



To: Joseph E. Barr, Director  
Cambridge Traffic, Parking and  
Transportation Department

Date: September 14, 2018

## Memorandum

Project #: 12959.02

From: Sean M. Manning, P.E., PTOE  
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Re: KSURP Infill Development  
Transportation Analysis Update (Special Permit #315) - Final

### 1. Introduction

On behalf of Boston Properties, or BP, (the Proponent), Vanasse Hangen Brustlin, Inc. (VHB) is providing an update to the Certified Transportation Impact Study (TIS) for the Kendall Square Urban Renewal Plan (KSURP) Infill Development Concept Plan in Cambridge, Massachusetts (the Project).

The original TIS was submitted to the Cambridge Traffic, Parking, and Transportation (TP&T) Department on June 23, 2016 and certified on July 14, 2016. The Proponent submitted a Special Permit application (PB#315) to the Planning Board, under Article 14, in September 2016 and received Planning Board approval in March 2017. In January 2017, VHB submitted an update to the transportation analysis that reflected changes in the proposed development program, which were documented by TP&T in a memo to the Planning Board dated January 11, 2017, in support of the Board's approval of the Special Permit for the KSURP Project.

This technical memorandum provides an updated trip generation analysis and comparison, as well as an updated parking analysis, to reflect the current development program, post Planning Board approval.

**Figure A** illustrates BP properties throughout Kendall Square, while **Table 1** summarizes the occupancy levels for each. **Figure B** shows the sites and garages that are a part of the Infill Development Concept Plan (IDCP), and **Figure C** shows the Proposed Access and Circulation throughout the district.

Table 1 Kendall Center Buildings<sup>1</sup>

Building	Program	Occupied %
1CC (255 Main Street)	215,377 sf Office	57% occupied
2CC (Marriott Hotel)	289,813 sf (421 keys) & 42,245 sf Retail	100 % occupied
3CC (325 Main Street)	62,757 sf Office & 42,300 sf Retail	100 % occupied
4CC (90 Broadway)	216,751 sf Office & 4,486 sf retail	100 % occupied
5CC (355 Main Street)	257,880 sf Office & 14,507 sf Retail	100 % occupied
6CC (Residence Inn)	185,356 sf (221 keys) & 2,118 sf Retail	100 % occupied
7CC (415 Main Street) Broad Institute	194,096 sf Office	100 % occupied
75 Ames Street	237,057 sf Office & 5,449 sf Retail	100 % occupied; Retail is vacant
8CC (150 Broadway)	176,562 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied

Building	Program	Occupied %
10CC (105 Broadway)	145,603 sf Office	13 % occupied
12CC (115 Broadway)	233,945 sf Office	100 % occupied
14CC (250 Binney)	62,576 sf Office	100 % occupied
15CC (125 Broadway)	218,288 sf Office	100 % occupied
17CC (300 Binney)	189,661 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied

1-GFA as occupied in October 2017

## 2. Program Comparison

The original TIS from 2016 proposed 1,095,200 GSF of office, retail, and residential space. In January 2017, the program was reduced to a total of 1,066,500 GSF in order to strengthen the public realm features of the Project, and accelerate the development schedule.

As the overall project continues to evolve, some changes are being proposed to the 2017 program that was approved as part of the Special Permit process. The new program will maintain the approved 1,066,500 GSF development envelope, but include the following specific changes from the approved 2017 IDCP and accompanying TIS Update:

- Residential North and Residential South total unit count is being increased to 494 units from the approved 425 units (which is still less than the original 560 residential units proposed in the 2016 TIS). The total square footage dedicated to residential is remaining constant at 420,000 GSF.
- Building A, 145 Broadway (aka 11 Cambridge Center), is being adjusted from the approved 375,132 Net New GSF to 362,978 Net New GSF.
- Building B, originally proposed at 250 Binney Street (aka 14 Cambridge Center), will now be constructed at 325 Main Street (aka 3 Cambridge Center), containing 268,222 of Net New GSF, referred to as Building B' and increased from the approved 256,068 Net New GSF at Building B.
- The existing 250 Binney Street building will not be demolished, as previously contemplated, but instead remain operational at the existing 62,576 GSF office use.
- The 650-space parking garage that was associated with the originally anticipated re-developed 250 Binney Street building is no longer part of the Project.
- No new parking structures will be constructed at Building B' as part of this Project.

- The existing three campus garages (Yellow, Green and Blue) as well as the previously approved new garage at 145 Broadway, are expected to serve current and future users, through the utilization of surplus capacity that exists today, the implementation of shared parking and other parking management strategies.

**Table 2** provides a summary of the proposed development program, the existing square footage to be demolished, and the resulting new-net infill program. Please note that the future Building B' retail component will be similar in size as the existing building retail component, therefore the table below shows no additional new retail square footage. The future Building B' retail component will include a replacement of the MIT coop as well as additional retail opportunities, totaling approximately 42,300 square feet.

■ **Table 2 Proposed Development Program<sup>1</sup>**

Project Component	Proposed Project Program	Existing to be Removed	Net-New Program
<b>Building A - 145 Broadway</b>	<b><u>441,614 sf</u></b>	<b><u>(-78,636) sf</u></b>	<b><u>362,978 sf</u></b>
(Office)	432,914 sf	(-78,636) sf	354,278 sf
(Retail/Active Use)	8,700 sf	-0 sf	8,700 sf
<b>Building B' - 325 Main St <sup>#</sup></b>	<b><u>385,423 sf</u></b>	<b><u>(-117,201) sf</u></b>	<b><u>268,222 sf</u></b>
(Office)	343,123 sf	(-74,901) sf	268,222 sf
(Retail/Active Use)	42,300 sf	(-42,300) sf	0 sf <sup>##</sup>
<b>Residential North - 135 Broadway</b>	<b><u>71,300 sf</u></b>	<b><u>-0 sf</u></b>	<b><u>71,300 sf</u></b>
(Residential)	70,000 sf (90 units)	-0 sf	70,000 sf (90 units)
(Retail/Active Use)	1,300 sf	-0 sf	1,300 sf
<b>Residential South - 135 Broadway</b>	<b><u>350,000 sf</u></b>	<b><u>-0 sf</u></b>	<b><u>350,000 sf</u></b>
(Residential)	350,000 sf (404 units)	-0 sf	350,000 sf (404 units)
<b>75 Ames St / Broad Institute<sup>2</sup></b>	<b><u>14,000 sf</u></b>	<b><u>-0 sf</u></b>	<b><u>14,000 sf</u></b>
(Office)	14,000 sf	-0 sf	14,000 sf
<b>TOTAL</b>	<b><u>1,324,913 sf</u></b>	<b><u>(-258,413) sf</u></b>	<b><u>1,066,500 sf</u></b>
(Office)	852,613 sf	(-216,113) sf	636,500 sf
(Retail/Active Use) <sup>3</sup>	52,300 sf	-42,300 sf	10,000 sf
(Residential) <sup>4</sup>	420,000 sf (494 units)	-0 sf	420,000 sf (494 units)

1 – GFA/GSF as defined in Article 2.0 of the Cambridge Zoning Ordinance

2 – Represents the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial/office space at the Broad Institute's 75 Ames Street location. The Applicant is not responsible for the execution of this component of the Project.

3 – Active Ground Floor Uses, can include retail uses and active public gathering space (whether open or enclosed) where that ground floor fronts Main Street, Broadway or Ames Street, per Article 14.38 of the Cambridge Zoning Ordinance.

4 – Total residential SF of 420,000 to be split between Residential North and Residential South

<sup>#</sup>previously approved 256,068 SF was for Building B at 250 Binney Street

<sup>##</sup>new Building B' will contain retail at approximately the same square footage as existing retail to be demolished, which is why "net-new" column in table shows a value of "0"

**Table 3** provides a summary of the proposed program and a comparison to the Planning Board approved program. Compared to the previously approved program, there is an increase of 9,366 GSF of office, a reduction of 9,366 GSF of retail, and an increase of 69 residential units (although the overall GSF of the project remains constant).

■ **Table 3 Proposed Development Program VS Previously Approved Program<sup>1</sup>**

Project Component	2018 Proposed Net-New Program	2017 Previously Approved Program	Difference
<b>Building A - 145 Broadway</b>	<b><u>362,978 sf</u></b>	<b><u>375,132 sf</u></b>	<b><u>(-12,154) sf</u></b>
(Office)	354,278 sf	365,095 sf	(-10,817) sf
(Retail/Active Use)	8,700 sf	10,037 sf	(-1,337) sf
<b>Building B' - 325 Main St</b>	<b><u>268,222 sf</u></b>	<b><u>256,068 sf<sup>#</sup></u></b>	<b><u>+12,154 sf</u></b>
(Office)	268,222 sf	248,039 sf	+20,183 sf
(Retail/Active Use)	0 sf	8,029 sf	(-8,029) sf
<b>Residential North - 135 Broadway</b>	<b><u>71,300 sf</u></b>	<b><u>71,300 sf</u></b>	<b><u>0 sf</u></b>
(Residential)	70,000 sf (90 units)	70,000 sf (70 units)	0 sf (+20 units)
(Retail/Active Use)	1,300 sf	1,300 sf	0 sf
<b>Residential South - 135 Broadway</b>	<b><u>350,000 sf</u></b>	<b><u>350,000 sf</u></b>	<b><u>0 sf</u></b>
(Residential)	350,000 sf (404 units)	350,000 sf (355 units)	0 sf (+49 units)
<b>75 Ames St / Broad Institute<sup>2</sup></b>	<b><u>14,000 sf</u></b>	<b><u>14,000 sf</u></b>	<b><u>0 sf</u></b>
(Office)	14,000 sf	14,000 sf	0 sf
<b>TOTAL</b>	<b><u>1,066,500 sf</u></b>	<b><u>1,066,500 sf</u></b>	<b><u>0 sf</u></b>
(Office)	636,500 sf	627,134 sf	9,366 sf
(Retail/Active Use) <sup>3</sup>	10,000 sf	19,366 sf	(-9,366) sf
(Residential) <sup>4</sup>	420,000 sf (494 units)	420,000 sf (425 units)	0 sf (+69 units)

1 – GFA/GSF as defined in Article 2.0 of the Cambridge Zoning Ordinance

2 – Represents the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial/office space at the Broad Institute's 75 Ames Street location. The Applicant is not responsible for the execution of this component of the Project.

3 – Active Ground Floor Uses, can include retail uses and active public gathering space (whether open or enclosed) where that ground floor fronts Main Street, Broadway or Ames Street, per Article 14.38 of the Cambridge Zoning Ordinance.

4 – Total residential SF of 420,000 to be split between Residential North and Residential South

<sup>#</sup>previously approved 256,068 SF was for Building B at 250 Binney Street

**Table 4** provides a summary of the parking program for vehicle and bicycle parking, and compares it to the Special Permit approval from March 2017. A detailed parking analysis is provided later in this document.



■ **Table 4 Proposed Parking for Development Program VS Previously Approved**

Project Component	2018 Proposed Parking	2017 Approved Parking <sup>1</sup>	Difference
Vehicle Parking Spaces (Net/Total Campus)	413 (3,121)	785 (3,493)	(-372)
Long-Term Bike Parking Spaces	763	633	+130
Short-Term Bike Parking Spaces	131	102	+29

1 – Previously Approved as part of Special Permit Decision PB#315 in March 2017

### 3. Trip Generation

The trip generation estimates for the Project have been updated to reflect the shift of 9,366 GSF in program land use and increase of 69 residential units from the 2017 Approved Program. This updated trip generation uses the same methodology as the original certified TIS, including mode share assumptions, average vehicle occupancy rates and Institute of Transportation Engineers (ITE) Land Use Codes and trip rates.

These estimates were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) rates for Apartment (LUC 220), Shopping Center (LUC 820), and General Office Building (LUC 710). ITE unadjusted vehicle trips were converted into person trips by applying the national AVO (average vehicle occupancy) factors of 1.13 for residential and work-related trips and 1.78 for retail trips. Then local AVOs were used to convert person trips back into vehicle trips once mode shares were applied. The same mode shares, as presented in **Table 5**, were used for both the original certified TIS and this updated analysis. Note that the new Building B being located directly adjacent to the Red Line could induce a higher transit mode share than that used to support the transportation analysis. However, this approach would be speculative. Note, that the study has maintained the same mode share profile that was used in the Certified TIS to provide opportunity to clearly understand the transportation and traffic impact of shifting the Building B location. For consistency, and in an effort to be conservative, the previously-approved TIS mode shares have been maintained in this TIS Update.

■ **Table 5 Project Mode Shares (per Certified TIS)**

Mode	Residential <sup>1</sup>	Office <sup>2</sup>	Retail <sup>2</sup>
Vehicle <sup>3</sup>	32%	34%	34%
Transit	30%	37%	37%
Walk	25%	6%	6%
Bike	10%	9%	9%
Other	3%	14%	14%

1 – City of Cambridge K2 Plan Enhanced TDM Mode Shares

2 – Kendall Square Urban Renewal Area 2014 Report Mode Shares  
3 – Vehicle mode share includes drive alone (SOV) and carpool (HOV) trips

### ***Trip Generation Comparison***

The resulting new trip generation estimates that reflect the changes in GSF and residential units proposed, are summarized in **Table 6** (vehicle trips) and **Table 7** (transit trips) and compared to previously approved trips. The detailed trip generation tables by land use are included in the Appendix.

■ **Table 6 Vehicle Trip Generation Comparison**

	<b>2018 Proposed Program</b>	<b>2017 Previously Approved Program</b>	<b>Difference</b>
<b>Daily Trips</b>			
In	1,612	1,642	(-30)
Out	<u>1,612</u>	<u>1,642</u>	<u>(-30)</u>
Total	3,224	3,284	(-60)
<b>AM Peak Hour Trips</b>			
In	265	264	+1
Out	<u>102</u>	<u>93</u>	<u>+9</u>
Total	367	357	+10
<b>PM Peak Hour Trips</b>			
In	123	124	(-1)
Out	<u>264</u>	<u>265</u>	<u>(-1)</u>
Total	387	389	(-2)

Notes: Trip Generation estimates based on ITE Trip Generation Manual, 9th Edition, using: LUC 220 – Apartment; LUC 820 – Shopping Center; LUC 710 – General Office Building; Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2; VOR stands for Vehicle Occupancy Rate from 2009 NHTS; Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524

■ **Table 7 Transit Trip Generation Comparison**

	<b>2018 Proposed Program</b>	<b>2017 Previously Approved Program</b>	<b>Difference</b>
<b>Daily Trips</b>			
In	1,953	2,008	(-55)
Out	<u>1,953</u>	<u>2,008</u>	<u>(-55)</u>
Total	3,906	4,016	(-110)
<b>AM Peak Hour Trips</b>			
In	342	342	0
Out	<u>116</u>	<u>108</u>	<u>+8</u>
Total	458	450	+8
<b>PM Peak Hour Trips</b>			
In	143	146	(-3)
Out	<u>333</u>	<u>337</u>	<u>(-4)</u>
Total	476	483	(-7)

Notes: Trip Generation estimates based on ITE Trip Generation Manual, 9th Edition, using:  
LUC 220 – Apartment; LUC 820 - Shopping Center; LUC 710 - General Office Building  
Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2

The trip generation estimates shown in Tables 5 and 6 for the updated program show a slight reduction in daily and evening peak hour vehicle and transit trips and a slight increase in the morning peak hour vehicle and transit trips compared to the previous approval. This adjustment does not materially change the overall transportation impacts that have been documented through previous approvals, and therefore no updated traffic or transit operations analyses have been conducted and no changes in transportation mitigation actions are proposed in connection with this program update.

#### **4. Vehicle Parking Demand Analysis**

A vehicle parking assessment was conducted as part of the certified TIS in 2016, and again as part of the Special Permit process in 2017. With this 2018 program update, the parking analysis has been revisited, and a summary of our demand methodologies and findings are provided in this section of the technical memorandum.

### ***Parking Supply in the KSURP Area***

As noted previously, the 650-space parking garage that was associated with the originally anticipated re-developed Building B (250 Binney Street), is no longer part of the Project. The new site for Building B' is at 325 Main Street and does not include construction of any new vehicle parking on-site, but instead the existing three campus garages (Yellow, Green and Blue) as well as the previously approved 145 Broadway new garage, will serve current and future users, through the utilization of surplus capacity that exists today, the implementation of shared parking and other parking management strategies.

**Table 8** compares the previously approved parking supply to the newly proposed parking supply.

■ **Table 8 Proposed Parking for KSURP Campus Vs Previously Approved**

<b>Parking Location</b>	<b>2018 Proposed Parking</b>	<b>2017 Previously Approved Parking<sup>1</sup></b>	<b>Difference</b>
Blue Garage	955	955*	0
Yellow Garage	885	734	+151
Green Garage	824	804	+20
145 Broadway	457	350	+107
250 Binney Street	0	650	(-650)
<b>Vehicle Parking Spaces</b>	<b>3,121</b>	<b>3,493</b>	<b>(-372)</b>

1 – Previously Approved as part of Special Permit Decision PB#315 in March 2017

\*original parking supply at this site is permitted as 1,170 spaces, however with the construction of 135 Broadway residential buildings the Proponent has estimated that approximately 215 spaces will be permanently taken out of service. The actual parking space reduction will be determined during Design Review for 135 Broadway

As noted above, and illustrated in **Figure D**, the KSURP campus-wide vehicular parking supply will change from the approved 3,493 spaces to 3,121 parking spaces. The 3,493-parking space supply number included the construction of a 650-space parking garage at 250 Binney Street, which is no longer part of the program. The "loss" of the 650 spaces is being balanced out by the following proposed reallocations in the existing garages, which result in a net loss of 372 spaces:

- Blue Garage was approved for 955 spaces, which takes into consideration a loss of 215 spaces for the construction of the Residential North and Residential South buildings at 135 Broadway. Depending on construction methods and means, there may be an opportunity to limit the loss of parking to a number that is smaller than the originally estimated 215 parking spaces. The Proponent will track construction progress and look for opportunities to increase parking supply at this location in the future, if found to be needed.

- Yellow Garage is currently recorded at 734 parking spaces and the Proponent is seeking approval to reconfigure the garage to add another 151 spaces, for a total of 885 parking spaces. The addition of seven (7) spaces will be accomplished through more efficient self-parking striping and provision of 144 managed/valet parking spaces.
- Green Garage was originally recorded at 844 parking spaces, however with the construction of 88 Ames Street the supply was contemplated to be reduced by 40 spaces, to 804 as noted in the previous approval. 88 Ames Street has been completed and the total number of permitted parking spaces in the Green Garage is 824 spaces. **Figures E-1 through E-3** show layout of the Green Garage for 824 spaces, as re-registered with the City of Cambridge in July of 2018.
- 145 Broadway Garage is currently being constructed with 350 parking spaces and as part of this update the Proponent is seeking approval to add 107 spaces to this garage through more efficient self-parking striping and provision of managed/valet parking spaces. **Figures F-1 through F-4** show a proposed layout and summary of the 145 Broadway Garage for 457 spaces.

### ***Future Parking Supply - Zoning Requirements***

As defined in Article 14 of the City of Cambridge Zoning Ordinance, the parking ratios for the Kendall Center Mixed Use Development (MxD) District, located within the KSURP Area, are presented in **Table 9**.

■ **Table 9      Zoning Requirements for Parking**

	<b>Zoning Requirements (Article 14)</b>
Office	No minimum Max 0.9 spaces / 1,000 GFA
Residential	Min 0.4 spaces / unit Max. 0.75 spaces / unit
Retail	No minimum Max 0.5 spaces / 1,000 GFA

Despite the proposed reduction in overall parking supply in the area, the project will meet the zoning requirements under Article 14. As proposed the project will have a Maximum of 573 office use parking spaces (0.9 spaces / 1,000 sf based on the approximately 636,500 net new office space GFA) and a Minimum of 310 parking spaces for the 774 residential units (0.4 spaces / dwelling unit).

### ***Existing Parking Demand Analysis***

The Proponent compiled parking utilization data for their three garages in Kendall Square (Green Garage, Yellow Garage, and Blue Garage), broken out by contract/monthly users and transient users. Data was provided for 260 workdays during the 2017 calendar year, and showed that the months of May, September and October experienced the highest garage occupancies, with October representing the highest of the three peak months.

**Table 10** summarizes the contract and transient hourly occupancy for all three garages combined, during an average weekday (Tuesday – Thursday) in October 2017.

■ **Table 10 Kendall Square BP Garage Occupancies (October 2017, Average Weekday)**

<b>Time of Day</b>	<b>Contract</b>	<b>Transient</b>	<b>Total</b>	<b>Percent Occupied*</b>
5:00 AM	136	27	163	6%
6:00 AM	220	67	287	11%
7:00 AM	420	126	546	20%
8:00 AM	772	193	965	36%
9:00 AM	1,230	252	1,482	55%
10:00 AM	1,648	305	1,953	72%
11:00 AM	1,837	332	2,169	80%
12:00 PM	1,876	333	2,209	82%
1:00 PM	1,870	325	2,195	81%
2:00 PM	1,852	297	2,149	79%
3:00 PM	1,745	226	1,971	73%
4:00 PM	1,511	182	1,693	63%
5:00 PM	1,072	143	1,215	45%
6:00 PM	643	130	773	29%
7:00 PM	370	111	481	18%
8:00 PM	234	93	327	12%
9:00 PM	186	67	253	9%
10:00 PM	157	40	197	7%
11:00 PM	139	26	165	6%

Time of Day	Contract	Transient	Total	Percent Occupied*
12:00 AM	126	25	151	6%
1:00 AM	121	25	146	5%
2:00 AM	119	24	143	5%
3:00 AM	118	24	142	5%
4:00 AM	122	23	145	5%

Source: BP Parking Management Office

\*Percent occupied based on 2017 existing operational parking supply in the complex, recorded at 2,708 vehicle parking spaces, and not the special permit approved 3,494 spaces

As can be seen from Table 10, October 2017 showed a maximum occupancy of 2,209 vehicles in all three garages combined, or 82 percent occupancy of total existing parking supply (2,708 spaces) in the three garages. The maximum occupancy occurred around 12:00PM. **Figure G-1** illustrates the relationship of total area parking demand vs. supply for a peak weekday/peak month condition.

### ***Future Parking Demand***

As part of the more recent program change, an updated parking demand analysis was developed based on actual garage utilization information and usage.

**Table 11** summarizes the estimated parking demand generated by each building, for both the day-time and the night-time (or overnight) hours. The parking demand was calculated from actual Cambridge Center garage utilization data.

■ **Table 11 Estimated Future Parking Demand**

<b>Project Component</b>	<b>Size</b>	<b>Estimated Day-Time Demand</b>	<b>Estimated Night-Time Demand</b>
Building A (145 Broadway / 11CC)	354.3 KSF Office <sup>1</sup>	315	0
Residential South (135 Broadway)	404 Units <sup>2</sup>	121	202
Residential North (135 Broadway)	90 Units	27	45
Broad Institute Conversion (75 Ames)	14 KSF Office	12	0
88 Ames Street	280 Units	84	140
Building B (325 Main Street / 3CC)	268.2 KSF Office	239	0
	<b><u>Total</u></b>	<b><u>798</u></b>	<b><u>387</u></b>
	<b>Office 636.5 sf</b>	<b>566</b>	<b>0</b>
	<b>Resi. 774 units</b>	<b>232</b>	<b>387</b>

<sup>1</sup> A day-time demand ratio of 0.89 spaces / KSF was recorded by Boston Properties, to reflect current 2017 utilization rates at the KSURP garages. This existing ratio was applied to future project components to estimate future parking demand during the daytime hours. Overnight parking is not provided for office uses. See Appendix.  
<sup>2</sup> The residential daytime demand ratio was calculated using City of Cambridge TDM/Survey data from AvalonBay Apartments (2 Leighton / 10 Glassworks – 2017 survey) at 0.3 spaces / dwelling unit; while the night-time parking demand is calculated at 0.5 spaces / dwelling unit, also included in the Appendix

In addition to the estimated parking demand generated by the proposed Project components, Boston Properties will have additional parking commitments for space that is currently unoccupied or unleased at 105 Broadway (10 CC), and the CIC (1CC). The unoccupied/unleased spaces adds up to approximately 225 KSF, which calculates to approximately 200 parking spaces of future demand.

The concept of shared parking recognizes that peaking for different land uses occur at different times. For example, the office demand peaks during the middle of the work day when most employees are at work and residential demand peaks overnight when most residents are home. So, instead of building sufficient parking to support each Individual land use's peak demand, the site supplies enough parking to support the entire site's peak, assuming that each land use will draw from a common parking supply.

### ***Future Parking Supply vs. Demand***

As detailed in the previous sections, and summarized in **Table 10** below, the future parking demand is conservatively estimated at 3,207 spaces which includes a demand of 798 spaces for proposed Project components, plus 200 spaces from additional requirements added to the existing peak demand of 2,209 spaces.



■ **Table 10 Summary of Estimated Future Parking Demand**

<b>Parking Component</b>	<b>Size</b>	<b>Estimated Parking Demand (# spaces)</b>
Proposed Project Program	636.5 Ksf Office 774 Resi Units	798
Additional Commitments	225.0 Ksf Office	200
Existing Demand	2.5 Mill SF (+/-)	2,209
	<b>Total</b>	<b>3,207</b>

The estimated parking demand is then compared to the proposed future parking supply of 3,121 spaces, which yields a small peak period shortage of 86 spaces, as shown in **Table 11** below. **Figure G-2** illustrates the relationship of total area parking demand vs. supply for a peak weekday/peak month condition under future conditions with the entire Project constructed and fully occupied.

■ **Table 11 Estimated Future Parking Demand VS. Future Parking Supply**

<b>Estimated Future Parking Demand</b>	<b>Estimated Future Parking Supply</b>	<b>Shortage</b>
3,207 spaces	3,121 spaces	-86 spaces

Note that the 86-space parking shortage is **representative of the worst-case scenario that would be experienced during the peak hour of the peak day of the peak month**, with 100% of the Project square footage leased out. The following are key points to be made in this context:

- 86 space shortage in the context of 3,000+ space parking supply (~3%) is very small
- This condition will likely occur only on peak weekdays during peak months
- This condition is projected to occur during peak hours only (less than 2 hours per day, on these peak days)
- Assumes the Project is 100% leased and fully occupied (very conservative)

During those peak occupancy times, the following will occur to manage the shortage:

- Boston Properties will monitor real-time utilization of the garages, and sometimes on a busy day, typically between 11am and 1pm, the garages will close to transient parkers.

- Transient parkers are people who pull a ticket and pay for the actual time in which they use the garage. Even when garages are closed, the entrances are signed so that it is clear that the garages are open to monthly passholders.
- Boston Properties will continue to monitor long term parking trends to understand how demand conditions are changing in light of work habits, travel behavior and emerging technologies such as autonomous vehicles.
- Boston Properties will provide to the City on an annual basis, parking and monitoring data relevant to parking utilization as required by PTDM measures.

## 5. Bicycle Parking

The Project will provide 763 long-term bike parking spaces and 131 short-term spaces, as required by zoning and City of Cambridge Bicycle Parking Guidelines. On-going discussions with City staff as well as individual building design reviews will further refine the exact configuration and location of long- and short-term bicycle parking.

**Figures H-1 through H-4** illustrate preliminary bicycle parking locations for the three development sites.

**Table 12** shows the required long and short-term bicycle parking spaces per building.

■ **Table 12 City of Cambridge Zoning Required Project Bicycle Parking**

Project Component	Size	Long-Term Category* / Rate	Spaces <sup>2</sup>	Short-Term Category* / Rate	Spaces <sup>2</sup>
135 Broadway North (Residential)	90 units	R2: 1.00 - 1.05 space per unit <sup>1</sup>	94	R2: 0.10 spaces per unit	9
135 Broadway North (Retail)	1,300 sf	N4: 0.10 spaces per 1,000 sf <sup>3</sup>	1	N2: 0.60 spaces per 1,000 sf	1
135 Broadway South (Residential)	404 units	R2: 1.00 - 1.05 space per unit <sup>1</sup>	424	R2: 0.10 spaces per unit	41
145 Broadway (Office)	432,914 sf	N1: 0.30 spaces per 1,000 sf <sup>3</sup>	130	N5: 0.06 spaces per 1,000 sf	26
145 Broadway (Retail)	8,700 sf	N4: 0.10 spaces per 1,000 sf <sup>3</sup>	1	N2: 0.60 spaces per 1,000 sf	6
325 Main St / 3CC (Office)	343,123 sf	N1: 0.30 spaces per 1,000 sf <sup>3</sup>	103	N5: 0.06 spaces per 1,000 sf	21
325 Main St / 3 CC (Retail)	42,300 sf	N4: 0.10 spaces per 1,000 sf <sup>3</sup>	5	N2: 0.60 spaces per 1,000 sf	26
75 Ames St / Broad Institute (Office)	14,000 sf	N1: 0.30 spaces per 1,000 sf <sup>3</sup>	5	N5: 0.06 spaces per 1,000 sf	1
<b>Total</b>			<b>763</b>		<b>131</b>
		Office	238	Office	48
		Retail	7	Retail	33
		Residential	518	Residential	50

\*Category and rates as defined by the City of Cambridge Bicycle Parking Guide and Article 6 City of Cambridge Zoning

1 – Per Zoning 6.107.2: Category R2 (Multifamily Dwellings) 1.00 long-term space per unit for the first 20 units in a building; 1.05 spaces per unit for all units over 20 in a building

2 – Wherever the application of such rate results in a fractional value such fraction shall be considered one required Bicycle Parking Space.

3 – Per Zoning 6.107.5 - a: For non-residential uses, up to 20% of the required number of Long-Term Bicycle Parking Spaces or 4 spaces, whichever is greater, may be provided as Short-Term Bicycle Parking Spaces

## **6. Truck Loading/Deliveries and Trash Removal**

Loading and service to portion of the Project, including the proposed Broad Institute Office Conversion, and Three Cambridge Center (Building B') will use existing loading facilities. The new 145 Broadway loading docks have been designed and located on-site, to minimize impact to Broadway. The proposed Residential North and South buildings may use existing infrastructure within the area to accommodate loading, parking laybys on the West Service drive and potentially smaller truck docks access on the West service drive. The details of loading will be submitted as part of the design Review process.

## **Conclusion**

The trip generation estimates for the Project have been updated to reflect the change in the Project program from the special permit approval from 2017. The trip generation estimates for the updated program show a slight reduction in daily vehicle trips (-60 trips), and evening peak hour vehicle trips (-2 trips) and a slight increase in the morning peak hour vehicle trips (+10 trips). We believe that this change does not materially change the overall transportation impacts that are expected and documented in the certified TIS.

Bicycle parking will be provided to meet City of Cambridge Bike requirements.

The proposed program update is requesting a reduction in vehicle parking, from previous special permit approval. The updated analyses indicate that the new parking being supplied, together with the existing parking, will provide sufficient parking to meet demand, throughout the vast majority of the year. In a small number of instances, the parking demand could potentially exceed the available parking by up to 86 spaces, for a very short duration (1-2 hours) mid-day during peak months only. However, with the implementation of the outlined TDM strategies, it is anticipated that parking supply will sufficiently serve the parking demand of the Project. The analysis also indicated that the overall parking demand within the KSURP area will be able to provide enough parking for the area residents, tenants and visitors with the proposed TDM measures and close monitoring of each garage.

Emerging technologies and mobility tech companies such as nuTonomy have brought a fleet of autonomous vehicles (AVs) to the City of Boston Seaport District, and Lyft predicts a full fleet of shared-autonomous vehicles (SAVs) within a five-year timeframe. Additionally, in April 2018, the City of Cambridge voted to begin AV testing on city streets. Over time, a functioning SVA fleet will likely induce a fundamental change in trip-making behaviors within dense urban areas like Kendall Square for both work and recreational trips. Autonomous vehicles, particularly SAV's, are expected to reduce future parking demand by enabling families that would typically purchase more than one vehicle to share a single vehicle throughout the day. SAV's can eliminate this need altogether by providing subscription service for mobility on-demand. As such, SAVs can change an individual or family's decision to own an automobile. The Project's office, hotel and retail uses will also benefit from AVs and SAVs. Parking demand for these uses could be significantly reduced given the improved access to MBTA's transit network. Further, AV's can alter the size and shape of parking facilities. AVs can drop their riders off at the curb, they can park themselves in parking stalls of reduced width, requiring no accommodation for door swing. In addition, autonomous vehicles will be able to stack within parking facilities and arrange themselves in the most efficient arrangements.

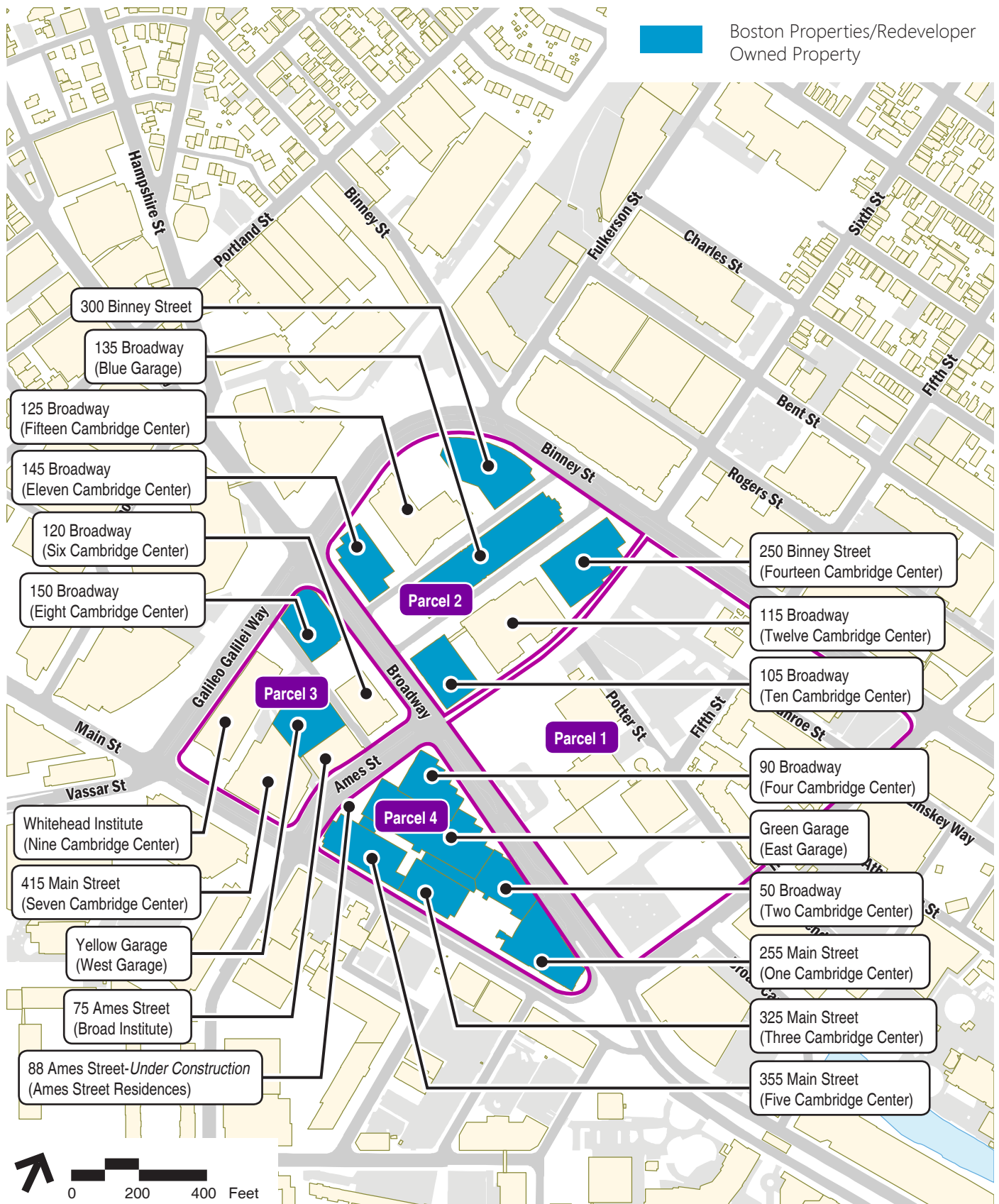
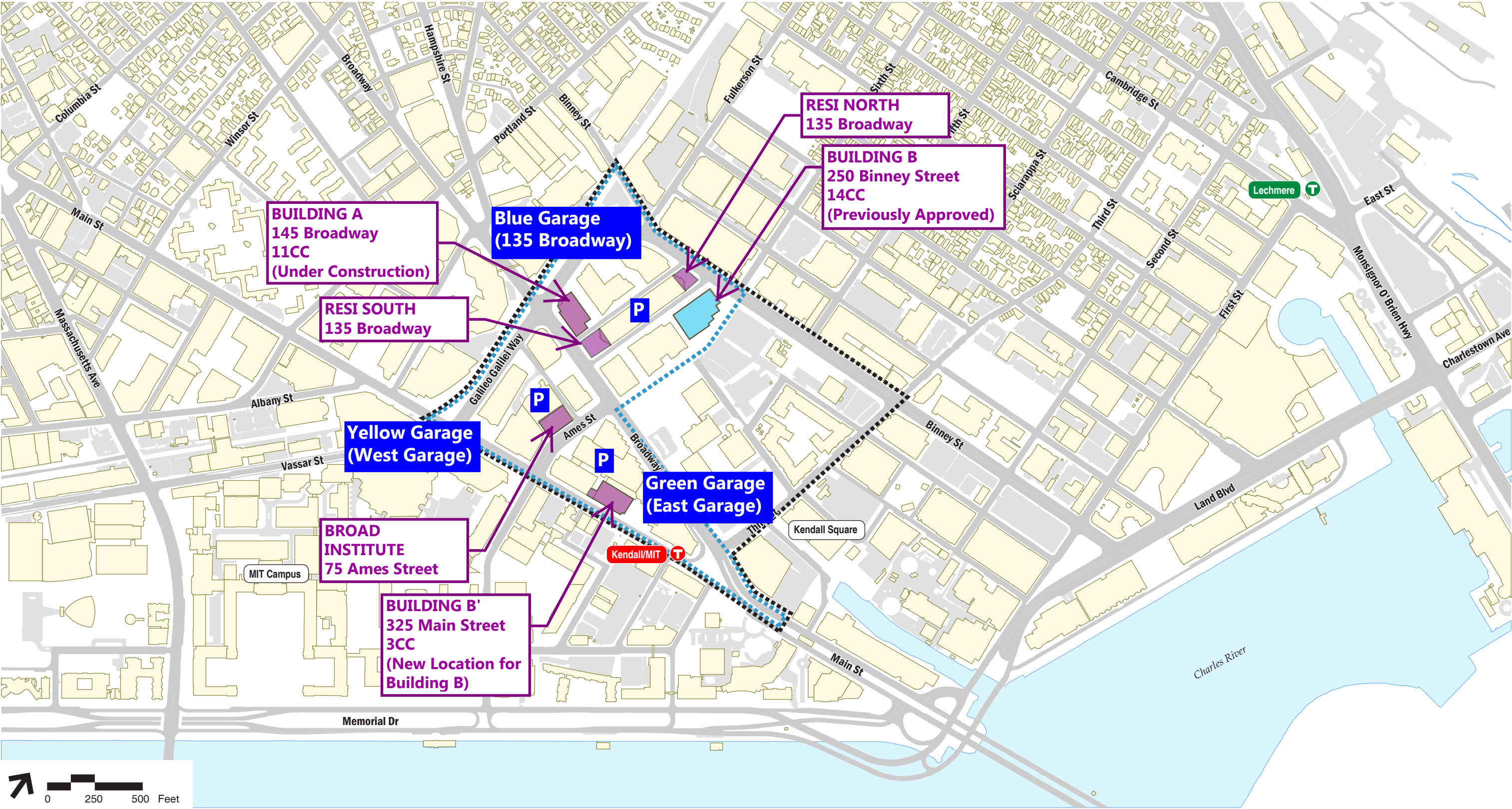


Figure A  
Kendall Center Properties Key Map

Kendall Square Urban Renewal Project Amendment  
Cambridge, MA



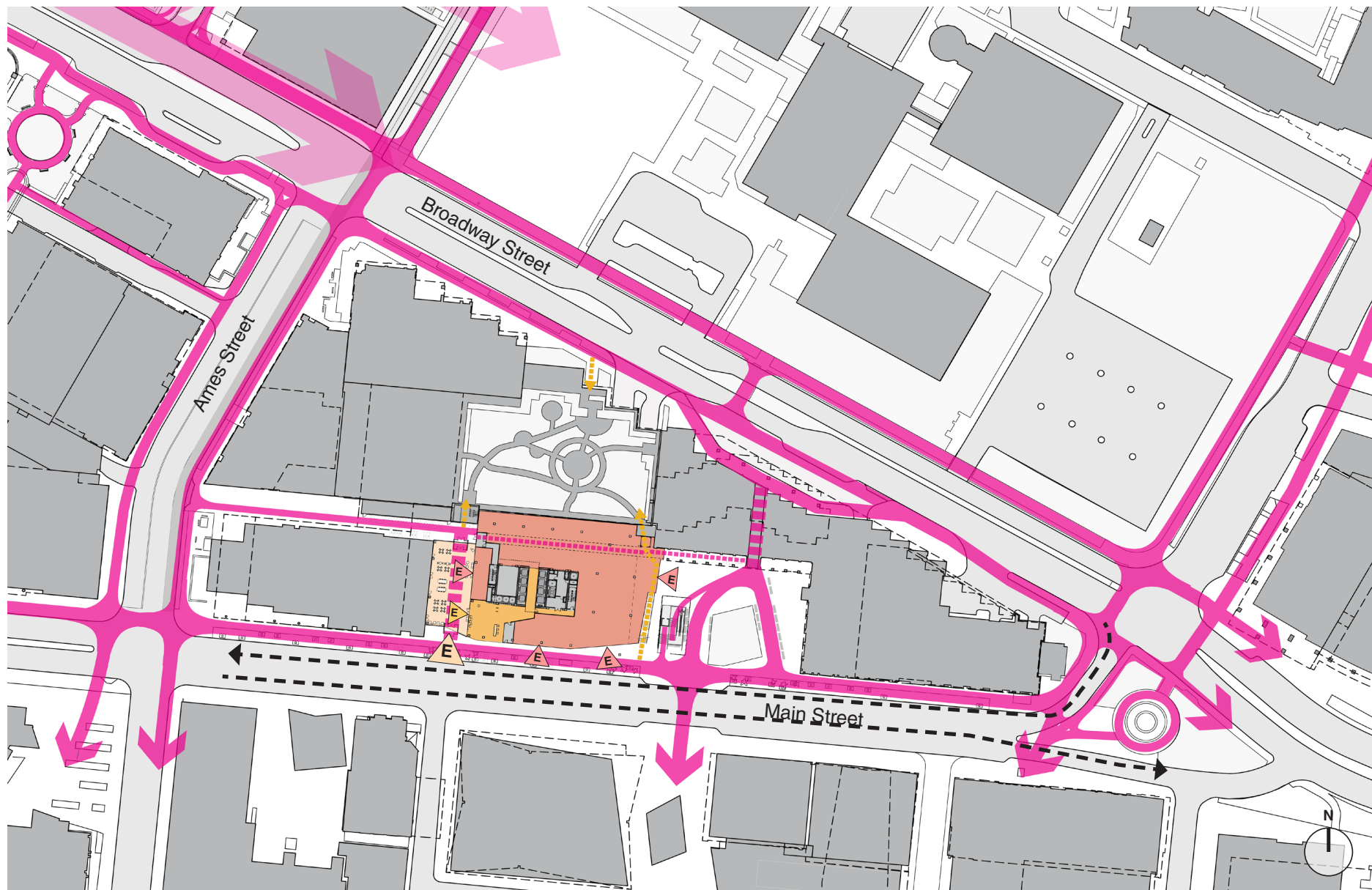


- KSURP Boundary
- MXD District
- Proposed Project Component
- Previously Proposed Project Component



Figure B  
Project Area Map

Kendall Square Urban Renewal Project Amendment  
Cambridge, MA



— Circulation Routes  
— Vertical Circulation

— Lobby  
— Active Use

△ Entrance  
 (per use type)

△ Potential Entrance  
 (per use type)

- - - Vehicular Circulation

**Figure C**  
**Proposed Pedestrian Access & Circulation**



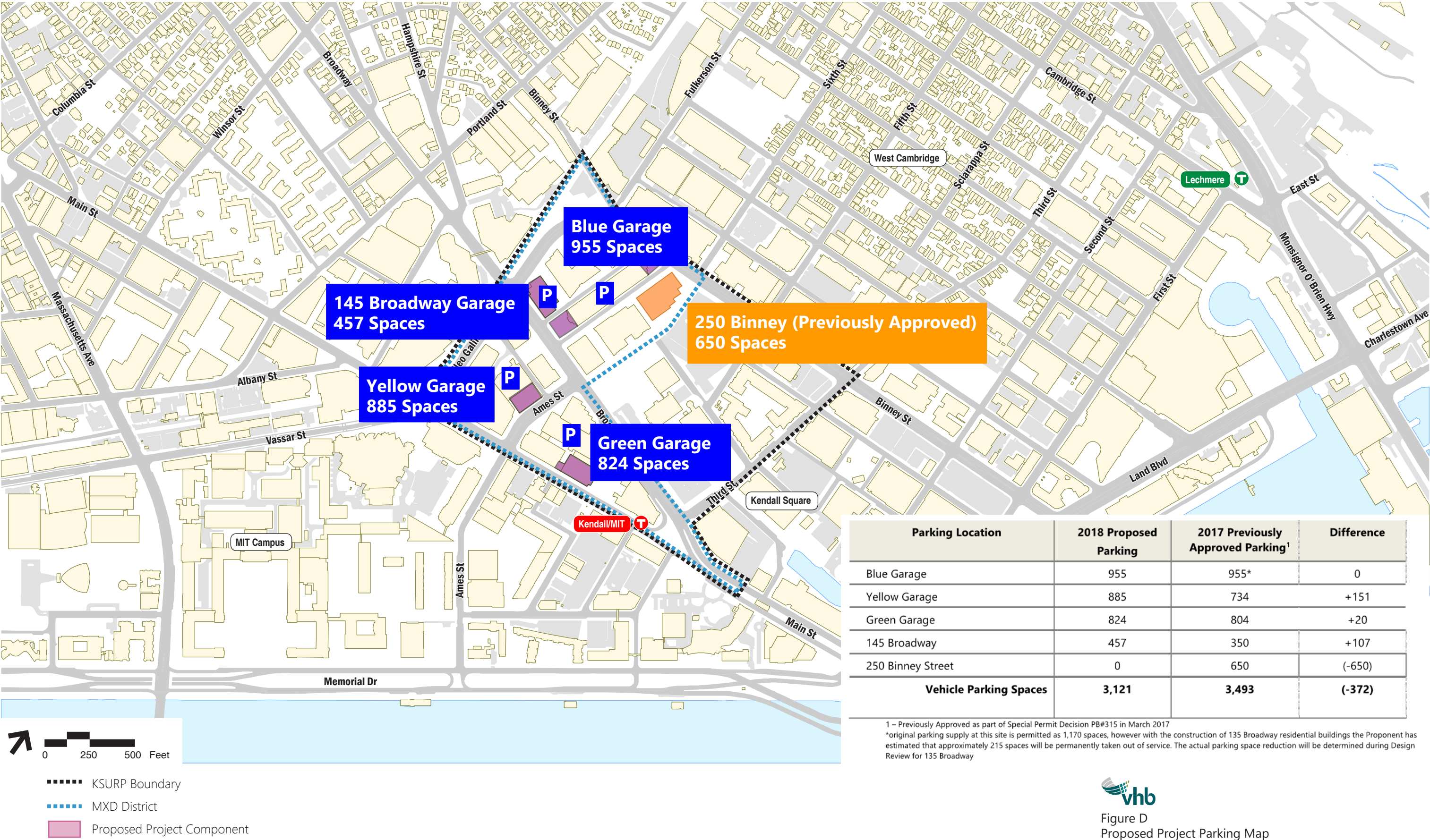
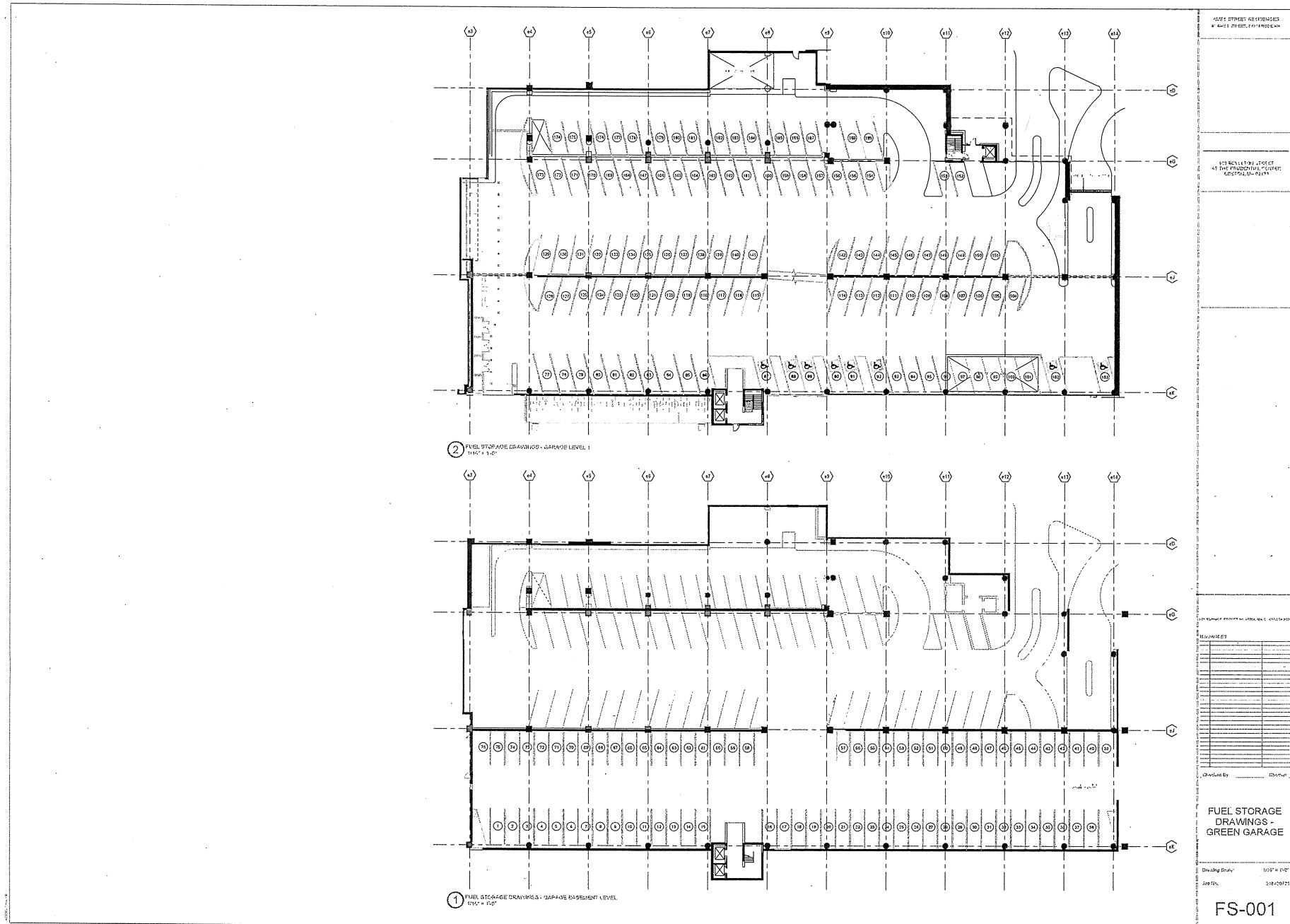


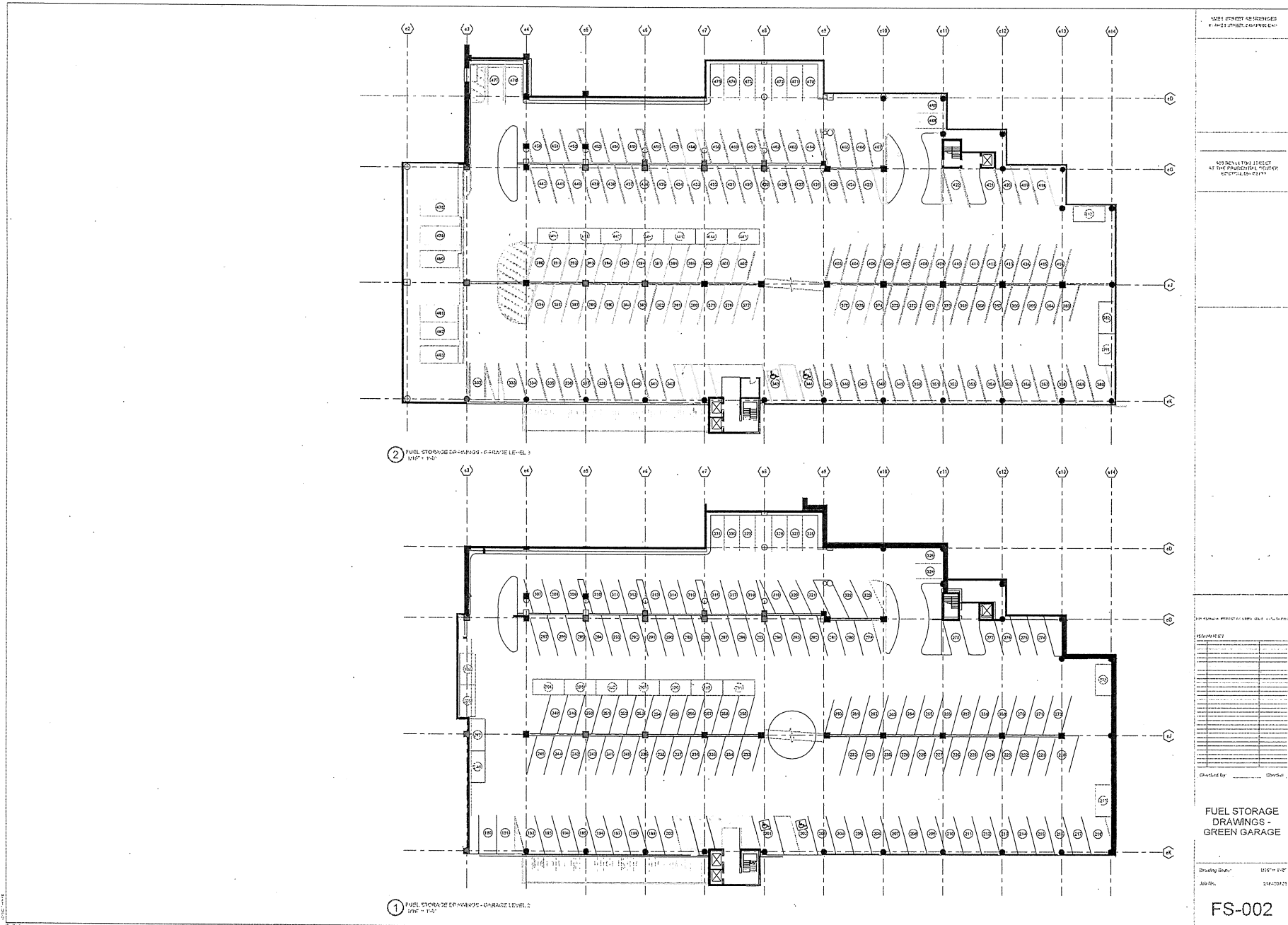
Figure D  
Proposed Project Parking Map

Kendall Square Urban Renewal Project Amendment  
Cambridge, MA

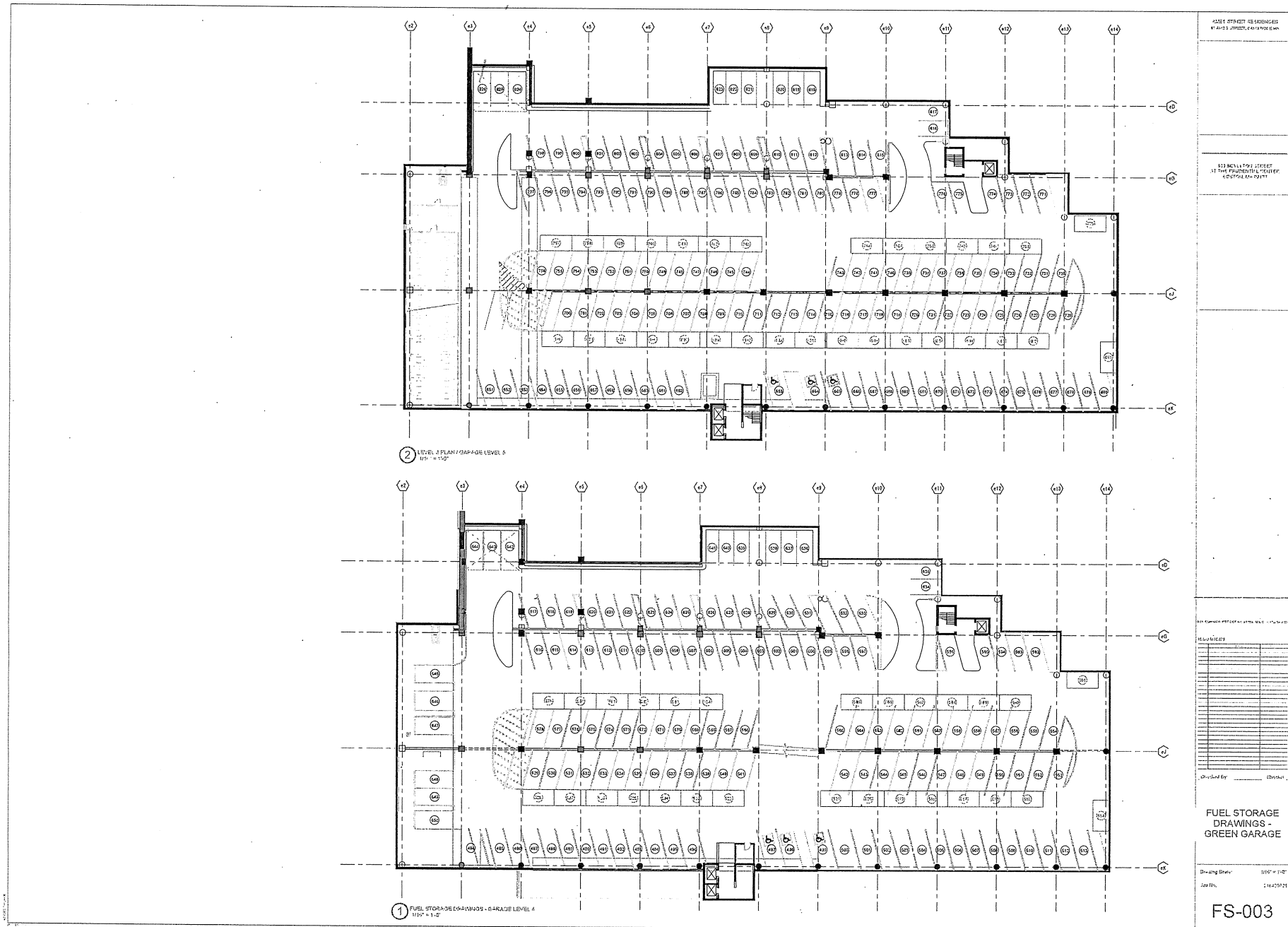


**Figure E-1**  
**Proposed Layout**  
**Green Garage (824 Spaces)**





**Figure E-2**  
**Proposed Layout**  
**Green Garage (824 Spaces)**



**Figure E-3**  
**Proposed Layout**  
**Green Garage (824 Spaces)**

# 145 Broadway Garage – B1



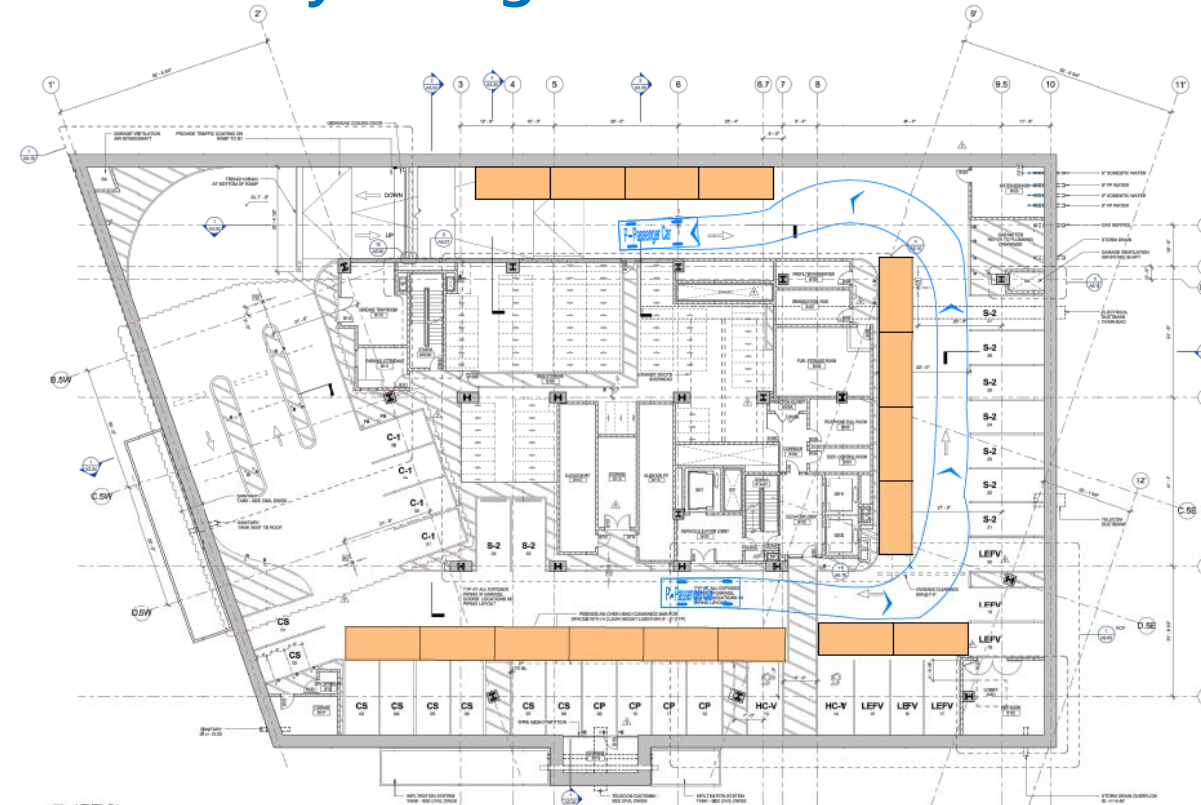
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Legend

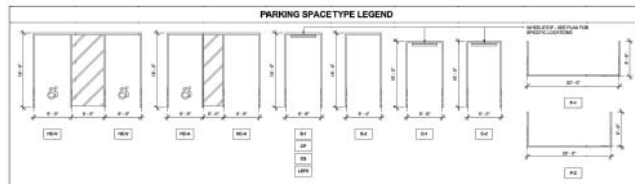


Notes

**B1**  
**33 Striped**  
**+ 16 Aisle**  
**= 49 Total**



1 LEVEL B1  
1/8" = 1' 0"



PARKING SCHEDULE - B1		PARKING SCHEDULE - GRAND TOTAL	
TYPE	COUNT	TYPE	COUNT
Car-Charging Space 8'-0"	8	Car-Charging Space 8'-0"	8
Compact Space 8'-0"	8	Compact Space 8'-0"	16
Handicap Space 8'-0"	8	Handicap Space 8'-0"	16
Standard Space 8'-0"	8	Standard Space 8'-0"	16
Grand Total: 32	32	Grand Total: 49	49

1. 145 Broadway	2. 145 Broadway	3. 145 Broadway	4. 145 Broadway
5. 145 Broadway	6. 145 Broadway	7. 145 Broadway	8. 145 Broadway
9. 145 Broadway	10. 145 Broadway	11. 145 Broadway	12. 145 Broadway
13. 145 Broadway	14. 145 Broadway	15. 145 Broadway	16. 145 Broadway
17. 145 Broadway	18. 145 Broadway	19. 145 Broadway	20. 145 Broadway
21. 145 Broadway	22. 145 Broadway	23. 145 Broadway	24. 145 Broadway
25. 145 Broadway	26. 145 Broadway	27. 145 Broadway	28. 145 Broadway
29. 145 Broadway	30. 145 Broadway	31. 145 Broadway	32. 145 Broadway
33. 145 Broadway	34. 145 Broadway	35. 145 Broadway	36. 145 Broadway
37. 145 Broadway	38. 145 Broadway	39. 145 Broadway	40. 145 Broadway
41. 145 Broadway	42. 145 Broadway	43. 145 Broadway	44. 145 Broadway
45. 145 Broadway	46. 145 Broadway	47. 145 Broadway	48. 145 Broadway
49. 145 Broadway	50. 145 Broadway	51. 145 Broadway	52. 145 Broadway
53. 145 Broadway	54. 145 Broadway	55. 145 Broadway	56. 145 Broadway
57. 145 Broadway	58. 145 Broadway	59. 145 Broadway	60. 145 Broadway
61. 145 Broadway	62. 145 Broadway	63. 145 Broadway	64. 145 Broadway
65. 145 Broadway	66. 145 Broadway	67. 145 Broadway	68. 145 Broadway
69. 145 Broadway	70. 145 Broadway	71. 145 Broadway	72. 145 Broadway
73. 145 Broadway	74. 145 Broadway	75. 145 Broadway	76. 145 Broadway
77. 145 Broadway	78. 145 Broadway	79. 145 Broadway	80. 145 Broadway
81. 145 Broadway	82. 145 Broadway	83. 145 Broadway	84. 145 Broadway
85. 145 Broadway	86. 145 Broadway	87. 145 Broadway	88. 145 Broadway
89. 145 Broadway	90. 145 Broadway	91. 145 Broadway	92. 145 Broadway
93. 145 Broadway	94. 145 Broadway	95. 145 Broadway	96. 145 Broadway
97. 145 Broadway	98. 145 Broadway	99. 145 Broadway	100. 145 Broadway

Project Name  
145 Broadway  
Cambridge, MA  
Scale  
1/8" = 1' 0"  
Sheet No.  
9  
A2.B1

Figure F-1  
Proposed Layout 145 Broadway Garage  
(457 Spaces)

# 145 Broadway Garage – B2 to B4 typical

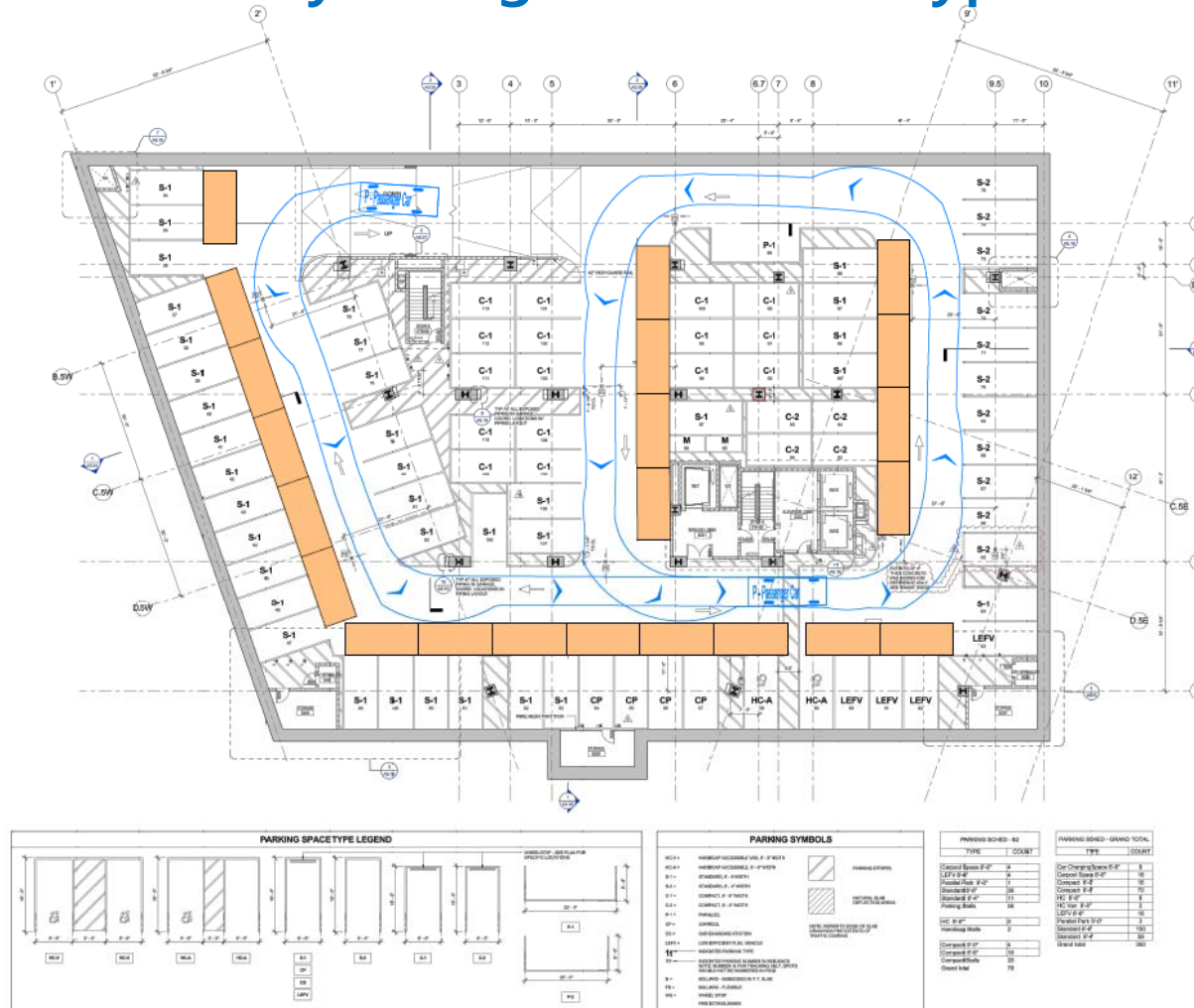


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Issued

Notes

**B2, B3 and B4**  
**78 Striped**  
**+ 22 Aisle**  
**= 100 Total per floor**



**Figure F-2**  
**Proposed Layout 145 Broadway Garage**  
**(457 Spaces)**

A2.B2

# 145 Broadway Garage – B5

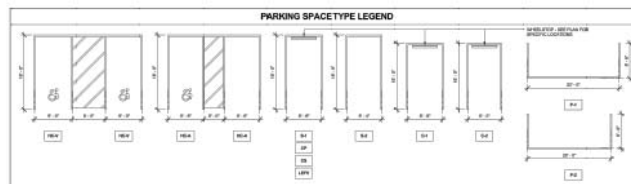
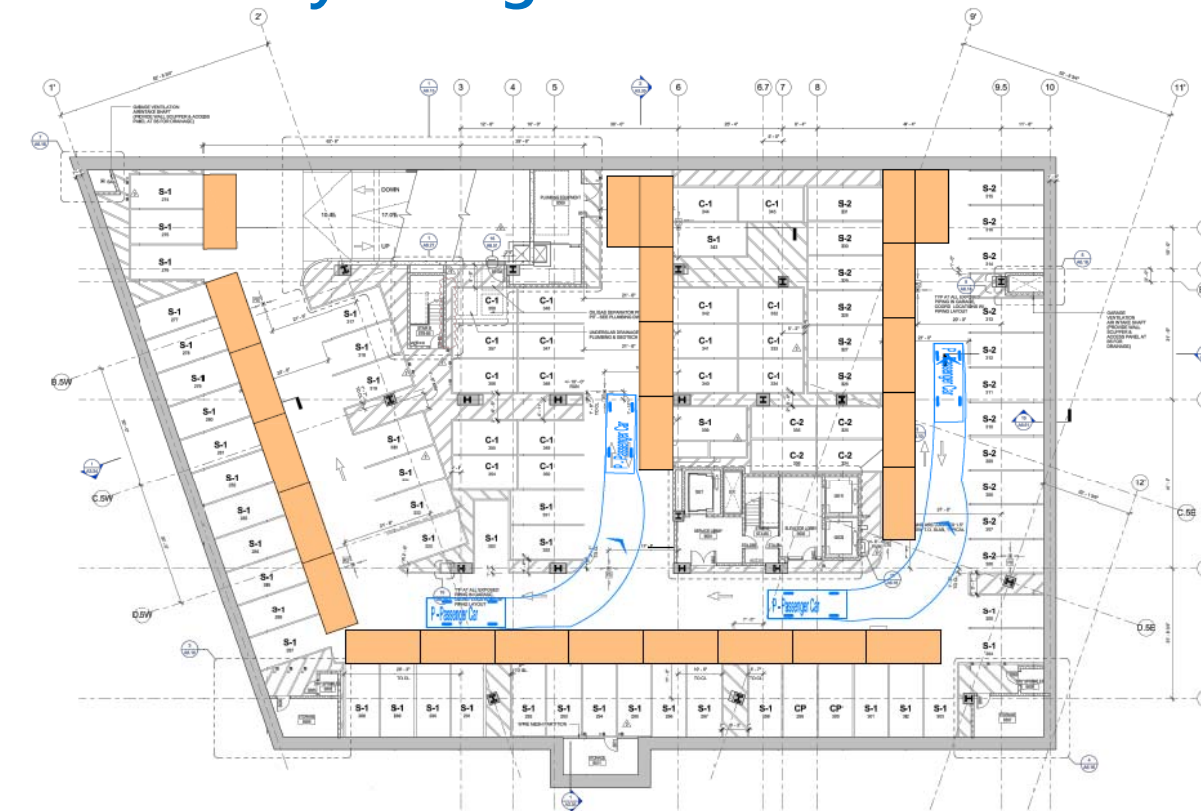


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Legend



**B5**  
**83 Striped**  
**+ 25 Aisle**  
**= 108 Total per floor**



PARKING SPACES - B5		PARKING SPACES - GRAND TOTAL	
TYPE	COUNT	TYPE	COUNT
Compact Space 8'0" x 12'0"	83	Compact Space 8'0" x 12'0"	83
Standard 8'0" x 12'0"	25	Standard 8'0" x 12'0"	25
Parking Stalls	83	Parking Stalls	83
Compact 8'0" x 12'0"	83	Compact 8'0" x 12'0"	83
Standard 8'0" x 12'0"	25	Standard 8'0" x 12'0"	25
Grand Total	108	Grand Total	108

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2. Design	2011.01.15
3. Construction	2011.02.15
4. Construction	2011.03.15
5. Construction	2011.04.15
6. Construction	2011.05.15
7. Construction	2011.06.15
8. Construction	2011.07.15
9. Construction	2011.08.15
10. Construction	2011.09.15
11. Construction	2011.10.15
12. Construction	2011.11.15
13. Construction	2011.12.15
14. Construction	2012.01.15
15. Construction	2012.02.15
16. Construction	2012.03.15
17. Construction	2012.04.15
18. Construction	2012.05.15
19. Construction	2012.06.15
20. Construction	2012.07.15
21. Construction	2012.08.15
22. Construction	2012.09.15
23. Construction	2012.10.15
24. Construction	2012.11.15
25. Construction	2012.12.15
26. Construction	2013.01.15
27. Construction	2013.02.15
28. Construction	2013.03.15
29. Construction	2013.04.15
30. Construction	2013.05.15
31. Construction	2013.06.15
32. Construction	2013.07.15
33. Construction	2013.08.15
34. Construction	2013.09.15
35. Construction	2013.10.15
36. Construction	2013.11.15
37. Construction	2013.12.15
38. Construction	2014.01.15
39. Construction	2014.02.15
40. Construction	2014.03.15
41. Construction	2014.04.15
42. Construction	2014.05.15
43. Construction	2014.06.15
44. Construction	2014.07.15
45. Construction	2014.08.15
46. Construction	2014.09.15
47. Construction	2014.10.15
48. Construction	2014.11.15
49. Construction	2014.12.15
50. Construction	2015.01.15
51. Construction	2015.02.15
52. Construction	2015.03.15
53. Construction	2015.04.15
54. Construction	2015.05.15
55. Construction	2015.06.15
56. Construction	2015.07.15
57. Construction	2015.08.15
58. Construction	2015.09.15
59. Construction	2015.10.15
60. Construction	2015.11.15
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63. Construction	2016.02.15
64. Construction	2016.03.15
65. Construction	2016.04.15
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68. Construction	2016.07.15
69. Construction	2016.08.15
70. Construction	2016.09.15
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88. Construction	2018.03.15
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91. Construction	2018.06.15
92. Construction	2018.07.15
93. Construction	2018.08.15
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95. Construction	2018.10.15
96. Construction	2018.11.15
97. Construction	2018.12.15
98. Construction	2019.01.15
99. Construction	2019.02.15
100. Construction	2019.03.15
101. Construction	2019.04.15
102. Construction	2019.05.15
103. Construction	2019.06.15
104. Construction	2019.07.15
105. Construction	2019.08.15
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107. Construction	2019.10.15
108. Construction	2019.11.15
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111. Construction	2020.02.15
112. Construction	2020.03.15
113. Construction	2020.04.15
114. Construction	2020.05.15
115. Construction	2020.06.15
116. Construction	2020.07.15
117. Construction	2020.08.15
118. Construction	2020.09.15
119. Construction	2020.10.15
120. Construction	2020.11.15
121. Construction	2020.12.15
122. Construction	2021.01.15
123. Construction	2021.02.15
124. Construction	2021.03.15
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129. Construction	2021.08.15
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132. Construction	2021.11.15
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135. Construction	2022.02.15
136. Construction	2022.03.15
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138. Construction	2022.05.15
139. Construction	2022.06.15
140. Construction	2022.07.15
141. Construction	2022.08.15
142. Construction	2022.09.15
143. Construction	2022.10.15
144. Construction	2022.11.15
145. Construction	2022.12.15
146. Construction	2023.01.15
147. Construction	2023.02.15
148. Construction	2023.03.15
149. Construction	2023.04.15
150. Construction	2023.05.15
151. Construction	2023.06.15
152. Construction	2023.07.15
153. Construction	2023.08.15
154. Construction	2023.09.15
155. Construction	2023.10.15
156. Construction	2023.11.15
157. Construction	2023.12.15
158. Construction	2024.01.15
159. Construction	2024.02.15
160. Construction	2024.03.15
161. Construction	2024.04.15
162. Construction	2024.05.15
163. Construction	2024.06.15
164. Construction	2024.07.15
165. Construction	2024.08.15
166. Construction	2024.09.15
167. Construction	2024.10.15
168. Construction	2024.11.15
169. Construction	2024.12.15
170. Construction	2025.01.15
171. Construction	2025.02.15
172. Construction	2025.03.15
173. Construction	2025.04.15
174. Construction	2025.05.15
175. Construction	2025.06.15
176. Construction	2025.07.15
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184. Construction	2026.03.15
185. Construction	2026.04.15
186. Construction	2026.05.15
187. Construction	2026.06.15
188. Construction	2026.07.15
189. Construction	2026.08.15
190. Construction	2026.09.15
191. Construction	2026.10.15
192. Construction	2026.11.15
193. Construction	2026.12.15
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195. Construction	2027.02.15
196. Construction	2027.03.15
197. Construction	2027.04.15
198. Construction	2027.05.15
199. Construction	2027.06.15
200. Construction	2027.07.15
201. Construction	2027.08.15
202. Construction	2027.09.15
203. Construction	2027.10.15

## 145 Broadway Garage – Parking Space Summary

Floor	Striped	Additional Managed	Total
B1	33	+16	49
B2	78	+22	100
B3	78	+22	100
B4	78	+22	100
B5	83	+25	108
	<b>350</b>	<b>+107</b>	<b>457</b>



# All BP Garages - Average Weekday - Existing Demand and Capacity

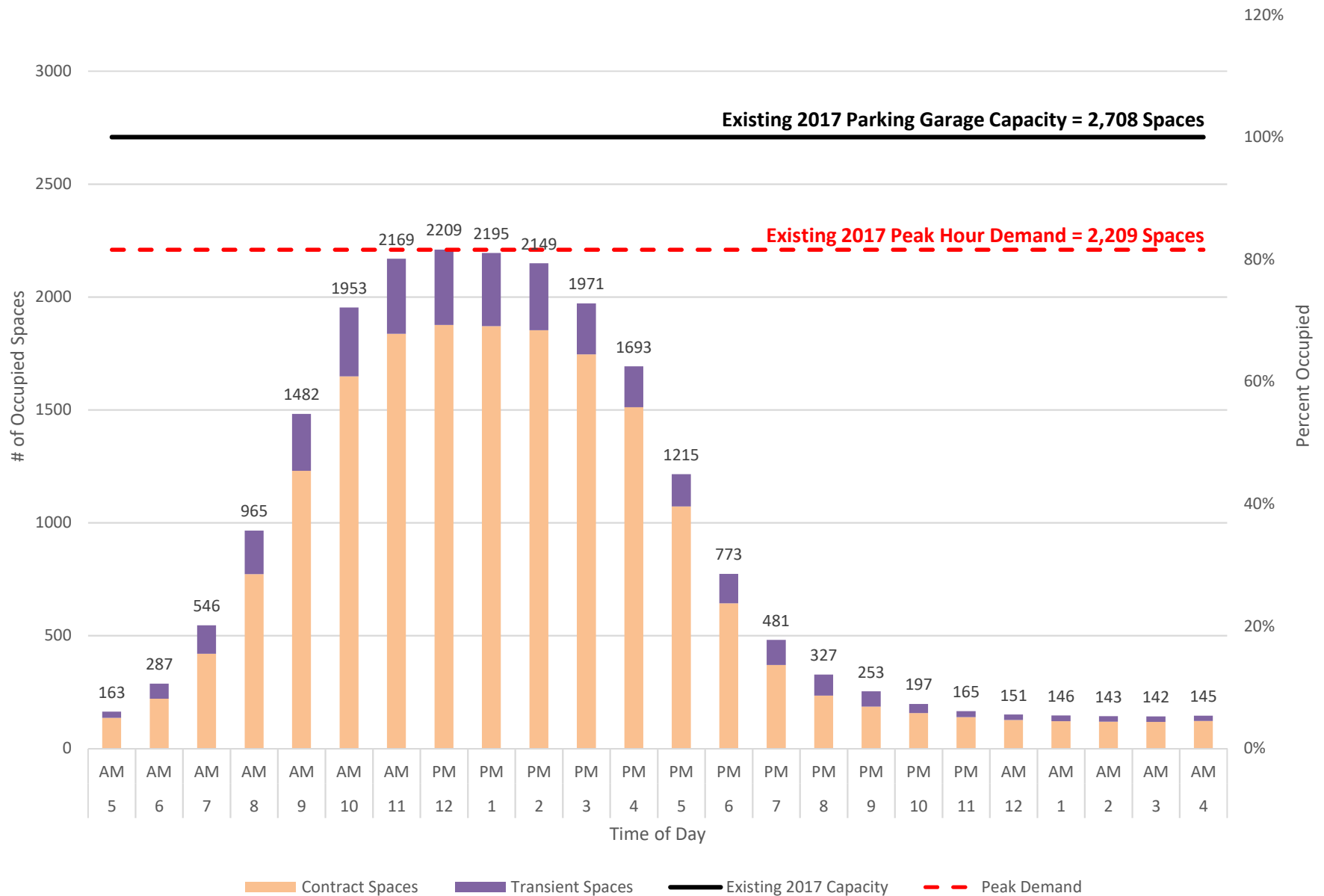
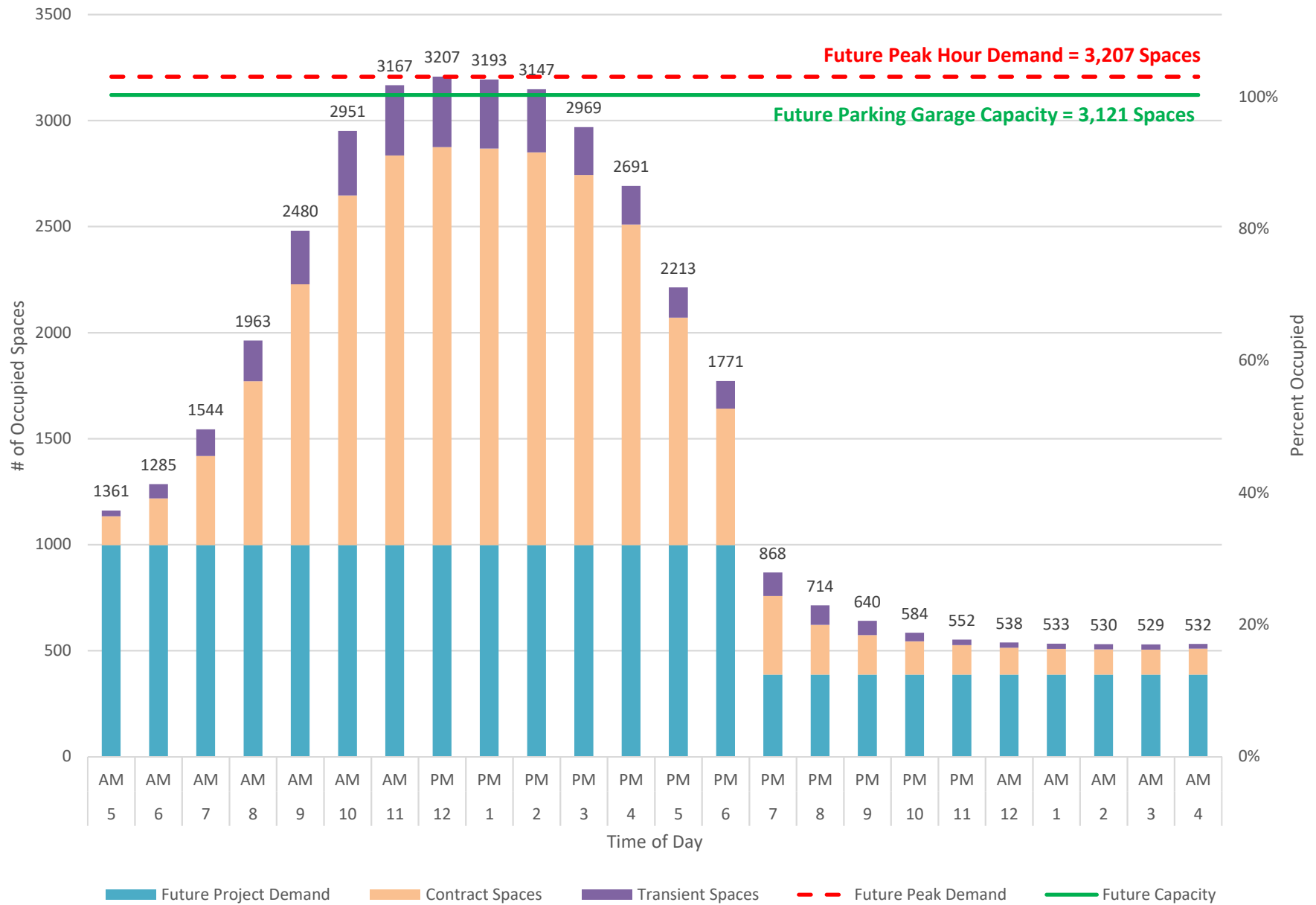


Figure G-1  
Existing Parking Demand

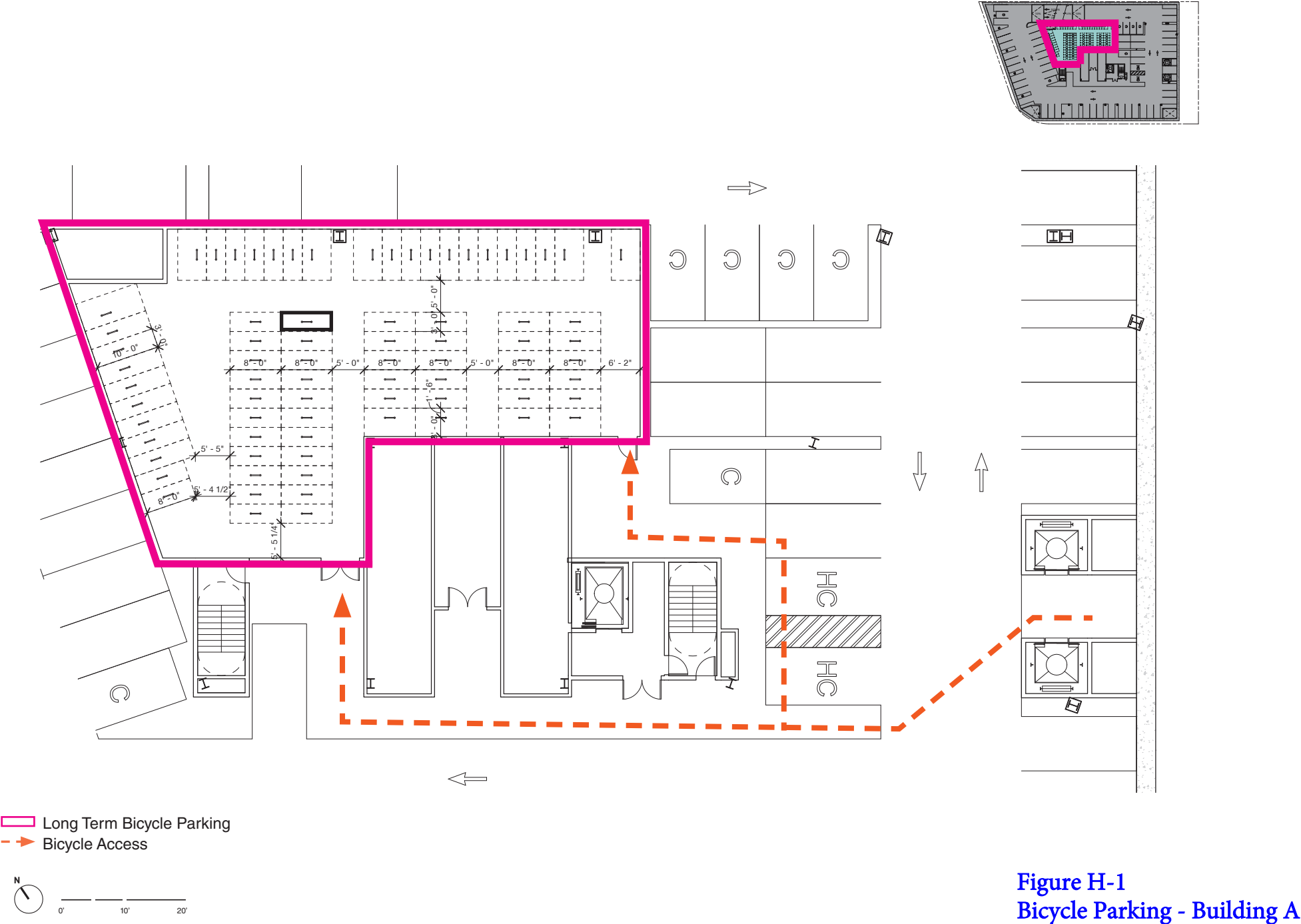
## All BP Garages - Average Weekday - Future Full Build Demand



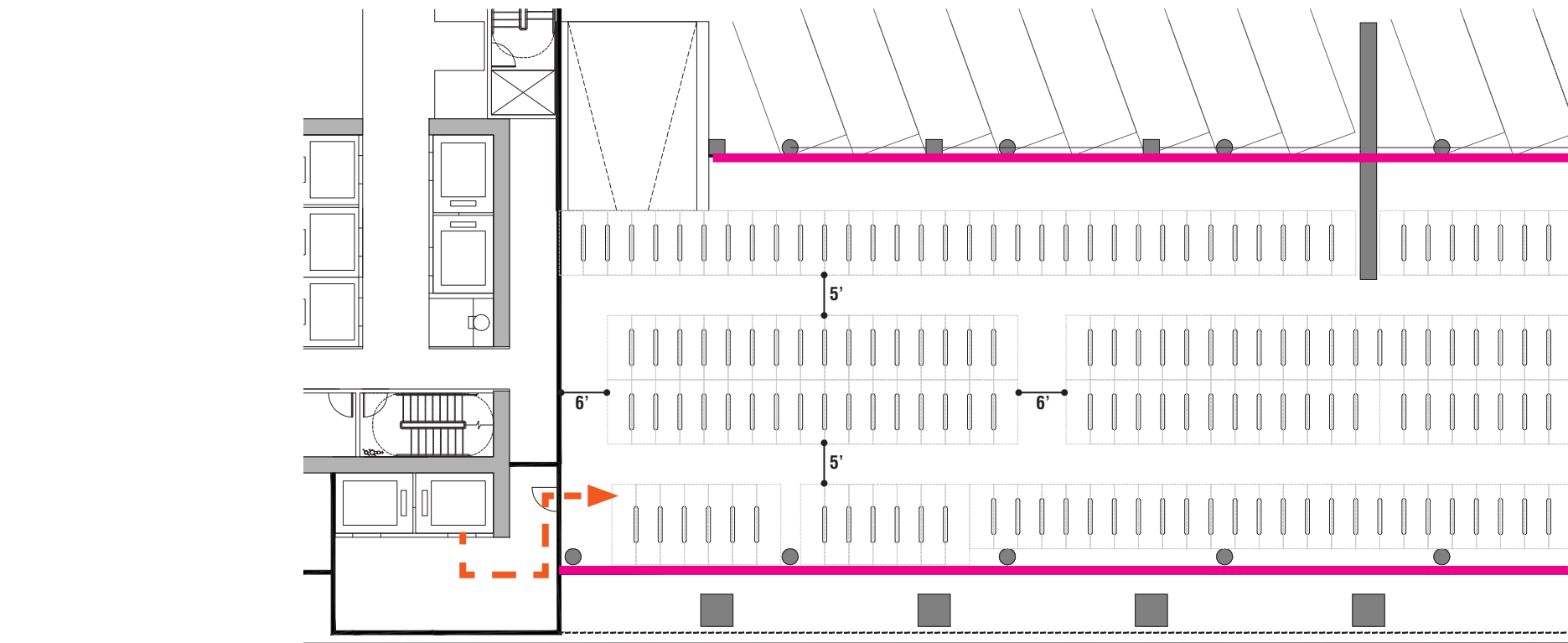
**Figure G-2**  
**Future Parking Demand**



# COMMERCIAL BUILDING A- LONG TERM BICYCLE PARKING



RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING



Long Term Bicycle Parking  
 ➔ Bicycle Access

N

0' 10' 20'

Figure H-2  
Bicycle Parking - Residential North & South

RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING

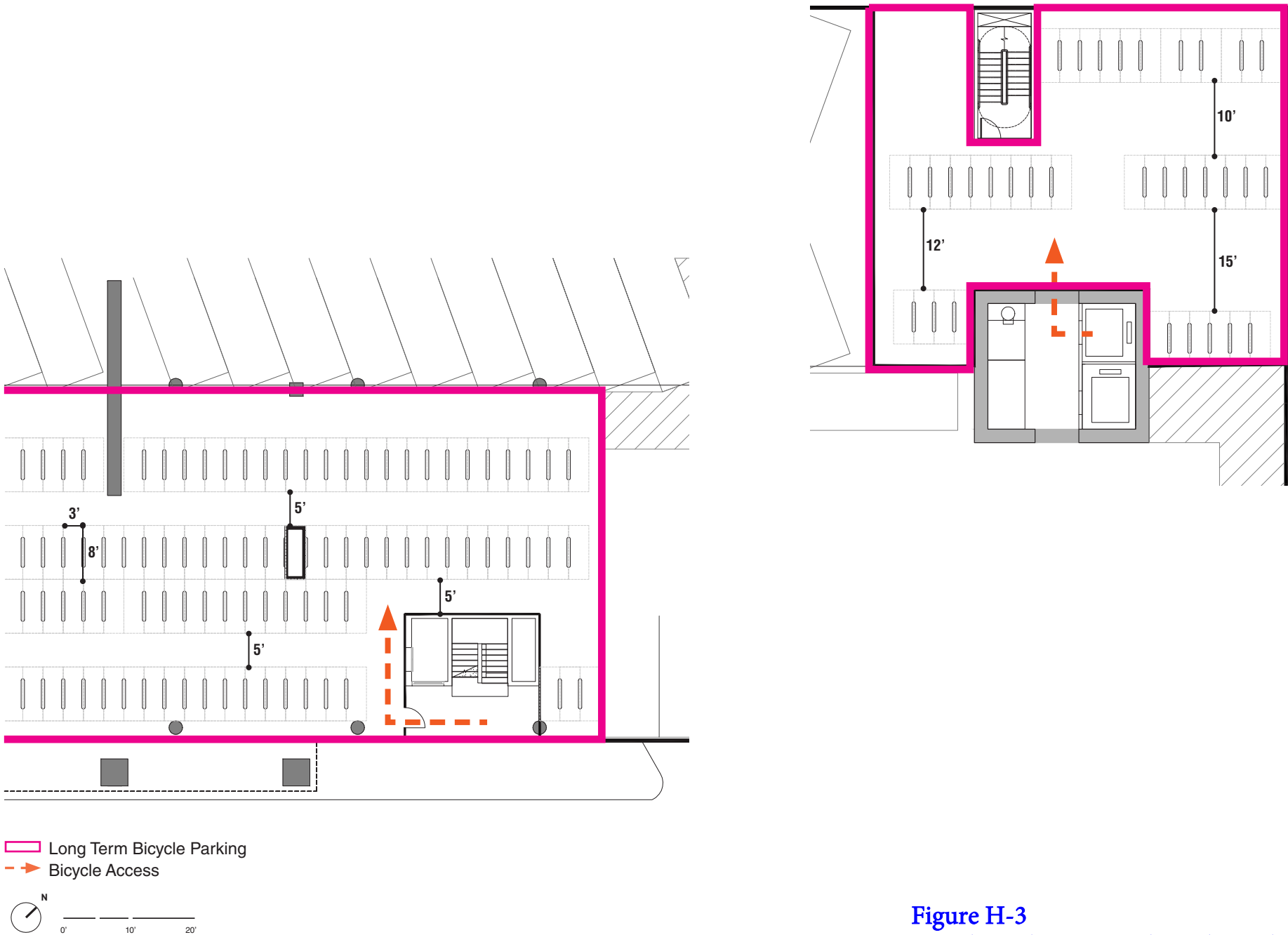
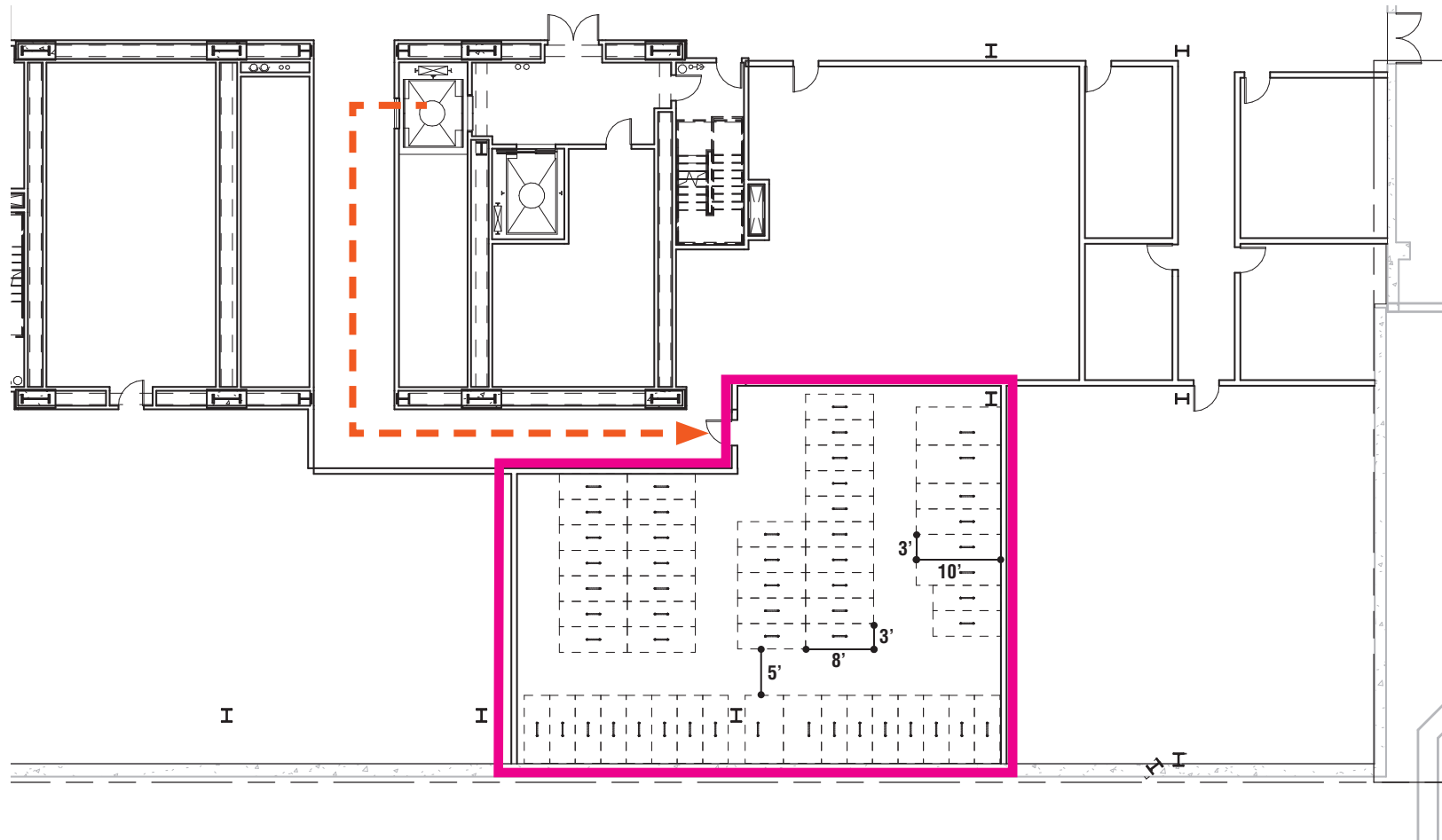
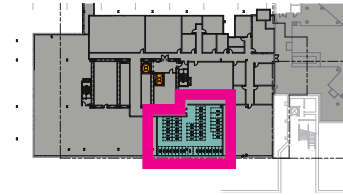


Figure H-3  
Bicycle Parking - Residential North & South

## COMMERCIAL BUILDING B - LONG TERM BIKE PARKING



Long Term Bicycle Parking  
Bicycle Access

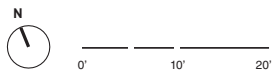
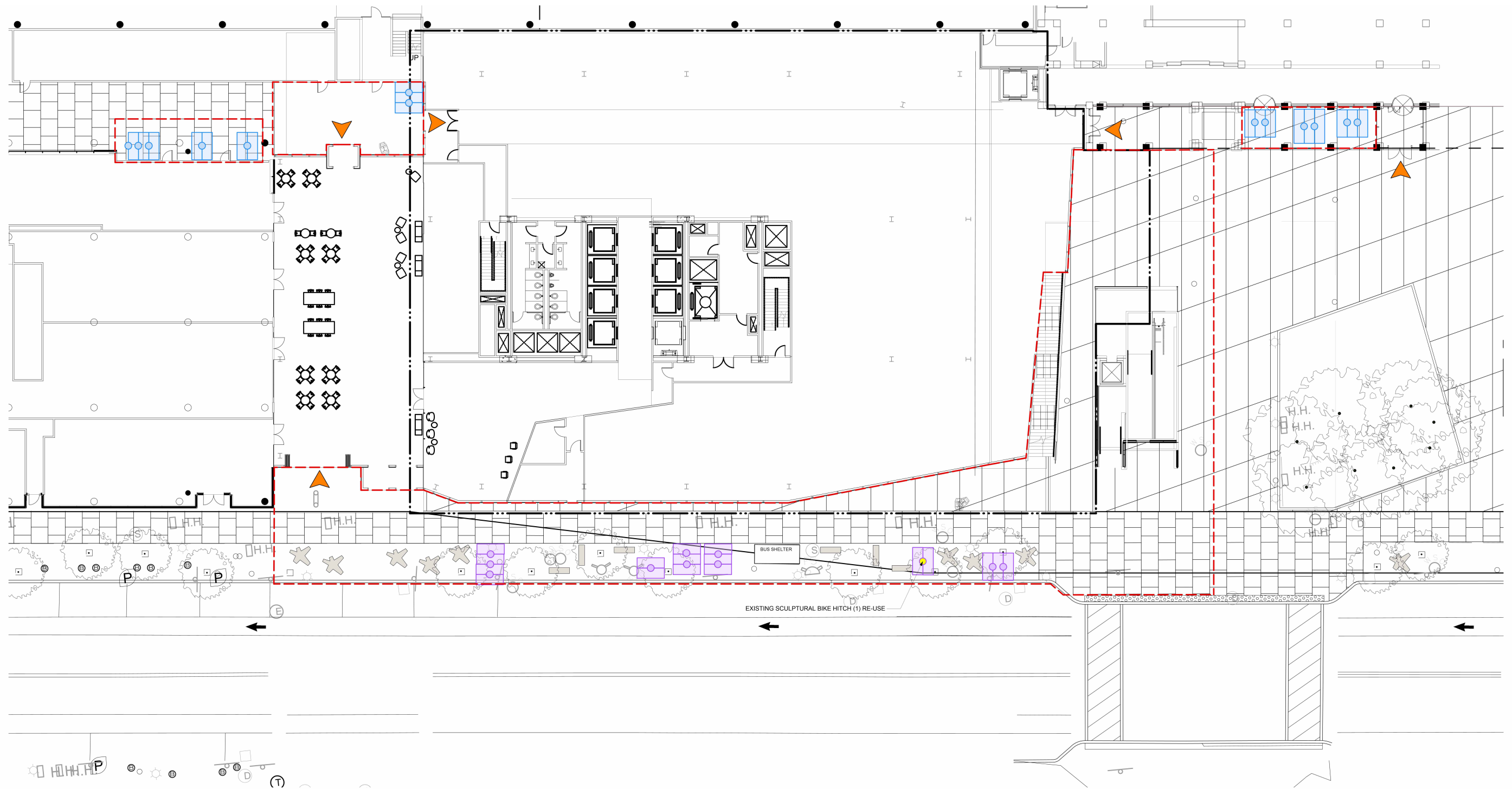


Figure H-4  
Bicycle Parking - Building B'



TOTAL SHORT-TERM BIKE PARKING: 47 SPACES	
<span style="display: inline-block; width: 15px; height: 10px; background-color: #f0f0f0; border: 1px solid #ccc;"></span>	22 EXISTING SPACES (3' x 8') TO REMAIN/ REPLACE POST CONSTRUCTION
<span style="display: inline-block; width: 15px; height: 10px; background-color: #d0d0d0; border: 1px solid #ccc;"></span>	21 NEW SPACES (3' x 8')
<span style="display: inline-block; width: 15px; height: 10px; background-color: #a0a0a0; border: 1px solid #ccc;"></span>	4 NEW TANDEM SPACES (3' x 10')
23 TOTAL NEW BIKE HITCHES TO MATCH EXISTING (NOT INCLUDING SCULPTURAL BIKE HITCH TO BE REUSED)	

Source:  
LEMON BROOKE

Figure H-5  
Bicycle Parking - Building B' (Short-Term)



**KSURP Upzoning Project**  
**Boston Properties**  
**Trip Generation Estimate**  
**Article 14 Updated Program**

**Trip Generation**  
**Special Permit 2017**

**KSURP Infill Development Estimated Trip Generation**

	Size	Distribution	Trip Rate	Unadjusted Vehicle Trips	VOR	Person Trips	Vehicle	Transit	Walk	Bike	Other	Local VOR	Vehicle	Transit	Walk	Bike	Other
Daily Residential			-	2,823		3,190							940	958	796	320	96
In	425	50%	-	1,411	1.13	1,595	32%	30%	25%	10%	3%	1.11	470	479	398	160	48
Out	units	50%	-	1,411	1.13	1,595	32%	30%	25%	10%	3%	1.11	470	479	398	160	48
Daily Retail			-	1,175		2,092							598	774	126	186	292
In	19.366	50%	-	588	1.78	1,046	34%	37%	6%	9%	14%	1.19	299	387	63	93	146
Out	ksf	50%	-	588	1.78	1,046	34%	37%	6%	9%	14%	1.19	299	387	63	93	146
Daily Office			-	5,462		6,172							1,746	2,284	370	554	862
In	627.134	50%	-	2,731	1.13	3,086	34%	37%	6%	9%	14%	1.19	873	1,142	185	277	431
Out	ksf	50%	-	2,731	1.13	3,086	34%	37%	6%	9%	14%	1.19	873	1,142	185	277	431
<b>Total Daily</b>				9460		11453							3284	4016	1292	1060	1250
<b>In</b>				4730		5727							1642	2008	646	530	625
<b>Out</b>				4730		5727							1642	2008	646	530	625
AM Residential			-	216		244							70	73	61	24	7
In	425	20%	-	43	1.13	49	32%	30%	25%	10%	3%	1.11	14	15	12	5	1
Out	units	80%	-	173	1.13	195	32%	30%	25%	10%	3%	1.11	56	58	49	19	6
AM Retail			-	28		50							13	19	3	5	7
In	19	62%	-	18	1.78	31	34%	37%	6%	9%	14%	1.19	8	12	3	3	4
Out	ksf	38%	-	11	1.78	19	34%	37%	6%	9%	14%	1.19	5	7	0	2	3
AM Office			-	854		965							274	358	58	86	137
In	522	88%	-	752	1.13	850	34%	37%	6%	9%	14%	1.19	242	315	51	76	120
Out	ksf	12%	-	103	1.13	116	34%	37%	6%	9%	14%	1.19	32	43	7	10	17
<b>Total AM Peak Hour</b>				1098		1260							357	450	122	115	151
<b>In</b>				813		930							264	342	66	84	125
<b>Out</b>				286		330							93	108	56	31	26
PM Residential			-	269		304							88	91	76	30	10
In	425	65%	-	175	1.13	198	32%	30%	25%	10%	3%	1.11	58	59	49	20	6
Out	units	35%	-	94	1.13	106	32%	30%	25%	10%	3%	1.11	30	32	27	10	4
PM Retail			-	100		178							51	66	12	16	25
In	19	48%	-	48	1.78	86	34%	37%	6%	9%	14%	1.19	24	32	6	8	12
Out	ksf	52%	-	52	1.78	92	34%	37%	6%	9%	14%	1.19	27	34	6	8	13
PM Office			-	781		882							250	326	53	79	123
In	522	17%	-	133	1.13	150	34%	37%	6%	9%	14%	1.19	42	55	9	13	21
Out	ksf	83%	-	648	1.13	732	34%	37%	6%	9%	14%	1.19	208	271	44	66	102
<b>Total PM Peak Hour</b>				1150		1365							389	483	141	125	158
<b>In</b>				355		434							124	146	64	41	39
<b>Out</b>				794		931							265	337	77	84	119

**Notes:**

Trip Generation based on *ITE Trip Generation Manual*, 9th Edition, using:

LUC 220 - Apartment

LUC 820 - Shopping Center

LUC 710 - General Office Building

Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2

VOR stands for Vehicle Occupancy Rate from 2009 NHTS

Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524

KSURP Infill Development Estimated Trip Generation - 2018 Update

			Unadjusted									Local					
	Size	Distri- bution	Trip Rate	Vehicle Trips	VOR	Person Trips	Vehicle	Transit	Walk	Bike	Other	VOR	Vehicle	Transit	Walk	Bike	Other
Daily Residential			-	3241		3662							1076	1098	916	366	110
In	494	50%	-	1620	1.13	1831	32%	30%	25%	10%	3%	1.11	538	549	458	183	55
Out	units	50%	-	1620	1.13	1831	32%	30%	25%	10%	3%	1.11	538	549	458	183	55
Daily Retail			-	775		1380							394	510	84	124	192
In	10	50%	-	388	1.78	690	34%	37%	6%	9%	14%	1.19	197	255	42	62	96
Out	ksf	50%	-	388	1.78	690	34%	37%	6%	9%	14%	1.19	197	255	42	62	96
Daily Office			-	5496		6211							1754	2298	374	556	868
In	637	50%	-	2748	1.13	3105	34%	37%	6%	9%	14%	1.19	877	1149	187	278	434
Out	ksf	50%	-	2748	1.13	3105	34%	37%	6%	9%	14%	1.19	877	1149	187	278	434
Total Daily				9512		0							3224	3906	1374	1046	1170
In				4756		0							1612	1953	687	523	585
Out				4756		0							1612	1953	687	523	585
AM Residential			-	250		282							81	85	71	29	8
In	494	20%	-	50	1.13	56	32%	30%	25%	10%	3%	1.11	16	17	14	6	1
Out	units	80%	-	200	1.13	226	32%	30%	25%	10%	3%	1.11	65	68	57	23	7
AM Retail			-	19		34							10	13	2	4	5
In	10	62%	-	12	1.78	21	34%	37%	6%	9%	14%	1.19	6	8	2	2	3
Out	ksf	38%	-	7	1.78	13	34%	37%	6%	9%	14%	1.19	4	5	0	2	2
AM Office			-	861		973							276	360	59	87	137
In	637	88%	-	758	1.13	856	34%	37%	6%	9%	14%	1.19	243	317	52	77	120
Out	ksf	12%	-	103	1.13	117	34%	37%	6%	9%	14%	1.19	33	43	7	10	17
Total AM Peak Hour				1130		0							367	458	132	120	150
In				820		0							265	342	68	85	124
Out				310		0							102	116	64	35	26
PM Residential			-	307		347							101	103	86	34	10
In	494	65%	-	200	1.13	225	32%	30%	25%	10%	3%	1.11	66	67	56	22	6
Out	units	35%	-	107	1.13	121	32%	30%	25%	10%	3%	1.11	35	36	30	12	4
PM Retail			-	65		116							34	42	8	11	16
In	10	48%	-	31	1.78	55	34%	37%	6%	9%	14%	1.19	16	20	4	5	8
Out	ksf	52%	-	34	1.78	60	34%	37%	6%	9%	14%	1.19	18	22	4	6	8
PM Office			-	791		894							252	331	53	81	126
In	637	17%	-	135	1.13	152	34%	37%	6%	9%	14%	1.19	41	56	8	14	22
Out	ksf	83%	-	657	1.13	742	34%	37%	6%	9%	14%	1.19	211	275	45	67	104
Total PM Peak Hour				1163		0							387	476	147	126	152
In				365		0							123	143	68	41	36
Out				798		0							264	333	79	85	116

Notes:  
Trip Generation based on *ITE Trip Generation Manual*, 9th Edition, using:  
LUC 220 - Apartment  
LUC 820 - Shopping Center  
LUC 710 - General Office Building  
Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2  
VOR stands for Vehicle Occupancy Rate from 2009 NHTS  
Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524



**Kendall Center**  
Office Parking Generation Rate Analysis

Building	Office GFA Occupied (SF) <sup>1</sup>	Retail GFA Occupied (SF) <sup>1</sup>	Other GFA Occupied (SF) <sup>1</sup>	Total GFA Occupied (SF) <sup>1</sup>	Garage	Comments
<u>Parcels 3 and 4</u>						
5CC (355 Main St) Office/Retail	257,880	14,507		272,387	Green	
4CC (90 Broadway) Office/Retail	216,751	4,486		221,237	Green	
9CC Whitehead Institute	197,519			197,519	Yellow	
2CC CC Marriott (421 keys)		40,245	289,813	330,058	Green	Marriot has a dedicated nest for 75 vehicles.
3CC (325 Main St) Office/Retail	62,757	42,300		105,057	Green	Google has rights to 27 spaces in the Yellow Garage.
6CC Residence Inn (221 keys)		2,118	185,356	187,474	Yellow	
7CC (415 Main St) Broad Institute	194,096			194,096	Yellow	
75 Ames - Broad Expansion	237,057	0		237,057	Yellow	Ames St Deli space of 5,449 SF is vacant.
8CC (150 Broadway) Office	176,562			176,562	Yellow	
1CC (255 Main St) Office	123,377			123,377	Green	92,000 SF (92,000 RSF) is vacant. Tenant has rights for 6 spaces in Yellow Garage.
88 Ames Street - Proto (280 units)	under const.	under const.	under const.	under const.	Green	Will have 140 spaces (70 during the day).
Sub-total	1,465,999	103,656	475,169	2,044,824		
<u>Parcel 2</u>						
14CC (250 Binney) Biogen	62,576			62,576	Blue	
11CC (145 Broadway) Office	under const.	under const.	under const.	under const.	Blue	
10CC (105 Broadway) Biogen	19,253			19,253	Blue	126,350 SF (133,000 RSF) is vacant.
12CC (115 Broadway) Biogen	233,945			233,945	Blue	
15CC (125 Broadway) Biogen	218,288			218,288	Blue	
17CC (300 Binney) Biogen	189,661			189,661	Blue	
Sub-total	723,723	0	0	723,723		
			Total Office	2,189,722		

Notes:

<sup>1</sup> This is the GFA occupied in Oct 2017.

Peak Demand	2,209 vehicles	
Deduct Retail Demand	(207)	Assume 2 spaces per 1,000 SF
Deduct Residence Inn Demand	(44)	
Peak Office Demand	1,958	
<b>Peak Office Demand per 1,000 SF</b>	<b>0.89</b>	

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

## CITY OF CAMBRIDGE

### TDM Annual Report Summary Form—2016

Special Permit Number: PB 175 Amd 3

Date of Original Approval: 12/7/2011

**PROJECT NAME:** Avalon North Point Residences/Lofts **IF CHANGED, UPDATE CONTACT INFO BELOW**

**Address:** 2 Leighton St/10 Glassworks Ave \_\_\_\_\_

**Owner Name:** AvalonBay Communities, Inc. \_\_\_\_\_ North Point II Apartments LLC

**Owner Contact Person:** Lee Block \_\_\_\_\_ Michael Roberts

**Owner Address:** 1250 Broadway, 12<sup>th</sup> Floor \_\_\_\_\_ c/o AvalonBay Communities, Attn: Joanne Lockridge  
New York, NY 10001 \_\_\_\_\_ Ballston Tower, 671 N. Glebe Rd, Ste 800, Arlington VA 22203

**Owner Phone:** (212) 915-3800 \_\_\_\_\_ (617) 654-9503

**Owner Email:** Please fill in \_\_\_\_\_ Michael\_roberts@avalonbay.com

**PTDM Contact Person:** Please fill in \_\_\_\_\_ MaryKate Daly

**PTDM Contact Address:** Please fill in \_\_\_\_\_ 600 Atlantic Ave., 20<sup>th</sup> Floor, Boston, MA 02210

**PTDM Contact Phone:** Please fill in \_\_\_\_\_ 617-654-9547

**PTDM Contact Email:** Please fill in \_\_\_\_\_ MaryKate\_Daly@avalonbay.com

**SURVEY** (Please fill in this year's survey information.)

Year	Resident SOV rate	# of Survey Responses	Response Rate	Survey Dates
2017	39%	321	65%	Oct.25 – Nov 1

**PROJECT TENANTS/OCCUPANTS:** (Please note any changes and fill in missing information.)

	# Units	Square Feet	# Vehicle Parking Spaces
Leased	498		241
Unleased	23		127
Visitor			10
Emp/Admin			53
Zipcar			3
<b>Total</b>	<b>521</b>	<b>??</b>	<b>434</b>

Percent annual unit turnover: \_\_\_\_\_ 68% NorthPoint, 75% Lofts

### **BIKE PARKING:\*\***

Total number of long-term bike parking spaces: 272 (secure, weather-protected)

Total number of short-term bike parking spaces: 0 (can be outdoors)

\*\* To count as bike parking, it must meet the City of Cambridge bike parking guidelines