

# Garden Garage



## NOTICE OF PROJECT CHANGE

*Submitted to:*

**Boston Redevelopment Authority**

One City Hall Square  
Boston, Massachusetts 02201

*Submitted by:*

**Equity Residential**

1500 Massachusetts Avenue, NW, Suite 25  
Washington, DC 20005

*Prepared by:*

**Epsilon Associates, Inc.**

3 Clock Tower Place, Suite 250  
Maynard, Massachusetts 01754

*In Association with:*

**Elkus Manfredi Architects Ltd.**

**Howard/Stein-Hudson Associates, Inc.**

**Nitsch Engineering, Inc.**

**Rackemann, Sawyer & Brewster**

**RW Sullivan Engineering**

**Sanborn, Head & Associates**

October 6, 2015

**Epsilon**  
ASSOCIATES INC.

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## Chapter 1.0

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### Introduction / Project Description



## 1.0 GENERAL INFORMATION / PROJECT DESCRIPTION

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### 1.1 Introduction

Since 2010, Equity Residential (the “Proponent”) has sought to replace the Garden Garage located at 35 Lomasney Way in Boston’s West End with a development that adds to Boston’s housing stock, while also creating a high quality open space and an improved pedestrian experience around and through the Garden Garage site. The Proponent has studied a variety of options for the site, including a two-building residential scheme proposed in filings to the Boston Redevelopment Authority (BRA) in 2011, and a single residential building scheme described in a Notice of Project Change (NPC) filed with the BRA in 2014. Over this time period, the Proponent has presented the proposals at more than two dozen meetings with elected officials, City agencies, state agencies and community groups. These meetings have provided valuable input to the development team in shaping the proposed building and new open space, as described in this NPC.

The NPC submitted to the BRA on October 16, 2014 (the “2014 NPC”) included a single residential building on the site, ground floor retail, a below-grade parking garage and new open space (the “previously proposed project”). In response to comments received on the 2014 NPC, the development team has made a number of changes, and now proposes a building with two fewer floors that has been moved to allow for a larger pedestrian area along Lomasney Way, a redesigned parking garage, and other design refinements (the “NPC Project”).

The NPC Project will continue to provide the many benefits described as part of the previously proposed project, including significant new open space, new housing, including new affordable housing, construction and permanent jobs, and improved tax revenues for the City.

### 1.2 Project History

The Proponent submitted a Project Notification Form (PNF) to the BRA on January 7, 2011 which described a 500-unit development within two towers and an approximately 850-space below-grade parking garage. In response to the Scoping Determination issued by the BRA on the PNF and comments from the community, the Proponent submitted a Draft Project Impact Report (DPIR) to the BRA on October 19, 2011 which included environmental impact analyses and minor changes to the development. On October 16, 2014, the Proponent submitted an NPC which identified a number of changes to the project including one residential building instead of two and significantly larger open space.

## 1.3 Project Description

### 1.3.1 *Previously Proposed Project*

The previously proposed project described in the 2014 NPC included the replacement of the existing Garden Garage on Lomasney Way with a 46-story residential building providing a total of approximately 530,000 square feet (sf) of development above grade, comprised of approximately 510,000 sf of residential space and approximately 486 units. The residential units included a mix of studio, one-bedroom and two-bedroom units. The program also included approximately 18,000 sf of common area and amenity space for residents and approximately 2,000 sf of retail space. The previously proposed project included a five level below-grade parking structure with approximately 830 public and residential parking spaces. The parking garage included two entry/exit points to the north, one incorporated into the west side of the building's footprint accessed from Martha Road, and another to the east of the building accessed from Lomasney Way, which would have included the parking garage lobby.

The redevelopment of the Garden Garage site included site and landscape improvements, including improved connectivity to and through the development to link North Station and surrounding neighborhoods with the West End and new outdoor gathering spaces for residents that were proposed to replace or enhance existing underutilized or outdated open spaces.

### 1.3.2 *Project Changes*

The NPC Project is similar in many ways to the previously proposed project, as it includes one residential building with a similar number of residential units, similar retail space, similar open space and same number of parking spaces (see Figure 1 for a Site Plan). However, a number of changes have been proposed in response to BRA and community concerns and in response to Boston Civic Design Commission comments and subcommittee sessions, the largest of which is the elimination of two floors. These changes include (see Attachment A for associated figures):

- ◆ Reducing the height from 46 stories/approximately 465 feet to 44 stories/approximately 447 feet (see Figures 2 to 4 for sections and elevations of the building in the area context);
- ◆ Creating fewer residential units, from approximately 486 units to approximately 470 units;
- ◆ Revising the unit mix to include ten three-bedroom units;
- ◆ Revising the footprint size resulting in an increased footprint of approximately 1,000 sf on the southeast side to minimize impacts on the Amy Lowell Apartments;

- ◆ Adjusting the footprint to the west to provide a wider sidewalk along Lomasney Way (see Figure 1);
- ◆ Redesigning the parking garage entry and exit lanes to provide additional queuing capacity on typical days and event days (see Figures 5 to 8 for existing and proposed queuing conditions);
- ◆ Redesigning the parking garage to provide temporary parking spaces for vendor and delivery vehicles (e.g., Peapod or FedEx), as well as an internal vehicular connection to the Longfellow Place Garage that will be used to improve the dispersion of vehicles during event days at TD Garden (see Figures 9 to 11 for the proposed circulation diagrams, and Figure 23 for the parking level plan showing the proposed vendor and delivery temporary parking area);
- ◆ Redesigning the parking garage entrance and increasing the sidewalk width to improve view corridors for pedestrians and vehicles, improving pedestrian safety (see Figure 12 and 13 for perspectives of the proposed parking garage entrance area);
- ◆ Providing vehicular access to both parking entries via a raised driveway level with the existing Lomasney Way sidewalk;
- ◆ Proposing a new crosswalk, to be coordinated with the Boston Transportation Department, from the main pedestrian path through the site, across Lomasney Way and Nashua Street to the Nashua Street Residences (see Figure 14 for a proposed pedestrian circulation plan); and
- ◆ Revising the exterior cladding material to include a glass and metal façade (see Figures 15 to 21 for elevations of the building and perspectives of the building).

The NPC Project will provide pedestrian and open space amenities similar to those described as part of the previously proposed project. The NPC Project will create more than 2.5 acres of new urban open space, including green space and new pedestrian walkways connecting Thoreau Path to Lomasney Way (see Figure 22 for the existing site plan and proposed site development plan). The parking garage will continue to provide approximately 830 parking spaces for both residents and the public, and new retail space will continue to be provided on the ground floor along Lomasney Way. See Figures 23 to 28 for floor plans. Attachment B includes the Accessibility Checklist.

Table 1-1 provides a comparison of the previously proposed project and the NPC Project.

**Table 1-1 Program Comparison – Approximate Dimensions**

Project Element	Previously Proposed Project	NPC Project
Project Site	3.02 acres (131,600 sf)	3.02 acres (131,600 sf)
Building Footprint (at grade)	11,900 sf	12,900 sf
Residential Space	510,000 sf / 486 units	517,700 sf / 470 units
Common Area/Amenities	18,000 sf	20,000 sf
Retail	2,000 sf	2,300 sf
Parking/Below-Grade Areas	400,000 sf / 830 spaces	367,000 sf / 830 spaces
Building Height <sup>1</sup>	46 stories / 465 feet	44 stories / 447 feet
Open Space <sup>2</sup>	2.57 acres (112,112 sf) <sup>3</sup>	2.52 acres (109,606 sf)
Floor Area Ratio for Planned Development Area of which Project site is a part	4.3	4.31

Notes:

1) Measured to the top of the last occupiable floor.

2) Open space includes planting areas, pedestrian walkways, sidewalks, and recreation areas.

3) Table 1-1 in the 2014 NPC included incorrect square footage for open space in the table—112,446 sf instead of 112,112 sf. The correct square footage was shown on Figure 1-7 in the 2014 NPC.

## 1.4 Public Benefits

The NPC Project will include numerous benefits to the neighborhood and the City of Boston, including:

- ◆ Providing approximately 470 housing units, consistent with the Mayor's initiative to create more housing in Boston;
- ◆ Providing affordable units consistent with the Inclusionary Development Policy dated February 29, 2000 as has been amended;
- ◆ Replacing an unattractive above-grade parking structure with a new, appealing residential building (paired with below-grade parking) that complements the surrounding area;
- ◆ Improving the pedestrian environment within Boston's West End neighborhood by providing new lighting, landscaping, and walkways;
- ◆ Creating better pedestrian linkages between North Station and Thoreau Path;
- ◆ Enhancing pedestrian safety and convenience by reducing the curb cut at Lomasney Way;



- ◆ Improving pedestrian and vehicular circulation by incorporating a second garage entrance from Martha Road as well as a below-grade connection to the Longfellow Garage;
- ◆ Providing preferred parking locations for low-emission and fuel-efficient vehicles;
- ◆ Providing electric vehicle charging stations in the proposed garage;
- ◆ Increasing the area of open space on the Project site by almost one acre over the existing condition, which will include programmable outdoor spaces such as an open-air pavilion;
- ◆ Setting aside approximately 2,300 sf for retail;
- ◆ Providing outdoor bike racks for use by residents and the public;
- ◆ Increasing the amount of sunlight reaching spaces such as Thoreau Path (see the Shadow Analysis in Section 2.3);
- ◆ Improving view corridors for some residents on lower floors of adjacent buildings whose views are obstructed by the existing garage;
- ◆ Providing areas suitable for public art;
- ◆ Creating approximately 450 full-time and part-time construction jobs;
- ◆ Creating approximately 10 permanent jobs for operation of the property; and
- ◆ Providing significant property tax revenues for the City of Boston.

## 1.5 Schedule

Construction of the NPC Project is anticipated to commence in the June 2016, with completion anticipated by June 2019.

## Chapter 2.0

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### Development Review Component

## 2.0 DEVELOPMENT REVIEW COMPONENT

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### 2.1 Transportation

#### 2.1.1 Introduction

Howard Stein Hudson, the Project's transportation consultant, has assessed the transportation impacts associated with the NPC Project. The following sections describe the NPC Project's transportation-related impacts in comparison to the previously proposed project.

#### 2.1.2 Trip Generation Comparison

Following standard traffic engineering procedures, trip generation estimates for the NPC Project were derived from the Institute of Transportation Engineers' (ITE) *Trip Generation* (9th edition, 2012) trip rates. Travel mode split data for the West End supplied by the BTDC were then applied to the trip rates for each land use to estimate trips across mode shares.

Given the NPC Project site's convenient location to Downtown, area institutions and businesses, Hubway bicycle share stations, shared car services, and a wide variety of public transit alternatives, between 73% and 85% of all trips in this area of the City are made by non-auto modes of transportation (i.e., walk, bike and transit).

##### 2.1.2.1 Vehicle Trips

The daily vehicle mode share for this neighborhood of Boston is only approximately 21%. The vehicle trips for the NPC Project and the previously proposed project are compared in Table 2-1.

Table 2-1 Vehicle Trip Generation Comparison

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Time Period	Direction	Previously Proposed Project	NPC	Change
Daily	In	247	241	-6
	Out	247	241	-6
	Total	494	482	-12
a.m. Peak Hour	In	8	8	0
	Out	21	21	0
	Total	29	29	0
p.m. Peak Hour	In	23	23	0
	Out	16	16	0
	Total	39	39	0

As presented in Table 2-1, the NPC Project is expected to result in 12 fewer average daily vehicle trips as compared to the previously proposed project. Overall, the Project will generate just 29 vehicle trips during the morning peak hour and 39 vehicles trips during the evening peak hour. This increase corresponds to less than one new vehicle trip per minute, which will have a negligible impact on the adjacent roadway network.

#### 2.1.2.2 Transit Trips

Table 2-2 presents the expected transit trip generation of the NPC Project compared to the previously proposed project. The NPC Project will result in 8 fewer transit trips over the course of the day, one less transit trip during the a.m. peak hour, and 2 fewer transit trips during the p.m. peak hour.

**Table 2-2 Transit Trip Generation Comparison**

Time Period	Direction	Previously Proposed Project	NPC	Change
Daily	In	183	179	-4
	Out	183	179	-4
	Total	366	358	-8
a.m. Peak Hour	In	9	8	-1
	Out	18	18	0
	Total	27	26	-1
p.m. Peak Hour	In	20	19	-1
	Out	17	16	-1
	Total	37	35	-2

#### 2.1.2.3 Pedestrian/Bicycle Trips

Table 2-3 similarly shows the expected pedestrian/bicycle trip generation for the previously proposed project and the NPC Project. The NPC Project is expected to generate 34 fewer pedestrian/bicycle trips over the course of the day as compared to the previously proposed project. The NPC Project is also expected to generate 2 fewer pedestrian/bicycle trips during the a.m. peak hour compared to the previously proposed project.



**Table 2-3 Pedestrian/Bicycle Trip Generation Comparison**

Time Period	Direction	Previously Proposed Project	NPC	Change
Daily	In	838	821	-17
	Out	838	821	-17
	Total	1,676	1,642	-34
a.m. Peak Hour	In	37	37	0
	Out	96	94	-2
	Total	133	131	-2
p.m. Peak Hour	In	102	102	0
	Out	71	71	0
	Total	173	173	0

### **2.1.3 Site Access**

As presented in Figure 9 in Attachment A, vehicular access to the NPC Project site will remain largely unchanged from the previously proposed project. The new garage will be provided via four entrance and exit gates (versus five today), including two on Lomasney Way and two on Martha Road. The proposed two-lane driveway on Lomasney Way will be positioned in generally the same location as the existing driveway; however, the existing driveway will be reduced in width, which will substantially reduce the pedestrian crossing distance and thus improve pedestrian conditions in front of the site. A second two-lane driveway on Martha Road will be located approximately 50 feet west of Nashua Street and will provide for only right-turns in and right-turns out. Provision of the second driveway will help diffuse vehicular volume along Lomasney Way and reduce pedestrian–vehicular conflicts.

The new garage will greatly improve on-site queue storage for entering vehicles, which will reduce queue spillback onto Lomasney Way/Martha Road and further reduce pedestrian–vehicle conflicts along the sidewalk. On non-event days, 2 of the 4 lanes serving the garage will be used for entering traffic that will be able to accommodate up to 18 vehicles on-site compared to just 4 vehicles under existing conditions. On event days prior to the event, 3 of the 4 lanes will be used for entering vehicles to allow for on-site queue storage of 24 vehicles proposed versus just 8 vehicles under existing conditions.

In addition, the NPC Project will maintain the existing vehicular connection between the new parking garage and Staniford Street via the Longfellow Garage for use during events, and other high demand periods, to further disperse traffic volumes. Prior to and during an event, residents of the Project would be able to access/egress the new garage via Longfellow Garage. Then following the event, the connection would be made available to all vehicles parked in the new garage to help quickly disperse and more efficiently move the event traffic.

The NPC Project also proposes a short-term pick-up/drop off area adjacent to the site along Lomasney Way to accommodate up to two vehicles (e.g., taxis). This zone would help ensure smooth, and unobstructed, traffic flow along Lomasney Way southbound adjacent to the site.

Primary pedestrian access to the proposed residential lobby will be provided from Lomasney Way. Secondary pedestrian connections will also link the building with Thoreau Path from the rear of the building. The Project will significantly improve the pedestrian environment with the new walkway, new sidewalks, handicapped-accessible ramps, street trees, bicycle racks, and the creation of public open spaces.

The design of the new driveways and sidewalk/pathway improvements will be coordinated with the appropriate City agencies, including BRA, Boston Transportation Department (BTD), and the Public Works Department. Final design will be codified in the Transportation Access Plan Agreement (TAPA) and approved by the Public Improvement Commission, as necessary.

#### **2.1.4        *Loading and Building Servicing***

All trash, loading, and move-in/move-out activities will occur on-site within one of two enclosed loading areas.

The NPC Project is proposing to provide up to ten service-only spaces within the garage at the eastern entrance to accommodate short-term loading needs for residents, such as building servicing, package and food deliveries, etc.

The NPC Project also proposes to construct a primary loading area adjacent to the existing Longfellow Place service area, which is located beneath the West End Place courtyard. Access to the service area is currently, and will continue to be, provided on Lomasney Way via the existing driveway between the NPC Project site and West End Place. This loading area will be provided with three loading bays and five parking spaces to accommodate move-in and move-out, trash storage and removal, and other residential and commercial deliveries. The loading area will be able to accommodate a vehicle as large as a WB-50 tractor-trailer; however, it is anticipated that deliveries by vehicles of this size would be infrequent and would typically be made via small vehicles such as passenger cars, vans, and SU-30s (i.e., box trucks). Many of these service and delivery trips will be shared with other residential buildings in the area, reducing the total number of new trips generated.

Recycling, trash collection, and loading will occur on-site, during off-peak hours, and within the designated loading zone (i.e., not within the driveway) whenever possible. Permanent “No Idling” signs will be posted in the loading and parking areas. A Transportation Coordinator will be appointed by the Proponent to manage loading activity and coordinate move-in/move-out activities among building residents and with

management of the adjacent West End Place residences. A detailed loading and service plan will be developed and agreed upon as part of the TAPA process with BTM.

### **2.1.5        *Parking***

The NPC Project will replace the existing 650-space garage with a new approximately 830-space underground parking garage (not including the loading spaces described in Section 2.1.4). Parking will be available for residential, employee, and public use, resulting in a net increase of approximately 180 spaces from the existing garage.

The approximately 180 new parking spaces for the approximately 470 residential units correspond to a parking ratio of 0.38 spaces per unit. The proposed additional parking is slightly below BTM Guidelines for this neighborhood of Boston (0.5 to 1.0 spaces per residential unit as a maximum), but is appropriate given the NPC Project's convenient location to a wide range of public transportation alternatives, and proximity to Downtown, hospitals, and area businesses.

The Project will continue to provide up to 50 spaces to residents of Amy Lowell Apartments per an existing lease agreement.

### **2.1.6        *Mitigation***

Facilitated by the NPC Project's transit-oriented nature and proximity to Downtown, hospitals, and area businesses, between 73% and 85% of all trips generated by the NPC Project will be made by non-auto modes of transportation (i.e., walk, bike, and transit).

The NPC Project is expected to result in a small decrease in the number of daily trips compared to the previously proposed project. Overall, the NPC Project will only generate 29 new vehicle trips (8 in and 21 out) during the a.m. peak hour and 39 new vehicle trips (23 in and 16 out) during the p.m. peak hour. The traffic associated with the NPC Project corresponds to approximately only one new vehicle trip every two minutes during the a.m. peak hour, and less than one new vehicle trip per minute during the p.m. peak hour, which is a negligible increase on area roadways.

While the NPC Project's impact on the adjacent roadway network is expected to be minimal, the NPC Project proposes the following mitigation measures. The exact scope of these improvements would be identified as part of the TAPA process with BTM.

1. ***Intersection and Streetscape Improvements at the Intersection of Lomasney Way/Nashua Street/Martha Road/Site Driveway*** – The NPC Project proposes to work with BTM and BRA on evaluating and implementing pedestrian and streetscape improvements adjacent to the NPC Project site. These efforts will likely include the creation of a direct pedestrian crossing along the western edge of the intersection linking North Station and the NPC Project's proposed internal pathways, roadway resurfacing, and other sidewalk improvements. Any potential improvements would

need to be coordinated with those being implemented by the Nashua Street Residences, the U.S. General Services Administration (GSA) at 10 Causeway Street, and the City of Boston's Connect Historic Boston Project.

2. ***Enhanced Pedestrian Pathways*** – The NPC Project will provide an enhanced pedestrian connection between Thoreau Path and Lomasney Way via a new landscaped pedestrian pathway through the NPC Project site. The new pathway will also improve the pedestrian connection between North Station and the West End.
3. ***Sidewalk Improvements*** – The NPC Project includes reconstruction of the sidewalks and accessible curb ramps adjacent to the site along Lomasney Way and Martha Road according to City standards.
4. ***Driveway Improvements*** – Reducing the width of the existing Garden Garage curb cut from five lanes to only two lanes will reduce the distance pedestrians must cross along the Lomasney Way sidewalk adjacent to the site, and will simplify operations at the intersection of Lomasney Way/Nashua Street/Red Auerbach Way/Garden Garage Driveway.
5. ***Improved On-site Queue Storage*** – The NPC Project will greatly improve on-site queue storage for vehicles entering the garage, which will reduce queue spillback onto Lomasney Way/Martha Road and reduce vehicle-pedestrian conflicts along the sidewalk. Storage during non-event periods will increase from just 4 vehicles today to 18 under proposed conditions. On event days, storage will increase from just 8 vehicles today to 24 vehicles under proposed conditions.
6. ***Enhanced On-site Loading Zones*** – The NPC Project proposes to provide two on-site dedicated loading areas, including one accessed via the eastern garage driveway for small deliveries, and a primary loading area for larger deliveries, move-in/move-out, and trash storage.
7. ***Bicycle Parking*** – The NPC Project includes on-site bicycle storage racks that will be available to the public and accessible via the new pedestrian pathway.
8. ***Electric Vehicle Charging Stations*** – The Proponent proposes to provide electric vehicle charging stations that will be available to public users of the new garage.

#### ***2.1.7 Transportation Demand Management***

The Proponent is committed to implementing Transportation Demand Management (TDM) measures to reduce dependence on automobiles. TDM will be facilitated by the nature of the NPC Project and its proximity to public transit and area businesses. The TDM program elements will be codified in the TAPA and may include, but are not limited to, the following:



- ◆ ***Transportation Coordinator.*** The Proponent will designate a transportation coordinator to oversee transportation issues including parking, service, loading, and move-in/move-out. The transportation coordinator will work with residents as they move in to raise awareness of public transportation alternatives.
- ◆ ***Tenant and Resident Orientation Packet.*** Provision to new tenants of information about the many TDM programs available.
- ◆ ***Website.*** Public transportation information for residents and visitors will be included on the project website.
- ◆ ***Preferential Parking for Fuel Efficient Vehicles.*** The Proponent will dedicate up to 5% of all parking spaces (up to 42 spaces) to low-emitting and fuel-efficient vehicles, as requested by BTd.
- ◆ ***Electric Vehicle Charging Stations.*** The NPC Project includes a provision for electric vehicle charging stations. The Proponent currently has a national agreement with an electric vehicle charging station provider and will work with them and the City to identify an appropriate number of stations. It is anticipated that charging stations will be added incrementally as demand warrants.
- ◆ ***Bicycle Storage.*** Secure bicycle parking will be provided for residents, employees, and visitors, consistent with the City of Boston Bicycle Parking Guidelines, to promote biking as a transportation alternative.
- ◆ ***Shared Bicycles.*** The NPC Project site is located within close walking distance to two Hubway shared bicycle stations and will promote use of these stations by among site residents, visitors, and workers.
- ◆ ***Shared Car Service.*** The Proponent currently provides approximately 28 shared-car spaces for Zipcar, including approximately 12 vehicles at Garden Garage, 12 vehicles at the West End Garage, and about 4 vehicles at the Longfellow Garage. Numerous additional Zipcar and Enterprise carshare locations are located within convenient walking distance to the site. As demand warrants, the Proponent will continue to coordinate with Zipcar to determine the feasibility of locating additional shared-car spaces on the site.

#### ***2.1.8 Construction Period Impacts***

The NPC Project will be required to prepare a detailed construction management plan (CMP) to be filed with the BTd for review and approval.

Most construction activities will be accommodated within current site boundaries. Details of the overall construction schedule, working hours, number of construction workers, worker transportation and parking, number of construction vehicles, and routes will be

addressed in detail in CMP. The NPC Project's contractor would be required to coordinate all construction activities with other on-going construction work to minimize impacts to area roadways.

The most significant impact of construction will be the temporary loss of the existing 650-space garage. The Proponent plans to accommodate the current monthly users of the garage through self-parking and valet parking, if necessary, at the Longfellow Garage, the Asteria Garage, and the Vesta Garage. Other public parking, including event parking, can be accommodated out of unused capacity at Longfellow, Asteria, and Vesta garages, as well as at the North Station and Government Center Garages. An information campaign will be conducted one month prior to garage demolition to identify replacement options for current garage users.

## 2.2 Wind

Rowan Williams Davies & Irwin Inc. (RWDI) conducted wind tunnels tests in 2011 and 2014 for the project described in the 2011 DPIR and the previously proposed project described in the 2014 NPC. In 2014, RWDI concluded that "overall wind conditions at offsite locations are expected to be similar for both configurations. Most onsite locations are predicted to have wind conditions comfortable for walking or better, but uncomfortable and unacceptable wind conditions still persist at ground level on the northeast corner. Increased canopy size and/or additional landscaping are currently being incorporated to the design in order to further mitigate these conditions, which is likely to result in acceptable conditions."

A numerical simulation using RWDI's proprietary program *WindEstimator*<sup>1</sup> was conducted to compare the previously proposed project to the NPC Project. The program was developed by RWDI to simulate the wind speeds at corners and mid-blocks of simplified building forms, based on their extensive research and wind tunnel testing for various buildings. When the building heights and widths for the previously proposed project and NPC Project designs were input into the program, the same results, presented in whole numbers in miles per hour, were obtained, indicating no significant wind influence was created by the design change.

Overall, the proposed reduction in building height and increase in building width are not significant and their combined effect on pedestrian wind conditions is considered to be minimal, based on RWDI's experience, past wind tunnel results and numerical simulations using *WindEstimator*. The pedestrian wind conditions for the current design are predicted to be not significantly different from those predicted by the previous wind tunnel tests in

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<sup>1</sup> H. Wu, C.J. Williams, H.A. Baker and W.F. Waechter (2004), "Knowledge-based Desk-Top Analysis of Pedestrian Wind Conditions", *ASCE Structure Congress 2004*, Nashville, Tennessee.

2014 in all pedestrian areas, including the area between the proposed development, the O'Neill Federal Building and the West End Place Condominiums.

## **2.3 Shadow**

### ***2.3.1 Introduction and Methodology***

Due to the changes to the NPC Project, a shadow impact analysis was conducted to investigate shadow impacts from the NPC Project during three time periods (9:00 a.m., 12:00 noon, and 3:00 p.m.) during the summer solstice (June 21), autumnal equinox (September 21), vernal equinox (March 21), and the winter solstice (December 21). In addition, shadow studies were conducted for the 6:00 p.m. time period during the summer solstice and autumnal equinox.

The shadow impact analysis includes the net new shadow, shadow eliminated and added due to the changes from the previously proposed project, areas of added sunlight due to the NPC Project, and existing shadow. The shadow analysis presents the existing shadow and new shadow that would be created by the NPC Project, illustrating the incremental impact of the Project. The analysis focuses on nearby open spaces, sidewalks and bus stops adjacent to and in the vicinity of the NPC Project site. Shadows have been determined using the applicable Altitude and Azimuth data for Boston. Figures showing the net new shadow from the Project are provided in Figures 29 to 42 in Attachment A.

### ***2.3.2 Results***

Net new shadow from the NPC Project will be similar to the net new shadow from the previously proposed project. The demolition of the existing Garden Garage creates significant areas of open space free of shadow. With the reduction in height, the NPC Project's new shadow will not extend as far as the shadow from the previously proposed project, especially during the spring, fall and winter. During 10 of the 14 time periods studied, the NPC Project will create slivers of new shadow along the edge of the previously proposed project's shadow due to the small increase in the NPC Project's building envelope. This extension of the new shadow will generally fall on nearby streets, ramps, parking lots and rooftops, as well as West End Park during 5 of the 14 time periods studied, and the open space south of the Amy Lowell Apartments during one of the 14 time periods studied.

## 2.4 Daylight

### 2.4.1 Introduction

The purpose of the daylight analysis is to estimate the extent to which a proposed project will affect the amount of daylight reaching the streets and sidewalks in the immediate vicinity of the project site.

A daylight analysis was completed for the previously proposed project and was included in the previous NPC. The NPC Project has been studied from the same viewpoints as the previously proposed project. The viewpoint locations are included in Figure 43 in Attachment A.

### 2.4.2 Daylight Analysis Results

Results for each viewpoint under each condition are described in Table 2-4. Figures 44 through 47 in Attachment A illustrate the BRADA results for each analysis.

**Table 2-4 Viewpoint Locations**

Viewpoint Locations		Existing Conditions	Previously Proposed Condition	NPC Proposed Condition
Viewpoint 1	Martha Road looking south at the site	57.1%	75.1%	70.6%
Viewpoint 2	Thoreau Path looking north at the site	30.7%	35.7%	46.6%
Viewpoint 3	Path on the west side of the site looking east	75.5%	38.1%	60.4%
Viewpoint 4	Path on east side looking west		44.6%	49.7%
AC1	Looking west at the Amy Lowell Apartments	70.5%		
AC2	Looking west at Hawthorne Place	80.5%		
AC3	Lomasney Way looking south at the West End Place Condominiums	67.5%		

The results of the BRADA analysis show that the NPC Project will have similar daylight obstruction values as the existing area context, and given the space around the building, similar or less daylight obstruction values than other urban areas, even those with shorter buildings. The NPC Project will result in an increase in the daylight obstruction values from the existing condition at Viewpoints 1 and 2, and a decrease in the daylight obstruction value from the existing condition at Viewpoint 3. Although the building is shorter by two stories, the small increase in the building envelope will result in slightly higher daylight obstruction values at Viewpoints 2 and 4, a higher daylight obstruction value at Viewpoint 3, and a lower daylight obstruction value at Viewpoint 1. Unlike other areas of

downtown Boston, the site is adjacent to a large open space that will be expanded with the NPC Project's proposed open space, which allows for large views of the sky from the NPC Project site looking towards Thoreau Path.

## **2.5 Solid and Hazardous Waste**

The Project will generate solid waste typical of residential developments. Solid waste generated by residents will be collected and disposed of off-site by a licensed contractor. The Proponent will implement an aggressive recycling program throughout the Project, and residents will be encouraged to recycle. Recycled materials are expected to include newspaper, plastics, glass, cardboard, cans, and bottles.

With the exception of household hazardous wastes typical of residential developments (e.g., cleaning fluids and paint), the Project will not involve the generation, use, transportation, storage, release, or disposal of potentially hazardous materials.

## **2.6 Geotechnical/Groundwater**

The foundation design will likely be similar to the previously proposed project and what was described in the DPIR. The proposed construction does not present a long-term risk to the shallow groundwater table.

## **2.7 Air Quality**

The changes to the NPC Project will not significantly change the NPC Project's air quality impacts related to traffic as compared to the previously proposed project. The NPC Project is estimated to generate fewer vehicle trips than the previously proposed projects described in the 2014 NPC and the DPIR, and therefore air quality impacts from traffic are anticipated to be similar or less than the impacts previously described.

The emergency generator will be permitted through the Massachusetts Department of Environmental Protection's (MassDEP) Environmental Results Program (ERP), as required.

## **2.8 Noise**

Noise impacts from the NPC Project are anticipated to be similar to the previously proposed project. The NPC Project will include appropriate measures to ensure compliance with the City of Boston Zoning District Noise Standards and the MassDEP Noise Policy.

## **2.9 Construction**

The construction-related impacts, and anticipated mitigation regarding air quality, noise and construction waste, are anticipated to be similar to those described in the DPIR.

The Proponent will follow City and MassDEP guidelines which will direct the evaluation and mitigation of construction impacts. Given the number of projects proposed in the surrounding area, coordination with the City and other developers will be essential to minimize construction-related impacts to the surrounding community.

A CMP will be submitted to BTM for review and approval prior to issuance of a Building Permit. The CMP will include detailed information on specific construction mitigation measures and construction methodologies to minimize impacts to abutters and the local community. Techniques such as barricades, walkways, painted lines, and signage will be used as necessary. Construction management and scheduling—including plans for construction worker commuting and parking, routing plans and scheduling for trucking and deliveries, protection of existing utilities, maintenance of fire access, and control of noise and dust—will minimize impacts on the surrounding environment. Throughout Project construction, a secure perimeter will be maintained to protect the public from construction activities.

## **2.10 Sustainable Design**

The NPC Project's sustainability goals will be the same as was described in the 2014 NPC. The 2014 NPC included a Leadership in Energy and Environmental Design (LEED) Checklist with a goal of achieving the Gold level. The NPC Project will comply with Article 37 of the Boston Zoning Code, and continue to have a goal of achieving the Gold level as shown in the LEED Checklist provided in Attachment C.

The NPC Project's location within the mature environment of the West End allows new development to occur with minimal impact on existing infrastructure. Due to the NPC Project's proximity to mass transit (i.e., commuter rail, MBTA rapid service, and bus) and shared transportation services (i.e., Zipcar, Hubway, Enterprise) as well as vehicular access to highways, the NPC Project supports the objectives of smart growth (i.e., new development at existing nodes of excellent transportation facilities).

Energy conservation and other sustainable design measures will be integral parts of the proposed NPC Project. The buildings will employ energy and water efficient features for mechanical, electrical, architectural, and structural systems, assemblies, and materials where possible. Sustainable design elements relating to building energy management systems, lighting, recycling, conservation measures, local building materials, and clean construction vehicles will be included, as practicable. In addition, the NPC Project includes a significant amount of new pervious area which will reduce runoff from the site.

## **2.11 Climate Change Resilience**

The 2014 NPC included a Climate Change Preparedness Checklist as required for projects subject to Article 80B, Large Project Review. The checklist is included as Attachment D of this NPC. The NPC Project team has considered the impact of extreme heat events, sea

level rise, extreme rain events and drought conditions on the NPC Project. To minimize the impacts of climate change on the NPC Project, the design incorporates the following:

- ◆ New open space with significant new landscaping, as well as new street trees to shade sidewalks adjacent to the site, to reduce the heat island effect and provide for stormwater infiltration;
- ◆ Installing operable windows where possible to allow for ventilation in the event of a brown out;
- ◆ Using Energy Recovery Ventilation to reduce cooling loads;
- ◆ High-albedo roofing and hardscape materials to minimize the heat island effect;
- ◆ Placement of electrical transformers above the potential flood level;
- ◆ Locating the backup generator above the potential 100-year flood level;
- ◆ Second floor entry which would be able to be used if the first floor is flooded;
- ◆ Considering directing stormwater runoff from the roof to a subsurface recharge system on-site;
- ◆ Wastewater and stormwater back flow prevention;
- ◆ Incorporation of native and adaptive plant materials;
- ◆ Aeration fixtures and appliances will be chosen for water conservation qualities, conserving potable water supplies; and
- ◆ Sensor operated faucets and toilets in public areas.

## 2.12 Urban Design

### 2.12.1 *Existing Urban Fabric*

The character of the West End is largely described by the principal use functions, which include health care and research, housing for a diverse population, a park, and recreation. Ancillary functions include retail, office, worship, parking structures, and transportation. The existing 1960's residential buildings of Charles River Park are a collection of modern high-rise structures with building heights of 16 stories/160 feet, 24 stories/240 feet, and 38 stories/380 feet. These older buildings, planned as part of the grand urban renewal strategy, are separate and distinct objects in the park. The park is an urban pedestrian district which is connected internally by Thoreau Path but remains to this day with minimal connections to the surrounding urban fabric. Over the past decade, the urban character of the West End has been enhanced with the additions of the West End Place Condominiums, an 11-story residential building, and five new residential buildings (ranging from 3 to 14 stories) at the West End Apartments to complement the existing buildings. Both projects strive to create strong urban streetwalls and better internal and external connectivity.

### **2.12.2 Proposed Design**

The NPC Project's program includes approximately 470 residential units in a single, approximately 447-foot-tall building and approximately 830 below-grade parking spaces. The main residential lobby will be accessed directly from Lomasney Way. The building design also incorporates a secondary residential entrance oriented toward Thoreau Path to allow direct access to the established pedestrian network and open space.

Two vehicular points of access to the garage—which will provide public, residential exempt, and non-residential exempt parking spaces—will be provided on Lomasney Way and Martha Road. The proposed driveway on Lomasney Way will be positioned in generally the same location as the existing driveway; however, the driveway will be narrowed to two lanes (compared to five lanes existing), which will substantially reduce the crossing distance for pedestrians and, thus, improve pedestrian conditions in front of the site. The driveway on Martha Road will be located approximately 50 feet west of Nashua Street and will provide only for right-turns in and right-turns out. The garage has also been planned with a below-grade connection to the existing Longfellow Place Garage to provide additional exiting capacity after events.

#### **2.12.2.1 Urban Design Principles**

The design of the NPC Project embodies several key urban design principles specific to the West End and the NPC Project site, which include:

- ◆ Development that recognizes the character of the existing residential neighborhood and strives to improve connectivity;
- ◆ Improved pedestrian access into, through, and around the site;
- ◆ Creation of an active, pedestrian-friendly edge along Lomasney Way; and
- ◆ Creation of new urban open space.

#### **2.12.2.2 Massing, Form, and Response to the Urban Context**

The proposed development is designed and sited to respect and complement the established arrangement of buildings and open space, and to strengthen the cohesive residential quality of the West End. The siting of the proposed building significantly reduces the environmental impact of previous schemes on the surrounding buildings while maintaining and enhancing the visual connection to surrounding areas. The strategy of placing the parking below grade reduces the overall building footprint on the site, and responds to a long-standing community desire to provide new landscaped open space and enhance the pedestrian realm. Minimizing the building footprint and orienting the development along the north edge of the precinct allows light to penetrate the additional shared open space of the site.



The massing of the building is intended to complement the scale and character of surrounding buildings. While taller than the other buildings located within the West End neighborhood, the dimensions have been kept very slender to minimize the shadow impact. The proposed massing has been reduced by two stories, approximately 18 feet, in height, and the footprint has been expanded slightly to approximately 12,900 sf. The building's location defines a perimeter to the West End neighborhood while still allowing for visual and physical connection to Lomasney Way and Nashua Street, and provides similar context to new developments to the northeast of the site. The design for the building incorporates a stepped massing and provides a narrowing of the building and visual variety to the skyline. The building materials and bay spacing at the base adds scale and definition to the new entry and retail space. The entry to the parking garage further defines the streetfront along Lomasney Way while providing direction to users of the garage, new building residents, and pedestrians headed to Thoreau Path. Figures 17 to 21 in Attachment A include perspectives of the NPC Project.

The placement of the building is deliberate to provide wider view corridors from neighboring residential buildings and Thoreau Path, visually connecting the West End to other neighborhoods and providing a sense of connection to the city as a whole. The height and density of the massing is appropriately concentrated on the northern edge of the site, against the bustling Leverett Connector ramps and North Station; this shields the enclave-like open space from the noise of the city and minimizes the potential impacts to adjacent buildings. Locating the building massing to the north also helps minimize the impact to established east-west view corridors from adjacent buildings, as shown on Figure 14 in Attachment A, and maximize light to Thoreau Path as shown on the shadow graphics, Figures 29 to 42.

Additionally, in removing the existing above-grade structure and siting the building to the northwest edge of the site, the east edge of the site has been opened to the courtyard space of adjacent West End Place. The site has been further designed to establish this visual and physical connection and provide another means of accessing Thoreau Path and Lowell Square, the intersections of Causeway Street, Lomasney Way, Staniford Street, and Merrimac Street.

### **2.12.2.3 Façade Design Fenestration and Building Materials**

The facade of the proposed building features a contemporary expression of 21st century residential design that is intended to enrich and complement the character of the neighborhood. The lower two floors of the building will be glazed aluminum curtain wall to create an active and animated facade and to form a vibrant streetscape punctuated with engaging views into and out of the lobby, retail, and other active residential areas on the second floor. Entries to the building will have canopies and signage to provide scale and protection, and will be of complementary materials (see Figure 12 in Attachment A).

The upper floors of the building will feature a unitized curtainwall system with distinct metal piers, on the primary building grid, infilled with two-story windows. The varied width and depth of metal piers will create a hierarchy to the gridded pattern that extends up the building, giving texture to the urban wall. The metal piers will extend to the top of the mechanical penthouse, with the two-story rhythm continuous to the top as the building meets the sky. The northeast corner features a vertical glass curtainwall façade which incorporates balconies at some of the floors, the occurrence of balconies increasing as they extend up the façade, adding pattern and a finer grain.

#### **2.12.2.4 Site Design**

The NPC Project site offers many opportunities for dramatic views and movement due to an elevation grade change between Lomasney Way and Thoreau Path. The primary goal of the site design is to improve and enhance the pedestrian circulation between the heart of the West End, North Station, TD Garden and the surrounding neighborhood. Figure 14 in Attachment A includes a circulation plan through the site and surrounding area.

To enhance the experience of rising into the site from Lomasney Way, terraced landforms have been introduced to the design. These forms will also serve to provide subtle definition for open space and will direct pedestrian circulation through the site. The largest of the proposed elevated terraces will allow the below-grade parking deck to be completely buried, enhancing the overall visual experience and increasing the useable open space on the site. Green terracing and green roofs will also be used in transitioning the landscape from covering the garage entrance towards the main pedestrian gateway.

New open spaces formed by the proposed landforms include intimate seating pockets, gathering terraces, and overlooks to Thoreau Path, as well as a larger community gathering space, as shown on Figure 1 in Attachment A. A new terraced seating area is included in the community space to provide a place for gathering as well as a center for functions and events. In addition, certain open spaces adjacent to the major view corridors of Thoreau Path will offer opportunities for public art.

The terraces will be simple, accessible lawns accented with flowering trees for seasonal interest and specimen canopy trees which provide shade and pedestrian scale to the open space. Shrubs will be used minimally to offer screening and privacy where needed, and low perennials and groundcovers will be planted in soils on structures (e.g., green roofs).

The primary pedestrian circulation adjacent to the residential building will occur on walks sloping at under five percent. Secondary circulation will occur through a filtered seating area referred to as the “Petal Garden”, a space that provides a buffered threshold between Thoreau Path and the access to Lomasney Way. Low seat walls will be incorporated to direct circulation and absorb changes in grade where needed within the Petal Garden. The views and physical connections to and from Thoreau Path will account for the primary and

secondary desire lines. Differing walk widths and surface materials will define the hierarchy of importance.

Views from adjacent properties have been considered in the overall Project design. A new visual connection from West End Place to Thoreau Path has been provided in the site design. A future walkway connection within this open space is possible if desired by the residents of West End Place. The pedestrian connections to and from North Station will also be physically and visually strengthened by splitting the parking and service entrances into two smaller locations. This will allow the streetscape between the building and the primary parking entrance to remain cohesive along Lomasney Way, thereby creating a more welcoming opening when approaching from North Station.

## **2.13 Historic Resources**

The development of the site will not have a direct impact on historic resources. Fleeting new shadow will be cast onto additional new rooftops in the Bulfinch Triangle Historic District on June 21 at 6:00 p.m.; however, much of the District is already under existing shadow.

## **2.14 Infrastructure**

### ***2.14.1 Introduction***

The following sections describe the anticipated water consumption and sewage generation rates for the NPC Project. The modified proposed program results in a slight reduction in the potable water demand and sewage generated as noted below.

The Proponent will coordinate the design of the proposed water, drainage, and sewer connections with the BWSC. The appropriate permits and approvals will be acquired prior to construction. Utility connections will be designed to minimize adverse effects within the surrounding area, including existing business operations. Based on the original DPIR analysis and the updated sewage generation rates herein, there is adequate drainage and sewage capacity in the area to accommodate the Project.

### ***2.14.2 Anticipated Water Consumption***

The NPC Project's updated average potable water demand is estimated as 110% of the sewage generation, or 78,172 gallons per day (GPD), resulting in a slight decrease in the anticipated water demand when compared to the previously proposed project. The previously proposed project's average potable water demand was estimated to be 79,728 GPD.

### 2.14.3 Sewage Generation

The existing and proposed sewage generation rates for the previously proposed project and NPC Project programs are provided in Tables 2-5, 2-6 and 2-7, respectively. These rates were estimated using Massachusetts State Environmental Code (Title 5) 310 CMR 15.203. Based on these estimates, the NPC Project is expected to increase the total effluent sewage discharge from the site when compared to existing conditions by 69,665 GPD, but will increase effluent sewage discharge less than the previously proposed project.

**Table 2-5 Existing Sewage Generation**

Use	Area (square feet)	Units	Sewage Generation Rate (GPD)	Total (GPD)
Parking Garage			None	0
Athletic Club		60 lockers	20 per locker	1,200
Boston Children's School Annex (Daycare)	812	20 persons	10 per person	200
<b>TOTAL</b>				<b>1,400</b>

**Table 2-6 Proposed Sewage Generation (2014 NPC)**

Use	Area (square feet)	Units	Sewage Generation Rate (GPD)	Total (GPD)
Proposed Residences		658 bedrooms	110 per bedroom	72,710
Retail	2,000		50 per 1,000 sf	100
Garage	400,000		None	0
<b>TOTAL</b>				<b>72,480</b>

**Table 2-7 Proposed Sewage Generation (NPC Project)**

Use	Area (square feet)	Units	Sewage Generation Rate (GPD)	Total (GPD)
Proposed Residences		645 bedrooms	110 per bedroom	70,950
Retail	2,300		50 per 1,000 sf	115
Garage	367,000		None	0
<b>TOTAL</b>				<b>71,065</b>

#### ***2.14.4 Sewer and Stormwater Mitigation***

To minimize sewage generation, the NPC Project will meet applicable code requirements for the installation of low-flow fixtures.

In terms of stormwater, given that the NPC Project will not increase the amount of impervious area on the site, post-construction stormwater run-off rates will not exceed existing rates. Furthermore, by upgrading garage stormwater collection systems, the NPC Project will significantly improve the quality of stormwater runoff. Stormwater collected from the loading dock and lower levels of the garage will be collected and directed through MWRA-compliant gas, sand, and oil interceptors. Stormwater collected from parking areas and ramps receiving direct rainfall will be directed through water quality structures (e.g., Stormceptor or similar) before discharging to the municipal system. All catch basins will include deep sumps and hoods for additional oil and sediment removal.

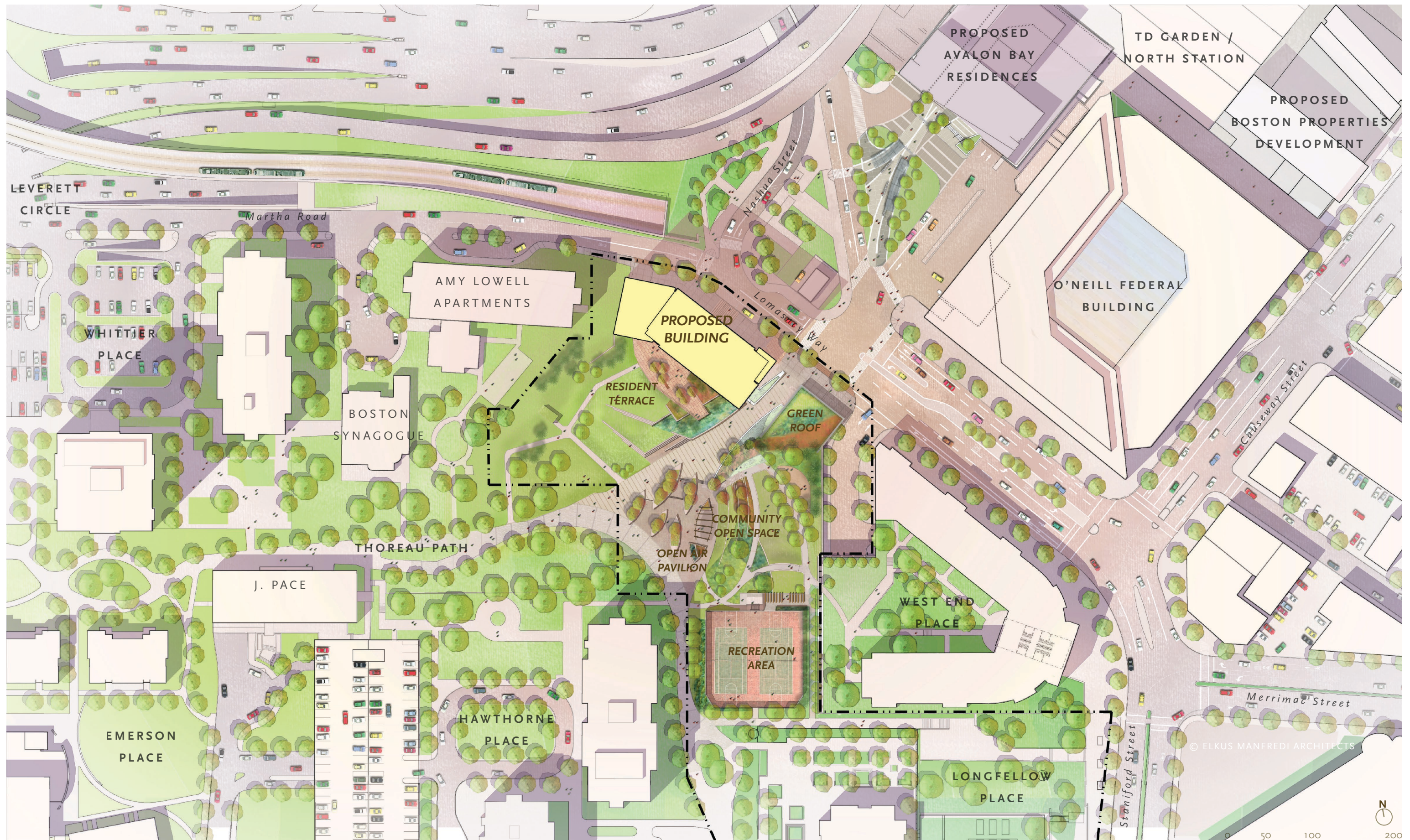
The NPC Project will also include a stormwater management system to address the phosphorus content of stormwater runoff within the Charles River Watershed. The Proponent is considering a stormwater recharge system consisting of perforated pipe and crushed stone to remove phosphorus from runoff. It is anticipated that the equivalent of one-inch over the site's impervious area can be recharged as prescribed in the BWSC's Site Plan Requirements. The Proponent will coordinate with the BWSC to determine the appropriate level and method of phosphorus removal.

Attachment A

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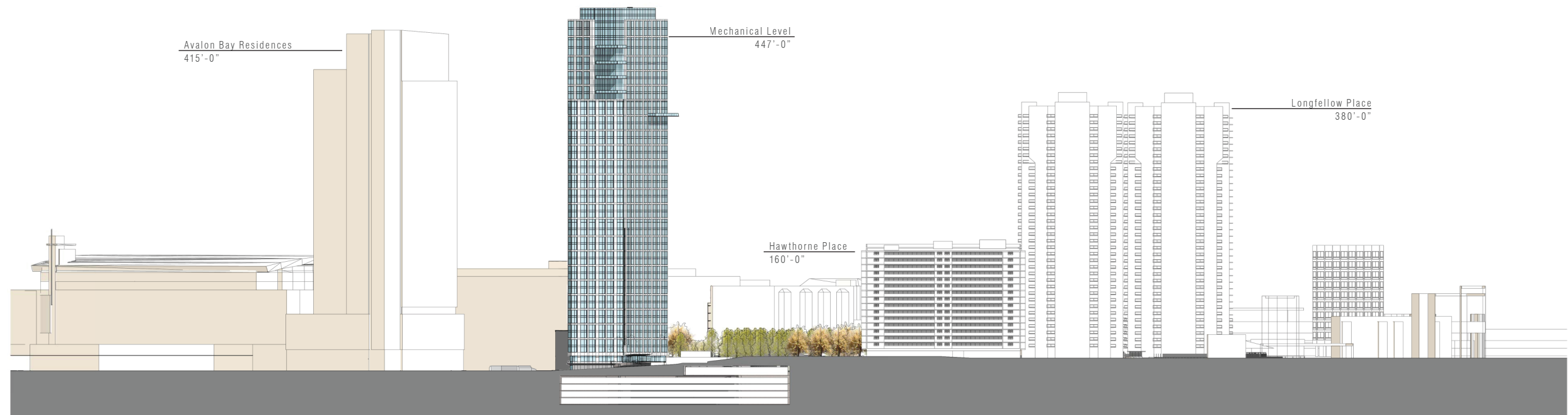
Figures



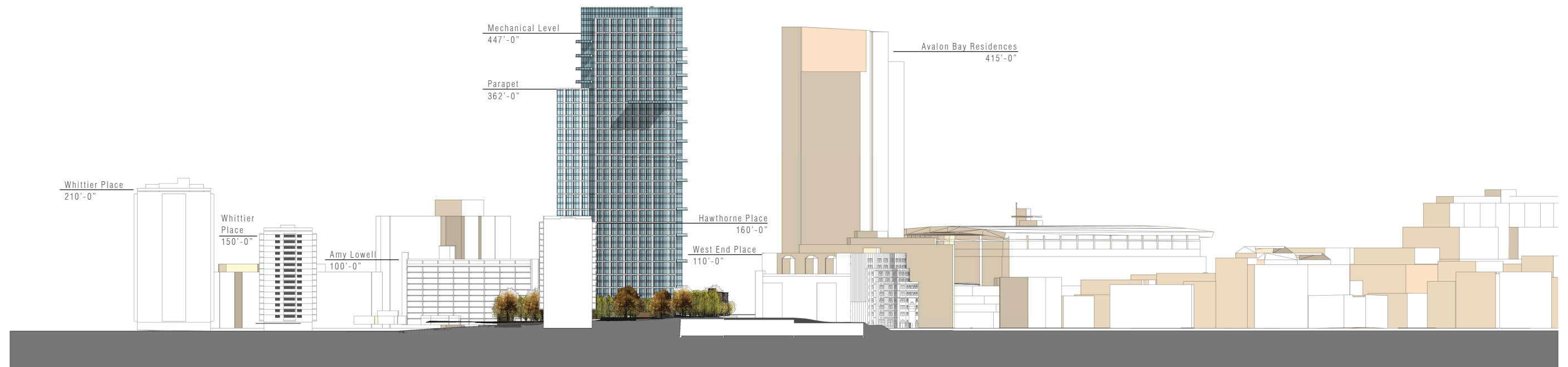


Garden Garage Boston, Massachusetts





NORTH-SOUTH NEIGHBORHOOD SECTION LOOKING EAST



EAST-WEST NEIGHBORHOOD SECTION LOOKING NORTH



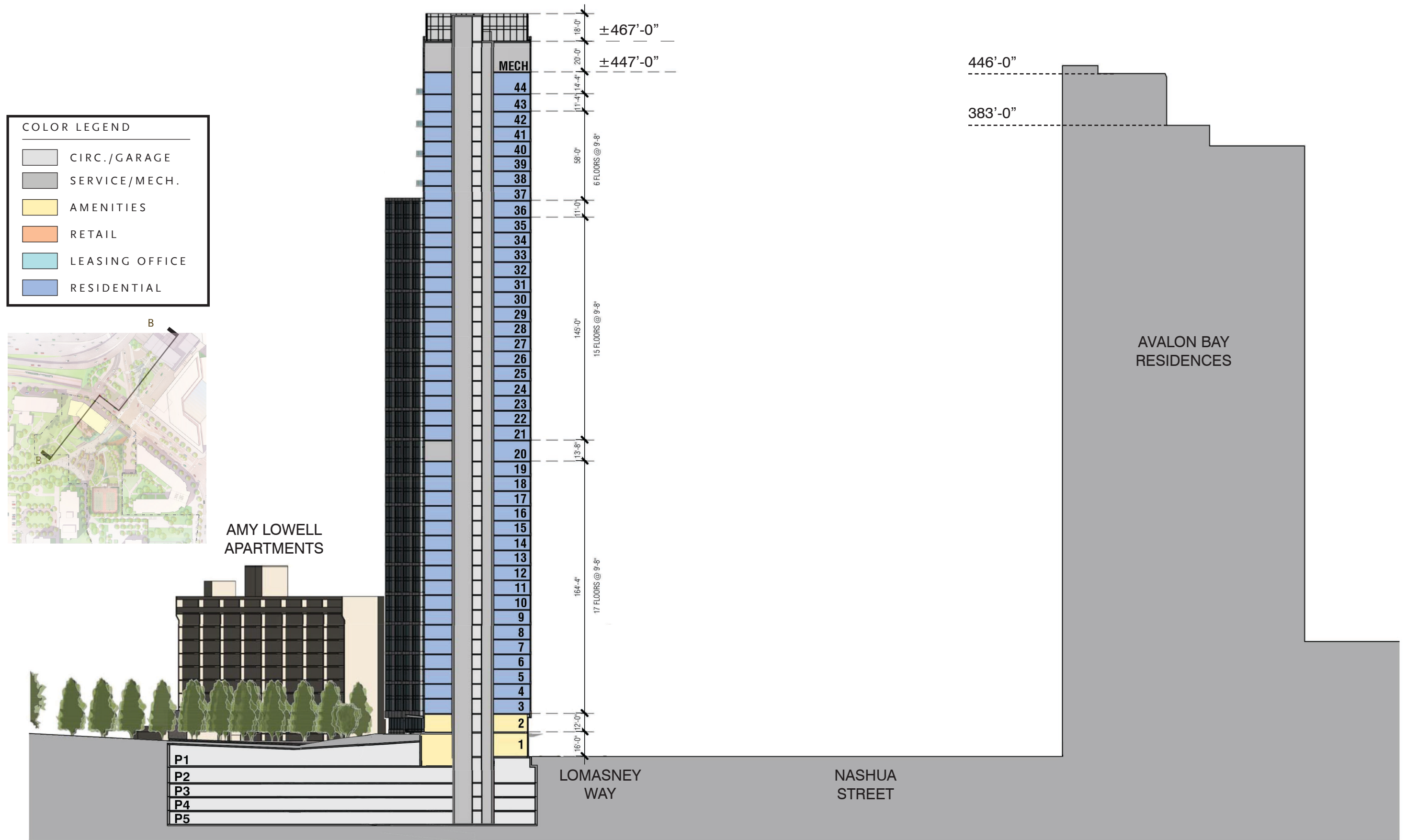
Garden Garage Boston, Massachusetts

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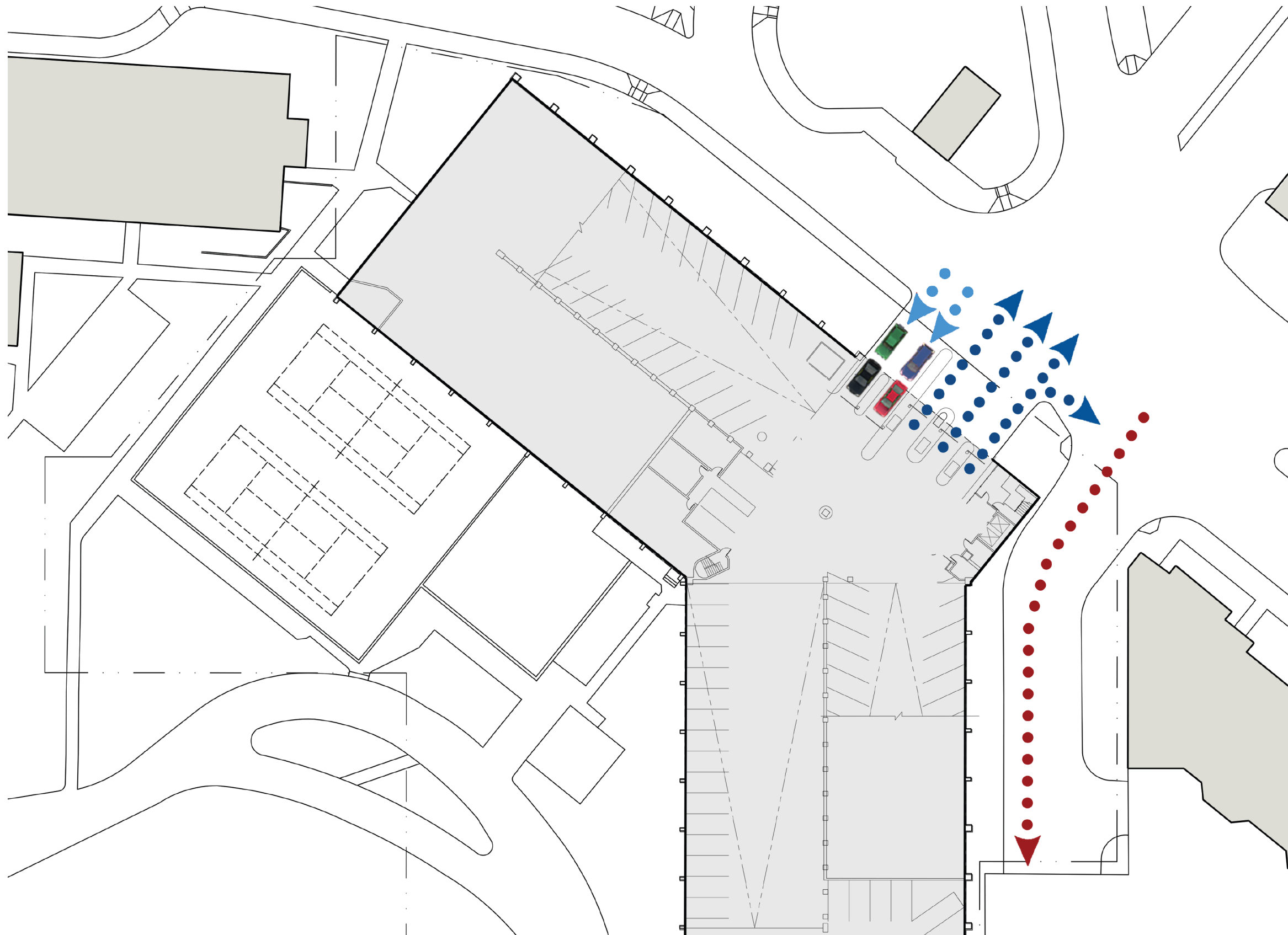
Figure 2  
Neighborhood Sections







Garden Garage Boston, Massachusetts



## QUEUING CAPACITY

- Approximate queuing of existing garage is 4 vehicles that are within the garage and off of the street.

## LEGEND

- Ingress
- Egress
- Resident-only Ingress
- Resident-only Egress
- Loading Dock Ingress



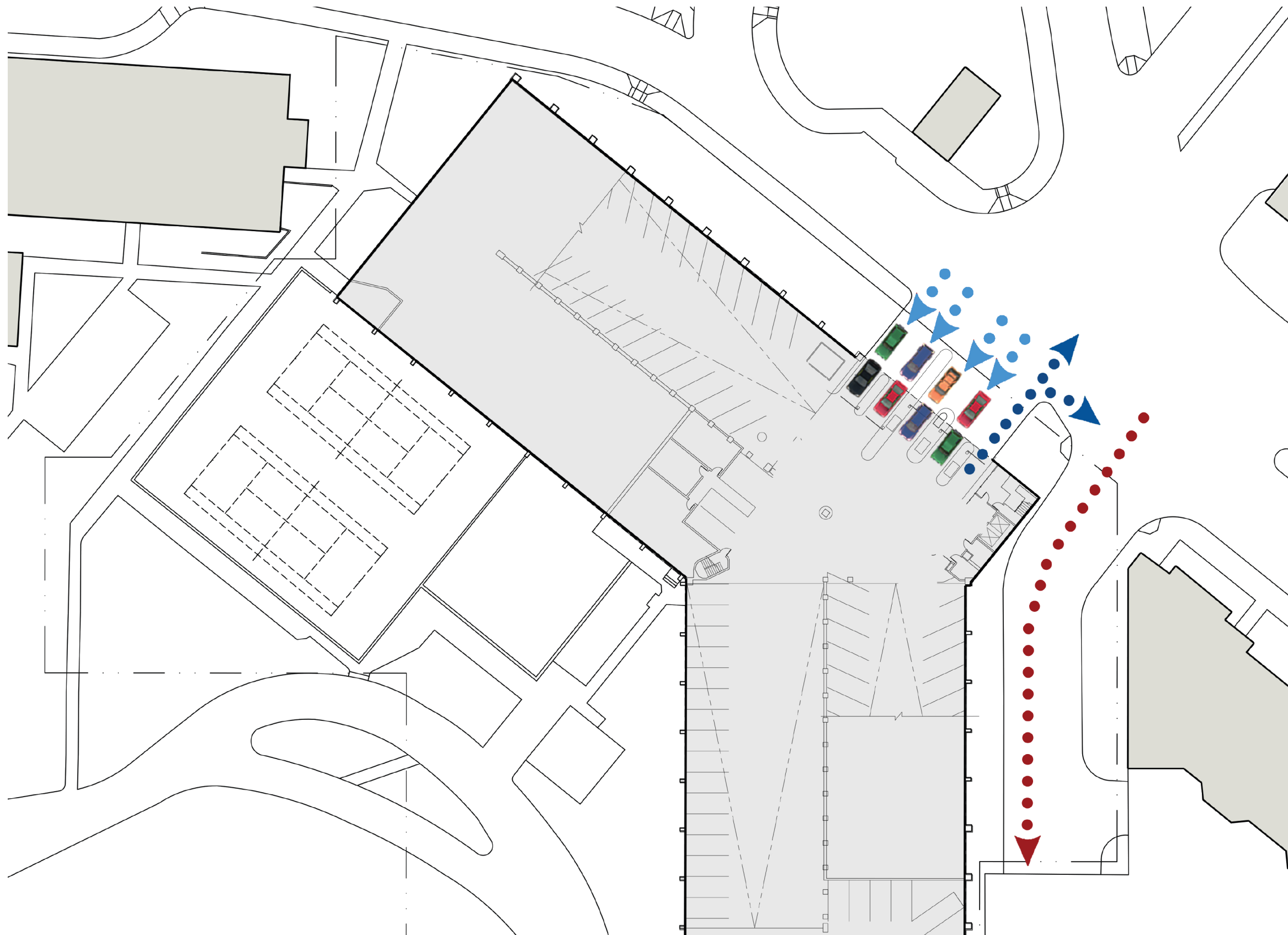


## QUEUING CAPACITY

- Approximate queuing on a typical non-event day is 18 vehicles that are within the garage and off of the street.

## LEGEND

- Ingress
- Egress
- Resident-only Ingress
- Resident-only Egress
- Loading Dock Ingress



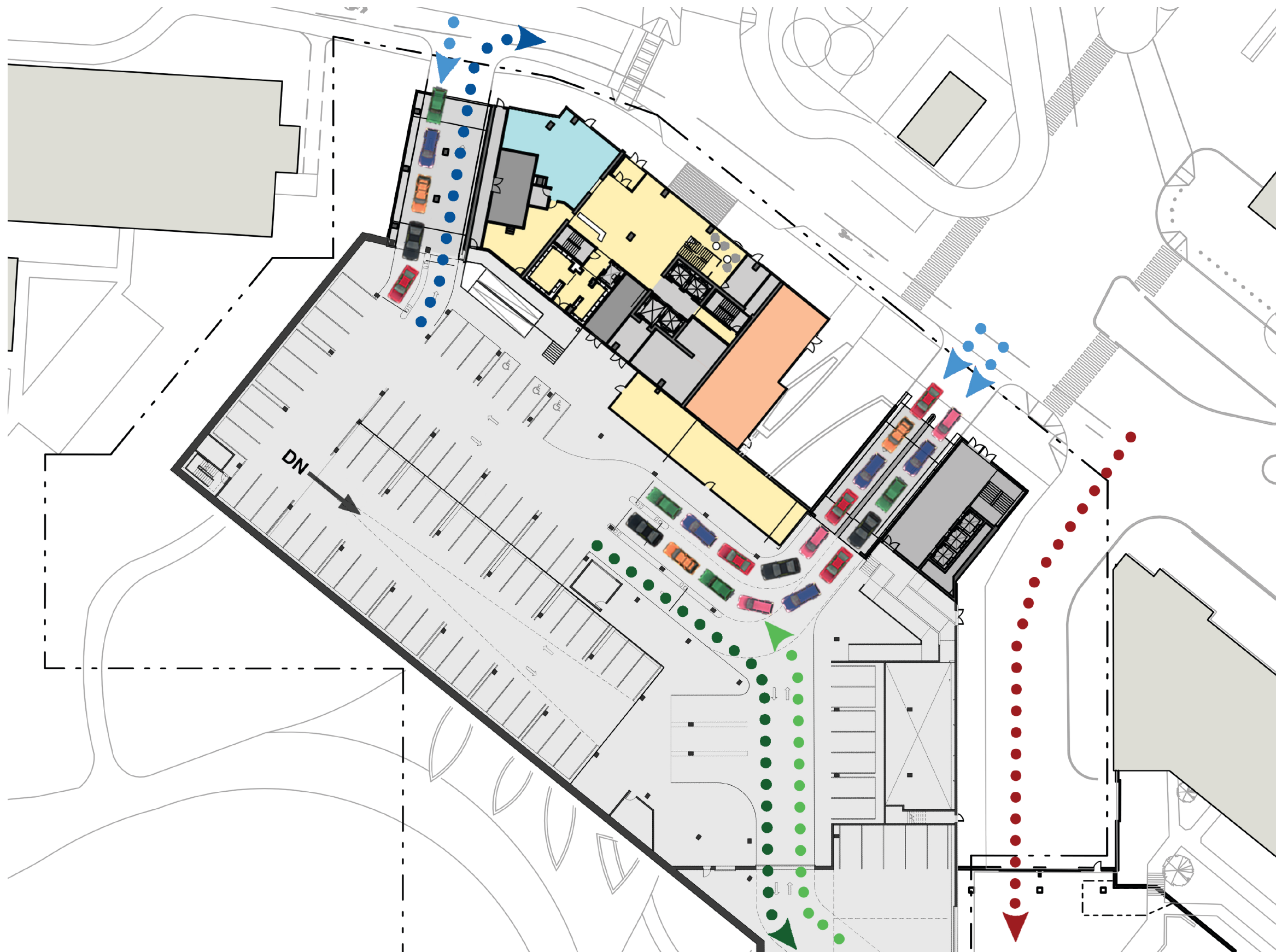
## QUEUING CAPACITY

- Approximate queuing of existing garage increases to 8 vehicles that are within the garage and off of the street. Parking is pay-on-ingress so 4 lanes are converted to open egress after the event.

## LEGEND

- Ingress
- Egress
- Resident-only Ingress
- Resident-only Egress
- Loading Dock Ingress



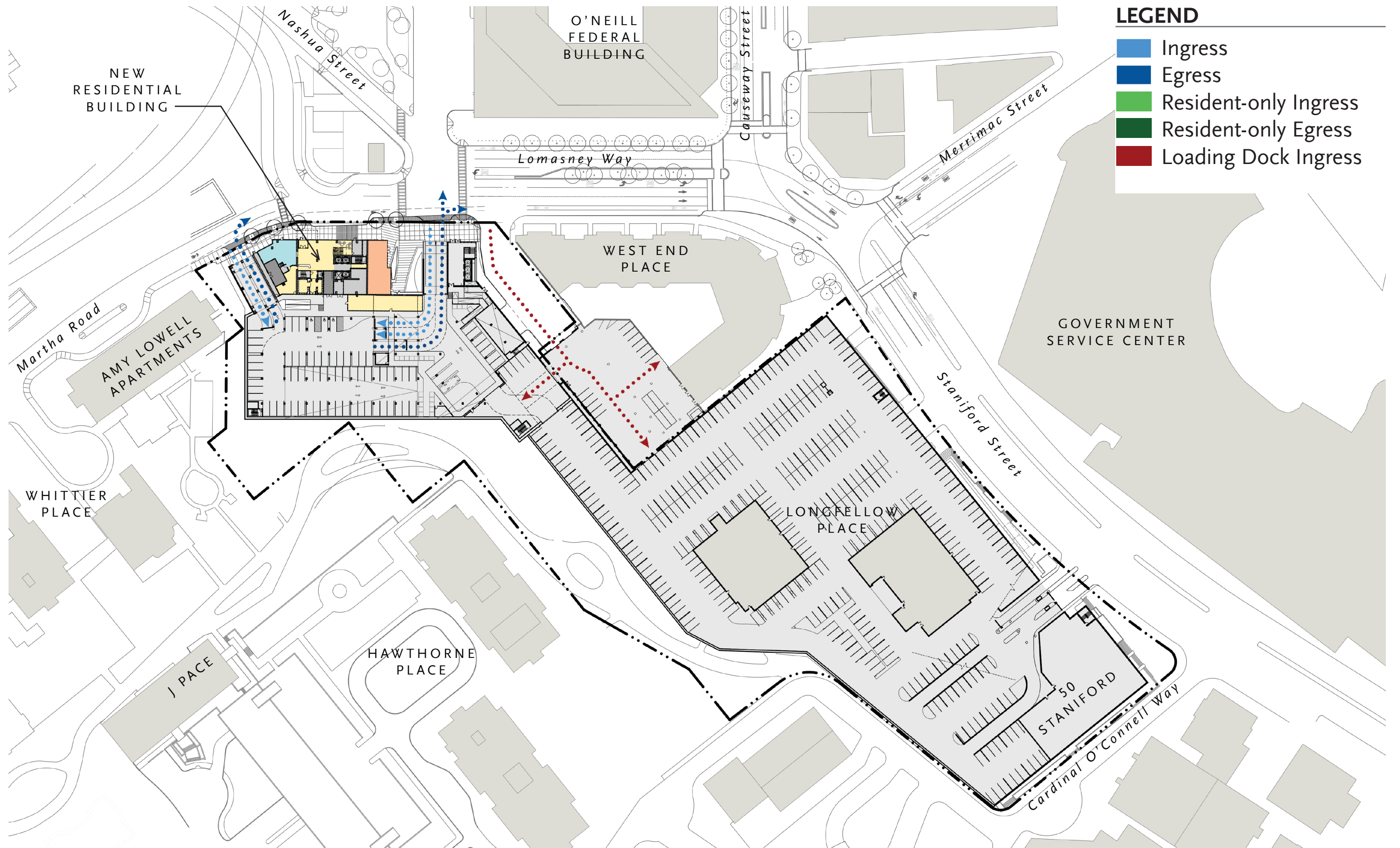


## QUEUING CAPACITY

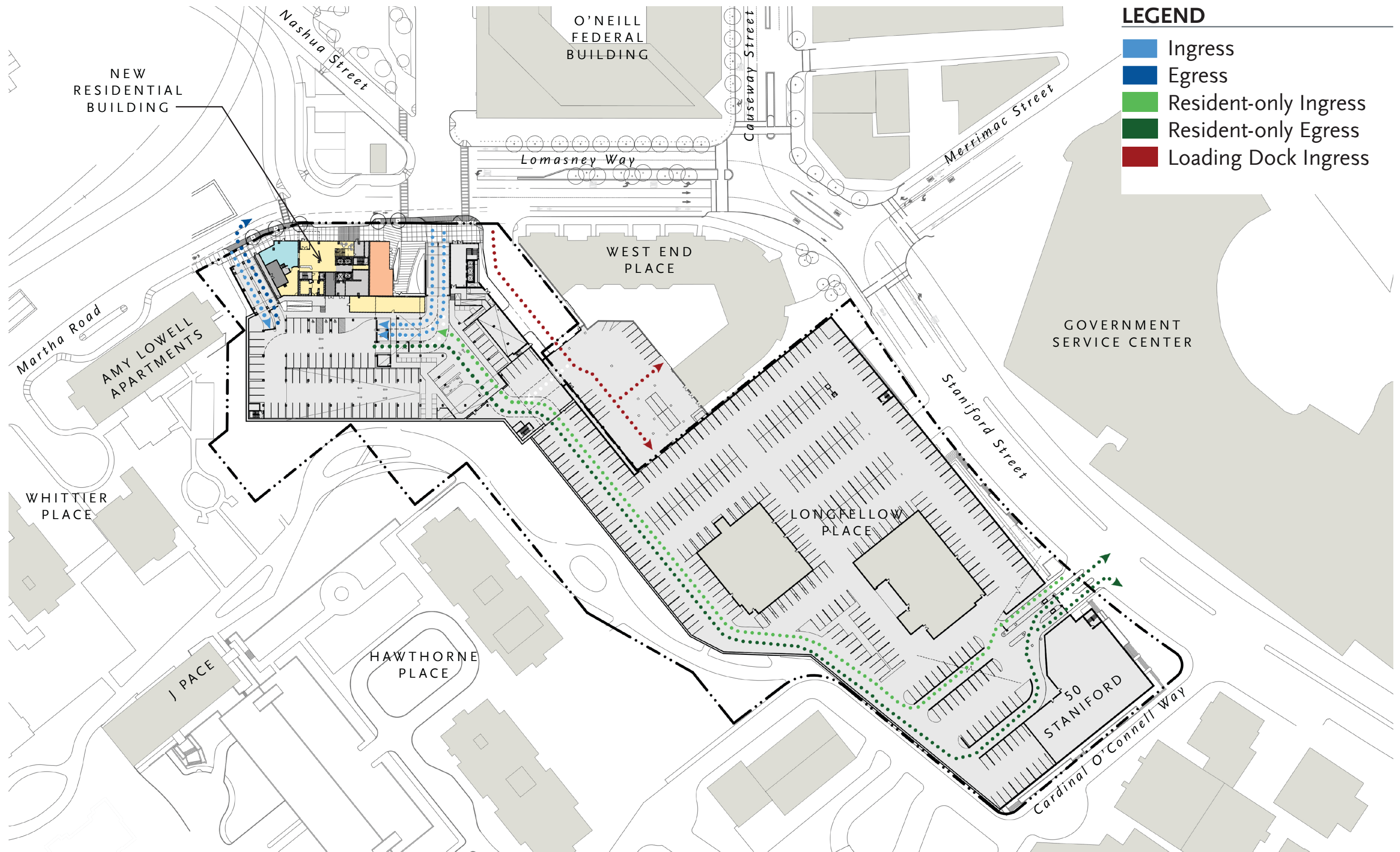
- Approximate queuing on an event day is 24 vehicles that are within the garage and off of the street. Resident Ingress/Egress occurs through the Longfellow Garage Connection.

## LEGEND

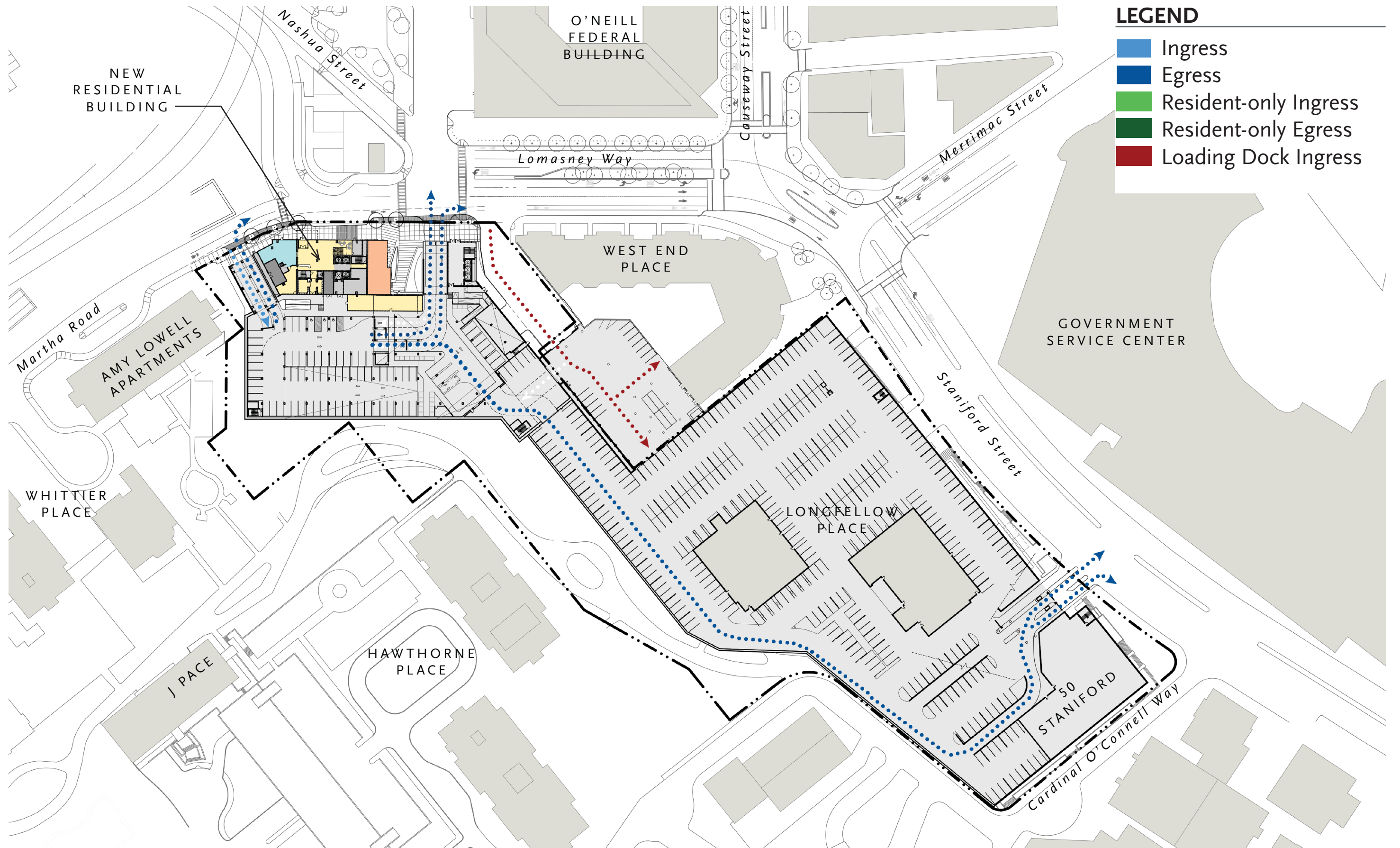
- Ingress
- Egress
- Resident-only Ingress
- Resident-only Egress
- Loading Dock Ingress















\*BUILDING IN NASHUA STREET  
PARK NOT SHOWN FOR CLARITY

Garden Garage Boston, Massachusetts

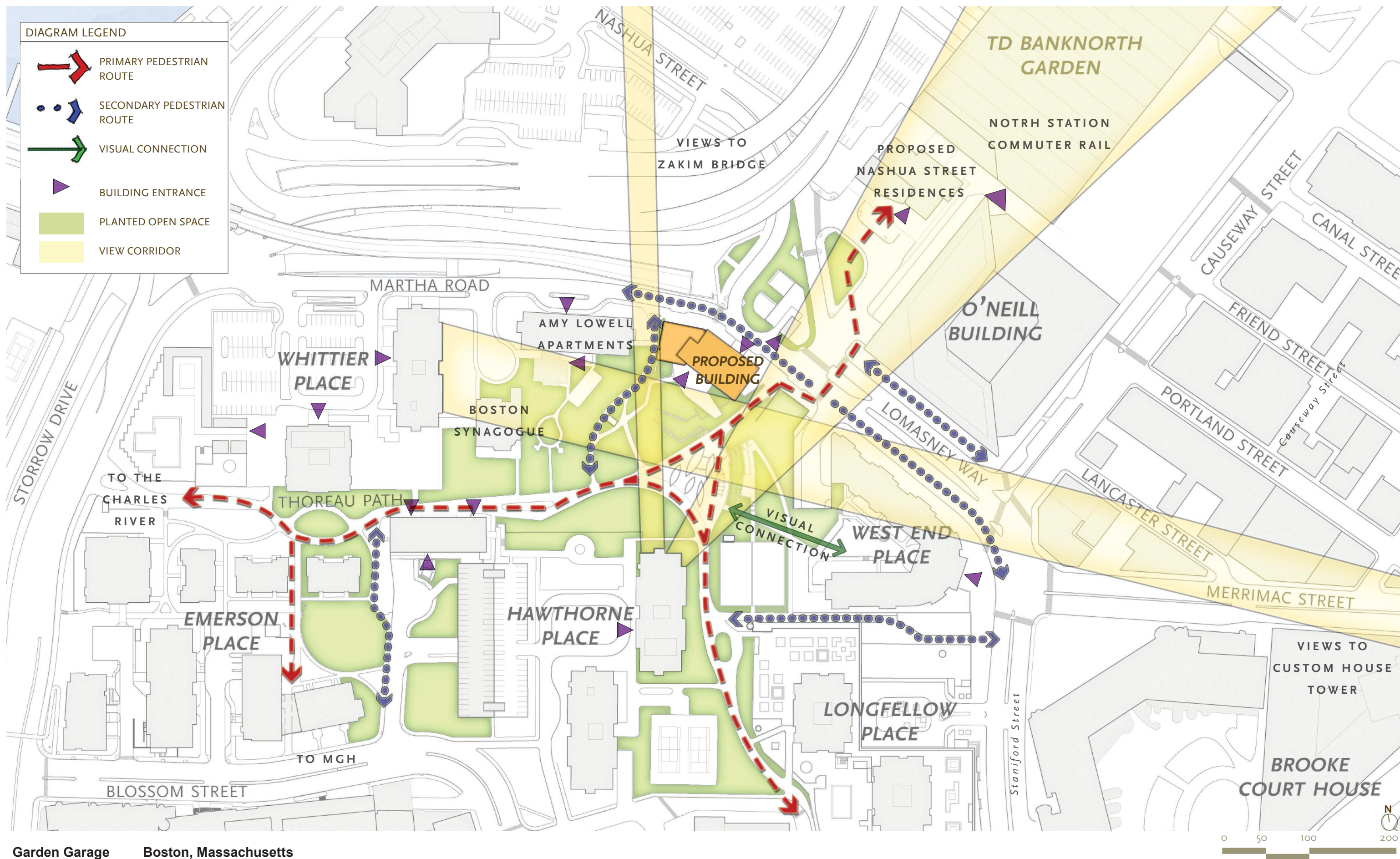




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Garden Garage Boston, Massachusetts



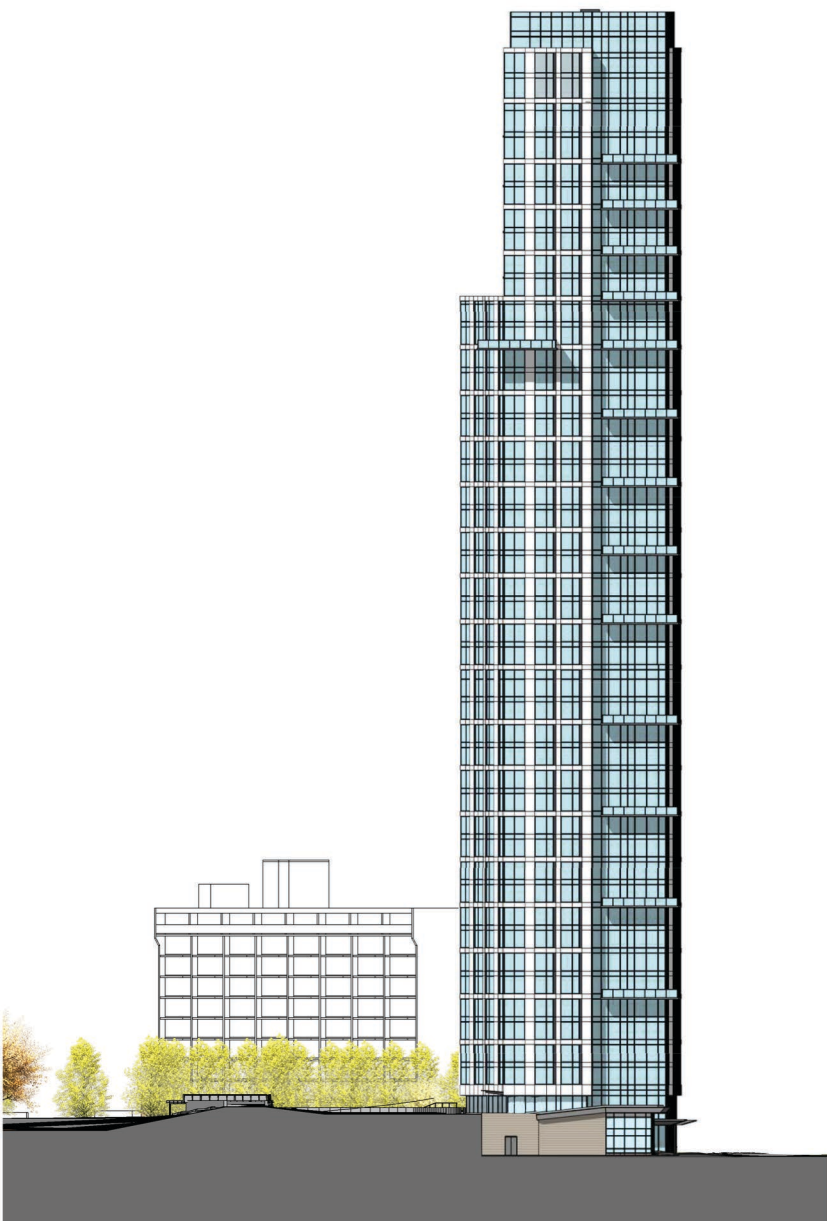


Garden Garage Boston, Massachusetts

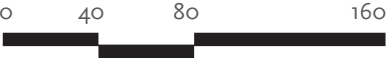


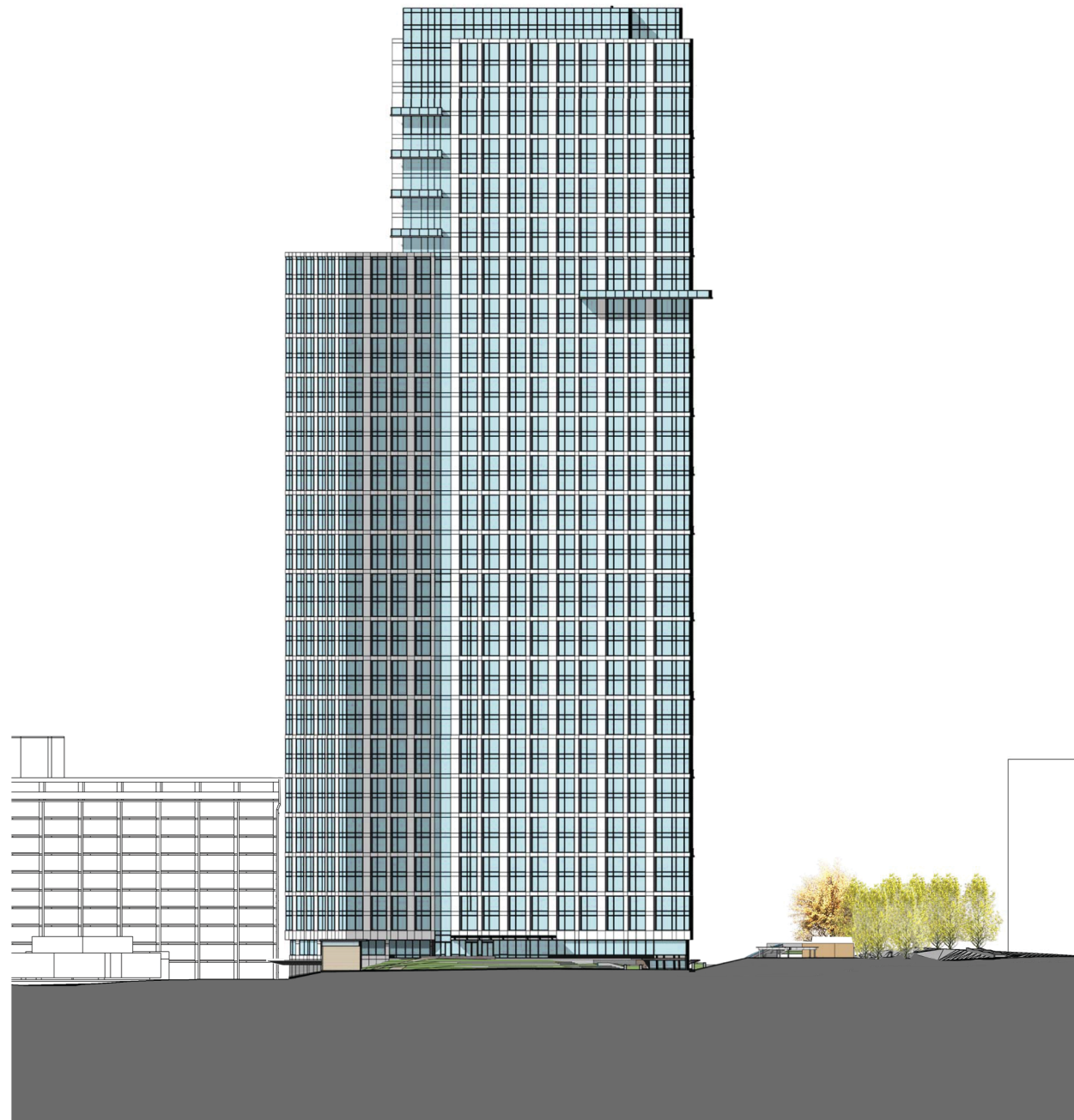


NORTH ELEVATION

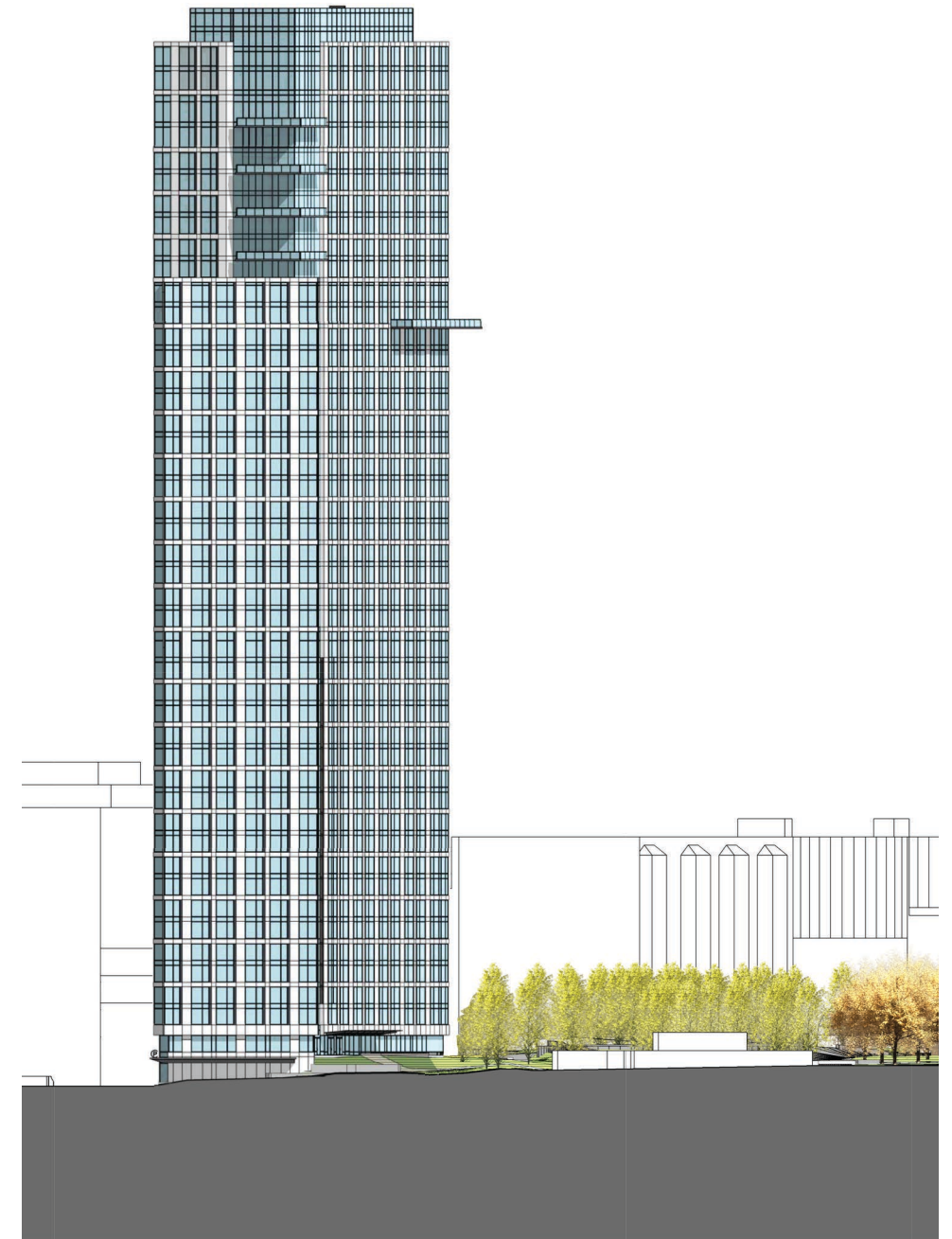


EAST ELEVATION





SOUTH ELEVATION



WEST ELEVATION



**Garden Garage**     **Boston, Massachusetts**

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**Figure 16**  
*South and West Building Elevations*





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Garden Garage Boston, Massachusetts

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Figure 17  
Perspective View from the North





Garden Garage Boston, Massachusetts





**Garden Garage      Boston, Massachusetts**



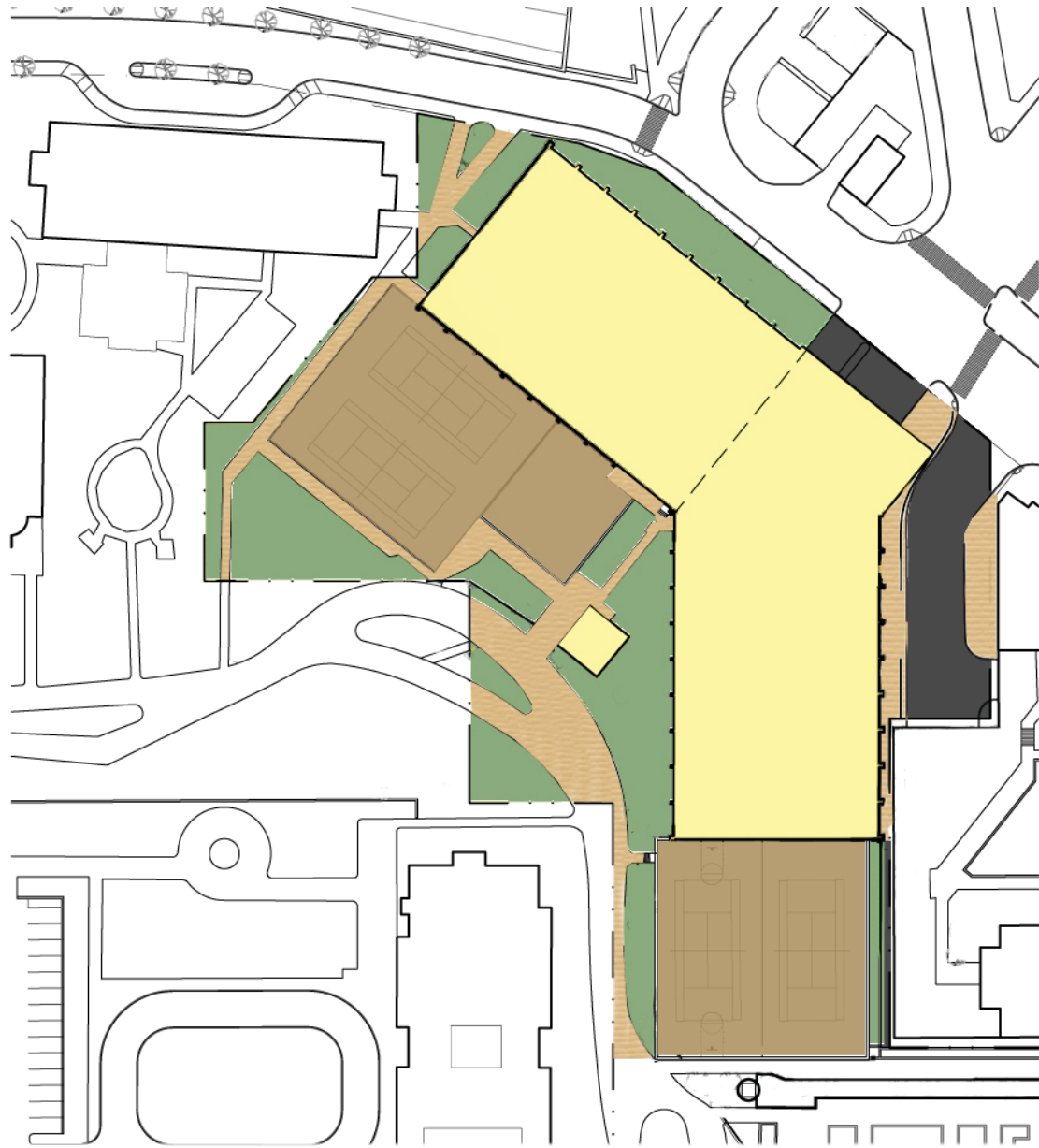
**Garden Garage**      **Boston, Massachusetts**



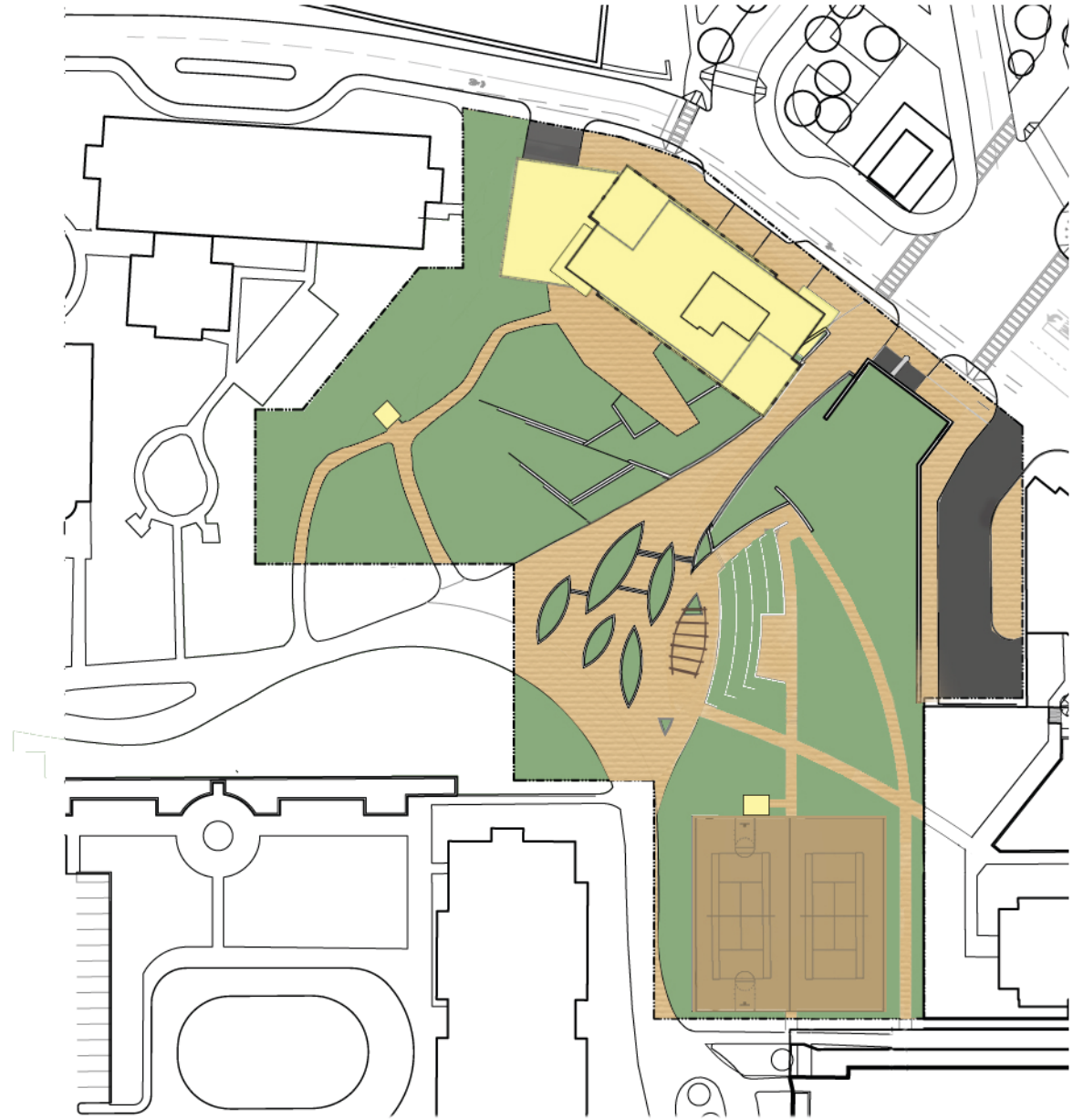


Garden Garage Boston, Massachusetts









EXISTING SITE DEVELOPMENT



PROPOSED SITE DEVELOPMENT

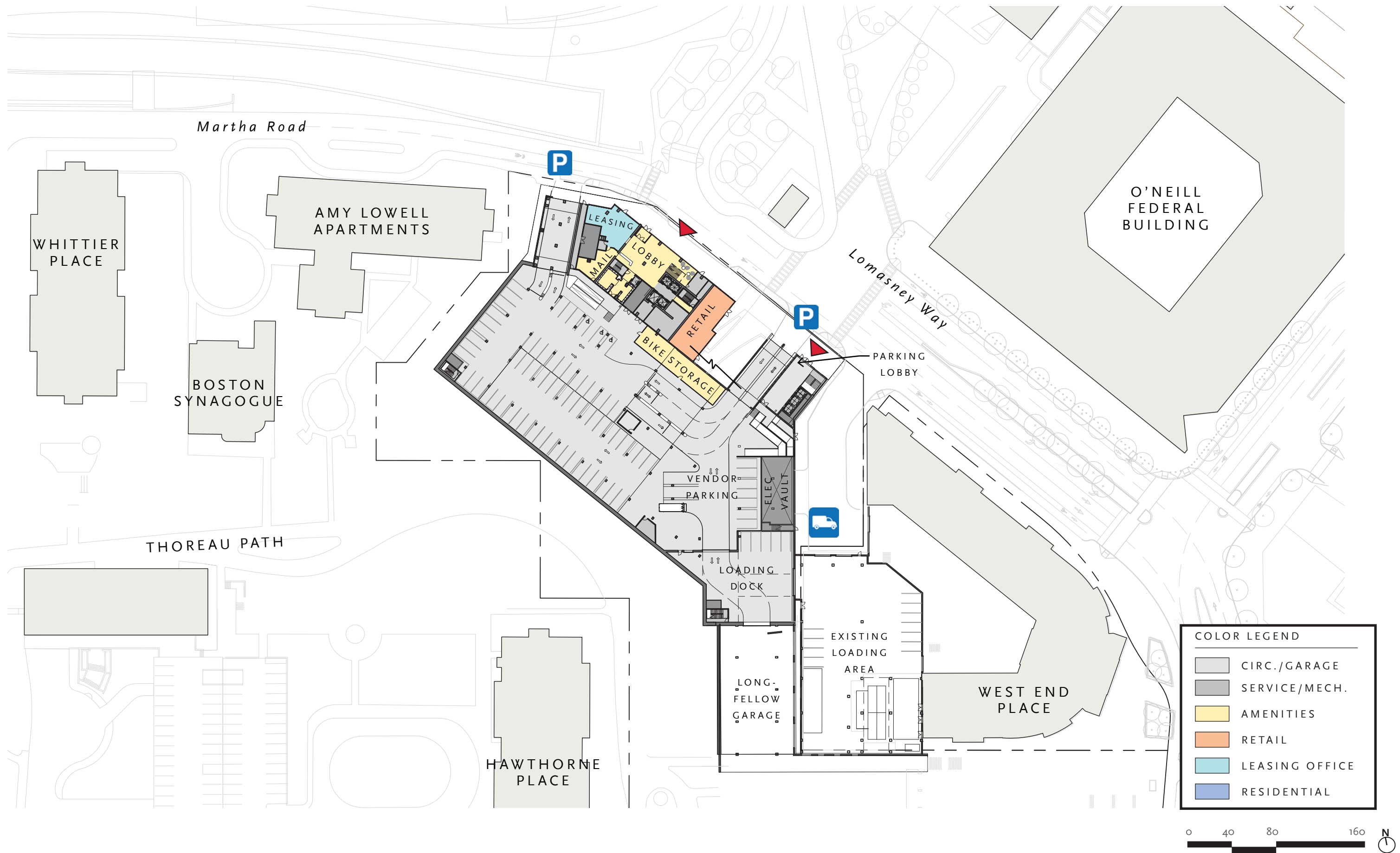
ELEMENT	EXISTING	PREVIOUS NPC	CURRENT NPC	CHANGE
 BUILDING FOOTPRINTS	50,150 SQ.FT.	11,814 SQ.FT.	13,870 SQ.FT.	-36,280 SQ.FT.
 PLANTED AREAS	27,248 SQ.FT.	61,424 SQ.FT.	61,206 SQ.FT.	+33,958 SQ.FT.
 HARDSCAPES	43,616 SQ.FT.	50,688 SQ.FT.	48,400 SQ.FT.	+4,784 SQ.FT.
 DRIVEWAY	10,586 SQ.FT.	7,674 SQ.FT.	7,674 SQ.FT.	-2,912 SQ.FT.

TOTAL SITE AREA : 131,600 SQ.FT.

THE STRATEGY OF PLACING THE PARKING BELOW GRADE SIGNIFICANTLY REDUCES THE OVERALL BUILDING FOOTPRINT ON THE SITE AND PROVIDES 38,742 SQUARE FEET (0.89 ACRES) OF NEW USEABLE OPEN SPACE ON THE SITE, A REDUCTION OF 2,506 SQUARE FEET (0.06 ACRES) OF OPEN SPACE FROM THE PREVIOUS NOTICE OF PROJECT CHANGE SUBMITTAL.

USEABLE OPEN SPACE INCLUDES: PLANTING AREAS, WALKWAYS, AND HARDSCAPE.

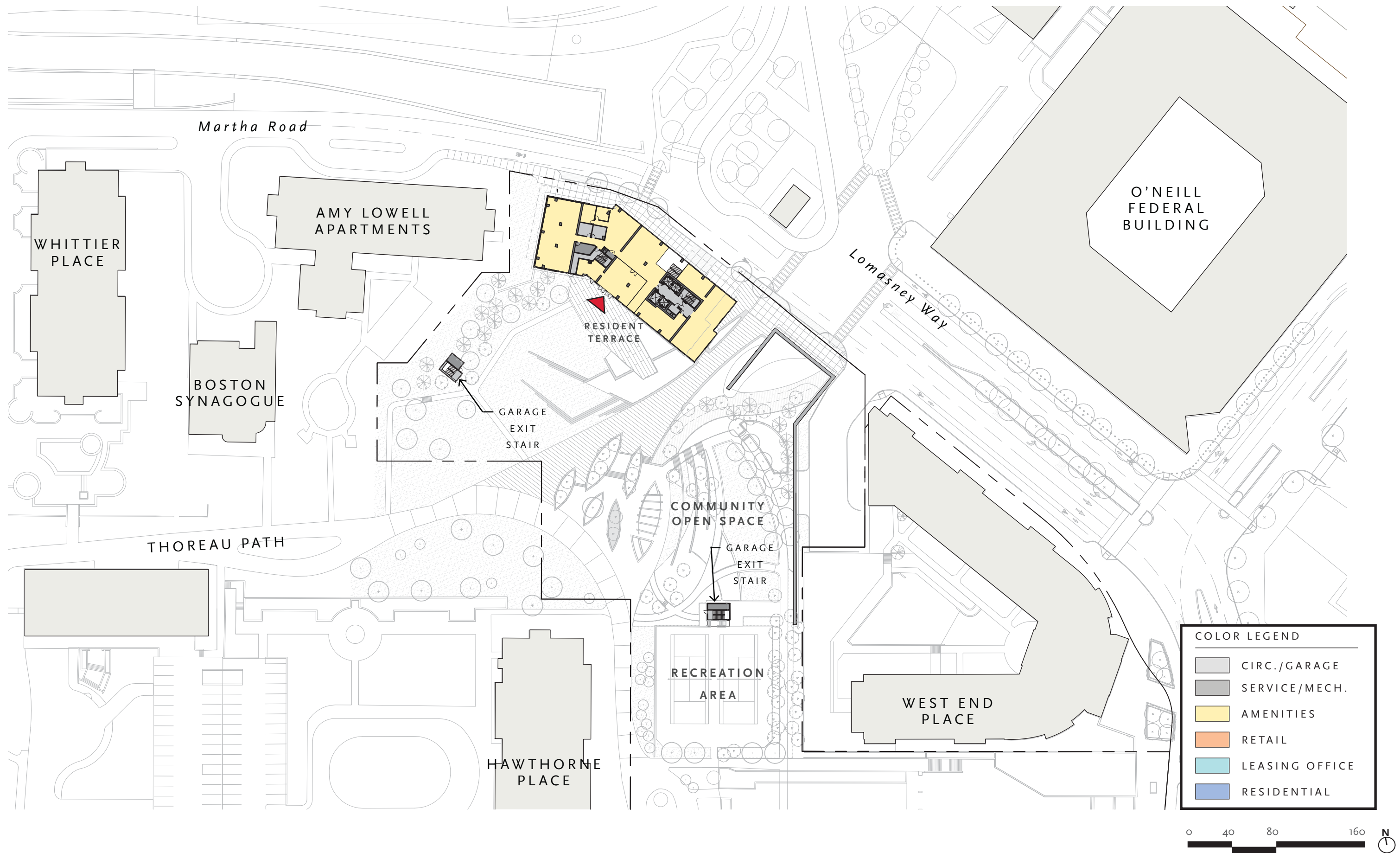




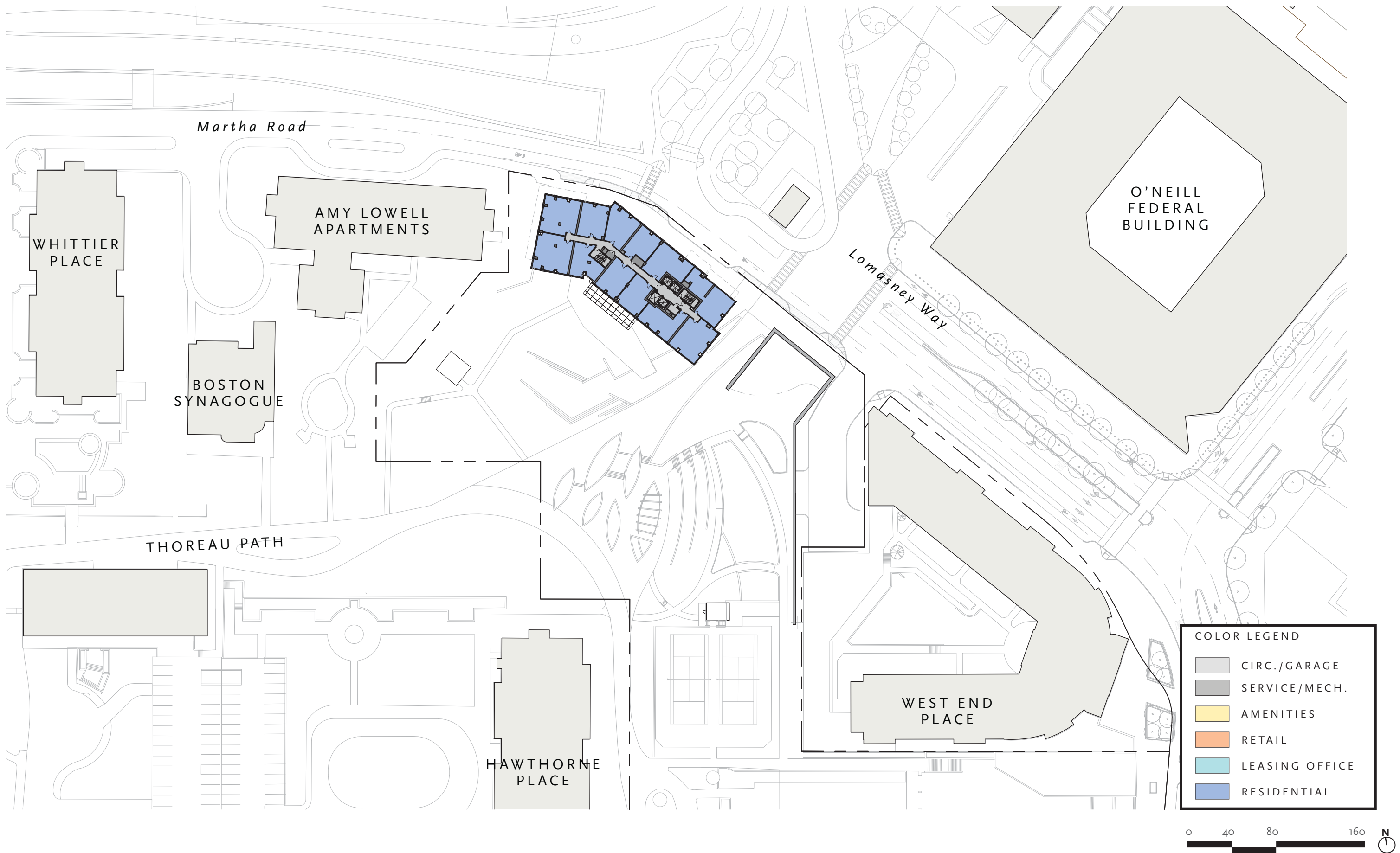
Garden Garage Boston, Massachusetts

**Figure 23**  
Floor Plan - Street Level



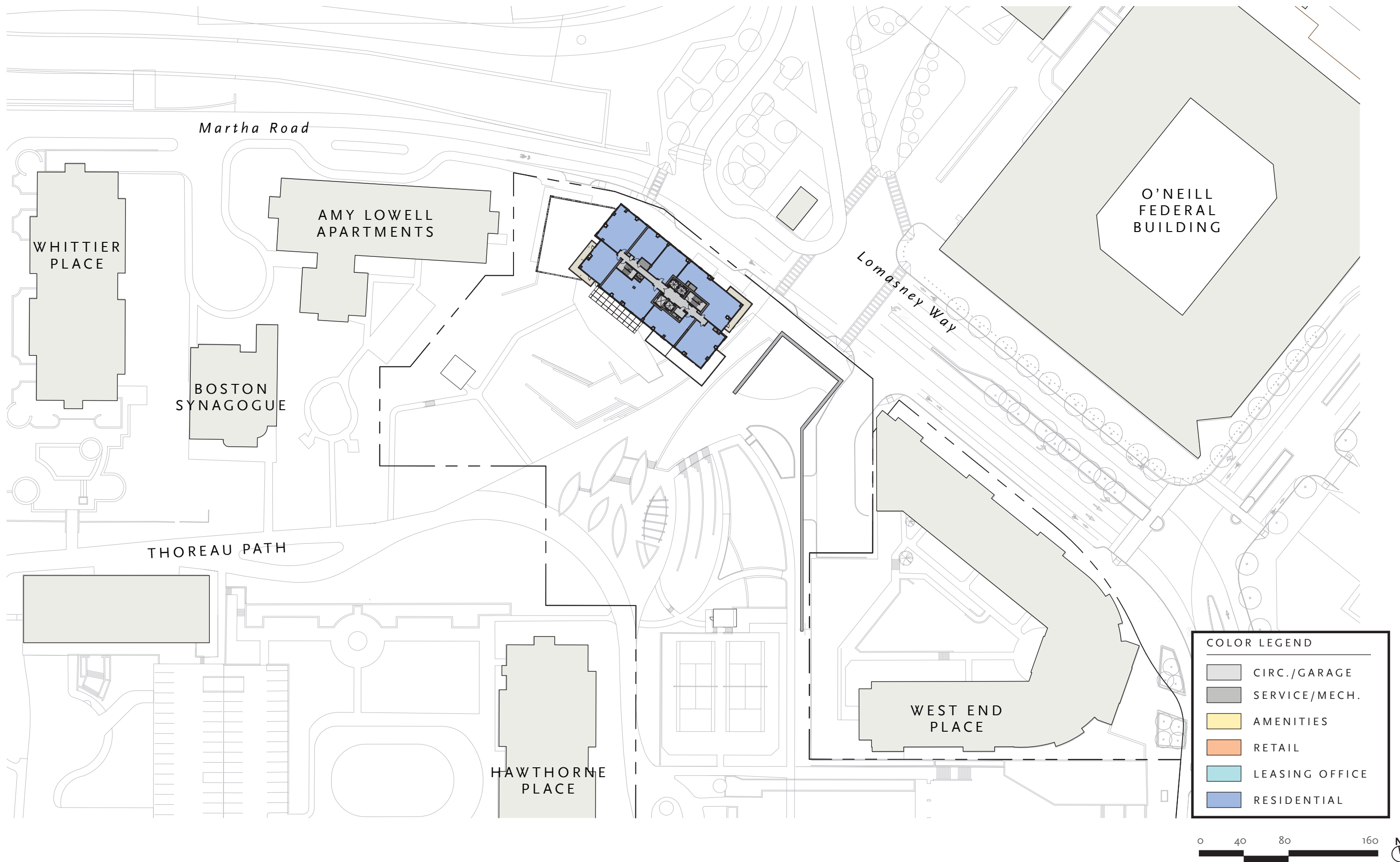


**Garden Garage**     **Boston, Massachusetts**



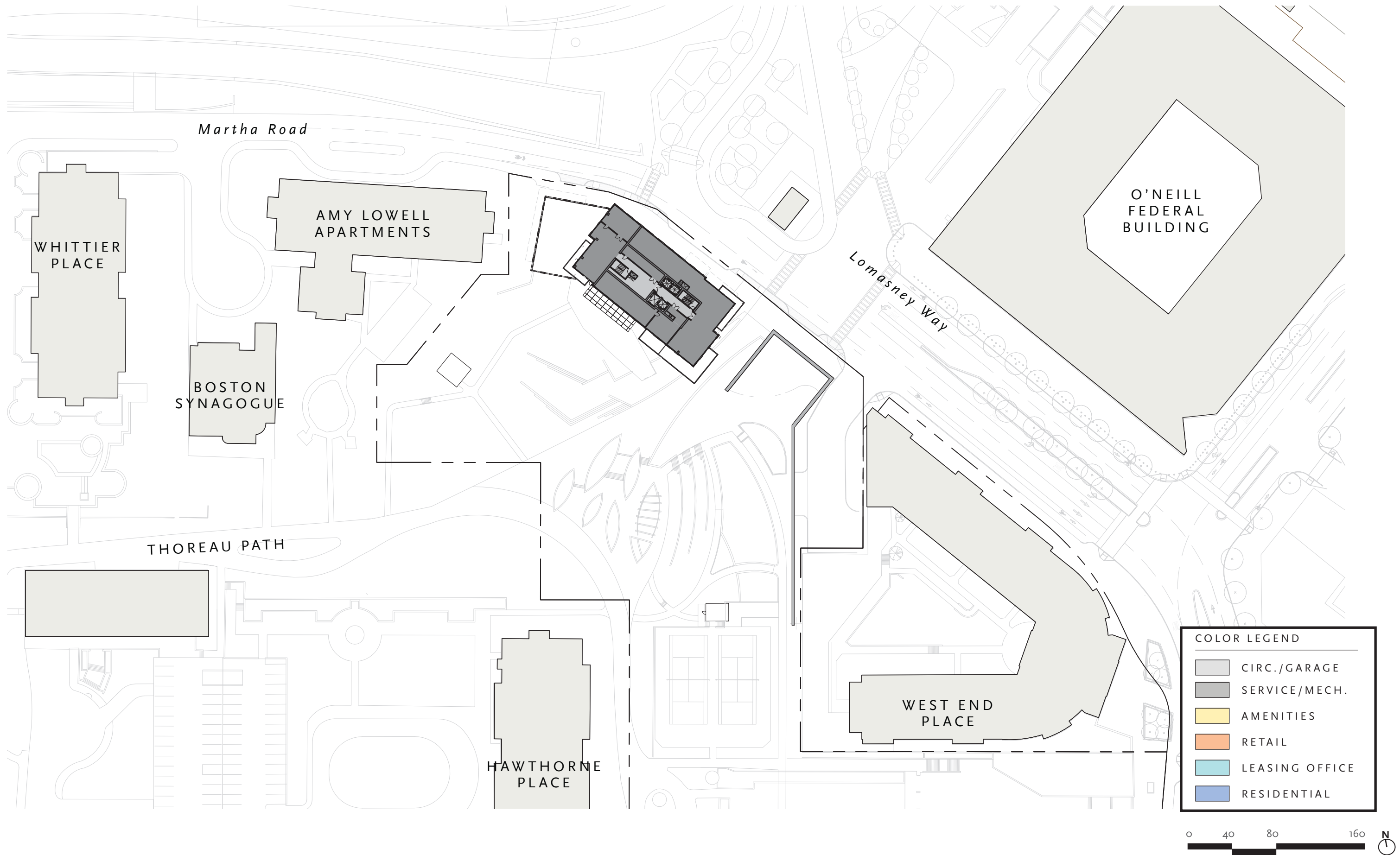
Garden Garage Boston, Massachusetts



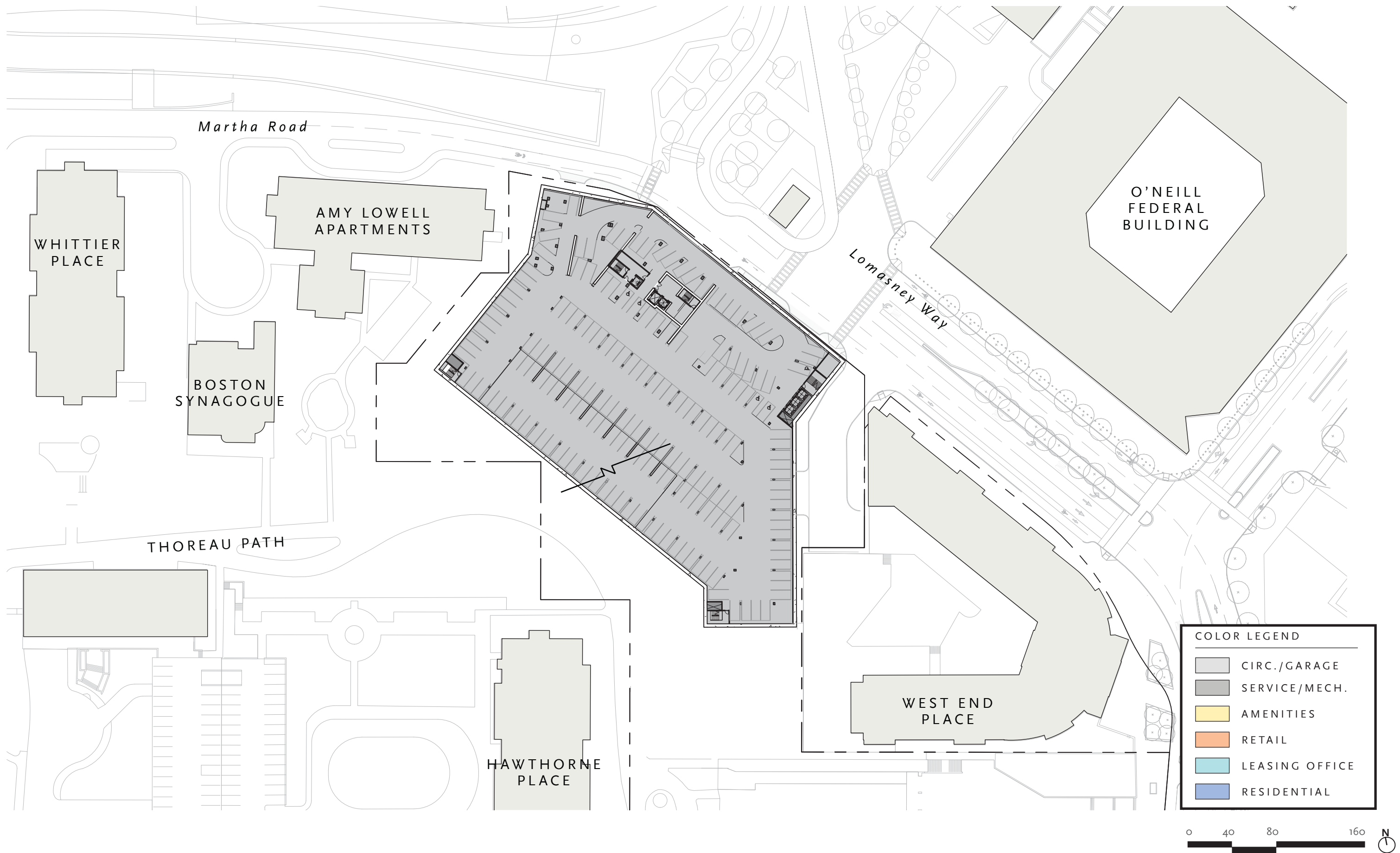


**Garden Garage**     **Boston, Massachusetts**





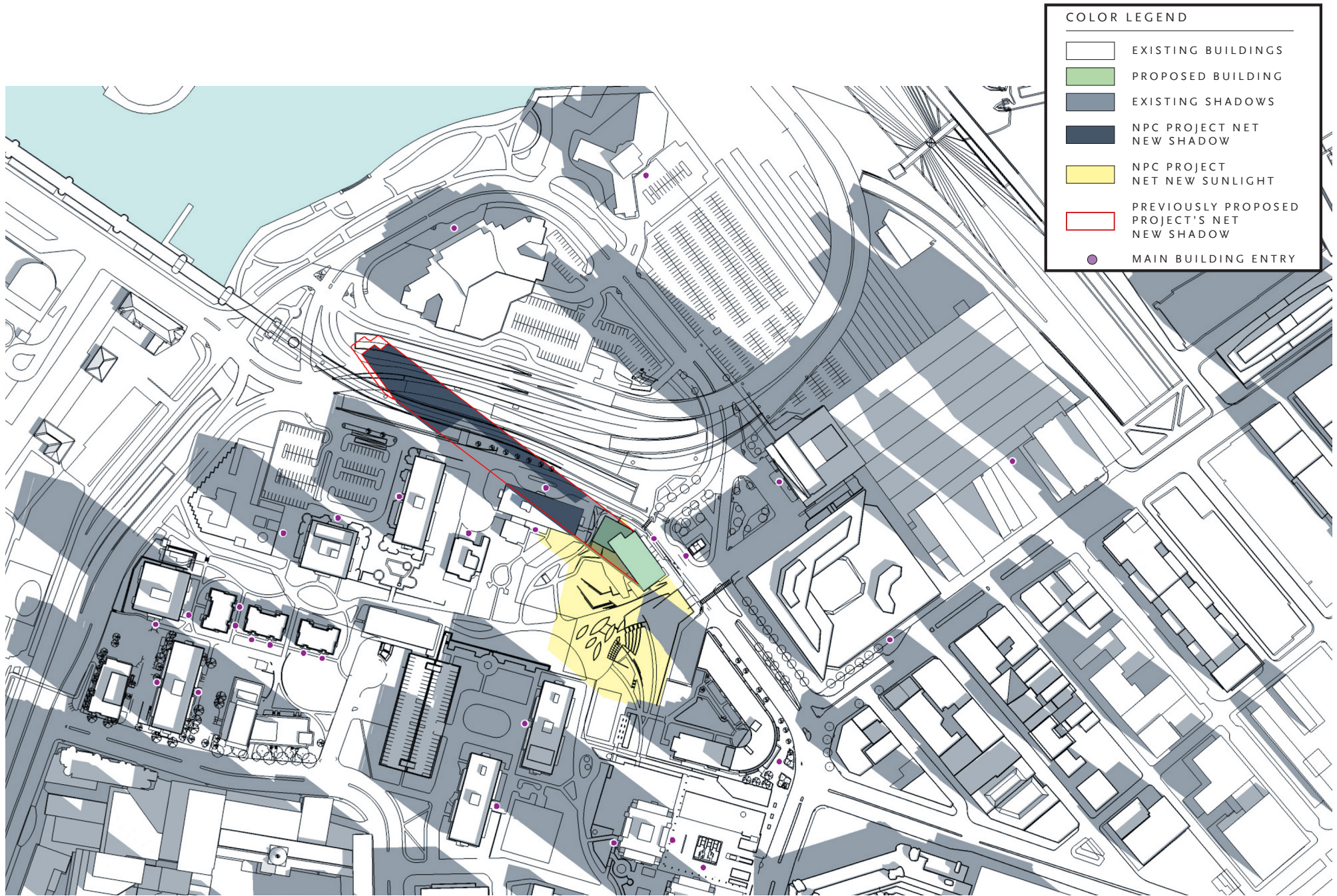
Garden Garage Boston, Massachusetts



Garden Garage Boston, Massachusetts

**Figure 28**  
Floor Plan - Typical Parking Level



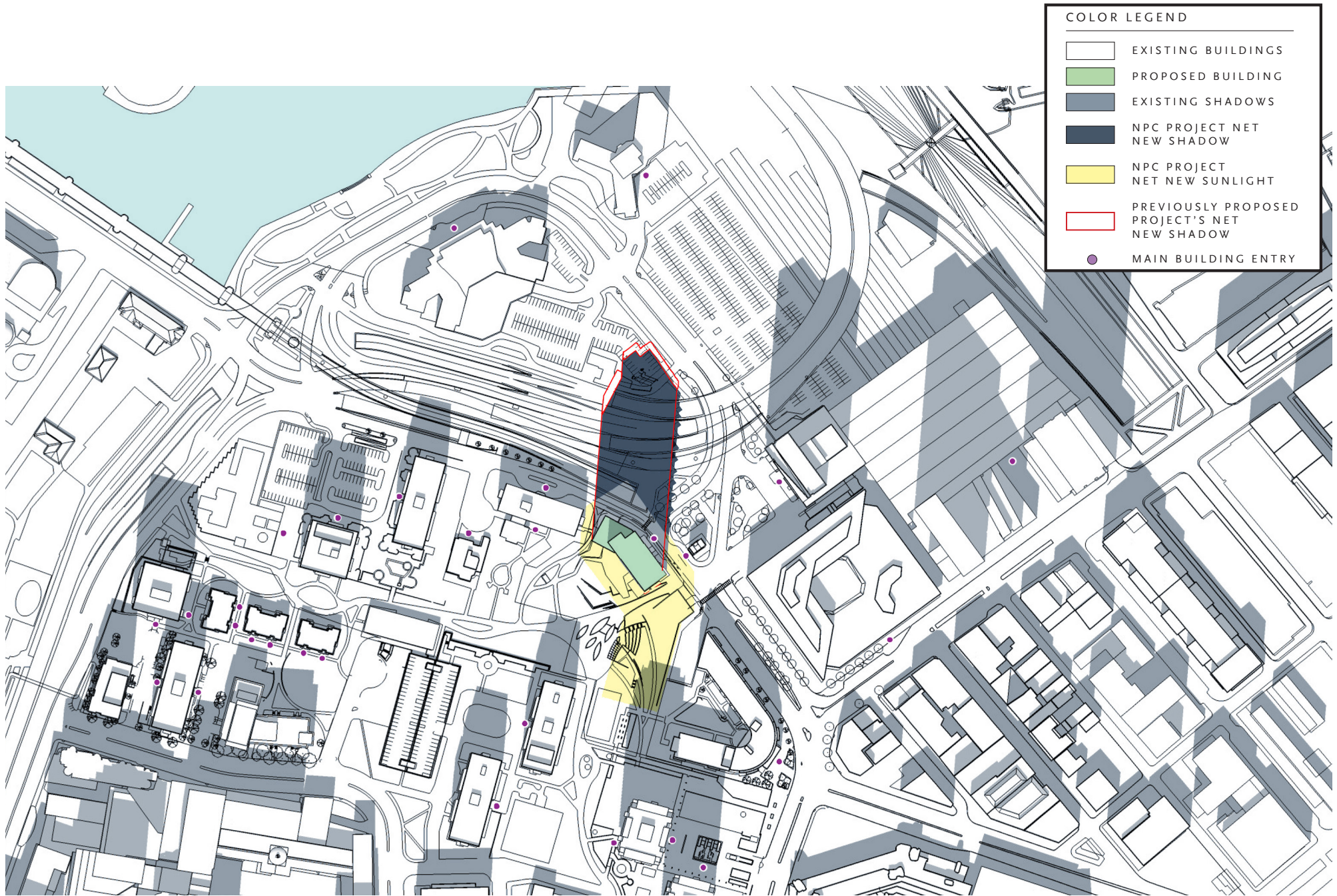


**COLOR LEGEND**

- EXISTING BUILDINGS
- PROPOSED BUILDING
- EXISTING SHADOWS
- NPC PROJECT NET NEW SHADOW
- NPC PROJECT NET NEW SUNLIGHT
- PREVIOUSLY PROPOSED PROJECT'S NET NEW SHADOW
- MAIN BUILDING ENTRY

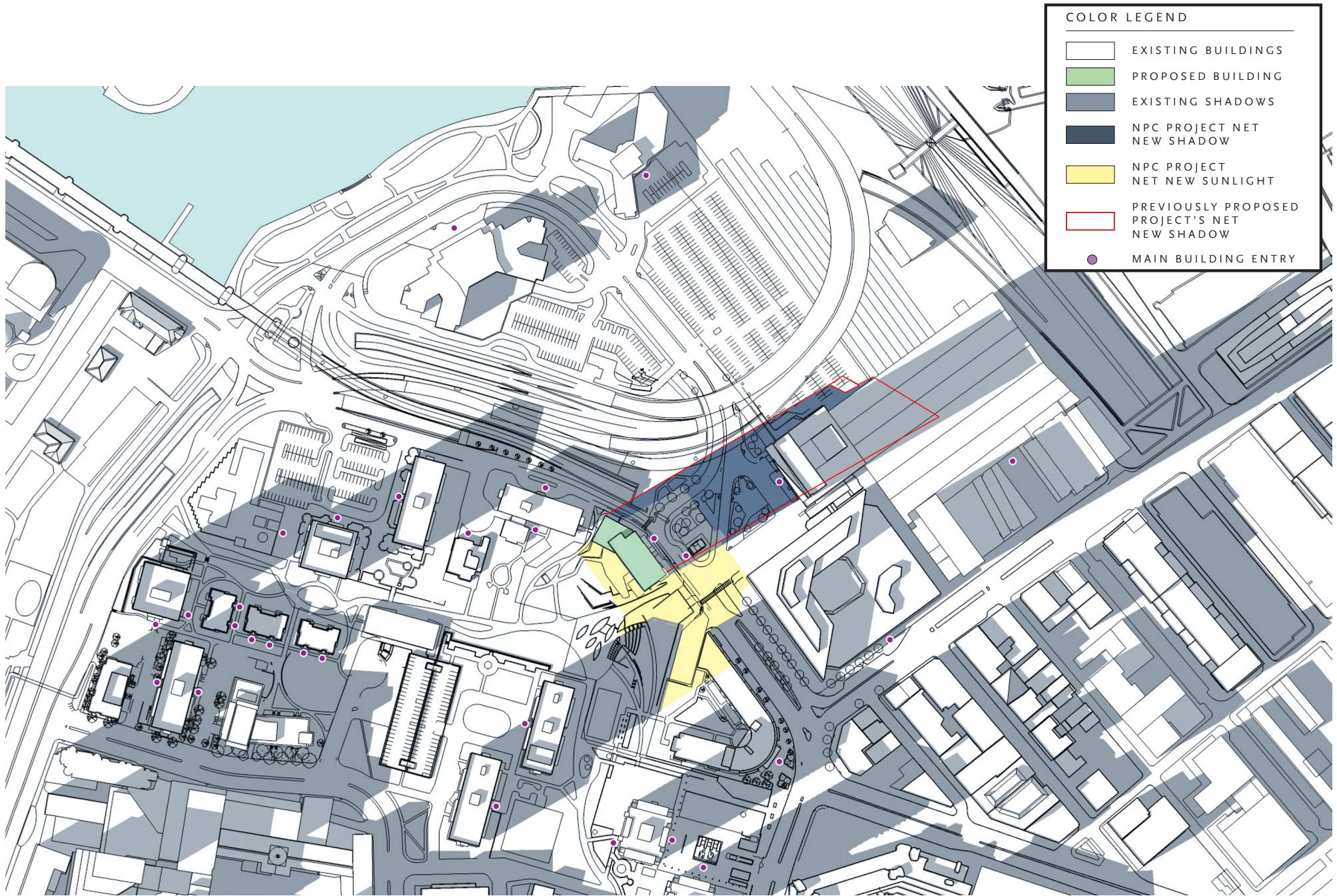
Garden Garage      Boston, Massachusetts





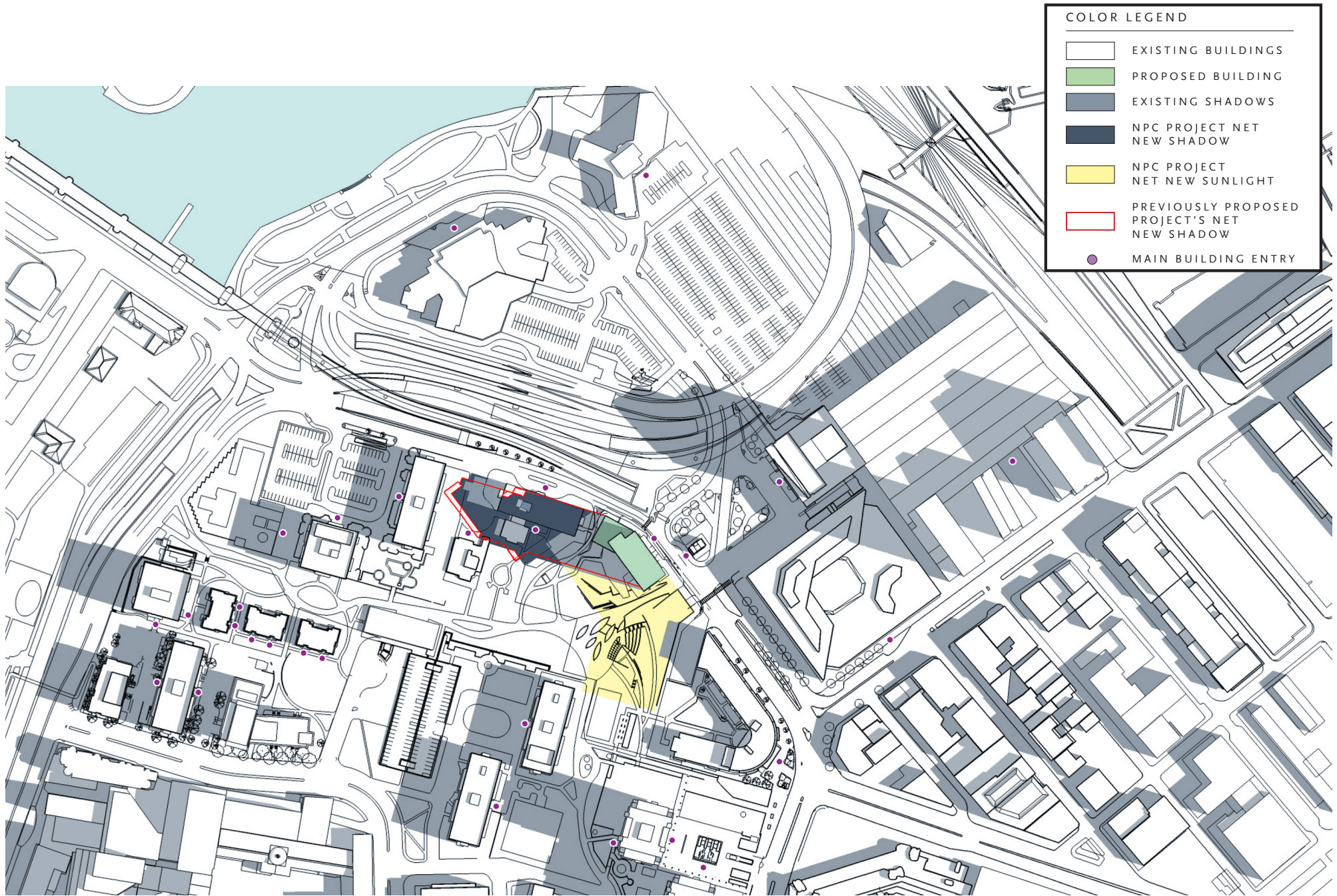
Garden Garage Boston, Massachusetts





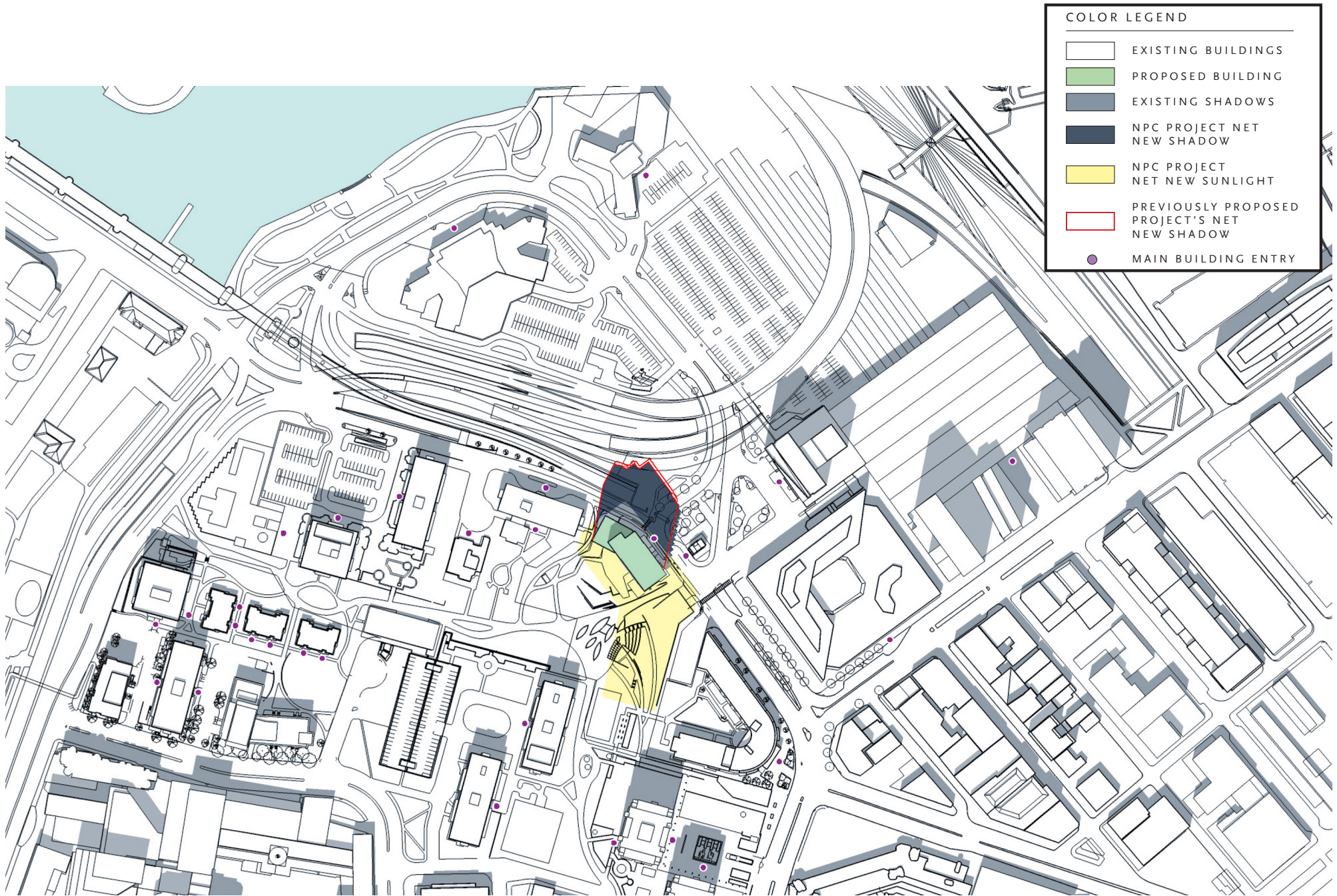
Garden Garage Boston, Massachusetts





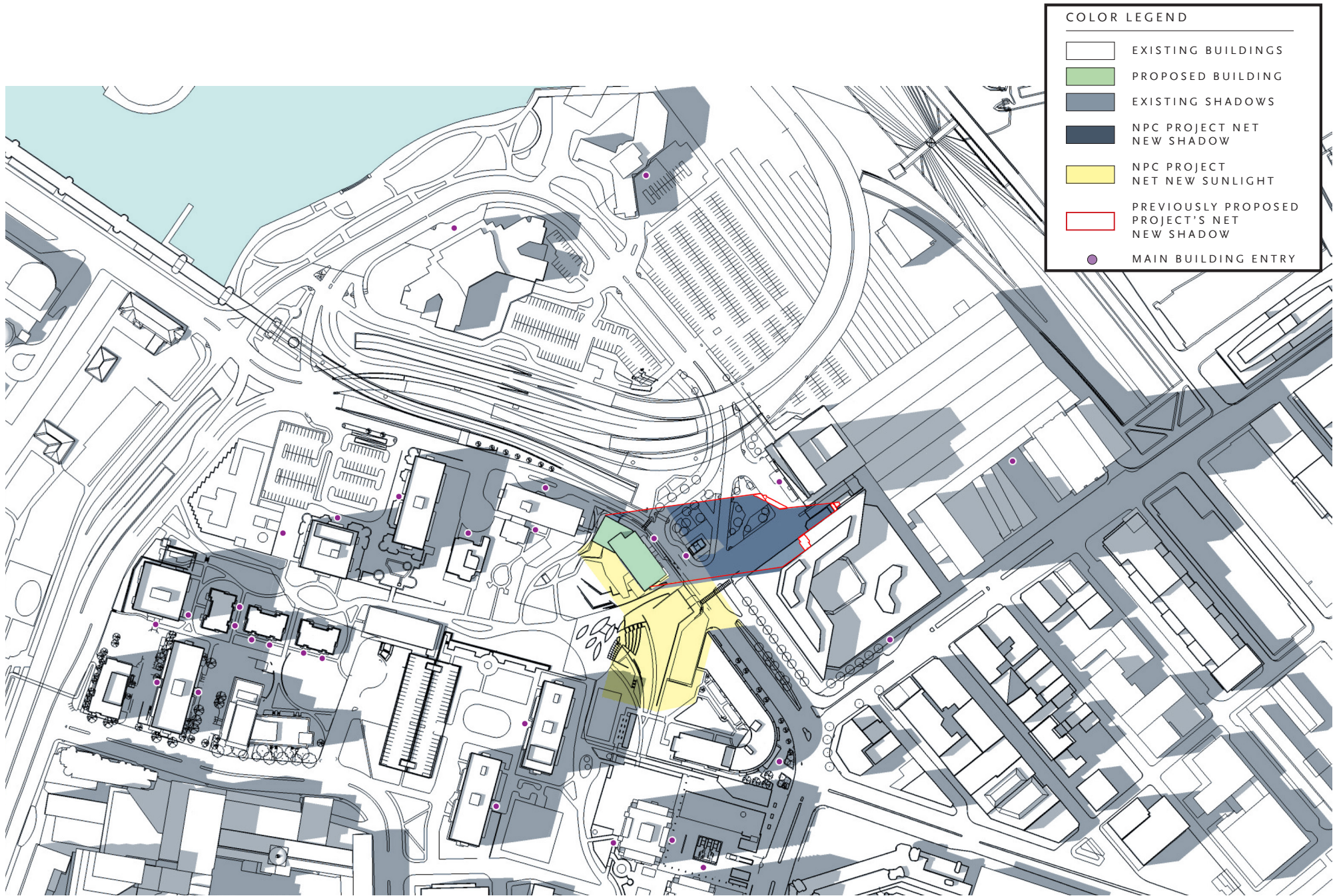
Garden Garage Boston, Massachusetts





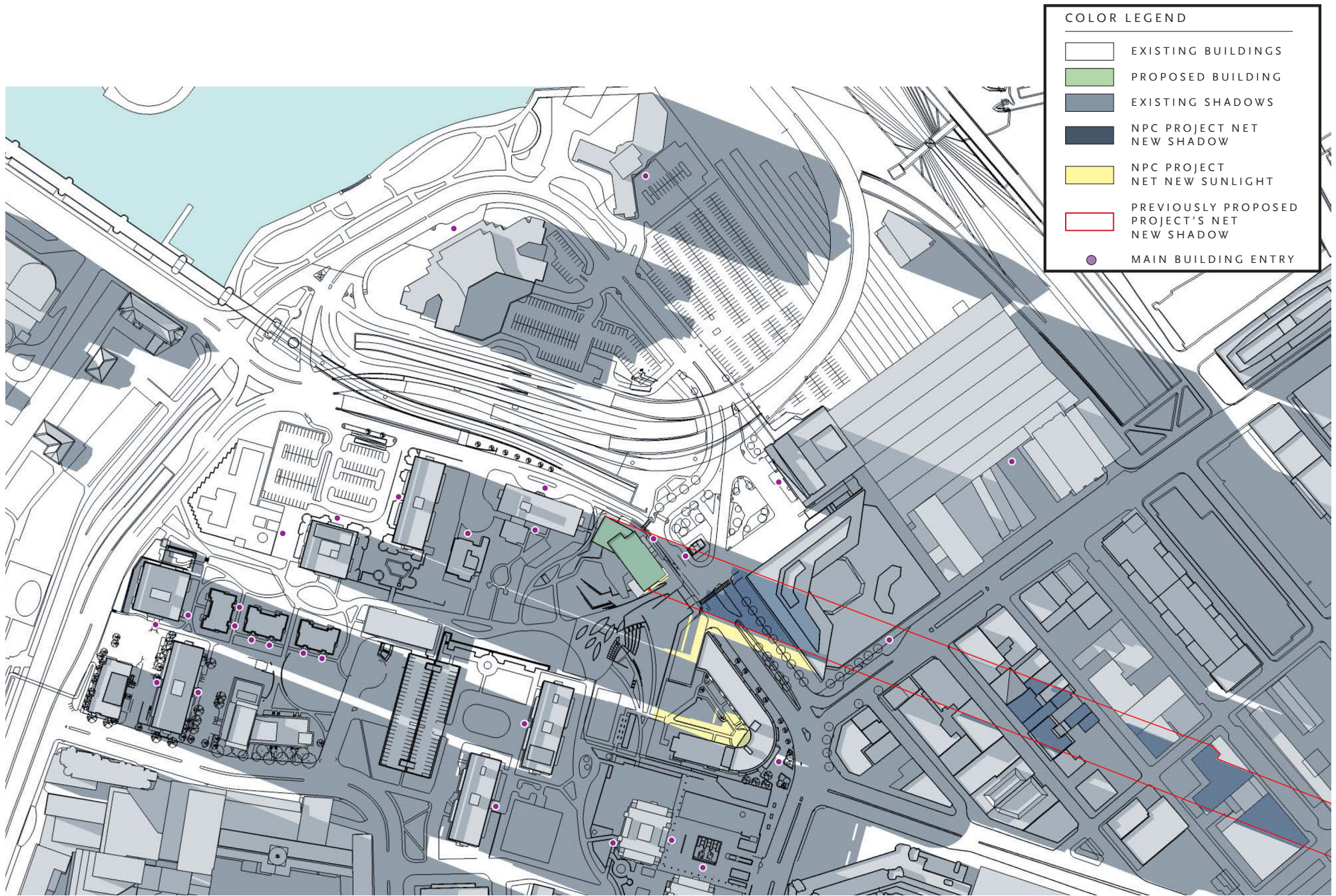
Garden Garage Boston, Massachusetts





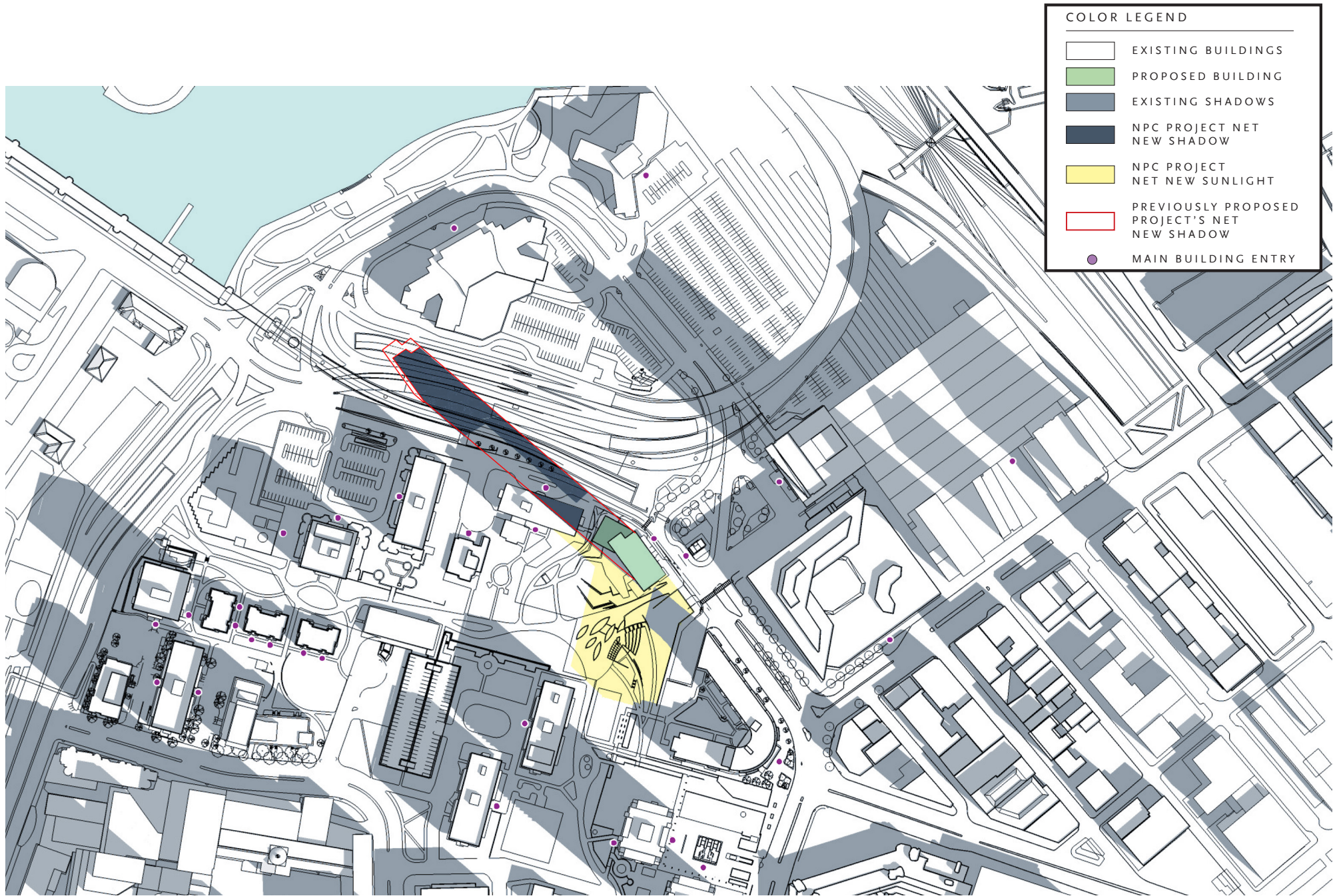
Garden Garage Boston, Massachusetts





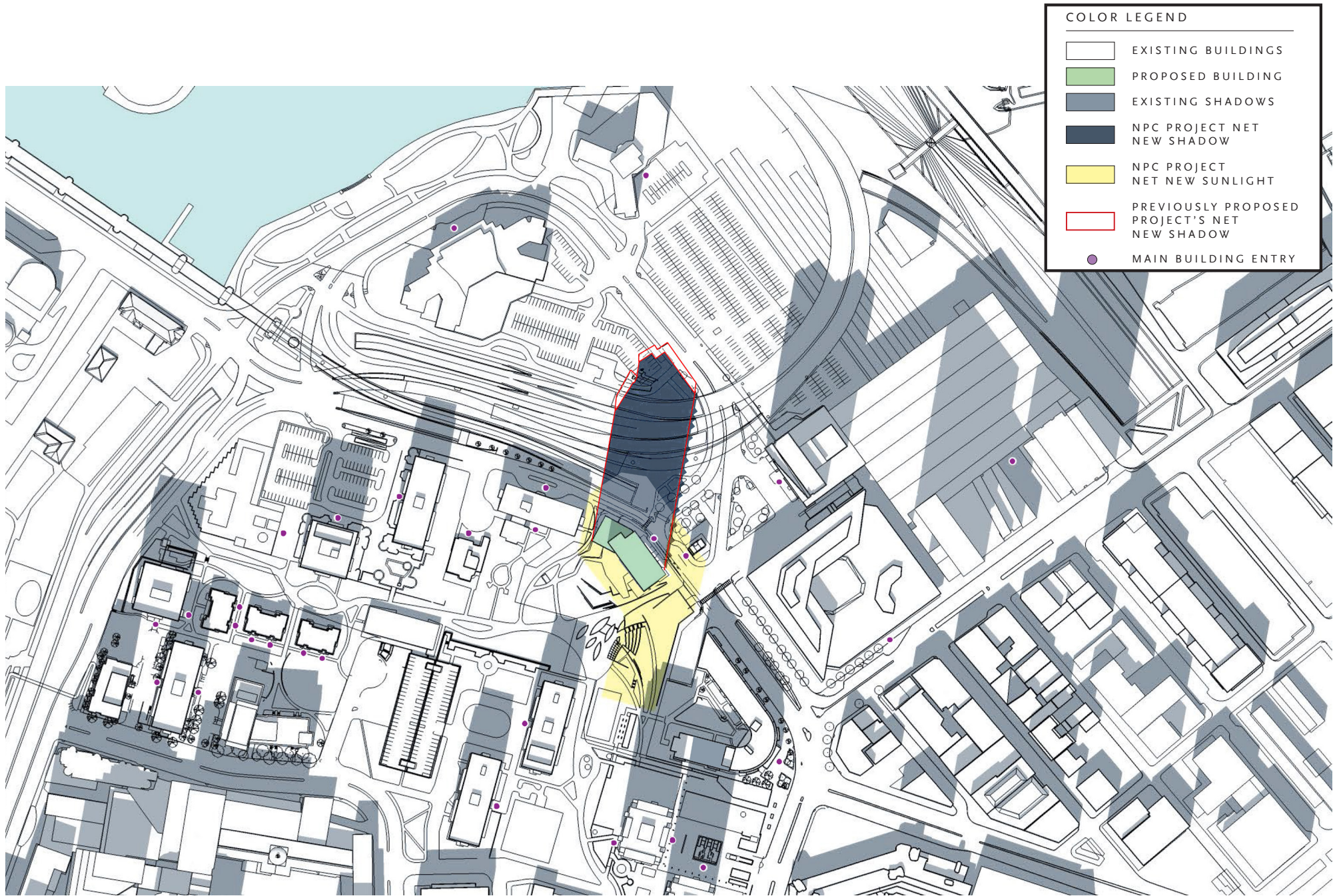
Garden Garage Boston, Massachusetts





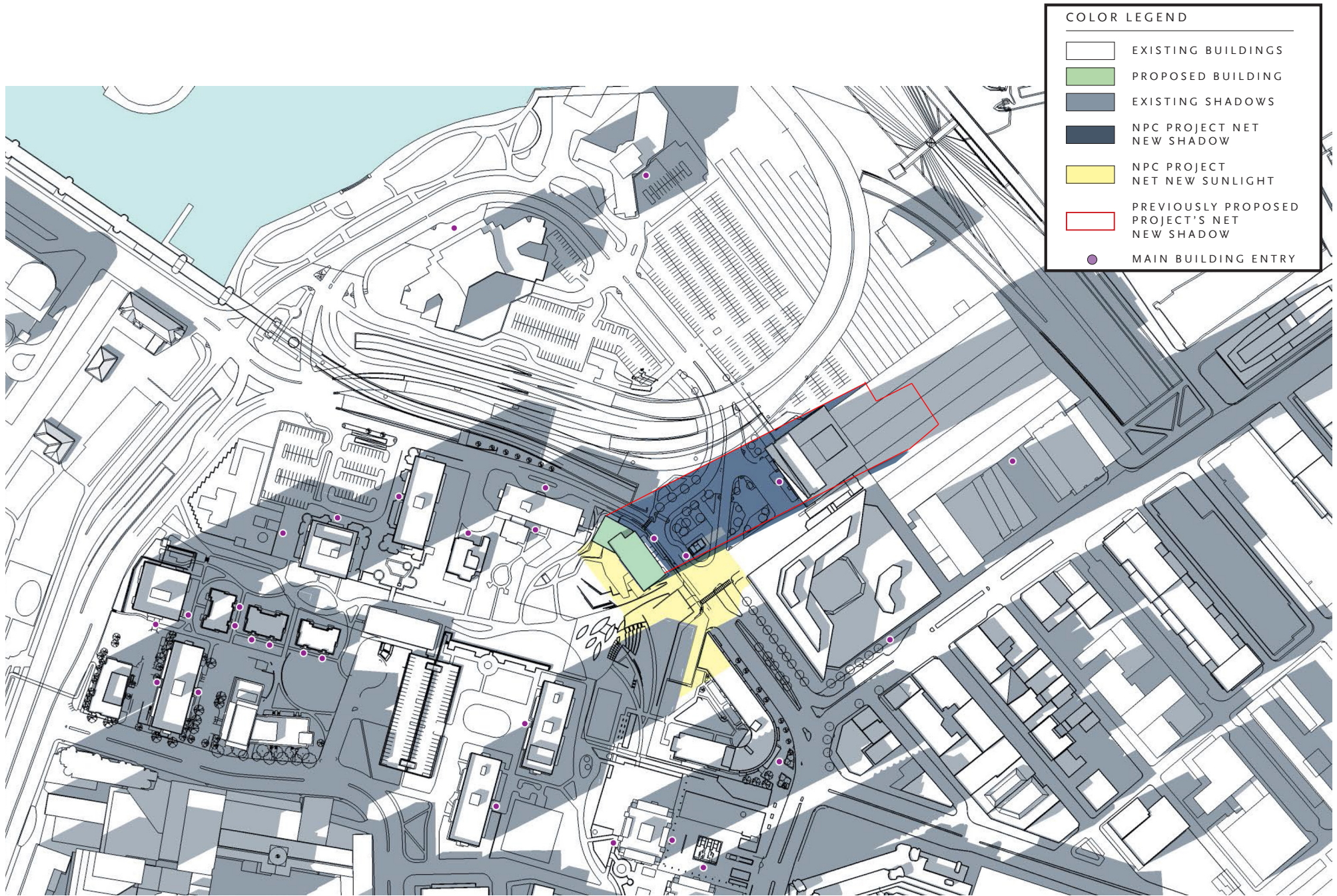
Garden Garage Boston, Massachusetts





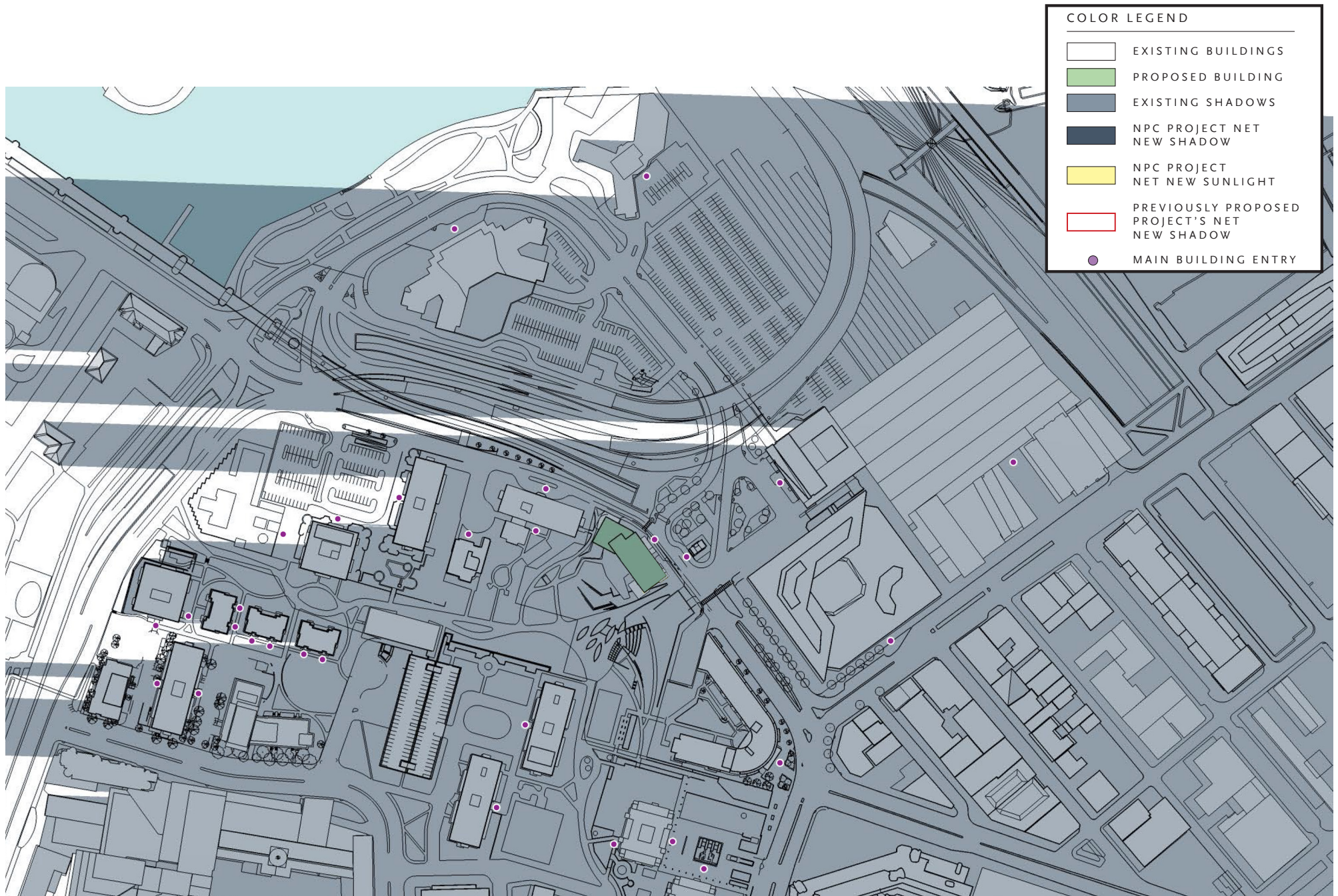
**Garden Garage**      **Boston, Massachusetts**





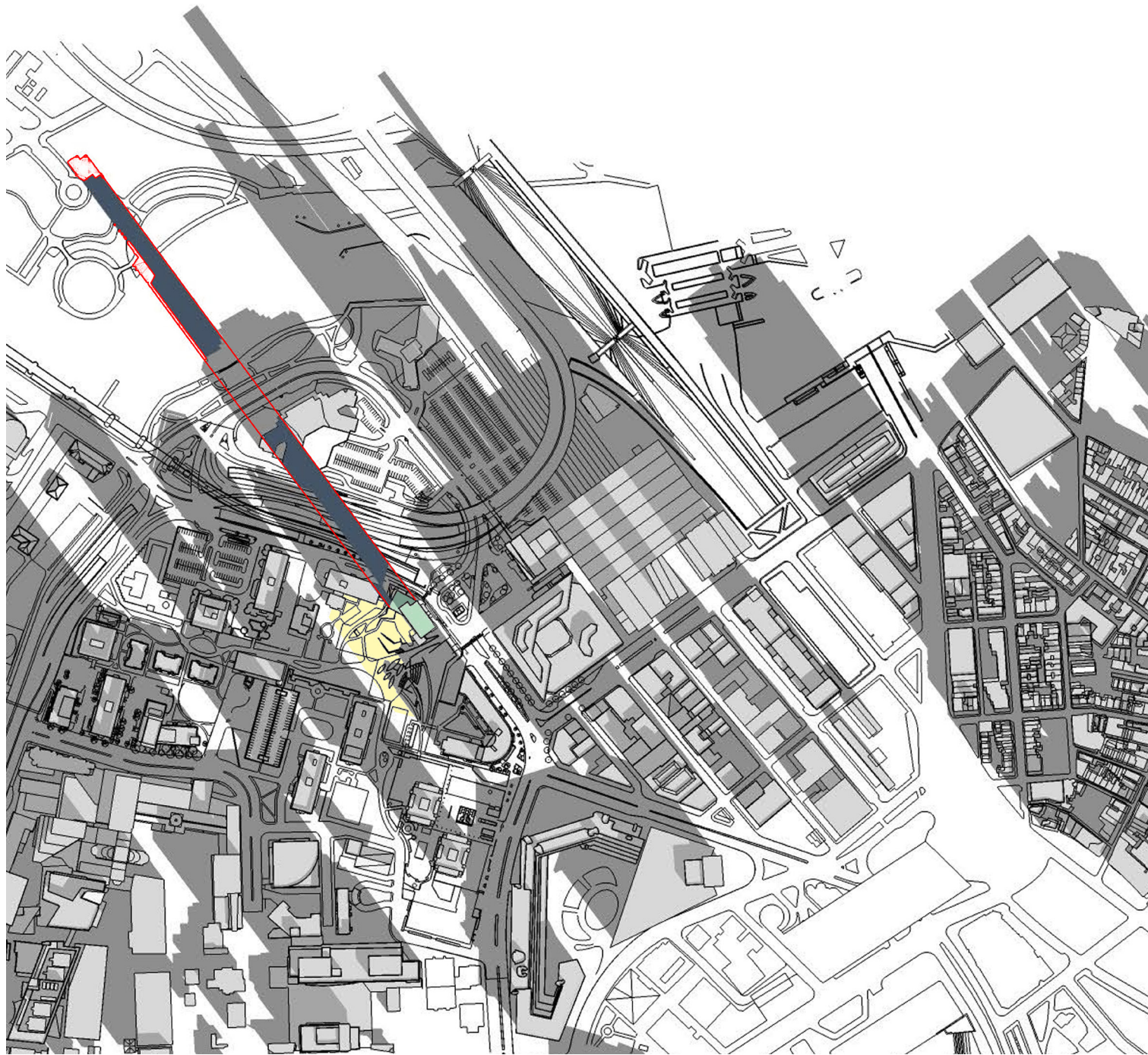
Garden Garage Boston, Massachusetts












Garden Garage Boston, Massachusetts

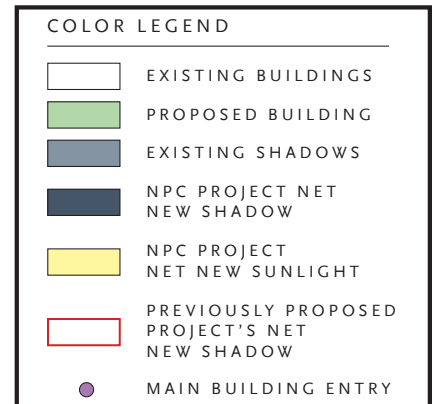
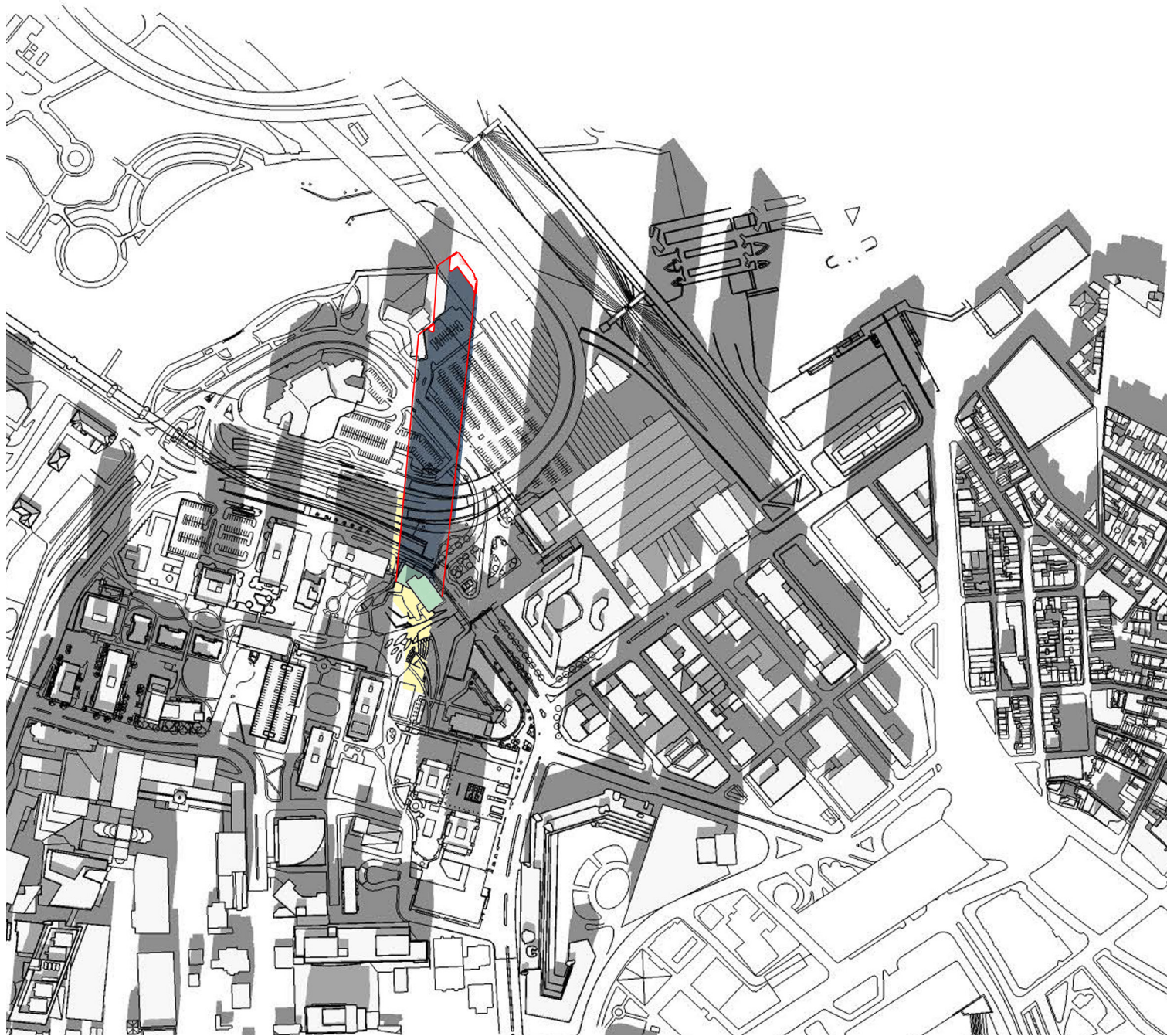




COLOR LEGEND	
	EXISTING BUILDINGS
	PROPOSED BUILDING
	EXISTING SHADOWS
	NPC PROJECT NET NEW SHADOW
	NPC PROJECT NET NEW SUNLIGHT
	PREVIOUSLY PROPOSED PROJECT'S NET NEW SHADOW
	MAIN BUILDING ENTRY

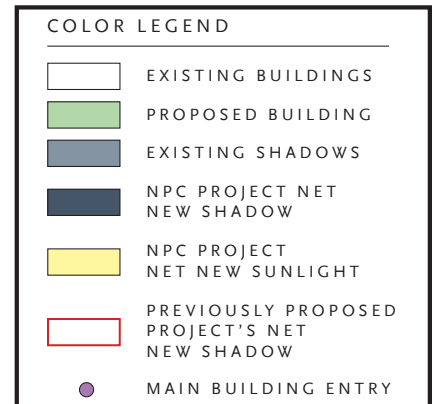
Garden Garage Boston, Massachusetts





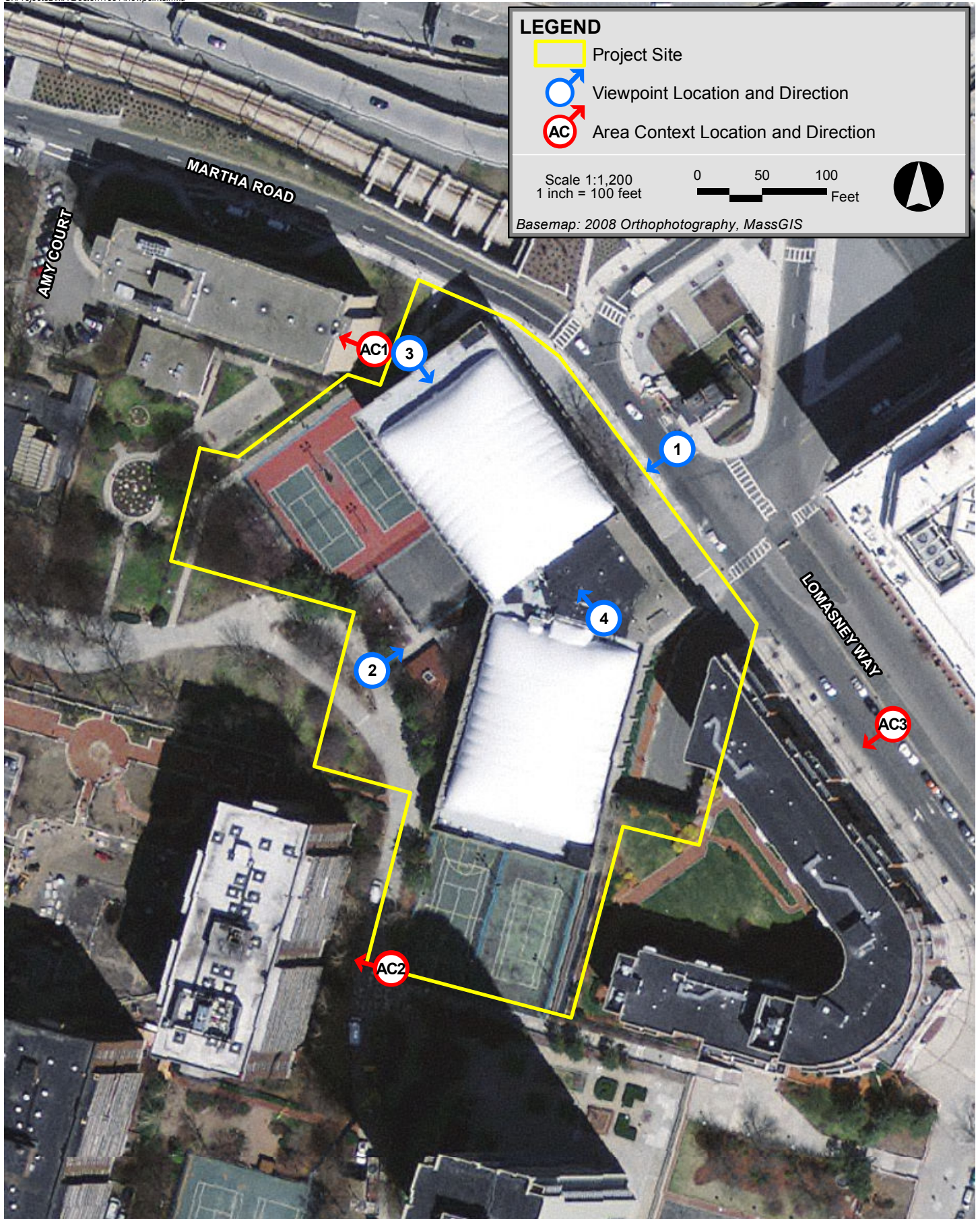
Garden Garage Boston, Massachusetts





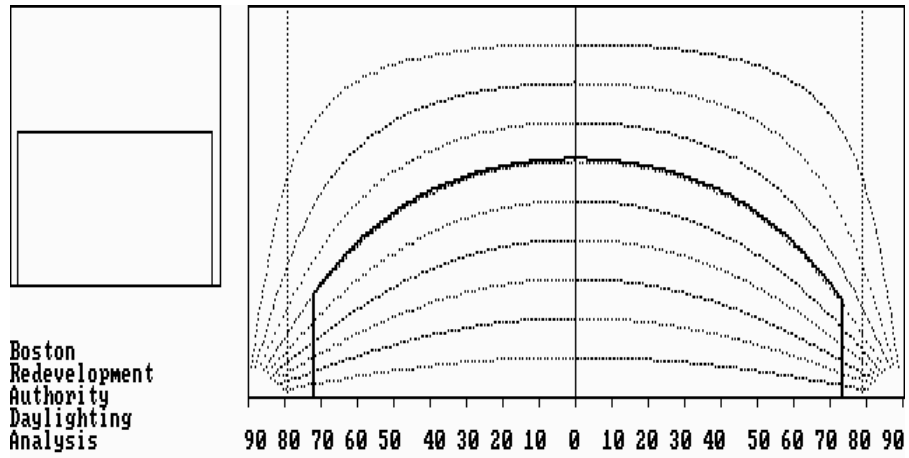
Garden Garage Boston, Massachusetts





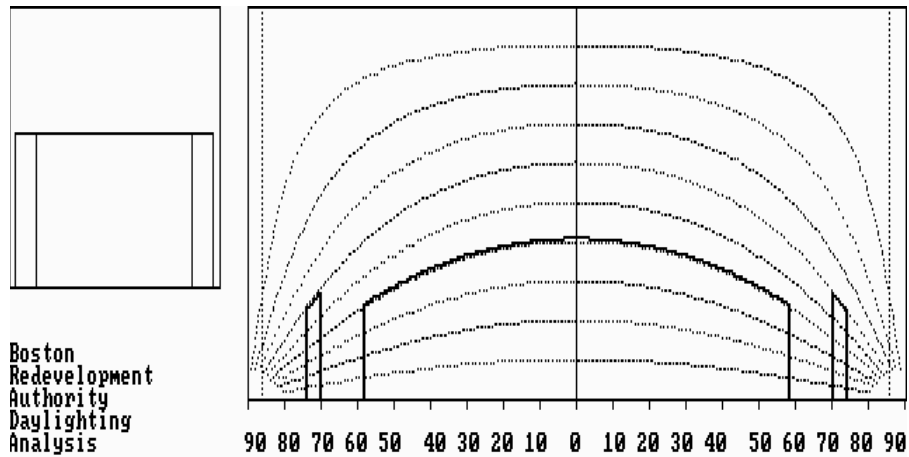
Garden Garage Boston, Massachusetts

### Viewpoint 1: Martha Road Looking South at the Site



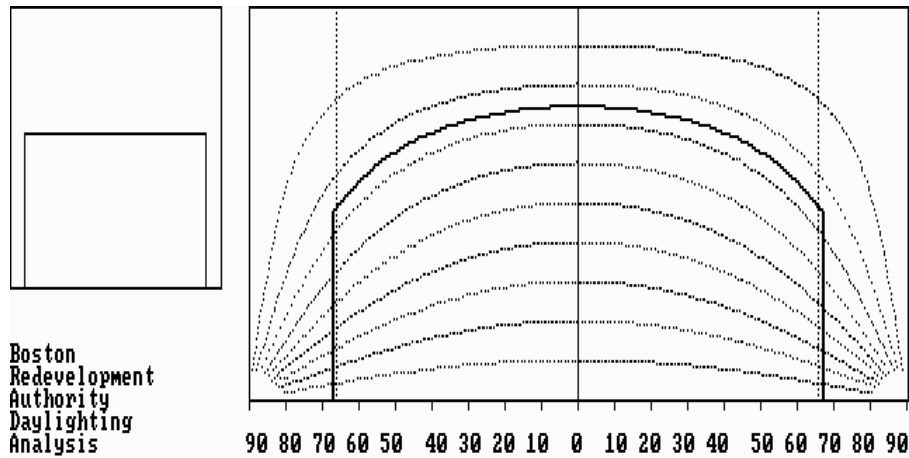
Obstruction of daylight by the building is 57.1 %

### Viewpoint 2: Thoreau Path Looking North at the Site



Obstruction of daylight by the building is 30.7 %

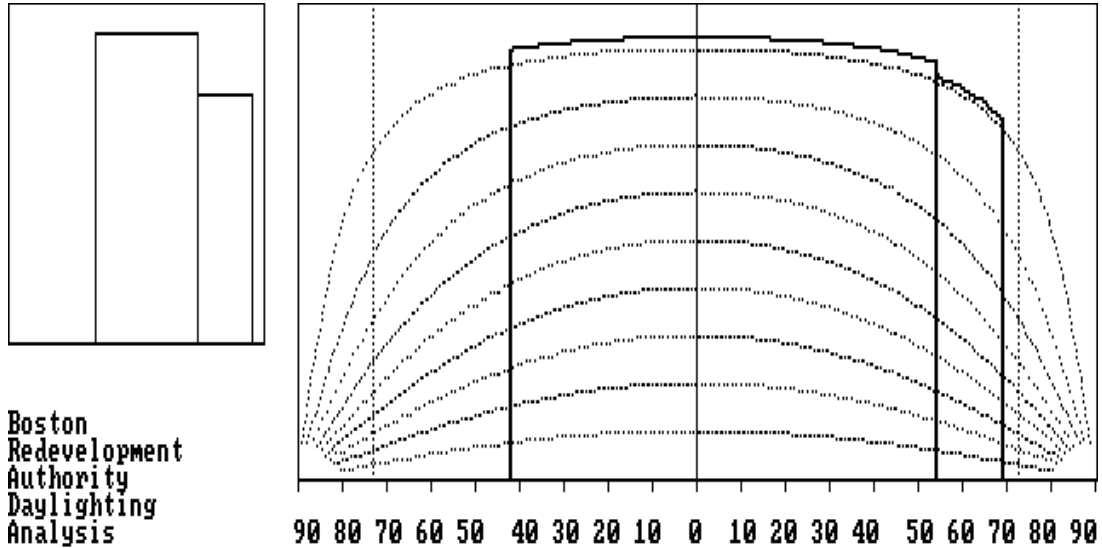
### Viewpoint 3: Path on the West Side of the Site Looking East



Obstruction of daylight by the building is 75.5 %

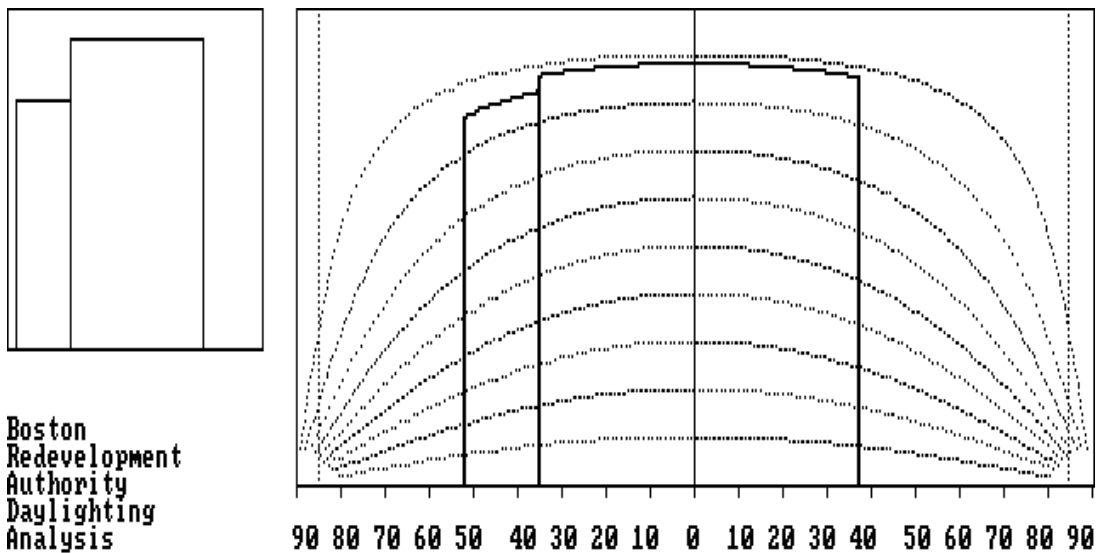


Viewpoint 1: Martha Road looking south at the site



Obstruction of daylight by the building is 70.6 %

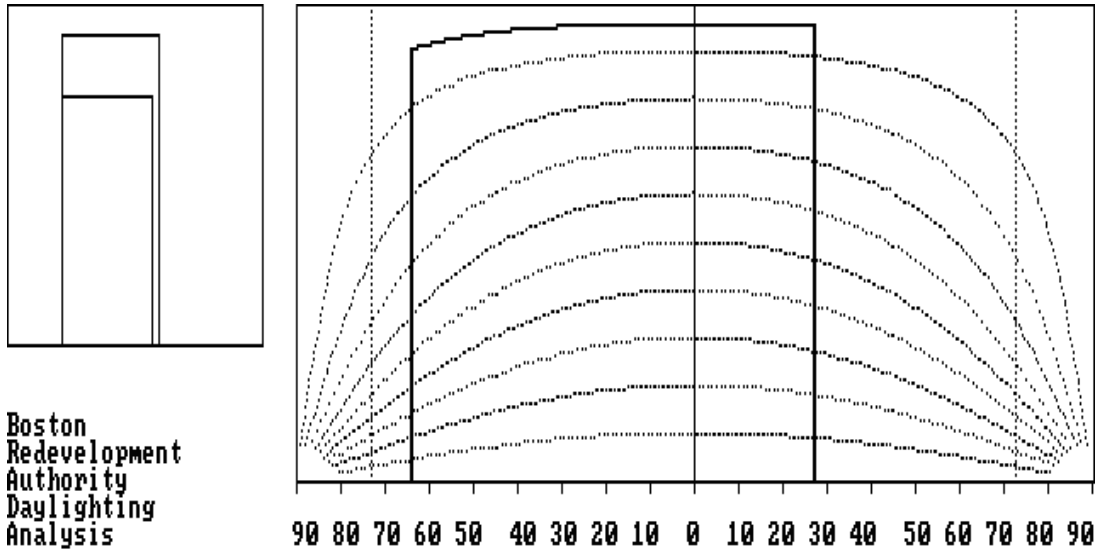
Viewpoint 2: Thoreau Path looking north at the site



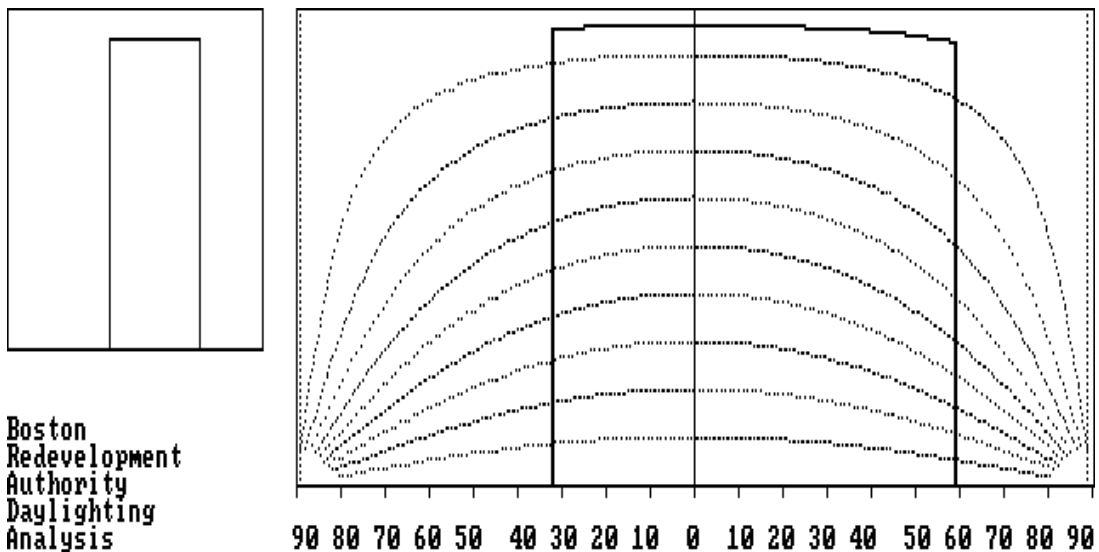
Obstruction of daylight by the building is 46.6 %



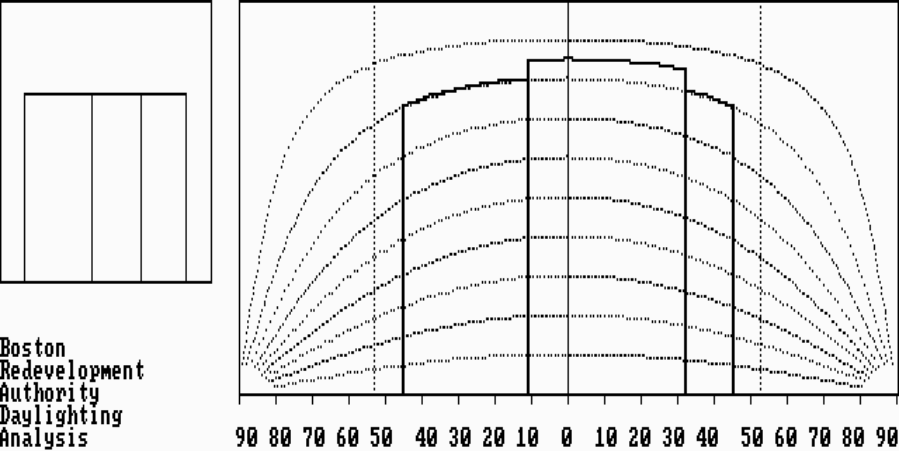
Viewpoint 3: Path on the west side of the site looking east



Viewpoint 4: Between the proposed buildings looking west

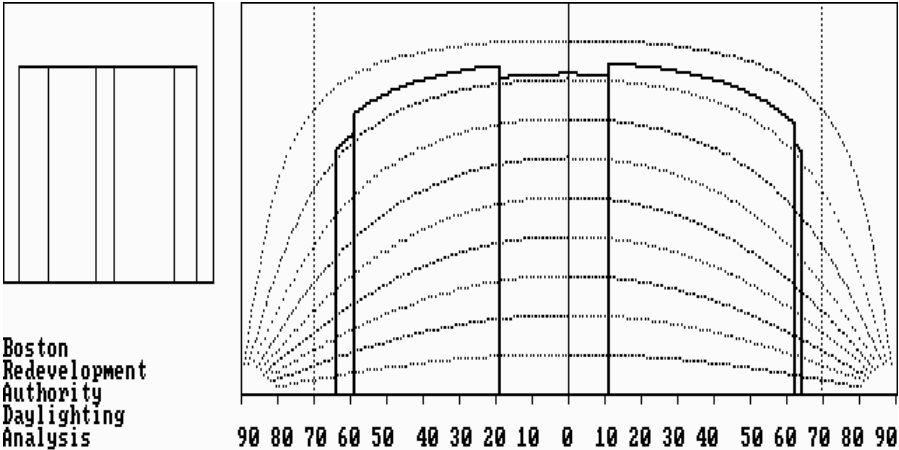


Area Context 1: Looking West at the Amy Lowell Apartments



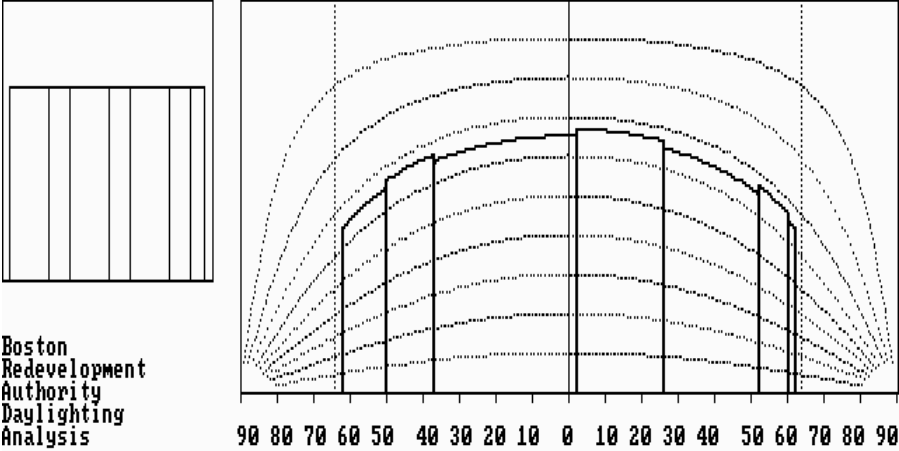
Obstruction of daylight by the building is 70.5 %

Area Context 2: Looking West at Hawthorne Place



Obstruction of daylight by the building is 80.5 %

Area Context 3: Lomasney Way Looking South at the West End Place Condominiums



Obstruction of daylight by the building is 67.5 %



**Attachment B**

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Accessibility Checklist

## Accessibility Checklist

(to be added to the BRA Development Review Guidelines)

In 2009, a nine-member Advisory Board was appointed to the Commission for Persons with Disabilities in an effort to reduce architectural, procedural, attitudinal, and communication barriers affecting persons with disabilities in the City of Boston. These efforts were instituted to work toward creating universal access in the built environment.

In line with these priorities, the Accessibility Checklist aims to support the inclusion of people with disabilities. In order to complete the Checklist, you must provide specific detail, including descriptions, diagrams and data, of the universal access elements that will ensure all individuals have an equal experience that includes full participation in the built environment throughout the proposed buildings and open space.

In conformance with this directive, all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding the following:

- improvements for pedestrian and vehicular circulation and access;
- encourage new buildings and public spaces to be designed to enhance and preserve Boston's system of parks, squares, walkways, and active shopping streets;
- ensure that persons with disabilities have full access to buildings open to the public;
- afford such persons the educational, employment, and recreational opportunities available to all citizens; and
- preserve and increase the supply of living space accessible to persons with disabilities.

We would like to thank you in advance for your time and effort in advancing best practices and progressive approaches to expand accessibility throughout Boston's built environment.

### Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
  - a. [http://www.ada.gov/2010ADASTandards\\_index.htm](http://www.ada.gov/2010ADASTandards_index.htm)
2. Massachusetts Architectural Access Board 521 CMR
  - a. <http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html>
3. Boston Complete Street Guidelines
  - a. <http://bostoncompletestreets.org/>
4. City of Boston Mayors Commission for Persons with Disabilities Advisory Board
  - a. <http://www.cityofboston.gov/Disability>
5. City of Boston – Public Works Sidewalk Reconstruction Policy
  - a. [http://www.cityofboston.gov/images\\_documents/sidewalk%20policy%200114\\_tcm3-41668.pdf](http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf)
6. Massachusetts Office On Disability Accessible Parking Requirements
  - a. [www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc](http://www.mass.gov/anf/docs/mod/hp-parking-regulations-mod.doc)
7. MBTA Fixed Route Accessible Transit Stations
  - a. [http://www.mbta.com/about\\_the\\_mbta/accessibility/](http://www.mbta.com/about_the_mbta/accessibility/)



Project Information

Project Name:	Garden Garage Redevelopment
Project Address Primary:	35 Lomasney Way Boston, MA 02114
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	Richard Boales, Equity Residential, rboales@eqrworld.com, (202) 971-7087

Team Description

Owner / Developer:	Equity Residential
Architect:	Elkus Manfredi Architects
Engineer (building systems):	RW Sullivan
Sustainability / LEED:	The Green Engineer
Permitting:	Epsilon Associates, Inc.
Construction Management:	

Project Permitting and Phase

At what phase is the project – at time of this questionnaire?

PNF / Expanded PNF Submitted	Draft / Final Project Impact Report Submitted	BRA Board Approved
BRA Design Approved	Under Construction	Construction just completed:

## Article 80 | ACCESSIBILITY CHECKLIST

### Building Classification and Description

What are the principal Building Uses - select all appropriate uses?

Residential – One to Three Unit	<input checked="" type="checkbox"/> Residential - Multi-unit, Four +	<input type="checkbox"/> Institutional	<input type="checkbox"/> Education
<input type="checkbox"/> Commercial	<input type="checkbox"/> Office	<input checked="" type="checkbox"/> Retail	<input type="checkbox"/> Assembly
<input type="checkbox"/> Laboratory / Medical	<input type="checkbox"/> Manufacturing / Industrial	<input type="checkbox"/> Mercantile	<input type="checkbox"/> Storage, Utility and Other
First Floor Uses (List) <i>Residential Lobby, Residential service areas, Retail, Parking Entry Lobby</i>			

What is the Construction Type – select most appropriate type?

<input type="checkbox"/> Wood Frame	<input type="checkbox"/> Masonry	<input checked="" type="checkbox"/> Steel Frame	<input checked="" type="checkbox"/> Concrete
-------------------------------------	----------------------------------	---	--

Describe the building?

Site Area:	<i>131,600 SF</i>	Building Area:	<i>907,000 SF</i>
Building Height:	<i>447 Ft.</i>	Number of Stories:	<i>44 Flrs.</i>
First Floor Elevation:	<i>17' Elev.</i>	Are there below grade spaces:	<input checked="" type="checkbox"/> Yes / No

### Assessment of Existing Infrastructure for Accessibility:

This section explores the proximity to accessible transit lines and proximate institutions such as, but not limited to hospitals, elderly and disabled housing, and general neighborhood information. The proponent should identify how the area surrounding the development is accessible for people with mobility impairments and should analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the development neighborhood and identifying characteristics.

The Garden Garage Project will be located on approximately three acres of land at Longfellow Place in Boston's West End. The Project site is bordered by Martha Road, Lomasney Way, and the MBTA Green Line portal to the north, the O'Neill Federal Building and 150 Staniford Street to the East, Longfellow Place to the south, Hawthorne Place to the southwest, Thoreau Path to the west, and 55 and 65 Martha Road to the northwest. The West End is primarily a collection of high- and mid-rise residential buildings organized around a pedestrian network and green spaces with connections to



## Article 80 | ACCESSIBILITY CHECKLIST

List the surrounding ADA compliant MBTA transit lines and the proximity to the development site: Commuter rail, subway, bus, etc.

the Charles River waterfront and the surrounding vehicular street grid.

MBTA Green and Orange Line rapid transit services are located within one-quarter mile of the Project site, with both Orange and Green Line service at North Station, and Green Line Service at Science Park.

Local MBTA bus route #4 is located within one-quarter mile of the site, providing connections between North Station, South Station, and the South Boston Waterfront. The route # 4 does not run on weekends.

Within approximately one-half mile of the site, are Charles/MGH Station on the MBTA Red Line, Bowdoin Station on the Blue Line, and Haymarket Station, which provides connection to MBTA Green and Orange lines and local/regional bus services.

City Water Taxi service can be obtained at Lovejoy Wharf, located approximately one-third of a mile from the Project site. Water taxi service does not run on a set schedule.

List the surrounding institutions: hospitals, public housing and elderly and disabled housing developments, educational facilities, etc.

Massachusetts General Hospital, Massachusetts Eye and Ear Infirmary, Shriners Hospital for Children, Boston Children's School

Is the proposed development on a priority accessible route to a key public use facility? List the surrounding: government buildings, libraries, community centers and recreational facilities and other related facilities.

No. Thomas P. O'Neill, Jr. Federal Building, West End Branch Library, Basketball City, Suffolk County Sheriff's Departments, West End Community Center

### Surrounding Site Conditions – Existing:

This section identifies the current condition of the sidewalks and pedestrian ramps around the development site.

Are there sidewalks and pedestrian ramps existing at the development site?

Yes

## Article 80 | ACCESSIBILITY CHECKLIST

**If yes above**, list the existing sidewalk and pedestrian ramp materials and physical condition at the development site.

Sidewalks throughout the study area are generally in good condition:

**Lomasney Way** – Sidewalks are in good condition and provided on both sides of Lomasney Way with widths from 14 to 24 feet and are of brick and concrete.

**Staniford Street** – Sidewalks are provided on both sides of Staniford Street and are generally in good condition. Sidewalks are of concrete.

**Red Auerbach Way** – Red Auerbach Way serves as an important pedestrian connection between the West End and North Station, but is being redeveloped as part of the Nashua Street Residences project. Sidewalks are in fair condition and are of concrete and asphalt.

**Nashua Street** – Concrete sidewalks in good condition are provided on both sides of Nashua Street. The western sidewalk varies from approximately 10 to 14 feet in width. The presence of tree pits reduces the effective width to between four and 11 feet. The eastern sidewalk is 10 to 13 feet wide. At tree pits, the effective width is reduced to approximately five feet.

**Martha Road** – An approximately eight-foot-wide concrete sidewalk is provided along the south side of this roadway which borders the Project site; however, the presence of many street lamps reduces the effective width to approximately five feet.

**Thoreau Path** – This pedestrian pathway provides access to Longfellow Place, West End Place, Hawthorne Place, Whittier Place, and Emerson Place and connects from Staniford Street in the east to Storrow Drive in the west. Less than one-tenth of a mile south from where Thoreau Path meets Storrow Drive, pedestrians can access a footbridge over Storrow Drive. This bridge provides access to the Charles River Path. Thoreau Path is a mix of concrete and brick. Trees, lighting, and benches line both sides of the walkway, which is between eight and 20 feet in width.

Are the sidewalks and pedestrian ramps existing-to-remain? **If yes**, have the sidewalks and pedestrian ramps been verified as compliant? **If yes**, please provide surveyors report.

Sidewalks in the areas above are to remain. Pedestrian circulation ways within the boundaries of the Project will be improved or added to connect to the existing sidewalks.

The existing sidewalks and ramps have not been verified as compliant.

Is the development site within a historic district? **If yes**, please identify.

The development site is not within a historic district. The proposed Project will have no direct impacts to historic resources. Indirect impacts to historic resources, including visual, shadow, and wind impacts were considered.

### Surrounding Site Conditions – Proposed

This section identifies the proposed condition of the walkways and pedestrian ramps in and around the development site. The width of the sidewalk contributes to the degree of comfort and enjoyment of walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Typically, a five foot wide Pedestrian Zone supports two people walking side by side or two wheelchairs passing each other. An eight foot wide Pedestrian Zone allows two pairs of people to comfortably pass each other, and a ten foot or wider Pedestrian Zone can support high volumes of pedestrians.



## Article 80 | ACCESSIBILITY CHECKLIST

Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? See: [www.bostoncompletestreets.org](http://www.bostoncompletestreets.org)

Yes

**If yes above**, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, Boulevard.

Downtown Commercial

What is the total width of the proposed sidewalk? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone.

Total width: 2660.5'  
Frontage: 0'  
Pedestrian: 20'  
Furnishings: 6'  
Curb: 0.5'

List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?

Pedestrian: Colored concrete pavement  
Furnishings: Permeable/Non-permeable concrete unit pavement, unit stone, greenspace  
Most of the material will be on private property.

If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the City of Boston Public Improvement Commission?

No

Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way?

No

**If yes above**, what are the proposed dimensions of the sidewalk café or furnishings and what will the right-of-way clearance be?

## Article 80 | ACCESSIBILITY CHECKLIST

### Proposed Accessible Parking:

See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability Handicap Parking Regulations.

What is the total number of parking spaces provided at the development site parking lot or garage?

The planned total is approximately 830 parking spaces.

What is the total number of accessible spaces provided at the development site?

The planned number of accessible spaces is 23 with three dedicated van accessible parking spaces.

Will any on street accessible parking spaces be required? **If yes,** has the proponent contacted the Commission for Persons with Disabilities and City of Boston Transportation Department regarding this need?

No.

Where is accessible visitor parking located?

Accessible visitor parking is located on each level of the below-grade parking garage.

Has a drop-off area been identified? **If yes,** will it be accessible?

On-street drop off for two vehicles will be included along Lomasney Way and will be accessible. Vendor/delivery parking will be included on the P1 level of the parking garage. It will not be dedicated as accessible parking but the path to the building will be all at grade.

Include a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations. Please include route distances.

See figures at the end of the Checklist.



## Article 80 | ACCESSIBILITY CHECKLIST

### Circulation and Accessible Routes:

The primary objective in designing smooth and continuous paths of travel is to accommodate persons of all abilities that allow for universal access to entryways, common spaces and the visit-ability\* of neighbors.

*\*Visit-ability – Neighbors ability to access and visit with neighbors without architectural barrier limitations*

Provide a diagram of the accessible route connections through the site.

See figures at the end of the Checklist.

Describe accessibility at each entryway: Flush Condition, Stairs, Ramp Elevator.

Building Lobby – Flush condition  
Retail entry – Flush condition  
Parking Garage Lobby – Flush condition  
Thoreau Path – Flush condition  
Loading Dock – Flush condition  
Vendor parking area – Flush condition, stairs, elevator  
Residential Terrace – Flush condition  
Parking Garage stair towers – Stairs (egress only)

Are the accessible entrance and the standard entrance integrated?

Yes

**If no above**, what is the reason?

Will there be a roof deck or outdoor courtyard space? **If yes**, include diagram of the accessible route.

Yes

Has an accessible routes way-finding and signage package been developed? **If yes**, please describe.

Not yet.

### Accessible Units: (If applicable)

In order to facilitate access to housing opportunities this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing choice.

What is the total number of proposed units for the development?

Approximately 470 units.

## Article 80 | ACCESSIBILITY CHECKLIST

How many units are for sale; how many are for rent? What is the market value vs. affordable breakdown?

All units will be for rent. Affordable housing units within the West End Development Area will comply with local regulations.

How many accessible units are being proposed?

5% of the total units will be accessible and 2% will be accessible for the hearing impaired. All units will be adaptable for accessibility.

Please provide plan and diagram of the accessible units.

The design has not advanced to this level at this time.

How many accessible units will also be affordable? If none, please describe reason.

5% of affordable units will be accessible.

Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs at entry or step to balcony. **If yes**, please provide reason.

No.

Has the proponent reviewed or presented the proposed plan to the City of Boston Mayor's Commission for Persons with Disabilities Advisory Board?

Not yet.

Did the Advisory Board vote to support this project? **If no**, what recommendations did the Advisory Board give to make this project more accessible?

Thank you for completing the Accessibility Checklist!

For questions or comments about this checklist or accessibility practices, please contact:

[kathryn.quigley@boston.gov](mailto:kathryn.quigley@boston.gov) | Mayors Commission for Persons with Disabilities

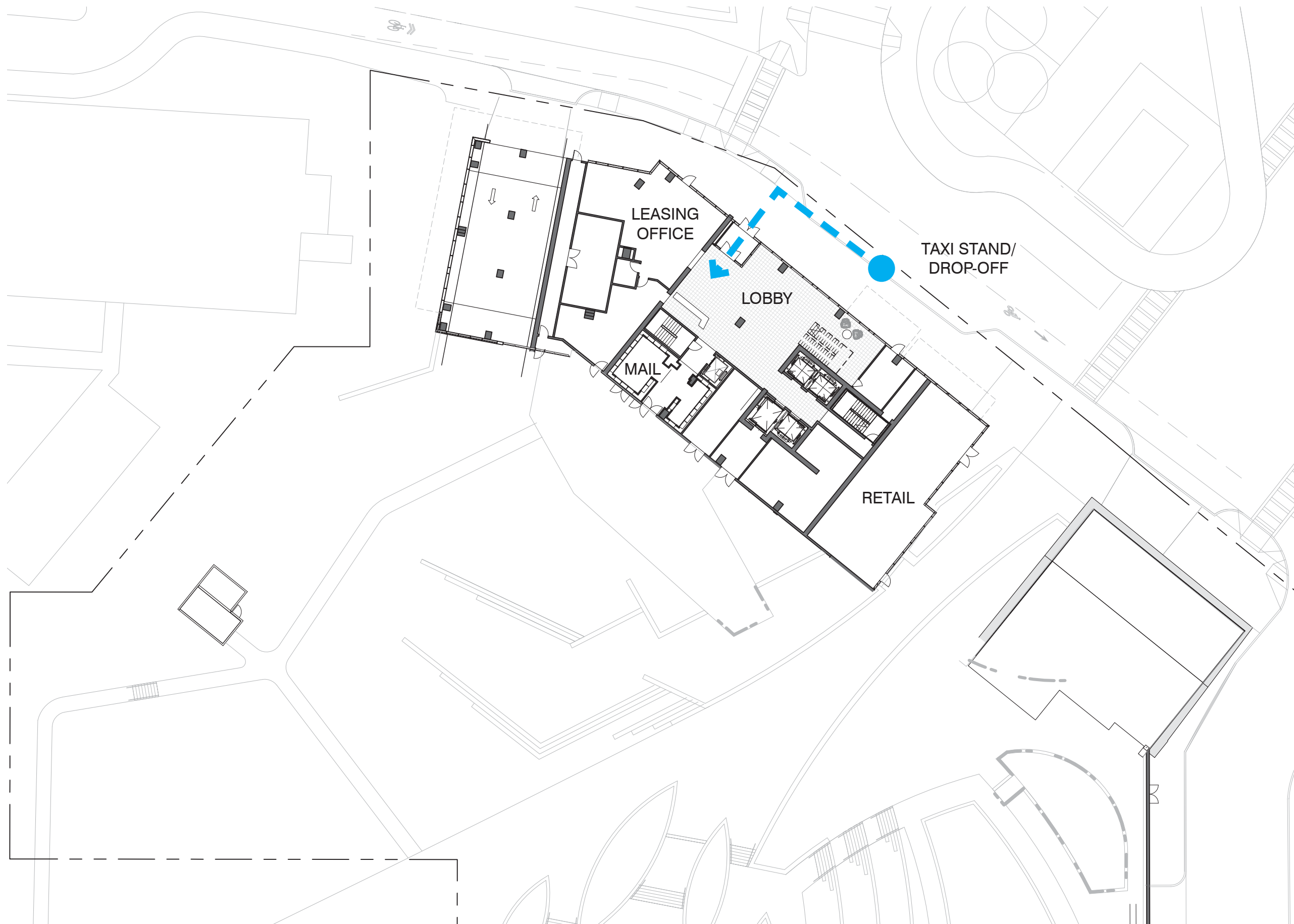




- Resident Accessible Route  
Max Travel Distance = 49 ft
- Public Accessible Route  
Max Travel Distance = 75 ft

1/32" = 1'-0"

Garden Garage Boston, Massachusetts

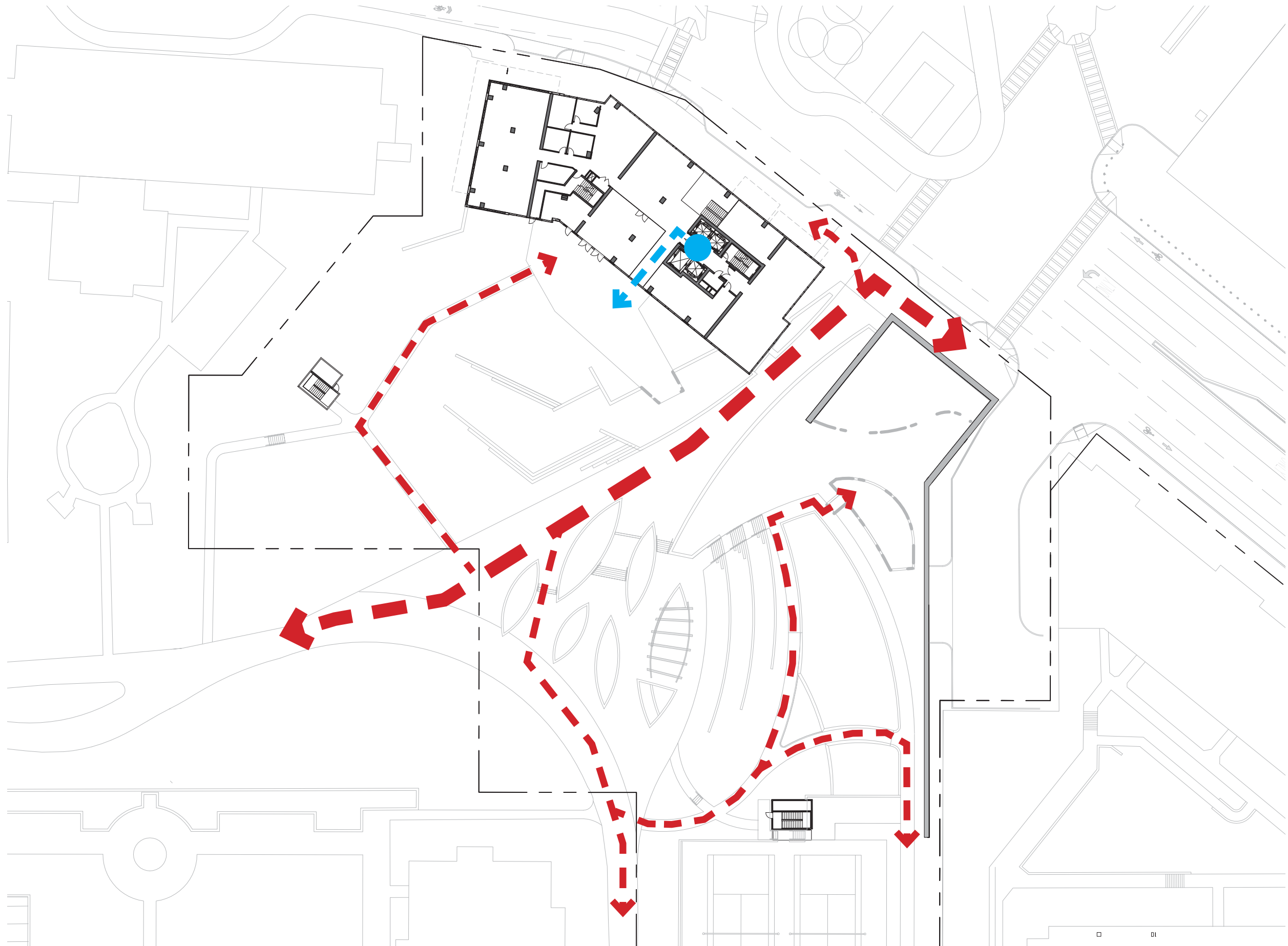




Resident Accessible Route  
Max Travel Distance = 55 ft


1/32" = 1'-0"

Garden Garage Boston, Massachusetts





-  Resident Accessible Route
-  Public Accessible Route

 1" = 50'-0"

Garden Garage    Boston, Massachusetts

Leadership in Energy and Environmental Design Checklist





## LEED for New Construction and Major Renovation 2009 Garden Garage Redevelopment

	Yes	?	No	
Phase	23	1	2	26

C	Y			Prereq 1	Construction Activity Pollution Prevention	Required
D	1			Credit 1	Site Selection	1
D	5			Credit 2	Development Density & Community Connectivity	5
D	1			Credit 3	Brownfield Redevelopment*** RP	1
D	6			Credit 4.1	Alternative Transportation, Public Transportation Access	6
D	1			Credit 4.2	Alternative Transportation, Bicycle Storage & Changing Rooms	1
D	3			Credit 4.3	Alternative Transportation, Low-Emitting & 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	Stormwater Design, Quantity Control	1
D		1		Credit 6.2	Stormwater Design, Quality Control	1
C	1			Credit 7.1	Heat Island Effect, Non-Roof*** RP	1
D	1			Credit 7.2	Heat Island Effect, Roof	1
D			1	Credit 8	Light Pollution Reduction	1

	Yes	?	No	
	5	1	4	10

D	Y			Prereq 1	Water Use Reduction, 20% Reduction	Required
D	2			Credit 1.1	Water Efficient Landscaping, Reduce by 50%	2
D			2	Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	2
D			2	Credit 2	Innovative Wastewater Technologies	2
D	3	1		Credit 3	Water Use Reduction	2 to 4

	Yes	?	No	
	8	11	16	35

C	Y			Prereq 1	Fundamental Commissioning of the Building Energy Systems	Required
D	Y			Prereq 2	Minimum Energy Performance	Required
D	Y			Prereq 3	Fundamental Refrigerant Management	Required
D	5	7	7	Credit 1	Optimize Energy Performance	1 to 19
D			7	Credit 2	On-Site Renewable Energy	1 to 7
C	2			Credit 3	Enhanced Commissioning	2
D		2		Credit 4	Enhanced Refrigerant Management	2
C	1		2	Credit 5	Measurement & Verification	3
C		2		Credit 6	Green Power	2

	Yes	?	No	
	4	3	7	14

D	Y			Prereq 1	Storage & Collection of Recyclables	Required
C			3	Credit 1	Building Reuse	1 to 3
C			1	Credit 1.2	Building Reuse: Maintain 50% of Interior Non-Structural Elements	1
C	1			Credit 2.1	Construction Waste Management, Divert 50% from Disposal	1
C	1			Credit 2.2	Construction Waste Management, Divert 75% from Disposal	1
C			1	Credit 3.1	Materials Reuse, 5%	1

# Garden Garage Redevelopment

C			1	Credit 3.2	<b>Materials Reuse, 10%</b>	1
C	1			Credit 4.1	<b>Recycled Content, 10%</b> (post-consumer + ½ pre-consumer)	1
C		1		Credit 4.2	<b>Recycled Content, 20%</b> (post-consumer + ½ pre-consumer)	1
C	1			Credit 5.1	<b>Regional Materials, 10%</b> Extracted, Processed & Manufactured Regionally	1
C		1		Credit 5.2	<b>Regional Materials, 20%</b> Extracted, Processed & Manufactured Regionally	1
C			1	Credit 6	<b>Rapidly Renewable Materials</b>	1
C		1		Credit 7	<b>Certified Wood</b>	1

Yes	?	No	
10	1	4	15

	Y			Prereq 1	<b>Minimum IAQ Performance</b>	Required
	Y			Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required
D	1			Credit 1	<b>Outdoor Air Delivery Monitoring</b>	1
D			1	Credit 2	<b>Increased Ventilation</b>	1
C	1			Credit 3.1	<b>Construction IAQ Management Plan, During Construction</b>	1
C			1	Credit 3.2	<b>Construction IAQ Management Plan, Before Occupancy</b>	1
C	1			Credit 4.1	<b>Low-Emitting Materials, Adhesives &amp; Sealants</b>	1
C	1			Credit 4.2	<b>Low-Emitting Materials, Paints &amp; Coatings</b>	1
C	1			Credit 4.3	<b>Low-Emitting Materials, Flooring Systems</b>	1
C		1		Credit 4.4	<b>Low-Emitting Materials, Composite Wood &amp; Agrifiber Products</b>	1
D	1			Credit 5	<b>Indoor Chemical &amp; Pollutant Source Control</b>	1
D	1			Credit 6.1	<b>Controllability of Systems, Lighting</b>	1
D	1			Credit 6.2	<b>Controllability of Systems, Thermal Comfort</b>	1
D	1			Credit 7.1	<b>Thermal Comfort, Design</b>	1
D			1	Credit 7.2	<b>Thermal Comfort, Verification</b>	1
D			1	Credit 8.1	<b>Daylight &amp; Views, Daylight 75% of Spaces</b>	1
D	1			Credit 8.2	<b>Daylight &amp; Views, Views for 90% of Spaces</b>	1

Yes	?	No	
6	0	0	6

D	1			Credit 1.1	<b>Innovation in Design: Exemplary Performance SSc4.1</b>	1
D	1			Credit 1.2	<b>Innovation in Design: Exemplary Performance SSc5.2</b>	1
D	1			Credit 1.3	<b>Innovation in Design: Exemplary Performance SSc7.1</b>	1
C	1			Credit 1.4	<b>Innovation in Design: Low Mercury Lighting</b>	1
C	1			Credit 1.5	<b>Innovation in Design: Pilot Credit Walkable Streets</b>	1
C	1			Credit 2	<b>LEED® Accredited Professional</b>	1

Yes	?	No	
4	0	0	4

					Boston MA: SSc3; SSc6.1; SSc7.1; SSc7.2; EAc2 1%; MRc1.1(75%)	
	1			Credit 1.1	<b>Regional Priority Credit: SSc3</b>	1
	1			Credit 1.2	<b>Regional Priority Credit: SSc6.1</b>	1
	1			Credit 1.3	<b>Regional Priority Credit: SSc7.2</b>	1
	1			Credit 1.4	<b>Regional Priority Credit: SSc7.1</b>	1

Yes	?	No	
60	17	33	110

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



**Attachment D**

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**Climate Change Checklist**

# Climate Change Preparedness and Resiliency Checklist for New Construction

In November 2013, in conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the Boston Redevelopment Authority adopted policy for all development projects subject to Boston Zoning Article 80 Small and Large Project Review, including all Institutional Master Plan modifications and updates, are to complete the following checklist and provide any necessary responses regarding project resiliency, preparedness, and to mitigate any identified adverse impacts that might arise under future climate conditions.

For more information about the City of Boston's climate policies and practices, and the 2011 update of the climate action plan, *A Climate of Progress*, please see the City's climate action web pages at <http://www.cityofboston.gov/climate>

In advance we thank you for your time and assistance in advancing best practices in Boston.

## Climate Change Analysis and Information Sources:

1. Northeast Climate Impacts Assessment ([www.climatechoices.org/ne/](http://www.climatechoices.org/ne/))
2. USGCRP 2009 (<http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts/>)
3. Army Corps of Engineers guidance on sea level rise (<http://planning.usace.army.mil/toolbox/library/ECs/EC11652212Nov2011.pdf>)
4. Proceeding of the National Academy of Science, "Global sea level rise linked to global temperature", Vermeer and Rahmstorf, 2009 (<http://www.pnas.org/content/early/2009/12/04/0907765106.full.pdf>)
5. "Hotspot of accelerated sea-level rise on the Atlantic coast of North America", Asbury H. Sallenger Jr\*, Kara S. Doran and Peter A. Howd, 2012 ([http://www.bostonredevelopmentauthority.org/planning/Hotspot of Accelerated Sea-level Rise 2012.pdf](http://www.bostonredevelopmentauthority.org/planning/Hotspot%20of%20Accelerated%20Sea-level%20Rise%202012.pdf))
6. "Building Resilience in Boston": Best Practices for Climate Change Adaptation and Resilience for Existing Buildings, Linnean Solutions, The Built Environment Coalition, The Resilient Design Institute, 2103 ([http://www.greenribboncommission.org/downloads/Building Resilience in Boston SML.pdf](http://www.greenribboncommission.org/downloads/Building_Resilience_in_Boston_SML.pdf))

## Checklist

Please respond to all of the checklist questions to the fullest extent possible. For projects that respond "Yes" to any of the D.1 – Sea-Level Rise and Storms, Location Description and Classification questions, please respond to all of the remaining Section D questions.

Checklist responses are due at the time of initial project filing or Notice of Project Change and final filings just prior seeking Final BRA Approval. A PDF of your response to the Checklist should be submitted to the Boston Redevelopment Authority via your project manager.

**Please Note:** When initiating a new project, please visit the BRA web site for the most current [Climate Change Preparedness & Resiliency Checklist](#).



## Climate Change Resiliency and Preparedness Checklist

### A.1 - Project Information

Project Name:	Garden Garage Redevelopment
Project Address Primary:	Martha Road & Lomansey Way
Project Address Additional:	
Project Contact (name / Title / Company / email / phone):	Richard Boales, Equity Residential, rboales@eqrworld.com, (202) 971-7087

### A.2 - Team Description

Owner / Developer:	Equity Residential
Architect:	Elkus Manfredi Architects
Engineer (building systems):	RW Sullivan
Sustainability / LEED:	The Green Engineer
Permitting:	Epsilon Associates
Construction Management:	
Climate Change Expert:	Epsilon Associates

### A.3 - Project Permitting and Phase

At what phase is the project – most recent completed submission at the time of this response?

<input type="checkbox"/> PNF / Expanded PNF Submission	<input type="checkbox"/> Draft / Final Project Impact Report Submission	<input type="checkbox"/> BRA Board Approved	<input checked="" type="checkbox"/> Notice of Project Change
<input type="checkbox"/> Planned Development Area	<input type="checkbox"/> BRA Final Design Approved	<input type="checkbox"/> Under Construction	<input type="checkbox"/> Construction just completed:

### A.4 - Building Classification and Description

List the principal Building Uses:	Residential, Commercial/Restaurant		
List the First Floor Uses:	Commercial/Restaurant, Residential Lobby		
What is the principal Construction Type – select most appropriate type?			
<input type="checkbox"/> Wood Frame	<input type="checkbox"/> Masonry	<input checked="" type="checkbox"/> Steel Frame	<input checked="" type="checkbox"/> Concrete
Describe the building?			
Site Area:	131,600 SF	Building Area:	907,000 SF
Building Height:	441 Ft.	Number of Stories:	44 Flrs.
First Floor Elevation (reference Boston City Base):	17.0 Elev.	Are there below grade spaces/levels, if yes how many:	Yes, 5 levels

## A.5 - Green Building

Which LEED Rating System(s) and version has or will your project use (by area for multiple rating systems)?

Select by Primary Use:

<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> Core & Shell	<input type="checkbox"/> Healthcare	<input type="checkbox"/> Schools
<input type="checkbox"/> Retail	<input type="checkbox"/> Homes Midrise	<input type="checkbox"/> Homes	<input type="checkbox"/> Other
Select LEED Outcome:			
<input type="checkbox"/> Certified	<input checked="" type="checkbox"/> Silver	<input type="checkbox"/> Gold	<input type="checkbox"/> Platinum

Will the project be USGBC Registered and / or USGBC Certified?

Registered:

Yes

Certified:

Yes

## A.6 - Building Energy-

What are the base and peak operating energy loads for the building?

Electric:

5153 (kW)

Heating:

14 (MMBtu/hr)

What is the planned building  
Energy Use Intensity:

21.57 (kWh/SF)

Cooling:

1200 (Tons/hr)

What are the peak energy demands of your critical systems in the event of a service interruption?

Electric:

1250 (kW)

Heating:

7 (MMBtu/hr)

Cooling:

15 (Tons/hr)

What is nature and source of your back-up / emergency generators?

Electrical Generation:

1500 (kW)

Fuel Source:

Diesel

System Type and Number of  
Units:

<input checked="" type="checkbox"/> Combustion Engine	<input type="checkbox"/> Gas Turbine	<input type="checkbox"/> Combine Heat and Power	1 (Units)
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## B - Extreme Weather and Heat Events

Climate change will result in more extreme weather events including higher year round average temperatures, higher peak temperatures, and more periods of extended peak temperatures. The section explores how a project responds to higher temperatures and heat waves.

### B.1 - Analysis

What is the full expected life of the project?

Select most appropriate:

<input type="checkbox"/> 10 Years	<input type="checkbox"/> 25 Years	<input checked="" type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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What is the full expected operational life of key building systems (e.g. heating, cooling, ventilation)?

Select most appropriate:

<input type="checkbox"/> 10 Years	<input checked="" type="checkbox"/> 25 Years	<input type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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What time span of future Climate Conditions was considered?

Select most appropriate:

<input type="checkbox"/> 10 Years	<input type="checkbox"/> 25 Years	<input checked="" type="checkbox"/> 50 Years	<input type="checkbox"/> 75 Years
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Analysis Conditions - What range of temperatures will be used for project planning – Low/High?

7/91 Deg.
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What Extreme Heat Event characteristics will be used for project planning – Peak High, Duration, and Frequency?

95 Deg.	5 Days	6 Events / yr.
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What Drought characteristics will be used for project planning – Duration and Frequency?

30-90 Days	0.2 Events / yr.
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What Extreme Rain Event characteristics will be used for project planning – Seasonal Rain Fall, Peak Rain Fall, and Frequency of Events per year?

45 Inches / yr.	4 Inches	0.5 Events / yr.
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What Extreme Wind Storm Event characteristics will be used for project planning – Peak Wind Speed, Duration of Storm Event, and Frequency of Events per year?

105 Peak Wind	10 Hours	0.25 Events / yr.
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## B.2 - Mitigation Strategies

What will be the overall energy performance, based on use, of the project and how will performance be determined?

Building energy use below code: 20%

How is performance determined: Energy Model

What specific measures will the project employ to reduce building energy consumption?

Select all appropriate:

<input checked="" type="checkbox"/> High performance building envelop	<input checked="" type="checkbox"/> High performance lighting & controls	<input type="checkbox"/> Building day lighting	<input checked="" type="checkbox"/> EnergyStar equip. / appliances
<input checked="" type="checkbox"/> High performance HVAC equipment	<input type="checkbox"/> Energy recovery ventilation	<input type="checkbox"/> No active cooling	<input type="checkbox"/> No active heating

Describe any added measures:

What are the insulation (R) values for building envelop elements?

Roof:	R = 25	Walls / Curtain Wall Assembly:	R = 13BATTs + R8 continuous insulation
Foundation:	R = 15	Basement / Slab:	R = 10
Windows:	R = / U = 0.4	Doors:	R = / U = 0.7

What specific measures will the project employ to reduce building energy demands on the utilities and infrastructure?

<input type="checkbox"/> On-site clean energy / CHP system(s)	<input type="checkbox"/> Building-wide power dimming	<input type="checkbox"/> Thermal energy storage systems	<input type="checkbox"/> Ground source heat pump
<input type="checkbox"/> On-site Solar PV	<input type="checkbox"/> On-site Solar Thermal	<input type="checkbox"/> Wind power	<input type="checkbox"/> None

Describe any added measures: CHP is being studied.

Will the project employ Distributed Energy / Smart Grid Infrastructure and /or Systems?

Select all appropriate:

<input type="checkbox"/> Connected to local distributed electrical	<input type="checkbox"/> Building will be Smart Grid ready	<input type="checkbox"/> Connected to distributed steam, hot, chilled water	<input type="checkbox"/> Distributed thermal energy ready
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Will the building remain operable without utility power for an extended period?

<input checked="" type="checkbox"/> Yes / No	If yes, for how long:	8 hours
If Yes, is building "Islandable?" No		
If Yes, describe strategies:		

Describe any non-mechanical strategies that will support building functionality and use during an extended interruption(s) of utility services and infrastructure:

Select all appropriate:

<input type="checkbox"/> Solar oriented – longer south walls	<input type="checkbox"/> Prevailing winds oriented	<input type="checkbox"/> External shading devices	<input type="checkbox"/> Tuned glazing,
<input type="checkbox"/> Building cool zones	<input checked="" type="checkbox"/> Operable windows	<input type="checkbox"/> Natural ventilation	<input type="checkbox"/> Building shading
<input type="checkbox"/> Potable water for drinking / food preparation	<input type="checkbox"/> Potable water for sinks / sanitary systems	<input type="checkbox"/> Waste water storage capacity	<input checked="" type="checkbox"/> High Performance Building Envelop
Describe any added measures:			

What measures will the project employ to reduce urban heat-island effect?

Select all appropriate:

<input checked="" type="checkbox"/> High reflective paving materials	<input checked="" type="checkbox"/> Shade trees & shrubs	<input checked="" type="checkbox"/> High reflective roof materials	<input checked="" type="checkbox"/> Vegetated roofs
Describe other strategies:			

What measures will the project employ to accommodate rain events and more rain fall?

Select all appropriate:

<input type="checkbox"/> On-site retention systems & ponds	<input type="checkbox"/> Infiltration galleries & areas	<input checked="" type="checkbox"/> Vegetated water capture systems	<input checked="" type="checkbox"/> Vegetated roofs
Describe other strategies:			

What measures will the project employ to accommodate extreme storm events and high winds?

Select all appropriate:

<input type="checkbox"/> Hardened building structure & elements	<input checked="" type="checkbox"/> Buried utilities & hardened infrastructure	<input type="checkbox"/> Hazard removal & protective landscapes	<input checked="" type="checkbox"/> Soft & permeable surfaces (water infiltration)
Describe other strategies:			

## C - Sea-Level Rise and Storms

Rising Sea-Levels and more frequent Extreme Storms increase the probability of coastal and river flooding and enlarging the extent of the 100 Year Flood Plain. This section explores if a project is or might be subject to Sea-Level Rise and Storm impacts.

### C.1 - Location Description and Classification:



Do you believe the building to susceptible to flooding now or during the full expected life of the building?

Yes / No

Describe site conditions?

Site Elevation – Low/High Points:

17-40 ft Boston  
City Base Elev.

Building Proximity to Water:

980 Ft.

Is the site or building located in any of the following?

Coastal Zone:

Yes / ☒ No

Velocity Zone:

Yes / ☒ No

Flood Zone:

Yes / ☒ No

Area Prone to Flooding:

Yes / ☒ No

Will the 2013 Preliminary FEMA Flood Insurance Rate Maps or future floodplain delineation updates due to Climate Change result in a change of the classification of the site or building location?

2013 FEMA  
Prelim. FIRMs:

☒ Yes / No

Future floodplain delineation updates:

Yes / No

What is the project or building proximity to nearest Coastal, Velocity or Flood Zone or Area Prone to Flooding?

~960 Ft.

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***If you answered YES to any of the above Location Description and Classification questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!***

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## C - Sea-Level Rise and Storms

This section explores how a project responds to Sea-Level Rise and / or increase in storm frequency or severity.

### C.2 - Analysis

How were impacts from higher sea levels and more frequent and extreme storm events analyzed:

Sea Level Rise:

4 Ft. (15.2 feet  
BCB)

Frequency of storms:

0.25 per year

### C.3 - Building Flood Proofing

Describe any strategies to limit storm and flood damage and to maintain functionality during an extended periods of disruption.

What will be the Building Flood Proof Elevation and First Floor Elevation:

Flood Proof Elevation:

17 feet BCB

First Floor Elevation:

17 feet BCB

Will the project employ temporary measures to prevent building flooding (e.g. barricades, flood gates):

Yes / No

If Yes, to what elevation

Boston City Base  
Elev. ( Ft.)

If Yes, describe:

Parking garage will be able to be inundated.

What measures will be taken to ensure the integrity of critical building systems during a flood or severe storm event:

<input checked="" type="checkbox"/> Systems located above 1 <sup>st</sup> Floor.	<input type="checkbox"/> Water tight utility conduits	<input checked="" type="checkbox"/> Waste water back flow prevention	<input checked="" type="checkbox"/> Storm water back flow prevention
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Were the differing effects of fresh water and salt water flooding considered:

<input checked="" type="checkbox"/> Yes / No
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Will the project site / building(s) be accessible during periods of inundation or limited access to transportation:

<input checked="" type="checkbox"/> Yes / No	If yes, to what height above 100 Year Floodplain:	1.1-17.1 feet
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Will the project employ hard and / or soft landscape elements as velocity barriers to reduce wind or wave impacts?

<input checked="" type="checkbox"/> Yes / No
--

If Yes, describe:

Trees to mitigate wind impacts
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Will the building remain occupiable without utility power during an extended period of inundation:

<input checked="" type="checkbox"/> Yes / No	If Yes, for how long:	
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*We assume that residents will stay in their units and gas-powered equipment will remain operable. In the event of long-term flooding, we anticipate the building and surrounding areas will be evacuated.*

Describe any additional strategies to addressing sea level rise and or sever storm impacts:

Because of the site grade change, the building can be accessed from the second level, elevation 33 feet BCB. Essential equipment is located above 19 feet BCB.
--

#### C.4 - Building Resilience and Adaptability

Describe any strategies that would support rapid recovery after a weather event and accommodate future building changes that respond to climate change:

Will the building be able to withstand severe storm impacts and endure temporary inundation?

Select appropriate:	<input checked="" type="checkbox"/> Yes / No	<input type="checkbox"/> Hardened / Resilient Ground Floor Construction	<input type="checkbox"/> Temporary shutters and or barricades	<input type="checkbox"/> Resilient site design, materials and construction
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*Parking garage will be able to be inundated.*

Can the site and building be reasonably modified to increase Building Flood Proof Elevation?

Select appropriate:	Yes / <input checked="" type="checkbox"/> No	<input type="checkbox"/> Surrounding site elevation can be raised	<input type="checkbox"/> Building ground floor can be raised	<input type="checkbox"/> Construction been engineered
Describe additional strategies:				

Has the building been planned and designed to accommodate future resiliency enhancements?

Select appropriate:	Yes / <input checked="" type="checkbox"/> No	<input type="checkbox"/> Solar PV	<input type="checkbox"/> Solar Thermal	<input type="checkbox"/> Clean Energy / CHP System(s)
		<input type="checkbox"/> Potable water storage	<input type="checkbox"/> Wastewater storage	<input type="checkbox"/> Back up energy systems & fuel



Describe any specific or additional strategies:

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Thank you for completing the Boston Climate Change Resilience and Preparedness Checklist!

For questions or comments about this checklist or Climate Change Resiliency and Preparedness best practices, please contact: [John.Dalzell.BRA@cityofboston.gov](mailto:John.Dalzell.BRA@cityofboston.gov)