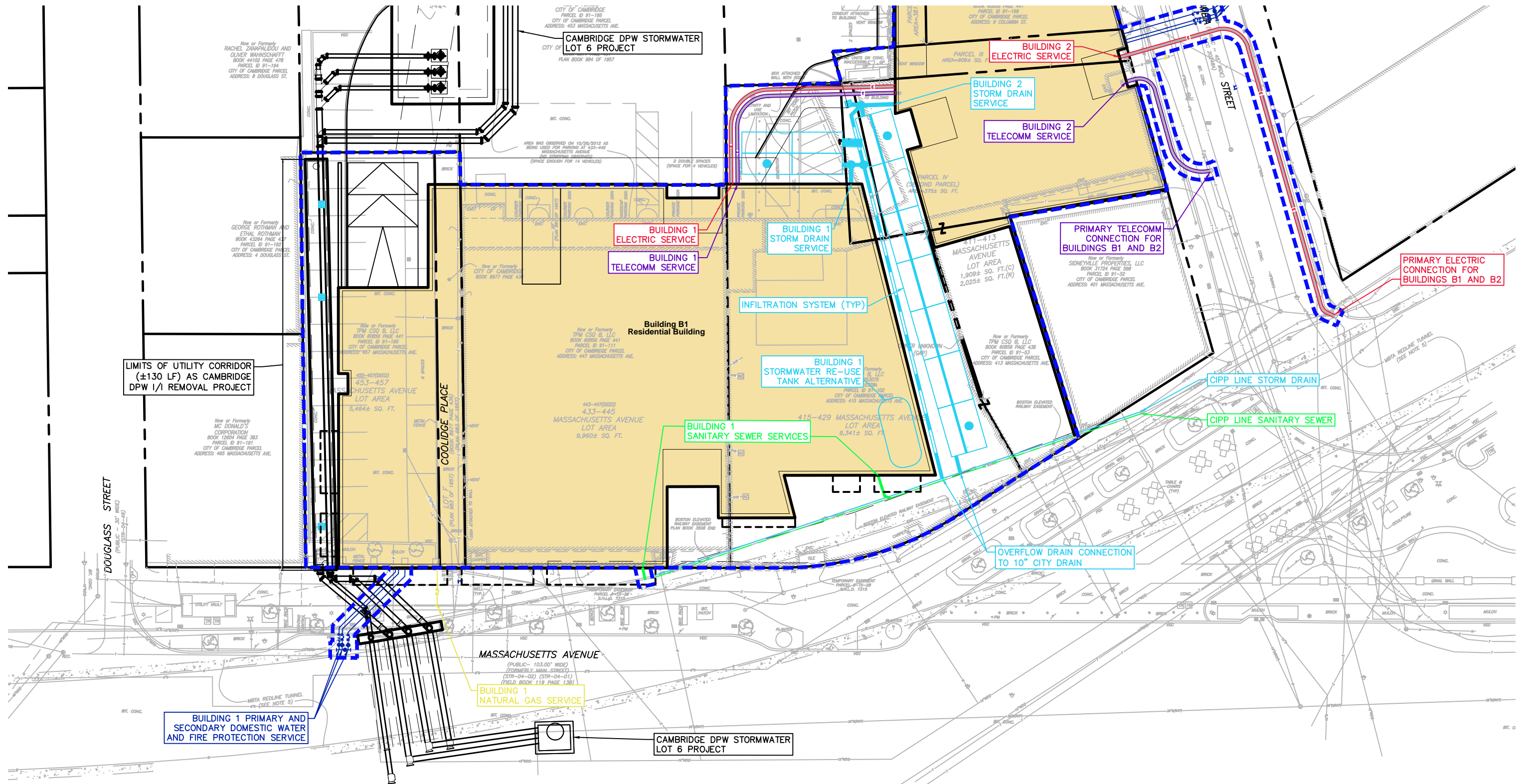


Source: VHB

Electric		MBTA Tunnel	
Cable TV		Water	
Telephone/Data		Sewer	
Natural Gas		Combined Sewer	
		Storm Drain	
		Existing Building	
		Project Site Boundary	

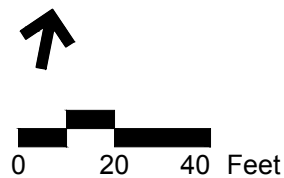


Prepared By: VHB
 Figure 6.1c
 Existing Utilities
 47 Bishop Allen Drive
Mass+Main Project
Cambridge, Massachusetts



Source: VHB

Electric		Water	
Cable TV		Sewer	
Telephone/Data		Combined Sewer	
Natural Gas		Storm Drain	
		Proposed Building	
		Project Site Boundary	

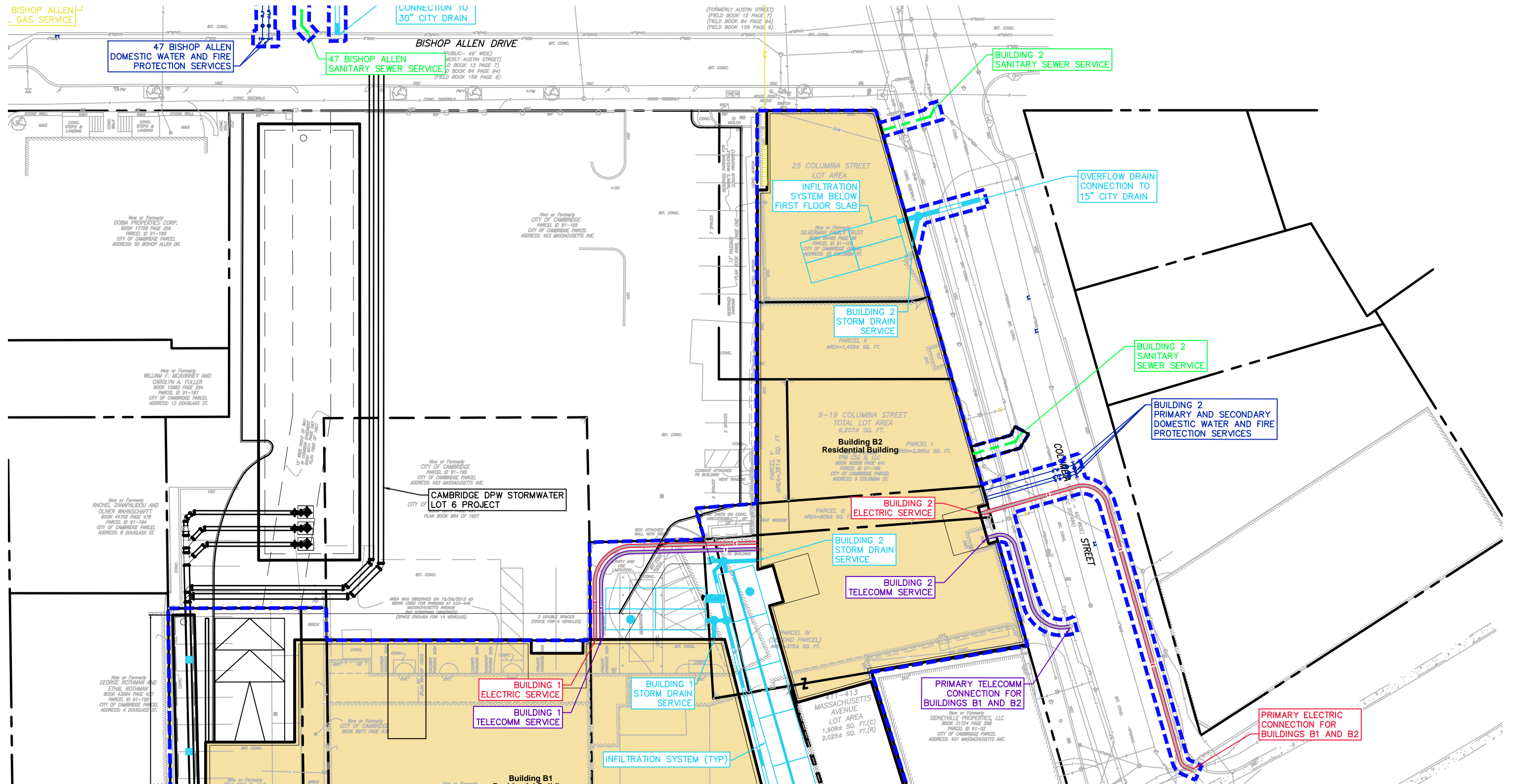


Prepared By: VHB

Figure 6.2a

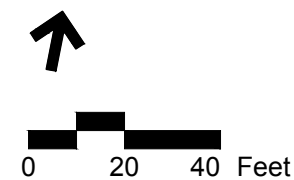
Proposed Utilities
Building B-1

Mass+Main Project
Cambridge, Massachusetts

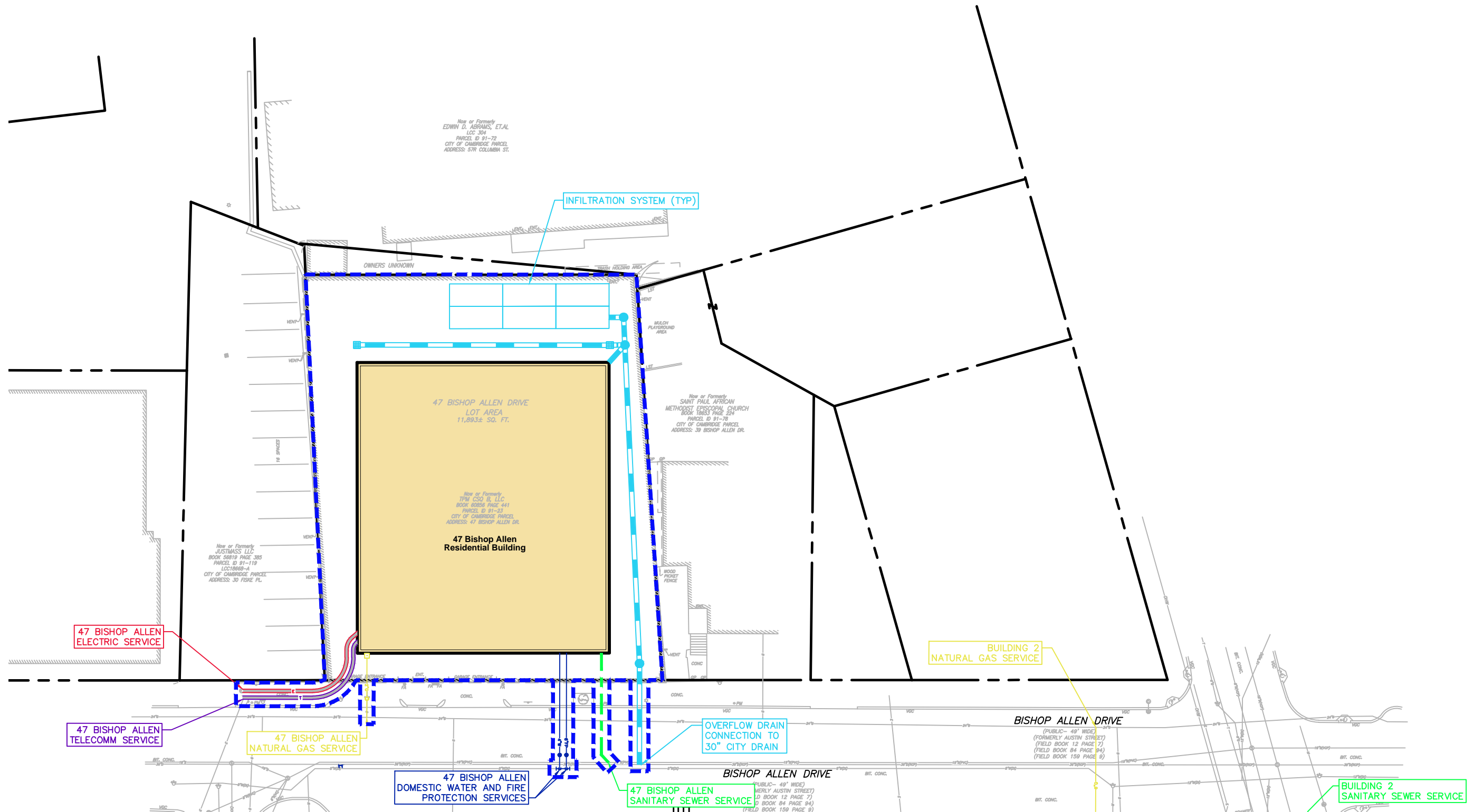


Source: VHB

Electric		Water		Proposed Building	
Cable TV		Sewer		Project Site Boundary	
Telephone/Data		Combined Sewer			
Natural Gas		Storm Drain			

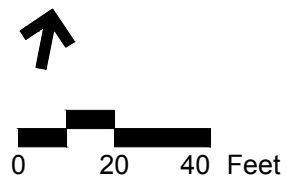


Prepared By: VHB
 Figure 6.2b
 Proposed Utilities
 Building B-2
Mass+Main Project
Cambridge, Massachusetts



Source: VHB

Electric		Water	
Cable TV		Sewer	
Telephone/Data		Combined Sewer	
Natural Gas		Storm Drain	
		Proposed Building	
		Project Site Boundary	



Prepared By: VHB

Figure 6.2c

Proposed Utilities
47 Bishop Allen Drive

**Watermark Central Square Project
Cambridge, Massachusetts**

ATTACHMENT 1: Wind Study

Note: This study has been provided electronically on the enclosed CD-ROM. Hard copies are available upon request.

ATTACHMENT 2: Transportation Impact Study

Note: This study has been provided electronically on the enclosed CD-ROM. Hard copies are available upon request.

ATTACHMENT 3: Green Building Supporting Documentation



29 September 2016

City of Cambridge
Inspectional Services Department
831 Massachusetts Ave.
Cambridge, MA 02139
617.349.6100

and

Community Development Department
344 Broadway
Cambridge, MA 02139
617.349.4600

RE: Article 22 Requirements for Mass + Main Building 1

Dear Department Directors,

To the best of my knowledge, the Mass + Main Building 1 project has been designed to achieve the requirements of Section 22.23 of the Cambridge Zoning Ordinance. The project will meet the requirements of LEED for New Construction and Major Renovation, version 4, at the level of Gold or better.

Sincerely,

A handwritten signature in black ink that reads 'Paula M. Zimin'.

Paula Zimin, AIA, LEED AP BD+C
Director, Sustainable Building Services
307 Seventh Avenue, Suite 1701
New York, NY 10001
212.564.5800 x117



29 September 2016

City of Cambridge
Inspectional Services Department
831 Massachusetts Ave.
Cambridge, MA 02139
617.349.6100

and

Community Development Department
344 Broadway
Cambridge, MA 02139
617.349.4600

RE: Article 22 Requirements for Mass + Main Building 2

Dear Department Directors,

To the best of my knowledge, the Mass + Main Building 2 project has been designed to achieve the requirements of Section 22.23 of the Cambridge Zoning Ordinance. The project will meet the requirements of LEED for New Construction and Major Renovation, version 4, at the level of Gold or better.

Sincerely,

A handwritten signature in black ink that reads 'Paula M. Zimin'.

Paula Zimin, AIA, LEED AP BD+C
Director, Sustainable Building Services
307 Seventh Avenue, Suite 1701
New York, NY 10001
212.564.5800 x117

BODPAVE®85

Installation Guide For Grassed Surfaces



BODPAVE®85 Installation Method

1. Install edge retention as specified: Either tanalised timber boards, concrete, steel or plastic curbs, or other as appropriate.
2. Ensure that the sand:soil rootzone bedding layer is the correct and uniform thickness, is level and well consolidated.
3. Place the paver units: With the two sets of edge loop connectors facing in directions of laying, place BODPAVE®85 pavers firmly onto the surface so that its ground spikes are pressed fully into the bedding and the base of the paver cells sit flat on the bedding layer surface. Connect adjacent pavers together by slotting the edge cell connectors down into the edge loops (LOOPS ALWAYS LEAD) and progress over the area in rows. Pavers are locked in place by snap-fit clips. If paver separation is required, clips can be dislocated using careful, firm hand or screwdriver pressure or by gently twisting the paver joints. Use protective gloves to avoid abrasions.
4. Pavers can be offset by one cell increments or cut to fit around obstructions and curves using a hand or power saw. The use of cut-pieces which do not have integral snap-fit connectors should be avoided wherever possible.
5. Fill pavers with specified rootzone to finished levels: 0.25" below top of the cells after settlement. A light plate compactor may be used to consolidate the pavers and settle rootzone fill. Do not overfill or over consolidate.
6. Carry out a normal seeding, fertilizing and watering program. A light top dressing may be applied to just cover the seed and to provide adequate germination conditions. Do not overfill the paver cells. Thin-cut or Washed Turf may be lightly rolled into the surface as an alternative if required.
7. The surface may be trafficked immediately for critical access purposes, but it is preferable to allow grass to fully establish prior to use.

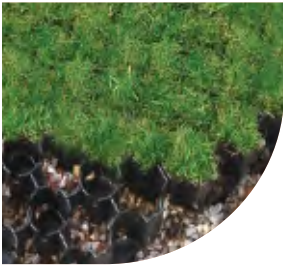
Design Notes

- Note 1: A class 5 road sub-base may be used provided that installation has adequate drainage. Alternatively, a permeable/open-graded(reduced fines) sub-base layer (i.e reduced fines class 7) may be specified, e.g. as part of a LID/NPDES system for stormwater control.
- Note 2: Advised separation layer of TYPAR Geotextile 3401 to be installed between sub-base and bedding layer
- Note 3: If construction traffic axle loads will be greater than (approx 6.5 Tons), minimum sub-base thickness shall be 6". Maximum sub-base particle size should match minimum sub-base thickness but not exceed 3" diameter.
- Note 4: A geogrid may be used below sub-base layer to provide additional strength or reduce sub-base depth. Contact TYPAR Technical Sales for assistance.
- Note 5: Specific advice on CBR% strengths, ground conditions and construction over weak ground with a CBR less than 1% is available from TYPAR Geosynthetics Technical Sales. CBR% = California Bearing Ratio, a measurement of subgrade soil strength
- Note 6: Where an open-graded 'reduced fines' sub-base is specified for LID/NPDES applications, the sub-base should be wrapped with TYPAR geotextile fabric to avoid the bedding layer or sub-grade soils from leaching into the sub-base.
- Note 7: Optional drainage may be required under impermeable soil conditions. Contact TYPAR Technical Sales for assistance.
Optional drainage detail: 4" diameter perforated pipe drains laid at minimum gradient 1:100, bedded on gravel in trench back-filled with .25" drainage stone / aggregate, trench covered &/or wrapped with a geotextile fabric (i.e TYPAR 3401), pipes leading to a suitable outfall or soakaway. Drains installed down center or one edge of areas up to 16' wide. Wider areas may require additional lateral drains at 16'-32' centers. Optional drainage design to be determined by the specifier based on specific site conditions.
- Note 8: Drainage for a LID/NPDES application will vary according to the site but generally omits the requirement for extensive pipe and trench drainage systems with an open-graded sub-base layer.
- Note 9: Rootzone bedding and paver fill must be a free-draining, structurally sound blend of sand:soil or sand:compost such as used in sports/golf construction and normally identified as a 60:40 or 70:30 ratio blend. The use of site-won materials or in-situ self-blending is NOT recommended without taking further advice from TYPAR Technical Sales.
- Note 10: Maximum advised gradient for traffic applications: 12% (1:8) 7°. BODPAVE®85 pavers have specific pegging points if required for steep slope applications. Pegging is not necessary for standard applications.

Specific advice on the use of BODPAVE®85 pavers on steep slopes, drainage suitability, soil suitability and LID/NPDES systems for water drainage applications, can be obtained from TYPAR Technical Sales.

Installation Guide For Grassed Surfaces

BODPAVE®85



Typical Construction Profile

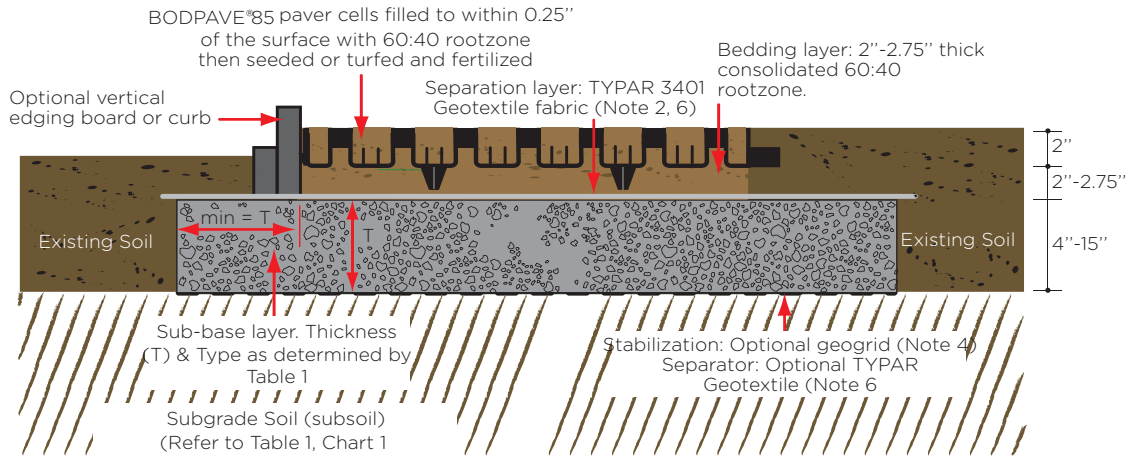


Table 1: Typical Sub-base Thickness (Tx) Requirements

Application/Load	CBR (%) Strength of Subgrade Soil (see chart 1)	(TX) DoT Sub-Base Thickness (mm & inches) (See Notes 1-5)	TYPAR Geotextile (see Notes 1-3)
Fire Trucks, Coaches and occasional HGV access	≥ 6	100mm 4"	3601
	=4<6	120mm 4"	3601
	=2<4	190mm 10"	3601
	=1<2	380mm 12"	3601
Light vehicle access and overspill car parking	≥ 6	100mm 4"	3401
	=4<6	100mm 4"	3401
	=2<4	135mm 6"	3401
	=1<2	260mm 10"	3401

Table 2: Materials Specification

Bedding Layer	60:40 rootzone : 2" - 2.75" thick
Paver fill (seed bed)	60:40 rootzone 1.75" thick
Grass seed or turf	0.01 lbs/ft ² amenity blend low maintenance seed or turf as required
Fertilizer	Pre-seed fertilizer followed up with appropriate seasonal fertilizer
Sub-base type	Class 5 road base or a modified permeable reduced fines class 7 sub-base (Table 1)
Sub-base reinforcement	TYPAR Geotextile (Table 1) or geogrid Specification upon request

Chart 1: Field guidance for estimating sub-grade strengths

Consistency	Indicator			Strength	
	Tactile (feel)	Visual	Mechanical (test) SPT	CBR %	CU kN/sqm
Very Soft	Hand sample squeezes through fingers	Man standing will sink > 3"	<2	<1	< 25
Soft	Easily moulded by finger pressure	Man walking sinks 2" - 3"	2-4	Around 1	Around 25
Medium	Moulded by moderate finger pressure	Man walking sinks 1"	4-8	1-2	25-40
Firm	Moulded by strong finger pressure	Utility truck ruts 0.5" - 1"	8-15	2-4	40-75
Stiff	Cannot be moulded but can be indented by thumb	Loaded construction vehicle ruts by 1"	15-30	4-6	75-150

This field guide is provided as an aid to assessing the mechanical stabilization requirements in commonly encountered site conditions. Fiberweb accepts no responsibility for any loss or damage resulting from the use of this guide.

Please note that the information above is given as a guide only. All sizes and weights are nominal figures and may vary to what is published. Fiberweb Inc., cannot be liable for damage caused by incorrect installation of this product. Final determination of the suitability of any information or material for the use contemplated and the manner of its use is the sole responsibility of the user and the user must assume all risk and responsibility in connection therewith.

ATTACHMENT 4: Tree Study

Note: This study has been provided electronically on the enclosed CD-ROM. Hard copies are available upon request.

ATTACHMENT 5: Community Outreach Supporting Documentation

Date	Time	Meeting/call	Attendees	Location	Presentation	Notes	Follow-up Issues
8/10/2016	6:30 PM	Abutter Meeting	Rev. Washington + 6 trustees - St Pauls AME Church	85 Bishop Allen Dr	MM update, plus 47 Bishop Allen Dr	Concerned about parking and construction impacts. Want assurances of continued communications and coordination throughout process	Provide update on 47 Bishop Allen Dr when ready
8/26/2016	6:00 PM	Abutter Meeting	Elks: Donald Harding, Nelson Evereteze, Reynold Bartlet & Richard Harding	435 Mass Ave	MM update, plus 47 Bishop Allen Dr	Clarified process (zoning vs Special Permit), schedule, City storm drainage project, construction period impacts, benefits of replacing garage with housing. Want ongoing relationship and communication	Provide update on 47 Bishop Allen Dr when ready
9/1/2016		9/15 Open House Postings	1100 Constrant Contact emails, posted on CDD website, Facebook, Twitter, local newspaper calendar blogs				
9/5/2016		9/13 Margaret Fuller House Community Meeting Postings	MFH email distribution, event fliers				
9/13/2016	12:10 PM	9/15 Open House - 47 Bishop Allen Dr posting	Cambridgeport Neighborhood Association listserve posting				
9/13/2016	1:00 PM	Abutter Meeting	Rothman - 4-6 Douglass St	907 Mass Ave	Construction, project update, entitlement process		
9/13/2016	6:30 PM	Community Meeting at MFH	Margaret Fuller House - 57 attendees, BF, Barer, Jesse Baerhahn	71 Cherry St	MM Overview with 47 Bishop Allen Dr	Focus on Economic Development opportunities: Retail program, job postings, building operations and construction jobs. Establish Retail Advisory Committee, MFH to be liason with community for job postings and economic development.	
9/14/2016	12:13 PM	Email reminder for 9/15 Open House - 47 Bishop Allen Drive	1100 Constant Contact emails				
9/15/2016	6:00 PM	Open House	20 attendees, BF, Alex Twining, Barer, Nagahiro, Park	435 Mass Ave	47 Bishop Allen Drive, B1 - B2 design updates		
9/16/2016		Presentation postings for 9/13 & 9/15 meetings	M+M website, update home page, presntations on resources page				
9/18/2016		Thank you for attending meetings	60 individual emails				

M+M JULY & SEPTEMBER 2016 OPEN HOUSE COMMENTS / RESPONSES

13-Jul	26-Jul	15-Sep	Comment	Response
Planning/Design				
<input checked="" type="checkbox"/>			What will the special permit involve?	We are applying for a special permit for the two buildings along Mass Ave and Columbia as well as the building on Bishop Allen. The building's specific features and façade will be discussed at the SP phase. The special permit is required for a project of this size in this location.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	What will happen with the Apollo building?	We are looking to raze the Apollo building and replace it with a one story retail building. (NOTE: in the 9/15 Open House it was announced that the Apollo building will remain)
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		Can you change the building's design to make it fit in better with the community by adding more architectural dimension as well as shorten the tower by adding units to the building on Columbia.	We believe that this building will be a great addition to the community. The height of the tower, 19 floors, was determined by the zoning process. The building along Columbia cannot be any taller. We are still refining the design of the facade.
<input checked="" type="checkbox"/>			What will replace the garage on Bishop Allen?	We plan to build approximately 25 units of housing.
<input checked="" type="checkbox"/>			Can you speak about the new design differences, as there is a slab/ point tower difference?	The architect thoroughly explained the desire to be sensitive to abutters as well as Massachusetts Avenue in designing the building.
		<input checked="" type="checkbox"/>	What is the white part of the lower building?	(B2 on Columbia) Trespa panels
		<input checked="" type="checkbox"/>	Why is part of the tower shorter? What will go there?	(B2) Residential on the upper 5 stories, retail and services at grade
		<input checked="" type="checkbox"/>	Will the walkway remain the same?	the existing 8' wide Coolidge Place will be relocated next to McDonalds and widened to 10'
		<input checked="" type="checkbox"/>	What is the white material? What other materials are being used?	Metal panels and brick on B1, Trespa on B2
		<input checked="" type="checkbox"/>	How many affordable housing units will be above there retail?	20% affordable units
		<input checked="" type="checkbox"/>	Design of the terrace. Accessible for people who live in the building?	The two terraces will be accessible to all residents of B1 & B2 respectively. The design will be "functional green roofs" which exempt the areas from FAR
		<input checked="" type="checkbox"/>	What will the roof look like?	Mechanical rooftop equipment will have a visual screen. We are investigating the possibility of adding solar panels on top of B2 to add additional visual screening and a significant "green" element. The feasibility of this option is still undetermined.
Retail				
<input checked="" type="checkbox"/>			Who will set the rents for small businesses and ensure that businesses can actually afford to stay to this location? Will the cost of goods sold at these shops be affordable for existing residents?	We will set rents that are reasonable because it is our goal the retail will only thrive if the community shops at these stores, as the tenants in the building alone cannot sustain the stores. We have spent the past three years learning about the community and want to meet your needs as well. Unlike the Boston Public Market, this location is different and we anticipate that the retail opportunities will amplify the Central Square community. We plan on having farmer's markets that will spill over onto both our land and the city land.

13-Jul	26-Jul	15-Sep	Comment	Response
	<input checked="" type="checkbox"/>		Where is the loading dock for the retail along Columbia St.?	There is only one loading dock located in the tower. This loading dock will be used by the vendors along Columbia.
		<input checked="" type="checkbox"/>	What kind of retail shops will be there?	A combination of food and services. A community-based Retail Advisory Committee will be formed to ensure community input for the final uses.
		<input checked="" type="checkbox"/>	Day to day needs are very important to keep in mind when selecting retail. People need a place where they can go and get what they need.	Understood. The Retail Advisory Committee will be helpful in balancing these goals with ensuring an economically vibrant program.
		<input checked="" type="checkbox"/>	Columbia is kind of a commuting street/fast moving. How will cars get around retail traffic? Where will customers park?	We are coordinating with City Traffic and DPW to require all deliveries to the rear of B1 and B2 across the City Parking lot.
		<input checked="" type="checkbox"/>	How many retailers are currently on Bishop Allen?	None
Residential				
<input checked="" type="checkbox"/>			What is a loft?	A loft is a one-bedroom apartment with the bedroom on an interior wall. The walls in the bedroom space do not extend all the way to the ceiling.
<input checked="" type="checkbox"/>			Will there be affordable studios? How is the number of affordable units calculated?	Yes, there will be affordable studios. The number of affordable units is based on the current City ordinance, which calculates the number of affordable units on a per unit basis or set by a ratio of market rate unit to affordable unit.
	<input checked="" type="checkbox"/>		What will the market rents for the units be?	We have not set the rents yet, but we expect that the rents will be competitive with the market.
	<input checked="" type="checkbox"/>		What are the sizes of the units?	Studio: 450-500 SF ; Loft: Mid 500 to 600 ; 1-bed: 600-750 ; 2-bed: 900-1100 ; 3-bed: 1000-1200
<input checked="" type="checkbox"/>			Who are the intended residents of the building?	We have put in two-bedroom and three-bedroom units to appeal to young families.
<input checked="" type="checkbox"/>			Will the building have condos or just be rental?	The building will not have condos and will only have rentals.
	<input checked="" type="checkbox"/>		Can you explain how the parking works for the new buildings.	Mark B. discussed the calculation.
Impacts				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		What will happen with the city parking lot in the future? How will you access your underground garage if the city puts a park where the current city lot is located?	The City is planning to keep the parking lot for now. Our design, however, anticipates the city building parking underground that can connect to the garage we are building. The City would look to merge a new underground parking lot with our existing
<input checked="" type="checkbox"/>			How do you make jobs available for those who live here and are there any apprentice programs that you can connect to this project?	We are not aware of a program in Cambridge that is as comprehensive as the program in Boston. We are using local builders and will look into this.
<input checked="" type="checkbox"/>			Do you know what will happen to the congestion on Bishop Allen Drive after this development is built?	Because this is a residential building, this will cause less of a traffic burden.
	<input checked="" type="checkbox"/>		What do the different wind study labels mean?	The different labels coordinate to different conditions caused by the construction of the building.
	<input checked="" type="checkbox"/>		How will you mitigate wind from the pathway between the two buildings?	The wind will either be mitigated by canopies or a glass covering.
	<input checked="" type="checkbox"/>		Would the proposed city housing on the existing parking lot be in a lot of shade?	See shade studies in report.

13-Jul	26-Jul	15-Sep	Comment	Response
Other				
	<input checked="" type="checkbox"/>		Is the water tank for sewage or rainwater?	Rainwater.
	<input checked="" type="checkbox"/>		What about a mural on the back wall?	We welcome all thoughts. Whether it is family restaurants – we are gathering this information. Reaching out to folks in Cambridge. Who are you reaching out to? We will continue to reach out to groups. Design of spaces that are diverse.
<input checked="" type="checkbox"/>			Who owns the properties currently and are there new partners?	Twining is the sole developer of the project and bought Normandy out.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		What is the IRR for your building in Kendall v Central Sq.?	Kendall: high 7% v. Central Sq.: low 5%
	<input checked="" type="checkbox"/>		What is the square footage of each floor of the tower above the podium?	The size is 10,000 SF.
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		What will happen to the stain glass windows?	We are locating the original artist, and we believe he will find a new home for the windows.

re	Summary of Survey Results from Mass+Main Open Houses
to	Lauren Devoe
from	Bob Flack and Mark Lipschultz
date	August 3, 2016
for	MM Special Permit Application

Survey Objectives:

- To document the community's assessment of important aspects of Mass+Main
- To solicit comments or concerns that may not have been expressed at the Open Houses.

Key Findings:

- High response rate: 23 people completed the survey – 25% rate
- Mass+Main meets the goals of the 2013 C2 Study – Respondents reactions:

C2 GOALS	POSITIVE	NEGATIVE	N/A
Public Spaces Build Community	68%	24%	8%
Retail Diversity	74%	17%	9%
Increase Housing Stock & Promote Residential Diversity	84%	16%	
Connecting People to the Square	84%	12%	4%
A Sustainable Future for Central Square	76%	16%	8%
	77%		

- Mass+Main's recently added benefits are well received – Respondents reactions:

ADDED BENEFITS	POSITIVE	NEGATIVE	N/A
Move Parking Underground	79%	8%	13%
Add more Housing	84%	16%	
Retail Activated Passageways	88%	8%	4%
Fix Storm Drainage	79%	4%	17%
Allow for the future	68%	18%	14%
	80%		

About the Survey: The survey was created by Twining Properties on SurveyMonkey.

Who Took the Survey: Community members that attended either Open House held on July 13th & 26th. The survey was distributed at the Open Houses. In addition, a link to the survey was emailed as a reminder to Open House attendees: www.massandmain.com/survey.

Understanding the Results

1. Does Mass+Main meet long-term planning goals – the C2 Study?

- 19 people think the project did an “*excellent*” or “*good*” job.
- See the information displayed in Figures A and B.

Figure A:

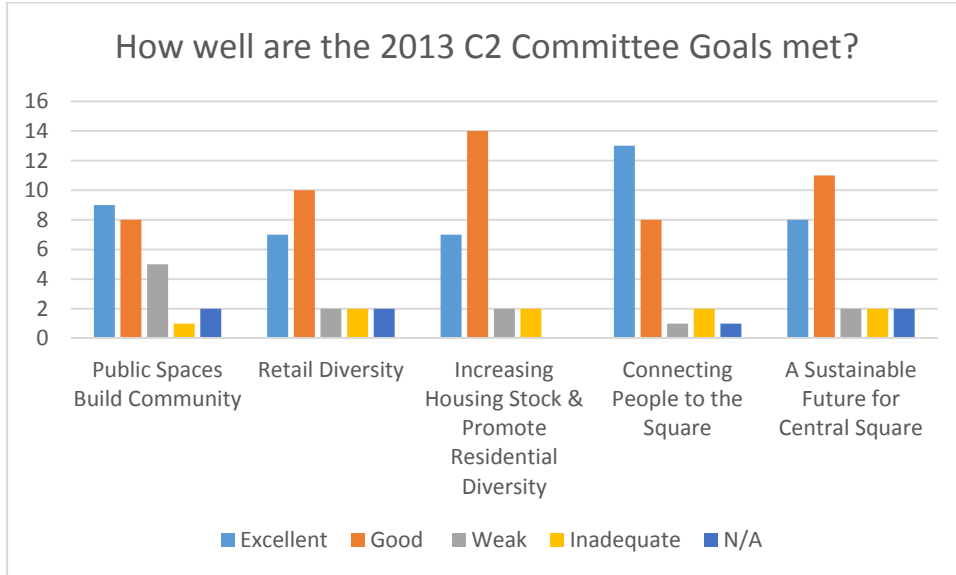
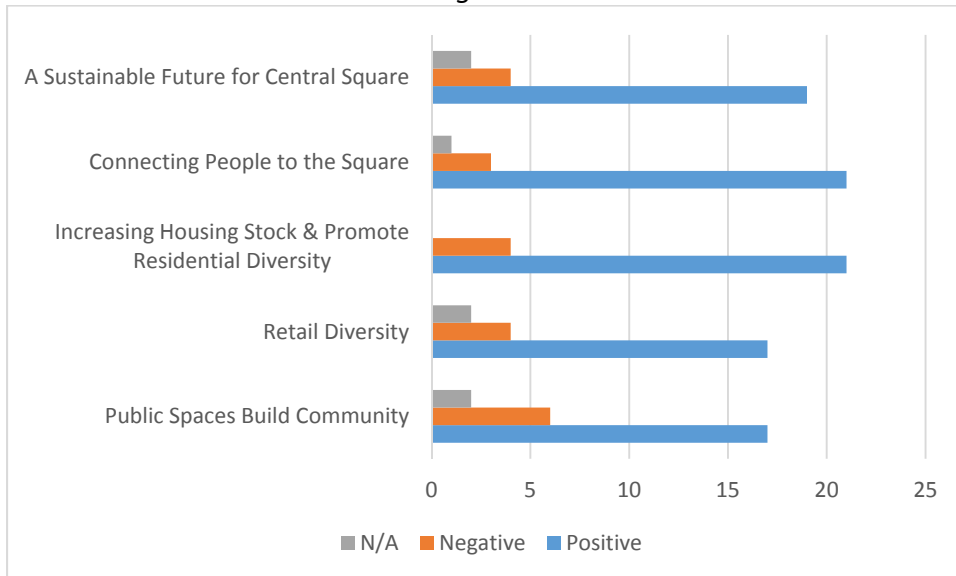


Figure B



CONCLUSION: 77% of Responders believe Mass+Main meets the 2013 C2 Goals.

2. How are recently added benefits perceived?

- 19 people believe the benefits are “excellent” or “good”.
- See the information displayed in Figures C and D.

Figure C

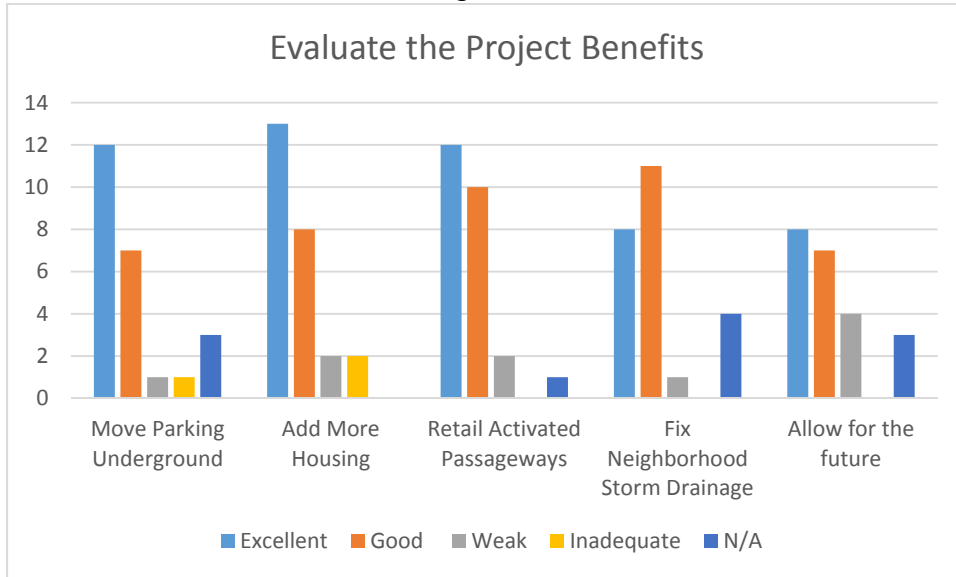
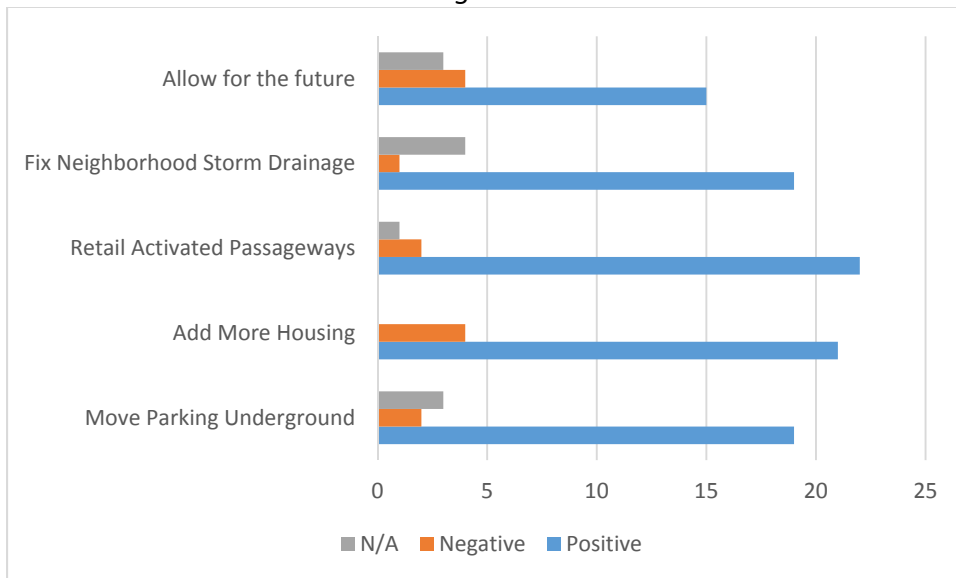


Figure D



CONCLUSION: 80% of Responders like the benefits.

Summary of Written Comments

23 completed surveys

1. Housing

- 1 person believes that the units along Mass Ave should have decks.
- 1 person recommends increasing the percentage of units that are affordable for middle income tenants and to rent those units to people who also work in Cambridge
- 1 person requests that the number of 3-bedroom units be increased and the size of such units be larger than planned
- 1 person believes that the tower should be taller and create even more housing

2. Retail

- 1 person believes that taking down the Apollo building might allow for more light in the retail passageway but hoped the "Lafayette Square" plaster words will be incorporated in the new retail space
- 1 person believes that the retail needs to be scaled to match the needs of small vendors
- 1 person could not comment on retail diversity because specific vendors have not been chosen yet

3. Storm Drainage

- 1 person wants to learn more about the storm drainage system

4. Surrounding Community

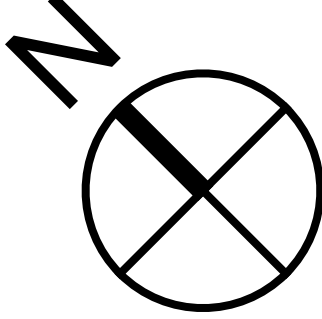
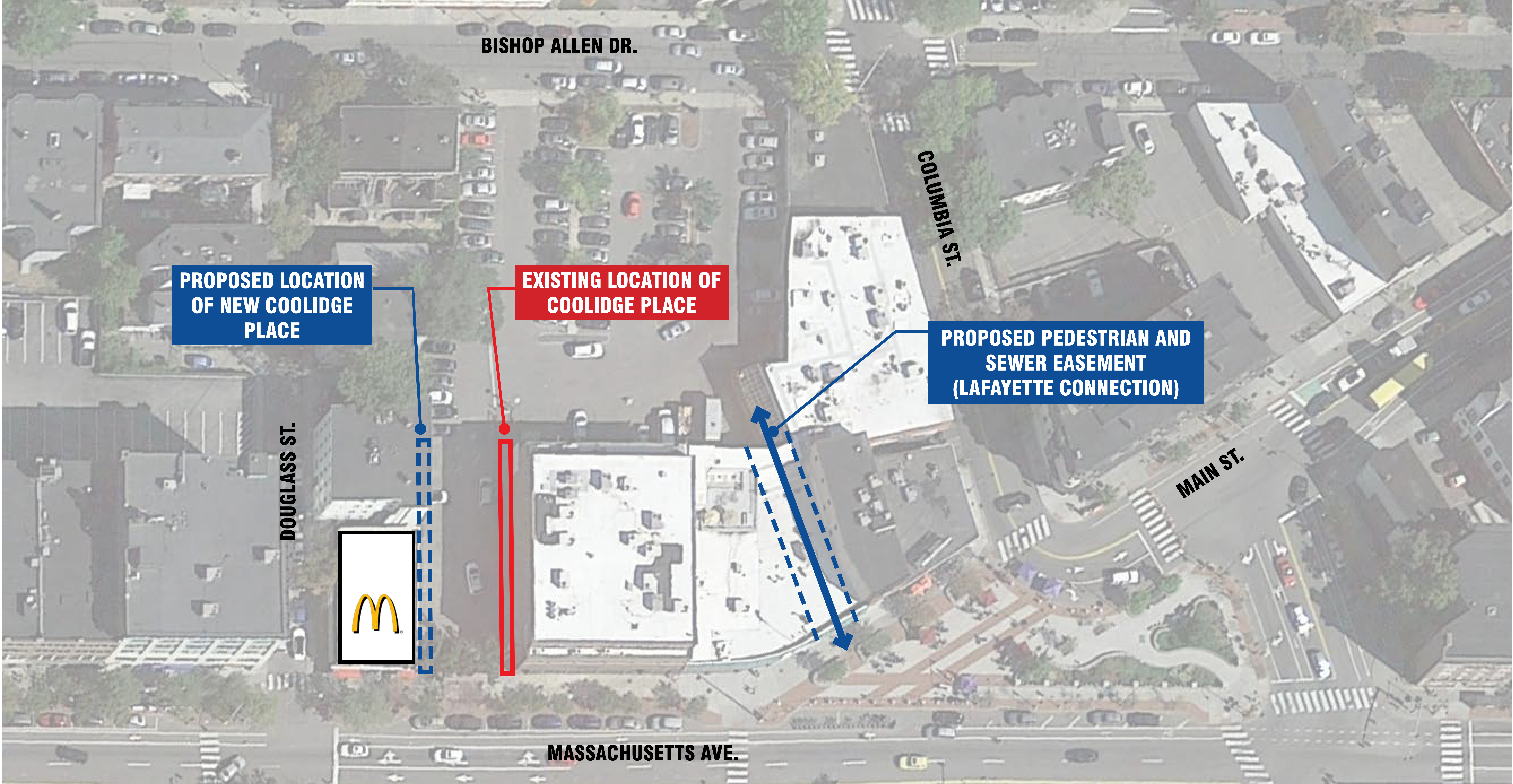
- 1 person recommends greenery or plantings in or near the walkways
- 1 person wants Central Square to remain a family friendly environment
- 1 person wants a lower tower

5. Miscellaneous

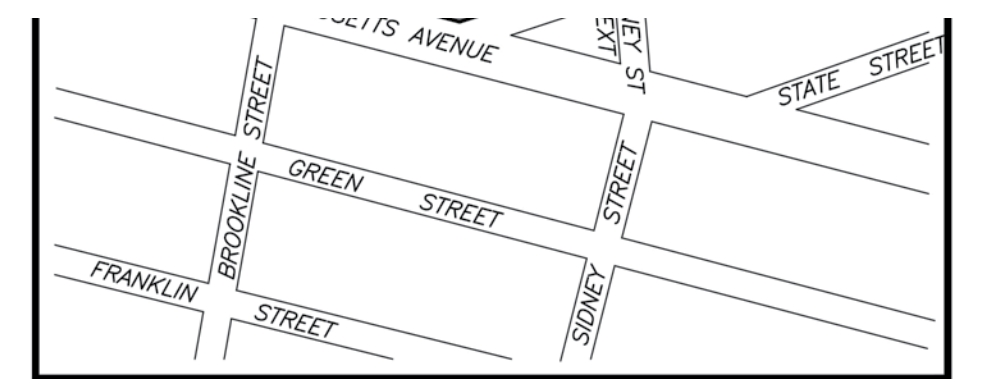
- 1 person is concerned about the wages that will be paid
- 1 person recommends that Twining promote entrepreneurship training programs
- 1 person recommends hiring locals for jobs
- 3 people believe the building design needs more work

ATTACHMENT 6: Coolidge Place Land Transfer Diagram

AERIAL PLAN

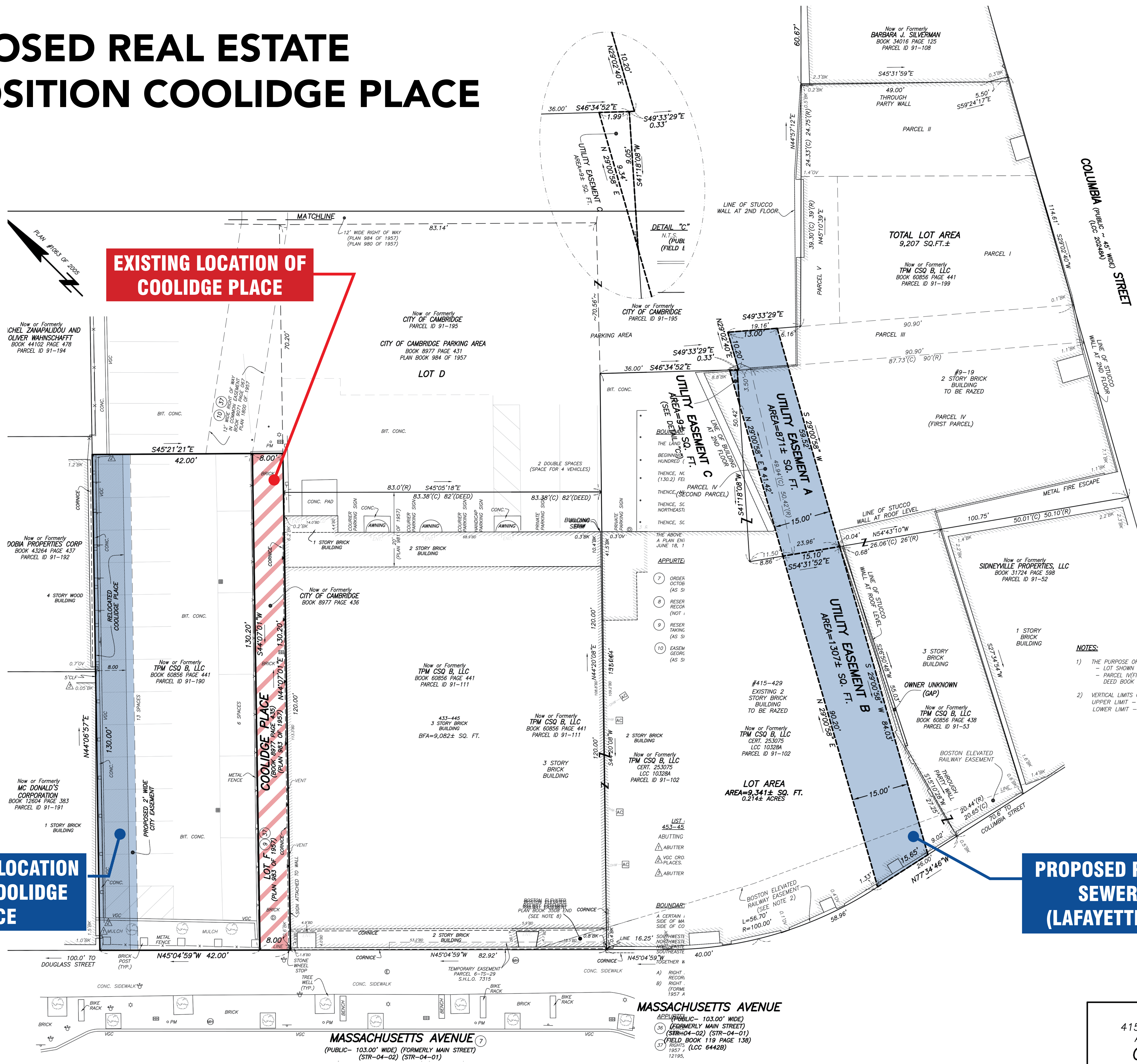


PROPOSED REAL ESTATE DISPOSITION COOLIDGE PLACE



REFERENCES

- MIDDLESEX COUNTY REGISTRY OF DEEDS
 BOOK 08977 PAGE 435
 BOOK 09071 PAGE 067
 BOOK 12604 PAGE 383
 BOOK 13720 PAGE 037
 BOOK 15665 PAGE 294
 BOOK 17728 PAGE 259
 BOOK 28068 PAGE 430
 BOOK 28068 PAGE 434
 BOOK 28068 PAGE 437
 BOOK 28068 PAGE 446
 BOOK 31724 PAGE 598
 BOOK 34016 PAGE 125
 BOOK 43264 PAGE 437
 BOOK 44102 PAGE 478
 BOOK 48616 PAGE 448
 BOOK 51658 PAGE 075
 BOOK 55951 PAGE 405
- PLAN NO. 634 OF 1932
 PLAN NO. 2025 OF 1946
 PLAN NO. 572 OF 1952
 PLAN NO. 980 OF 1957
 PLAN NO. 981 OF 1957
 PLAN NO. 982 OF 1957
 PLAN NO. 983 OF 1957
 PLAN NO. 984 OF 1957
 PLAN NO. 1800 OF 1957
 PLAN NO. 1048 OF 1960
 PLAN NO. 241 OF 1970
 PLAN NO. 502 OF 1974
 PLAN BOOK 4966 END
 PLAN BOOK 6439 PAGE 68
 PLAN BOOK 4356 END
- MASSACHUSETTS LAND COURT
 LCC 6442B
 LCC 12611A
 LCC 12611B
 LCC 20248A
 LCC 36163A
- CERTIFICATE OF TITLE
 210489
- CITY OF CAMBRIDGE ENGINEERING DEPARTMENT
 FIELD BOOK 012 PAGE 07
 FIELD BOOK 084 PAGE 94
 FIELD BOOK 159 PAGE 09
- PLAN NO. STR-04-01
 PLAN NO. STR-04-02
 PLAN NO. STR-04-49
 PLAN NO. STR-02-08



EXISTING LOCATION OF COOLIDGE PLACE

PROPOSED LOCATION OF NEW COOLIDGE PLACE

PROPOSED PEDESTRIAN AND SEWER EASEMENT (LAFAYETTE CONNECTION)

NOTES:

- THE PURPOSE OF THIS PLAN IS TO CREATE A 15' WIDE UTILITY EASEMENT OVER:
 - LOT SHOWN ON LAND COURT CASE 10328A; AND
 - PARCEL IV (FIRST PARCEL), PARCEL V (SECOND PARCEL) AND PARCEL III IN DEED BOOK 60856, PAGE 441.
- VERTICAL LIMITS OF BOSTON ELEVATED RAILWAY EASEMENT:
 UPPER LIMIT - 13' ABOVE BOSTON CITY BASE
 LOWER LIMIT - 12' BELOW BOSTON CITY BASE

MASSACHUSETTS AVENUE

- (PUBLIC - 103.00' WIDE)
 (FORMERLY MAIN STREET)
 (STR-04-02) (STR-04-01)
 (FIELD BOOK 119 PAGE 138)
 (RIGHTS 1957) (LCC 6442B)
 12195,

EASEMENT PLAN
 415-429 MASSACHUSETTS AVENUE
 AND 9-19 COLUMBIA STREET
 CAMBRIDGE, MASS.

FELDMAN LAND SURVEYORS
 112 SHAWMUT AVENUE
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