BOSTON COLLEGE
2150 COMMONWEALTH AVENUE RESIDENCE HALL

Expanded Project Notification Form

SUBMITTED TO

Boston Redevelopment Authority
Boston, Massachusetts

SUBMITTED BY

Boston College
140 Commonwealth Avenue
Chestnut Hill, Massachusetts

May 2, 2013

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1.0 PROJECT SUMMARY

1.1 Project Identification

Project Name: 2150 Commonwealth Avenue Residence Hall

Address/Location: 2150 Commonwealth Avenue, Brighton, Massachusetts

Assessors Parcel # 2102443000

1.2 Introduction

This Expanded Project Notification Form ("EPNF") is being submitted by Trustees of Boston College in accordance with Article 80B of the Boston Zoning Code ("Code"). The purpose of this filing is to commence review of the proposed 2150 Commonwealth Avenue Residence Hall Project under Article 80B, Large Project Review.

1.3 Proposed Institutional Project

Boston College (the "University") is proposing to construct the 2150 Commonwealth Avenue Residence Hall ("Project"). It will be located at the northeast corner of the Boston College Chestnut Hill Campus. This site ("Project Site") is south of Commonwealth Avenue, east and north of St. Thomas More Road, and west of Evergreen Cemetery (see Figure 1-1, Locus Plan). The site contains an existing building, St. Thomas More Hall, used for administrative offices until it was vacated in Spring 2012 (see Figure 1-2, Oblique of Project Site). The building will be demolished and replaced by this Project. Demolition of the existing building is anticipated to begin in Spring 2014, with building construction beginning in Summer 2014 in time for occupancy in Fall 2016.

The proposed student residence will house 484 students in a mixture of 4-bed and 6-bed apartments. The program for the 245,000 gross square feet (gsf), 6-story building also includes 2 adult-in-residence apartments, common areas, outdoor spaces, and a new home for the Boston College Health Services facility. The Project is being designed to achieve LEED Silver certification and to conform to the City's Article 37 requirements for Green Buildings.

1.4 Project Benefits

- Allows construction of a new student residence hall; the first major new construction project of the approved Institutional Master Plan.

- In support of the housing goals stated in the IMP and in response to the community, the Project will provide high quality on-campus housing for 484 undergraduate students, helping the University to satisfy existing demand for on-campus housing.

- Provides an appropriately designed low-rise building that will help preserve the academic campus setting and blend with the character of the Lower Campus.

- Provides a centralized Health Services facility that is accessible to all students on the Chestnut Hill and Brighton campuses.

- Creates an energy efficient and environmentally friendly building that will be certifiable at the Leadership in Energy and Environmental Design ("LEED") Silver level.

- Upholds the University's commitment to implement the Boston Residents Job Policy and establish employment goals consistent with that program. Under that policy, a goal of 50 percent of the construction jobs will be intended for Boston residents, 25 percent for minorities, and 10 percent for women during the approximately two-year construction period.

- Provides approximately 375 construction related jobs.

- Maintains the University's strong contribution to the growth of the local and regional economies. Boston College is a major employer in the City of Boston and has an estimated economic impact on the City of $1.6 billion annually.

1.5 Public Review Process

The University is committed to continuing its public outreach with the Allston-Brighton Boston College Community Task Force. The Task Force is composed of community representatives from various community and civic organizations in Allston and Brighton. At the November 26, 2012 Task Force meeting, the University provided an overview and update on renovation projects completed since the approval of the Institutional Master Plan ("IMP") in 2009. Subsequently, the Task Force met on January 24, 2013, February 28, 2013 and March 27, 2013 to discuss the proposed new residence hall at 2150 Commonwealth Avenue, as well as the various approvals necessary from the Boston Redevelopment Authority ("BRA"), Boston Zoning Commission, Boston Landmarks Commission and Parks Commission.

1.6 Consistency with Zoning Regulations and Ordinances

According to the City of Boston Zoning Code, the underlying zoning of the Chestnut Hill Campus property is Boston College IMP. The relationship of the Project to the Boston College IMP is described in Section 1.7, Institutional Master Plan Amendment.

1.6.1 GREENBELT PROTECTION OVERLAY DISTRICT

Commonwealth Avenue is designated as a Greenbelt Protection Overlay District (GPOD). As stated in Article 19 of the Boston Zoning Code, the purposes of the GPOD are to preserve and protect the amenities of the City of Boston; to preserve and enhance the air quality by protecting the supply of vegetation and open space along the city's Greenbelt Roadways; to enhance and protect the scenic resources of the City; to protect the city's Greenbelt Roadways from traffic congestion; and to abate serious and present safety concerns.

The development proposed at the intersection of Commonwealth Avenue and St. Thomas More Road will respect the qualities of Commonwealth Avenue greenbelt. The Project advances this objective and addresses the GPOD requirements by maintaining the existing 40-60 foot setback of the campus buildings along Commonwealth Avenue,

and providing additional landscaping along Commonwealth Avenue and St. Thomas More Road. Compliance with the GPOD goals will be achieved through the Boston Redevelopment Authority design review and issuance of a Certificate of Consistency.

1.6.2 ARTICLE 37 – GREEN BUILDINGS

The Project must conform to Article 37, Green Building of the Boston Zoning Code. Article 37 requires all projects over 50,000 gross square feet to meet LEED Certification Standards by either certifying the project or demonstrating that the project is "certifiable." The 2150 Commonwealth Avenue Residence Hall is anticipated to achieve LEED Silver certification, exceeding the requirements of Article 37. A more detailed explanation of the LEED credits can be found in Section 3.5, Sustainable Design.

1.6.3 CONFORMANCE WITH ZONING HEIGHT

The Project Site slopes down from Commonwealth Avenue to the south, with a grade change across the site of approximately 16 feet. Due to this sloping topography, the portion of the building fronting on Commonwealth Avenue will have five stories and the southern portion of the building will have six stories.

The height of the building can be measured in several ways, but this section addresses the height as measured in accordance with the definitions contained in Article 2A of the Boston Zoning Code. *Height* is defined as the vertical distance from *grade* to the top of the highest roof beams of a flat roof, or the mean level of a gable or of the slope of a hip roof, excluding roof structures and penthouses normally built above the roof and not used or designed to be used for human occupancy, provided that the total area of such roof structures and penthouses does not exceed 33.3% of the total roof area. *Grade* is defined as the average elevation of the nearest sidewalk at the line of the street or streets which the building abuts.

Based on the above definitions and use of the Boston City Base (BCB) elevation data, the average grade of the site as measured at the sidewalks along Commonwealth Avenue and St. Thomas More Road is at an elevation of 148.0 feet BCB. The building height as measured to the mean level of the highest gable is at an elevation of 227.5 feet. Therefore, the building height is equal to 79.5 feet, the difference between the average grade and the building elevation.

1.6.4 CONSISTENCY WITH PARKS AND RECREATION COMMISSION ORDINANCES

The Project must comply with the City of Boston Municipal Code of Ordinances, specifically the requirements of Section 7-4.10, Restrictions on Park Frontages and Section 7-4.11, Permission for Construction Near Parks or Parkways.

Section 7-4.10 establishes a height limit of 70 feet for any building or structure or any part thereof hereafter erected or altered on land which abuts on and has an entrance into or is within a distance of 100 feet from Commonwealth Avenue, except that the Commission may approve rooftop structures above this height. In this case, the height would be measured from the sidewalk at Commonwealth Avenue and the Commission may allow sloping roofs and other enclosures to screen mechanical equipment.

Section 7-4.11 establishes that permission from the Parks and Recreation Commission is required to erect a building or structure within a distance of 100 feet from a park or parkway. As Commonwealth Avenue and Evergreen Cemetery are considered a parkway and a park, respectively, Boston College intends to comply with these ordinances by seeking approval from the Parks and Recreation Commission.

1.7 Institutional Master Plan Amendment

The Project at 2150 Commonwealth Avenue is described as a "Proposed Institutional Project" in the Boston College IMP approved in 2009. While the current Project design is in keeping with the intent of the Project as described in the IMP, the design of the proposed Project has evolved since the preparation of the IMP in 2009 and is not completely consistent with proposed height as described in the IMP. However, only de minimus dimensional changes to the height of the building are being proposed. Therefore, in a filing separate from this document, Boston College has submitted an Institutional Master Plan Notification Form ("IMPNF") for Amendment and Renewal seeking an amendment to the IMP and a waiver of further review of unchanged plans.

1.8 Institutional Master Plan Renewal

As Article 51, Allston-Brighton Neighborhood District zoning, requires Institutional Master Plans to be renewed every four years and as the current Boston College IMP was approved in June 2009, Boston College is seeking to renew the IMP. Separate from this document, Boston College has filed an IMPNF for Amendment and Renewal. This renewal of the IMP does not add any new projects or any new land to the IMP, does not change any Proposed Institutional Project previously approved in the IMP other than de minimus dimensional changes to the 2150 Commonwealth Avenue project, and does not result in any significantly greater impacts than previously projected in the IMP. Accordingly, the IMP renewal also meets the requirements for a waiver of further review of unchanged plans pursuant to Section 80D-5.2(e).

1.9 Anticipated Permits and Approvals

Table 1-1, Anticipated Project Approvals

AGENCY	APPROVAL
Local	
Boston Redevelopment Authority	Article 80 Large Project Review, and IMP Amendment and Renewal; Cooperation and other Article 80 Agreements; Certificate of Consistency with IMP
Boston Zoning Commission	Institutional Master Plan Amendment Approval
Boston Civic Design Commission	Schematic Design Review/Recommendation
Boston Fire Department	Asbestos Permit; Flammable Storage Permit/License; Asbestos Removal Notification
Boston Landmarks Commission	Determination of No Feasible Alternative to Demolition

Boston Parks and Recreation Commission	Approval for project adjacent to parkways and within 100 feet of a park
Boston Public Health Commission	Asbestos Abatement Permit
Boston Public Works	Sidewalk Deposit Permit
Boston Transportation Department	Transportation Access Plan Agreement; Construction Management Plan
Boston Water and Sewer Commission	Site Plan Approval: Backwater Valve Approval; Cross Connection Approval; Double Check Valve Approval
Inspectional Services Department	Demolition Permit; Excavation/Retention Permit; Building Permit; Certificate of Occupancy
AGENCY	**APPROVAL**
State	
Massachusetts Department of Environmental Protection	Source Registration for Sewer Discharge Notification Prior to Construction or Demolition; Asbestos Notification Form
Massachusetts Historical Commission	Determination of No Adverse Effect
Massachusetts Board of Elevator Regulations	Elevator Permit for Installation; Elevator Inspection Certificate
Federal	
Environmental Protection Agency	NPDES – Construction Stormwater General Permit

1.10 Project Team

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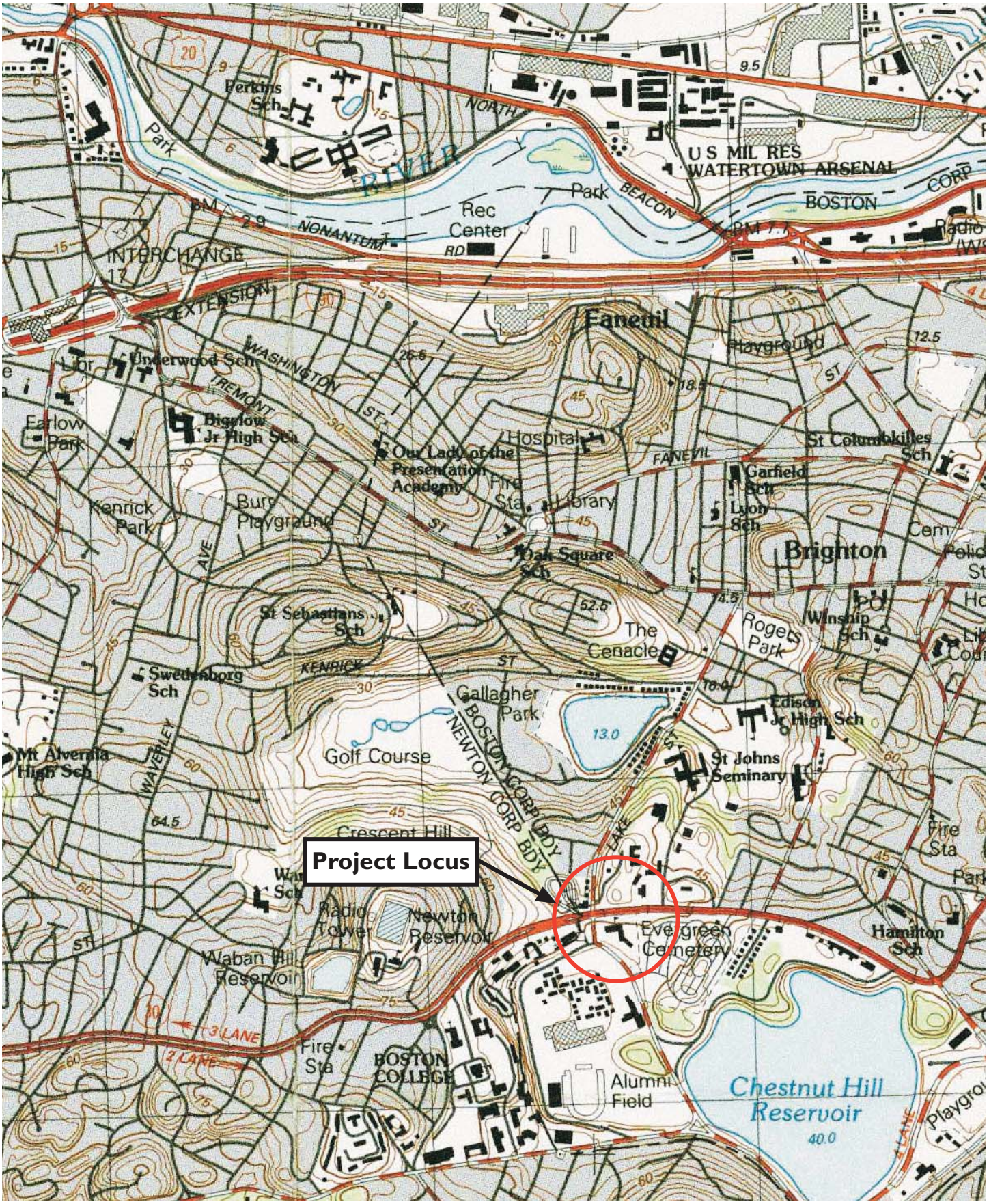

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Figure 1-1
Locus Map
Source: USGS

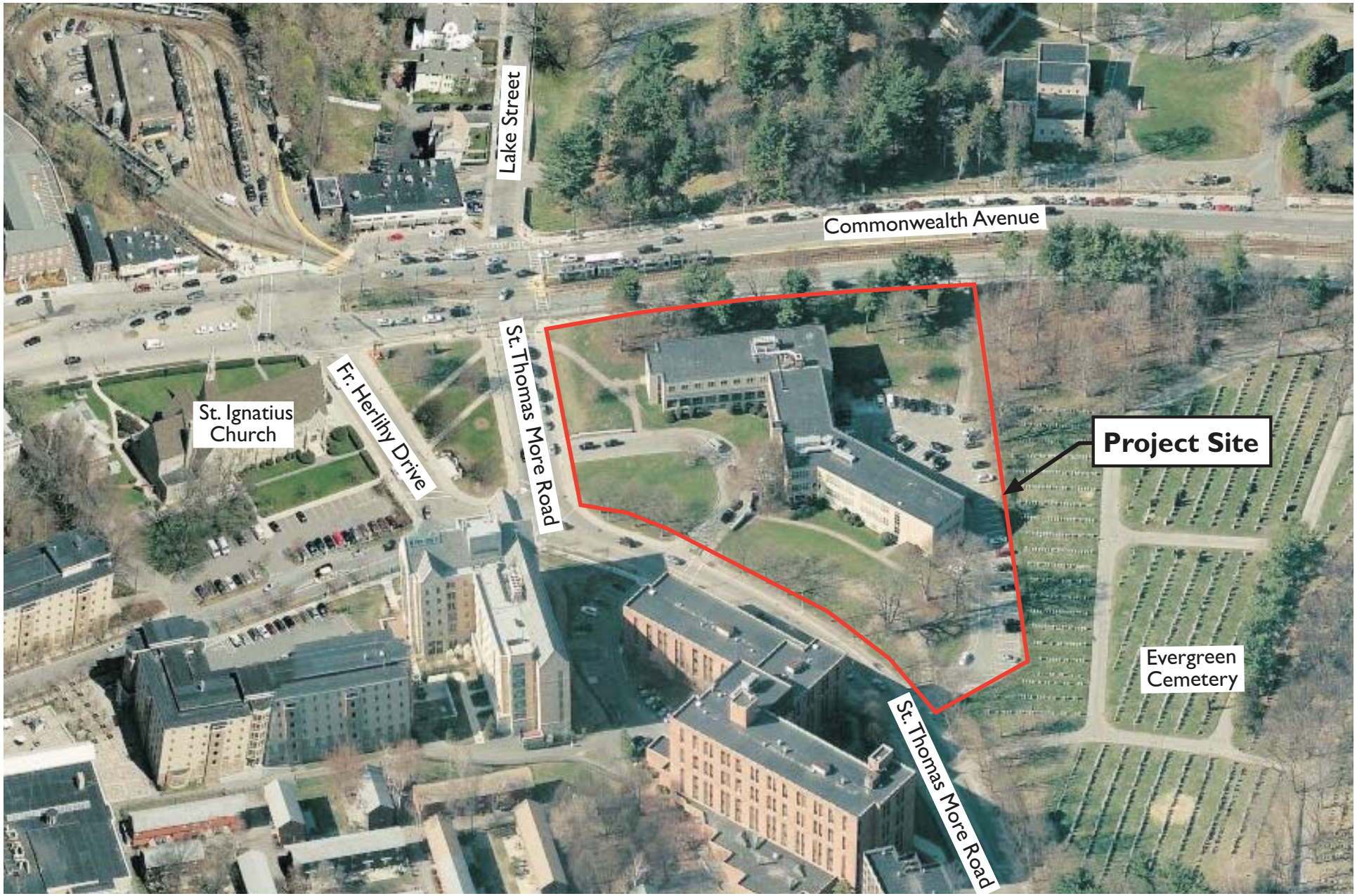

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Figure 1-2
Oblique of Project Site
Source: Microsoft Corporation, 2011

2.0 PROJECT DESCRIPTION

2.1 Project Context

The Boston College 2150 Commonwealth Avenue Residence Hall Project ("the Project") will be located at the intersection of Commonwealth Avenue and St. Thomas More Road in the northeast corner of the Boston College Chestnut Hill Campus (see Figure 2-1, Context Aerial). This 146,575 square foot (sf) site ("the Project Site") is south of Commonwealth Avenue, east and north of St. Thomas More Road, and west of the Evergreen Cemetery. St. Thomas More Hall, which has been vacant since Spring 2012, will be demolished and replaced by this Project.

Access to the Project Site is from St. Thomas More Road via Commonwealth Avenue, a major arterial roadway. The Massachusetts Bay Transit Authority's (MBTA) Green Line B Branch runs along Commonwealth Avenue (see Figure 2-2, Context Plan).

2.2 Existing Conditions

Boston College's Chestnut Hill Campus sits south of Commonwealth Avenue and includes three parts that reflect the topography of the site that slopes down from Upper, Middle, and Lower campuses. The Project Site is located in the northeast corner of the Lower Campus, which contains academic, cultural and athletic facilities, two parking facilities, space for student activities, and dining and student residence halls. The Project Site is directly across Commonwealth Avenue from the Brighton Campus.

The Project Site contains an existing building, St. Thomas More Hall, which housed University administrative offices until Spring 2012. This 3-story, 64,584 gsf building was constructed in 1955 for use as the Boston College Law School (see Figures 2-3 and 2-4, Existing Site Photographs). It is situated approximately in the middle of the site, which slopes down approximately 16 feet from the north side along Commonwealth Avenue to the south side where the main driveway is located along the Evergreen Cemetery. The lot is generally landscaped with a mix of trees and grass on all sides except the east side, where a parking lot for approximately 88 vehicles is located (see Figure 2-5, Existing Conditions Survey).

The existing 3-story building is not compatible with the residential use proposed for the Project, as its construction and awkward building geometry do not allow for an efficient and cost-effective change in design to meet the residential program envisioned for this Project. Renovating the building would require major code and accessibility upgrades, result in subpar residential space and, most importantly, accommodate significantly fewer than the desired number of student beds on the site.

2.3 Proposed Project

2.3.1 PROJECT PROGRAM

The proposed new student residence hall will have 484 beds in a mixture of 4-bed and 6-bed apartments, within multiple wings that partially surround a landscaped courtyard (see Figure 2-6, Project Site Plan). The program for the approximately 245,000 sf

building also includes two adult-in-residence apartments, common areas (including study lounges, music practice rooms, floor lounges, a main common room, a seminar room, and a laundry room), a new home for Boston College Health Services, and parking for approximately 22 vehicles (see Figure 2-7, First Floor Plan and Figure 2-8, Ground Floor Plan, and Table 2-1, Project Program). The Project will result in a floor area ratio (FAR) of 1.65 and lot coverage of 28 percent.

Table 2-1, Project Program

Use	Bldg Footprint (sf)	GSF	Lot Area (sf)	FAR	Building Height	Lot Coverage	Garage Parking Spaces	Parking On-Site
Residential Health Services Parking	41,047	245,000	146,575	1.65	79.5[1]	28%	0	22

1. Height is determined according to City of Boston Zoning Code.

The site slopes down approximately 16 feet from Commonwealth Avenue on the north side to St. Thomas More Road to the south side, which will permit the approximately 11,000 sf Health Services facility to be located at ground level on the south end of the building. Access and egress to Health Services will be separate from the two main entrances to the building, located at Level 1: one on the west side of the building facing a courtyard open to the campus, and another at the northeast corner of the building, facing north on Commonwealth Avenue. Student apartments will be located on Levels 1 through 5. Mechanical equipment will be located in enclosed penthouses on the roof, as well as in a series of mechanical spaces at the ground level that are set into the grade as it rises from Health Services up to Commonwealth Avenue.

The proposed building forms a courtyard that is open to the south and west, encouraging pedestrian access to and from the heart of the Boston College campus and maximizing the solar orientation of this open recreational green space (see Figure 2-6, Project Site Plan). The exterior materials on the building include brick, granite, a mix of punched windows and curtain wall, and a combination of flat and pitched roofs. It is being designed to achieve LEED Silver certification.

2.3.2 PROJECT ALTERNATIVES

In response to requests by the community to increase student beds within the building, Boston College studied several options having varying effects on the site and campus context, as well as the interior planning of the building. Studies 1 through 4 depict the floor plan for the project alternatives that would have five stories along Commonwealth Avenue and six stories along the southern end where the site slopes down (see Figure 2-9, Alternative Layout Study). Study 5 exceeds six stories.

Study 1 is a building with 470 beds, which is consistent with the need identified in the IMP.

Study 2 includes 480 beds and turns a "leg" on the northwest corner, to the south partially closing off the courtyard to the east and turning its side towards St. Ignatius Church to the west.

Study 3 proposes student beds on the ground floor of the southern portion of the building in proposed location of the Health Service Department. Although this study yields 484 beds, the beds on the ground floor would be isolated from the remainder of the residential community within the building.

Study 4 simply "stretches" the northern portion of building shown in Study 1 slightly to the west thereby providing 484 beds.

Study 5 reflects an alternative to address the possibility of increasing the height of the building as allowed per the Boston Zoning Ordinance 7-4.10. Under this study, the height could be increased in the portion that is more than 100 feet from the edge of Commonwealth Avenue. Boston College's design intent is to provide a building of five to six stories to respond appropriately to the scale of the campus and community context. Study 5 is not responsive to the scale of the campus and community context and also has adverse implications for residential community within the building.

Boston College will continue to explore a range of options as the design of the Project advances. Some of these options, such as those listed in Study 2-4, may increase the number of beds above that described in the IMP. However, the final building design plans will need to be consistent with the programmatic, economic feasibility and residence life goals of Boston College

2.3.3 PARKING AND CIRCULATION

Vehicular access to the site for parking, Health Services use, and building services will be from St. Thomas More Road through a driveway entrance located at the south side of the Project Site. There will be parking spaces for approximately 22 vehicles located along the eastern portion of the Project Site, a net reduction of 66 spaces from the existing 88 spaces.

A service drive for deliveries will be located along the south wing of the building. The driveway has been designed to accommodate a future access road to the Brighton Campus. A full discussion of proposed circulation, parking, and other transportation concerns can be found in Chapter 4, Transportation.

2.3.4 OPEN SPACE AND LANDSCAPING

There is 16 feet of grade change from the southernmost portion of the site up to Commonwealth Avenue. The two main wings of the building will form a central courtyard that will allow residents and the public to gather and partake in informal recreational activities. Within this courtyard, a long curving ramp and a slightly shorter sloped path with steps will define an oval lawn and direct primary circulation around it and to the building's main entries. Terraces and seating areas at the juncture of the paths at this entrance promote casual interaction and conversation. The lower terrace and the treatment of the street edge helps control pedestrian crossing at this complex intersection.

Where feasible, the University will maintain the existing trees and open space on the north side of the site, which forms half of the main entry to the University from

Commonwealth Avenue. Along the west side of the Project, the site plan continues the strong row of red oaks that exists along St. Thomas More Road out to Commonwealth Avenue. A tree-lined pathway along the building handles the pedestrian circulation heading south toward the University's Lower Campus.

Chapter 3, Urban Design, contains full details about proposed landscaping and open space for the Project.

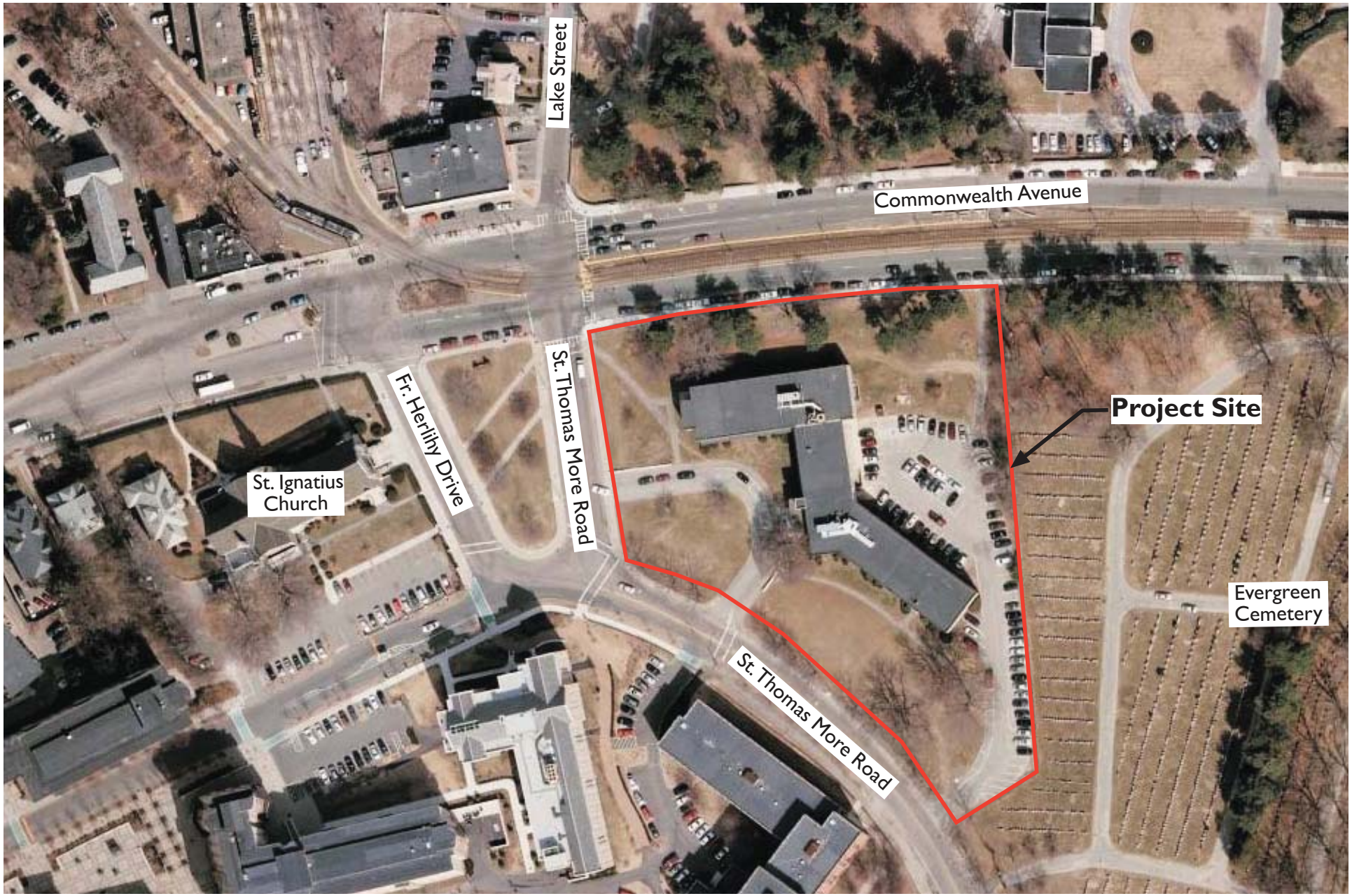

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Figure 2-1
Context Aerial
Source: Google, 2011

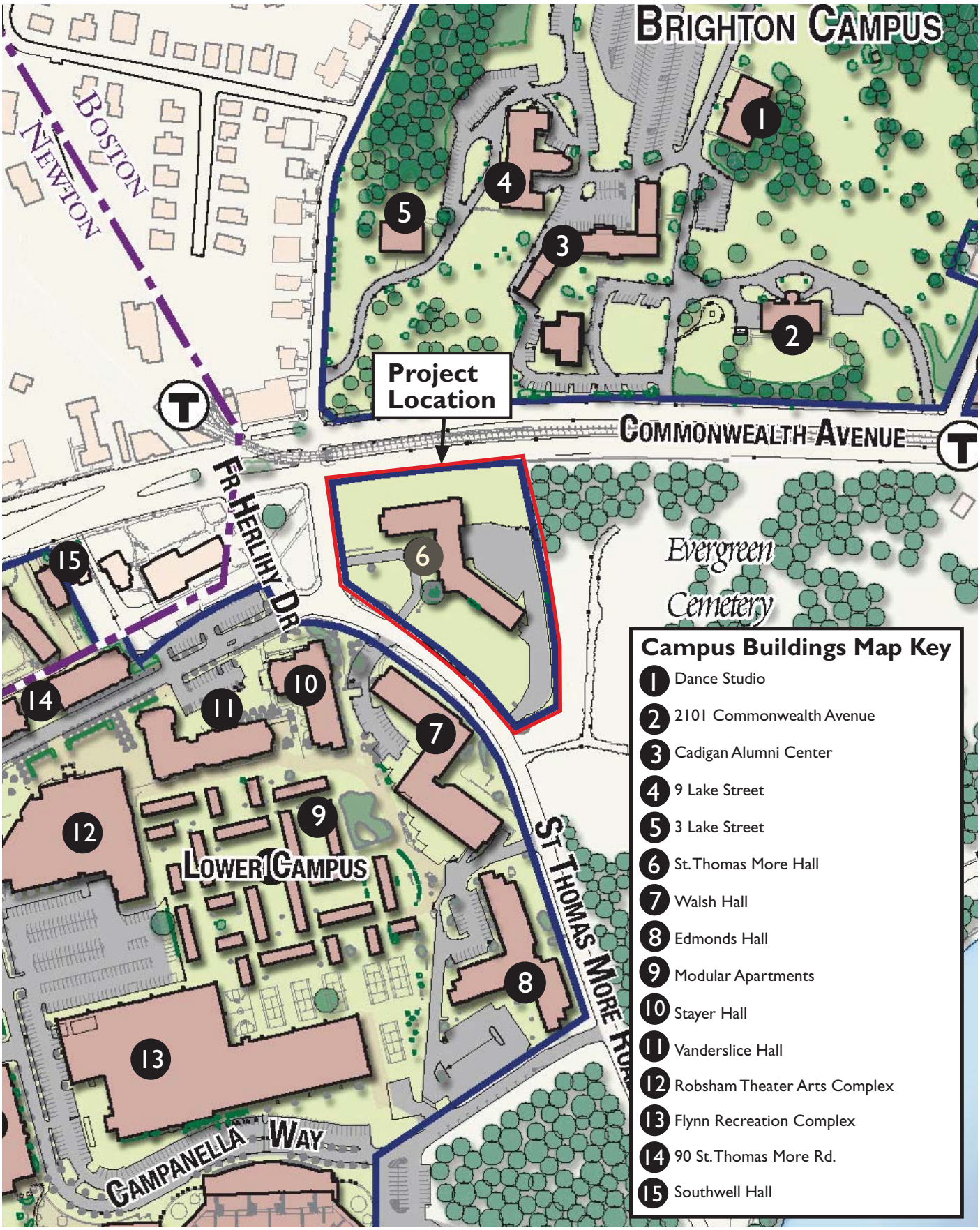
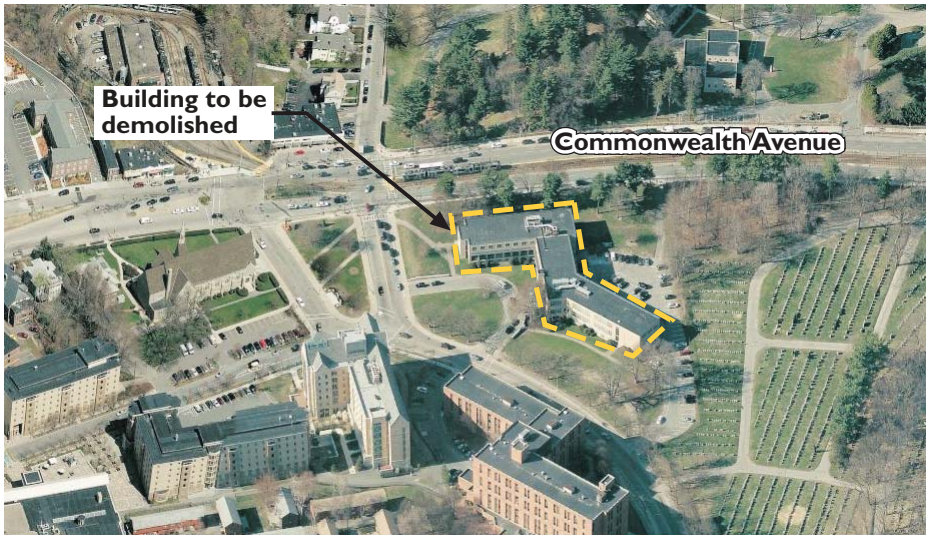
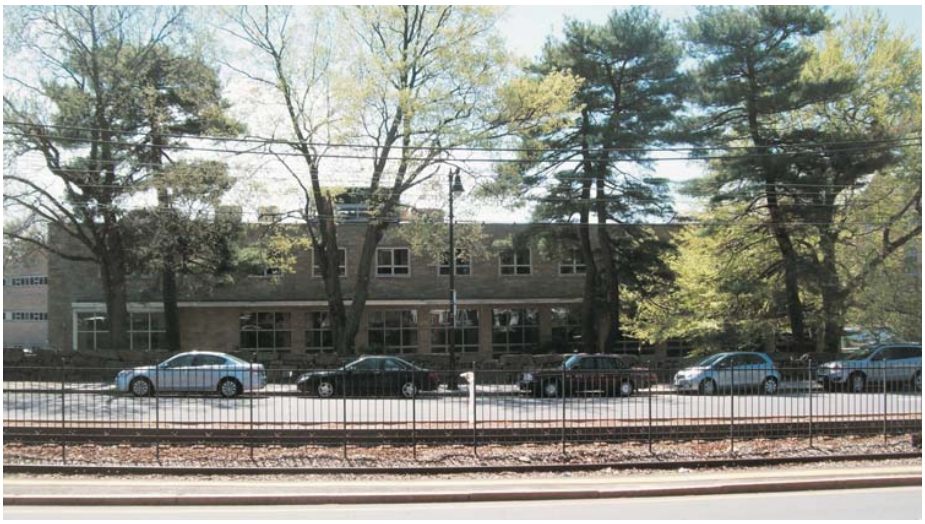


Figure 2-2
Context Plan
Source: Boston College Institutional Master Plan, updated 2013



Oblique View looking North

View looking Southeast from Commonwealth Avenue/
St. Thomas More Road Intersection



View looking South from Commonwealth Avenue

View looking Northeast

View looking Southeast

View looking Northwest

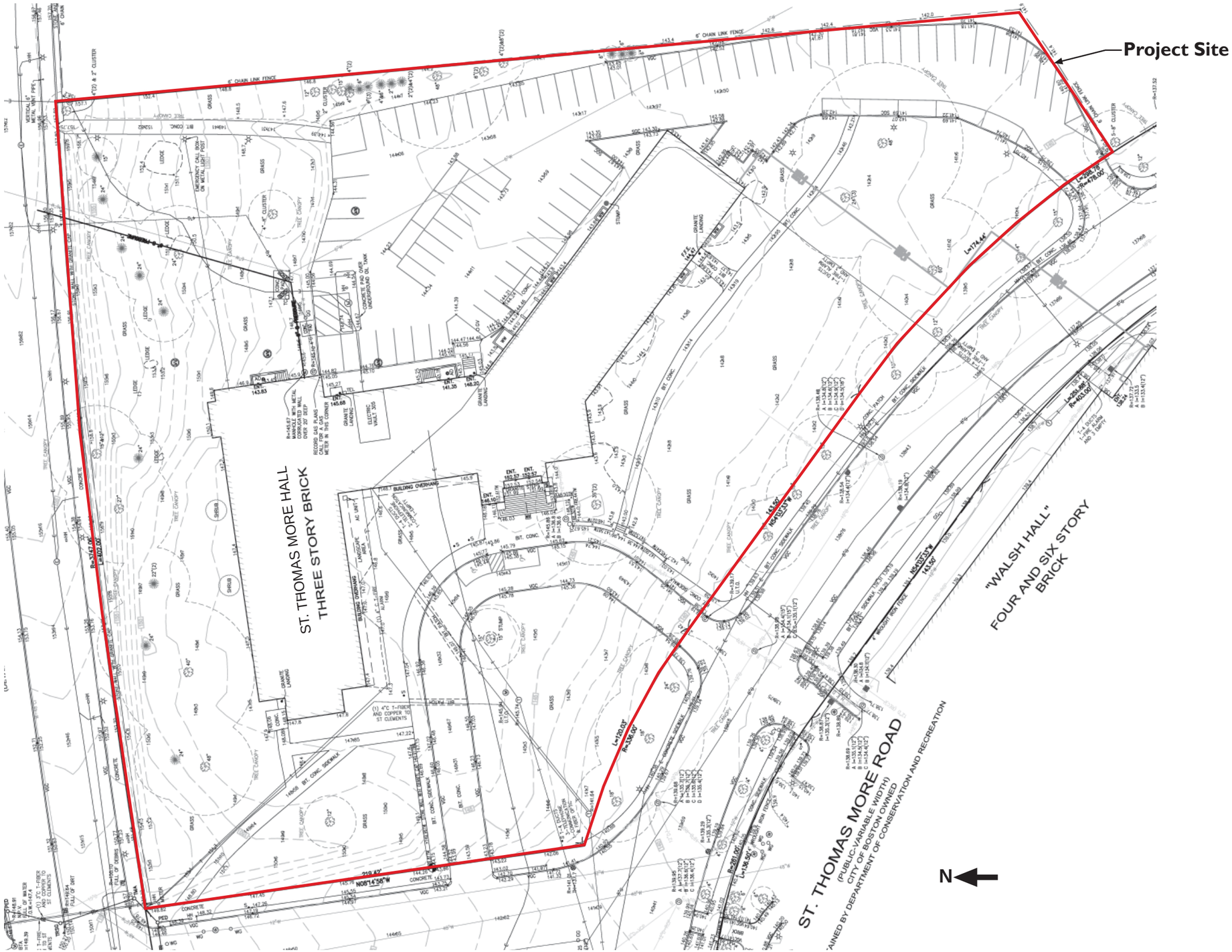


Figure 2-5
Existing Conditions Survey
source: Nitsch Engineering, 2010

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Figure 2-6
Project Site Plan
Source: EYP, 2013

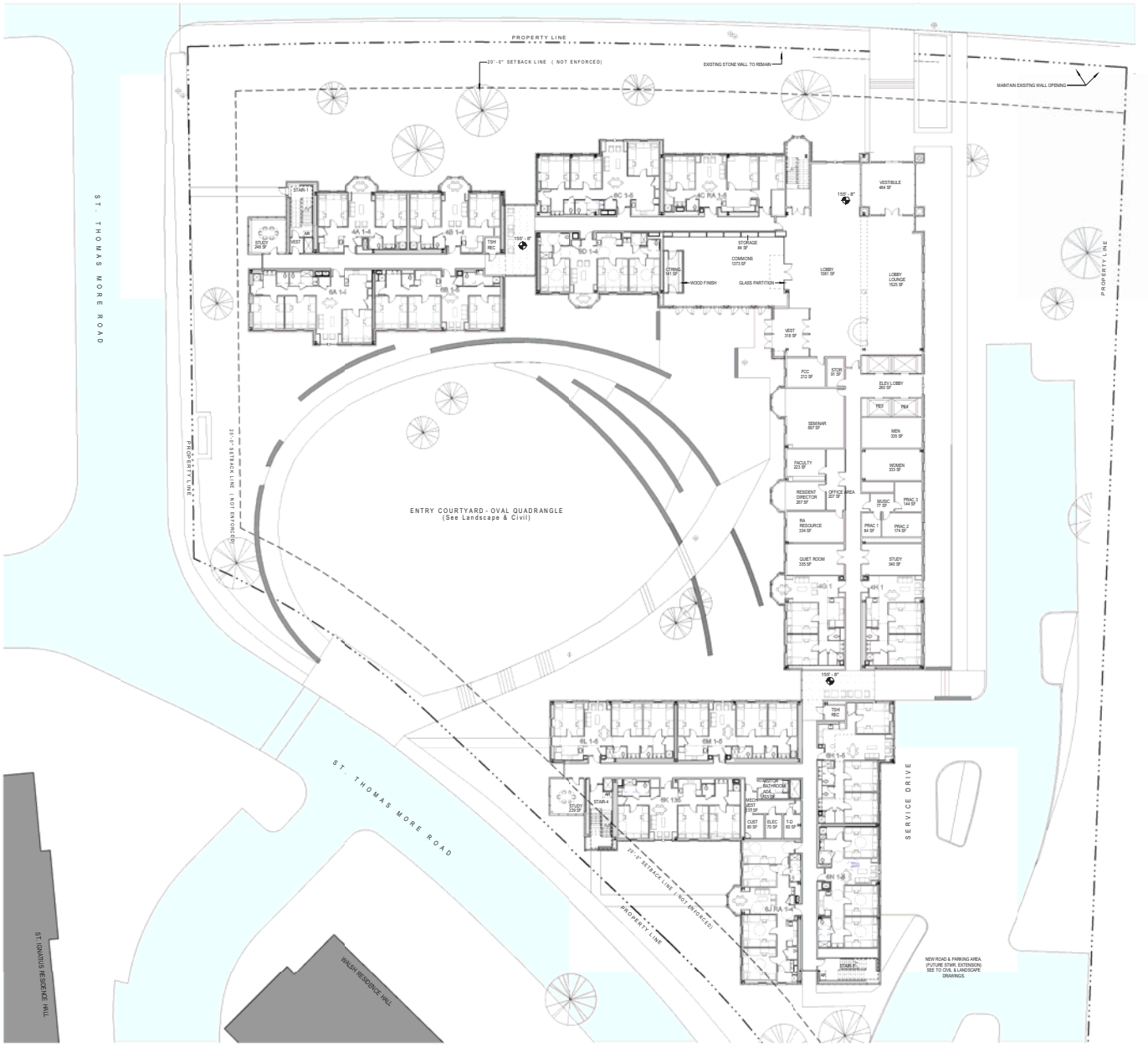

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Figure 2-7
First Floor Plan
Source: EYP, 2013

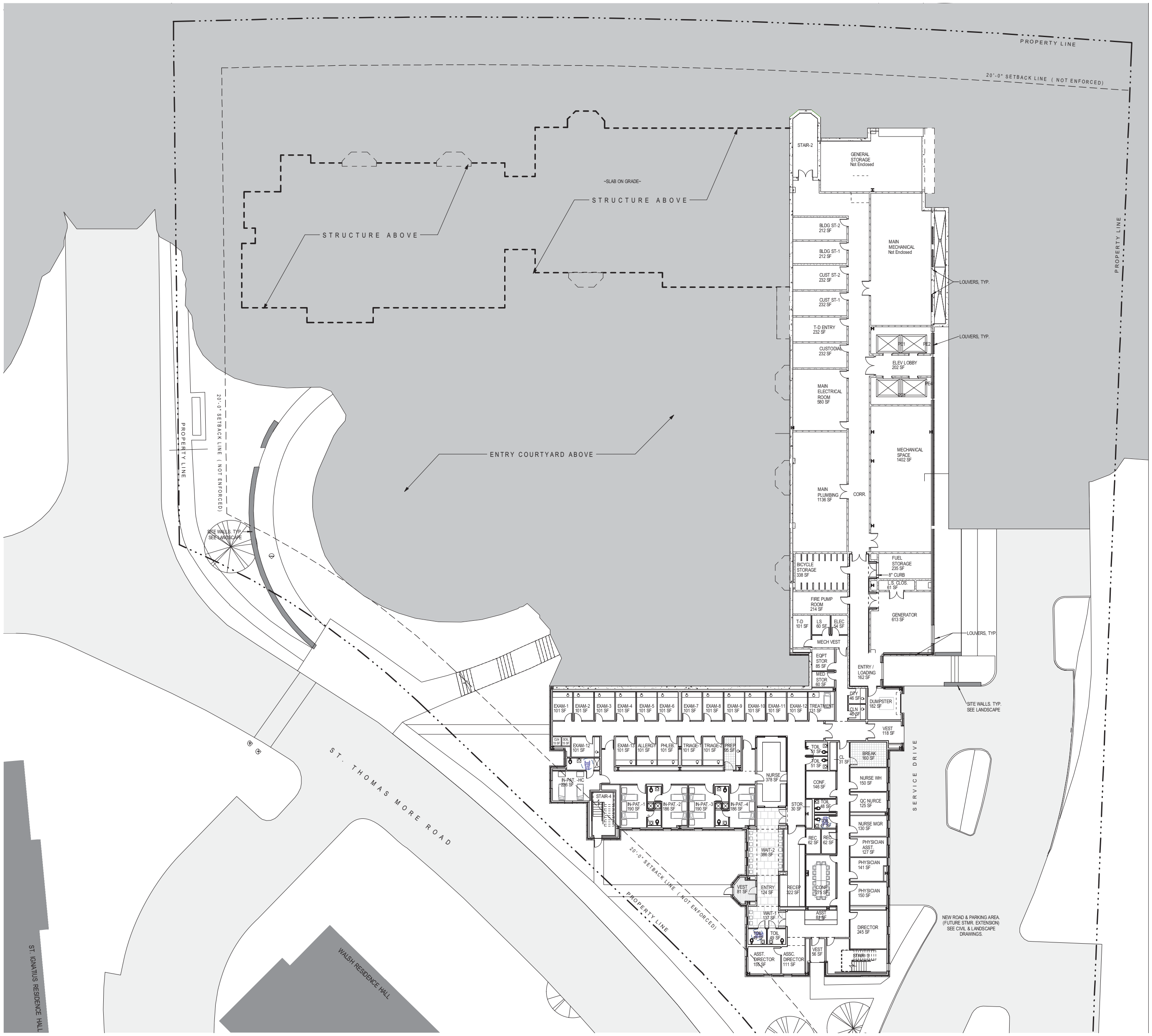


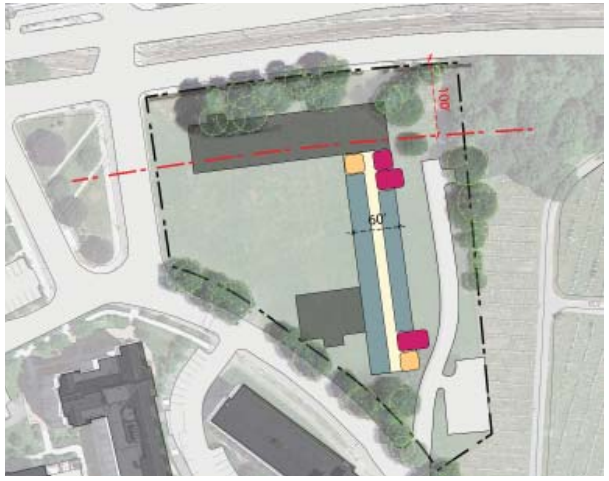
Figure 2-8
Ground Floor Plan
Source: EYP, 2013

Study 1 - 470 beds

Study 2 - 480 beds

Study 3 - 484 beds

Study 4 - 484 beds



Study 5

PROGRAM KEY

= STUDENT ROOMS

= COMMON SPACES

= CIRCULATION

= VERTICAL CIRCULATION

= MECHANICAL

= ROOF

Figure 2-9
Alternative Layout Study
Source: EYP, 2013

3.0 URBAN DESIGN

3.1 Introduction

The 2150 Commonwealth Avenue Residence Hall Project is located on a site currently occupied by St. Thomas More Hall, a location that anchors the lower portion of Boston College's campus at Chestnut Hill. Within the framework of Boston College's 2009 Institutional Master Plan (IMP), the Project Site also serves as an eastern gateway on Commonwealth Avenue that connects to its Brighton Campus to the north and northeast.

The Project Site is bounded on the north by the gradual curve of Commonwealth Avenue, with its westbound and eastbound lanes separated by the tracks carrying the MBTA Green Line B Branch to its termination at the Boston College stop northwest of the Project Site (see Figure 3-1, Neighborhood Context Plan). It is bounded to the east by Evergreen Cemetery, a gently sloping grassy parcel of land between Commonwealth Avenue and the Chestnut Hill Reservoir. The Project Site slopes approximately 16 feet from its northeast corner to its southern edge, where it is bounded by St. Thomas More Road. This road is also the Project Site's boundary on the west, as the road curves northward to intersect with Commonwealth Avenue.

The proposed new student residence hall will have 484 beds in a mixture of 4-bed and 6-bed apartments, within multiple wings that partially surround a landscaped courtyard (see Figure 3-2, First Floor Plan and Figure 3-3, Typical Upper Floor Plan). A program of this size will enable the residence hall to be of a collegiate scale and visual character compatible with the surrounding campus, and its design elements will reinforce existing and proposed pedestrian circulation. Furthermore, this population will fit within Boston College's desired number of beds for a residential community, fostering student development.

Beyond the student apartments, the program for this 245,000 gross square foot building will also include two adult-in-residence apartments, common spaces, as well as a new home for Health Services. Common spaces will include a first floor commons that can accommodate up to 100 people, an entrance lobby and lounge, a seminar room, and music practice rooms. On upper floors, floor lounges will accommodate a resident advisor cohort of 35 students and study lounges where 3 to 5 students can work on group projects. All of these common areas will contribute to a 24/7 living and learning environment that is critical to student formation.

The building will be primarily five levels above grade plus enclosed mechanical attics and penthouses; it will also have a partial ground floor exposed above the sloping grade toward the southern end of the site (see Figure 3-4, Roof Plan, Figure 3-5, Perspective Looking Southwest, Figure 3-6, Perspective Looking Northeast, and Figure 3-7, Elevations). This southern area of the ground floor will house the Health Services program component, with access and egress separate from the residential spaces and exposure to daylight on three sides.

3.2 Existing Urban Fabric

The existing urban fabric includes both campus and non-campus structures, and informs the massing, material choices, and other design elements of the residence hall. The Chestnut Hill Campus of Boston College lies entirely south of Commonwealth Avenue as it curves westward from St. Thomas More Road in the City of Boston toward Old Colony Road in the City of

Newton. Thus the existing urban fabric along the south side of this major thoroughfare is characterized by three- to six-story buildings clad in masonry that each negotiates the gradual uphill slope westward. The façades of the University's other residential and academic buildings facing northward to Commonwealth Avenue remain parallel to the road as it bends and are generally comprised of orthogonal masses or groups of orthogonal masses, each of moderate length (100-200 feet) and generally topped by a mixture of gabled and flat roofs. These buildings tend to form a very porous streetwall, set back between 40 feet and 60 feet from Commonwealth Avenue. To the east of the Project Site on the south side of Commonwealth Avenue, the tree-lined character of Evergreen Cemetery predominates until other multistory apartments line both sides of Commonwealth Avenue for the remainder of the distance to the urban nodes at Chestnut Hill Avenue and Cleveland Circle.

The existing urban fabric immediately adjacent to the site includes St. Ignatius Church to the west, a Boston College residence hall (Stayer Hall) to the southwest, and Walsh Hall to the south. St. Ignatius is a Gothic Revival edifice clad in granite with steeply sloped intersecting gables over its nave and transept, and an asymmetrically placed stone bell-tower to the northeast of the crossing. Walsh Hall is an eight-story structure with orthogonal masses clad in red masonry and a façade composed with vertical groups of punched windows. Stayer Hall, constructed in 2004, is a six-story residence hall clad in brick and granite with both punched windows and curtain wall elements. Like the proposed Project, Stayer Hall has a combination of gabled roof areas and flat roof areas in order to maintain predominantly vertical proportions on the significant gabled elements of the facades. One such vertical gabled façade, paired with a vertical string of transparent study lounges, faces the small trapezoidal green space adjacent to the intersection of St. Thomas More Road with Commonwealth Avenue.

The existing urban fabric to the north of Commonwealth Avenue across from Boston College consists to the northwest of single and multi-family dwellings that are generally two- to two-and-a-half story construction in multiple materials (wood, masonry, metal), set back from the secondary westbound lanes of Commonwealth Avenue. Directly northwest of the Project Site across Commonwealth Avenue is a group of single-story commercial buildings flanking the Boston College T stop and its associated service buildings. These low, flat-roofed commercial structures are generally light in color, are quite active due to their dining and retail services, and have adjacent street parking.

The Brighton Campus is immediately to the north of the Project Site and consists of a hilly landscape punctuated by numerous trees and rock outcroppings and several two- to three-story institutional buildings clad in masonry that are aligned to the irregular topography rather than to the street. Like the existing St. Thomas More Hall on the Project Site, these relatively low buildings tend to recede behind the foliage. They are accessed from a series of driveways uphill from Lake Street, a one-way street that runs northward from Commonwealth Avenue. The landscape obscures pedestrian-level views northward from Commonwealth Avenue toward the residential areas to the north and west of the Brighton Campus.

3.3 Design Principles

Three urban design principles stated in the IMP resonate particularly for the Project Site:

One major design principle is to respond to the IMP's imperatives for strong building composition along major streets, in this case Commonwealth Avenue. The design should

present a compatible massing, scale, and urban character in site-specific manners that suit the context. Since the existing fabric presents varied lengths of major masses rather than uninterrupted streetwall conditions, the design should be articulated to relate to this scale. In doing so, the design should provide a landmark to vehicles and pedestrians approaching Boston College from the east headed west on Commonwealth Avenue. The design should include elements that address this primary gateway onto the Boston College campus, even though visitors will likely head for other diverse points within the campus rather than into the residence hall itself. The design should also address those traveling by public transportation who alight at the termination of the B branch of the Green Line.

A second key principle is to create memorable open spaces. This reinforces the need for the massing to present interconnected yet distinct volumes that define a significant, identifiable courtyard without completely closing such a space from the streets and public realm. Such an exterior space should be positioned for good solar orientation and other aspects of microclimate so that the spaces are welcoming for the campus community and reinforce the approach to site circulation and the IMP's imperatives for gateways and linked courtyards. Specifically, the design should encourage pedestrians within the Chestnut Hill Campus to continue down the axis started by Campanella Way and associated pedestrian paths toward and through a memorable open space, and to connect eastward and northward toward the Brighton Campus. The IMP suggested that an open space on the More Hall site might also be relatively civic in scale and significance. Thus, an open space associated with this Project should be identifiable as simultaneously belonging to the building, the campus, and the City.

Finally, a third principle is that the design should express its most active interior uses to establish visual connections between the inside and outside. Therefore, the design should present the street with a mixture of masonry and glazing, with the glazing at entries and common areas articulated to provide clear wayfinding for pedestrians while using the social character of floor lounges and study lounges to animate the street façades. The composition of major common spaces should be integrated with pedestrian circulation; the outdoor spaces for student residents and indoor public spaces for the campus community should be carefully connected so that exterior "living spaces" are activated by adjacent lobbies, circulation, and social spaces used by students throughout the day and evening.

3.4 Design Response

3.4.1 SITE LAYOUT

The 2150 Commonwealth Avenue Residence Hall is strategically located to become both a link to the Brighton Campus and the threshold marking the beginning of the existing campus on Commonwealth Avenue. The Project Site also forms a visual terminus to the Lower Campus's pedestrian spine along Campanella Way.

The University intends to retain and/or replace many of these trees to help separate the building from the scenic parkway while maintaining the nature of the 40 - 60 foot setback of campus buildings from Commonwealth Avenue. The site plan continues the strong row of red oaks that exists along St. Thomas More Road out to Commonwealth Avenue.

The site design also restricts service areas, with Health Services' vehicular needs, service parking, move-in requirements, and other activities located to the east side facing the cemetery, so that these areas are not situated within the primary vehicular or pedestrian approaches. Health Services' needs of vehicle access are accommodated by a parking area at the east side of the building. A tree-lined pathway along the east flank of the building handles the pedestrian circulation heading south toward the University's Lower Campus. Along the eastern edge of the site, a planting zone will provide a healthy growing environment for a mix of native shade trees and groundcover and provide a natural buffer along the adjacent cemetery. This east area is also the possible future site of a secondary road that will cross Commonwealth Avenue and connect the Chestnut Hill Campus with the Brighton Campus. The landscape has been designed to anticipate this later development.

The proposed design balances the needs of circulation and programmatic requirements with the desire to create a memorable open space that will serve students living at the new residence hall as well as the campus and City.

The resulting oval lawn of the central courtyard allows for the facilitation of these many requirements and does so in a manner that accomplishes important goals surrounding accessibility. There is 16 feet of grade change from the southernmost portion of the site up to Commonwealth Avenue. To create an accessible route to the building's main entry, the courtyard incorporates a long curving ramp along the north side of the lawn (see Figure 3-8, Landscape Plan). To the south is a slightly shorter sloped path with steps. These two divided paths enclose the central lawn both defining its oval shape and landform, and directing primary circulation around it. By redirecting this flow of traffic, this central space becomes a place for students to gather and for informal recreational activities. Terraces and seating areas at the juncture of the paths at the building main entrance promote casual interaction and conversation. The lower terrace and the treatment of the street edge helps control pedestrian crossing at this complex intersection.

The west side streetscape forms half of the main entry to the University from Commonwealth Avenue. The site plan continues the strong row of red oaks that are currently along St. Thomas More Road. These significant mature trees will help give scale to this large entry threshold. Pedestrian crossings have been limited to a single primary location in this area to increase pedestrian safety at the busy intersection.

The site design strives for sustainability in several ways. Lawn has been kept to a minimum, and hardy native species have been selected for groundcover. Throughout the site, porous paving and high albedo will be considered to increase infiltration and reduce the heat island effects of the site. Lighting throughout the site will employ full cutoff and LED fixtures. The plants selected for this landscape are all native to New England. All plants have been selected for strong spring and fall seasonal displays and winter interest. They have also been selected for low maintenance and irrigation requirements.

3.4.2 PUBLIC REALM

The 2009 IMP identified the proposed buildings on the Project Site as one of four "Green Gateways" at the edges of campus. The naturally landscaped edge of this site

along Commonwealth Avenue distinguishes a formal campus entry and serves as a transitional buffer to the Brighton neighborhood. The building form and massing also contribute to defining a prominent campus edge, as well as to minimize shading of outdoor living spaces.

The strong vertical elements with substantial glazing associated with the main entries, stair towers, and study lounges will extend visual cues already present at Stayer Hall and other campus buildings to create a harmonious public entrance to the campus. The building massing facing Commonwealth Avenue will maintain a considerable setback from the street edge with landscaped buffers in order to retain and/or replace the motte of trees along the Commonwealth Avenue frontage.

The configuration of the building and courtyard will ensure that the courtyard and nearby public walkways are unshaded through most of the day, having prominent western and southern exposures. The courtyard itself not only contributes a strong new sense of place to the building (providing a residential identity to the students' residence), but to the sense of place within the campus (orientation toward Lower Campus and a visual terminus of Campanella Way) and within this part of the City (through how it opens to St. Thomas More Road).

The configuration of vehicular traffic will ensure that deliveries and all service activities will occur at the east entrance and will not cause problems or confusion on Commonwealth Avenue nor on St. Thomas More Road near its intersections.

3.4.3 VIEW CORRIDORS AND ACCESS

The design reinforces key view corridors and provides visual landmarks appropriate in scale and character to the campus context. The design calls for a major beacon with transparent glazing at the northeast corner facing Commonwealth Avenue and the Brighton Campus. The design also calls for smaller beacons associated with transparent glazed study lounges on Floors 1-5, strategically located at the corners of the building so as to be clearly visible along public corridors from the T stop to the northwest, from the main part of St. Thomas More Road approaching from the south, and from campus pathways to the southwest. An additional, though somewhat subtler, transparent beacon will occur at the entry facing the oval courtyard, creating a clear terminus to the pedestrian axis and associated view corridor along Campanella Way. This beacon at the west entry also serves to highlight this entry as it provides pedestrian connections and an accessible route directly through the building to the east entry and onward to Commonwealth Avenue and the Brighton Campus.

3.4.4 ARCHITECTURE AND BUILT FORM

The proposed building will have five floors above grade with mechanicals above the highest level and a total area of approximately 245,000 gross square feet. The 1st and 5th floors have a 14'-0" floor-to-floor height, with residential floors 2 through 4 having 10'-8" floor-to-floor height. The Health Services facility at the ground floor on the southern end of the building has a 12'-8" floor-to-floor height.

The proposed building will define a large courtyard opening to the south and west. This opening is oriented toward St. Thomas More Road and the University's Lower Campus. On the north edge of the site, the building's volume reinforces and continues Commonwealth Avenue's urban scale. The building will be set back from Commonwealth Avenue, consistent with other Boston College buildings along the south side of the avenue. The building's materials and roof forms reinforce the architectural language and scale of the campus while extending this character to Commonwealth Avenue, thus forming a new gateway for Boston College.

The architectural character of the building will be consistent with that of other buildings on the Lower Campus. Granite will be used in combination with brick and limestone to achieve a visual connection to Stayer Hall and St. Ignatius and a mnemonic connection to BC's Middle Campus. The body of the building will be clad in brick masonry with stone string courses and copings, and with punched openings defining a residential character consistent with the Lower Campus. Study lounges, floor lounges, and interconnecting stairs will feature significant glazing in order to provide daylight into corridors while acting as transparent lanterns to the City.

The roof shape will be articulated as a combination of sloped and flat roofs, sympathetic to the existing campus buildings and the adjacent St. Ignatius Church. The terminations of the sloped-roof portions will be expressed as carefully proportioned vertical gable ends with stone masonry, and polygonal bay windows articulate the longer faces of the architectural masses. The northeast corner of the building will serve as a beacon to mark the edge of Lower Campus as one travels east and west along Commonwealth Avenue. The eastern façade facing Evergreen Cemetery will utilize the same language and scale to define and continue the building along its eastern flank; it will contain common spaces lining the courtyard on the first floor and a second entrance facing east. As the grade lowers along the south wing, the ground floor will emerge to provide space for Health Services, which has its main entry facing west. This location provides convenient access to students arriving from the Lower Campus, provides a sense of separation from the student residences, and takes advantage of the sloped topography.

Within the courtyard, the entry will be defined with a strong vertical articulation of glass denoting the upper floor lounges and a two-story, L-shaped limestone bay that marks the entry and the common room, clearly showing the pedestrian connectivity through the building mass to the east and then north toward the Brighton Campus. The entry volume will continue upward into glazing that reveals both the double-height entry space and the floor lounges on floors 3 and 5. The double height Commons will also be defined with a strong vertical reading of glass and limestone. The outer wings that define the courtyard to the north and south will utilize gable ends and punched openings with vertically composed elements to reinforce the building's visual link to the traditional Collegiate Gothic character of Boston College's Middle Campus.

The entry lobby floor will be of stone with wood paneling and plastered walls above. Stone flooring will continue to the east entry, connecting pedestrians directly through the building and onto the pathway toward the Brighton Campus. The ceilings in common areas will be a combination of wood and painted plaster. The seminar room

and floor lounge also will have wood, drywall, and glass walls and carpet flooring. Stone floors will also be found in other accent locations such as elevator lobbies.

3.5 Sustainable Design

The Project will employ appropriate sustainable design principles that are consistent with national guidelines for sustainable construction, the City's Article 37 Green Buildings requirements, and the Boston College Institutional Master Plan of 2009.

The University has established a Sustainability Advisory committee to recommend a comprehensive sustainability policy and plan. In the 2009 IMP, the University stated a commitment to achieving LEED certification for all new construction projects. The University has upheld its commitment, having achieved LEED Certified status for all new construction projects.

The Project is anticipated to achieve LEED Silver certification. Because the design is still at a schematic design level, final decisions about which LEED credits to pursue have not yet been made. The University, however, has identified a number of credits which are potentially available for the Project (see Figures 3-9 and 3-10, LEED Checklist). As the design progresses, the University will select the final design elements to achieve LEED Silver Certification.

As part of the specifications for the Project, for example, use of rapidly renewable and recycled materials will be encouraged, construction and demolition debris will be recycled or reused, and provisions will be made for the storage and recycling of waste materials. The Project will incorporate sustainable design features, including the use of a sustainable site, increased water and energy efficiency, use of renewable and recycled materials, and improved indoor air quality.

The following outlines the team's approach to the categories of LEED credits:

- **Sustainable Sites** – Boston College has chosen to develop a sustainable site well-served by public transportation and other alternatives to single occupancy vehicle commuting. No increase in parking capacity is being provided. In fact, there will be a reduction of 66 parking spaces at the site. The University also plans to take steps to reduce light pollution from inside the building.

- **Water Efficiency** – Boston College plans to reduce water consumption through water-conserving fixtures and water efficient landscaping; landscape materials will be selected that enhance sustainability and conservation of resources by virtue of suitability to site conditions. The interdisciplinary design team will endeavor to incorporate building systems to reduce water consumption by approximately 35%, using technologies such as dual-flush toilets and reduced-flow sinks and lavatories in the residential units.

- **Energy and Atmosphere** – The design team will optimize the energy performance of the Project and will utilize an enhanced commissioning process.

- **Materials and Resources** – The University will minimize its consumption of new materials to the degree practical. The majority of construction wastes will be segregated and recycled or reused. In the selection of building materials,

consideration will be given to the use of recycled content, regional materials, and rapidly renewable materials. The University will incorporate the residence hall into its well-established recycling program.

- **Indoor Environmental Quality** – The University will improve indoor air quality with the installation of an exhaust ventilation system for all bathrooms and a mechanical ventilation system that will provide fresh air to all the occupied spaces. The University will utilize low emitting materials in the construction of the building.

- **Innovation and Design Process and Regional Priority Credits** – The Project team will include at least one LEED-accredited professional, and the team will define other potential innovation points associated with the role of the building as part of an educational community. Additionally, the Project will seek to achieve several regional priority credits.

3.6 Sustainable Practices

The University has designed the Project to be consistent with the sustainable principles outlined in the 2009 IMP and policies recommended by the University's Sustainability Advisory Committee established in 2012. As it relates to the Project, the University will commit to the following practices:

- **Transportation** – The University will continue its campus-wide Transportation Demand Management program (see Section 4.6, Transportation Demand Management, for more details). For example, the campus shuttle buses run on 5% biodiesel.

- **Waste Reduction and Recycling** – At least 50% of non-construction and demolition waste will be recycled and the University will implement a permanent recycling plan appropriate to the needs of the facility. At least 75% of construction and demolition materials will be recycled.

- **Procurement** – The University intends to purchase environmentally preferable products and services as part of a campus-wide sustainable purchasing effort.

- **LEED Certification** – The University will meet LEED Certified status and strive to achieve LEED Silver Certification for any new construction project.

- **Greenhouse Gases** – The University has had a 20% drop in Greenhouse Gas (GHG) emissions from stationary carbon sources since 2006. Boston College will continue to reduce GHG emissions.

- **Water Conservation** – New construction and renovation projects will include low-flow fixtures.

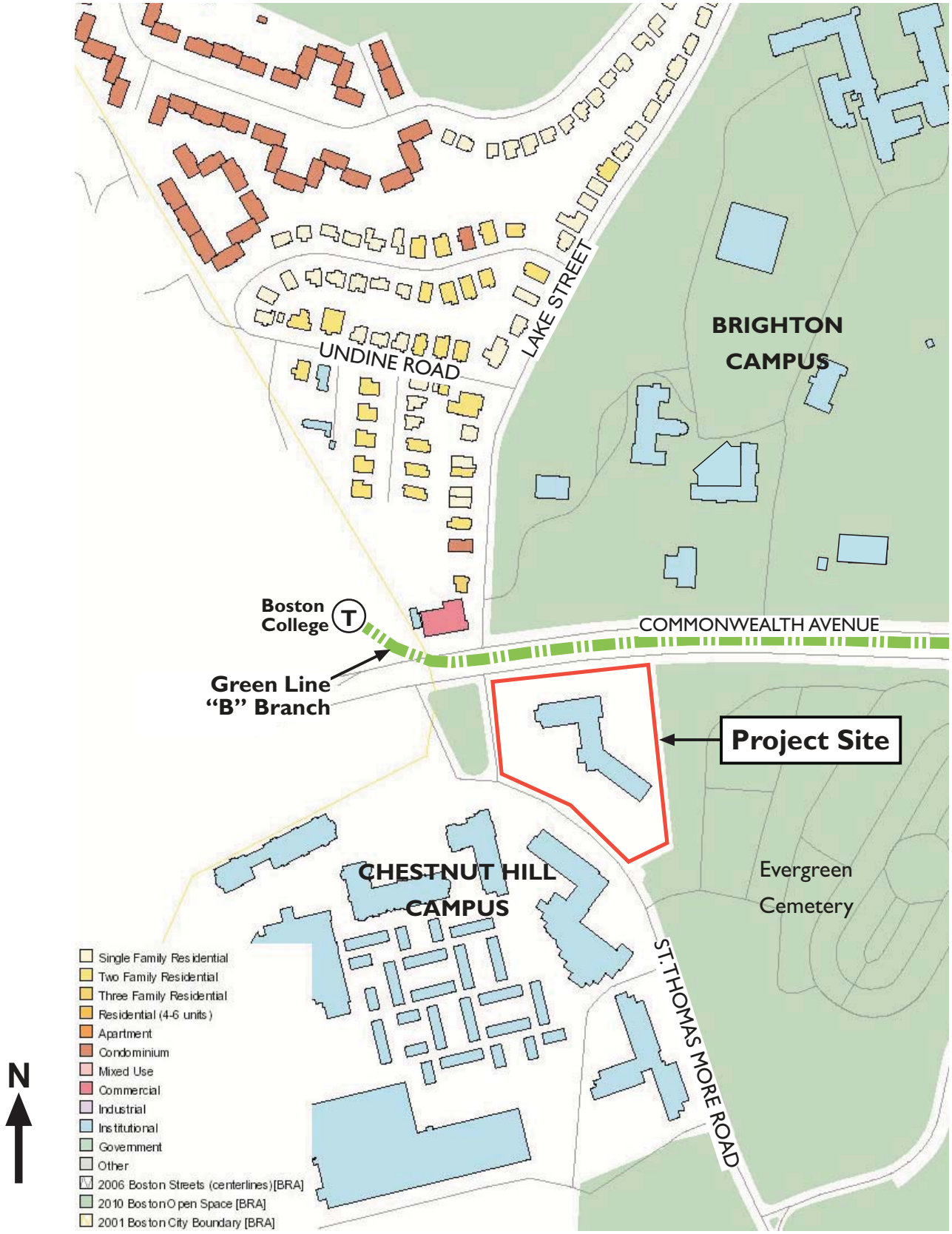
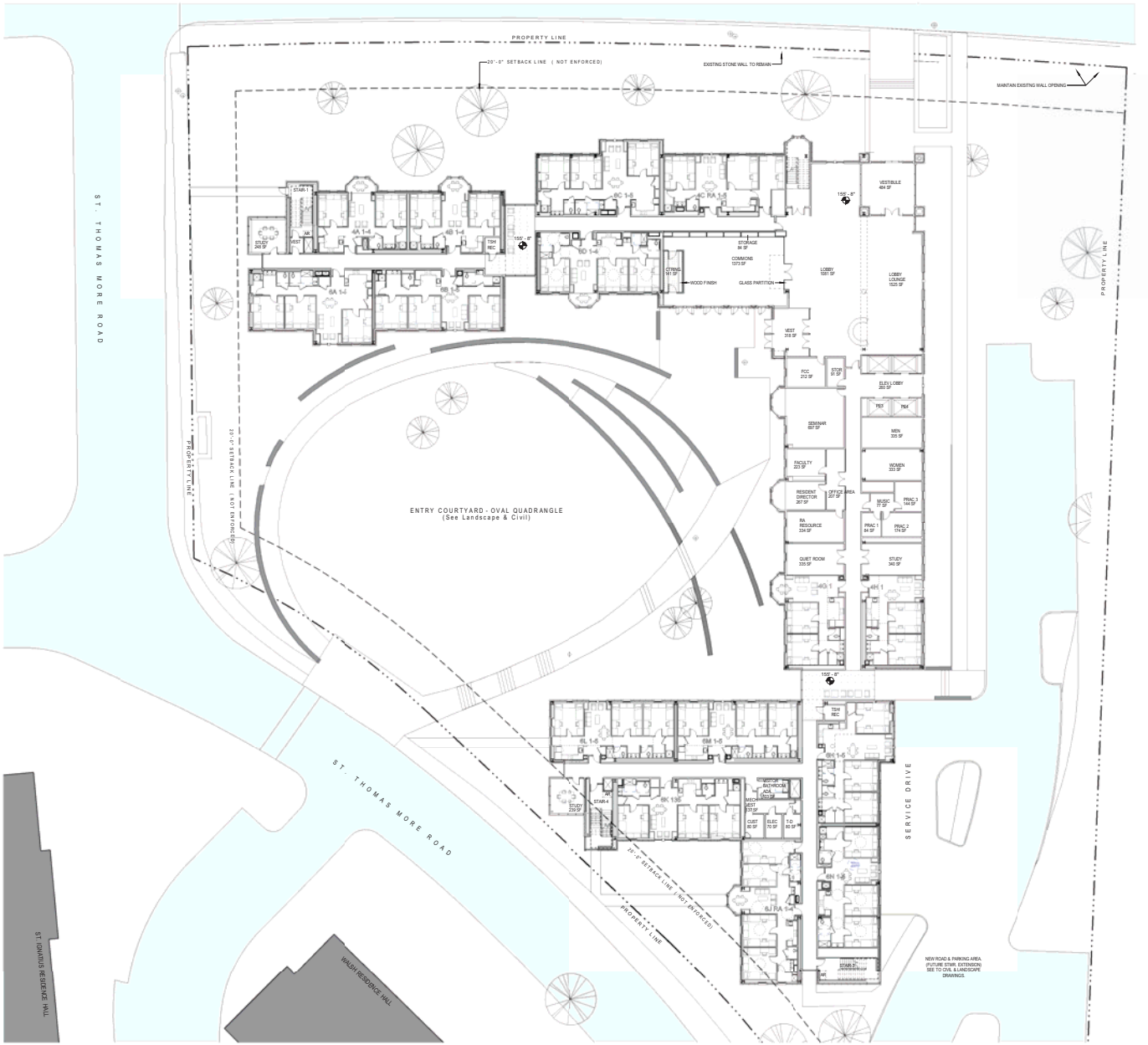


Figure 3-1
Neighborhood Context Plan
Source: Boston Redevelopment Authority



Boston College
BRIGHTON, MASSACHUSETTS

Figure 3-2
First Floor Plan
Source: EYP, 2013


STAIR-1
STUDY 248 SF
4A 1-4
4B 1-4
TSH/ REC
6A 1-5
6B 1-5
6C 1-5
4C RA 1-5
FLOOR LOUNGE 649 SF
6D 1-4
6E 3-5
T-D 163 SF
ELEC 175 SF
4D RA 3-5
4E 2-4
4E 2-4
6L 1-2
6G 1-4
6F 1-5
TSH/REC
6L 1-5
6M 1-5
6N 1-5
STUDY 239 SF
STAIR-4
6K 135
VISITOR ADA 103 SF
VEST 137 SF
LSP
CUST 80 SF
ELEC 70 SF
T-D 80 SF
6N 1-5
6J RA 1-4
STAIR- 3

Boston College
BRIGHTON, MASSACHUSETTS

Figure 3-4
Roof Plan
Source: EYP, 2013

Figure 3-5
Perspective Looking Southwest
Source: EYP, 2013

Boston College
BRIGHTON, MASSACHUSETTS

Figure 3-6
Perspective Looking Northeast
Source: EYP, 2013

West Elevation

North Elevation

Figure 3-8
Landscape Plan
Source: EYP, 2013

LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name: Boston College -2150 Comm Ave Residence Hall
Project Address: 2150 Commonwealth Ave, Boston, MA 02135

Date Created: June 23, 2010
Date Revised: November 8 2010

Yes	?	No			
21	2	3	SUSTAINABLE SITES		26 Points
Y			Prereq 1	Construction Activity Pollution Prevention	Required
1			Credit 1	Site Selection	1
5			Credit 2	Development Density and Community Connectivity	5
1			Credit 3	Brownfield Redevelopment	1
6			Credit 4.1	Alternative Transportation - Public Transportation Access	6
1			Credit 4.2	Alternative Transportation - Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation - Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation - Parking Capacity	2
		1	Credit 5.1	Site Development - Protect or Restore Habitat	1
1			Credit 5.2	Site Development - Maximize Open Space	1
1			Credit 6.1	Stormwater Design - Quantity Control	1
	1		Credit 6.2	Stormwater Design - Quality Control	1
		1	Credit 7.1	Heat Island Effect - Nonroof	1
	1		Credit 7.2	Heat Island Effect - Roof	1
		1	Credit 8	Light Pollution Reduction	1

Yes	?	No			
5		4	WATER EFFICIENCY		10 Points
					4
Y			Prereq 1	Water Use Reduction	Required
2		2	Credit 1	Water Efficient Landscaping	2 to 4
				2 Reduce by 50%	2
				No Potable Water Use or Irrigation	4
		2	Credit 2	Innovative Wastewater Technologies	2
3			Credit 3	Water Use Reduction	2 to 4
				Reduce by 30%	2
				3 Reduce by 35%	3
				Reduce by 40%	4

10	9	7	ENERGY & ATMOSPHERE		35 Points
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	Required
Y			Prereq 2	Minimum Energy Performance	Required
Y			Prereq 3	Fundamental Refrigerant Management	Required
8	2		Credit 1	Optimize Energy Performance	1 to 19
				Improve by 12% for New Buildings or 8% for Existing Building Renovations	1
				Improve by 14% for New Buildings or 10% for Existing Building Renovations	2
				Improve by 16% for New Buildings or 12% for Existing Building Renovations	3
				Improve by 18% for New Buildings or 14% for Existing Building Renovations	4
				Improve by 20% for New Buildings or 16% for Existing Building Renovations	5
				Improve by 22% for New Buildings or 18% for Existing Building Renovations	6
				Improve by 24% for New Buildings or 20% for Existing Building Renovations	7
				8 Improve by 26% for New Buildings or 22% for Existing Building Renovations	8
				Improve by 28% for New Buildings or 24% for Existing Building Renovations	9
				Improve by 30% for New Buildings or 26% for Existing Building Renovations	10
				Improve by 32% for New Buildings or 28% for Existing Building Renovations	11
				Improve by 34% for New Buildings or 30% for Existing Building Renovations	12
				Improve by 36% for New Buildings or 32% for Existing Building Renovations	13
				Improve by 38% for New Buildings or 34% for Existing Building Renovations	14
				Improve by 40% for New Buildings or 36% for Existing Building Renovations	15
				Improve by 42% for New Buildings or 38% for Existing Building Renovations	16
				Improve by 44% for New Buildings or 40% for Existing Building Renovations	17
				Improve by 46% for New Buildings or 42% for Existing Building Renovations	18
				Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19
		7	Credit 2	On-Site Renewable Energy	1 to 7
				1% Renewable Energy	1
				3% Renewable Energy	2
				5% Renewable Energy	3
				7% Renewable Energy	4
				9% Renewable Energy	5
				11% Renewable Energy	6
				13% Renewable Energy	7
2			Credit 3	Enhanced Commissioning	2
	2		Credit 4	Enhanced Refrigerant Management	2
	3		Credit 5	Measurement and Verification	3
	2		Credit 6	Green Power	2

Figure 3-9
LEED Checklist - Sheet 1
Source: EYP, 2013

LEED 2009 for New Construction and Major Renovation
Project Scorecard

Project Name: Boston College -2150 Comm Ave Residence Hall
Project Address: 2150 Commonwealth Ave, Boston, MA 02135

Date Created: June 23, 2010
Date Revised: November 8 2010

Yes	?	No			
5	2	7	**MATERIALS & RESOURCES**		14 Points
Y			Prereq 1	Storage and Collection of Recyclables	Required
		3	Credit 1.1	Building Reuse - Maintain Existing Walls, Floors and Roof	1 to 3
				Reuse 55%	1
				Reuse 75%	2
				Reuse 95%	3
		1	Credit 1.2	Building Reuse - Maintain Interior Nonstructural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
				50% Recycled or Salvaged	1
			2	75% Recycled or Salvaged	2
		2	Credit 3	Materials Reuse	1 to 2
				Reuse 5%	1
				Reuse 10%	2
2			Credit 4	Recycled Content	1 to 2
				10% of Content	1
			2	20% of Content	2
	1	1	Credit 5	Regional Materials	1 to 2
			1	10% of Materials	1
				20% of Materials	2
	1		Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1
Yes	?	No			
10	3	2	**INDOOR ENVIRONMENTAL QUALITY**		15 Points
Y			Prereq 1	Minimum Indoor Air Quality Performance	Required
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	Required
1			Credit 1	Outdoor Air Delivery Monitoring	1
	1		Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction Indoor Air Quality Management Plan - During Construction	1
1			Credit 3.2	Construction Indoor Air Quality Management Plan - Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials - Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials - Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials - Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials - Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems - Lighting	1
	1		Credit 6.2	Controllability of Systems - Thermal Comfort	1
1			Credit 7.1	Thermal Comfort - Design	1
		1	Credit 7.2	Thermal Comfort - Verification	1
		1	Credit 8.1	Daylight and Views - Daylight	1
	1		Credit 8.2	Daylight and Views - Views	1
Yes	?	No			
4	2		**INNOVATION IN DESIGN**		6 Points
3	2		Credit 1	Innovation in Design	1 to 5
			1	Innovation or Exemplary Performance green cleaning	1
			1	Innovation or Exemplary Performance building as a learning tool	1
			1	Innovation or Exemplary Performance sustainable transportation plan	1
				Innovation	1
				Innovation	1
1			Credit 2	LEED® Accredited Professional	1
Yes	?	No			
2	1	1	**REGIONAL PRIORITY**		4 Points
2	1	1	Credit 1	Regional Priority	1 to 4
			1	Regionally Defined Credit Achieved SSc3.1	1
			1	Regionally Defined Credit Achieved SSc6.1	1
				Regionally Defined Credit Achieved	1
				Regionally Defined Credit Achieved	1
Yes	?	No			
57	19	24	**PROJECT TOTALS (Certification Estimates)**		110 Points

Certified: 40-49 points Silver: 50-59 points Gold: 60-79 points Platinum: 80+ points

Figure 3-10
LEED Checklist - Sheet 2
Source: EYP, 2013

4.0 TRANSPORTATION

4.1 Introduction

This transportation analysis reviews the impact of the proposed 484-bed residence hall at 2150 Commonwealth Avenue on various transportation modes serving Boston College's Chestnut Hill and Brighton campuses, including the impact of the elimination of about 66 parking spaces from the Project Site due to the large number of employees relocated across Commonwealth Avenue to the Brighton Campus. The following sections describe existing conditions and expected project impacts on both the Chestnut Hill and Brighton campuses:

- Traffic
- Parking
- Transit
- Bicycle and Pedestrian Accommodations
- Transportation Demand Management
- Loading and Servicing

4.2 Traffic

4.2.1 VEHICULAR ACCESS

The Project Site is located in the southeast corner of the intersection of Commonwealth Avenue and St. Thomas More Road. The Department of Conservation and Recreation owns St. Thomas More Road. Vehicular access to the Project Site is from St. Thomas More Road just south of Commonwealth Avenue (see Figure 4-1, Transportation Access and Parking). The existing building at the Project Site was vacated in the Spring of 2012: the offices uses and associated parkers were relocated to the Brighton Campus. The same driveway for the existing building will provide access to the new building. The following roadways are located near the Project Site and the Chestnut Hill Campus:

Commonwealth Avenue is the north boundary of the Chestnut Hill Campus. It is a divided, east/west roadway providing two travel lanes in each direction. The MBTA Green Line B Branch is located in the median. Parking and sidewalks are provided along both sides of the street adjacent to the Chestnut Hill Campus. One of the main entrances to the Chestnut Hill Campus is via St. Thomas More Road, which is off of Commonwealth Avenue and adjacent to the Project Site.

St. Thomas More Road connects Commonwealth Avenue to Beacon Street to the south. Its intersection with Commonwealth Avenue is aligned with the intersection of Lake Street, which runs north from the intersection. St. Thomas More Road is a two-lane roadway controlled by a traffic signal at Commonwealth Avenue and a STOP sign at Beacon Street. The driveway to the site is a little more than a tenth of a mile south of Commonwealth Avenue.

4.2.2 EXISTING TRAFFIC VOLUMES

Traffic counts were taken near the Project Site in March and April 2013 and compared with 2008 counts from the IMP. Forty-eight hour automatic traffic recorder counts were taken on Lake Street and Commonwealth Avenue. Table 4-1 shows the comparison between the 2008 and 2013 counts. Daily volumes on Lake Street and westbound Commonwealth Avenue are lower compared to 2008 (-3 percent and -12 percent, respectively) while the eastbound volume on Commonwealth Avenue is higher (6 percent). The variations in the peak hour volumes tended to change in the same direction as the daily volumes.

Morning and evening peak period turning movement counts were taken at the intersection of Commonwealth Avenue, Lake Street and St. Thomas More Road. Figure 4-2, Peak Hour Traffic Volumes shows 2008 and 2013 turning movement volumes at the intersection. Total intersection volumes are virtually unchanged with a 0.3 percent increase in the morning and a 1.3 percent decrease in the evening peak hour. However, there have been larger shifts in volume for several moves. As a result, the intersection level of service has changed in the evening peak hour from LOS E to D.

4.2.3 TRAFFIC GENERATION

The 2150 Commonwealth Avenue Project will add 484 student beds to the Chestnut Hill Campus and will house Health Services. The relocation of Health Services from another location on the Lower Campus will have no impact on traffic or parking demand. The addition of 484 beds on the Chestnut Hill Campus will reduce traffic and transit trips to and from the campus in the morning and evening peak hours. Since Boston College has committed to maintaining a constant undergraduate enrollment of about 9,000 students[1], the addition of 484 beds on campus means that 484 fewer students will be living off campus and commuting to the University.

The existing parking lot on the Project Site contains 88 parking spaces. The Project will eliminate 66 of these spaces, resulting in 22 parking spaces on the Project Site. The relocation of the 66 vehicles to the Brighton Campus has had minimal to no impact on traffic in the area around the campus because the parked vehicles have moved only about 800 feet across Commonwealth Avenue. This relocation diverted traffic from the Chestnut Hill Campus to the Brighton Campus but did not add to traffic in the area. On a daily basis, the 66 relocated vehicles are estimated to have produced a shift of about 132 trips daily to the Brighton Campus. This shift includes 25 morning peak hour trips and 30 evening peak hour trips.

4.3 Parking

4.3.1 ON-CAMPUS PARKING

The existing parking lot on the Project Site contains 88 parking spaces. The Project will eliminate 66 of these spaces, resulting in 22 parking spaces on the Project Site. The 66 vehicles using the parking lot relocated to the Brighton Campus in the spring semester

[1] Boston College Institutional Master Plan, March 19, 2009, pages 3-5

Table 4-1, Traffic Volume Comparison

Roadway	Direction	Average Daily Traffic			Morning Peak Hour			Evening Peak Hour		
		2008	2013	Difference	2008	2013	Difference	2008	2013	Difference
Commonwealth Avenue east of Lake Street	Eastbound	6,673	7,045	+372	571	586	+15	569	582	+13
	Westbound	11,913	10,445	-1,468	1,060	921	-139	1,063	865	-198
Lake Street	Northbound	5,886	5,688	-198	488	441	-47	505	507	+2
St. Thomas More Road	Northbound	5,776	5,633	-143	416	442	+26	462	432	-30
	Southbound	2,540	2,476	-64	181	211	+30	217	212	-5

of 2012. As noted previously, the parkers who were displaced from the St. Thomas More Hall site were expected to park on the Brighton Campus, which currently has 684 parking spaces available to University users. An additional 43 spaces are reserved for the use of St. John's Seminary and are not included in the Boston College inventory.

The shift of 484 students living off campus to living on campus will have little effect on parking demand because:

1. Only commuter students who live more than a mile from transit service and live outside Boston, Brookline, and Chestnut Hill are eligible for a parking permit.

2. Only on-campus students who enrolled in a Boston College sponsored practicum or internship are eligible for a parking permit.

Because of these restrictions, a limited number of parking permits are granted to undergraduate commuter and resident students.

This academic year, Boston College has issued 748 parking permits for existing student and staff parking on the Brighton Campus, including staff relocated from St. Thomas More Hall. Based on parking counts taken the week of January 28, 2013, an average of 70 spaces were available at the 10:00 a.m. peak parking time, indicating there was an ample parking supply available on the Brighton Campus to accommodate the staff relocated from St. Thomas More Hall.

4.3.2 ON-STREET PARKING

There is no on-street parking on St. Thomas More Road and only a limited amount of on-street parking around the Brighton Campus. With the exception of Commonwealth Avenue, only Allston-Brighton Resident Permit parking is allowed on most streets. Only the limited number of spaces on Commonwealth Avenue is convenient to 2150 Commonwealth Avenue. Due to existing high utilization of those spaces and the availability of parking on the Brighton Campus, no on-street parking is expected from the Project.

4.4 Transit

4.4.1 PUBLIC TRANSPORTATION

The shift of 484 commuter students to resident students on the Lower Campus is expected to result in a reduction in peak period transit usage since many students who live off campus use transit to commute. The commuter students who used transit and will now live on campus can be expected to walk to their destinations on campus. They will continue to use transit in off-peak times to travel off campus. As noted previously, Boston College has committed to maintaining an undergraduate enrollment of approximately 9,000 students. Therefore, the addition of 484 beds on campus means that 484 fewer students will be living off campus and commuting to the campus.

The proposed 2150 Commonwealth Avenue residence hall will be located within a five-minute walk to the Boston College stop at the terminus of the MBTA Green Line B

Branch (see Figure 4-1, Transportation Access and Parking). The Boston College stop is located on the north side of Commonwealth Avenue, just west of St. Thomas More Road. The main entrance to 2150 Commonwealth Avenue will be located facing Thomas More Road. Both the MBTA Green Line Cleveland Circle C Branch and the Riverside D Branch have stops within one mile east of the campus and both are served by the Boston College Shuttle Service (see next section). The three branches are described below[2]:

Boston College B Branch operates between Boston College and Government Center on 6-minute headways during rush hours and on 9-minute headways throughout the day on weekdays. The Boston College stop, located on Commonwealth Avenue, is the most convenient branch to the Chestnut Hill Campus. Service from the Boston College station is provided between 5:01 a.m. and 12:10 a.m. during the week, between 4:45 a.m. and 12:10 a.m. on Saturdays, and between 5:20 a.m. and 12:10 a.m. on Sundays.

Cleveland Circle C Branch operates between Cleveland Circle and North Station on 7-minute headways during rush hours and 10-minute headways throughout the day on weekdays. The Cleveland Circle stop is located within one mile of Chestnut Hill Campus. Service is provided between 5:01 a.m. and 12:10 a.m. during the week, between 4:50 a.m. and 12:10 a.m. on Saturdays, and between 5:30 a.m. and 12:10 a.m. on Sundays.

Riverside D Branch operates between Riverside and Government Center on 6-minute headways during rush hours and on 11-minute headways throughout the day on the weekdays. The Reservoir stop is located just east of the Cleveland Circle stop on the C Branch. Service is provided between 4:56 a.m. and 12:05 a.m. during the week, between 4:55 a.m. and 12:05 a.m. on Saturdays, and between 5:25 a.m. and 12:05 a.m. on Sundays.

The MBTA also operates several bus routes along Washington Street, which is about two-thirds of a mile north of the Project Site, and along Chestnut Hill Avenue, which is about a half mile from the site.

4.4.2 BOSTON COLLEGE SHUTTLE BUS SERVICES

Boston College provides shuttle bus services for students and employees of the Chestnut Hill, Brighton, and Newton campuses. These services are described below:

The **Brighton Shuttle** provides a van service between the Brighton Campus and the Chestnut Hill Campus Monday through Friday from 8:40 a.m. to 6:10 p.m. Service is provided every 30 minutes except on weekends, University holidays, and when class is not in session. This shuttle service is also suspended during the summer.

The **Boston/Commonwealth Avenue Shuttle** service provides a Boston Direct Route and an All Stops route that run every 15-20 minutes. The Boston Direct Route

[2] www.mbta.com/schedules_and_maps/subway/lines/?route=green Spring 2013

stops at Conte Forum, opposite Greycliff Hall (outbound), 2000 Commonwealth Avenue, Reservoir Green Line MBTA Stop at Cleveland Circle, Bank of America on Chestnut Hill Avenue, Chiswick Road, Corner of Commonwealth Avenue and Chestnut Hill Avenue, South Street, Greycliff Hall and Robsham Theater. The All Stops route makes all of these stops plus McElroy Commons on Beacon Street, Donaldson House on College Road, and the Main Gate on Commonwealth Avenue.

The **Newton Shuttle** transports students and employees between the Newton Campus and the Chestnut Hill Campus via Commonwealth Avenue. Service is provided every 15-20 minutes from 7:00 a.m. to 2:00 a.m. on weekdays and from 8:00 a.m. to 2:00 a.m. on weekends. Five distinct routes are provided depending on the day of the week and time of day.

4.5 Bicycle and Pedestrian Accommodations

4.5.1 PEDESTRIANS

The Project Site is easily accessible for pedestrians, located on the southeast corner of the intersection of St. Thomas More Road and Commonwealth Avenue. Both of these roads have sidewalks along the periphery of the site. There are three crosswalks serving the site across St. Thomas More Road that provide access to the rest of the Chestnut Hill Campus. A major crosswalk across Commonwealth Avenue on the east side of St. Thomas More Road provides access to the Brighton Campus and the Boston College Green Line stop.

A major University goal, as stated in the 2009 IMP, is to strengthen pedestrian connections between the Chestnut Hill and Brighton campuses. Major paths will be provided across the Chestnut Hill Campus connecting to the St. Thomas More Hall site and crosswalks at the intersection of Commonwealth Avenue and Lake Street/St. Thomas More Road and crosswalks at a proposed new intersection of the Brighton Campus spine road and Commonwealth Avenue. Likewise, connections between the north end of the Brighton Campus and the Commonwealth Avenue intersections will be emphasized. There are blue light emergency call stations located throughout the Brighton and Chestnut Hill campuses.

4.5.2 BICYCLES

The proposed residence hall will include secured bicycle storage for building residents. This new storage area will supplement the 28 locations on the Chestnut Hill Campus and 6 locations on the Newton Campus for securing bikes. New bicycle racks have been installed on the Brighton Campus as part of the renovations of 129 Lake Street and the Cadigan Alumni Center.

Boston College offers services to bicyclists to aid in their commute and secure their equipment, and supports initiatives to create a bike-friendly campus. Both the Chestnut Hill and Newton campuses provide locker areas with showers. In addition, Boston College participates in the MassRIDES Bike to Work Week (BTWW) Challenge to promote bicycling as a viable commute option.

4.6 Transportation Demand Management

The University actively supports efforts to reduce automobile use by faculty, staff, students and visitors traveling to the campus. Many actions to support this goal are actively employed by Boston College and will be applied to faculty, staff, and students on the Chestnut Hill Campus. Existing measures include:

- **Information Dissemination.** Boston College promotes all forms of alternative transportation through the Office of Transportation and Parking. The Office provides a comprehensive website for the members of the institution and the public that details transportation and parking policies (see www.bc.edu/transportation).

- **Transit.** Boston College is served by the MBTA Green Line B Branch and provides shuttle bus service to the Cleveland Circle and Reservoir MBTA stops on the C and D Branches of the Green Line. In 2010, the University instituted a pre-tax T-pass sales program for full-time employees. Students can purchase a semester pass through the University and receive an 11 percent discount on MBTA passes.

- **Ride matching.** In conjunction with MassRIDES, Boston College assists in the creation of carpools and vanpools, providing employees with a cost-effective and ecologically friendly alternative to drive-alone commutes. A discounted parking permit rate is available for those who sign up for ride matches. Carpoolers are guaranteed a prime parking location on campus.

- **Shuttle Bus System.** Boston College operates and promotes a free 13-bus shuttle system to link the campus with the Green Line at the Cleveland Circle and Reservoir stops.

- **Guaranteed Ride Home.** Pre-registered employees who utilize alternative transportation can take advantage of a guaranteed ride home when a personal or family illness or unplanned overtime interrupts their regular commute.

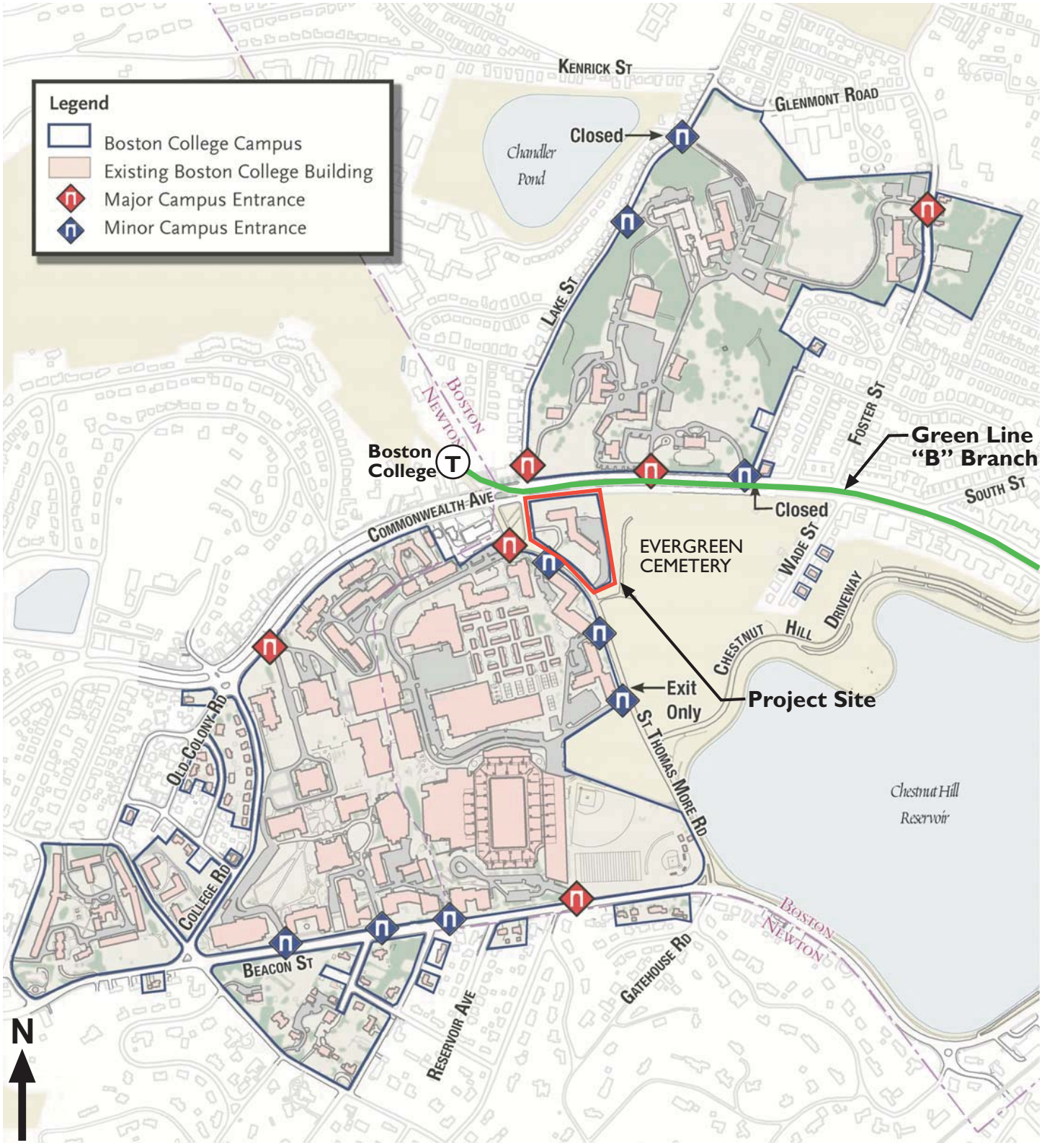
- **Eagle Escort Service.** Operated by the Boston College Police, the Eagle Escort service transports individual members of the Boston College community who are concerned for their personal safety and well-being. The service operates throughout campus, 24 hours a day, 7 days a week, except for school holidays and breaks of four or more days.

- **Bicycling Incentives.** As described earlier, Boston College has numerous safe, clean and conveniently placed bicycle racks throughout its campus. Approximately 445 bicycle spaces are available in 28 locations on the Chestnut Hill Campus and approximately 80 spaces are provided on the Newton Campus. Shower facilities are available near many of these locations. Boston College participates in the MassRIDES Bike to Work Week (BTWW) Challenge to promote bicycling as a viable commute option. Boston College promotes biking as an alternative to driving, as identified on the Transportation website, and distributes promotional material and incentives for its employees to participate in the BTWW Challenge.

- **Car Sharing.** Boston College currently has a relationship with Zipcar, providing employees and students a significant discount on the membership rates and convenient access to ten cars at the following locations:
    - US Petroleum / Commonwealth Avenue – three vehicles
    - Commonwealth Avenue at Strathmore Road – four vehicles
    - 332 Chestnut Hill Avenue at Shell gas– three vehicles.

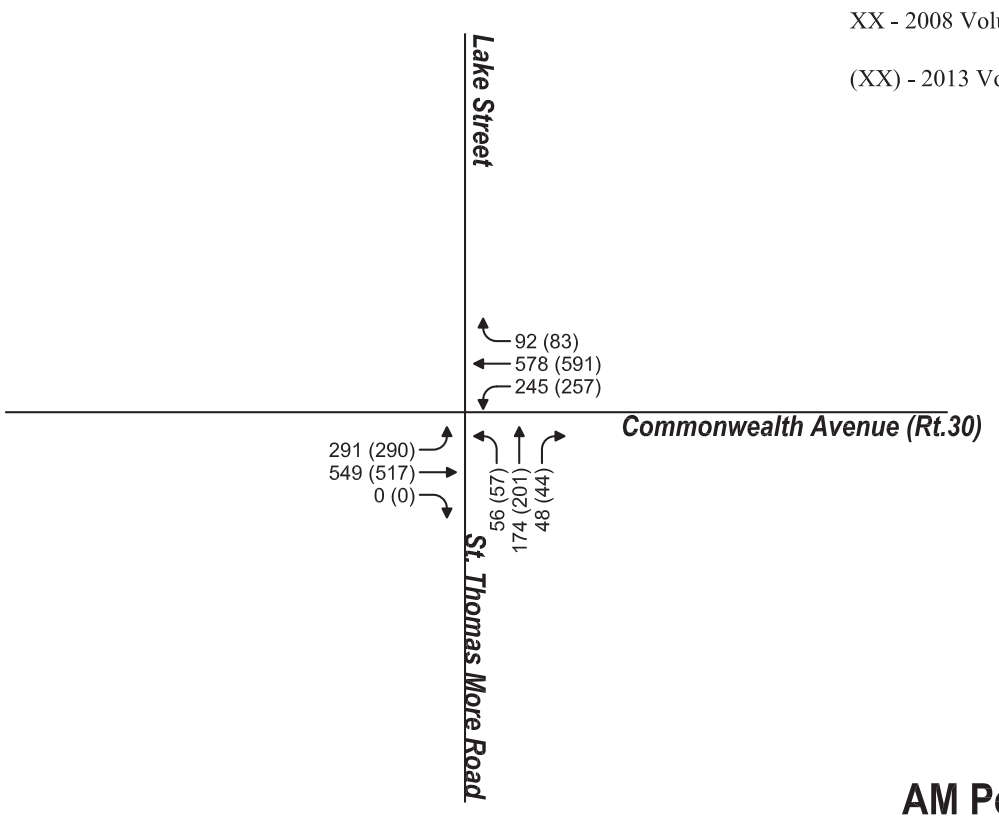
4.7 Loading and Servicing

Loading and servicing for 2150 Commonwealth Avenue will take place at the rear entrance on the east side of the building. It will consist principally of package and supply deliveries for Health Services, trash and recycling removal, deliveries to the residence hall, and move-in, move-out for students. Except for move-in, move-out, the proposed uses will have similar loading requirements as the previous administrative use on site. Student move-in and move-out will be handled in same fashion as with all other residence halls. A major emphasis of the process is to minimize impacts on the local street system.



Boston College
BRIGHTON, MASSACHUSETTS

Figure 4-1
Transportation Access and Parking
Source: Boston College Institutional Master Plan, 2009



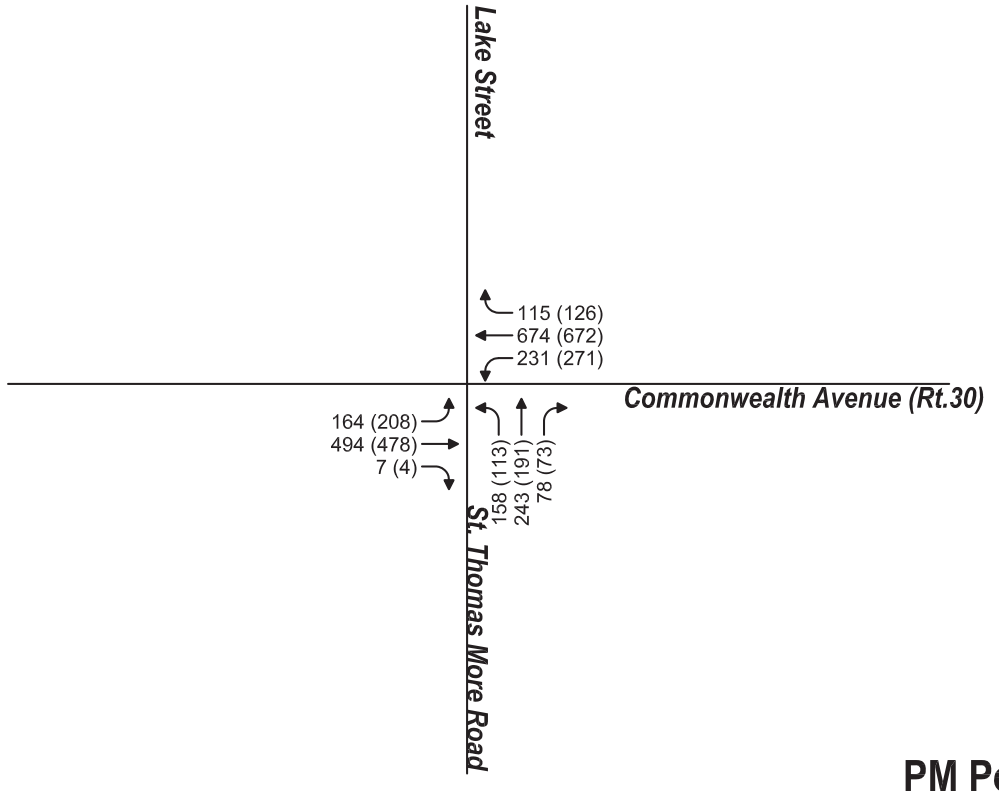


Figure 4-2
Peak Hour Traffic Volumes
Source: VHB 2013

5.0 ENVIRONMENTAL

5.1 Introduction

The 2150 Commonwealth Avenue Residence Hall Project will be built in full compliance with local, state, and federal regulations. The Project will incorporate the latest in building design methods and technology to ensure minimal impact to the environment and to meet the criteria for LEED Silver certification. Due to the location, design, and modest size of the Project, no pedestrian-level wind analyses, daylight studies, or solar glare studies have been performed.

5.2 Wind

The Project is not expected to have adverse pedestrian-level wind impacts adjacent to, and in the vicinity of, the Project Site due to its modest size, proximity to nearby buildings of similar height across St. Thomas More Road, and setback distance from areas adjacent to public sidewalks.

5.3 Shadow

A shadow impact study has been conducted to compare existing shadows cast by the structure on the site with those of the proposed Project in compliance with the Boston Redevelopment Authority's Development Review Guidelines. Using computer models for the proposed building conditions, color renderings reveal the new shadow created by the Project. Table 5-1 identifies the dates and times for which the shadow conditions have been simulated.

Table 5-1, Shadow Study Dates and Times

Date	Time
Vernal Equinox - March 22nd	9:00 a.m., 12:00 noon, 3:00 p.m.
Summer Solstice - June 20th	9:00 a.m., 12:00 noon, 3:00 p.m., 6:00 p.m.
Autumnal Equinox - September 22nd, EDT	9:00 a.m., 12:00 noon, 3:00 p.m., 6:00 p.m.
Winter Solstice - December 22nd, EST	9:00 a.m., 12:00 noon, 3:00 p.m.

5.3.1 RESULTS OF THE SHADOW STUDY

A detailed set of shadow study images is shown in Figures 5-1 through 5-4, Shadow Study. All net new shadows are shown in dark grey/blue, existing site shadows are shown in blue, and proposed shadows are in grey. The property boundary is in red. Note that the resultant shadow of the proposed building extends further north and east than the existing shadow since the proposed building footprint is located north and east of the existing building and is also higher.

Vernal Equinox – March 22nd (Figure 5-1)

At 9:00 a.m., the new shadow is cast in a northwesterly direction approximately halfway across Commonwealth Avenue.

At 12:00 noon, shadows are cast in a northerly direction across the east bound lane of Commonwealth Avenue.

At 3:00 p.m., shadows are cast toward the northeast extending onto the east bound lane of Commonwealth Avenue and partly on a small portion of the adjacent Evergreen Cemetery.

Summer Solstice – June 20th (Figure 5-2)

At 9:00 a.m., shadows from the new development will extend in a westerly direction stopping near the south side of the east bound lane of Commonwealth Avenue.

At 12:00 noon, shadows are cast in a northerly direction, and will extend to the south side of the east bound lane of Commonwealth Avenue.

At 3:00 p.m., shadows are directed eastward and partly onto the Evergreen Cemetery.

At 6:00 p.m., long shadows are cast southeast and extend further onto the Evergreen Cemetery.

Autumnal Equinox – September 22nd (Figure 5-3)

The shadow conditions for the autumnal equinox are nearly identical to those described for the vernal equinox, except for slight differences due to the observance of daylight savings time.

At 9:00 a.m., the morning sun projects shadows in a northwesterly direction. With the proposed building at 2150 Commonwealth Avenue in place, the shadow extends to the middle of Commonwealth Avenue.

At 12:00 noon, a shadow is cast in a northerly direction, extending through most of the east bound lane of Commonwealth Avenue.

At 3:00 p.m., a shadow is cast towards the northeast extending partially across the east bound lane of Commonwealth Avenue and partly on a small portion of the adjacent Evergreen Cemetery.

At 6:00 p.m. the sun is setting, and the shadow extends in an easterly direction across Evergreen Cemetery.

Winter Solstice – December 22nd (Figure 5-4)

The longest shadows of the year will occur during the winter solstice.

At 9:00 a.m., the shadow from the proposed building extends in a northwest direction across and beyond Commonwealth Avenue.

At noon, the shadow falls in northerly direction, extending across both lanes of Commonwealth Avenue.

At 3:00 p.m., shadows are less apparent as the sun is already beginning to set. The shadows extend northeast across Commonwealth Avenue and Evergreen Cemetery.

5.3.2 CONCLUSIONS

- The proposed building is further north and east, and is higher than the existing building, which results in proposed shadows extending further than the existing building shadows.

- The project shadow creates shadow across the entire portion of Commonwealth Avenue during the 9:00 am, noon, and 3:00 pm times of the day only during the Winter Solstice.

- The Project creates additional shadow along east bound lanes of Commonwealth Avenue, mainly during the morning and noon periods during the first day of the vernal, summer, and autumnal seasons.

- There were no shadows cast on Commonwealth Avenue during either of the 6:00 pm periods.

5.4 Solar Glare

As the Project will be composed of traditional materials, primarily brick and granite, and many of the windows will be of non-reflective channel glass, there should be no significant solar glare impacts.

5.5 Air Quality

The Project is not expected to adversely impact air quality in the Project area. Sources of activities that may potentially affect air quality are discussed below.

5.5.1 TRAFFIC SOURCES

Potential long-term air quality impacts associated with the Project will be limited to pollutant emissions from vehicular traffic generated by the Project. There should not be any reduction in levels of service of surrounding intersections as parking on the site will be reduced (thereby reducing vehicle trips to the site), employee and visitor trips to the old building are simply being relocated from other parts of the campus. Modest traffic volumes are expected, and therefore, no air quality exceedances are expected as a result of this Project.

5.5.2 BUILDING OPERATION SOURCES

The proposed building will include new building systems that may affect air quality. With respect to indoor air quality, the building HVAC systems will be built to code compliant systems that will provide a significantly greater rate of air exchange over existing conditions. A variety of air handling systems will be placed within the attic

mechanical rooms that will service common areas, mechanical rooms, residential suites, and the Health Services facility.

Installation of a new emergency generator will involve some increase in emissions from a diesel-powered engine. However, the generator will be operated only sporadically during emergencies and for routine operational testing, and will be in conformance with current standards for air emissions regulated by the state Department of Environmental Protection.

5.6 Noise

The University does not anticipate a substantial increase in noise impacts associated with the residential uses at the Project Site. The Boston Air Pollution Control Commission regulates noise in the City of Boston based on zoning and land use classification. The regulations establish a maximum sound level for a residential area, such as the project area, of 60 dBA during the day and 50 dBA at night. These limits do not apply to construction noise or motor vehicle traffic. The City of Boston has also established noise limits that apply to nine octave band center frequencies.

The primary sources of external mechanical noise will include the building ventilation systems and heat rejection equipment that are part of the Project's mechanical systems. The Project may also include emergency generators, which would also contribute to external mechanical noise. It is not anticipated that the mechanical equipment will exceed maximum sound levels, and thus no mitigation is proposed. The rooftop equipment will be enclosed in the gables, which will maximize noise attenuation. During the final design of the Project, appropriate low-noise mechanical equipment in the mechanical penthouse and noise control measures will be selected for all sensitive locations to ensure compliance with the City of Boston and DEP noise regulations. Construction-related noise impact and generation are detailed in Section 5.11, Construction Impacts.

5.7 Groundwater

Groundwater was not typically observed within the completed boreholes located across the north portion of the site. However, across the southern portion of the proposed building footprint, where the bedrock surface is deeper, groundwater was observed within previously completed boreholes at levels ranging from Elevation 130.4 and 133.4, which is based on the Boston City Base (BCB) vertical datum. The observed groundwater levels are within the range of the historic groundwater level observed across the plan area of the DCR reservoir, which formerly occupied the majority of the Boston College Lower Campus, which is at Elevation 131.

5.8 Geotechnical

The subsurface exploration conducted across the Project Site indicates the presence of an existing fill deposit that extends from 3 to 15 feet below the existing ground surface. At several boring locations, the fill deposit is underlain by a deposit of glacial till, which varies from about 1.5 to 6.8 feet in thickness, and is directly underlain by the bedrock surface. The bedrock was encountered at depths of approximately 0.5 to 19.3 feet below the existing ground surface and consists of a deposit known locally as Roxbury Conglomerate.

Based on the scope of the proposed building and the subsurface condition encountered at the site, the proposed building has been recommended to be placed on conventional footing foundations in conjunction with soil-supported slabs-on-grade.

The existing boring information indicates that up to 14 feet of over-excavation and replacement with compacted granular fill is anticipated to be required for building pad preparation at the southern end of the proposed building (lowest level slab at Elevation +141.33). Based on the results of the subsurface explorations, rock removal of up to 10 feet may be required for the construction of the northeast corner of the building with the lowest level slab at Elevation +144.33. This area may require blasting of bedrock.

5.9 Water Quality

The site stormwater management system will be upgraded to meet the following standards as applicable to the Project:

1. The current Massachusetts Department of Environmental Protection's (DEP) Stormwater Management Standards; and

2. The Boston Water and Sewer Commission's Regulations Governing the Use of Sanitary and Combined Sewers and Storm Drains.

To meet these conditions, Best Management Practices (BMPs) are proposed as part of the stormwater management plan for the site. These systems include infiltration subsurface structures to mitigate stormwater runoff rate and volumes as well as to promote groundwater recharge. Infiltration subsurface structures are underground systems constructed of either perforated pipes or chambers surrounded by stone that capture runoff, and gradually infiltrate it into the ground. These systems are similar to a Title 5 soil absorption system.

Stormwater overflow from the proposed building roof runoff reuse system will be directed to the subsurface infiltration structures. Stormwater runoff from the site paved areas will be directed to pretreatment BMPs to remove sediments and other pollutants prior to discharging to subsurface infiltration structures. These pretreatment BMPs include deep sump catch basins and proprietary water quality structures. The infiltration subsurface structures require pretreatment of the stormwater runoff directed toward them to remove coarse particulate pollutants that would otherwise limit the effectiveness of the systems.

5.10 Solid and Hazardous Wastes

Solid waste generated by construction will consist of demolition debris and waste from new construction. Debris resulting from the demolition of the existing building will be recycled or disposed of in accordance with applicable federal and state regulations.

In 1999, Boston College retained Environmental Health, Inc. to perform an inspection of St. Thomas More Hall for the presence of Asbestos Containing Materials (ACM). Given the age of the building, there was reason to believe that there could be ACMs. The results of this survey were presented in a report dated September 21, 1999. It identified that there were ACMs in the building's boiler and pipe insulation, boiler room, mechanical room, generator room, floor tiles, exterior caulking, and window glazing. Some of the asbestos has been abated since that time. Regardless, additional investigations in areas that could not be reached in the initial survey

prior to the start of any demolition, and a work plan for removal of ACMs needs to be developed along with the retention of a licensed asbestos abatement contractor to remove the materials prior to demolition in accordance with federal, state, and local regulations.

The Project Site is the location of two former underground oil storage tanks that were the source of a release of #4 residual oil discovered in 1994. This release was reported to the Massachusetts Department of Environmental Protection (RTN# 3-10649) and remedial action was taken to clean up the site and remove contaminated soils. The University has conducted follow-up monitoring of the site and while there is some residual contamination, there is no threat to public health. As part of the project construction, further remediation will occur under the supervision of a Licensed Site Professional.

The excavation required for construction of the foundations of the proposed building is expected to generate excess excavated soil that will require off-site disposal. The material will be disposed off-site in accordance with the current policies of the Massachusetts DEP.

5.11 Construction Impacts

A Construction Management Plan ("CMP"), in compliance with the City of Boston's Construction Management Program, will be submitted to the Boston Transportation Department. It will include detailed information on construction activities, specific construction mitigation measures, and construction materials access and staging area plans to minimize impact on the surrounding neighborhood.

Construction methodologies that ensure public safety and protect nearby residents will be employed. Techniques such as barricades, walkways, and signage will be used. Construction management and scheduling will minimize impacts on the surrounding environment and will include plans for construction worker commuting and parking, routing plans for trucking and deliveries, and control of noise and dust. Although the design of the 2150 Commonwealth Avenue building is in process, Boston College has begun to identify preliminary elements of how traffic and parking will be managed during construction. This section outlines some of these elements, which are subject to refinement and modification as the design of the Project progresses.

Construction Worker Parking

Construction worker parking will be provided on the Brighton Campus. For previous construction projects, Boston College has provided up to 60 parking permits to allow construction workers to park on campus. Based on the parking analysis presented in Section 4.3, an average of 70 spaces is projected to be available at peak parking times on the Brighton Campus.

Construction Traffic Impacts

As with previous construction on campus, the following steps will be taken regarding construction at 2150 Commonwealth Avenue to minimize traffic impacts in the area:

- Construction workers will be directed to reach the Brighton Campus via Commonwealth Avenue.

- Construction working hours will be 7:00 a.m. to 4:30 p.m. Monday through Friday and on Saturday as authorized.

- Construction deliveries to the work site will be directed via Commonwealth Avenue.

- As needed, a security detail will be utilized to safely direct and manage construction-related traffic as well as routine campus traffic.

- A fenced lay down and work area will be established to separate construction activity from day-to-day pedestrian and vehicular traffic on campus.

Construction Air Quality

Short-term air quality impact from fugitive dust may be expected during the demolition of the building interior and during the early phases of the Project Site preparation activities. The construction contract for the Project will require the contractor to reduce potential emissions and minimize air quality impacts. Mitigation measures are expected to include the use of wetting agents where needed on a scheduled basis, covered trucks, minimizing exposed construction debris stored on-site, monitoring construction practices to ensure that unnecessary transfers and mechanical disturbances of loose materials are minimized, locating aggregate storage piles away from areas having the greatest pedestrian activity where and when possible, compliance with the no-idle practice on the campus, and periodic cleaning of streets and sidewalks to reduce dust accumulations.

Construction Noise Impacts

Intermittent increases in noise levels will occur in the short term during demolition of St. Thomas More Hall, with potential blasting to occur during the removal of bedrock for the foundation, and construction of the new building. Work will comply with the requirements of the City of Boston noise ordinance. Efforts will be made to minimize the noise impact of construction activities, including appropriate mufflers on all equipment, such as air compressors and welding generators, maintenance of intake and exhaust mufflers, turning off idling equipment, replacing specific operations and techniques with less noisy ones, scheduling equipment operations to synchronize the noisiest operations with times of highest ambient noise levels, and scheduled blasting times, if necessary.

Sediment Control Measures

During demolition and construction, erosion and sediment control measures will be implemented to minimize the transport of Project Site soils to off-site areas and BWSC storm drain systems. The existing catch basins will be protected with filter fabric or silt sacks to provide for sediment removal from runoff. These controls will be inspected and maintained throughout the construction phase until all areas of disturbance have been stabilized through the placement of pavement, structure or vegetative cover.

Other sediment controls, which will be implemented as needed during construction, will include the following:

- Staked hay bales and/or silt fence barriers will be installed at the base of stockpiled soils and at erosion-prone areas throughout the construction phase of the Project. The

erosion controls will be maintained and replaced as necessary to assure their effectiveness.

- Where necessary, temporary sedimentation basins will be constructed to prevent the transport of sediment off-site.

- Measures to control dust will be implemented during construction. All debris will be properly contained on the Project Site.

- Erosion controls will be maintained and replaced as necessary until the installation of pavement and the establishment of stabilized vegetation at the Project Site.

Rodent Control

The contractor will file a rodent extermination certificate with the building permit application to the City. Rodent inspection, monitoring and treatment will be carried out before, during and at the completion of all construction work for the Project, in compliance with the City's requirements. Rodent extermination prior to work start-up will consist of treatment of areas throughout the Project Site, including building interiors. During the construction process, regular service visits will be made to maintain effective rodent control levels.

5.12 Wildlife Habitat

The Project Site is fully developed and, as such, the Project will not impact wildlife habitats. No Priority or Estimated Habitats are located on or near the Project Site according to the latest Natural Heritage & Endangered Species Program maps.

5.13 Flood Hazard District/Wetlands

It is not anticipated that the Project area will be susceptible to conditions of flooding. The Federal Emergency Management Agency ("FEMA") Flood Insurance Rate Map ("FIRM") indicates the FEMA Flood Zone Designations for the Project Site (City of Boston, Community-Panel Numbers 25025C0058G, dated September 25, 2009). The FIRM for the Project Site does not show the Project lying in any flood zone areas. In addition, the Project Site does not contain any wetlands.

5.14 Historic Resources

5.14.1 HISTORIC RESOURCES ON THE PROJECT SITE

St. Thomas More Hall was designed by the Maginnis & Walsh architecture firm and constructed in 1955, according to City of Boston Building Department records. It is a 64,584 gsf, 3-story steel-frame building with brick and masonry walls, originally built to house the Boston College Law School. It was subsequently used to house administrative offices until Spring 2012.

The building is not listed on the Inventory of Historic Assets of the Commonwealth, nor has it been determined by MHC to be eligible for listing on the State or National Register of Historic Places. Furthermore, the Project Site does not fall within any Listed or Inventoried Historic District.

The demolition of the building at 2150 Commonwealth Avenue was subject to local historical review by virtue of its age since it is more than 50 years old. The University submitted an Application for Article 85 Review to the Boston Landmarks Commission on March 6, 2013. A community meeting was held on March 27, 2013, and a Public Hearing was held on April 9, 2013. At the Hearing, the Commission determined that no demolition delay was required.

5.14.2 HISTORIC RESOURCES IN THE VICINITY OF THE PROJECT SITE

The Project Site is adjacent to the Evergreen Cemetery, which was recently listed in the National Register of Historic Places and the Commonwealth Avenue-Brighton area, which has been determined to be eligible for listing on the National Register of Historic Places. These and other historical resources in proximity to the site are described below and are shown on Figure 5-5, Listed and Inventoried Historic Properties Near the Project Site. No adverse impacts to the historic resources in the surrounding area will result from the proposed Project.

Evergreen Cemetery (BOS.ZJ)

The Evergreen Cemetery is an approximately 20-acre site located adjacent to the east side of the Project Site and consists of a number of structures, objects, and buildings. It was listed in the National Register of Historic Places in August 2009. Approximately one-third of the site's land area is considered non-contributing since it was added to the original cemetery in the 1970. The east side of the Project Site borders this non-contributing section.

Upper Chestnut Hill-Evergreen Area (BOS.JX)

The Upper Chestnut Hill-Evergreen Area consists of a number of residential structures and the Evergreen Cemetery, and is adjacent to the east side of the Project Site. The Boston Landmarks Commission determined this area to be eligible for listing in the National Register of Historic Places. As noted above, the Evergreen Cemetery portion of the area was listed on the National Register of Historic Places.

Commonwealth Avenue – Brighton (BOS.YY)

The segment of Commonwealth Avenue right-of-way from Packard's Corner to the Newton City line was documented in 2007 by the Massachusetts Historical Commission (MHC). It does not include any flanking buildings, structures, or other properties. It is the opinion of the MHC that this segment of Commonwealth Avenue is eligible for the National Register of Historic Places under Criteria A and C in the significance areas of community planning and development, engineering, landscape, architecture, and transportation. A portion of the segment is adjacent to the north side of the Project Site.

Lake Street –Chandler Pond Area (BOS.JV)

The MHC has determined that the Lake Street – Chandler Pond area was eligible for listing in the National Register of Historic Places. The southern end of this area is along Lake Street approximately 400 feet northwest of the Project Site.

Chancery-St. John's Seminary Complex (BOS.JW)

The Chancery-St. John's Seminary Complex is located on the north side of Commonwealth Avenue across from the Project Site. The MHC has determined it to be eligible for listing in the National Register of Historic Places as a historic district that contains a number of contributing elements. The majority of the Brighton Campus overlaps with the Chancery-St. John's Seminary Complex. The southern side of the Complex is approximately 125 feet from the Project Site.

Commonwealth Avenue Historic District – Chandler Pond Area (NWT.AB)

The Commonwealth Avenue Historic District is listed in the National Register of Historic Places as a historic district. Its closest border is approximately 725 feet to the west of the Project Site.

Boston College Chestnut Hill Campus – Newton (NWT.DI)

The Chestnut Hill Campus is noted for its Collegiate Gothic architecture style with buildings that were built between 1907 and 1950. The Project Site is part of this 120-acre campus. The Campus is not listed on either the local or state inventories.

= existing building shadow

9:00 AM

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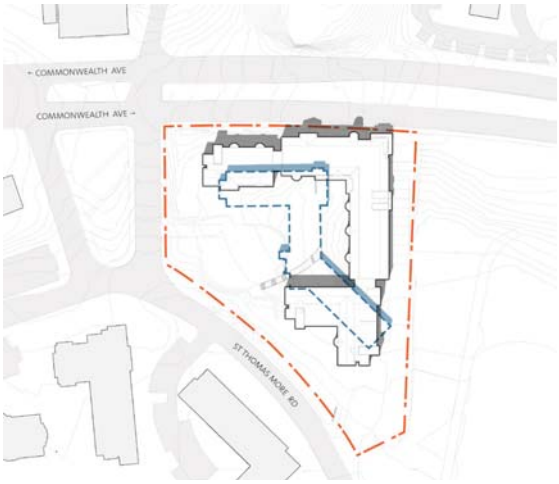
N

Figure 5-1
Shadow Study - Vernal Equinox
Source: EYP, 2013

= existing building shadow

9:00 AM



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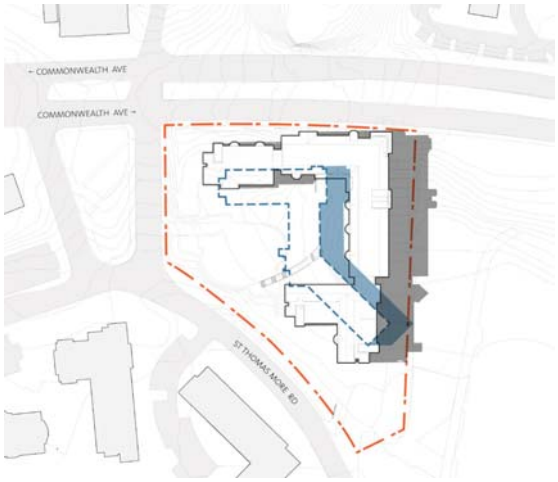

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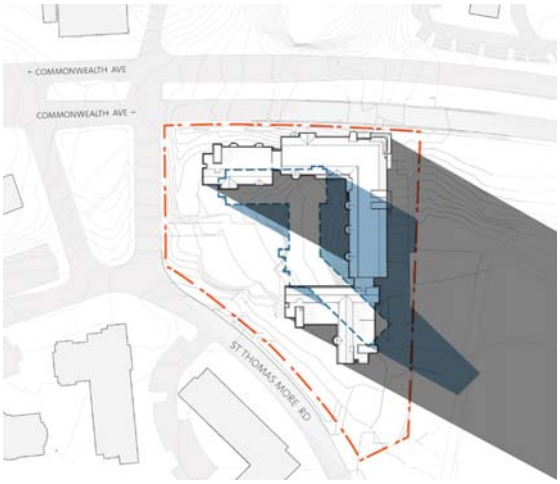

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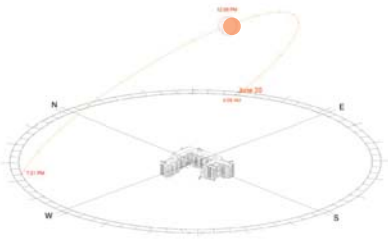

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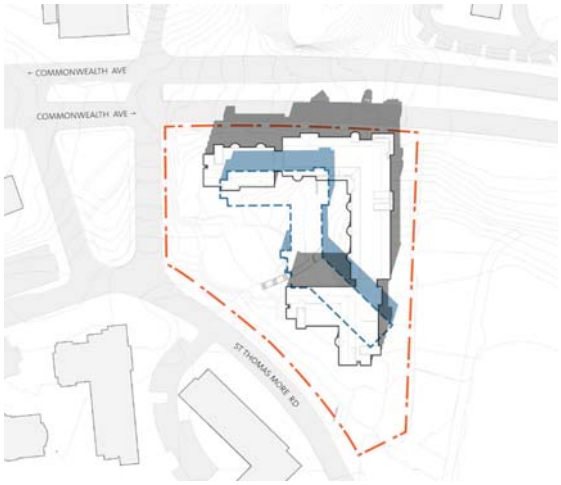

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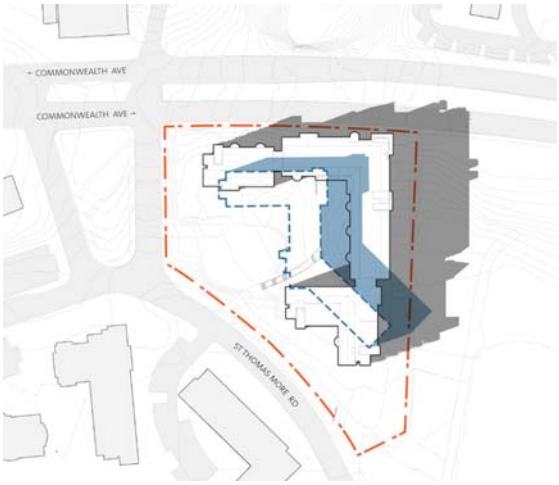

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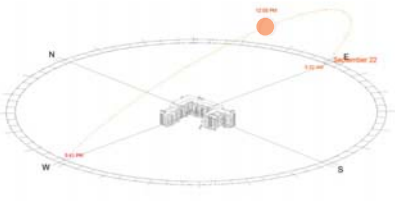

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Figure 5-3
Shadow Study - Autumnal Equinox
Source: EYP, 2013

= existing building shadow

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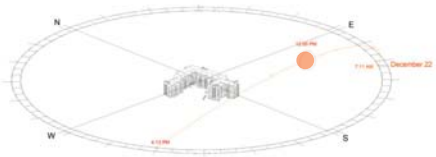

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Figure 5-4
Shadow Study - Winter Solstice
Source: EYP, 2013

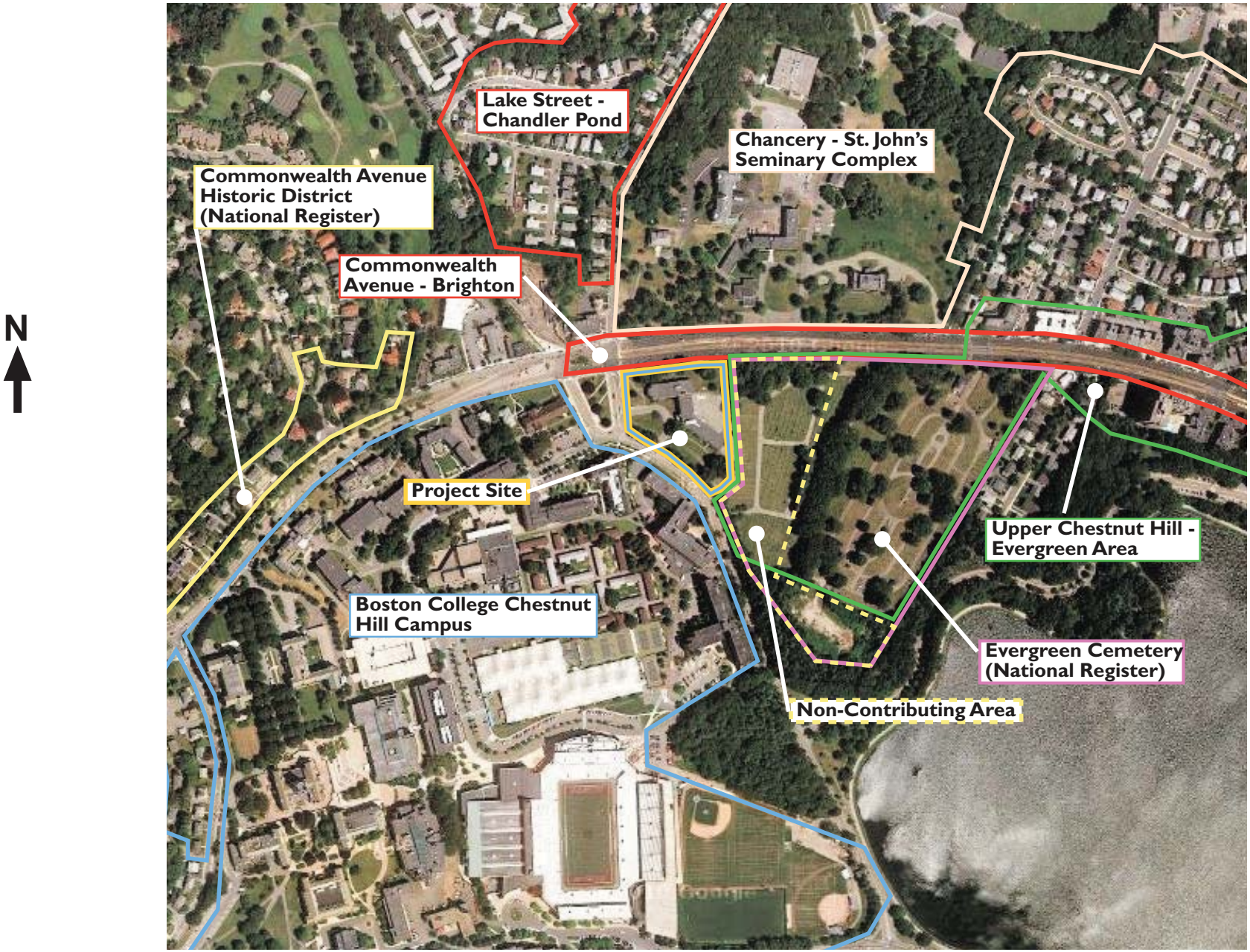


Figure 5-5
Listed and Inventoried Historic Properties Near the Project Site
Source: Boston College Institutional Master Plan, 2009; MHC, 2011

6.0 INFRASTRUCTURE

6.1 Introduction

The Project Site is currently served by existing utility infrastructure. The construction of the new building will require upgrades and/or replacement of the connections and portions of the systems. All water, sewer and storm drainage lines in the area of the Project will be upgraded to meet the demands of the Project. For review of the existing site and infrastructure, see Figure 6-1, Existing Water System, Figure 6-2, Existing Sanitary Sewer System, and Figure 6-3, Existing Stormwater System.

6.2 Water Supply System

The water supply for domestic use and fire protection services is supplied by the Massachusetts Water Resources Authority (MWRA) and distributed by the Boston Water and Sewer Commission (BWSC) via water mains in Commonwealth Avenue and Lake Street. Boston College owns and maintains all of the water supply system components within the campus, except the mains just passing through. The water main in Commonwealth Avenue is owned and operated by BWSC. The 12-inch water main located within and along the side of St. Thomas More Road is owned and maintained by Boston College.

The existing building has a 4-inch water line servicing the building which will be cut and capped prior to commencement of construction. The site has a 6-inch water main on the northeast corner of the building that connects to the 60-inch water main in Commonwealth Avenue. There are also 12-inch and 48-inch water mains located in Commonwealth Avenue and St. Thomas More Road to the north, west and southwest of the property.

For the proposed building, a new 6-inch domestic and eight-inch fire service connection will be constructed to connect the building to the existing 12-inch water line in St. Thomas More Road to the southwest of the building. A separate fire hydrant service will also be connected to the line in St. Thomas More Road. The existing Lower Campus water mains provide sufficient water service capacity to serve the proposed 2150 Commonwealth Avenue building.

Chilled water will be supplied by two roof top air cooled chillers. The chilled water will be distributed to all air handling units, the 100% outside air units, the Health Services facility dedicated rooftop unit, and the dual temperature piping system. In addition, the heating water will be piped with supply and return lines from the proposed building to the utility services in Walsh Hall.

A full automatic wet sprinkler system will be included in the building for fire protection throughout the building and automatic wet-pipe Class I standpipes will be available in each egress stairwell.

6.3 Sanitary Sewer System

The existing sanitary sewer system within the Boston portion of the University campus is owned and maintained by Boston College. BWSC owns and maintains the sewer systems in the public streets surrounding the campus. This Project is within the Boston portion of the University

sanitary system. St. Thomas More Road is a public street that is owned by the Department of Conservation and Recreation.

The existing sanitary sewer system at the St. Thomas More Hall building runs from the northeast corner of the building to a main line in Commonwealth Avenue and is owned and operated by Boston College. This existing sewer line is pressurized to convey the sewage to the sewer main at a higher elevation. This line will be discontinued by cutting and capping the line prior to commencement of construction.

The proposed Project will have a new 8-inch force main to convey sewage from a point near the main entrance to the building, to the west to an existing sewer manhole located in Fr. Herlihy Drive.

6.4 Stormwater System

The existing stormwater system on campus is owned and maintained by Boston College. BWSC owns and maintains the stormwater systems in the public streets surrounding the campus. The stormwater system on the lower campus surrounding the proposed building appears adequate to serve the current and proposed needs of drainage in the area.

The existing drainage on the site currently discharges toward St. Thomas More Road either by overland sheet flow or by the 12-inch underground drain located between the main entrance to the building and St. Thomas More Road.

The proposed drainage conditions will be upgraded to comply with DEP stormwater standards and BWSC regulations. The drainage from the parking areas to the east of the building will be collected with catch basins and routed through a water quality unit before discharging to the existing 12-inch drain line in St. Thomas More Road. Some of the roof drainage will be collected and stored for reuse by portions of the plumbing system in the building. The overflow from the roof runoff reuse storage will be routed into a large underground groundwater infiltration system. Portions of area drainage to the north of the building and in the center of the site will receive pretreatment before entering the underground infiltration system. The infiltration system is designed to infiltrate the stormwater into the groundwater and will also provide a reduction to the peak rate of runoff from the site. To prevent a failure of the infiltration system during larger storm events when the capacity of the infiltration system is approached, excess stormwater will be released from the infiltration through the 12-inch overflow drain line that connects to the existing 12-inch drain in St. Thomas More Road.

6.5 Electric Service

The Lower Campus is served by individual building transformers operated directly by NSTAR. 2150 Commonwealth Avenue most likely will be serviced with electricity from a new manhole positioned along St. Thomas More Road. The actual location, size, and type of service will be coordinated with NSTAR.

Additionally, emergency generators will be installed in the building to provide power in the event of an electric outage. To power the generators, a fuel oil system will be provided with a double wall piping and a double wall tank with a leak detection system.

6.6 Gas Service

The Lower Campus is supplied with gas by National Grid via Commonwealth Avenue, St. Thomas More Road, and Beacon Street.

2150 Commonwealth Avenue will be supplied by gas service from the existing 8-inch gas main in St. Thomas More Road near the entrance to the parking and service road and will enter the building on the east side of the main portion of the building. The actual location and service will be coordinated with National Grid.

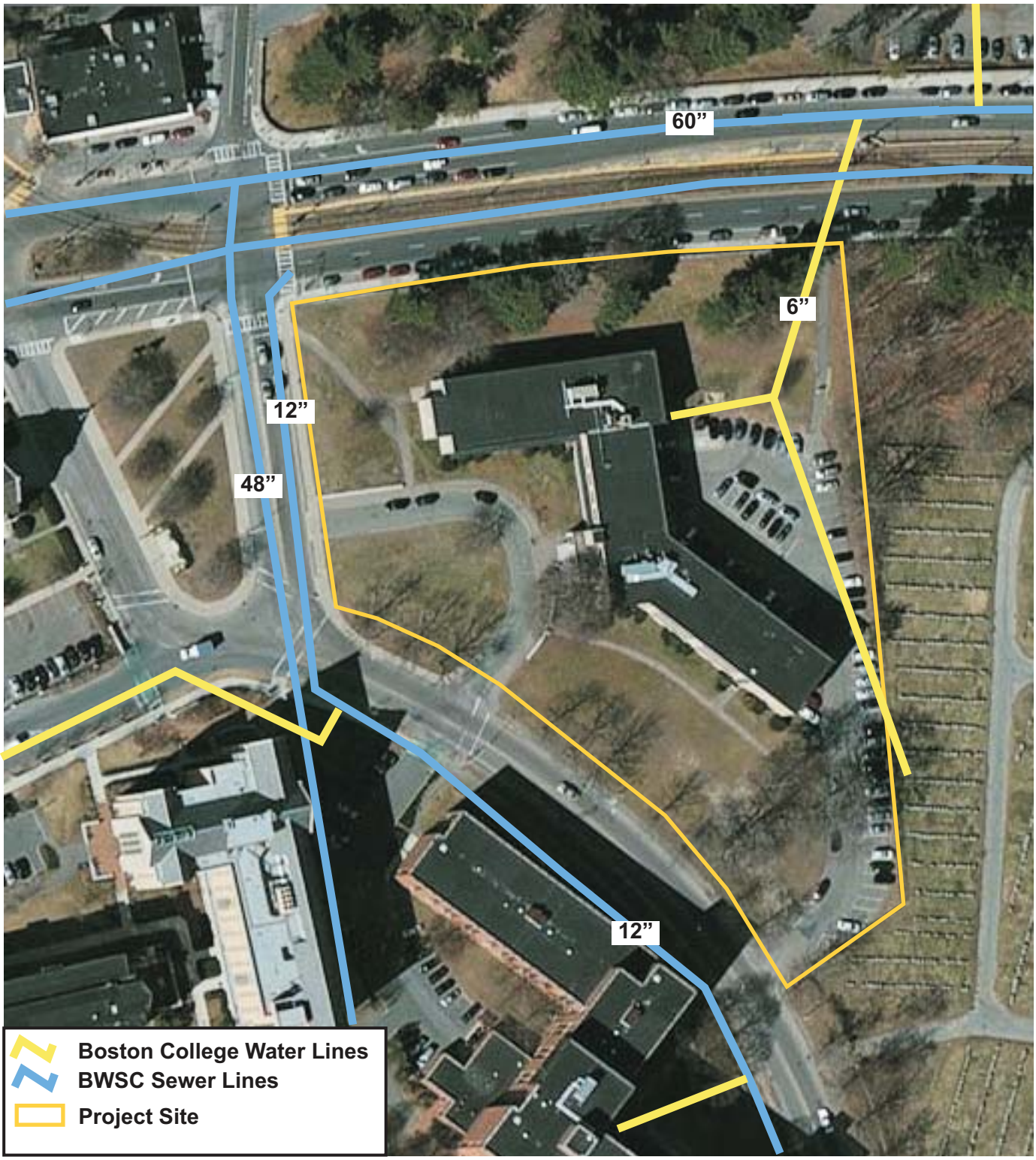
6.7 Telecommunications Services

The Boston College campus is supplied with telecommunications carrier service from Verizon, AT&T, and PaeTec Services, which includes local, long distance, and 800 telephone services, as well as a variety of carrier services for data communications. The fire alarm and telecommunications services are privately owned and maintained by Boston College. The telecommunications and data systems are distributed throughout all campus buildings in College-owned conduit systems.

2150 Commonwealth Avenue will be supplied by communications conduits from manholes located at the corner of Commonwealth Avenue and St. Thomas More Road, to the northwest of the building, and to the southeast by the manhole located adjacent to St. Thomas More Road, near the entrance to the parking and service road east of the proposed building.

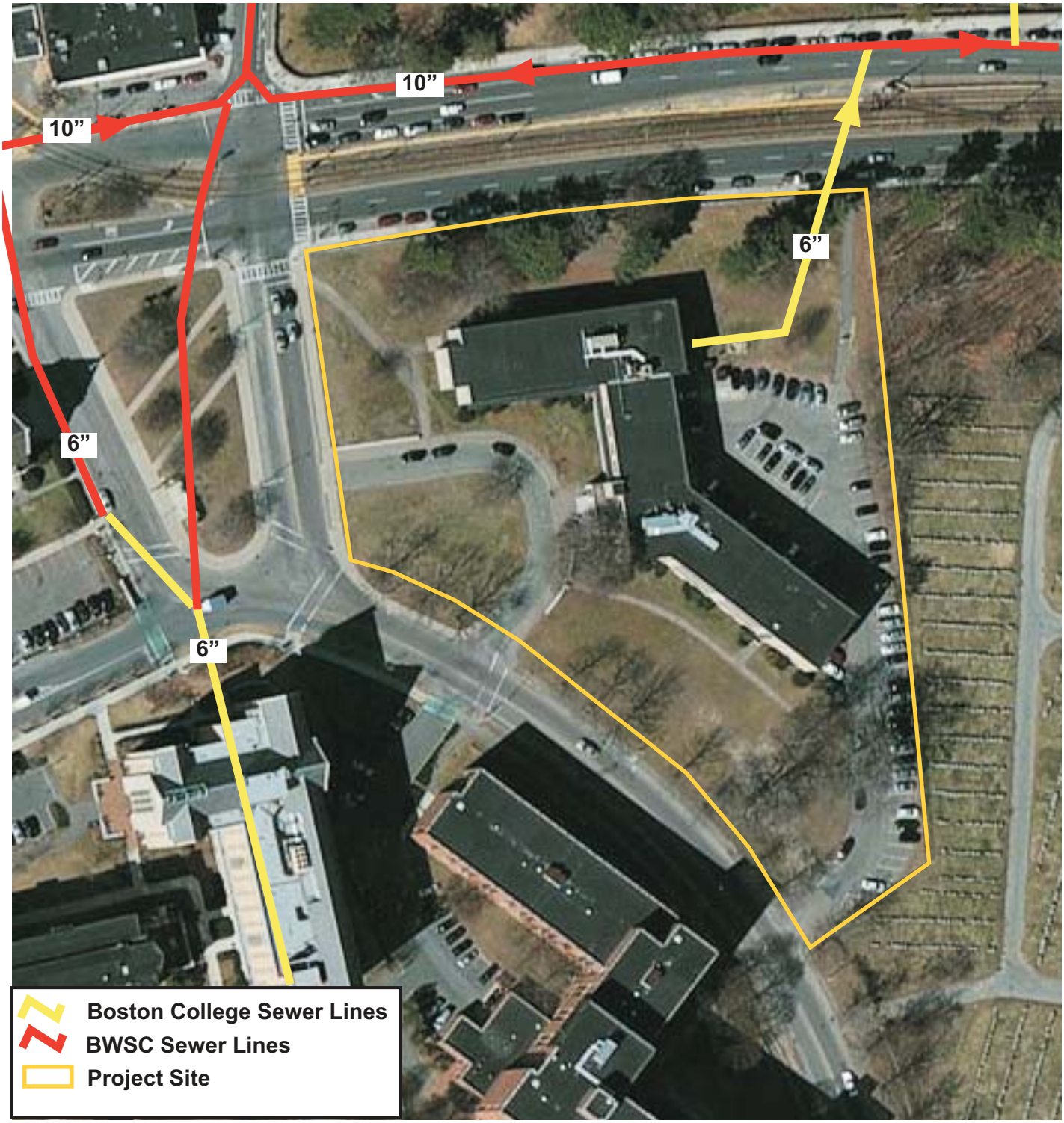
6.8 Utility Protection During Construction

During construction, infrastructure will be protected using sheeting and shoring, temporary relocations, and/or construction staging as required. The contractor will be required to coordinate all protection measures, temporary supports, and temporary shutdowns of all utilities with the appropriate utility owners and/or agencies. The contractor will also be required to provide adequate notification to the utility owner prior to any work commencing on their utility.



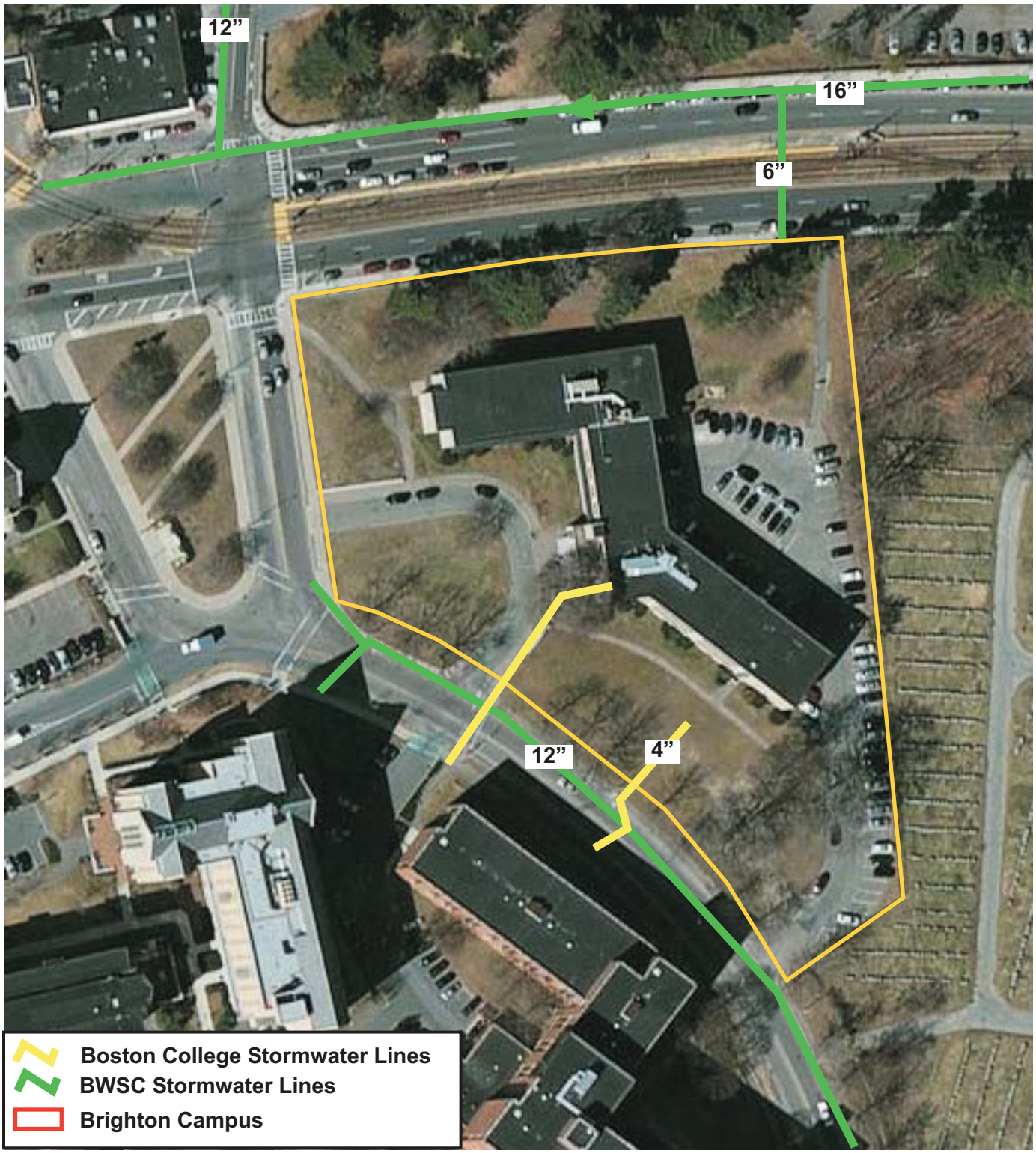
Note: Locations of utilities are for planning purposes only.

Figure 6-1
Existing Water System
Source: Nitsch Engineering, 2010; BWSC, 2011



Note: Locations of utilities are for planning purposes only.

Figure 6-2
Existing Sanitary Sewer System
Source: Nitsch Engineering, 2010; BWSC, 2011



Note: Locations of utilities are for planning purposes only.

Figure 6-3
Existing Stormwater System
Source: Nitsch Engineering, 2010