

# Draft Parking and Transportation Demand Management Plan

180 Fawcett Street  
Cambridge, Massachusetts

*Prepared for:*

CCF Fawcett Street Property Company, LLC  
Cambridge, Massachusetts

July 2021

*Prepared by:*

 **Vanasse &  
Associates inc**  
Transportation Engineers & Planners

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## PROJECT DESCRIPTION

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Vanasse & Associates (VAI) has prepared this Parking and Transportation Demand Management (PTDM) Plan on behalf of CCF Fawcett Street Property Company, LLC for a proposed 57,434 square feet (sf) of gross floor area (GFA) (68,993 gross square feet (gsf)) of research and development (R&D)/laboratory space with a 55-space below-grade parking garage to be located at 180 Fawcett Street in Cambridge, Massachusetts (the “Project”). The Project site is bounded by Smith Place to the west, Fawcett Street to the south, and commercial private property to the north. The Project would consist of the demolition of the existing buildings and construction of the facility as described above. Access for the parking garage and building loading is proposed from two curb-cuts onto Fawcett Street. It is important to note that only persons who work in the proposed building will have access to the parking garage. Long-term bicycle parking for 14 bicycles will be provided in a separated bicycle parking room on the first floor. Access to this room will be provided from a dedicated building entrance onto Smith Place. In addition, 8 short-term bicycle parking spaces will be provided along site frontage off of Smith Place, within a 50-foot radius of the pedestrian main building entrance.

Project Name:	180 Fawcett Street
Address:	180 Fawcett Street
Owner/Developer Name	CCF Fawcett Street Property Company, LLC
Contact Person/Address	Matt D’Amico Cabot, Cabot & Forbes 185 Dartmouth Street Boston, MA 02110 (617) 603-4000 MDAmico@ccfne.com

Land Use	Square Feet	Car Parking Spaces	Long-Term Bike Parking Spaces Required/Provided	Short-Term Bike Parking Spaces Required/Provided	Workers On-Site
R&D	62,050	55 total	14/14	4/8	124

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

All people who are eligible to park in the parking facility are subject to PTDM requirements. They will be surveyed annually and are the recipients of TDM measures. This PTDM Plan covers all those who work in the building.

The City's definition of employee includes anyone engaged in the business of the entity that occupies the site but not people who come in to provide service at the site. Therefore, any contract employees who work at the building will be subject to PTDM but a cleaning crew that services the facility will not be subject to PTDM.

Figure 1 presents the location of the site in Cambridge, Massachusetts. Access paths for the various transportation modes expected to be used to visit the site are shown on Figure 2.



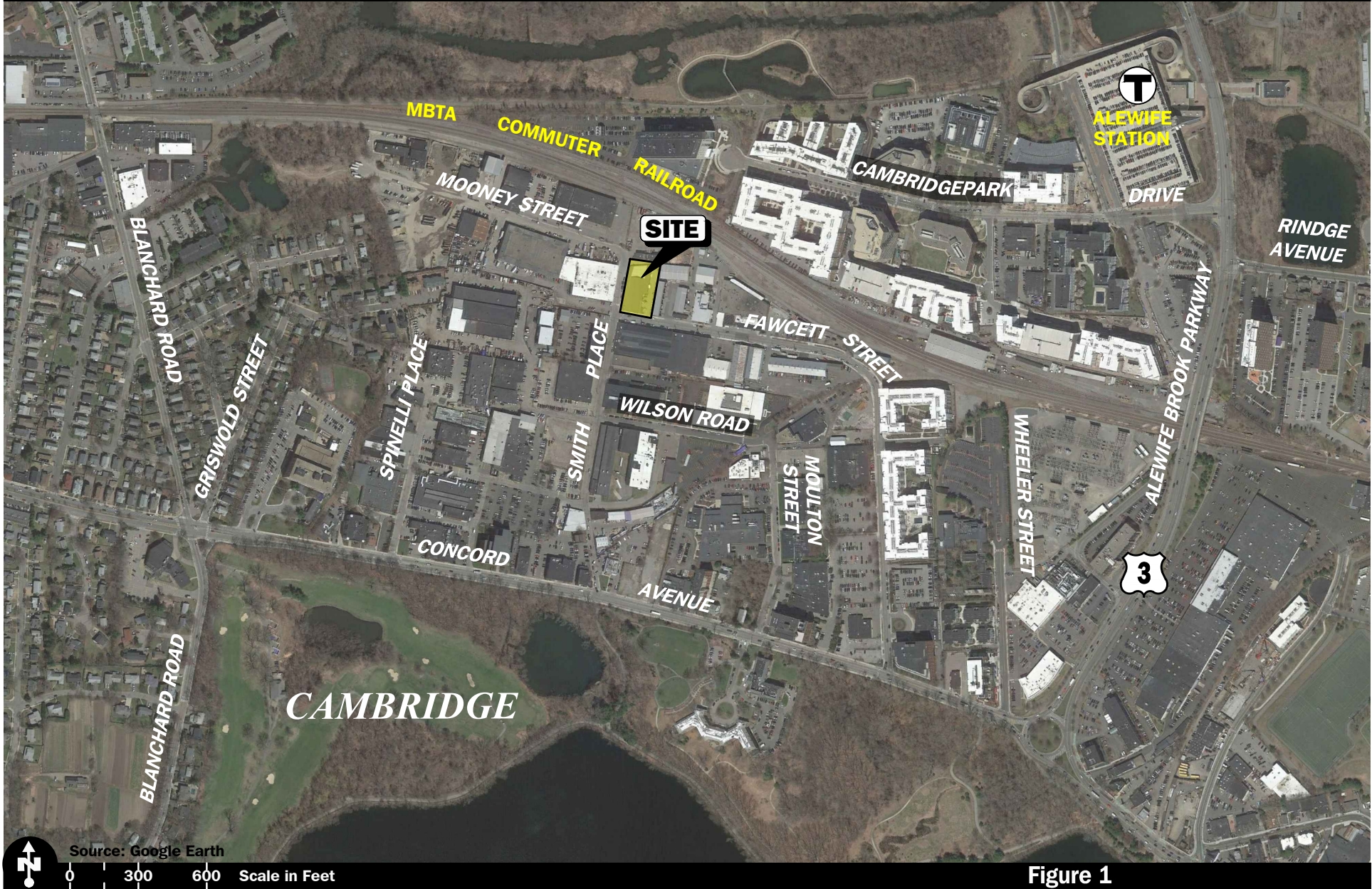
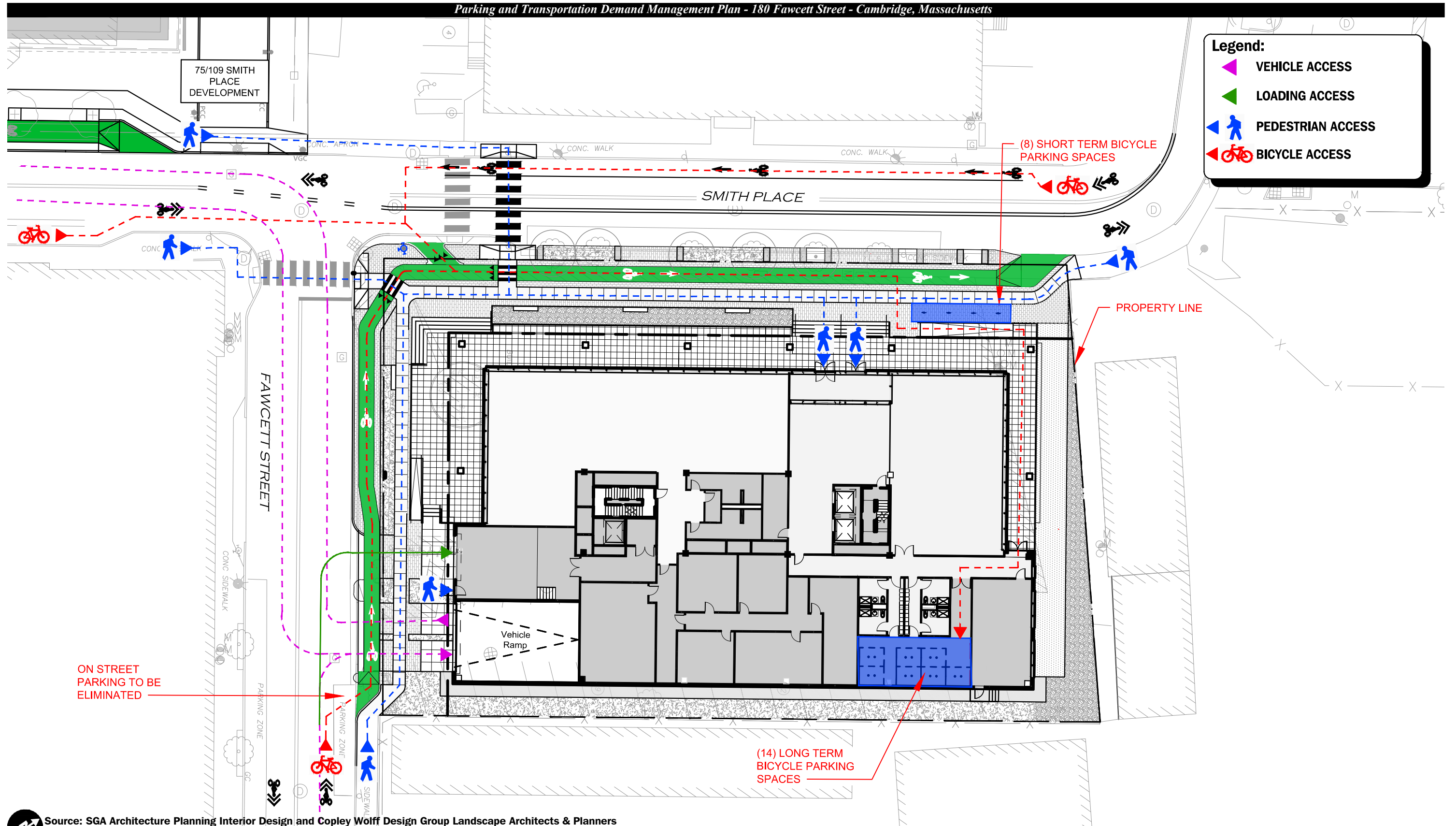


Figure 1  
Site Location Map







**Legend:**

- ▶ VEHICLE ACCESS
- ▶ LOADING ACCESS
- ▶ PEDESTRIAN ACCESS
- ▶ BICYCLE ACCESS

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners



**Figure 2**  
Proposed Site - Day one  
Vehicles, Bicycles and  
Pedestrian Access

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## **TRANSIT CONDITIONS**

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The Site is located 1.5 miles from Alewife Station via Concord Avenue and Alewife Brook Parkway. Alewife Station is a terminating stop on the Massachusetts Bay Transit Authority (MBTA) Red Line subway system. The MBTA operates two bus routes in the immediate area of the Quadrangle, both within reasonable walking distance to the Project site:

- ***Bus Route 74 - Belmont Center - Harvard Station, via Concord Avenue*** - Route 74 connects Belmont Center with Harvard Square (Cambridge) via Concord Avenue. The closest stop is located at the intersection of Concord Avenue and Smith Place, approximately 0.2 miles (less than a 5-minute walk) south of the Project site. The bus runs from 5:20 AM until 1:27 AM on weekdays, 5:45 AM to 7:10 PM on Saturdays, and no service on Sundays. On weekdays, Route 74 operates with infrequent service throughout the day – headways range from 25 to 90 minutes.
- ***Bus Route 78: Arlmont Village – Harvard Station via Park Circle*** - Route 78 connects Arlmont Village (Arlington) to Harvard Square (Cambridge) via Frontage Road, Brighton Street, and Concord Avenue. The closest stop is located at the intersection of Concord Avenue and Smith Place, approximately 0.2 miles (less than a 5- minute walk) south of the Project site. The bus runs from 5:42 AM until 12:53 AM on weekdays, 6:27 AM to 12:58 AM on Saturdays, and 6:10 AM to 1:04 AM on Sundays. Weekday service frequencies are as follows:
  - Every 15 to 35 minutes from the beginning of service through 9:00 AM, but mostly every 23 to 27 minutes.
  - Every 35 minutes between 9:00 AM and 4:00 PM.
  - Every 7 to 40 minutes during the evening peak period, but mostly every 24minutes.
- ***Red Line: Alewife Station*** - The site is located 1.2 miles (approximately a 25-minute walk) of Alewife Station on the MBTA Red Line. The Red Line subway service links Cambridge to to Braintree tot the north and Ashmont to the south, via the downtown area of the City of Boston. The Red Line connects with the Green Line at Park Street and the Orange Line and Silver Line (Washington Street branches) at Downtown Crossing. At South Station, Red Line riders can connect to the Worcester/Framingham and all southern commuter rail lines and the Silver Line (Airport, Seaport, and Chelsea). At Porter Square station in Cambridge, the Red Line connects with the Fitchburg commuter rail line. At Alewife Station, there are addition bus lines available, including:

- Route 62: Bedford V.A. Hospital, Alewife Station via Lexington Center, and Arlington Heights
- Route 67: Turkey Hill, Alewife Station via Arlington Center
- Route 76: Hanscom/Lincoln Labs, Alewife Station via Lexington Center and Civil Air Terminal
- Route 79: Arlington Heights, Alewife Station via Massachusetts Avenue
- Route 84: Arlmont Village to Alewife Station
- Route 350: North Burlington, Alewife Station via Burlington Mall
- Route 351: Oak Park/Bedford Woods, Alewife Station via Middlesex Turnpike

It is important to note that due to COVID-19 some of the above-mentioned routes were suspended or combined. In order to provide a typical non COVID-19 scenario, the transit analysis was conducted for all the existing lines including the suspended line.

- ***Alewife TMA Shuttle*** - Alewife Station is a long walking distance to/from the Quadrangle; thus, the Alewife Transportation Management Association (TMA), operates a shared shuttle service (“Alewife Connect” or the Alewife TMA Loop Shuttle1) between Alewife Station and the Quadrangle for participating member companies and employers. The service includes stops at 10 Fawcett Street, 80 Fawcett Street, 110 Fawcett Street, 10 Moulton Street, 45 Moulton Street, 75 Moulton Street, 733 Concord Street, and 767 Concord/Fayerweather Street. The shuttle runs weekday service every 30 minutes, between 7:00 and 10:00 AM and 3:30 to 7:30 PM.
- ***128 Business Council Shuttles*** - 128 Business Council Shuttles to Alewife Station, The 128 Business Council operates six public shuttles that provide service to and from the Alewife MBTA Station2: Alewife Route A North, Alewife Route A South, Alewife Route B, Alewife Route C, Alewife Route D, and REV Bus-Hartwell Area (including Lexington Center).

A map of the current transit facilities is provided on Figure 3.



Parking and Transportation Demand Management Plan - 180 Fawcett Street - Cambridge, Massachusetts

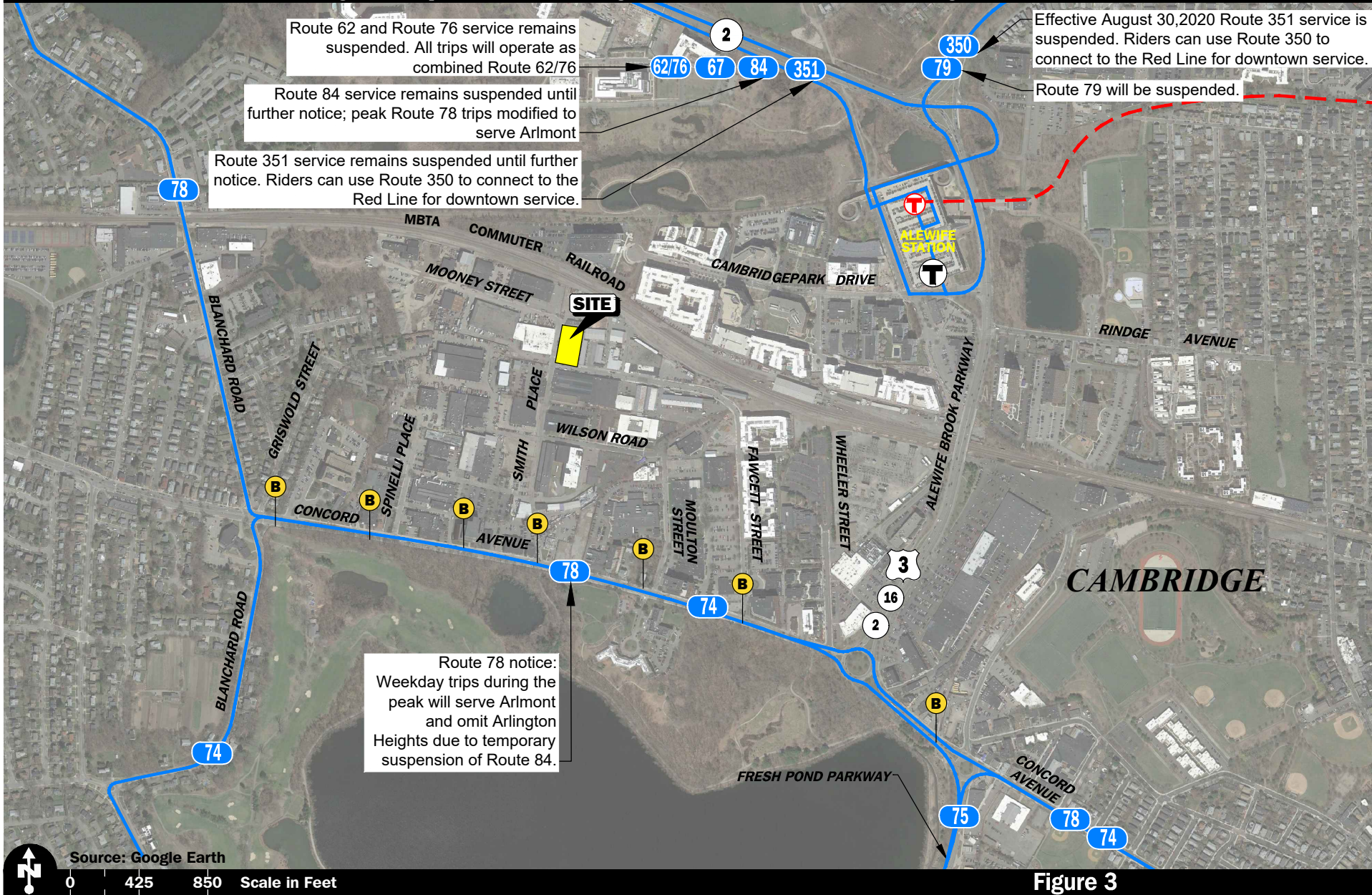


Figure 3  
Public Transit Map

## **PROJECT CHARACTERISTICS**

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A detailed Transportation Impact Study (TIS) was prepared for the Project. Details on the Project using the characteristics identified in the TIS are provided in Table 1 below.

**Table 1**  
**PROJECT CHARACTERISTICS**

Characteristics	Existing Site	Project
Leasable Retail (Health Club)	19,014 sf	--
Leasable Office Space/R&D Space (GFA)	--	57,434 sf
Parking Spaces	14 registered	55
Bicycle Spaces		
Long Term	0	14
Short Term	0	8

Source: Site survey.

The TIS for the Project documented vehicle trips expected with the development of the site. As identified in the City of Cambridge Guidelines for TISs, the traffic volumes expected to be generated by the R&D component of the Project were determined using trip-generation rates that were empirically derived from monitoring reports for other R&D facilities in the Project area.

PTDM studies from 2017 through 2018 for three R&D buildings in the vicinity of the Project were used to determine an empirical trip-generation rate for R&D uses in this area of Cambridge. The resulting empirical rates were approved by the Traffic, Parking, and Transportation (TP&T) Department in their Scoping Letter of May 5, 2021, which also contained combined mode-split data for three office/R&D developments in this area of Cambridge obtained from PTDM reports. These mode split values are provided in Table 2.

**Table 2**  
**MODE SPLIT SUMMARY<sup>a</sup>**

Mode Split	R&D Building
Single Occupancy Vehicle (SOV)	54.0
High Occupancy Vehicle (HOV)	10.0
Transit	16.0
Bicycle	10.0
Pedestrian	4.0
<u>Other</u>	<u>6.0</u>
<b>TOTAL</b>	<b>100</b>

<sup>a</sup>TDM monitoring reports from 10 Wilson Road (2017), 767 Concord Avenue (2019), and 75 Moulton Street (2019) PTDM report.

Table 3 provides the empirically derived vehicle-trip rates and expected number of vehicle trips for the R&D portion of the development.

**Table 3**  
**EMPIRICAL R&D VEHICLE TRIP GENERATION RATES**

Time Period	Empirical R&D Vehicle Trip Rates <sup>a</sup>	Proposed R&D (SOV+HOV) Vehicle Trips (62,050 GFA) <sup>b</sup>
<i>Weekday Daily:</i>		
Entering	2.83	176
<u>Exiting</u>	<u>2.90</u>	<u>180</u>
Total	5.73	356
<i>Weekday Morning Peak Hour:</i>		
Entering	0.57	35
<u>Exiting</u>	<u>0.16</u>	<u>10</u>
Total	0.73	45
<i>Weekday Evening Peak Hour:</i>		
Entering	0.14	9
<u>Exiting</u>	<u>0.48</u>	<u>30</u>
Total	0.62	39

<sup>a</sup>Based on average trip rates from 10 Wilson Av 2017 PTDM report, and 75 Moulton Street 2019 PTDM report.

<sup>b</sup>Based on trip rates multiplied by 62,050.

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

## **MODE SPLIT COMMITMENT**

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Single-occupant vehicle (SOV) Employee Mode-Split Commitment for those who work at the proposed building: 49 percent. This represents a 10 percent reduction from the mode split used in the TIS. The following pages identify measures that the Project will use to maintain a low SOV percentage.



## **MANAGEMENT**

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A comprehensive program designed to minimize the amount of SOVs entering the site will be implemented. The Project proponent will become a member of the Alewife TMA which works with property owners to provide services as part of the proposed TDM measures.

The Project proponent will promote the location and convenience of access to public transportation. This information will be available on brochures, the company website (internet), and other materials.

The Project proponent will designate an On-Site Employee Transportation Coordinator (ETC) to assist with marketing and promotion of sustainable transportation. At this time, contact information is not known as a tenant has not been identified, but this information will be provided when available.

The ETC will be available to assist employees during business hours. Email and phone information for the ETC will be posted in a central location and also included on the company intranet and in New Employee packets. The ETC will compile and distribute up-to-date transportation packets explaining all commute options to all new employees as part of their orientation package. The packets will contain information on both the range of options available for the commute trip and the Project proponent programs to support use of these options. The ETC will be the liaison between the employees and transportation organizations, such as the TMA, MBTA, and the City of Cambridge. The ETC will develop and maintain transportation information compiled onto the company intranet that includes:

- MBTA maps, schedules, and fares
- Alewife TMA shuttle map and schedule
- “Getting Around in Cambridge” map
- Bicycle parking and regional routes
- Pedestrian routes
- Ride-matching
- Other pertinent transportation information

The ETC will also assist in the implementation of various survey instruments to identify transportation characteristics of the employees and monitor/evaluate results of the PTDM Plan Monitoring program. The ETC will participate in any PTDM or Transportation Coordinator trainings offered by the City of Cambridge or the TMA.

## **ALTERNATIVE MODE PROMOTION PROGRAMS**

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The Project proponent will actively promote the use of transportation options through promotional and public awareness programs that will focus on the following factors to maintain the low SOV rate identified through the mode split surveys conducted for the PTDM monitoring reports.

### **PUBLIC TRANSPORTATION**

The following services will be provided to encourage the use of public transportation:

- Accurate real-time information for the shuttles will be provide on-site in a central location.
- Tenants will be encouraged to provide a 100 percent subsidy towards an MBTA pass via a pre-tax deduction program. The pass covers bus, subway, and commuter rail services.

### **SHUTTLE BUS SERVICE**

The owners (or subsequent owners) will explore membership with the Alewife TMA. The Alewife TMA is a public/private partnership focused on reducing traffic congestion and improving air quality in the Alewife area. Should the owners (or subsequent owners) become members of the TMA, the TMA benefits will be extended to all employees of property tenants, including use of the Alewife Shuttle.

The Alewife TMA already operates a Shuttle Loop service through the Quad, with service along Fawcett Street, Smith Place, Wilson Road, and Moulton Street, connecting to the MBTA's Alewife Red Line Station.

### **EMERGENCY RIDE HOME**

Via the Alewife TMA, the owners (or subsequent owners) can provide tenants with an Emergency Ride Home program for all employees who commute by non-SOV mode at least three days a week.

## **RIDESHARING**

Carpool and vanpool groups will be informally organized by individual teams and lab groups on an as need basis. In addition, the TMA membership entitles the Project proponent to ride-matching services, which will be advertised to all employees. The Project proponent will provide 5 carpool/high-occupancy vehicle (HOV) parking spaces in preferential locations in the parking garage.

## **BICYCLE/PEDESTRIAN OPTIONS**

As proposed, the Project will provide 8 short-term bicycle spaces on the premise. There is pedestrian access to the building from Smith Place. The short-term bicycle spaces will be located along the site frontage off Smith Place, within a 50-foot radius of the pedestrian main building entrance. An indoor bicycle parking room will be provided on-site with access from Smith Place. This room has been designed according to City bicycle parking guidelines and is shown on Figure 4.

Indoor bicycle parking will meet design requirements of Article 6 of the Cambridge Zoning Ordinance and the City of Cambridge Bicycle Parking Guide. Long-term bicycle parking spaces are required to be provided at the rate of 0.22 bicycle parking space per 1,000 sf of building area. The site will contain 57,434 sf which requires 14 long-term bicycle parking spaces. As shown on Figure 4, 14 spaces are provided for a total of 22 bicycle parking spaces. In addition, showers and lockers will be provided on-site for employee use.

The Project proponent will provide a Gold-Level Bluebikes<sup>SM</sup> membership to employees to encourage commuting by bicycle. A bike repair stand with air supply will be provided in the bike parking area.

## **WORK SCHEDULE**

The Project proponent will provide flexible work schedules. This will encourage employees to access the site during off-peak times. In addition, the Project proponent will provide telecommuting options for employees to further reduce the Project impact on commuting traffic.

## **ANNUAL TRANSPORTATION FAIR**

In order to further encourage non-SOV transportation, the Project proponent will hold a weeklong Annual Transportation Fair to be held on or about the third week in May or such other date that coincides with National Bike to Work Day. Information on sustainable transportation choices will be provided for the building employees. A bicycle tune-up day will also be conducted during the Fair.

## **OFFICE OF WORKFORCE DEVELOPMENT**

To encourage the use of alternative transportation, the Project proponent will continue to work with the Cambridge Office of Workforce Development (OWD) to expand employment opportunities for Cambridge residents.

**Bicycle Parking Criteria**

**Use/Category:**

- Technical Offices, Research Facilities (Long-Term - N1)
- Laboratories and Research Facilities (Short-Term - N2)

**Required Parking:**

- Long-Term - N1: 0.22 Space per 1,000 SF
- Short-Term - N2: 0.06 Space per 1,000 SF

**Calculation:**

62,050 GFA \*(0.22 Space / 1,000 SF) = 14 Spaces  
 62,050 GFA \*(0.06 Space / 1,000 SF) = 4 Spaces

Total Required Spaces: 18 Spaces

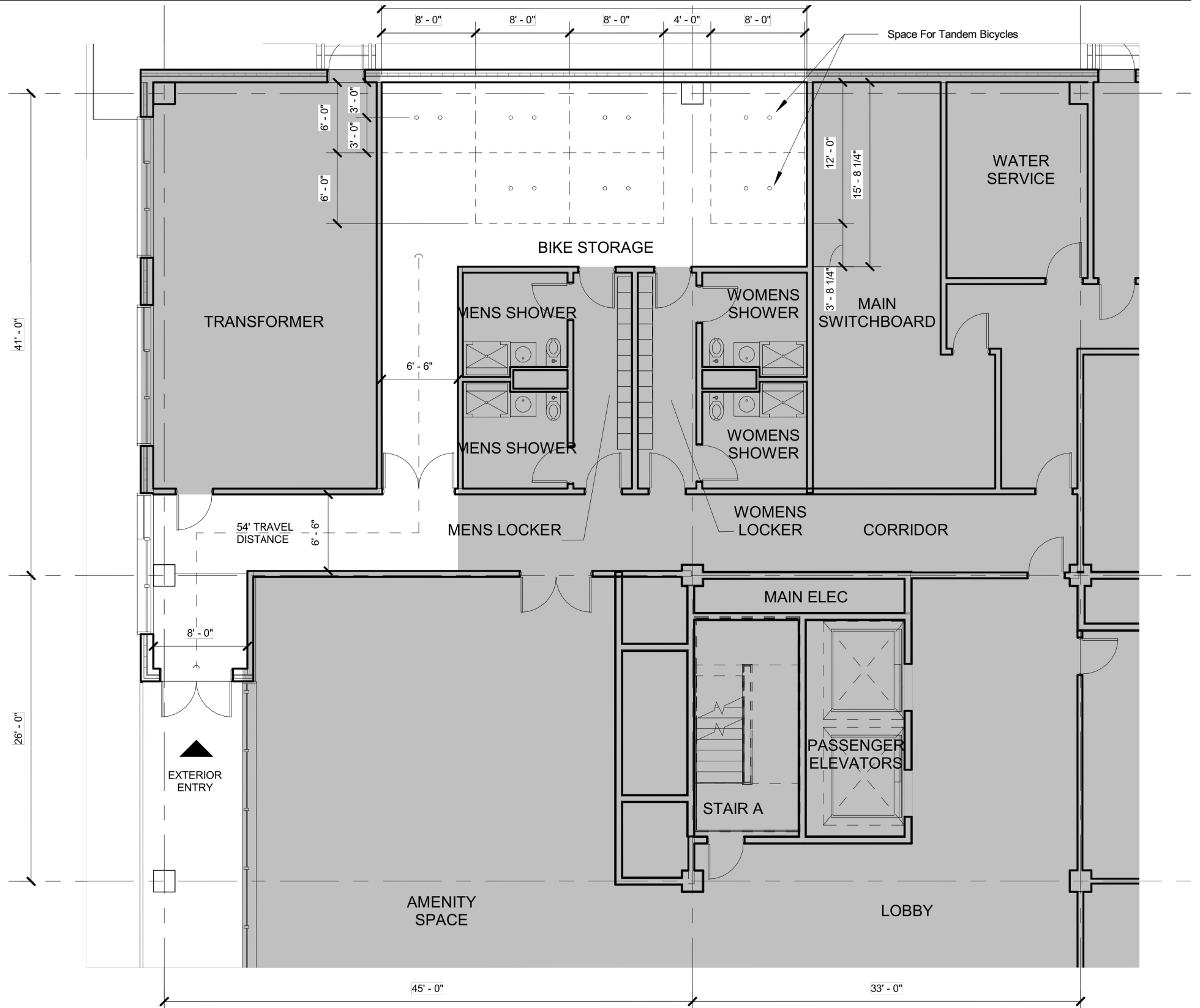
Total Long-Term Spaces Provided: 14 Spaces



Ultrasite Inverted U-Rack, Model # 5801DSM, Powdercoated Black

Note 1: The floor area of an underground parking garage and the floor area of the underground portion of a structure devoted in whole or in part to parking automobiles, shall not be counted as gross floor area and shall be exempt from the requirements as to floor area but shall conform to all other requirements of the district in which it is located.

Note 2: Long-term bicycle parking on a private lot shall be located within the building containing the use that it is intended to serve, or within a structure whose pedestrian entrance is no more than two hundred (200) feet from a pedestrian entrance to such a building.



Source: SGA Architecture Planning Interior Design  
 0 5 10 Scale in Feet



Figure 4

Proposed Site Plan Long-Term Bicycle Parking

## **PARKING MANAGEMENT**

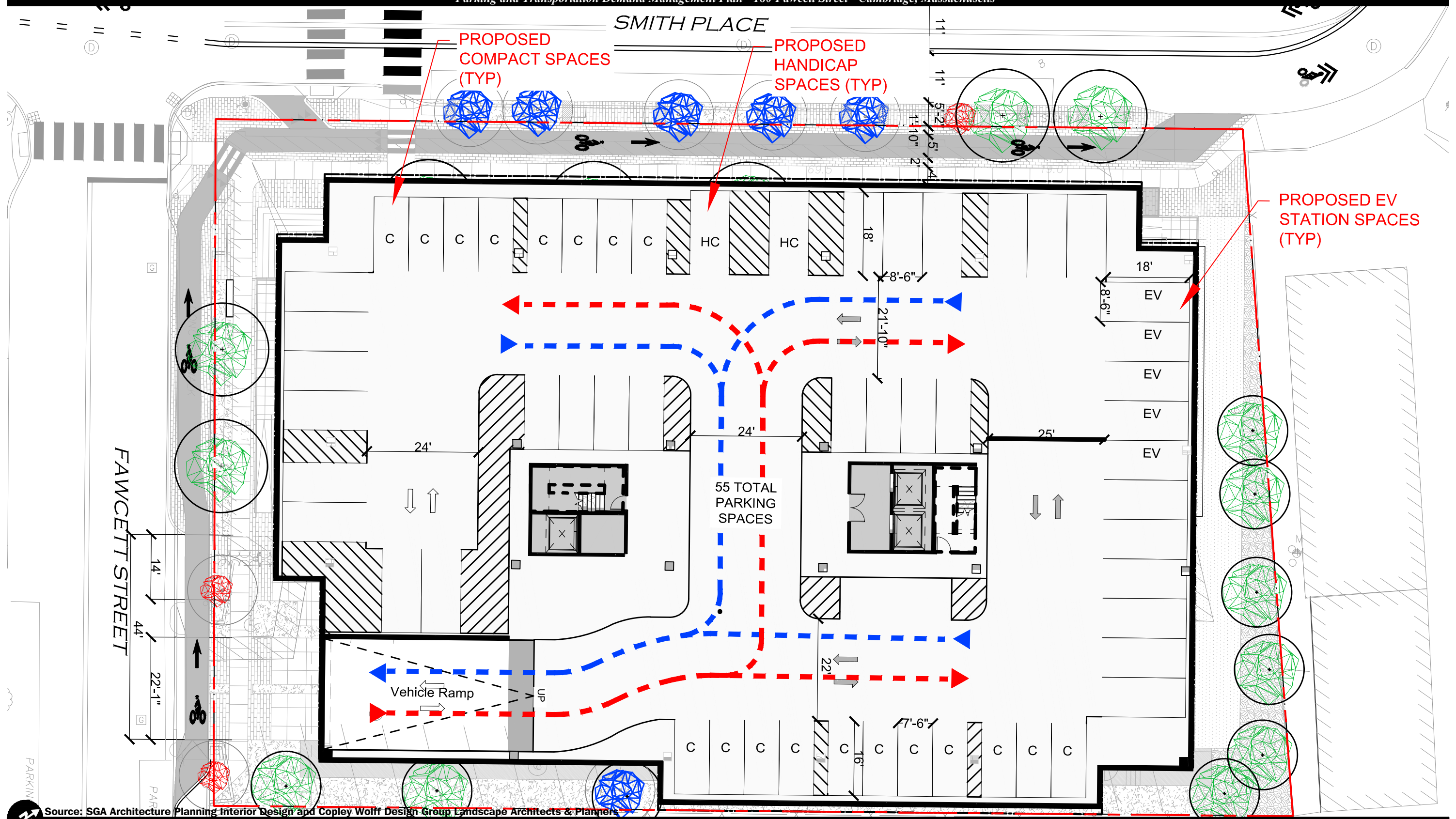
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### **PARKING SUPPLY/DEMAND**

The below-grade parking garage on-site will provide 55 striped parking spaces, which is expected to provide sufficient parking supply for the proposed Project. The 55 spaces are for those who work in the building. Public parking will not be permitted on-site.

The proposed garage will have a minimum of 5 electric vehicle (EV) charging stations serving parking spaces located as shown in the garage floor plans on Figure 5. The EV parking spaces are also shown on Figure 5.

The proposed garage will also have 10 percent of the parking supply reserved for carpool/HOV vehicles. These will be located in preferential locations near elevators or stairway entrances.



Source: SGA Architecture Planning Interior Design and Copley Wolf Design Group Landscape Architects & Planners

Figure 5  
Proposed Site - Day One  
Parking Level Plan



R:\8779\0 - 8779 - Fig C - Proposed plan C.2 - garage.dwg, 7/15/2021 8:52:20 AM

## **MONITORING AND REPORTING PLAN**

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To ensure compliance with the City of Cambridge Vehicle-Trip Reduction Ordinance as well as utilization of the TDM programs, a traffic monitoring program for the site will be implemented. The details of the program are provided below.

### **MONITORING AND REPORTING**

The Project proponent will conduct annual employee surveys to determine the mode share for the Project, which will be used to determine if the mode split commitment is being met. The survey will be distributed to all employees. Employees will be sent an e-mail containing an html link to a website where the survey can be taken online with each employee provided a unique identifier to prevent duplication of entries.

The Project proponent will file an annual monitoring report based on employee survey data and in the format provided by the PTDM Officer. Every two years, the report will include automobile and bicycle parking utilization reports and driveway counts. The report includes:

- Annual mode split surveys.
- Biennial entry and exit counts at the garage driveway, taken during weekday morning, weekday evening, and daily time periods.
- Biennial counts of parking space utilization.
- Reporting on implementation of TDM measures.

Depending on when the first Certificate of Occupancy is issued, monitoring would take place for a one-week period during the months of April, May, September, or October, during a non-holiday week when schools are in session. Reports will be submitted to the PTDM Planning Officer by the stated deadline, usually June 30 or November 30, depending on date of Certificate of Occupancy.

**CORPORATE OFFICER CERTIFICATION**

I hereby certify that a commercial parking permit has been obtained for each space being used for commercial parking. None of the proposed parking spaces at this parking facility have been or will be available as commercial parking spaces until a commercial parking permit therefore has been obtained.

Signed \_\_\_\_\_  
(Officer of CCF Fawcett Street Property Company,  
LLC)

Date: \_\_\_\_\_





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**VOLUME III -  
APPENDIX**

180 FAWCETT ST –  
5138.00

CAMBRIDGE, MA

10.08.2021

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ARCHITECTURE | PLANNING  
INTERIOR DESIGN | VDC  
BRANDED ENVIRONMENTS

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**NEW YORK**  
54 W 21ST ST, SUITE 804  
NEW YORK, NY 10010

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## EARLY COMMUNITY ENGAGEMENT REPORT

The Applicant has engaged in public participation for this Special Permit Application in accordance with Section 5 of the Rules of the Cambridge Planning Board. To date, the Applicant has held two meetings with the public in association with this Special Permit Application.

On August 5, 2021 at 7:00pm, the Applicant held a meeting at 180 Fawcett Street and invited the Project's abutters two weeks prior to the meeting. Copies of the invitation and abutters list are attached below. Two abutters joined the Applicant at this meeting and details of the Project were discussed including the Project's proposed use, massing, public realm improvements, timing, and much more. No questions or concerns were aired about the Project. No changes to the Project proposal were made as a result of this meeting.

In a separate meeting on July 7, 2021 at 6:00pm, the Applicant held a meeting at 180 Fawcett Street with three representatives from the Cambridge Highlands Neighborhood. After discussing details of the Project, questions and comments were solicited. Questions primarily revolved around sustainability measures being taken for the Project and proposed massing. As a result of this meeting, the Applicant increased the number of EV parking spaces included in the Project proposal.

### **160-180 Fawcett Street Community Meeting 8/5/2021**

Please join us for a Community Meeting on Thursday August 5, 2021, from 7:00pm to 8:00pm at 160-180 Fawcett Street, Cambridge, MA. The on-site conference room can be best accessed from the parking lot at the rear of the site.

We will discuss the proposed Planning Board Special Permits for 160-180 Fawcett Street which contemplates a 4 story research & development office (CZO 4.34) with parking below grade.

For questions, please contact the Project Manager at [mdamico@ccfne.com](mailto:mdamico@ccfne.com) or (617) 603-4015





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**VOLUME III -  
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## LEED NARRATIVE

### 1. Rating System Narrative

#### 1.1 Introduction

In compliance with Article 22, the following narrative details the LEED certification goal for the Project and strategies implemented to meet the required and targeted credits based on the current stage of design. The Project is applying LEED BD+C for Core & Shell v4 rating system, with specific v4.1 credit substitution as noted, to demonstrate compliance with Article 22 of the Zoning Code. LEED v4 BD+C rating system tracks the sustainable features of the Project by assigning points in the following categories: Integrative Process (IP), Location and Transportation (LT); Sustainable Sites (SS); Water Efficiency (WE); Energy & Atmosphere (EA); Materials and Resources (MR); Indoor Environmental Quality (IEQ); Innovation (IN); and Regional Priority (RP). An evaluation of the Project's current design has identified 60 anticipated points, which meets Gold certification level, as referenced in the accompanying LEED checklist. As the Project design advances, all anticipated credits will continue to be evaluated and documented in LEED Online. As noted in the checklist, design credits will be confirmed by the end of 100% Design Development and construction credits by 100% Construction Documentation. Credits are indicated in the checklist with a D or C, respectively.

#### 1.2 Article 22 Conformance

##### 1.2.1 Integrative Process (IP)

###### Integrative Process – (1 point)

As part of the Concept phase, the Project team conducted a multidisciplinary team meeting to identify the Project's sustainability goals and synergies across disciplines that would support these goals. Prior to completion of the Schematic Design phase, the Project team will perform a preliminary energy modeling analysis to assess building configuration, orientation, and early ideas around building systems and how to reduce energy loads. The Project will also produce a preliminary water budget that identifies non-potable water supply sources and explores how to reduce potable water loads in the building. This assessment will provide guidance to the team and inform the Project's Owner's Project Requirements (OPR) and Basis of Design (BOD) documents.

##### Location and Transportation (LT)

The Project will pursue twelve points within Location and Transportation. These credits will be achieved based on the project's location in an urban area with access to numerous services and amenities. The Project will also provide bicycle facilities and amenities on site as well as below-grade parking. The approach to achieving the credit requirements is detailed below.

###### Sensitive Land Protection – Option 1. (2 points)

The site selected for the Project is a previously developed property and therefore, the Project is minimizing the impact of its physical footprint.

###### High Priority Site – Option 3. (3 points)

The site is located on a former landfill and it is anticipated that site investigation will reveal soil contamination. If contamination is found, remediation will be performed.

###### Surrounding Density and Diverse Uses – Options 1 & 2. (4 points)

The Project Site is located within a ½ mile walk of eight or more basic services, including restaurants, medical services, financial services, and places of worship.

###### Bicycle Facilities (LEED v4.1) – Case 1. (1 point)



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The Project will provide 21 secured and covered long term bike storage spaces and nine short term bike storage spaces, exceeding the LEED v4.1 credit criteria of bike storage for at least 5% of regular occupants and for 2.5% of peak visitors. Two male and two female showers will be provided for the use of all occupants. The Project entrance is located in proximity of a bike network that connects to diverse services within three miles of the Project Site.

Reduced Parking Footprint (LEED v4.1) – Case 1. (1 point)

The Project will provide 55 parking spaces which is below the 30% reduction of the Institute of Transportation Engineers (ITE) baseline. Exemplary Performance of 60% below baseline will be met.

Green Vehicles – Option 1. (1 point)

The Project will provide Electric Vehicle Charging Stations in 2% of all parking spaces. Based on 55 parking spaces, at least 2 charging stations will be provided.

**1.2.3 Sustainable Sites (SS)**

The Project will pursue seven points within Sustainable Sites by targeting credits related to the redevelopment of the Project Site from a mostly impervious, paved condition, to a condition with more permeability and landscaping. Design features will consider the environment surrounding the building and aim to minimize effects on microclimates and existing habitats. The descriptions below outline the Project's approach to achieving the credit requirements.

Construction Activity Pollution Prevention (Prerequisite)

Contractor will establish and implement an Erosion and Sedimentation Control Plan in compliance with the EPA 2012 Construction General Permit for demolition and construction activities to be undertaken for the Project as detailed in the Division 1 Sustainable Design Requirements specifications.

Site Assessment – (1 point)

As part of Design Development, the Project team will complete a comprehensive site survey including a study of the topography, hydrology, climate, vegetation, soils, human use, and human health effects.

Site Development- Protect or Restore Habitat – Option 2. (1 point)

The Project will make a one-time donation to a land trust organization in the amount of \$0.40/SF of site area. Based on the site area, this donation is estimated to be \$13,372.

Open Space (LEED v4.1) – (1 point)

Over 30% of the Project site will be physically accessible outdoor space and at least 25% of the outdoor space will be vegetated. There will be an accessible green roof located at level four and the ground level will include open space as well as landscaping.

Heat Island Reduction (LEED v4.1) – Options 1 & 2. (2 points)

The Project will utilize high albedo materials for all hardscapes, including both non-roof and roof installations. All installed materials will meet LEED requirements for either initial or three-year Solar Reflectance Index values. Heat island effect will be mitigated through the installation of the level four green roof. In addition, 100% of parking spaces are located under the building. Exemplary Performance is met by achieving both credit options.

Light Pollution Reduction – (1 point)

Exterior lighting will comply with Illuminating Engineering Society (IES) levels for backlight, uplight, and glare to address light trespass and minimize uplighting. The Project does not anticipate utilization of uplighting in the landscape lighting design.

Tenant Design and Construction Guidelines – (1 point)

The Project will provide tenants with Tenant Design and Construction Guidelines to educate occupants about the sustainable features of the building.



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#### **1.2.4 Water Efficiency (WE)**

The Project team will target nine points in Water Efficiency through the use of water efficient plumbing fixtures and reduced potable water for irrigation for landscaping. The Project anticipates meeting additional water metering requirements beyond the Prerequisite. The descriptions below detail the Project's approach to achieving the credit requirements.

##### Outdoor Water Use Reduction (Prerequisite) – Option 2.

The Project will use native and adaptive vegetation in the areas of new landscaping and on the green roof area to enable the reduction of potable water used for irrigation by over 30%.

##### Indoor Water Use Reduction (Prerequisite)

The Project will specify and install high efficiency plumbing fixtures to reduce annual indoor potable water consumption by over 20%. Toilets, urinals, lavatory faucets, and showerheads will have a WaterSense label. The Project will also meet process and appliance requirements. No once-through cooling with potable water will be used for any equipment that rejects heat and cooling towers will be supplied with makeup water meters, conductivity controllers and drift eliminators.

##### Building-Level Water Metering (Prerequisite)

The Project will include a permanent whole building water meter and share usage data with the USGBC for a period of five years post occupancy.

##### Outdoor Water Use Reduction (LEED v4.1) – Option 2. (2 points)

The Project will use regionally appropriate and low water plantings. The irrigation system is designed to reduce potable water usage by 75% through native and adaptive plantings.

##### Indoor Water Use Reduction – (4 points)

The Project will specify and install high efficiency plumbing fixtures to reduce the annual demand for potable water over the LEED baseline. The following flow rates are targeted to meet a 40% reduction  
Toilets: 1.1 gpf, Urinals: 0.125 gpf, Showers: 1.5 gpm, Lavatory Faucets: 0.35 gpm, Pantry Faucets: 1.5 gpm.

##### Optimize Process Water Use (LEED v4.1) – Option 1. (2 points)

The cooling tower subcontractor will perform a one-time potable water analysis and design the cooling tower to maximize the number of cycles and water treatment without exceeding water parameters.

##### Water Metering – (1 point)

In addition to a whole building water meter, the Project will install permanent water meters for irrigation and domestic hot water.

#### **1.2.5 Energy and Atmosphere (EA)**

The Project will target 14 points for the Energy and Atmosphere category through the implementation of energy-saving strategies such as high-efficiency building envelope systems and components, high efficiency HVAC systems, and energy recovery units. Enhanced commissioning will be implemented in addition to the Fundamental commissioning required for the Prerequisite. Strategies for achieving credit requirements are detailed below.

##### Fundamental Commissioning and Verification (Prerequisite)

The Owner will engage a Commissioning Agent to provide Fundamental Commissioning Services including document review and verification that the building systems are installed and perform as designed and intended. Building systems include HVAC, lighting and daylight controls, and domestic hot water. The Owner will develop an Owner's Project Requirements (OPR) document detailing the building energy system goals and targets. The MEP Engineer and Architect will develop a Basis of Design (BOD)



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document describing the design of energy systems meeting these goals. The OPR and BOD documents will include the building envelope.

*Minimum Energy Performance (Prerequisite) – Option 1.*

The Project will be designed to meet the mandatory provisions of ASHRAE 90.1-2010. The team's Energy Analyst will perform a whole building energy analysis to demonstrate an annual energy cost reduction of over 5% compared to an ASHRAE 90.1-2010 Appendix G baseline.

*Building-Level Energy Metering (Prerequisite)*

The Project will include new whole building level gas and electric energy meters that measure total building energy consumption and commit to sharing the data with the USGBC for a period of five years post occupancy.

*Fundamental Refrigerant Management (Prerequisite)*

The Project design documents will specify refrigerants that are chlorofluorocarbon (CFC) free. Federal law also prohibits these refrigerants.

*Enhanced Commissioning – Option 1, Path 2. (4 points)*

The owner will engage a Commissioning Agent to provide Enhanced and Monitoring Based Commissioning Services for mechanical, electrical, and plumbing systems and assemblies. Advanced commissioning of building systems will include a review of progress construction documents, creation of an ongoing commissioning plan and a return to the building to evaluate systems ten months after occupancy.

*Optimize Energy Performance – Option 1. (5 points)*

The Project is designed to be a high performance and low energy building. To achieve this goal, the Project team is applying an integrated systems approach to determine building performance throughout design. The building systems include energy conservation measures such as high-performance building envelope, high efficiency mechanical and ventilation equipment, energy recovery units, low flow plumbing fixtures and reduced lighting power density to reduce building loads. Based on the preliminary energy model, the building is projected to achieve 11.5% energy cost savings compared to ASHRAE 90.1-2010, Appendix G. Iterative energy modeling analysis will inform the design and confirm progress toward the targeted reductions.

*Advanced Energy Metering – (1 point)*

The Project will provide advanced meters on all base building energy uses and sub-meters to enable tenant spaces to meter energy consumption of all systems dedicated to their space, with a minimum of one meter per energy source per floor. The basis of design includes floor by floor electrical metering.

*Enhanced Refrigerant Management – Option 2. (1 point)*

HVAC&R systems will utilize refrigerants with Low Ozone Depleting Potential and Global Warming Potential; fire suppression systems will not contain CFCs, Hydrochlorofluorocarbons (HCFCs), or halons. The Project engineer will design the chilled water and fan coil unit design to meet the credit requirements.

*Green Power and Carbon Offsets – (2 points)*

The Project will engage in a one-time green power purchase to offset the carbon impact equivalent of 100% of the building's energy demand over a five-year period.

### **1.2.6 Materials and Resources (MR)**

The Project will target three points in the Materials and Resources category by carefully selecting materials that support a life-cycle approach that improves performance and promotes resource efficiency and human health. A construction waste management plan will be implemented to establish



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protocol for how the waste management provider collects and manages site-generated waste. The descriptions below detail the Project’s approach to achieving the credit requirements.

*Storage and Collection of Recyclables (Prerequisite)*

The Project will provide easily accessible, centrally located areas in the building for the storage of collected glass, plastic, paper/cardboard, and metal recyclables for residents. In addition, the Project will commit to recycling e-waste and batteries.

*Construction and Demolition Waste Management Planning (Prerequisite)*

Contractor will develop and implement a Construction Waste Management Plan in order to track demolition and construction waste removed from the Project. The Plan will include a minimum of five materials targeted for recycling and the process for sorting and preparing materials on site.

*Environmental Product Declarations (LEED v4.1) – Option 1. (1 point)*

The Project design documents will specify the installation of at least 10 products sourced from three different manufacturers that have environmentally, economically, and socially preferable life-cycle impacts. Products with life-cycle assessments or industry-wide or product-specific Environmental Product Declarations are valued for this credit.

*Material Ingredients (LEED v4.1) – Option 1. (1 point)*

The Project design documents will specify the use of at least 10 products sourced from three different manufacturers that demonstrate the chemical inventory of the products, including: Health Product Declarations, Cradle to Cradle certification, Declare label, or American National Standards Institute (ANSI).

*Construction and Demolition Waste Management – Option 1, Path 1. (1 point)*

The Project will track construction and demolition waste removed over the course of construction with the goal of diverting a minimum of 50% of the demolition and construction waste from landfill disposal. At least three material streams will be diverted separately, such as metal, concrete, or commingled waste. Materials utilized for Alternative Daily Cover will be considered waste material in the diversion calculations.

### **1.2.7 Indoor Environmental Quality (IEQ)**

The Project will pursue seven points related to the implementation of indoor air quality measures, including but not limited to: monitoring outdoor air delivery to interior spaces to counter high concentrations of indoor air pollutants, increasing ventilation rates to spaces throughout the building, and managing indoor air quality during construction for the construction team as well as future occupants. The Project will seek to further provide a high-quality indoor environment through quality views for occupants. The descriptions below detail the Project’s approach to achieving the credit requirements.



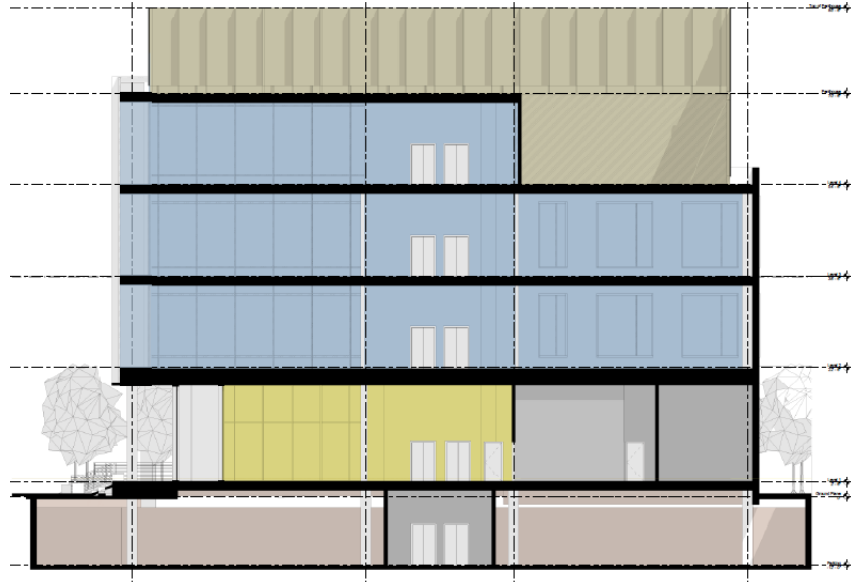
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*Minimum Indoor Air Quality Performance (Prerequisite) – Option 1.*

The Project team will ensure all ventilation systems meet the minimum requirements of Sections four through seven of the ASHRAE 62.1-2010 Standard for Acceptable Indoor Air Quality. The Project will install air flow monitors as required to satisfy the monitoring requirements.

*Environmental Tobacco Smoke Control (Prerequisite, LEED v4.1) – Option 1.*

Smoking of tobacco, e-cigarette and controlled substances will be prohibited inside the building and within 25 feet of all entries, outdoor air intakes, and operable windows. Signage will be posted at regularly used entrances to communicate the policy.

*Enhanced Indoor Air Quality Strategies – Options 1 & 2. (2 points)*

The Project will include permanent entryway systems at least 10 feet long in the primary direction of travel, direct exhaust of all chemical storage areas, and MERV 13 filtration on all ventilation systems. Chemical storage areas will be provided with self-closing doors and deck-to-deck partitions or hard-lid ceilings.

*Low-Emitting Materials (LEED v4.1) – (3 points)*

The Project team will specify low-VOC paints, coatings, flooring, composite wood, ceiling tile, and insulation that comply with the appropriate testing and/or emissions requirements.

*Construction Indoor Air Quality Management Plan – (1 point)*

The Contractor will provide and implement a Construction Indoor Air Quality (IAQ) Management Plan that addresses HVAC protection, pathway interruption, housekeeping and scheduling measures that will maintain air quality during construction. Absorptive materials will be protected from moisture prior to installation. This Plan will be verified by site inspections.

*Quality Views – (1 point)*

The Project will provide direct views to the exterior that meet at least two of the LEED requirements for quality views for 75% or more of the regularly occupied spaces.



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**1.2.8 Innovation (IN)**

Innovation – (5 points)

The Project team will seek to achieve at least five innovation points; potential credits include: Exemplary Performance for Reduced Parking, Exemplary Performance for Heat Island Reduction, Innovation: Project Walkable Site, and Innovation: Green Building Education. The Project team will continue to evaluate pilot credits to determine feasibility.

LEED Accredited Professional – (1 point)

At least one LEED AP BD+C professional is part of the Project team.

**1.2.9 Regional Priority (RP)**

Regional Priority Credits (RPCs) are established LEED credits designated by the USGBC as having priority for a particular location. When a project team achieves one of the designated RPCs, an additional point is awarded to the project. The four points available in this category are contingent upon meeting certain thresholds for credits in other categories. RPCs applicable to the Project Site in Cambridge include High Priority Site, Indoor Water Use Reduction, Optimize Energy Performance, Building Life-Cycle Impact Reduction, Rainwater Management, and Renewable Energy Production. The Project is currently targeting High Priority Site and Indoor Water Use Reduction in this category and will evaluate the potential to achieve additional credits as the design advances.





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265D-55  
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY  
10 PARK PLAZA  
BOSTON, MA 02116

267.4-254  
JOLLY GREEN GIANT, LLC.  
100 SMITH PL  
CAMBRIDGE, MA 02139

267.2-263  
MASSACHUSETTS COMMONWEALTH OF  
STATE HOUSE  
BOSTON, MA 02133

267.3-226  
CCF ASVRF 13 MOONEY, LLC C/O CABOT, CABOT &  
FORBES  
185 DARTMOUTH STREET, SUITE 402  
BOSTON, MA 02116

267.4-285  
FIRST MIDDLESEX REALTY LLC  
170 FAWCETT ST  
CAMBRIDGE, MA 02138

267.3-283  
QUAD 109 SMITH PLACE LLC  
2001 ROSS AVE, SUITE 3400  
DALLAS, TX 75201

267.3-228  
CCF ASVRF 127 SMITH, LLC C/O CABOT, CABOT &  
FORBES  
185 DARTMOUTH STREET, SUITE 402  
BOSTON, MA 02116

267.4-284  
G.A.B. CROSSROADS, INC. C/O GAYLE FERRARO  
57 HAWTHORN STREET  
WESTWOOD, MA 02090

267.4-295  
180A FAWCETT LLC  
100 SMITH PLACE  
CAMBRIDGE, MA 02138

267.3-275  
MASSACHUSETTS COMMONWEALTH OF  
STATE HOUSE  
BOSTON, MA 02133

267.2-266  
DCR  
251 CAUSEWAY STREET  
SUITE #900  
BOSTON, MA 02114

267C-94  
SHANNON, TIMOTHY L., TRUSTEE  
150 PRIDE CROSSING  
SUDBURY, MA 01776

267.3-267  
QUAD 75 SMITH PL, LLC  
2001 ROSS AVE, STE 3400  
DALLAS, TX 75201

267.4-296  
FIRST MIDDLESEX REALTY LLC  
170 FAWCETT ST  
CAMBRIDGE, MA 02138

267.4-264  
ART ROCKS LLC, C/O BAY MANAGEMENT CORP.  
990 WASHINGTON STREET  
DEDHAM, MA 02026

267.4-218  
FIRST MIDDLESEX REALTY LLC  
170 FAWCETT ST  
CAMBRIDGE, MA 02138

267.3-282  
QUAD 109 SMITH PLACE LLC  
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DALLAS, TX 75201



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**TREE STUDY**

There are no Significant Trees (as defined in CZO 8.66.030) at 180 Fawcett Street. The Superintendent of Urban Forestry & Landscapes informed the Applicant on 7/16/2021 that the Tree Study for the Project is complete and meets all the requirements needed for certification by the City Arborist.

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TREE 1



TREE 2



TREE 3



TREE 4



TREE 5



TREE 6



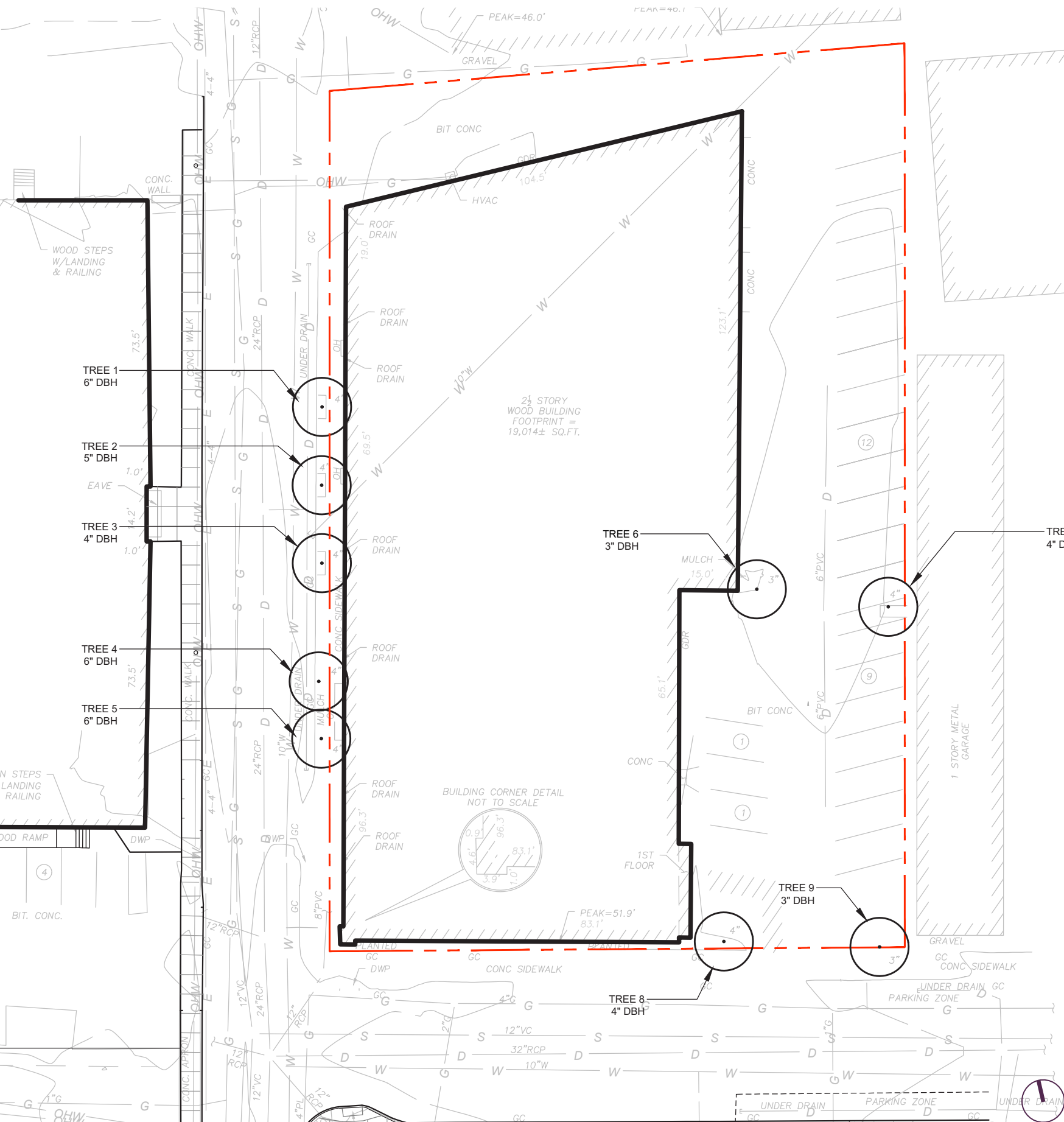
TREE 7



TREE 8

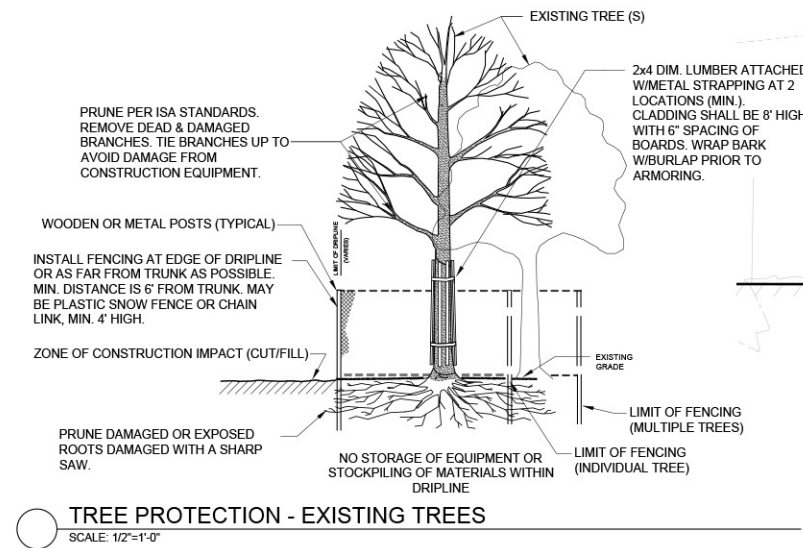


TREE 9



LANDSCAPE TREE SURVEY





**TREE PROTECTION - EXISTING TREES**  
SCALE: 1/2"=1'-0"

**TREE PROTECTION AND REMOVAL NOTES**

- THIS SHEET DESCRIBES EXISTING TREE PRESERVATION AND REMOVAL WORK ONLY. REFER TO CIVIL ENGINEER'S DRAWINGS FOR COMPLETE SITE PREP AND DEMO REQUIREMENTS.
- TREE REMOVAL SCOPE SHALL INCLUDE THE FELLING, CUTTING, AND SATISFACTORY DISPOSAL OF ALL TREES, STUMPS AND VEGETATIVE DEBRIS PRODUCED THROUGH THE CLEARING OPERATIONS.
- FELL TREES IN SUCH A WAY AS TO NOT INJURE TREES TO BE SAVED. EXCAVATION OR GRADING WITHIN THE BRANCH SPREAD OF TREES TO BE SAVED SHALL BE PERFORMED ONLY UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE UNLESS OTHERWISE DIRECTED.
- STUMPS TO BE REMOVED OUTSIDE THE TREE PRESERVATION AREA SHALL BE GRUBBED TO THEIR FULL DEPTH. ROOTS 3 INCHES AND LARGER SHALL BE REMOVED TO A DEPTH OF 2 FEET BELOW FINISHED GRADE. STUMPS SHALL BE LEGALLY DISPOSED OF OFF-SITE.
- STUMPS TO BE REMOVED WITHIN THE TREE PRESERVATION AREA SHALL BE GROUND DOWN USING A MECHANICAL STUMP GRINDER TO A DEPTH OF 2 FEET BELOW FINISHED GRADE.
- TREE PROTECTION FENCING SHALL BE INSTALLED AS SHOWN ON THIS PLAN AND REMAIN THROUGHOUT THE TIME OF CONSTRUCTION AS SPECIFIED AND DIRECTED BY THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL TAG ALL TREES TO BE REMOVED AND VERIFY WITH OWNER'S REPRESENTATIVE PRIOR TO THE START OF DEMOLITION.
- FOR ALL SITE PREP AND DEMO WORK OUTSIDE TREE PROTECTION AREA, SEE CIVIL ENGINEER'S DRAWINGS.
- NO STORAGE OF ANY TYPE OF MATERIAL, CHEMICAL OR EQUIPMENT SHALL BE ALLOWED IN THE PROTECTED FENCED IN AREA.
- BEFORE THE START OF ANY WORK ON THE SITE, PRECEDING THE ARRIVAL OF EQUIPMENT, MATERIALS OR VEHICLES TO THE SITE, AND PRIOR TO THE COMMENCEMENT OF ANY CLEARING ON THE SITE, THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE ON THE SITE WITH THE OWNER'S REPRESENTATIVE AND THE LANDSCAPE ARCHITECT TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE PROTECTED OR REMOVED. DO NO CLEARING WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED. REFER TO SPECIFICATION SECTION 01 56 39 FOR MORE INFORMATION.
- REMOVE AND DISPOSE OF DEBRIS AS DIRECTED BY THE OWNER.
- ALL EXCAVATION WITHIN THE TREE PROTECTION ZONE TO BE DONE BY HAND TO MINIMIZE DISTURBANCE TO ROOT ZONES.

**TREE MITIGATION LEGEND**

- EXISTING DECIDUOUS TREE
- TREE TO BE REMOVED
- TREE TO BE PROTECTED, TYP.
- PROPOSED TREE

**EXISTING TREE SCHEDULE**

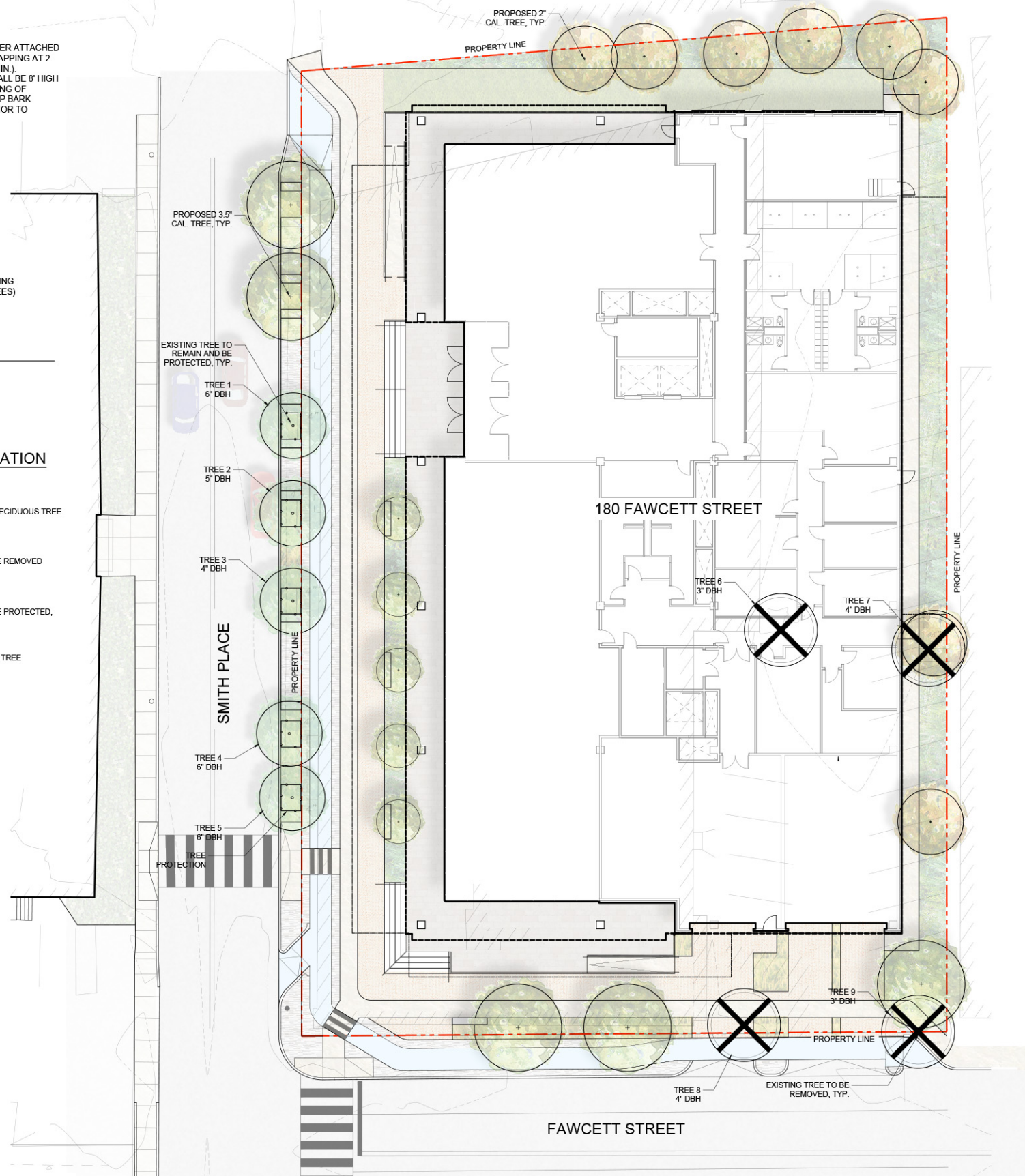
Reference	Species	DBH	CONDITION	STATUS
TREE 1	Zelkova serrata	6"	GOOD	PROTECT
TREE 2	Zelkova serrata	5"	GOOD	PROTECT
TREE 3	Zelkova serrata	4"	GOOD	PROTECT
TREE 4	Zelkova serrata	6"	GOOD	PROTECT
TREE 5	Zelkova serrata	6"	GOOD	PROTECT
TREE 6	Syringa reticulata	3"	POOR	REMOVE
TREE 7	Syringa reticulata	4"	FAIR	REMOVE
TREE 8	Prunus sp.	4"	FAIR	REMOVE
TREE 9	Prunus sp.	3"	FAIR	REMOVE

**EXISTING TREE CALIPER TO BE REMOVED**

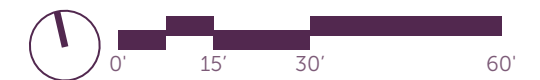
Quantity of Trees	Size	Subtotal Caliper
2	3"	6"
2	4"	8"
Total Caliper: 14" inches of existing tree caliper removed		

**PROPOSED TREE CALIPER**

Quantity of Trees	Size	Subtotal Caliper
8	3.5" cal.	28"
8	2" cal.	16"
Total Caliper: 34 inches of tree caliper proposed		



**LANDSCAPE TREE MITIGATION PLAN**





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**SEWER SERVICE INFRASTRUCTURE NARRATIVE**

**1.1 Existing Sanitary Sewer System**

Based on initial site visits and record mapping, sanitary sewer mains are present within both Smith Place and Fawcett Street. The City of Cambridge owns, operates, and maintains the sanitary sewer mains near the Project Site. Additionally, the sanitary sewer system is separate from the storm drainage system in the proximity of the Project Site based on a review of the site conditions, survey and available mapping.

A City of Cambridge-owned 12-inch vitrified concrete sanitary sewer main is located on the center of Fawcett Street and flows east from a sewer manhole located in the intersection with Smith Place down Fawcett Street. In addition, a City of Cambridge-owned 12-inch vitrified concrete sanitary sewer main also exists in Smith Place on the western side of the street and flows south to the intersection with Fawcett Street per the City’s CityViewer GIS mapping service.

**1.2 Estimated Proposed Sanitary Flow**

MassDEP establishes sewer generation rates for various types of establishments in a section of the State Environmental Code Title V (“Title 5”), 310 CMR 15.203. The Project will generate more wastewater flow than the business that currently operates on the Site. The existing building and use generates approximately 1,195 GPD. Based on an estimate of the Project’s building program, **Table 1-2** gives the estimated proposed sanitary sewer flows expected to be generated by the Project. Based on these Title V sewer generation rates, the Project is expected to produce approximately 5,241 gallons per day (GPD) of sewer flow, a net increase of 4,046 GPD over existing conditions. The threshold for a MADEP Sewer Connection Permit is 50,000 GPD, so a state permit will not be required. The proposed sewer generation calculation will be refined as final sewer generation flows are coordinated with City’s Public Works Department as design progresses and tenants are identified.

**Table 1-1 Existing Sewer Generation**

	<b>Unit Type</b>	<b>Program</b>	<b>Sewer Generation Rate</b>	<b>Sewer Flow (GPD)</b>
Gymnasium Space	<b>Gymnasium</b>	40 Participants	25 GPD / Participant	1,000
Gymnasium Space	<b>Gymnasium</b>	15 Spectators	3 GPD / Spectator	45
Office Space	<b>Office</b>	2,000 SF	75 GPD / 1,000 SF	150
<b>Existing Sewer Generation</b>				<b>1,195</b>



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**Table 1-2 Proposed Sewer Generation**

	Unit Type	Program	Sewer Generation Rate	Sewer Flow (GPD)
<b>Lobby Space</b>	<b>Office</b>	1,360 SF	75 GPD / 1,000 SF	102
<b>Office Space</b>	<b>Office</b>	22,838 SF	75 GPD / 1,000 SF	1,713
<b>Lab Space</b>	<b>Factory, Industrial</b>	34,257 SF	15 GPD / Person	3,426*
<b>Total New Sewer Generation</b>				<b>5,241</b>
<b>Total Net New Sewer Generation</b>				<b>4,046</b>
<b>Proposed Water Demand</b>				<b>5,766**</b>

\*Assumed 150 SF per person for lab space sewer generation calculation using 310 CMR 15.203 System Sewage Flow Design Criteria for Factory, Industrial Plant, Warehouse or Dry Storage Space without a cafeteria.

\*\*Proposed water demand is based on total new sewer generation multiplied by a factor of 1.1.

Based on preliminary calculations and discussions with the City’s Public Works Department, there are no known sewer capacity problems near the Project Site. The Project’s engineer will coordinate final, proposed sewer flows and available capacity with City during Project design to ensure Project needs are met without disruption of service to the surrounding area.

**1.3 Proposed Sanitary Sewer Connections**

The service connection is anticipated to occur in Fawcett Street. The size and location of the service connection(s) will be coordinated between the Project’s plumbing engineer and the City’s Public Works Department. Floor drains from the underground level of the subsurface parking garage will be collected and routed through an approved oil/grease separator and sump pump prior to discharge into the City’s sanitary sewer system. Additionally, a precast concrete sanitary sewer storage tank is proposed to provide control of the influent flow from the proposed building uses such that the mainline system does not surcharge in larger storm events. The tank will be designed such that storage can be provided for up to 24 hours prior to discharge into the City’s mainline system via the existing main in Fawcett Street to achieve influent control. Inline backwater valves will also be installed to prevent sanitary sewer backups through the building’s fixtures and will be installed by a licensed plumber according with the City’s Wastewater and Stormwater Drainage Use Regulations.

Sewer connections will be constructed to minimize effects on adjacent streets, sidewalks, and other areas within the public right-of-way, and sewer service connections will be kept separate from storm drain connections in accordance with the City’s standard requirements.

**1.4 Sewer System Mitigation**

The sanitary sewer connections are subject to approval by the municipal sewer system owner (City of Cambridge), as part of the Special Permit Project Review process. The City’s inflow/infiltration (I/I) mitigation requirements will not apply to this Project because mitigation is only required within the Alewife Overlay District when the threshold of 15,000 GPD of net new sewer discharges is reached.

**Proposed Stormwater Management**

The proposed stormwater management system has been designed to comply with the City of Cambridge standards and the MADEP Stormwater Management Standards. Since the Project results in a reduction in overall impervious area, it falls under the category of a redevelopment project. The stormwater runoff from the Project will be collected by a combination of green roof areas or roof drains, and area/landscape drains and trench drains. The stormwater collected will be treated, retained and, contingent on environmental and geotechnical testing and site conditions, infiltrated utilizing subsurface



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stormwater systems. These systems retain a portion of the stormwater to reduce the peak rate of stormwater to the City's stormwater system. The post-Project discharge hydrograph for the 25-year 24-hour rainfall event must be less than or equal to the 2-year 24-hour rainfall event pre-project discharge hydrograph, such that the total volume of runoff generated between the pre-project 2-year 24-hour storm discharge and the post-project 25-year 24-hour storm discharge must be retained or recharged on site per the City's Land Disturbance Regulations and stormwater Control Requirements. The stormwater system is anticipated to consist of a subsurface detention system located beneath the garage entry ramp and a crushed stone and perforated pipe infiltration system.

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## **XI – WATER SERVICE INFRASTRUCTURE NARRATIVE**

### **2.1 Existing Water Service**

The City of Cambridge owns, operates, and maintains the water distribution systems near the Project Site. Based on initial site visits, survey and record mapping, water mains are present within both Fawcett Street and Smith Place. An existing fire hydrant is located on the eastern side of Smith Place, near the intersection with Fawcett Street, and another existing fire hydrant is located on the eastern side of Smith Place, near where the street transitions to become Mooney Street. There are no known issues with the existing water distribution system within the Project's vicinity, but hydrant flow testing will be performed prior to filing for a building permit. Survey mapping shows a 10-inch ductile iron (DI) main is located on the eastern side of Smith Place and a 10-inch ductile iron (DI) main is located on the southern side of Fawcett Street. There is also a 10-foot wide City water easement that crosses through the Site containing a 10-inch ductile iron (DI) main, which was documented on March 31, 1952. This City-owned water easement and main is proposed to be re-routed within Smith Place and along the northern edge of the property in order to accommodate the proposed building footprint.

### **2.2 Estimated Proposed Water Demand**

The estimated proposed water demand for the Project is based on the estimated sanitary sewer flow with a factor of 1.1 applied to account for consumption, system losses and other usages. Based on this formula, the Project's estimated peak water demand for domestic uses is approximately 5,766 GPD. The domestic water will be supplied by the City of Cambridge water system.

Based on discussions with the City of Cambridge Water Department, there are no expected water capacity issues near the Project Site. Prior to final design and Building Permit filing, this will be confirmed by hydrant flow testing in coordination with the City of Cambridge Water Department.

### **2.3 Proposed Water Service**

It is anticipated that the Project's domestic and fire protection services will connect to the 10-inch main in Smith Place, near the intersection with Fawcett Street. Final service locations will be coordinated closely with the City's Water Department. If required, the Project will include internal booster pumps to ensure adequate water pressure to all standpipes and sprinkler systems. Appropriate gate valves and backflow prevention devices will also be installed on each water service to allow individual services to be shut off and to prevent potential backflow of non-potable water or other contaminants into the public water supply.

The Project will include new domestic and fire protection services. The Project proposes to connect to the existing 10-inch water main on the eastern side of Smith Place with a 10-inch by 10-inch by 6-inch tee and 6-inch gate valve for the fire protection service. The Project also proposes to connect to the existing 10-inch main with a 10-inch by 10-inch by 4-inch tee and 4-inch gate valve for the domestic service. Approval of these service connections will be coordinated closely with the City's Water Department.

The existing hydrants are proposed to remain in their current location and will continue to be in service throughout the entirety of construction of the proposed building and associated site improvements. Fire pumps are not anticipated to be required, but will be evaluated as the design progresses.





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**NOISE MITIGATION NARRATIVE**

**1.0 Applicable noise regulation**

**1.1.1 Massachusetts**

The Massachusetts Department of Environmental Protection (MassDEP) noise policy defines noise pollution by the condition resulting when:

- The equipment increases broadband sound level by more than 10 dBA above ambient, or
- The equipment produces a “pure tone” condition - when any octave band center frequency sound pressure level exceeds the two adjacent bands by 3 dB or more.

The ambient sound level is defined as “the background A-weighted sound level that is exceeded 90% of the time measured during equipment operating hours”.

For this Project, the existing background sound levels are assumed to be high enough in the Project area that meeting the City of Cambridge Noise Regulation would be the more stringent criteria. New generators, depending on the operation of the generators, may need to comply with the MassDEP policy.

**1.1.2 City of Cambridge**

The City of Cambridge Noise Regulation has fixed sound emissions level limits for daytime and nighttime hours. There are different limits based on the zoning district. Per the latest version of the City of Cambridge Zoning Map, based on its location the equipment of the Project should meet all land use categories (residential, commercial, and industrial).

Daytime is defined by the City as the period between 7AM and 6PM except Sunday and holidays.

**Table 1.** City of Cambridge Maximum Allowable Octave Band Pressure Levels

Octave Band Center Frequency of Measurement (Hz)	Residential Area (Daytime) dB	Residential Area (Nighttime) dB	Industrial (All Times) dB
31.5	76	68	83
63	75	67	82
125	69	61	77
250	62	52	73
500	56	46	67
1000	50	40	61
2000	45	33	57
4000	40	28	53
8000	38	26	50
Single Number Equivalent	60 dBA	50 dBA	70 dBA

**2.0**

**New equipment evaluation**

Based on the noise ordinance requirements, the Project’s acoustic consultant examined equipment units located on the penthouse level of 180 Fawcett and at a lower roof level. A preliminary roof plan with equipment location is attached in Appendix A of this report. The analysis assumed that for nighttime conditions, the rooftop mechanical equipment in this study will operate at full capacity in the worst-case scenario.

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**Figure 1.**

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The list below shows the list of outdoor mechanical and electrical equipment for the Project:

- A new Skyplume G1-ELLV-SC-49 exhaust air handling system containing three lab exhaust fans with discharge nozzle silencers, 90,000 cfm. Sound power level of the combined fans / EAHU with silencers should have a sound power level of 97 dBA or less.
- Two 45,000 cfm Trane air handling units with 2 inch double wall foam casing, mounted on spring isolators. Each unit should have a sound power level of 89 dBA or less.
- Two Baltimore Aircoil Company cooling towers, model PT2-1212A-2N2. 50.00 BHP/unit, whisper quiet fans. Each unit should have a sound power level of 96 dBA or less.
- One Caterpillar 400kw standby generator, Package C13DE51 with Canopy SA Level 2. The generator canopy should have a sound pressure level of 70 dBA or less at 23 feet. The exhaust, if separate from the sound enclosure, should be provided with a Silex Critical Grade Silencer ESGA Class-4 or equal. Without the silencer, the generator exhaust should have a sound pressure level of 122 dBA or less at 3 feet, with the silencer, the exhaust should have a sound pressure level of 95 dBA or less at 3 feet.

**2.1.1 Predicted Equipment Sound Levels**

Based on the equipment sound data and the noise control measures described above, the acoustical analysis predicted the project rooftop equipment sound emission levels to residential Receivers R1, R2, and R3, and property line receivers P1, P2 and P3.



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**Table 2.** Predicted sound pressure levels to the receivers with all noise control measures provided as described in this report.

<b>Receiver Location</b>	<b>Overall project sound levels with generator</b>	<b>Overall project sound levels without generator</b>	<b>Sound Limits (dBA)</b>
R1	46	36	60 dBA (day) / 50 dBA (night)
R2	51	44	60 dBA (day) / 50 dBA (night)
R3	51	46	60 dBA (day) / 50 dBA (night)
P1	63	38	70 (anytime)
P2	54	53	70 (anytime)
P3	52	51	70 (anytime)

The analysis also reviewed the spectral levels at all locations and confirmed the Project does not contribute any tones as defined by MassDEP.

**3.0 Conclusion**

Based on an analysis of the proposed equipment, the Project will meet the City of Cambridge noise regulation and the MassDEP noise policy.