



40 SULLIVAN COURTHOUSE PROJECT THORNDIKE

PROJECT REVIEW SPECIAL PERMIT APPLICATION
NOVEMBER 21, 2013

Epsilon
ASSOCIATES INC.

ELKUS | MANFREDI
ARCHITECTS

Leggat McCall
PROPERTIES

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EXISTING

- Existing Conditions Photos
- Existing Conditions Aerial
- Existing Utility Plan

PROPOSED

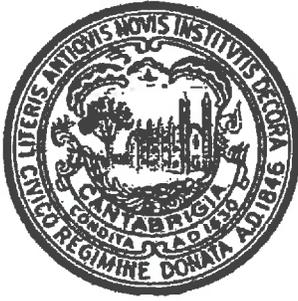
- District Use Map
- Transportation System Maps
- Grading Plan
- Landscape & Ground Floor Plan
- Spring Street Landscaped Terrace Plan
- Streetscape
- Utility Plan
- Stormwater Plan
- Floor Plans
- Building Sections
- Building Elevations
- Massing
- Shadow Studies
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INTRODUCTION

This is a Special Permit application by LMP GP Holdings LLC (the Proponent) seeking approval to renovate and repurpose the former Edward J. Sullivan Court House located at 40 Thorndike Street. This redevelopment will result in a mixed-use block consisting of office space, 24 residential units, ground-level retail, and open space (the Project).

The Proponent is seeking a Project Review Special Permit to allow for a change in the use of the building from a courthouse to an office use with ground floor retail. The application also seeks a Special Permit to convert approximately 24,000 square feet of the building on a portion of floors two through four into 24 dwelling units. A Special Permit to allow for alterations to a nonconforming structure is also part of this application.

The Proponent has submitted the applicable narratives and plans to the Traffic, Parking & Transportation Department; City Arborist; and Community Development Department Green Building Review Staff. Additionally, the Proponent has reviewed site and building plans with the Department of Public Works and planning staff with Community Development.



CITY OF CAMBRIDGE, MASSACHUSETTS

PLANNING BOARD

CITY HALL ANNEX, 344 BROADWAY, CAMBRIDGE, MA 02139

SPECIAL PERMIT APPLICATION • COVER SHEET

In accordance with the requirements of the City of Cambridge Zoning Ordinance, the undersigned hereby petitions the Planning Board for one or more Special Permits for the premises indicated below.

Location of Premises: 40 Thorndike Street

Zoning District: Business B

Applicant Name: LMP GP Holdings LLC c/o Leggat McCall Properties LLC

Applicant Address: 10 Post Office Square, Boston, MA 02109

Contact Information: (617) 422-7000 robert.dickey@lmp.com (617) 556-9727
Telephone # Email Address Fax #

List all requested special permit(s) (with reference to zoning section numbers) below. *Note that the Applicant is responsible for seeking all necessary special permits for the project. A special permit cannot be granted if it is not specifically requested in the Application.*

Section 19.20 Project Review Special Permit
Section 8.22.2.a. Alteration of Nonconforming Structure
Section 5.28.2 et seq. Conversion to Residential Use
Section 10.40 Special Permit

List all submitted materials (include document titles and volume numbers where applicable) below.

Application Form, Ownership Certificate, Dimensional Form, Project Narratives, Urban Design Narrative, Sewer Service Infrastructure Narrative, Water Service Infrastructure Narrative, Noise Mitigation Narrative, LEED Narrative, Tree Study, Traffic Study Summary (submitted separately to Cambridge, Traffic, Parking and Transportation Department), Site Plan, Elevations, Sections, Perspective Renderings, Floor Plans, Elevations, Shadow Studies, Wind Condition Letter.

Signature of Applicant:  Robert M. Dickey (as agent for the ownership)

For the Planning Board, this application has been received by the Community Development Department (CDD) on the date specified below:

Date

Signature of CDD Staff

b. SPECIAL PERMIT APPLICATION – SUMMARY OF APPLICATION

| |
|---|
| Project Name: Address of Site: Applicant: Planning Board Project Number: (CDD) |
|---|

Hearing Timeline (CDD)

Application Date: _____ *

Planning Board 1st Hearing Date: _____ *
(PUD Development Proposal, other special permit)

Planning Board Preliminary Determination: _____ *
(PUD Development Proposal)

Second Submission Date: _____ *
(PUD Final Development Plan)

Planning Board 2nd Hearing Date: _____ *
(PUD Final Development Plan)

Final Planning Board Action Date: _____ *
(PUD Final Development Plan, other special permit)

Deadline for Filing Decision: _____ *

**Subject to extension by mutual agreement of the Applicant and the Planning Board*

Requested Relief: (include other boards and commissions)

- Planning Board Special Permits (19.20; 8.22.2.a; 5.28.2 et seq; 10.40)
- _____

Project Description

Brief Narrative: Petitioner seeks to convert existing non conforming Courthouse Structure to a mixed use office building containing ground floor retail uses, twenty four dwelling units, and below grade parking.

Project Size:

- Total GFA: 510,920 sf
- Non-residential uses GFA: 486,854 sf
- Site Area (acres and SF): 59,788 sf / 1.37 acres
- # of Parking Spaces: 512

Proposed Uses:

- # of Dwelling Units: 24
- Other Uses office; retail
- Open Space (% of the site and SF) 1.4% / 837 sf

Proposed Dimensions:

- Height: 282'
- FAR: 8.55

OWNERSHIP CERTIFICATE

Project Address: 40 Thorndike Street, Cambridge, MA

Application Date: 11/21 /2013

This form is to be completed by the property owner, signed, and submitted with the Special Permit Application:

I hereby authorize the following Applicant: LMP GP Holdings LLC
c/o Leggat McCall Properties LLC
at the following address: 10 Post Office Square, Boston, MA 02109
to apply for a special permit for: Project Review
on premises located at: 40 Thorndike Street, Cambridge, MA
for which the record title stands in the name of: Commonwealth of Massachusetts
whose address is: Division of Capital Asset Management and Maintenance
One Ashburton Place, Boston, MA 02108

by a deed duly recorded in the: Middlesex Book 200, Page 519
Registry of Deeds of County: Southern District Book 357, Page 443
~~OR Registry District of the Land Court,~~ Book 358, Page 336
~~Certificate No.:~~ Book 520, Page 528

Carole J. Cornelison

Signature of Land Owner (If authorized Trustee, Officer or Agent, so identify)
Carole Cornelison, Commissioner
Division of Capital Asset Management and Maintenance

To be completed by Notary Public:

Commonwealth of Massachusetts, County of Suffolk

The above named Carole J. Cornelison personally appeared before me,

on the month, day and year Nov 21, 2013 and made oath that the above statement is true.

Notary: Gail A. Atkinson

My Commission expires: Aug 31, 2018

DIMENSIONAL FORM

Project Address: 40 Thorndike Street - Cambridge

Application Date: 11/21/13

| | Existing | Allowed or Required (max/min) | Proposed | Permitted |
|--------------------------------|------------|-------------------------------|-------------------|-----------|
| Lot Area (sq ft) | 59,788 sf | 5,000 sf | No change | |
| Lot Width (ft) | 297' | none | No change | |
| Total Gross Floor Area (sq ft) | 513,241 sf | 164,417 / 179,364 | 510,920 sf | |
| Residential Base | n/a | 179,364 sf | 24,066 sf | |
| Non-Residential Base | n/a | 164,417 sf | 486,854 sf | |
| Inclusionary Housing Bonus | n/a | 53,809 sf | 0 | |
| Total Floor Area Ratio | 8.58 | 2.75/3.0 | 8.55 | |
| Residential Base | n/a | 3.0 | .4 | |
| Non-Residential Base | n/a | 2.75 | 8.14 | |
| Inclusionary Housing Bonus | n/a | .9 | 0 | |
| Total Dwelling Units | n/a | 259 | 24 | |
| Base Units | n/a | 199 | 20 | |
| Inclusionary Units | n/a | 60 | 4 | |
| Base Lot Area / Unit (sq ft) | n/a | 300 | n/a | |
| Total Lot Area / Unit (sq ft) | n/a | 230 | n/a | |
| Building Height (ft) | 282'-3" | 80' | No change | |
| Front Setback (ft) –Spring St | 46'-2" | 0 | No change | |
| Front Setback (ft) –Second St | 12'-5" | 0 | No change | |
| Front Setback (ft) –Thorndike | 0 | 0 | No change | |
| Front Setback (ft) –Third St | 12'-2" | 0 | No change | |
| Open Space (% of Lot Area) | 0% | 4.7% | 1.4% | |
| Private Open Space | 0% | 4.7% | 1.4% | |
| Permeable Open Space | 0% | 2.0% | 1.4% | |
| Other Open Space (Specify) | 0% | n/a | n/a | |
| Off-Street Parking Spaces | 40 | 387 min / 750 max | 512 <i>note 1</i> | |
| Long-Term Bicycle Parking | 0 | 166 | 166 | |
| Short-Term Bicycle Parking | 10 | 50 | 50 | |
| Loading Bays | 4 | 3 | 3 | |

Use space below and/or attached pages for additional notes:

1. Comprises 512 spaces, 92 on-site and 420 in the First Street Garage (w/i 300')

1.0 PROJECT DESCRIPTION

1.1 Overview

Leggat McCall Properties LLC, along with their financial partner Granite Properties, is proposing to renovate and repurpose the existing Edward J. Sullivan Court House structure at 40 Thorndike Street. The Project site comprises a city block of approximately 60,000 square feet (sf) in East Cambridge. It is bounded by Spring Street and residential areas to the south, Thorndike Street and Bulfinch Square to the north, Second Street and the First Street Garage to the east, and Third Street and the Middlesex Juvenile Court to the west.

Consisting of approximately 510,000 sf of existing gross floor area, the 22-story building will be transformed from a nearly vacant and deteriorating courthouse and detention facility that creates an unwelcoming pedestrian experience to first class office space with vibrant neighborhood retail uses and housing incorporated into the base of the building to significantly enhance the streetscape experience. Twenty four residential units will be constructed on the Third Street side of the podium on the floors two through four. The depressed service yard on Spring Street will be infilled with a landscaped terrace to serve the building occupants and neighborhood. A through-lobby will be constructed that will allow public permeability from Lopez Avenue, through the building's new two-story atrium, to Thorndike Street and Bulfinch Square. Approximately 15,000 sf of neighborhood retail and active street level uses will replace the mostly opaque walls of the building at the sidewalk level.

The existing garage access on Third Street will be removed, and a new parking entry will be located on Second Street. Three loading bays will be provided on Second Street, as will a dedicated bike parking entry. Parking for residents and a portion of the office tenants will be located in the lower levels of 40 Thorndike, and the remaining parking required by the office program will be leased from the City at First Street Garage, accessible via Thorndike Street and Spring Street.

1.2 Existing Conditions and Land Use

Construction of the Sullivan Courthouse was completed in 1974. The site was acquired by the Commonwealth of Massachusetts by eminent domain to serve as the Middlesex County courthouse and detention facility. The 1971 architectural drawings indicate that the building was composed of the following components:

- ◆ The lower two levels contained mechanical space, shop space, storage space, loading, and parking connected to the depressed service yard on Spring Street.

- ◆ The ground level contained judges' parking, pedestrian entries on Thorndike Street, and office space.
- ◆ The second level contained the ceremonial building entrance, and was designed to have a pedestrian bridge that would span across Thorndike Street to Bulfinch Square. The bridge was never constructed.
- ◆ Floors three and four, the top floors of the podium, contained office space, day care space, and a cafeteria.
- ◆ The fifth and sixth levels, the bottom stories of the tower, contained a law library.
- ◆ Floors seven through seventeen contained courtroom and courtroom support space.
- ◆ Floor eighteen contained a mixture of courtroom space and mechanical space.
- ◆ Floors nineteen through twenty-two contained detention and support space, including a chapel and two-story exercise courts.
- ◆ The roof levels contained elevator machine rooms and exterior mechanical equipment.

In 2007 and 2008, the court programs were relocated to Woburn. The building currently contains the Sherriff's office and approximately 400 detainees. In addition to being out of date in terms of energy efficiency, the building facade is in poor condition, and the building contains asbestos requiring an extensive abatement as part of any renovation and future occupancy.

The architectural style of the building could be described as Brutalism, a style often used in government buildings from the 1950s to the 1970s that is typically concrete and fortress-like and does not relate well to a pedestrian scale. In addition to the service yard, the nearly opaque walls, mechanical areaways, and tall concrete planters around the perimeter of the ground level create an unwelcoming pedestrian experience. Many of the trees on the site are in poor condition, and the wind conditions can be harsh around the building and particularly along Thorndike Street.

1.3 Proposed Development Program and Design

The building is proposed to be redeveloped in its upper floors as a speculative office building geared toward the types of innovative technology firms associated with Kendall Square. In addition, the ground level of the building will be transformed

from a structure meant to keep people away to a welcoming series of storefronts and landscaped spaces that will serve the neighborhood and the building occupants. A residential entry on Third Street will provide access to six two-bedroom and eighteen loft residential units on the second, third, and fourth above-ground levels.

The existing ground floor will be lowered approximately three feet to create a through-lobby that connects the infilled Spring Street landscape terrace to Thorndike Street and Bulfinch Square. This design will create flexible retail spaces that are connected as closely as possible to the sloping grade around the Project site and enhance the pedestrian experience around the building. The existing elevator and stair cores will be replaced and relocated to maximize perimeter area for leasable office space in the tower levels. The majority of the retail will be located on the Third Street side, with the corner of Spring Street and Third Street anticipated to be a restaurant space(s) that could spill out onto the south landscape terrace. The design will allow retail spaces to open into the through-lobby, and there will be a location for a potential meeting, conference or gathering space on the southwest side of the lobby, which has outdoor space facing south.

The proposed lobby shape is meant to work within the existing structure and accentuate movement from the south terrace to the Thorndike Street side. The proposed exterior canopies associated with the lobby will be an urban marker of entry and circulation. Priority will be given to the south side (Spring Street), which will be the main entry for pedestrians walking from Kendall Square and the City-owned First Street Garage. A recessed arcade proposed along the Thorndike Street retail will provide shelter from winds that can be strong in this area. The proposed ground-level exterior facades will have a high glazing ratio and a rich variety of materials and retail spaces, and the through-lobby will have an industrial chic material palette.

The podium mass of the building will be broken down in scale with removal of the bulky parapet overhang and the carving of new spaces out of the perimeter at the north and south entries and second floor balcony areas on Thorndike and Second Streets. The residential and office portions of the podium will be distinct in the sizes and patterns of their windows. Two shades of masonry will differentiate the residential and office facades.

The facades of the upper floors will be primarily vision glass with alternating horizontal bands of shadow box and metal panel at the spandrel areas. This design will create horizontality and a perceived reduction in height. The double-height former courtroom projections will be framed in metal panel and infilled with sheer but glazed glass facades. The lower three former courtroom spaces on the south side will maintain the flexibility for a tenant to insert a floor or use as a double-story space; the top former courtroom spaces on the south side will remain double-height and become inset roof terrace amenities that feature planters at the building edge.

The lower three former courtroom spaces on the north side will be permanently filled in, and the top former courtroom spaces on the north side will remain double-height due to structural constraints. There will be an inset facade and colonnade at floors five and six to transition between the podium and the shaft of the tower. The existing parapet at the top of the building will be lowered seven feet, and a metal louvered mechanical screen will be set back from the edge of the parapet. Office tenants will have access to the southwest portion of the podium roof on the fifth floor of the building.

The exterior design of the renovated building is meant to showcase texture and material richness at the base of the building to enrich the pedestrian scale and experience, while the upper floor facades are meant to be simple, yet sophisticated and elegantly detailed. Greenery integrated into the building's landscape, the lobby's interior walls, the podium parapet, and the top former courtroom spaces on the building's south side is meant to be an amenity for the tenants, neighborhood, and greater community when viewed from afar.

1.4 Site Planning and Landscape Design

The landscape and architecture of the Project are intended to integrate as one cohesive entity. The landscaped terrace on the south side and its relation to the lobby floor pattern and shape, the retail arcade on Thorndike Street, and the retail sidewalk on Third Street are areas where the landscape and interior spaces will blend together. There is a significant amount of slope around the site, and these three landscaped spaces will have planters, colonnades, and sloping and stepping terraces to connect the paths and uses of the site to the surrounding sloping grades. Where the existing site has high concrete planters to keep people away from the building, the proposed low planters, seat walls, and stepping walks will occur at a pedestrian-friendly scale. The stepping lawn terrace on Spring Street will offer an amenity to occupants and visitors to the building, a place to sit and read a book or meet a friend. The paths leading up to the lobby and the lobby itself will be open to the public and will encourage activity. Existing trees around the Project site are in poor condition; new street trees and terrace plantings will beautify the neighborhood and reduce wind effects around the site.

1.5 Parking, Circulation, and Service

On-site below-grade parking will be provided within the building with access and egress provided off Second Street. On-site parking will accommodate 92 vehicles and be designated for the residences (24 spaces) and employees, including high-occupancy vehicle (HOV) spaces. An additional 420 parking spaces will be leased from the City at the First Street Garage. Dedicated parking will not be provided for the retail space, the majority of which will be leased and occupied by tenants occupying less than 2,000 square feet. Employees and residents will be charged

market rates for parking. Additional parking will be available at the First Street Garage and Galleria Garage.

Loading and delivery access will occur via Second Street. Three loading bays are included in the current design. Approximately 20 trucks per day are anticipated for the office tenants. Most will be small box trucks, including courier deliveries and pick-ups. Retail deliveries are more difficult to determine as tenants have not yet been identified, but are expected to occur at the rate of two to five small box trucks per day. Trash and recycling will be removed daily from the site.

The main pedestrian access to the site will be located on Spring Street. In addition, a secondary pedestrian access will be provided off Thorndike Street.

Egress requirements are met by two stairs for the office tower and two stairs for the residential levels. Two office stair towers, located on the east and west ends of the building core, will serve lower level two (LL2) through the penthouse level. The east stair exits directly to Thorndike Street while the west stair exits through the office lobby. The residential stairs serve floors one through four. One residential stair exits through the residential lobby on Third Street while the other stair exits directly to Thorndike Street. Multiple elevators will serve office levels one to twenty-two, service access from lower level one (LL1) to the mechanical penthouse, parking access from LL2 to floor one, and residential access from LL1 to floor four.

2.0 TRAFFIC NARRATIVE

2.1 Introduction

Vanasse & Associates, Inc. (VAI) conducted a Transportation Impact Study (TIS) for the proposed Project. This study, summarized in Appendix B, reviews potential transportation impacts and parking demands, defines site access conditions, and recommends mitigation measures necessary to accommodate the Project site. It was completed in accordance with the City's guidelines for TIS and follows the scoping determination issued by the Cambridge Traffic, Parking, and Transportation (TPT) Department dated July 18, 2013.

2.2 Traffic Generation and Operations

Table 2-1, below, describes anticipated traffic generation to and from the Project site. Trips for the Project are based on Institute of Transportation Engineers (ITE) trip generation statistics for office, residential, and retail space. Daily trip generation is described in terms of an average weekday, in which the number of trips in to the site would be anticipated to equal the number of trips leaving the site.

Table 2-1 Project-Generated Traffic

| Mode | Daily Trip Generation | Morning Peak Hour | Evening Peak Hour |
|------------|-----------------------|-------------------|-------------------|
| Vehicle | 2,226 | In: 205 | In: 56 |
| | | Out: 48 | Out: 214 |
| Transit | 1,856 | In: 179 | In: 43 |
| | | Out: 41 | Out: 183 |
| Pedestrian | 474 | In: 29 | In: 17 |
| | | Out: 10 | Out: 36 |
| Bicycle | 256 | In: 23 | In: 6 |
| | | Out: 5 | Out: 24 |

To assess the impact of the Project on the roadway network, traffic operations and vehicle queue analyses were performed at the study intersections under 2013

Existing, 2013 Build and 2018 Build conditions. The analysis indicates that the Project will not have a significant effect on operating conditions at the area intersections.

2.3 Special Permit Criteria Analysis

As required by the City, the Project has been measured according to five criteria as indicators of its impact. Based on the Project Review Special Permit Criteria Analysis, a total of 431 indicators were reviewed. Of the 431 indicators reviewed, the Project was shown to exceed a total of 19. Twelve of the 19 indicators also exceed the City's pedestrian delay criteria under existing conditions, with or without the Project. The Project exceeds four indicators related to pedestrian delay at unsignalized intersections, but the crossings remain at Level of Service (LOS) C or better with the Project. The remaining three indicators are related to trip generation for the Project. None of the 40 indicators related to vehicular traffic were exceeded, including levels of service, lane queues and traffic on residential streets. With the majority of traffic using the First Street Garage, most traffic will travel on First Street to and from the area, which will minimize the impact on local residences.

2.4 Mitigation

The Project's location near the Lechmere Station and Kendall Station as well as the area shuttle services will encourage transit use by employees, visitors, and residents to the proposed Project. Mitigation is geared toward a low single-occupant vehicle (SOV) mode of transportation.

2.4.1 Transportation Demand Management

The following Transportation Demand Management (TDM) measures will be implemented to reduce SOV travel and encourage the use of alternative modes of transportation:

- ◆ Charge for parking at market rates and offer discounted parking for dedicated HOV vehicles;
- ◆ Dedicated HOV parking spaces on-site;
- ◆ Become a member of the Charles River Transportation Management Authority (CRTMA) and the EZ Ride Shuttle bus;
- ◆ Provide MBTA passes on-site;
- ◆ Provide MBTA pass subsidies;

- ◆ Promote commuting options through company-wide emails and intranet site;
- ◆ Provide information about transportation options available to employees at orientations and on a company website;
- ◆ Work with the CRTMA for a new stop location closer to the courthouse site;
- ◆ Provide on-site showers and lockers accessible to bicycling employees;
- ◆ Continue to work with the Cambridge Office of Workforce Development;
- ◆ Provide car-sharing spaces on-site; and
- ◆ Investigate installing a Hubway station on-site (along Second Street) to encourage non-auto travel.

2.4.2 *Off-Site Roadway Mitigation*

The intersection of Third Street at Thorndike Street in the study area is missing or has deteriorated pedestrian accommodations. The Proponent will update pavement markings and review handicapped-accessible wheelchair ramps and crossings at this location.

2.5 Conclusion

The TIS indicates that the Project can be accommodated within the existing area infrastructure. With an emphasis of non-auto travel and limited parking supply, the Proponent is committed to a Project which is sensitive to the area and minimizes the impact on the neighborhood.

3.0 INFRASTRUCTURE SYSTEMS

3.1 Sanitary Sewer

The Project's wastewater generation rate was estimated using design sewage flow rates obtained from 314CMR07 - Sewer System Extension and Connection Permit Program and 310CMR15 - Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-Site Sewage Treatment and Disposal Systems and for the Transport and Disposal of Septage. The building will be multi-use and; therefore, the daily flow is based on the following classifications:

- ◆ 75 gallons per day per (gpd) 1,000 sf for office;
- ◆ 5 gpd per 100 sf for retail;
- ◆ 110 gpd per bedroom for residents; and
- ◆ 35 gpd per seat for restaurants.

Based on a total gross square footage of 550,938 (or 510,920 sf zoning gross floor area), the total average daily flow generated by the Project is estimated to be approximately 43,000 gpd.

The City provides separate sanitary and stormwater sewer collection systems in the Project area. For the current design, sanitary flows from the building will be discharged through the existing 10-inch service into the existing 10-inch sewer main in Third Street. The existing service exits the building at the LL1 level.

The Project will result in a net decrease in estimated daily flow from the site. The estimated daily flow anticipated for the Project will not trigger a sewer connection permit with the Massachusetts Department of Environmental Protection (MassDEP); however, a one-time certification statement will have to be filed with MassDEP within 60 days after the connection commences operation. Based on the type of retail, restaurant, and office waste anticipated, an industrial sewer use or connection permit is not currently anticipated. Additional sewer improvement requirements to the existing sewer system imposed by the City are not anticipated.

3.2 Stormwater / Drainage

The proposed stormwater management system will exceed the provisions of the MassDEP Stormwater Management Policy for a redevelopment project.

The Project will serve to green the site by increasing landscaped areas and, therefore, decreasing the site's impervious area compared to existing conditions. The proposed drainage system will consist of a rainwater harvesting system for roof

runoff; area drains with sumps and possible water quality units for pedestrian surfaces; and an underground detention system designed in conformance with the City of Cambridge stormwater management guidelines. Specifically, the peak rate of runoff from the post-development condition for a 25-year storm event will be less than the peak rate of runoff from the pre-development condition for a 2-year storm event. The water quality units will be designed to provide additional removal of sediments from the “first flush” of runoff (a minimum of 0.5 inches of rainfall over the total impervious area) to prevent particulates and attached pollutants from accumulating in the drainage system or being discharge to the Charles River.

In addition, the reduction in impervious area and the proposed rainwater harvesting system are anticipated to bring the site into conformance with the City of Cambridge phosphorus removal requirement that new projects with an existing stormwater discharges to the Charles River remove 65 percent of the phosphorus from the stormwater prior to discharge. The proposed rainwater harvesting system will be sized to collect and treat the runoff from up to the first inch of rainfall from the building roof. This rainwater will be reused year-round inside the building and potentially for site irrigation. Details of the reuse demands are currently under review.

The proposed detention system will collect stormwater runoff from the site and excess runoff from the building roof (the volume that overflows from the rainwater harvesting tank). The runoff from the site’s impervious areas will be pretreated prior to being directed to the detention system. The detention system will be designed to mitigate the peak rate of runoff in accordance with City standards using an outlet control structure to regulate the discharge flow rates for a 24-hour storm event. After detention, the stormwater will be routed to the existing 18-inch storm drain located in Third Street that discharges into the Charles River via an outfall at the Lechmere Canal.

The Project will improve stormwater management on site by mitigating the peak rate of runoff from the post-development condition to substantially less than pre-development levels. In addition, the stormwater management system will remove the required 65 percent of phosphorus from the stormwater runoff discharging to the Charles River by greening the site and harvesting rainwater from the building roof. The Proponent has met with and gained favorable approval from the DPW for the proposed approach to site drainage.

3.3 Water Supply

The Project is expected to require approximately 47,500 gallons per day for its water demands for a multi-use classification. A redundant water supply system will be provided for the building. It is anticipated that the existing eight-inch domestic water service from the twelve-inch water main in Third Street and the six-inch

domestic water service from the eight-inch water main in Thorndike Street will be used to provide domestic water to the building. Both services come into the building on the first below-ground (LL1) level.

The capacity and condition of the existing water supply infrastructure are currently under review. Hydrant flow tests have been performed on the 8-inch main in Second Street and the twelve-inch main in Third Street. Results indicate there is adequate capacity for the Project. Should it be determined that there is inadequate pressure to provide the required flows, a booster pump will be added to the Project to handle the deficiency.

The building fire protection service will use the existing eight-inch fire service connection from the twelve-inch water main in Third Street as the primary service and the existing six-inch service connection from the eight-inch water main in Thorndike Street as the secondary service. The service from Third Street is located on the LL1 level and the service from Thorndike Street is located below on the LL2 level. The fire protection system may include an additional yard hydrant to supplement the City's firefighting supply system. The fire protection system design will be coordinated with the City Fire Chief.

4.0 NOISE NARRATIVE

The Project will be designed to meet the standards established in the City of Cambridge Noise Control Ordinance, reproduced below:

Table 4-1 Zoning District Noise Standards (Maximum Octave Band Sound Pressure Levels)

| Octave Band Center Frequency Measurement (Hz) | Residential Area | | Residential in Industrial | | Commercial Area | Industry Area |
|---|------------------|-------|---------------------------|-------|-----------------|---------------|
| | Daytime | Other | Daytime | Other | Anytime | Anytime |
| 31.5 | 76 | 68 | 79 | 72 | 79 | 83 |
| 63 | 75 | 67 | 78 | 71 | 78 | 82 |
| 125 | 69 | 61 | 73 | 65 | 73 | 77 |
| 250 | 62 | 52 | 68 | 57 | 68 | 73 |
| 500 | 56 | 46 | 62 | 51 | 62 | 67 |
| 1,000 | 50 | 40 | 56 | 45 | 56 | 61 |
| 2,000 | 45 | 33 | 51 | 39 | 51 | 57 |
| 4,000 | 40 | 28 | 47 | 34 | 47 | 53 |
| 8,000 | 38 | 26 | 44 | 32 | 44 | 50 |
| Single Number Equivalent (dB(A)) | 60 | 50 | 65 | 55 | 65 | 70 |

There are residential areas near the Project site. The Project will be designed to minimize noise reaching these residential properties and comply with the residential noise limit of 60 dBA daytime and 50 dBA at other times.

Sound emanating from the Project's rooftop mechanical equipment will be minimized with the best available and feasible practices regarding the location and sizing of equipment, selecting appropriate equipment, and sound attenuation measures, as needed to comply with the City of Cambridge noise standards presented above.

The primary mechanical equipment serving the Project will be located within enclosures on the roof at a height of approximately 280 feet, significantly removed from residences and other buildings. Specifically, the Project will include a mechanical penthouse enclosure for the building's chillers, a noise control enclosure for its emergency generator, and a mechanical screen and additional noise control if necessary for air handling units. Noise control measures will also be applied to the Project's evaporative cooling towers and restaurant exhaust fan, which will be exhausted through louvers above the retail store fronts.

5.0 CONFORMANCE

5.1 Article 19.30: Citywide Urban Design Objectives

19.31 New Project Should Be Responsive to the Existing or Anticipated Pattern of Development

The Project site is in a mixed-use neighborhood consisting of residential, office and retail spaces. The proposed three floors of residential units along Third Street are intended to enhance the neighborhood atmosphere and provide additional life to the street during the evening hours. The ground floor retail will face the streets surrounding the Project and will be programmed with a mix of tenants to create street level activity, serve the needs of area residents and building occupants, and enhance the overall mix of uses in this area of Cambridge.

The East Cambridge neighborhood will benefit from the new publicly accessible landscaped courtyard space on the Spring Street side of the building. This open space will also help to provide a transition and appropriate setback from the Project to the lower residential buildings on the south side of Spring Street.

19.32 Development Should Be Pedestrian and Bicycle-Friendly, with a Positive Relationship to Its Surroundings

The Project will provide short-term and long-term bike parking that meets the City of Cambridge's new zoning standards. The long-term bike parking in the enclosed lower level will have its own bike entrance off of Second Street. A shower and locker room facility will be provided adjacent to the long-term bike parking. A space for bike repair is proposed to be located near the bike entrance on Second Street. Fifty short-term bike parking will be dispersed around all sides of the block within close proximity of retail entrance and building entrances. A Hubway station is also planned on the Second or Spring Street sides of the building.

19.33 Building and Site Design Should Mitigate Adverse Environmental Impacts on Neighbors

As part of the Project, the existing structure will be abated of asbestos and any other building hazardous materials. The Project will be built to LEED Gold standards, which will improve building air quality and energy efficiency, among other measures of environmental benefit. The Project's current LEED Checklist and narrative are provided in Appendix A.

The site will be designed to meet the provisions of the MassDEP Stormwater Management Policy for a redevelopment project. Stormwater management strategies will seek to mitigate the stormwater runoff as required by the City of Cambridge standards and standard engineering practices of the Commonwealth of

Massachusetts. Mitigation measures proposed include the use of Cambridge-approved Best Management Practices (BMPs), including area drains with sumps and stormwater treatment units to remove Total Suspended Solids (TSS) and an underground detention basin to control peak rates of runoff. Where possible, site stormwater will be directed into landscaping to promote increased infiltration; rain gardens on the Thorndike Street side will be integrated into the design. In addition, the reduction in impervious areas on site and the proposed rainwater harvesting system are anticipated to bring the site into conformance with the City of Cambridge phosphorus removal requirement.

During construction, standard engineering practices for erosion and sedimentation control will be implemented on site. A Stormwater Pollution Prevention Plan (SWPPP) will be prepared for the site per the requirements of the U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP), as Project construction will disturb more than one acre. The SWPPP will also be used to document compliance with the LEED Sustainable Sites Prerequisite for Erosion and Sedimentation Control.

Because the Project involves the renovation of an existing structure, the majority of construction activity will be contained within the site boundaries, thereby minimizing impacts on neighbors.

19.34 Project Should Not Overburden City Infrastructure Services, Including Neighborhood Roads, City Water Supply System, and Sewer System

The Project's anticipated parking needs will be met using a combination of on-site below-grade parking and long-term leased parking spaces in the adjacent City-owned parking garage, which has been underutilized since the courthouse program was relocated to Woburn in 2007 and 2008. The 92 on-site below-grade parking spaces will include 24 spaces dedicated to the residents (one per unit) and 68 spaces dedicated to office use.

The existing curb cut on Third Street will be closed, as will the curb cut at the existing service yard entrance on Second Street. New curb cuts will be provided mid-block on Second Street for the new parking entrance and new loading entrance.

The capacity and condition of the existing water supply infrastructure is under investigation. Hydrant flow tests have been performed on the 8-inch main in Second Street and the 12-inch main in Third Street and indicate there is adequate capacity for the Project. Should it be determined that there is inadequate pressure to provide the required flows, a booster pump will be added to the Project to handle the deficiency.

The conditions of the sewer mains in Third Street and Second Street are under investigation. The City of Cambridge DPW has not raised concerns about the capacity of the sewer mains in either Third Street or Second Streets; however, it was noted that the sewer mains surcharge during heavy rain storms due to inflow issues.

Proposed water and sewer demands created by the renovation will not exceed the original building's water and sewer demands. The installation of low-flow plumbing fixtures in restrooms and rainwater collection and reuse for non-potable building uses and potentially irrigation will aid in water conservation.

The DPW indicated that there are no real flooding problems caused by drainage in the vicinity of the Project site. However, detention is being provided and designed in conformance with the City of Cambridge stormwater management guidelines to alleviate the condition for surcharging illustrated in the DPW's hydrologic model. In addition, the Project will increase landscaped areas and, therefore, decrease site impervious area and runoff volume compared to existing conditions.

19.35 New Construction Should Reinforce and Enhance the Complex Urban Aspects of Cambridge as It has Developed Historically

The Project's retail component, located at ground level and accessible for pedestrians in and around the renovated building, is intended to be neighborhood-oriented and promote diversity.

Landscape, building wall, flooring, and other elements at the base of the building will appear welcoming with rich and pedestrian-friendly materials such as wood, glass, metal, terra-cotta, stone, and masonry.

The creation of a new through-lobby with retail spaces that open onto it will create a space where the office tenants and neighborhood patrons can interact. This new pedestrian through-block lobby restores a historical pedestrian path through the block.

19.36 Enhancement and Expansion of Open Space Amenities in the City Should Be Incorporated Into New Development

A new landscaped terrace will be added to the Project site on the Spring Street side. The proposed Spring Street terrace will be a place of both passage and pause, where paths are provided to connect the neighborhood and adjacent garage to the retail and office lobby. Relaxation spaces will be provided next to the corner retail near Third Street, off of the retail and meeting space to the east of the office lobby, and at the stepping lawn area off of the Spring Street sidewalk.

The existing high planters around the perimeter will be removed. Proposed landscape elements will be welcoming and allow visual permeability into the retail

and lobby spaces. New street trees and plantings will provide shade, reduce wind on site, and beautify the streetscape.

5.2 Article 10.43: Criteria for the Issuance of Special Permits

a. The requirements of the Ordinance can be met.

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

b. Traffic generated or patterns of access or egress will not cause congestion, hazard, or substantial change in established neighborhood character.

Curb cuts will be removed at the existing garage entry on Third Street and at the existing service yard entrance on Second Street (near the corner of Spring Street). New curb cuts are proposed mid-block on Second Street for the new below-grade parking entrance and the new loading area. Moving the vehicular access away from the intersection of Spring Street and Second Street and replacing it with an open landscaped and pedestrian friendly courtyard will improve the intersection and transition from the building to the neighborhood.

c. The continued operation or development of adjacent uses as permitted in the Zoning Ordinance will not be adversely affected by the nature of the proposed use.

The adjacent parcels include office, residences, juvenile court, and parking uses. The renovation of the former courthouse supports the mixed-use nature of the adjacent commercial area, while providing a landscaped open space to transition between 40 Thorndike and the homes south of Spring Street. The addition of retail space will enhance the pedestrian experience along Third and Thorndike streets, and facilitate the growth and success of retail along Cambridge Street and First Street, both in close proximity to the Project.

d. No nuisance or hazard will be created to the detriment of the health, safety, and/or welfare of the occupant of the proposed use or the citizens of the City.

The Project will be designed in conformance with the latest edition of the state building code and operated in compliance with the health and safety regulations of the City of Cambridge.

e. The proposed use will not impair the integrity of the district or adjoining districts, or otherwise derogate from the intent and purpose of the Ordinance.

The proposed uses as office, residential, retail and restaurant, and parking are consistent with the intent and purpose of the Ordinance.

- f. The building construction is consistent with the Urban Design Objectives set forth in Section 19.30.*

As proposed, the renovation of the building is consistent with the Urban Design Objectives in Section 19.30 as described in Section 5.1 of this application.

5.3 Article 22.23: Sustainable Design and Development

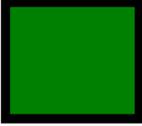
In accordance with the requirements of Article 22.23, the Project will be designed to achieve a LEED Silver Certifiable Level or higher. The Project's current LEED Checklist and narrative are provided in the Appendix.

APPENDICES

| | |
|------------|---|
| APPENDIX A | Sustainable Design Affidavit and Review |
| APEENDIX B | Transportation Study – Certification and Summary Tables |
| APPENDIX C | Noise Impacts |
| APPENDIX D | Wind Conditions Letter |

Appendix A

Sustainable Design Affidavit and Review



The Green Engineer, Inc.

Sustainable Design Consulting

Sustainable Design Design Affidavit

I, Sarah Michelman, have reviewed the schematic design documents for the 40 Thorndike Street Office Building project. I confirm, to the best of my knowledge, the proposed project meets the criteria, as noted in the accompanying LEED-NC version 2009 checklist and narrative, to attempt LEED Gold Certification with 62 credit points and 25 possible points. 40 Thorndike Street has been designed to meet the green building requirement under Article 22.20 of the Cambridge Zoning Ordinance.

A handwritten signature in black ink, reading "Sarah Michelman", written over a horizontal line.

Sarah Michelman
LEED AP B D +C #87211
The Green Engineer, Inc.
54 Junction Square Drive
Concord, MA 01742



LEED v3 for Core and Shell Development 2009 Project Scorecard

Project Name: 40 Thorndike St
Project Address: Cambridge, MA
Date of Review:

TOTALS

| | | |
|----|----|----|
| 62 | 25 | 21 |
|----|----|----|

Regional Priority credits are underlined

GENERAL PROJECT DOCUMENTATION

| Y | PI form | Requirement | Required |
|---|-----------|---------------------------------|----------|
| Y | PI form 1 | Minimum Program Requirements | Required |
| Y | PI form 2 | Project Summary Details | Required |
| Y | PI form 3 | Occupant Usage Data | Required |
| Y | PI form 4 | Schedule and Overview Documents | Required |

| Phase | Yes | ? | No | Score | Requirement | Total |
|-------|-----|---|----|-------|--------------------------|-----------|
| | 23 | 2 | 2 | 28 | SUSTAINABLE SITES | 28 |

| | | | | | | |
|---|---|---|---|------------|---|----------|
| C | Y | | | Prereq 1 | Construction Activity Pollution Prevention | Required |
| D | 1 | | | Credit 1 | Site Selection | 1 |
| D | 5 | | | Credit 2 | Development Density and Community Connectivity | 5 |
| D | 1 | | | Credit 3 | <u>Brownfield Redevelopment</u> | 1 |
| D | 6 | | | Credit 4.1 | Alternative Transportation - Public Transportation Access | 6 |
| D | 2 | | | Credit 4.2 | Alternative Transportation - Bicycle Storage and Changing Rooms | 2 |
| D | 3 | | | Credit 4.3 | Alternative Transportation - Low-Emitting and Fuel-Efficient Vehicles | 3 |
| D | 2 | | | Credit 4.4 | Alternative Transportation - Parking Capacity | 2 |
| C | | | 1 | Credit 5.1 | Site Development - Protect or Restore Habitat | 1 |
| D | 1 | | | Credit 5.2 | Site Development - Maximize Open Space | 1 |
| D | | 1 | | Credit 6.1 | <u>Stormwater Design - Quantity Control</u> | 1 |
| D | | 1 | | Credit 6.2 | Stormwater Design - Quality Control | 1 |
| C | 1 | | | Credit 7.1 | <u>Heat Island Effect - Nonroof</u> | 1 |
| D | 1 | | | Credit 7.2 | <u>Heat Island Effect - Roof</u> | 1 |
| D | | | 1 | Credit 8 | Light Pollution Reduction | 1 |
| D | 1 | | | Credit 9 | Tenant Design and Construction Guidelines | 1 |

| | | |
|---|---|---|
| 4 | 5 | 1 |
|---|---|---|

WATER EFFICIENCY

10

| | | | | | | |
|---|---|---|---|----------|--|----------|
| D | Y | | | Prereq 1 | Water Use Reduction - 20% minimum | Required |
| D | 2 | 2 | | Credit 1 | Water Efficient Landscaping - Reduce by 50%, No Potable Irrigation Use | 2 to 4 |
| D | | 2 | | Credit 2 | Innovative Wastewater Technologies | 2 |
| D | 2 | 1 | 1 | Credit 3 | Water Use Reduction - 30% (2), 35% (3), 40% (4) | 2 to 4 |

| | | |
|----|---|----|
| 13 | 8 | 15 |
|----|---|----|

ENERGY & ATMOSPHERE

37

| | | | | | | |
|---|---|---|----|------------|--|----------|
| C | Y | | | Prereq 1 | Fundamental Commissioning of Building Energy Systems | Required |
| D | Y | | | Prereq 2 | Minimum Energy Performance | Required |
| D | Y | | | Prereq 3 | Fundamental Refrigerant Management | Required |
| D | 5 | 4 | 10 | Credit 1 | Optimize Energy Performance | 3 to 21 |
| D | | | 5 | Credit 2 | <u>On-Site Renewable Energy</u> | 1 to 5 |
| C | 2 | | | Credit 3 | Enhanced Commissioning | 2 |
| D | 2 | | | Credit 4 | Enhanced Refrigerant Management | 2 |
| D | 1 | 2 | | Credit 5.1 | Measurement and Verification: Base Building | 3 |
| D | 3 | | | Credit 5.2 | Measurement and Verification: Tenant Submetering | 3 |
| C | | 2 | | Credit 6 | Green Power | 2 |

| Phase | | | Yes | ? | No | MATERIALS & RESOURCES | | 13 |
|-------|---|---|-----|---|----|-----------------------|--|----|
| | 7 | 5 | 1 | | | | | |

| | | | | | | | |
|---|---|---|---|----------|--|--|----------|
| D | Y | | | Prereq 1 | Storage and Collection of Recyclables | | Required |
| C | 3 | 2 | | Credit 1 | Building Reuse - Maintain Existing Walls, Floors & Roof 25-75% (1-5 pts) | | 1 to 5 |
| C | 2 | | | Credit 2 | Construction Waste Management - Divert 50% (1), 75% (2) | | 1 to 2 |
| C | | | 1 | Credit 3 | Materials Reuse | | 1 |
| C | 1 | 1 | | Credit 4 | Recycled Content - 10% 1 point, 20% 2 points | | 1 to 2 |
| C | 1 | 1 | | Credit 5 | Regional Materials - 10% 1 point, 20% 2 points | | 1 to 2 |
| C | | 1 | | Credit 6 | Certified Wood | | 1 |

| Phase | | | Yes | ? | No | INDOOR ENVIRONMENTAL QUALITY | | 12 |
|-------|---|---|-----|---|----|------------------------------|--|----|
| | 8 | 2 | 2 | | | | | |

| | | | | | | | |
|---|---|---|---|------------|---|--|----------|
| D | Y | | | Prereq 1 | Minimum Indoor Air Quality Performance | | Required |
| D | Y | | | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | | Required |
| D | 1 | | | Credit 1 | Outdoor Air Delivery Monitoring | | 1 |
| D | | | 1 | Credit 2 | Increased Ventilation | | 1 |
| C | 1 | | | Credit 3 | Construction Indoor Air Quality Management Plan - During Construction | | 1 |
| C | 1 | | | Credit 4.1 | Low-Emitting Materials - Adhesives & Sealants | | 1 |
| C | 1 | | | Credit 4.2 | Low-Emitting Materials -Paints & Coatings | | 1 |
| C | 1 | | | Credit 4.3 | Low-Emitting Materials - Floor Systems | | 1 |
| C | | 1 | | Credit 4.4 | Low-Emitting Materials - Composite Wood | | 1 |
| D | 1 | | | Credit 5 | Indoor Chemical and Pollutant Source Control | | 1 |
| D | | | 1 | Credit 6 | Controllability of Systems - Thermal Comfort | | 1 |
| D | 1 | | | Credit 7 | Thermal Comfort - Design | | 1 |
| D | | 1 | | Credit 8.1 | Daylight and Views - Daylight - 75% | | 1 |
| D | 1 | | | Credit 8.2 | Daylight and Views - Views 90% | | 1 |

| Phase | | | Yes | ? | No | INNOVATION IN DESIGN | | 6 |
|-------|---|---|-----|---|----|----------------------|--|---|
| | 4 | 2 | 0 | | | | | |

| | | | | | | | |
|---|---|---|--|------------|---|--|---|
| D | | 1 | | Credit 1.1 | Innovation in Design - Comprehensive education plan | | 1 |
| D | | 1 | | Credit 1.2 | Innovation in Design - Low mercury lighting | | 1 |
| D | 1 | | | Credit 1.3 | Innovation in Design - Green cleaning or another approach TBD | | 1 |
| C | 1 | | | Credit 1.4 | Innovation in Design - EP for Public Trans | | 1 |
| C | 1 | | | Credit 1.5 | Innovation in Design - EP for Heat island non-roof | | 1 |
| C | 1 | | | Credit 2 | LEED® Accredited Professional | | 1 |

| Phase | | | Yes | ? | No | REGIONAL PRIORITY - 02141 (SSc6.1, SSc3, SSc7.1, SSc7.2, MRc1 (75%), EAc2 (4)) | | 4 |
|-------|---|---|-----|---|----|--|--|---|
| | 3 | 1 | 0 | | | | | |

| | | | | | | | |
|--|---|---|--|------------|-----------------------|---------------------------------|---|
| | | 1 | | Credit 1.1 | Regional Priority for | Building reuse greater than 75% | 1 |
| | 1 | | | Credit 1.2 | Regional Priority for | Brownfield redevelopment | 1 |
| | 1 | | | Credit 1.3 | Regional Priority for | Heat Island roof | 1 |
| | 1 | | | Credit 1.4 | Regional Priority for | Heat island nonroof | 1 |

| Phase | | | Yes | ? | No | PROJECT TOTALS (Certification Estimates) | |
|-------|----|----|-----|---|----|--|--|
| | 62 | 25 | 21 | | | | |

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



The Green Engineer, Inc.

Sustainable Design Consulting

Memorandum

To: Maria Schroeder, Elkus Manfredi Architects
 Mark Sardegna, Elkus Manfredi Architects
From: Sarah Michelman, TGE
Date: November 21, 2013
Re: Article 19/22 Project Review
Project: 40 Thorndike Street

The following is a detailed outline of the project team's approach to designing a LEED CS v2009 Gold Certifiable building for the Core and Shell office project at 40 Thorndike Street in Cambridge.

LMP GP Holdings, LLC (Leggat McCall Properties), is committed to developing projects that are sustainably designed and energy efficient with interior environments that are healthy for the residents, employees and visitors.

Project Description:

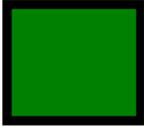
The scope of work includes a full gut renovation of the existing approximately 40 year old, 510,000 (approximate gross square footage), Middlesex County Courthouse and Jail facility. The project program primarily consists of office space with ground floor retail and 24 residential units on a portion of floors 2, 3, and 4. There are 92 below grade parking spaces provided on two lower level floors. The renovation includes removal of the existing building exterior skin and replacing it with a new high performance building envelope.

LEED Core And Shell v2009 Checklist:

- A. Please refer to the attached LEED CS v2009 Project Scorecard for additional information
- B. The Project anticipates exceeding the Silver certification requirement of 50 credit points by attempting 62 credit points, additionally the project has earmarked and additional 25 'maybe' credit points that require additional research; these credits will remain under consideration as the design continues to evolve.

The breakdown of attempted credit points by LEED category are as listed below:

| | | |
|------------------------------|------------------|----------------------------------|
| Sustainable sites | 23 points | <i>2 possible points</i> |
| Water Efficiency | 4 points | <i>5 possible points</i> |
| Energy & Atmosphere | 13 points | <i>8 possible points</i> |
| Materials & Resources | 7 points | <i>5 possible points</i> |
| Indoor Environmental Quality | 8 points | <i>2 possible points</i> |
| Innovation in Design | 4 points | <i>2 possible points</i> |
| Regional Priority | 3 points | <i>2 possible points</i> |
| Total Points | 62 points | <i>25 possible points</i> |



LEED Credit Narrative

The project meets all of the Minimum Program Requirements and each of the required Prerequisites.

The project is anticipating reaching the Gold Certification level by targeting 62 credit points. There are several additional credits, listed in italics below, which are still being researched as to whether or not the project may attempt them; it may be determined that some of these credits under consideration will not be attainable. Please refer to the attached LEED CS v2009 Project Scorecard included at the end of this document for further information.

Below please find a credit by credit analysis of how the LEED CS v2009 Gold Certification Level will be attempted.

Sustainable Sites

The project site is in an urban neighborhood close to public transportation including multiple bus routes. Immediately adjacent to the site are pedestrian sidewalks and designated bikeways. Minimal parking will be accommodated on site.

Prerequisite 1: Construction Activity Pollution Prevention

The size of the project requires filing for a NPDES permit which will include a detailed Stormwater Pollution Prevention Plan. The Construction Manager will be required to submit and implement an appropriate SWPPP/Erosion and Sedimentation Control (ESC) Plan for construction activities related to the demolition of existing conditions and the construction of the renovation project. The ESC Plan will conform to the erosion and sedimentation requirements of the applicable NPDES regulations and specific municipal requirements for the City of Cambridge. Additionally, the ESC Plan will address management/containment of dust and/or particulate matter generated by on site demolition and construction activities. Civil design drawings will include measures for the implementation of the ESC plan.

Credit 1 Site Selection

1 credit point

The proposed project site is an existing 22 story building, the Middlesex County Courthouse and Jail facility, located in Cambridge. The project site is not any of the following:

- a. Prime farmland as defined citation in 7CFR657.5
- b. Previously undeveloped land lower than 5 feet above the elevation of the 100 year flood as per FEMA
- c. Land specifically identified as habitat for any threatened or endangered species
- d. Within 100 feet of wetlands as defined by local, state or federal regulations
- e. Previously undeveloped land within 50 feet of a water body that supports fish or provides recreations or industrial uses as per the Clean Water Act

Credit 2 Development Density and Community Connectivity

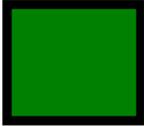
5 credit points

The proposed project location is an existing building in dense urban area with easily accessible services such as restaurants, shops, grocery stores, educational & religious institutions and other community amenities within .5 miles of the project.

Credit 3 Brownfield Redevelopment

1 credit point

The existing building contains asbestos and other hazardous materials that will be surveyed and remediated in compliance with applicable regulations. An on-site assessment of the hazardous



materials will be done to document the locations and to determine the most appropriate remediation method. A project specific remediation plan will be established and implemented on site. Contaminated materials will be properly removed and disposed of following applicable local, state and federal guidelines and regulations. The project will attempt this credit through an acceptable alternative compliance approach for the remediation of Asbestos and other hazardous construction materials.

Credit 4.1 Alternative Transportation, Public Transportation Access 6 credit points

The Green line MBTA Lechmere subway station is located less than 0.25 miles and the Red line MBTA Kendall Square subway station is located 0.5 miles from the project site. There are several bus routes that pass by in close proximity to the site and/or originate at the subway station, including the locally run CRTMA EZ-Ride shuttle that serves the transit hubs and has a stop one block from the project site.

Credit 4.2 Alternative Transportation, Bicycle Storage 2 credit points

166 interior bike storage locations for residents, employees, and visitors will be incorporated into the lower level garage design, and 50 bike parking locations will be provided adjacent to the building in landscape design. Showers and changing areas for employees are accommodated within the lower level, adjacent to the bike storage areas.

Credit 4.3 Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles 3 credit points

Limited parking (approximately 92 spaces) is accommodated within the parking garage incorporated into the lower two levels of the building. The parking will include five designated preferred parking spaces for low emitting fuel efficient vehicles. These five parking spaces represent 5% of the total available parking. Additionally, some 'charging station' spaces with access to outlets for electric vehicles may be incorporated into the garage.

Credit 4.4 Alternative Transportation Parking Capacity 2 credit points

The quantity of available parking spaces provided for the project will not exceed the quantity required by the local zoning regulations. Designated parking for carpools and vanpools will be accommodated within the parking garage.

Credit 5.2, Site Development, Maximize Open Space 1 credit point

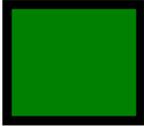
Landscaped open areas and pedestrian oriented hardscape will all contribute to improving the urban open space in the immediate vicinity of the existing building. The amount of open space on the project site will, at a minimum, target 20%-25% of the overall site square footage within the LEED Project Boundary.

Credit 6.1 Stormwater Design, Quantity Control 1 maybe credit point

The City of Cambridge has requirements for collection and dispersal of stormwater. Improved absorptive landscaped areas, roof top plantings, a rainwater harvesting system, and an underground stormwater detention system will help mitigate stormwater runoff from the site. Stormwater will be captured from the roof and site and be detained to meet the City of Cambridge requirements. Additionally, the project will endeavor to mitigate enough site stormwater to meet the specific LEED credit requirements.

Credit 6.2 Stormwater Design, Quality Control 1 maybe credit point

A combination of natural and structural BMP measures will be used to reduce the suspended solids and phosphorus content of the site stormwater runoff. BMP measures are likely to include water quality units, landscaped areas, bioretention and a rainwater harvesting system. Site stormwater runoff will be captured and treated to City of Cambridge standards at a minimum,



prior to release into the municipal stormwater drainage system. The project will endeavor to meet the specific LEED credit requirements.

Credit 7.1 Heat Island Effect, Non-Roof 1 credit point
100% of the parking provided for the project will be located undercover within the footprint of the proposed building.

Credit 7.2 Heat Island Effect, Roof 1 credit point
The roof membrane will be a high albedo roof product with an SRI value of 78 minimum with some small areas of sedum tray planters on level five. Additionally small roof terraces located on levels 5 and 14 will incorporate landscaped planters. The high albedo roofs will cover a minimum of 75% of the total roof area.

Credit 9 Tenant Design and Construction Guidelines 1 credit point
The project will draft a set of Tenant Design and Construction Guidelines for distribution and review will potential building tenants. The guidelines will outline the sustainable design and energy efficiency measures in the project and provide detailed guidance for the Tenants to design and build in alignment with the project sustainability goals.

Water Efficiency

The project will specify low flow and high efficiency plumbing fixtures within the residential units and the core public restrooms to reduce the amount of potable water used for sewage conveyance, throughout the building. There will be a high efficiency irrigation system for the landscaped areas.

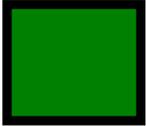
Prerequisite 1 Water Use Reduction, 20% Reduction

Through the specification of low flow and high efficiency plumbing fixtures, the project will implement water use reduction strategies that use, at a minimum, 20% less potable water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements. Preliminary water reduction calculations are included in appendix A-1.

Credit 1.1 Water Efficient Landscaping, Reduce by 50% 2 credit points
The project will include a high efficiency irrigation system for the grade level landscaped areas. The landscape design will incorporate native and adaptive plant materials and the design of the irrigation system will target a 50% reduction in potable water use when compared to a mid-summer baseline. Additionally, the project is exploring rain water capture and re-use for irrigation. There are small areas of landscaped planters on the terrace levels that will incorporate drought tolerant plant materials that may require occasional watering by hand.

Credit 2 Innovative Waste Water Technologies 2 maybe credit points
The project is exploring the possible use of captured stormwater for one or more of the following uses: Cooling tower make-up water, sewage conveyance, landscape irrigation needs.

Credit 3 Water Use Reduction 2 credit points
Through the specification of low flow and high efficiency plumbing fixtures, the project will implement water use reduction strategies that target 30% less potable water than the water use baseline calculated for the building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements. Preliminary water reduction calculations are included in appendix A-1.



Energy and Atmosphere

The building systems will be designed to optimize energy performance and will not use refrigerants that are harmful to the environment. The project will incorporate roof top cooling towers, a heat exchanger and gas-fired condensing boilers. An energy recovery unit for use with the ventilation systems will also be located on the roof. The 24 residential units will have heat pump units. Throughout the core building the targeted lighting power density will be below code minimums. The tenant design and construction guidelines will include target lighting power densities for the build-out projects.

The building owner will engage a Commissioning Agent during the design phase to review the proposed design and ultimately confirm the building systems are installed and function as intended and desired.

Prerequisite 1 Fundamental Commissioning of the Building Energy Systems

A third party Commissioning Agent, (CxA) will be engaged by the owner for purposes of providing basic commissioning services for the building energy related systems including HVAC & R, lighting and domestic hot water systems. The CxA will verify the building systems are installed, calibrated and perform to the building owners project requirements.

Prerequisite 2 Minimum Energy Performance

The building performance rating will demonstrate a minimum of a 20% improvement in energy use when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. This requirement will be met by selecting efficient mechanical equipment. Additionally, an improved building envelope design and efficient lighting will be required to achieve this minimum. The team will develop a whole building energy model to demonstrate the expected performance rating of the designed building systems.

Prerequisite 3 Fundamental Refrigerant Management

The specifications for refrigerants used in the building HVAC & R systems will NOT permit the use of CFC based refrigerants. The proposed design of the HVAC systems will most likely achieve the prerequisite however, if applicable, compliant selections of any walk in freezers/coolers (installed by possible restaurant tenants), will be required.

Credit 1 Optimize Energy Performance

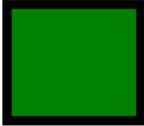
5 credit points

The building performance rating will demonstrate a minimum of a 20% improvement in energy use when compared to a baseline building performance as calculated using the rating method in Appendix G of ANSI/ASHREA/IESNA Standard 90.1-2007. This requirement will be met by selecting efficient mechanical equipment. Additionally, an improved building envelope design and efficient lighting will be required to achieve this minimum. The team will develop a whole building energy model to demonstrate the expected performance rating of the designed building systems. The project is targeting a 20% annual energy savings by cost.

Credit 3 Enhanced Commissioning

2 credit points

The Commissioning Agent, (CxA), will be engaged during the Design Development phase. The CxA's role will include reviewing the owner's project requirements, creating, distributing and implementing a commissioning plan, and performing a design review of the project documents.



Credit 5.1 Measurement and Verification: Base Building

2 maybe credit points

The project may chose to develop and implement a measurement and verification (M&V) plan consistent with Option D: Calibrated Simulation (Savings Estimation Method 2) as specified by the International Performance Measurement & Verification Protocol (IPMVP), Volume III: Concepts and Options for Determining Energy Savings in New Construction, April 2003 for the base Core and Shell building.

Credit 5.2 Measurement and Verification: Tenant Sub metering

3 credit points

The project will include a centrally monitored electronic metering network in the base building design that is capable of being expanded to accommodate and document the future tenant sub-metering. The project will develop and implement an appropriate tenant measurement and verification (M&V) plan that includes a process for corrective action if the results of the M&V plan indicate that energy savings are not being achieved will be included.

Credit 6 Green Power

2 maybe credit points

The owner is exploring purchase of 'green power' for a 2-year period renewable energy contract to provide a minimum of 35% of the building's electricity from renewable sources.

Materials and Resources

The design team will specify materials and products with recycled content, those made with certified wood and regionally procurable products to the extent possible. Throughout the construction phase of the project the Construction Management team will endeavor to divert Construction and Demolition waste from area landfills and procure materials that are made with FSC certified wood, have recycled content and/or are harvested, extracted and manufactured within 500 miles of the project site.

Prerequisite 1 Storage and Collection of Recyclables

Storage of collected recyclables will be accommodated within the individual apartment units and within the lower level of the project. Residents and future tenants will bring their recyclables and trash to a central storage room located on lower level 1. The recyclables and trash will be collected by a contracted waste management company on a regular basis.

Credits 2.1 and 2.2 Construction Waste Management

2 credit points

Prior to the start of construction the Construction Management team will prepare and submit a Construction Waste Management plan which will be implemented on site. The Construction Manager will endeavor to divert as much demolition debris and construction waste from area landfills as possible with a goal to achieve 75% diversion overall.

Credits 4.1 Recycled Content 10% (post-consumer & ½ pre-consumer)

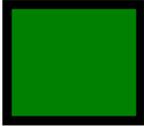
1 credit point

The project specifications will require certain materials to include pre and or post consumer recycled content. During construction, materials and products submittals will include documentation of the percentage of pre/post consumer recycled content. The Construction Manager will track the recycled content with a project goal to achieve 10% recycled-content materials based on overall project materials costs.

Credits 4.2 Recycled Content 20% (post-consumer & ½ pre-consumer)

1 maybe credit point

The Construction Manager will track the recycled content for each material with a project target to achieve 20% recycled-content materials based on overall project materials costs.



Credit 5.1 Regional Materials, 10% Extracted, Processed and Manufactured Regionally

1 credit point

The project specifications will indicate materials to be extracted, harvested, recovered and manufactured within a 500 mile radius of the job site. The project has established a target for 10% of the materials and products installed to be regional materials. The Construction Manager will track the submitted and installed materials and products with a goal to achieve the 10% threshold based on overall project materials costs.

Credit 5.2 Recycled Content 20% Extracted, Processed and Manufactured Regionally

1 maybe credit point

The Construction Manager will track the regional materials with a project target to achieve 20% regional materials based on overall project materials costs.

Credit 7 Certified Wood

1 maybe credit point

The project specifications may include wood materials to be from FSC certified forests and from compliant manufacturers and millwork shops. The Construction Manager will track the submitted and installed wood materials and products with a goal to achieve the 50% (by cost) threshold based on overall wood materials costs.

Indoor Environmental Quality

The interior air quality will be monitored during the construction phase of the project and prior to occupancy. Low emitting materials, (low VOC), will be used throughout construction to maintain and improve air quality within the base building. The residential units are laid out to maximize exposure to views and daylight.

Prerequisite 1 Minimum IAQ Performance

The building mechanical systems are designed to meet or exceed the requirements of ASHRAE Standard 62.1-2007 sections 4 through 7 and/or applicable building codes. Naturally ventilated spaces such as the residential units will comply with the applicable portions of ASHRAE 62.1.

Prerequisite 2 Environmental Tobacco Smoke (ETS) Control

The public spaces, common areas and residential units within the building will be non-smoking. The entire building will be a non-smoking environment. This policy will be enforced with future building tenants.

Credit 3.1 Construction IAQ Management Plan (during construction)

1 credit point

The Construction Manager will develop an Indoor Air Quality Management Plan for the construction and pre-occupancy phases of the project to meet/exceed the recommended Control Measures of the SMACNA IAQ Guidelines for Occupied buildings Under Construction 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter3).

Credits 4.1 Low-Emitting Materials, Adhesives & Sealants

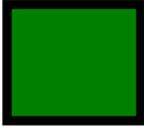
1 credit point

The specifications will include requirements for adhesives and sealants in compliance with the low VOC criteria for adhesives and sealants as established in

Credits 4.2 Low-Emitting Materials, Paints and Coatings

1 credit point

The specifications will include requirements for paints and coatings to meet low VOC criteria for paints and coatings.



Credits 4.3 Low-Emitting Materials, Flooring Systems

1 credit point

The specifications will include requirements for hard surface flooring materials to be Floor Score certified and carpet systems will endeavor to comply with the Carpet institute Green label program.

Credit 4.4 Low Emitting Materials, Composite Wood and Agrifiber Products

1 maybe credit point

The project will specify and install composite wood and agrifiber products that contain no added urea-formaldehyde. The Construction Manager will endeavor to use only NAUF compliant materials throughout the Core and Shell build-out. Additionally, the tenant design and construction guidelines will encourage tenants to install only NAUF compliant composite wood materials.

Credit 5, Indoor Chemical and Pollutant Source Control

1 credit point

The project team will design to minimize and control the entry of pollutants into the building and to contain chemical use areas.

Credit 7 Thermal Comfort, Design

1 credit point

The project HVAC design will be in compliance with ASHRAE 55 for all applicable mechanically ventilated regularly occupied spaces.

Credit 8.1 Daylight and Views, Daylight for 75% of the spaces

1 maybe credit point

It is the desire of the project to enable daylight to penetrate toward the interior of the floor plate. At this time, the project has not confirmed the estimated light levels provided by daylight alone, across the floor plate using a proposed tenant layout/test fit plan.

Credit 8.2 Daylight and Views, Views for 90% of the spaces

1 credit point

Based on a tenant layout test fit plan it is demonstrated that a tenant could locate regularly occupied spaces along the perimeter with ample vision glass to achieve views for 90% of the areas. The residential units all have ample access to views. A typical plan with view corridors is provided in Appendix A-2.

Innovation & Design Processes

The team has identified several possible ID credits which are listed below, (limited to 5 ID credits total):

ID credits identified as targeted by the project

Exemplary Performance for SSc4.1

1 credit point

The project site is located on several bus routes with a frequency of service that may include over 200 transit rides per day.

Exemplary Performance for SSc7.1

1 credit point

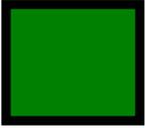
All of the parking associated with the project is located within the building on the lower two levels of the building within the building footprint.

Additional ID credits currently under consideration

3 maybe credit points

Building as an Educational Tool

The project will endeavor to implement two public outreach programs to inform the public about the sustainable design features incorporated into the apartment building project.



Green Housekeeping/Operations

The owner will explore the use green cleaning products and equipment in the common areas and provide a package for residents explaining the 'green living' components of the project.

Low Mercury lighting

The initial lighting specifications will include low mercury and no mercury containing fixtures, to the extent possible, to limit the levels of mercury containing lamps purchased for the building.

Credit 2 LEED Accredited Professional (required)

1 credit point

A LEED AP will provide administrative services to oversee the LEED credit documentation process.

Regional Priority Credits

3 credit points

Regional Priority Credits, (RPC) are established LEED credits designated by the USGBC to have priority for a particular area of the country. When a project team achieves one of the designated RPCs and additional credit is awarded to the project. RPCs applicable to the Cambridge area include: SSc3, SSc6.1, SSc7.1 EAc2 and MRc1.1. This project anticipates three RPCs: SSc3, Brownfield Redevelopment, SSc7.1-Heat Island Effect, Non-Roof and SSc7.2 Heat Island Effect, Roof.



LEED 2009 for Core and Shell Development

WE PREREQUISITE 1: WATER USE REDUCTION

20% REDUCTION

All fields and uploads are required unless otherwise noted.

CORE AND SHELL SCOPE

This active sample form has been modified for offline access. Modified fields and instructions are indicated in purple. Sample forms are for reference only.

Compliance with the prerequisite/credit requirements must be documented for the entire project building and associated grounds, including both the Core & Shell AND tenant-occupied spaces.

Note: All contents highlighted in yellow below is linked to WEc3.

Select one of the following:

- In Scope:** The Core & Shell project scope includes the performance improvements for the entire project building, including tenant-occupied spaces.
- Tenant Work:** It is anticipated that there will be additional tenant work beyond the Core & Shell project scope.

FIXTURES AND FIXTURE FITTINGS

Note: Refer to the additional guidance document in the Credit Resources section of LEED Online for more information about documenting compliance with WEp1 and WEc2

Table WEp1-1. Daily Occupancy

Note: For reference only. These values should inform, but not necessarily parallel, the numbers entered in the Table WEp1-2. Fixture Groups Definition.

| FTE | Average Transients (Visitors) | Average Retail Customers | Residents | Total |
|-------|-------------------------------|--------------------------|-----------|-------|
| 1,567 | 0 | 114 | 42 | 1,723 |

FIXTURE GROUPS INTRODUCTION

Organize project occupants in a way that best represents fixture usage patterns in the project. Occupants may be grouped together or separated into sub-groups. Usage groups must be derived from daily occupancy data for the project building. Accordingly, all project occupants, as documented in the "Occupant Information" section of PI Form 3, must be represented in the Table WEp1-2. Fixture Groups Definition below. All residential occupants should be represented separately from non-residential occupants.

Table WEp1-2. Fixture Groups Definition

| Group Name | Annual Days of Operation | FTE | Transients (Visitors) | Retail Customers | Residents | % Female | % Male | | |
|------------|--------------------------|------|-----------------------|------------------|-----------|----------|--------|---|---|
| CFTE | 250 | 1540 | 0 | 0 | 0 | 50 | 50 | + | - |
| Retail | 300 | 27 | 0 | 114 | 0 | 50 | 50 | + | - |
| Residents | 365 | 0 | 0 | 0 | 42 | 50 | 50 | + | - |

Briefly describe the inputs in the Table WEp1-2. Fixture Groups Definition. Explain the methodology used to define each fixture group, as well as the derivation of data in each row. Additionally, provide a detailed explanation if the default gender ratio is not used.

The occupancy for the Commercial FTE (CFTE) AND Retail groups are calculated using the SF per occupant as established in the USGBC B D +C LEED Reference Guide Appendix. The residential occupancies are estimated based on number of bedrooms. There are 24 total units, 6 are two bedroom and 18 are studios. We assume that each two bedroom unit has 3 occupants. We assume that of the 18 studios, 1/3 are single occupancy and 2/3 are double occupancy. This calculation gives us a total of 42 residents.

Table WEp1-3. Flush Fixture Data

Enter flush fixture data for each fixture group defined in the Table WEp1-2. Fixture Groups Definition above. Click "Calculate" in the summary section of the table to perform the water savings calculations. "Calculate" must be clicked after any or all the data is entered in the table to refresh the calculated values and obtain accurate information.

| Fixture Groups | | | | | | | | Flush Rate (GPF) | | Annual Water Consumption (kGal) | | | |
|----------------|-------------|-------------------------|----------------|-------------------|---------------------------------------|-------------------------------|----------|------------------------|------------------|---------------------------------|---|---|--|
| Select | Display | Fixture ID ¹ | Fixture Family | Fixture Type | Default | Total Daily Uses ² | Baseline | Installed ³ | IPC/UPC Baseline | Performance Case | | | |
| CFTE | ▼ CFTE | U-1 | Urinal | ▼ High-efficiency | ▼ <input checked="" type="checkbox"/> | 1,540 | 1 | 0.13 | 385 | 50.05 | + | - | |
| CFTE | ▼ CFTE | WC-1 | Water Closet | ▼ HET, Gravity | ▼ <input checked="" type="checkbox"/> | 3,080 | 1.6 | 1.28 | 1,232 | 985.6 | + | - | |
| Retail | ▼ Retail | U-2 | Urinal | ▼ High-efficiency | ▼ <input checked="" type="checkbox"/> | 33 | 1 | 0.13 | 9.9 | 1.29 | + | - | |
| Retail | ▼ Retail | WC-2 | Water Closet | ▼ HET, Gravity | ▼ <input checked="" type="checkbox"/> | 71 | 1.6 | 1.28 | 34.08 | 27.26 | + | - | |
| Residents | ▼ Residents | WC-2 | Water Closet | ▼ HET, Gravity | ▼ <input type="checkbox"/> | 210 | 1.6 | 1.28 | 122.64 | 98.11 | + | - | |

| | |
|---|----------|
| Total calculated flush fixture water use annual volume, baseline case (kGal) | 1,783.62 |
| Total calculated flush fixture water use annual volume, performance case (kGal) | 1,162.31 |
| Percent reduction of water use in flush fixtures (%) | 34.83 |

Calculate

Notes:

- 1 Define a reference name or descriptor that can be used to identify each fixture family/type.
- 2 May be modified for special circumstances. Deselect the "Default" checkbox to enter modified Total Daily Uses value. Default assumes urinals are installed. Refer to the additional guidance document in the Credit Resources section which includes information about fixture groups that do not include urinals.
- 3 To account for dual-flush fixtures, enter a weighted average flush rate.

Upload WEp1-2. Provide a narrative and/or daily use calculations to justify any non-default "Total Daily Use" values.

Upload

Files:

Table WEp1-4. Flow Fixture Data

Enter flow fixture data for each fixture group defined in the Table WEp1-2. Fixture Groups Definition above. Click "Calculate" in the summary section of the table to perform the water savings calculations. "Calculate" must be clicked after any or all the data is entered in the table to refresh the calculated values and obtain accurate information.

| Fixture Groups | | | | | | | | | Flow Rate (GPM / GPC) | | Annual Water Consumption (kGal) | | | |
|----------------|-------------|-------------------------|-----------------------------|--------------|---------------------------------------|-------------------------------|------------------------------|----------|------------------------|------------------|---------------------------------|---|---|--|
| Select | Display | Fixture ID ¹ | Fixture Family | Fixture Type | Default | Total Daily Uses ² | Duration ³ (Secs) | Baseline | Installed ⁴ | IPC/UPC Baseline | Performance Case | | | |
| CFTE | ▼ CFTE | | Public Lavatory Faucet | ▼ Metering | ▼ <input checked="" type="checkbox"/> | 4620 | N/A | 0.25 | 0.2 | 288.75 | 231 | + | - | |
| CFTE | ▼ CFTE | | Shower | ▼ Low-Flow | ▼ <input checked="" type="checkbox"/> | 154 | 300 | 2.5 | 1.5 | 481.25 | 288.75 | + | - | |
| Retail | ▼ Retail | | Public Lavatory Faucet | ▼ Metering | ▼ <input checked="" type="checkbox"/> | 104 | N/A | 0.25 | 0.2 | 7.8 | 6.24 | + | - | |
| Resident | ▼ Residents | | Residential Kitchen Sink | ▼ Low-Flow | ▼ <input type="checkbox"/> | 168 | 60 | 2.2 | 1.5 | 134.9 | 91.98 | + | - | |
| Resident | ▼ Residents | | Residential Lavatory Faucet | ▼ Low-Flow | ▼ <input type="checkbox"/> | 210 | 60 | 2.2 | 1.5 | 168.63 | 114.98 | + | - | |
| Resident | ▼ Residents | | Residential Shower | ▼ Low-Flow | ▼ <input type="checkbox"/> | 42 | 480 | 2.5 | 1.8 | 306.6 | 220.75 | + | - | |

| | |
|--|----------|
| Total calculated flow fixture water use annual volume, baseline case (kGal) | 1,387.93 |
| Total calculated flow fixture water use annual volume, performance case (kGal) | 953.7 |
| Percent reduction of water use in flow fixtures (%) | 31.29 |

Calculate

Notes:

- 1 Define a reference name or descriptor that can be used to identify each fixture family/type.
- 2 May be modified for special circumstances. Deselect the "Default" checkbox in order to insert the modified Total Daily Uses value.
- 3 May be modified for special circumstances.
- 4 For public metering/autocontrol lavatory faucets, convert all flow rates in gallons per minute (GPM) to gallons per cycle (GPC) using a default 12 second duration of flow.

Upload WEp1-3. Provide a narrative and/or daily use calculations to justify any non-default "Total Daily Use" values.

Upload Files:

Upload WEp1-4. Provide a narrative and/or calculations to support the installed flow rate for any metering public lavatory faucets.

Upload Files:

Does the project building include pre-rinse spray valve(s)?

Yes No

SUMMARY

Upload WEp1-1. Provide the plumbing fixture and fitting schedule for the project highlighting flush and flow rates for all applicable plumbing fixtures and fittings within the project building.

Upload Files:

Table WEp1-5. Flush & Flow Fixtures Summary

| | |
|---|----------|
| Total calculated fixture water use annual volume, baseline case (kGal) | 3,171.55 |
| Total calculated fixture water use annual volume, performance case (kGal) | 2,116.01 |
| Percent reduction of water use in all fixtures (%) | 33.28 |

A 20% reduction of water use in fixtures is required to document compliance with WE Prerequisite 1.

ADDITIONAL DETAILS

- Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.
- The project team is using an alternative compliance approach in lieu of standard submittal paths.

SUMMARY

WE Prerequisite 1: Water Use Reduction - 20% Reduction
Compliance Documented:

N

Check Compliance



SUMMARY (NC, NR, CS, CI & CR)

Note: All information on this tab is READ-ONLY. To edit, see Tab B. Use the information below to complete the forms for IEQ Credits 8.1 and 8.2

Table IEQc8.1-1. Daylight Summary

| | |
|--|--------------|
| Daylighted regularly occupied area, Simulation (sf) | 0.00 |
| Daylighted regularly occupied area, Prescriptive (sf) | 0.00 |
| Daylighted regularly occupied area, Measurement (sf) | 0.00 |
| Total daylighted regularly occupied area (sf) | 0.00 |
| Total regularly occupied area (sf) | 13,265.00 |
| Percentage of regularly occupied area that is daylighted | 0.00% |

Table IEQc8.2-1. View Summary

| | |
|--|---------------|
| Total regularly occupied area with access to views (sf) | 12,458.00 |
| Total regularly occupied area (sf) | 13,265.00 |
| Percentage of regularly occupied area with access to views | 93.92% |

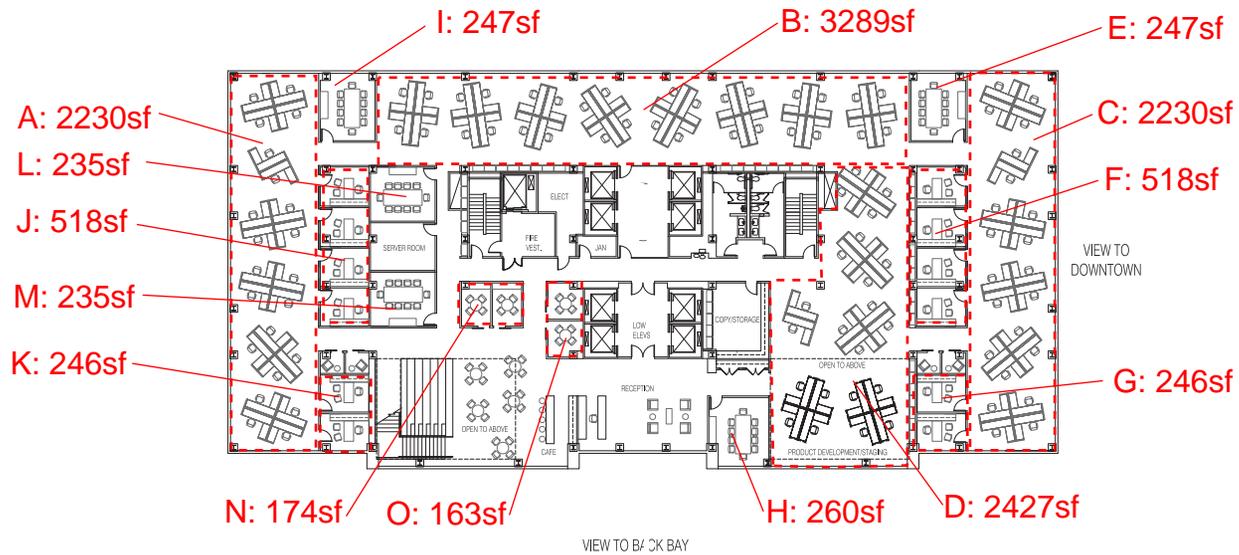
Table IEQc8.2-EP. Views for Exemplary Performance

| | Measure 1 | Measure 2 | Measure 3 | Measure 4 |
|--|--------------|--------------|--------------|--------------|
| Total regularly occupied area with access to exemplary performance views (sf) | 0.00 | 0.00 | 0.00 | 0.00 |
| Percentage of regularly occupied area with access to exemplary performance views | 0.00% | 0.00% | 0.00% | 0.00% |

Project: 40 Thorndike Street

IEQc8.2 Daylight and Views, Views Calculations

| Regularly Occupied Space ID | Space Type | Floor Area (SF) | Seated View at 42" AFF | Total Area with access to Views (SF) |
|--|--------------------|-----------------|------------------------|--------------------------------------|
| A | Office: Open | 2,230 | Yes | 2230 |
| B | Office: Open | 3289 | Yes | 3289 |
| C | Office: Open | 2230 | Yes | 2230 |
| D | Office: Open | 2427 | Yes | 2427 |
| E | Conference/Meeting | 247 | Yes | 247 |
| F | Office: Private | 518 | Yes | 518 |
| G | Office: Private | 246 | Yes | 246 |
| H | Conference/Meeting | 260 | Yes | 260 |
| I | Conference/Meeting | 247 | Yes | 247 |
| J | Office: Private | 518 | Yes | 518 |
| K | Office: Private | 246 | Yes | 246 |
| L | Conference/Meeting | 235 | No | 0 |
| M | Conference/Meeting | 235 | No | 0 |
| N | Other | 174 | No | 0 |
| O | Other | 163 | No | 0 |
| Total Daylighted Area | | n/a | | |
| Total Area with Access to Views | | | | 12,458 |
| Total regularly Occupied Area | | 13,265 | | |
| Percentage SF area with access to views (must be > 90% to meet requirements) | | 93% | | |



Assumptions:

1. Interior offices and conference rooms will have side or borrow lites for access to daylight and views
2. Open work stations will have opaque partitions that are no taller than 42"
3. As per USGBC guidance if an office have 75% sf area with access to views the entire sf area of the office may be counted as having access to views.

Please see attached spreadsheet for regularly occupied sf areas with views calculations.



Appendix B

Transportation Study – Certification and Summary Tables



CITY OF CAMBRIDGE
Traffic, Parking and Transportation
344 Broadway
Cambridge, Massachusetts 02139

www.cambridgema.gov/traffic

Susan E. Clippinger, Director
Brad Gerratt, Deputy Director

Phone: (617) 349-4700
Fax: (617) 349-4747

November 21, 2013

Mr. Giles Ham
Vanasse & Associates, Inc.
10 New England Business Center Drive
Suite 314
Andover, MA 01810-1066

Dear Giles,

We have reviewed your Traffic Impact Study (TIS) dated November 12, 2013 for the Courthouse Redevelopment project. The study includes revisions to the original TIS which were made in response to our November 4, 2013 comment letter. Based on staff review the TIS is certified as complete and reliable.

Please call Adam Shulman at 617-349-4745 if you have any questions.

Sincerely,



Susan E. Clippinger, Director

cc: Adam Shulman, TPT, Robert Dickey, Leggat McCall Properties.

CITY OF CAMBRIDGE
Special Permit Transportation Impact Study (TIS)

Summary Sheet

Planning Board Permit Number: _____

Project Name: Courthouse Redevelopment

Address: 40 Thorndike Street

Owner/Developer Name: LMP GP Holdings LLC/Leggat McCall Properties, LLC.

Contact Person: Robert M. Dickey

Contact Address: 10 Post Office Square

Boston, MA 02109

Contact Phone: 617-422-7027

ITE sq. ft.: 500,000

Zoning sq. ft.: 500,000

Land Use Type: Office R&D Space / Retail Space / Residential Space

Existing Parking Spaces: 40 - Registered Use: Employee

New Parking Spaces: 92* Use: Employee/Residential

Date of Parking Registration Approval: _____

*420 additional parking spaces to be leased at the city-owned First Street Garage.

Trip Generation:

| | Daily | AM Peak Hour | PM Peak Hour |
|-------------|-------|--------------|--------------|
| Total Trips | 4,646 | 520 | 555 |
| Vehicle | 2,226 | 253 | 270 |
| Transit | 1,856 | 220 | 226 |
| Pedestrian | 474 | 39 | 53 |
| Bicycle | 256 | 28 | 30 |

Mode Split (person trips): Vehicle: 45/39^a/49 %

Transit: 25/24^a/40 %

(Retail/Residential/R&D use) Pedestrian: 24/22^a/6 %

Bicycle: 6/4^a/5 %

^aResidential 11% work, home, other.

Transportation Consultant: Vanasse & Associates, Inc.

Contact Name: F. Giles Ham, P.E.

Phone: 978-474-8800

Date of Building Permit Approval: _____



CITY OF CAMBRIDGE
 Special Permit Transportation Impact Study (TIS)

Planning Board Criteria Performance Summary
 Page 1

Planning Board Permit Number: _____

Project Name: Courthouse Redevelopment

Total Data Entries = 431

Total Number of Criteria Exceedences = 19

1. Project Vehicle Trip Generation

Weekday = 2,226 AM Peak Hour = 253 PM Peak Hour = 270 Meets Criteria? [Y/N] **N/N/N**

2. Level of Service (LOS)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| Third Street at O'Brien Highway | F | F (1.1%) | Y | D | D | Y |
| Third Street at Cambridge Street | B | C | Y | D | D | Y |
| Third Street at Thorndike Street | D | D | Y | C | C | Y |
| Third Street at Spring Street | F | F (0%) | Y | C | C | Y |
| Third Street at Binney Street | E | E | Y | D | D | Y |
| Second Street at Cambridge Street | A | A | Y | A | B | Y |
| Second Street at Thorndike Street | B | B | Y | B | B | Y |
| Second Street at Spring Street | B | B | Y | B | B | Y |
| First Street at Cambridge Street | D | D | Y | D | D | Y |
| First Street at Thorndike Street | B | B | Y | B | C | Y |
| First Street at Spring Street | A | A | Y | A | A | Y |
| First Street at Charles Street and Cambridgeside Place | B | B | Y | B | B | Y |
| First Street at Binney Street | C | C | Y | C | C | Y |
| O'Brien Highway at Cambridge Street and East Street | C | C | Y | C | C | Y |
| Cambridgeside Place at Land Boulevard | C | C | Y | B | B | Y |
| Binney Street at Land Boulevard | C | C | Y | B | B | Y |
| O'Brien Highway at Land Boulevard and Charlestown Avenue | F | F (1.7%) | Y | F | F (1.7%) | Y |

2. Level of Service (LOS) (Continued)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--------------------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| Third Street at Charles Street | B | B | Y | B | B | Y |
| Binney Street at Second Street | B | B | Y | C | C | Y |
| Third Street at Broadway | C | C | Y | C | C | Y |

3. Traffic on Residential Streets

| Street Segment | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|-----------------|--------------|-----------------|-----------------|--------------|-----------------|
| | Existing Volume | With Project | Meets Criteria? | Existing Volume | With Project | Meets Criteria? |
| Third Street, O'Brien Highway to Gore Street (Amount of residential = 1/2 or more) | 835 | 851 | Y | 1,475 | 1,493 | Y |
| Third Street, Gore Street to Otis Street (Amount of residential = 1/2 or more) | 832 | 847 | Y | 893 | 897 | Y |
| Third Street, Otis Street to Spring Street (Amount of residential = 1/2 or more) | 994 | 994 | Y | 875 | 875 | Y |
| Third Street, Spring Street to Charles Street (Amount of residential = 1/2 or more) | 752 | 758 | Y | 818 | 821 | Y |
| Third Street, Charles Street to Rogers Street (Amount of residential = <1/3) | 763 | 768 | Y | 896 | 898 | Y |
| Third Street, Rogers Street to Linksey Way (Amount of residential = >1/3 but <1/2) | 797 | 802 | Y | 886 | 888 | Y |
| Third Street, Linksey Way to Broadway (Amount of residential = <1/3) | 822 | 847 | Y | 988 | 1,005 | Y |
| O'Brien Highway, Winter Street to Gore Street (Amount of residential = <1/3) | 1,952 | 1,966 | Y | 2,144 | 2,155 | Y |
| O'Brien Highway, Gore Street to Land Boulevard (Amount of residential = <1/3) | 1,886 | 1,887 | Y | 1,797 | 1,804 | Y |
| Cambridge Street, Third Street to First Street (Amount of residential = <1/3) | 594 | 624 | Y | 597 | 626 | Y |
| Thorndike Street, Third Street to First Street (Amount of residential = <1/3) | 100 | 115 | Y | 60 | 64 | Y |
| Spring Street, Third Street to First Street (Amount of residential = < 1/3) | 90 | 90 | Y | 88 | 90 | Y |

3. Traffic on Residential Streets (Continued)

| Street Segment | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---|-----------------|--------------|-----------------|-----------------|--------------|-----------------|
| | Existing Volume | With Project | Meets Criteria? | Existing Volume | With Project | Meets Criteria? |
| Charles Street, Fifth Street to Second Street (Amount of residential = 1/2 or more) | 124 | 130 | Y | 181 | 183 | Y |
| Second Street, Gore Street to Otis Street (Amount of residential = 1/2 or more) | 211 | 226 | Y | 152 | 158 | Y |
| Second Street, Otis Street to Spring Street (Amount of residential = <1/3) | 171 | 193 | Y | 196 | 210 | Y |
| Second Street, Spring Street to Charles Street (Amount of residential = 1/2 or more) | 143 | 160 | Y | 143 | 160 | Y |

4. Lane Queue

| Intersection | No. of Lanes Analyzed | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---|-----------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| <i>Charles Street at First Street</i> | 5 | | | | | | |
| Charles Street EB LT | | 1 | 1 | Y | 3 | 3 | Y |
| Charles Street EB TH/RT | | 1 | 1 | Y | 3 | 3 | Y |
| Charles Street WB LT/TH/RT | | 2 | 3 | Y | 3 | 3 | Y |
| First Street NB LT/TH/RT | | 3 | 4 | Y | 4 | 4 | Y |
| First Street SB LT/TH/RT | 2 | 2 | Y | 2 | 3 | Y | |
| <i>Cambridge Street at First Street</i> | 6 | | | | | | |
| Cambridge Street EB LT | | -- | -- | -- | -- | -- | -- |
| Cambridge Street EB TH/RT | | 7 | 8 | Y | 8 | 8 | Y |
| Cambridge Street WB LT | | 4 | 4 | Y | 1 | 1 | Y |
| Cambridge Street WB TH | | 3 | 3 | Y | 2 | 2 | Y |
| First Street NB LT | | 1 | 1 | Y | 4 | 5 | Y |
| First Street NB TH | | -- | -- | -- | -- | -- | -- |
| First Street NB RT | | 2 | 2 | Y | 9 | 11 | Y |
| MBTA Drive SB LT/TH/RT | 0 | 0 | Y | 1 | 1 | Y | |
| <i>Thorndike Street at First Street</i> | 3 | | | | | | |
| Thorndike Street EB LT/RT | | 2 | 2 | Y | 3 | 5 | Y |
| First Street NB TH | | 1 | 1 | Y | 3 | 6 | Y |
| First Street SB TH | 2 | 3 | Y | 1 | 2 | Y | |

CITY OF CAMBRIDGE
 Special Permit Transportation Impact Study (TIS)

Planning Board Criteria Performance Summary
 Page 4

4. Lane Queue (continued)

| Intersection | No. of Lanes Analyzed | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---|-----------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| <i>Binney Street at Third Street</i> | 9 | | | | | | |
| Binney Street EB LT | | 2 | 2 | Y | 8 | 8 | Y |
| Binney Street EB TH | | 2 | 3 | Y | 5 | 5 | Y |
| Binney Street EB TH/RT | | 2 | 3 | Y | 5 | 5 | Y |
| Binney Street WB LT | | 5 | 5 | Y | 2 | 3 | Y |
| Binney Street WB TH | | 3 | 3 | Y | 3 | 4 | Y |
| Binney Street WB TH/RT | | 3 | 3 | Y | 3 | 4 | Y |
| Third Street NB LT/TH | | 4 | 4 | Y | 9 | 9 | Y |
| Third Street NB RT | | 2 | 3 | Y | 4 | 4 | Y |
| Third Street SB LT/TH/RT | 16 | 16 | Y | 5 | 5 | Y | |
| <i>Cambridge Street at Third Street</i> | 5 | | | | | | |
| Cambridge Street EB LT/TH/RT | | 7 | 7 | Y | 6 | 6 | Y |
| Cambridge Street WB LT/TH/RT | | 1 | 1 | Y | 3 | 3 | Y |
| Third Street NB LT/TH/RT | | 2 | 2 | Y | 16 | 16 | Y |
| Third Street SB LT | | 1 | 1 | Y | 1 | 1 | Y |
| Third Street SB TH/RT | 16 | 16 | Y | 8 | 8 | Y | |
| <i>O'Brien Highway at Third Street</i> | 3 | | | | | | |
| O'Brien Highway EB TH/RT | | 23 | 23 | Y | 8 | 9 | Y |
| O'Brien Highway WB LT/TH | | 2 | 2 | Y | 10 | 10 | Y |
| Third Street NB LT | | 1 | 1 | Y | 6 | 6 | Y |
| Third Street NB LT/RT | -- | -- | -- | -- | -- | -- | |
| <i>Binney Street at First Street</i> | 7 | | | | | | |
| Binney Street EB LT | | 3 | 3 | Y | 6 | 7 | Y |
| Binney Street EB TH | | 3 | 3 | Y | 3 | 3 | Y |
| Binney Street EB TH/RT | | 3 | 3 | Y | 3 | 3 | Y |
| Binney Street WB LT | | 5 | 6 | Y | 3 | 3 | Y |
| Binney Street WB TH/RT | | 5 | 6 | Y | 3 | 3 | Y |
| First Street NB LT/TH/RT | | 1 | 1 | Y | 1 | 1 | Y |
| First Street SB LT/TH | | 4 | 5 | Y | 6 | 8 | Y |
| First Street SB RT | -- | -- | -- | -- | -- | -- | |

4. Lane Queue (continued)

| Intersection | No. of Lanes Analyzed | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|-----------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| <i>O'Brien Highway at East Street/Cambridge Street</i> | 13 | | | | | | |
| O'Brien Highway EB LT | | 2 | 2 | Y | 1 | 1 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 5 | 5 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 5 | 5 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 5 | 5 | Y |
| O'Brien Highway EB RT | | 11 | 11 | Y | 5 | 5 | Y |
| O'Brien Highway WB LT | | 5 | 5 | Y | 1 | 1 | Y |
| O'Brien Highway WB LT | | 5 | 5 | Y | 2 | 2 | Y |
| O'Brien Highway WB TH | | 4 | 4 | Y | 9 | 9 | Y |
| O'Brien Highway WB TH/RT | | 4 | 4 | Y | 9 | 9 | Y |
| East Street SB LT/TH/RT | | 2 | 2 | Y | 6 | 7 | Y |
| Cambridge Street NB LT | | 1 | 1 | Y | 6 | 7 | Y |
| Cambridge Street NB RT | | 3 | 3 | Y | 1 | 1 | Y |
| Cambridge Street NB RT | | 3 | 3 | Y | 1 | 1 | Y |
| <i>Land Boulevard at Binney Street</i> | 9 | | | | | | |
| Binney Street EB LT | | 2 | 2 | Y | 3 | 3 | Y |
| Binney Street EB LT/RT | | 2 | 2 | Y | 3 | 3 | Y |
| Land Boulevard NB LT | | 8 | 9 | Y | 5 | 5 | Y |
| Land Boulevard NB TH | | 1 | 1 | Y | 2 | 2 | Y |
| Land Boulevard NB TH | | 1 | 1 | Y | 2 | 2 | Y |
| Land Boulevard NB TH | | 1 | 1 | Y | 2 | 2 | Y |
| Land Boulevard SB TH | | 9 | 9 | Y | 8 | 8 | Y |
| Land Boulevard SB TH | | 9 | 9 | Y | 8 | 8 | Y |
| Land Boulevard SB RT | | 0 | 0 | Y | 0 | 0 | Y |
| <i>Charles Street at Third Street</i> | 4 | | | | | | |
| Charles Street EB LT/TH/RT | | 1 | 1 | Y | 1 | 1 | Y |
| Charles Street WB LT/TH/RT | | 0 | 0 | Y | 1 | 1 | Y |
| Third Street NB LT/TH/RT | | 1 | 1 | Y | 5 | 5 | Y |
| Third Street SB LT/TH/RT | | 4 | 4 | Y | 1 | 1 | Y |
| <i>Binney Street at Second Street</i> | 6 | | | | | | |
| Binney Street EB LT | | 2 | 2 | Y | 4 | 4 | Y |
| Binney Street EB TH/RT | | 2 | 2 | Y | 2 | 2 | Y |
| Binney Street WB LT | | 2 | 2 | Y | 1 | 1 | Y |
| Binney Street WB TH/RT | | 4 | 4 | Y | 3 | 3 | Y |
| Third Street NB LT/TH/RT | | 1 | 1 | Y | 4 | 4 | Y |
| Third Street SB LT/TH/RT | | 1 | 1 | Y | 2 | 2 | Y |
| <i>Third Street at Broadway</i> | 5 | | | | | | |
| Broadway EB LT | | 6 | 6 | Y | 6 | 6 | Y |
| Broadway EB TH | | 3 | 3 | Y | 6 | 6 | Y |
| Broadway WB TH/RT | | 9 | 9 | Y | 6 | 6 | Y |
| Third Street SB LT | | 2 | 2 | Y | 10 | 11 | Y |
| Third Street SB RT | | 1 | 1 | Y | 1 | 1 | Y |

4. Lane Queue (continued)

| Intersection | No. of Lanes Analyzed | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|-----------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | | Existing | With Project | Meets Criteria? | Existing | With Project | Meets Criteria? |
| <i>Land Boulevard at Cambridgeside Place</i> | 12 | | | | | | |
| Cambridgeside Place EB LT | | 2 | 2 | Y | 4 | 4 | Y |
| Cambridgeside Place EB LT | | 2 | 2 | Y | 4 | 4 | Y |
| Cambridgeside Place EB RT | | 0 | 0 | Y | 0 | 0 | Y |
| Hotel Driveway WB LT/TH/RT | | 1 | 1 | Y | 1 | 1 | Y |
| Land Boulevard NB LT | | 4 | 4 | Y | 2 | 2 | Y |
| Land Boulevard NB TH | | 3 | 2 | Y | 8 | 8 | Y |
| Land Boulevard NB TH | | 3 | 2 | Y | 8 | 8 | Y |
| Land Boulevard NB TH/RT | | 3 | 2 | Y | 2 | 2 | Y |
| Land Boulevard SB LT | | 1 | 1 | Y | 1 | 1 | Y |
| Land Boulevard SB TH | | 10 | 10 | Y | 1 | 1 | Y |
| Land Boulevard SB TH | | 10 | 10 | Y | 1 | 1 | Y |
| Land Boulevard SB TH/RT | 10 | 10 | Y | 1 | 1 | Y | |
| <i>Land Boulevard at O'Brien Highway</i> | 15 | | | | | | |
| O'Brien Highway EB LT | | 4 | 5 | Y | 13 | 16 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 7 | 7 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 7 | 7 | Y |
| O'Brien Highway EB TH | | 11 | 11 | Y | 7 | 7 | Y |
| O'Brien Highway EB RT | | 11 | 11 | Y | 5 | 5 | Y |
| O'Brien Highway WB LT | | 8 | 8 | Y | 8 | 8 | Y |
| O'Brien Highway WB TH | | 7 | 7 | Y | 8 | 8 | Y |
| O'Brien Highway WB TH | | 7 | 7 | Y | 8 | 8 | Y |
| O'Brien Highway WB TH | | 7 | 7 | Y | 8 | 8 | Y |
| O'Brien Highway WB RT | | 4 | 4 | Y | 7 | 7 | Y |
| Charlestown Avenue SB LT/TH | | 27 | 31 | Y | 20 | 20 | Y |
| Charlestown Avenue SB TH/RT | | 27 | 31 | Y | 20 | 20 | Y |
| Land Boulevard SB LT | | 3 | 3 | Y | 12 | 12 | Y |
| Land Boulevard SB TH | | 6 | 6 | Y | 16 | 16 | Y |
| Land Boulevard NB TH | 6 | 6 | Y | 16 | 16 | Y | |
| Land Boulevard NB RT | 3 | 3 | Y | 10 | 10 | Y | |

5. Pedestrian and Bicycle Facilities (Pedestrian LOS)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing PLOS | With Project | Meets Criteria? | Existing PLOS | With Project | Meets Criteria? |
| <i>Third Street at O'Brien Highway</i> | | | | | | |
| Crossing O'Brien Highway (East) | B | B | Y | B | B | Y |
| Crossing O'Brien Highway (West) | B | B | NA ^a | B | B | NA |
| Crossing Third Street (North) | D | D | NA | D | D | NA |
| Crossing Third Street (South) | D | D | Y | D | D | Y |
| <i>Third Street at Cambridge Street</i> | | | | | | |
| Crossing Cambridge Street (East) | B | B | Y | B | B | Y |
| Crossing Cambridge Street (West) | B | B | Y | B | B | Y |
| Crossing Third Street (North) | B | B | Y | B | B | Y |
| Crossing Third Street (South) | B | B | Y | B | B | Y |
| <i>Third Street at Thorndike Street</i> | | | | | | |
| Crossing Thorndike Street (East) | A | A | Y | A | A | Y |
| Crossing Thorndike Street (West) | A | A | Y | A | A | Y |
| Crossing Third Street (North) | F | F | N | F | F | N |
| Crossing Third Street (South) | F | F | N | F | F | N |

| | | | | | | |
|--|--|--|--|--|--|--|
| | | | | | | |
|--|--|--|--|--|--|--|

5. Pedestrian and Bicycle Facilities (Pedestrian LOS) (continued)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|--|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing PLOS | With Project | Meets Criteria? | Existing PLOS | With Project | Meets Criteria? |
| Third Street at Spring Street | | | | | | |
| Crossing Spring Street (East) | A | A | Y | A | A | Y |
| Crossing Spring Street (West) | A | A | Y | A | A | Y |
| Crossing Third Street (North) | F | F | N | F | F | N |
| Crossing Third Street (South) | F | F | N | F | F | N |
| Third Street at Binney Street | | | | | | |
| Crossing Binney Street (East) | B | B | Y | B | B | Y |
| Crossing Binney Street (West) | B | B | Y | B | B | Y |
| Crossing Third Street (North) | B | B | Y | B | B | Y |
| Crossing Third Street (South) | B | B | Y | B | B | Y |
| Second Street at Cambridge Street | | | | | | |
| Crossing Cambridge Street (East) | B | B | Y | B | B | Y |
| Crossing Cambridge Street (West) | B | B | Y | B | B | Y |
| Crossing Second Street (North) | B | B | Y | B | B | Y |
| Crossing Second Street (South) | B | B | Y | B | B | Y |
| Second Street at Thorndike Street | | | | | | |
| Crossing Thorndike Street (East) | A | A | Y | A | A | Y |
| Crossing Thorndike Street (West) | A | A | Y | A | A | Y |
| Crossing Second Street (North) | B | B | Y | B | B | Y |
| Crossing Second Street (South) | B | B | Y | B | B | Y |
| Second Street at Spring Street | | | | | | |
| Crossing Spring Street (East) | A | A | Y | A | A | Y |
| Crossing Spring Street (West) | A | A | Y | A | A | Y |
| Crossing Second Street (North) | A | B | N | A | B | N |
| Crossing Second Street (South) | A | A | Y | A | B | N |
| First Street at Cambridge Street | | | | | | |
| Crossing Cambridge Street (East) | D | D | Y | D | D | Y |
| Crossing Cambridge Street (West) | D | D | Y | D | D | Y |
| Crossing First Street (North) | D | D | Y | D | D | Y |
| Crossing First Street (South) | D | D | Y | D | D | Y |
| First Street at Thorndike Street | | | | | | |
| Crossing Thorndike Street (West) | B | B | Y | B | B | Y |
| Crossing First Street (North) | C | C | Y | C | C | Y |
| Crossing First Street (South) | C | C | Y | C | C | Y |

5. Pedestrian and Bicycle Facilities (Pedestrian LOS) (continued)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing PLOS | With Project | Meets Criteria? | Existing PLOS | With Project | Meets Criteria? |
| First Street at Spring Street | | | | | | |
| Crossing Thorndike Street (West) | B | C | N | A | A | Y |
| Crossing First Street (North) | F | F | NA | F | F | NA |
| Crossing First Street (South) | E | F | NA | F | F | NA |
| First Street at Charles Street and Cambridgeside Place | | | | | | |
| Crossing Charles Street (East) | D | D | Y | D | D | Y |
| Crossing Charles Street (West) | D | D | Y | D | D | Y |
| Crossing Cambridgeside Place (North) | D | D | Y | D | D | Y |
| Crossing Cambridgeside Place (South) | D | D | Y | D | D | Y |
| First Street at Binney Street | | | | | | |
| Crossing Charles Street (East) | C | C | Y | C | C | Y |
| Crossing Charles Street (West) | C | C | Y | C | C | Y |
| Crossing Cambridgeside Place (North) | D | D | Y | D | D | Y |
| Crossing Cambridgeside Place (South) | D | D | Y | D | D | Y |
| O'Brien Highway at Cambridge Street and East Street | | | | | | |
| Crossing O'Brien Highway (East) | D | D | Y | D | D | Y |
| Crossing O'Brien Highway (West) | D | D | Y | D | D | Y |
| Crossing Cambridge Street (North) | D | D | NA | D | D | NA |
| Crossing East Street (South) | D | D | Y | D | D | Y |
| Cambridgeside Place at Land Boulevard | | | | | | |
| Crossing Cambridgeside Place (East) | D | D | Y | D | D | Y |
| Crossing Cambridgeside Place (West) | D | D | Y | D | D | Y |
| Crossing Land Boulevard (North) | D | D | Y | D | D | Y |
| Crossing Land Boulevard (South) | D | D | Y | D | D | Y |
| Binney Street at Land Boulevard | | | | | | |
| Crossing Binney Street (East) | D | D | Y | D | D | Y |
| Crossing Binney Street (West) | D | D | Y | D | D | Y |
| Crossing Land Boulevard (North) | D | D | Y | D | D | Y |
| Crossing Land Boulevard (South) | D | D | Y | D | D | Y |
| O'Brien Highway at Land Boulevard and Charlestown Avenue | | | | | | |
| Crossing O'Brien Highway (East) | E | E | N | E | E | N |
| Crossing O'Brien Highway (West) | E | E | N | E | E | N |
| Crossing Land Boulevard (North) | D | D | Y | D | D | Y |
| Crossing Charlestown Avenue (South) | D | D | Y | D | D | Y |
| Third Street at Charles Street | | | | | | |
| Crossing Charles Street (East) | C | C | Y | C | C | Y |
| Crossing Charles Street (West) | C | C | Y | C | C | Y |
| Crossing Third Street (North) | C | C | Y | C | C | Y |
| Crossing Third Street (South) | C | C | Y | C | C | Y |
| Binney Street at Second Street | | | | | | |
| Crossing Binney Street (East) | D | D | Y | D | D | Y |
| Crossing Binney Street (West) | D | D | Y | D | D | Y |
| Crossing Second Street (North) | A | A | Y | A | A | Y |
| Crossing Second Street (South) | A | A | Y | A | A | Y |

5. Pedestrian and Bicycle Facilities (Pedestrian LOS) (continued)

| Intersection | A.M. Peak Hour | | | P.M. Peak Hour | | |
|---------------------------------|----------------|--------------|-----------------|----------------|--------------|-----------------|
| | Existing PLOS | With Project | Meets Criteria? | Existing PLOS | With Project | Meets Criteria? |
| Third Street at Broadway | | | | | | |
| Crossing Third Street (South) | C | C | Y | C | C | Y |
| Crossing Broadway (East) | D | D | Y | D | D | Y |
| Crossing Broadway (West) | D | D | Y | D | D | Y |

*NA = Not applicable; no crosswalk at this location.

6. Pedestrian and Bicycle Facilities (Safe Pedestrian and Bicycle Facilities)

| Adjacent Street or Public Right-of-Way | Sidewalks or Walkways Present? | Meets Criteria? | Bicycle Facilities or Right-of-Ways Present? | Meets Criteria? |
|--|--------------------------------|-----------------|--|-----------------|
| Thorndike Street | Y | Y | Y | Y |
| Spring Street | Y | Y | Y | Y |
| Second Street | Y | Y | Y | Y |
| Third Street | Y | Y | Y | Y |

Appendix C

Noise Impacts

CAVANAUGH TOCCI ASSOCIATES, INCORPORATED

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November 12, 2013

Mark Sardegna
Elkus Manfredi Architects Ltd
300 A Street
Boston, MA 02210

Subject: 40 Thorndike Street Redevelopment – Narrative Describing Noise Design Criteria

Dear Mark,

I have prepared this letter to describe the noise design criteria we plan to use for the redevelopment of 40 Thorndike Street in Cambridge. This renovation project will convert the Middlesex County Courthouse building to multi-family residential, with retail at the first level. This letter also describes some general measures for noise control that we have used on other projects. These will be revised during the design phases as needed to meet the local noise requirements.

The 40 Thorndike Street building will be designed to meet the City of Cambridge Noise Control Ordinance.

Cambridge Noise Ordinance

In accordance with Table 8.16.060E of the Ordinance (reproduced below), the Project will abide by the noise standards measured at the property lines of affected properties.



Table of Zoning District Noise Standards (maximum octave band sound pressure levels).

| Octave Band center Frequency Measurement (Hz) | Residential Area | | Residential in Industrial | | Commercial Area | Industry Area |
|---|------------------|-------|------------------------------|-------|--------------------|------------------|
| | Daytime | Other | Daytime | Other | Anytime | Anytime |
| 31.5 | 76 | 68 | 79 | 72 | 79 | 83 |
| 63 | 75 | 67 | 78 | 71 | 78 | 82 |
| 125 | 69 | 61 | 73 | 65 | 73 | 77 |
| 250 | 62 | 52 | 68 | 57 | 68 | 73 |
| 500 | 56 | 46 | 62 | 51 | 62 | 67 |
| 1,000 | 50 | 40 | 56 | 45 | 56 | 61 |
| 2,000 | 45 | 33 | 51 | 39 | 51 | 57 |
| 4,000 | 40 | 28 | 47 | 34 | 47 | 53 |
| 8,000 | 38 | 26 | 44 | 32 | 44 | 50 |
| Single Number Equivalent (dB(A)) | 60 | 50 | 65 | 55 | 65 | 70 |

There are residential areas close to the project site, and the design goal will be to minimize noise reaching these residential properties and comply with the residential noise limits of 60 dBA daytime and 50 dBA at other times.

Noise Mitigation Measures

Sound emanating from the project's rooftop mechanical equipment will be minimized by adopting best available and feasible practices regarding the location and sizing of equipment, selecting appropriate equipment, and implementing sound attenuation measures, as needed to comply with the City of Cambridge noise regulation as presented above.

The following is a list of major mechanical equipment on the project and the anticipated noise control measures. The noise control measures may change depending on the noise data for the specific make and model of the major mechanical items.

40 Thorndike Street - Major Mechanical Equipment Locations and Noise Control

1. Evaporative cooling towers (noise control to be determined).
2. Air handling units, on roof behind mechanical screen (additional noise control if necessary).

3. Emergency generator, on roof inside noise control enclosure.
4. Chillers, inside mechanical penthouse.
5. Restaurant exhaust fan (assuming there is a restaurant tenant). It is anticipated that the fan would be inside the building with discharge louvers above the retail storefronts. Noise control to be determined.

In Summary, we plan to assist the project team in designing a building that meets the applicable noise requirements and does not create a noise nuisance for the surrounding area.

Please call if you need further information.

Sincerely,

CAVANAUGH TOCCI ASSOCIATES, INC.



Timothy J. Foulkes

Cc: Catie Ferrara, Epsilon Associates

Appendix D

Wind Conditions Letter

October 18, 2013

Mark Sardegna AIA LEED AP

Vice President
Elkus Manfredi Architects
300 A Street
Boston, Massachusetts 02210
msardegna@elkus-manfedi.com

**Re: Pedestrian Wind Conditions - Letter of Opinion
40 Thorndike Street
Cambridge, MA
RWDI Project #1302052**

Rowan Williams Davies & Irwin Inc. (RWDI) has reviewed the potential pedestrian wind conditions around the proposed renovation for the existing 22-story tower at 40 Thorndike Street in Cambridge, MA. This letter summarizes our findings and, where necessary, provides wind mitigation guidance, based on the current design drawings and our past experience of wind-tunnel testing for similar buildings in the Boston area.

Site Information

The existing building is 22 stories with a large podium, occupying a street block bordered by Thorndike, Second, Spring and Third Streets, as shown in Figure 1. The entrances to the existing building are all located on the north façade along Thorndike Street, while the open area on the south side of the building is primarily used for loading and parking purposes.

The surrounding buildings are relatively low in all directions, as shown in Figure 1. This makes the existing tower fully exposed to the prevailing winds in the area.

The proposed renovation consists of several changes that may affect wind conditions at and above grade. These changes include the ground floor plan, entrance locations, outdoor patios at grade, on the podium and at upper levels, façade articulations, additional landscaping and others. Images in Figure 2 are the southwest view of the existing and proposed towers, and Figure 3 illustrates the ground floor plan after the renovation.



Figure 1 - Aerial photo of the existing site and surroundings
(Courtesy of Google earth™)



Figure 2 – Existing Building and Proposed Renovation (View from Third and Spring Streets)



Figure 3 – Ground Floor Plan

Local Wind Data

An analysis of the long-term wind data in the Boston area indicates that, on an annual basis, the most common wind directions are those between southwest and northwest. Winds from the east and east-southeast are also relatively common. Winds are frequent from the southwesterly directions in the summer and fall. In the case of strong winds, northeast and west-northwest are the dominant wind directions. Typically, winds are stronger in the winter and spring than those in the summer and fall.

Pedestrian Wind Assessment

In order to provide an opinion on the overall wind conditions expected around the proposed development, RWDI reviewed meteorological data for the area, drawings of the proposed development, aerial and “street view” photographs of the surroundings, and past wind tunnel projects with similar geometry and exposures in Boston. This data, in conjunction with our past experience in the area and our engineering judgment, allows us to summarize the expected wind conditions as follows:

- The existing tower is significantly taller than its surroundings and, as a result, it intercepts the stronger winds at higher elevations and deflects them down to the grade level. The large podium structure around the tower (left image in Figure 2) is a positive feature to reduce the downwashing wind flows from reaching the streets;
- The proposed renovation will keep the general building massing and will not affect the wind conditions in the surrounding areas;
- Both tower entrances on the north and south sides of the building are recessed from the main façade, and protected by large canopies and arcade / colonnade structures. These are positive design features for wind control;
- Canopies are recommended for all retail entrances at the base of the building;
- The proposed trees along the perimeter of the building are also a positive design feature for improving wind conditions at entrances and along sidewalks. If feasible, additional coniferous or marcescent trees (trees that retain their foliage through the winter, such as columnar English oak) should be considered to provide wind protection in the winter;
- It is indicated in Figure 3 that outdoor seating areas are planned in the areas close to the southwest and northwest building corners, where wind speeds are expected to be higher than desired for passive pedestrian activities. Wind mitigation is required for these areas and it may take the form of glass screens and/or planters to block the horizontal winds and trellises, umbrellas or canopy-type trees for any downwashing winds. Photo examples are provided in Figure 4 for reference;
- On the podium roof, higher-than-desired wind speeds are also expected due to downwashing flow and increased exposure. Suitable wind conditions can be achieved in the summer through appropriate wind mitigation, which may consist of tall parapets, landscaping, trellises and local screens – see examples below in Figure 4;
- For the upper level courthouse terraces (shown in the right image of Figure 2), they are located in the middle of the south surface of the tower and recessed from the main façade. They are further protected by railings and landscaping. Suitable wind conditions are expected in these areas, especially during the summer season.



Figure 4 – Wind Mitigation Examples



40 Thorndike Street
Cambridge, MA
October 18, 2013

Conclusion

The proposed renovation for the existing tower at 40 Thorndike Street includes several positive design features for wind control, while keeping the general building massing. As a result, it will not affect the wind conditions in the surrounding areas and wind conditions on the development site are expected to be similar to or better than the existing conditions. Higher-than-desired wind speeds are predicted at outdoor amenity areas at grade and on the podium roof. The potential wind mitigation measures are described and photo examples are provided to create comfortable wind environment in these areas.

We trust the above discussion satisfies your current needs. If you have any questions, please do not hesitate to contact us.

Yours very truly,

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