

Public Realm Key Plan

Figure 1.22



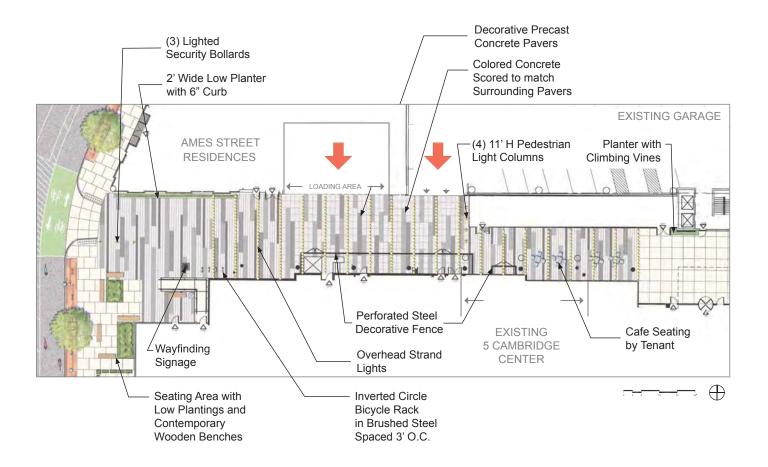
South Ames Street Open Space Plan

Figure 1.23



View of South Ames Street Open Space

Figure 1.24



Pioneer Way Open Space Plan

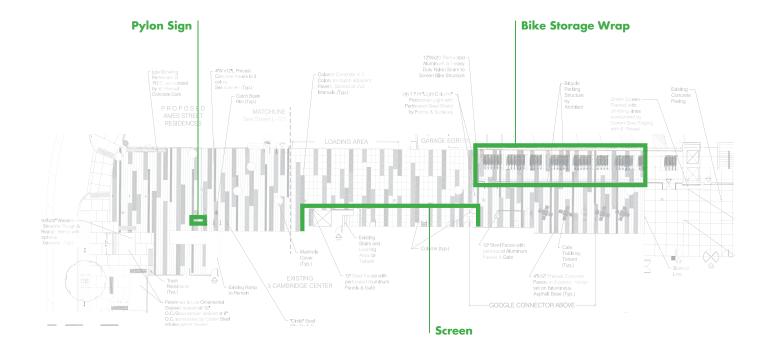
Figure 1.25



View of Pioneer Way

Figure 1.26

## **Location Plan**



Vanasse Hangen Brustlin, Inc.

Vanasse Hangen Brustlin, Inc.

Pioneer Way - Signage

Figure 1.27a

## North Elevation: Overview



Vanasse Hangen Brustlin, Inc.

Vanasse Hangen Brustlin, Inc.

Pioneer Way - Signage

Ames Street Residences Cambridge, Massachusets Figure 1.27b

South Elevation: Overview



## Vanasse Hangen Brustlin, Inc.

Pioneer Way - Signage

Figure 1.27c



View of Streetscape & Storefront Landscape (Ames Street Looking South)

Figure 1.28a



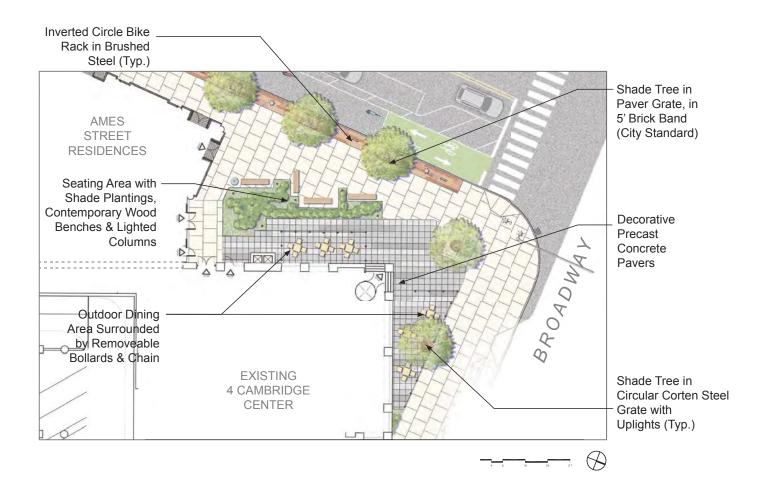
View of Streetscape & Storefront Landscape (Ames Street Looking North)

Figure 1.28b



View of Streetscape & Storefront Landscape (Ames Street Retail)

Figure 1.28c



North Ames Open Space Plan

Figure 1.29



View of North Ames Open Space

Figure 1.30

## Citywide Urban Design Objectives

#### 2.1 Introduction

The following section demonstrates that the Project conforms with Article 19.30: Citywide Urban Design Objectives.

#### 2.2 **Conformance with Article 19.30**

#### 2.2.1 19.31: Responsive to Existing or Anticipated Development

The proposed building aims to fill a "missing tooth" in the street wall of Ames Street where there is currently an exposed mid-block parking garage set back from the street, as shown previously in Figure 1.4. The Project will remove a portion of the East Garage and replace it with the base of the tower concealing the parking structure behind active uses.

The proposed residential building is generally consistent with the heights of buildings on this block of Ames Street; thereby, responding to its immediate context. The Project Site is surrounded by structures of varying heights. The proposed residential building will be taller than the existing buildings on either side of it (i.e., 4 and 5 Cambridge Center). This is a mirror image of the condition across Ames Street where the middle building is also taller than the buildings on either side. The massing of these two buildings, directly across the street from each other, aims to create a balance on each side of Ames Street.

The architectural aesthetic of the proposed residential building complements adjacent and nearby structures with an architectural language representative of the progressive and forward-looking nature of the City of Cambridge. The expression of the proposed residential building reflects this with a contemporary glass and precast

concrete façade that complements the mix of masonry and other materials used in nearby structures.

The proposed massing respects the immediate and city-wide context. A horizontal reveal located between 40 feet and 55 feet above the sidewalk identifies a clear base for the upper residential floors and creates a scale that relates to pedestrians. The lower tower aims to relate to the street scale by matching the height of adjacent buildings and a taller massing aims to create an iconic top for the building to relate to the city scale and skyline.

# 2.2.2 19.32: Pedestrian and Bicycle-Friendly; Relationship to Surroundings

The main entrance lobby will front directly on Ames Street and will be flanked on either side by retail frontage. These uses will replace an existing parking structure along Ames Street frontage to provide retail continuity on this side of the block that will engage pedestrians. Activity will spill out onto the street from improved open spaces adjacent to the proposed residential building, thus creating an enhanced pedestrian experience along the entire block frontage. The improved open spaces will mix public open space areas with restaurant seating to support a lively mix of uses and an active pedestrian experience.

Pioneer Way will be enhanced with plantings, climbing vines, short- and long-term bicycle parking and designed screens to improve the aesthetic of currently blank walls. Lighted bollards and textured paving will define Pioneer Way as a multi-use space accommodating auto, bicycle, pedestrian and service uses.

The block of Ames Street on which the Project is located is excessively wide and not scaled for pedestrians. The roadway will be narrowed with the building street wall meeting the narrower right of way. The design will narrow the building face-to-face dimension, improving communication between both sides of the street making the experience more pedestrian friendly. While the width of Ames Street is being narrowed, the bicycle lane arrangement will be improved (as described more fully in Section 5, *Transportation and Parking*).

As shown in Figures 5.4a-d and 5.5a-e, secure, weather-protected long-term bicycle storage will be provided on-site for new building residents and retail employees, as required by zoning. In addition, short-term bicycle racks will be provide on-site at the ground level. Refer to Section 5, *Transportation and Parking* for further details.

## 2.2.3 19.33: Environmental Impacts and Mitigation

The Project has been designed to minimize impacts to adjacent properties. The rooftop mechanical equipment will be well organized, and, as shown in Figure 1.10h, will be enclosed in a penthouse and visually screened from its surroundings and acoustically buffered from neighbors.

On the ground-level, the service/loading entrance on Pioneer Way will be oriented to be obscured from view from Ames Street frontage. All delivery vehicles will be staged on-site at the relocated loading bays. Trash will be managed and contained within a single location on the ground-level of the Project Site.

Project-related vehicular traffic is anticipated to be reduce through the incorporation of bicycle accommodations on-site as well as the implementation of a TDM plan.

Since the Project Site is already impervious, the Project will not produce significant changes in either the pattern of, or rate of, stormwater runoff. The use of detention and infiltration as part of the site stormwater management system, established in compliance with the CPWD standards, will reduce site peak flows, replenish groundwater and provide quality treatment for building roof runoff.

The proposed open space and landscape design will introduce approximately 15,680 square feet of public open space, in addition to the public sidewalk area. Design features such as streetscape with trees and planting beds, and a number of pocket parks landscaped with contemporary shade-tolerant low growing woodland plantings will help reduce the rate and volume of stormwater runoff in addition to serving as visual amenities.

Based on the shadow studies presented in Section 1, *Project Description*, the Project will result in only a very minimal amount of new shadow on the public roof garden east of the Google Connector at 3 PM on June 21.

The pedestrian wind study demonstrates that as a result of the Project all at-grade and lower podium level locations are predicted to pass the criterion used to assess pedestrian wind safety and appropriate wind comfort conditions are expected throughout the year along sidewalks surrounding the Project.

## 2.2.4 19.34: Adequate City Infrastructure Services

As discussed previously in Section 6, *Infrastructure* the Project will connect to existing city and utility company systems in the adjacent public streets. 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 development and operation of the Project.

The proposed residential building has been designed to include water-conserving plumbing (in accordance with LEED). The Project will not produce significant changes in either the pattern of, or rate of, stormwater runoff. Stormwater management controls will be established in compliance with the CPWD 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 proposed residential building has been designed to conserve water and energy in construction, maintenance, and long-term operation of the building. Based on the preliminary building energy modeling results, the Project is currently approximately 20 percent more efficient than a conventional building, in compliance with the MA Stretch Energy Code requirements. Compliance with LEED certification standards and other evolving environmental efficiency standards is presented in Section 4, *Sustainable Design and Development*.

## 2.2.5 19.35: Reinforce and Enhance Urban and Historical Context

Cambridge has a rich history of mixed use neighborhoods, a walkable environment, and an engaging pedestrian experience. The proposed residential building will contain ground-floor retail uses aimed to create and support a vibrant street level pedestrian experience. The building juxtaposes a taller tower element over the main building massing, which will create a signature element on the Cambridge skyline while still maintaining the continuity of the overall block in scale with the other buildings that line the block.

An enhanced Pioneer Way breaks down the scale of the block by providing access to the interior block parking structure and providing a pedestrian connection to Main Street and Broadway by way of the Cambridge Passageway.

## 2.2.6 19.36: Expand Housing Inventory

The Project will bring much needed residential units (280 units total) to the neighborhood, helping transform the Cambridge Center development transform into a 24-hour community. The Project will include 36 affordable units in full compliance with the Ordinance.

## 2.2.7 19.37: Enhance and Expand Open Space

The building footprint meets the new narrower street layout as it brings the building massing in front of the existing building face on either side, which will create two new corner public open spaces on either side of the building. These new public open spaces will include a mix of public/private functions that will help to activate the pedestrian experience by bringing activity to the edge of the sidewalk. The new public corner open spaces will be physical and visual gateways to this block of Ames Street and will complement the plaza at the Kendall/MIT T Station and Point Plaza Park.

# 2.3 Conformance with Bicycle Parking Requirements

### 2.3.1 Introduction

The Applicant has continued to move forward with the design of the building and related bike parking. Further study has required a redesign of the bike parking program and is proposing to revise the special permit application for the Project as it relates to the Bicycle Parking Requirements of the Zoning Ordinance. Specific relief is being requested from the following sections:

**6.104.1 Long Term Bike Parking** - located within building or within 200′ from a pedestrian entrance

### 6.105.1 (d) and (f) Bicycle racks design and layout standards

- ➤ (d) There shall be at least three (3′) clear horizontal distance from the center point of the Bicycle Rack in a direction perpendicular to the length of the bicycle, and at least four feet (4′) clear horizontal distance from the center point of the Bicycle Rack in each direction parallel to the length of the bicycle.
- ➤ (f) Bicycle Racks shall be spaced at least three feet (3′) apart on-center. Where Bicycle Racks are arranged in alignment, they shall be spaced at least eight feet (8′) on-center.

### 6.106.1 (a) and (b) Primary Access Routes

- ➤ The primary access route must be at least five feet (5′) in width
- ➤ The primary access route must have a slope no greater than five percent (5%) or may have a slope of no greater than eight percent (8%) if level landings are provided at every thirty feet (30′) of linear distance; or access may be provided by

means of an elevator with a minimum interior dimensions of eighty inches (80') by fifty-four inches (54').

## 2.3.2 Overview of Proposed Bicycle Parking Approach

The Project requires a minimum of 38 short-term and 296 long-term bicycle parking spaces. These spaces are proposed to be accommodated in multiple locations throughout the East Parking Garage including in a Multi-level Bike Shelter, as illustrated in Figures 5.4a-b- and Figures 5.5a, 5.5c, and 5.5e. The Multi-level Bike Shelter will be situated along the East Parking Garage fronting Pioneer Way with access on the ground and second levels. The ground level and second floor of the Multi-level Bike Shelter will contain 66 bicycle parking spaces each with two secure card required access points on each floor totaling 132 secure bicycle parking spaces. As shown in Figure 5.4d and 5.5d, a bicycle parking room will be located on the fifth floor of the East Parking Garage totaling 148 bike parking spaces. On the ground floor of the East Parking Garage, a 16 space bicycle parking room is proposed on the eastern side of the garage, as shown in Figures 5.4a and 5.5a-b. This bicycle parking room will meet the requirements for the 5 percent tandem and trailer parking. A repair and compressed air station is proposed at this location. In addition, 38 shortterm bike parking spaces will be provided along the sidewalk on Ames Street and in a rack in the alley, as shown in Figure 5.4a. Table 2-1 provides a summary of the bicycle parking program.

Table 2-1
Proposed Bicycle Parking Program

Location	Number of Bicycle Spaces	
Short-Term Bike Parking on Ames Street/Pioneer Way	38	
Long-Term Bike Parking – Multi-Level Bike Shelter Ground Floor	66	
Long-Term Bike Parking – Multi-Level Bike Shelter Second Floor	66	
Long-Term Bike Parking – Fifth Floor	148	
Long-Term Tandem & Trailer Bike Parking —Ground Floor	16	
TOTAL	334	

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## 2.3.3 Bicycle Parking Zoning Ordinance Relief Proposed

## 2.3.3.1 6.104.1 - Long Term Bike Parking

The Applicant is requesting that the long-term bike parking be located within the East Parking Garage rather than in the residential building. Since 50 percent of the total bicycle parking spaces are not located within the residential building they must be no more than two hundred feet (200') from a pedestrian entrance. The Applicant is seeking relief for the 16 bicycle parking spaces located on the east side of the East Parking Garage that will be located 525' from an entrance. In addition, the Applicant is also seeking relief for the 132 spaces in the multi-level bike shelter which has a walking distance of approximately 235 feet.

# 2.3.3.2 6.105.1 (d) and (f) - Bicycle racks design and layout standards

The Applicant is requesting that the long-term bike parking be installed with dimensions slightly different from the requirements of this section. This change impacts 94 percent of the spaces while the remaining 6 percent are designed to standard. The ordinance requires that all long-term bike parking provide three feet (3') clear horizontal distance from the center point of the Bicycle Rack in a direction perpendicular to the length of the bicycle. The proposed bike room layout designs include spacing of two and a half feet (2.5') clear horizontal distance from the center point of the Bicycle Rack in a direction perpendicular to the length of the bicycle. Reviewing available guidelines and rack manufacturer guidance, 30" is a common minimum. Through 2010 The Association of Pedestrian and Bicycle Professional (APBP) utilized this as their minimum standard. However, Dero, a bike rack manufacturer, utilizes as little as 24" on center for a similar 2-bikes per rack layout. Their guidelines state that a minimum of two feet (2') is required to allow for two bikes to be parked on each rack. Therefore, the Applicant believes that the two and a half feet (2.5') proposed distance will be adequate to allow cyclists to move their bike into and out of the space.

## 2.3.3.3 6.106.1 (a) and (b) - Primary Access Routes

The Applicant is requesting that the primary access route to the Multi-level Bike Shelter in the garage utilize existing elevator infrastructure. The existing elevators located adjacent to the proposed Multi-level Bike Shelter are sized at seventy-nine and a half inches (79.5") by fifty one and a half inches (51.5"). The ordinance requires an access route with an elevator that is a minimum of eighty inches (80") by fifty-four inches (54") for access to the bike parking. This proposed relief is for an elevator that

is short by 0.5" in one dimension and 2.5" in the other dimension. The requested relief is for 66 bicycle parking spaces or 22 percent of the long-term spaces being provided. The access route is at least five feet wide, except in one location where a cyclist would have to go through a three foot wide door to access 82 of the spaces.

## 2.3.4 Standard of Relief

In conformance with Section 6.108.03, Finding and Approval, the proposed bicycle parking is consistent with the purpose of 6.100 that the Bicycle Parking Plan proposes a quantity, design and arrangement of bicycle parking that will serve bicycle users in a way that is sufficiently comparable given the circumstances of this specific project, to the bicycle parking that would be required under the regulations of Section 6.100.

## Criteria for Issuance of Special Permits

## 3.1 Introduction

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

# 3.2 Demonstrate Conformance with Article 10.43

## 3.2.1 Ordinance Requirements

As demonstrated herein, the Project, as proposed, meets the intent and purpose of Article 19.00.

## 3.2.2 Project-Related Traffic and Access

As demonstrated by the TIS provided in Attachment 2, the Project is not expected to exceed the criteria for project vehicle trip generation established by the Planning Board under the Build program.

Vehicular access to the East Garage will be modified to support the Project. The existing west entrance/exit point on Ames Street and adjacent loading dock would both be eliminated to support construction of the Project. All automobile access to the East Garage would be accommodated from the existing entrance on Broadway. Egress would be provided via the existing Broadway exit – and supported with an additional, new egress-only drive for non-transient customers that would connect the garage back to Ames Street (just north of 5 Cambridge Center).

#### Impact to Adjacent Uses 3.2.3

Adjacent parcels (4 and 5 Cambridge Center) include predominately office uses with ground floor retail. The addition of a mixed use building with new residential supports the transformation of the Cambridge Center development into a 24-hour community. The ground-floor retail uses will provide additional services that support the adjacent office and other nearby lab, research, and hotel uses.

#### 3.2.4 Health, Safety, and/or Welfare of Occupants and Public

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.

#### 3.2.5 Project-Related Impacts to the District or **Adjoining Districts**

The proposed residential and retail/restaurant uses are permitted by the zoning ordinance and are consistent with the uses of adjacent properties within the MXD District and with neighboring zoning districts.

#### 3.2.6 Consistency with Urban Design Objectives

As proposed, the design of the new mixed use building and its integration with Ames Street and the existing buildings between Main Street and Broadway is consistent with the Urban Design Objectives addressed in Section 2, Citywide Urban Design Objectives of this application.

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## Sustainable Design and Development

## 4.1 Introduction

In compliance with Article 22.23, the following chapter outlines the LEED certification goals for the Project and describes the strategies employed to meet the targeted LEED credits based on this stage of conceptual design. The current LEED Scorecard is presented as Figure 4.1. Attachment 3 includes an affidavit by the project LEED Accredited Professional.

The Project is currently registered under LEED New Construction 2009 (version 3). It is tracking to Silver Certification (50+ points). In addition to the required prerequisites, 33 credits are being targeted to achieve Silver Certification at 52 points. There are also 17 additional points currently under investigation listed in the "maybe" column. According to the preliminary building energy model, the Project is currently tracking a minimum 20 percent energy cost reduction as compared to ASHRAE 90.1-2007.

## 4.2 Conformance with Article 22.23

## 4.1.1 Sustainable Sites

The Project is currently targeting 19 points total under the LEED-NC 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 Selection (1 point)

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

SS Credit 2: Development Density and Community Connectivity (5 points)

The Project Site in located on a previously developed site surrounded by mixed uses and multiple services and community facilities, including proximity to the Massachusetts Institute of Technology. It is located in an area with a minimum density of 60,000 sf per net acre.

SS Credit 4.1: Alternative Transportation - Public Transportation Access (6 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.

SS Credit 4.3: Alternative Transportation - Low Emitting and Fuel Efficient Vehicles (3 points)

No new parking will be created. The team is currently investigating two options to achieve this credit: providing a 20% discounted parking rate for low-emitting fuel efficient vehicles in the adjacent parking structure or providing access to a vehicle sharing program for 3% of the building occupants.

SS Credit 4.4: Alternative Transportation - Parking Capacity (2 points) There is no new parking (exterior or interior) associated with the Project.

SS Credit 6.2: Stormwater Design - Quality Control (1 point)

The currently proposed stormwater management and treatment system includes water quality units and infiltration facilities which are expected to meet TSS and Phosphorous treatment requirements for this credit.

SS Credit 7.1: Heat Island Effect - Non Roof (1 point)

Non-roof surfaces will either be vegetated, shaded or will have an SRI of a minimum of 29.

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

- Credit 3: Brownfield Redevelopment (1 point)
- Credit 5.2: Maximize Open Space (1 point)
- Credit 6.1: Stormwater Design Quantity Control (1 point) (Note: The existing site is developed and primarily impervious. While the current stormwater management design proposes to utilize infiltration to reduce site peak

runoff and maximize infiltration it is not clear at this stage in design whether the proposed system will meet the LEED Quantity Control requirements.)

Credit 7.2: Heat Island Effect - Roof (1 point)

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## 4.1.2 Water Efficiency

The Project is currently targeting 4 points total under the LEED-NC Water Efficiency (WE) category.

WE Prerequisite 1: Water Use Reduction 20%

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 EPAct 1992 fixture flow rates

WE Credit 1: Water Efficient Landscaping - 50% reduction in potable water use (2 points) 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.

WE Credit 3: Water Use Reduction - 30% (2 points)

In order to meet the 30% 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.

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

- ➤ Credit 1: Water Efficient Landscaping No potable water use for irrigation (2 additional points)
- ➤ Credit 3: Water Use Reduction 35% (1 additional point)

## 4.1.3 Energy and Atmosphere

The Project is currently targeting 7 points total under the LEED-NC Energy and Atmosphere (EA) category.

EA Prerequisite 1: Fundamental Commissioning of Building Energy Systems

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

The Project will be designed with Energy Conservation Measures (ECMs) to meet and exceed the requirements of ASHRAE 90.1 – 2007 Appendix G.

### EA Prerequisite 3: Fundamental Refrigerant Management

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

## EA Credit 1: Optimize Energy Performance - 12%-15% (1-2 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: Enhanced Commissioning (2 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 5: Measurement and Verification - Reporting (1 point)

The Project team will achieve 1 point for this credit by registering the Project with ENERGY STAR's Portfolio Manager Tool and committing to share data with the USGBC Master Account.

EA Credit 6: Green Power Purchase (2 points)

The Applicant will purchase green power via Renewable Energy Certificates to account for a minimum of 35% of the building's estimated electricity use. The estimated electricity use will be calculated.

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

- ➤ Credit 1: Optimize Energy Performance 16%-18% (2 additional points)
- > Credit 4: Enhanced Refrigerant Management (2 points)

### 4.1.4 Materials and Resources

The Project is currently targeting 5 points total under the LEED-NC Materials and Resources (MR) category.

MR Prerequisite 1: Storage and Collection of Recyclables

The building will incorporate a comprehensive integrated strategy to collect, store and transport recyclables throughout all areas.

MR Credit 2: Construction Waste Management - 75% (2 points)

The construction contract for the Project will require achieving a minimum of 75% construction waste diversion from landfill, will a target of 95% diversion in order to achieve exemplary performance. 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.

MR Credit 4: Recycled Content - 20% (2 points)

The project specifications will require materials will high recycled content, particularly materials with a high overall total value such as steel, concrete, exterior wall materials and sheetrock. During construction, the CM will actively track pre and post-consumer content of all significant project materials to ensure that the goal of 20% recycled content by cost is achieved.

MR Credit 5: Regional Materials - 10% (1 point)

The project specifications will indicate materials to be extracted, harvested and manufactured within a 500-mile radius of the Project Site. Due to potential changes in costs and delivery delays of materials, this credit requires integrated and active tracking. As such, the project design team and CM will work in an integrated manner to ensure that the 10% regional materials target is achieved.

The following 2 MR points will continue to be under investigation as design progresses:

Credit 5: Regional Materials - 20% (1 additional point)

Credit 7: Certified Wood (1 point)

## 4.1.5 Indoor Environmental Quality

The Project is currently targeting 10 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 61.1 – 2007 sections 4 through 7 and applicable codes.

IEQ Prerequisite 2: Environmental Tobacco Smoke (ETS) Performance

The project design team will design partitions and separations and air delivery between residential units to ensure minimum infiltration levels as required by ANSI/ASTM E779-03. The CM will be required to hire a testing agency to conduct blower doors tests for one in every seven "like" residential units, and ensure that all tested units comply with the maximum infiltration thresholds.

IEQ Credit 3.1: Construction IAQ Management Plan - During Construction (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.

IEQ Credit 3.2: Construction IAQ Management Plan - Before Occupancy (1 point) The CM will be required to conduct a building flush-out after construction completion and prior to building occupancy. 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 4.1: Low Emitting Materials - Adhesives and Sealants (1 point)*The specifications will include requirements for adhesives and sealants to meet low VOC criteria for adhesives and sealants.

*IEQ Credit 4.2: Low Emitting Materials - Paints and Coatings (1 point)*The specifications will include requirements for paints and coatings to meet low VOC criteria for paints and coatings.

*IEQ Credit 4.3: Low Emitting Materials - Flooring Systems (1 point)*The specifications will include requirements for hard surface flooring materials to be FloorScore certified and carpet systems shall comply with the Carpet Institute Green Label program.

IEQ Credit 4.4: Composite Wood and Agrifiber Products (1 point)

The specifications will include requirements for composite wood and agrifiber products that contain no added urea-formaldehyde.

IEQ Credit 5: Indoor Chemical and Pollutant Source Control (1 point)

The building HVAC system will be designed to incorporate exhaust system in all areas where chemicals are stored such as janitor closets, mechanical rooms, etc.

*IEQ Credit 6.1: Controllability of Systems - Lighting (1 point)* 

Lighting controls will be provided in all rooms of all residential units. In addition, multi-occupant spaces will have dedicated lighting controls that enable adjustments to meet group needs and preferences.

IEQ Credit 6.2: Controllability of Systems - Thermal Comfort (1 point)

The credit will be achieved by providing individual comfort control for at least 50% of the occupants in residential spaces. All thermal comfort systems for common and amenity spaces will be occupant adjustable to suit the group. In addition, all residential occupancies will have operable windows.

IEQ Credit 8.2: Daylight & Views - Views (1 point)

All regularly occupied rooms in the residential units will provide views that meet the LEED criteria for direct lines of sight via vision glazing between 30 inches and 90 inches above the finish floor.

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

➤ Credit 7.1: Thermal Comfort - Design (1 point) - The building HVAC system will be in compliance with ASHRAE 55.

## 4.1.6 Innovation and Design Process

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

Exemplary Performance - 95% Construction Waste Management or Other (1 point) The Project will target diverting 95% of construction waste from landfill. If this is not achieve, the Applicant will prepare an alternative Innovation Credit, such as Green Tenant Guidelines.

Exemplary Performance - Development Density (1 point)

The Project is located in an area where the density is more than double of what is required by the LEED credit, and therefore can achieve an additional point.

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, a website, signage and/or guided tours of the Project.

Remote System Controls (1 point)

The design team is investigating the implementation of internet based HVAC and lighting controls (similar to NEST or equivalent) which will allow residential occupants to both schedule and remote control their energy consuming systems from the internet using a mobile phone application or similar internet interface. 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.

4.1.7 Regional Priority Credits

Based on its location, the Project will automatically achieve one additional point under the LEED-NC Regional Priority Credits (RPC) category by meeting the requirements of SSc7.1 (Heat Island Effect Non-Roof). The following three additional RPC credits are also applicable to the Project:

- ➤ Sustainable Sites Credit 3: Brownfield Redevelopment (1 point)
- ➤ Sustainable Sites Credit 6.1 Stormwater Design Quantity Control (1 point)
- > Sustainable Sites Credit 7.2 Heat Island Effect Roof (1 point)

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

	O 2009 for New Construction and Major of Checklist	Renovation			Ames Stree Date: Aug	et Residen gust 04, 20
9 3 4 Sustainable Sites Possible Points: 26			Materials and Resources, Continued			
Prereq 1	Construction Activity Pollution Prevention		2	Credit 4	Recycled Content	1 to :
Credit 1	Site Selection	1		1 Credit 5	Regional Materials	1 to :
Credit 2	Development Density and Community Connectivity	5	1	Credit 6	Rapidly Renewable Materials	1
1 Credit 3	Brownfield Redevelopment	1		1 Credit 7	Certified Wood	1
Credit 4.	Alternative Transportation—Public Transportation Access	6		_		
1 Credit 4.:	2 Alternative Transportation—Bicycle Storage and Changing R	Rooms 1	10 4	1 Indoor	Environmental Quality Possible Point	s: <b>15</b>
Credit 4.:	3 Alternative Transportation—Low-Emitting and Fuel-Efficien	it Vehicles 3			· · · · · · · · · · · · · · · · · · ·	
Credit 4.4	4 Alternative Transportation—Parking Capacity	2	Υ	Prereq 1	Minimum Indoor Air Quality Performance	
Credit 5.	Site Development—Protect or Restore Habitat	1	Υ	Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1 Credit 5.2	<sup>2</sup> Site Development—Maximize Open Space	1	1	Credit 1	Outdoor Air Delivery Monitoring	1
1 Credit 6.	Stormwater Design—Quantity Control	1	1	Credit 2	Increased Ventilation	1
Credit 6.2	2 Stormwater Design—Quality Control	1	1		Construction IAQ Management Plan—During Construction	1
Credit 7.	1 Heat Island Effect—Non-roof	1	1	Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1 Credit 7.2	2 Heat Island Effect—Roof	1	1		Low-Emitting Materials—Adhesives and Sealants	1
1 Credit 8	Light Pollution Reduction	1	1		Low-Emitting Materials—Paints and Coatings	1
			1	_	Low-Emitting Materials—Flooring Systems	1
3 3 Wate	r Efficiency Possible F	Points: 10	1		Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			1	Credit 5	Indoor Chemical and Pollutant Source Control	1
Prereq 1	Water Use Reduction—20% Reduction		1		Controllability of Systems—Lighting	1
2 Credit 1 2 Credit 2	Water Efficient Landscaping	2 to 4	1		Controllability of Systems—Thermal Comfort Thermal Comfort—Design	1
2 Credit 2 1 1 Credit 3	Innovative Wastewater Technologies Water Use Reduction	2 2 to 4	1	_	Thermal Comfort—Verification	1
T Credit 3	water use reduction	2 10 4	1	Credit 8.1		1
24 4 Fnero	gy and Atmosphere Possible F	Points: 35	1	_	Daylight and Views—Views  Daylight and Views—Views	1
Z T T Ellor	y and ranespries	OII113. <b>33</b>				
Prereq 1 Prereq 2	Fundamental Commissioning of Building Energy Systems		6	Innova	tion and Design Process Possible Point	s: <b>6</b>
Prereq 2 Prereq 3	33		1	0	Innovation in Design: Specific Title	1
15 2 Credit 1	Optimize Energy Performance	1 to 19	1		Innovation in Design: Specific Title	1
7 Credit 2	On-Site Renewable Energy	1 to 19	1	_	Innovation in Design: Specific Title	1
Credit 3	Enhanced Commissioning	2	1	_	Innovation in Design: Specific Title	1
2 Credit 4	Enhanced Refrigerant Management	2	1	_	Innovation in Design: Specific Title	1
2 Credit 5	Measurement and Verification	3	1	Credit 2	LEED Accredited Professional	1
Credit 6	Green Power	2			ELED Floor Garlou 1 Torossional	
		-	1	3 Region	nal Priority Credits Possible Poin	ts: 4
7 2 Mate	rials and Resources Possible F	Points: 14				
. —			1		Regional Priority: Specific Credit	1
Prereq 1	Storage and Collection of Recyclables				Regional Priority: Specific Credit	1
Credit 1.	3	1 to 3			Regional Priority: Specific Credit	1
1 Credit 1.:	<b>.</b>			Credit 1.4	Regional Priority: Specific Credit	1
Credit 2	Construction Waste Management	1 to 2				
2 Credit 3	Materials Reuse	1 to 2	52   41	17 Total	Possible Poin	ts: 11(

Source: FXFOWLE

Figure 4.1

Preliminary LEED Scorecard

5

## **Transportation and Parking**

## 5.1 Introduction

This section describes the existing and proposed transportation conditions surrounding the Project Site and presents an overview of Traffic Impact Study (TIS) conducted to assess potential traffic impacts associated with the Project. The TIS, dated June 10, 2014, was certified by the City of Cambridge Traffic, Parking, and Transportation (TP&T) Department on July 7, 2014. Refer to Attachment 6 for a copy of the certification.

As discussed previously, the Project Site is located along the east side of Ames Street and bounded by 5 Cambridge Center to the south, 4 Cambridge Center to the north, and the East Garage to the east, with a portion of the Project Site occupying the western end of the garage itself. The East Garage was constructed as part of the Cambridge Center Master Plan with the intention to accommodate parking needs for multiple facilities constructed within the district, as well as to accommodate other area parking needs. The East Garage's existing parking capacity is 844 spaces, which are used by a combination of transient parkers, monthly tenant parking, and some basement parking that is reserved specifically for Marriott Hotel's use.

## 5.2 Traffic and Transportation

## 5.2.1 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 April 14, 2014 defined by the City of Cambridge Traffic, Parking, and Transportation (TP&T) Department in response to a Request for

Scoping dated March 20, 2014. 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 2014 Existing Condition, a 2014 Build Condition, and two 2019 Build scenarios for each Ames Street reconfiguration concept (described further below) that include future background growth and other developments, as well as project trips, and off-site roadway improvements. 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 seven intersections, including Broadway, Main Street, Galileo Galilei Way, Ames Street and Third Street as well as the site driveways. Refer to Figure E of the TIS (Attachment 2) for the traffic study area intersections.

## 5.2.2 Ames Street Corridor Reconfiguration

Enhancing and promoting sustainable transportation is an important objective for the City of Cambridge and planned changes to Ames Street support Cambridge's policies to promote improved pedestrian and bicycle infrastructure within the city. The Applicant is continuing to coordinate with the City on the final configuration of Ames Street, which will be substantially improved as a part of the Project.

The TIS utilized a configuration of Ames Street, which is similar to the existing condition in that separate northbound and southbound bike lanes are implemented (see Figure 5.1a). The City of Cambridge has also developed a plan that including its future geometric condition is illustrated in Figure 5.1b. The City's plan calls for a

buffered 2-way cycle track along the east side of Ames Street with on-street parking separating bike travel from vehicle travel.

In either approach, the pedestrian sidewalk along the east side of Ames Street would be widened considerably, from its current width of 11-14 feet to approximately 15.5 feet. To support these changes, Ames Street would be narrowed to two travel lanes (one lane for each direction of travel). These changes would also require adjustments to sidewalks, accessible ramps, and traffic signalization at the intersections of Ames Street/Main Street and Ames Street/Broadway.

## 5.2.3 Existing Public Transportation

The Project site is well served by multiple public transportation options in the area. The site is located within a 1/10th of a mile from the Kendall Square MBTA Red Line Station and one mile from 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 four bus routes within the study area, including the following:

# 64: Oak Square - University Park, Cambridge or Kendall/MIT via North Beacon Street

This route connects Oak Square to University Park, Cambridge, and Kendall Station. The bus travels through the project study area along Broadway to Kendall/MIT station providing service between Central Square and Kendall.

# 68: Harvard/Holyoke Gate - Kendall/M.I.T. via Broadway

This route connects Harvard Square and Kendall / MIT, travelling along Broadway, ending at Kendall/MIT Station.

> #85: Spring Hill - Kendall/M.I.T. Station via Summer Street & Union Square

Route 85 is a local route connecting Spring Hill, Summer Street, Union Square and Kendall / MIT. The southern section of this route, serving Kendall Square, traveling along Broadway is within the project study area where it runs along the same route as the CT2 to Kendall / MIT.

> CT2: Sullivan Square Station - Ruggles Station via Kendall/MIT Station

Route CT2 is a limited stop, cross-town route that operates between Sullivan Square and Ruggles Station. This route utilizes Main Street and Broadway to pass through Kendall/MIT station in the project study area.

In addition, the Charles River Transportation Management Association (TMA) operates the EZRide shuttle service between North Station, Lechmere Station, Kendall Square Station, University Park and Cambridgeport.

5.2.4

## **Existing Pedestrian and Bicycle Facilities**

Pedestrian amenities surrounding the Project Site include sidewalks along Ames Street and Broadway, and crosswalks at the signalized intersections. Pedestrians are primarily provided concurrent walk times at the signalized intersections.

The Project Site is well-served by an evolving network of bicycle infrastructure. Broadway, Galileo Way, and Main Street have bicycle lanes. Also, the City plans to incorporate a multi-use path and a cycle track within the study area along Galileo Way. Within the study area of the Project Site there are multiple bicycle parking facilities including 215 covered spaces and 101 outdoor spaces. The Cambridge Center East Garage has 59 covered spaces, while Cambridge Center West Garage has 106 and Cambridge Center North Garage provides 50 covered bicycle parking space. Outdoor bicycle parking is provided at many of the Cambridge Center buildings included 12 spaces at 4 Cambridge Center and 12 at 5 Cambridge Center, nearest the Project Site. Hubway, which provides more than 1,300 bikes at 140 stations throughout Cambridge, Boston, Brookline, and Somerville, provides three (3) stations within walking distance of the Project Site. Two stations are located near the intersection of Third Street and Broadway/Main Street and a third station is located at the intersection of Main Street at Galileo Galilei Way.

#### 5.2.5 Proposed Vehicular Access, Circulation, and Service/Loading

The following key access, circulation, parking, and service enhancements will be made in connection with the Project:

- Modification of the Ames Street geometric configuration to allow for provision of dedicated bicycle infrastructure.
- Modifications to the East Garage, including:
- A reduction of approximately 40 actual parking spaces (although the garage may be operated on a managed parking basis in order to maintain its 844 vehicle parking capacity);
- Relocation of the existing loading dock that serves 5 Cambridge Center; and
- Other supporting garage access/egress modifications.

These modifications are discussed in greater detail below.

## 5.2.5.1 East Garage Parking Access and Circulation Modifications

Parking access to the East Garage will be modified to support the Project. The existing west entrance/exit point on Ames Street and adjacent loading dock will both be eliminated as part of the Project. As shown in Figure 5.2, all automobile access to the East Garage will be accommodated from the existing entrance on Broadway. Egress will be provided via the existing Broadway exit – and supported with an additional, new egress-only drive for non-transient users that would connect the garage back to Ames Street (just north of 5 Cambridge Center).

## 5.2.5.2 Service and Loading Modifications

As mentioned previously, the existing loading dock at the west edge of the East Garage that serves 5 Cambridge Center will be relocated as part of the construction of the Project and relocated along the southwest face of the garage with access/egress via Ames Street. This drive will serve the dual purpose of access/egress for the loading dock and egress only for the East Garage. The new dock will include four service bays sized to accommodate an SU-35 truck and will serve both the existing 5 Cambridge Center facility and the proposed Ames Street Residences. Refer to Figure 5.3 for the truck turning movements at loading bays 1 and 4.

## 5.2.5.3 Bicycle and Pedestrian Accommodations

Consistent with the TIS, the Project will provide a total of 296 secure, weather-protected bicycle parking spaces on-site accessible by residents and retail employees. This supply meets the zoning requirement of 1.05 bicycle spaces for each residential unit (294 spaces) and 0.1 bicycle spaces per 1,000 sf of retail space (2 spaces). As shown on Figures 5.4a-d, locations for long-term bicycle storage are conceptually being designed as bike rooms in the existing garage ground floor (Figure 4.5a) and fifth floor (Figure 5.4d), and as a dedicated multi-level bike shelter in Pioneer Way (to be weather-protected) accessible from Pioneer Way at the ground level (Figure 5.4a) and the existing garage at the second floor (Figure 5.4b). Figures 5.5a-e illustrate the various bicycle storage configurations and locations. The Applicant will continue to work with the appropriate City departments on the design of the long-term bicycle storage. In addition, the Project will provide on-site short-term bicycle parking (38 spaces) at the ground-level along the perimeter of the Project Site on Pioneer Way (Figure 5.4a). This supply meets the zoning requirement of 0.6 bicycle spaces per every 1,000 sf. of retail and 0.1 spaces per residential unit.

As described previously, the east side of Ames Street will be reconstructed in connection with the Project, and the existing sidewalk will be widened significantly (from its current width of 11-14 feet to approximately 15.5 feet). Within and around the Project Site, pedestrian facilities will be designed to meet appropriate safety and

accessibility standards. The proposed Pioneer Way between 5 Cambridge Center and the East Garage will accommodate pedestrians and provide a cut-through to Main Street. And, pedestrians traveling from Broadway will be able to circulate through the East Garage to access 5 Cambridge Center, the Marriot Hotel's lobby, and Main Street as well as MBTA Kendall/MIT Station along a signed shared use zone (Figure 1.18). At the entry point and inside the garage, overhead lighting will be paired with signage and pavement markings to provide the visual cues necessary for visitors to find their way and for drivers to use caution while sharing the path of travel with pedestrians.

## 5.2.6 Transportation Demand Management

The Applicant will support a program of Transportation Demand Management (TDM) measures to reduce automobile trips generated by the Project. The goal of the proposed 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 following TDM programs will be implemented as part of the proposed project to encourage residents to use alternatives to SOV travel:

- ➤ The Applicant will contact a car sharing provider, such as zipcar® to determine the feasibility of establishing a car share program for tenants and will provide parking spaces on site for at least one car share vehicle, subject to demand.
- The Applicant will continue participating in the local Transportation Management Association (TMA) and reporting to the City of Cambridge Parking and Transportation Demand Management Officer.
- ➤ The Applicant will designate a Transportation Coordinator to oversee all transportation matters for the project, including vehicular operations, servicing and loading, parking and the TDM programs. The Transportation Coordinator will act as the contact and liaison for the City of Cambridge, the TMA, and the tenants of the Project.
- ➤ The Applicant will make available transit maps, schedules and other information relevant to commuting options in the residential building lobby, management office, or through a building website.

## 5.3 Parking/ Shared Parking Analysis

No new parking will be constructed as part of the Project. A portion of the East Garage will be reconfigured to accommodate the Project's building footprint, resulting in a loss of approximately 40 striped spaces.

Studies of existing garage occupancy indicate that the average peak weekday accumulation within the garage is about 668 spaces (83 percent weekday mid-day occupancy). During evenings and weekends, parking availability within the garage is considerable (only about 15 percent occupied). Per zoning requirements, the Project is allocating 0.5 spaces per unit for the project, or 140 spaces, for residents. This amount would represent the maximum parking need on weekday evenings and weekends, when garage use is light (the proposed residential use provides a great opportunity for shared parking within Cambridge Center). During weekdays, we estimate that no more than half of the resident parkers would be located within the garage (or about 70 total weekday parkers). Even with a potential modest reduction in capacity, the East Garage will be able to accommodate the parking demand generated by the Project.