

# Town Gown Report 2018



# 2018 Town Gown Report

MIT's 2018 Town Gown report provides updates on the Institute's planning and development activities, and features key initiatives such as the Kendall Square development, the Volpe project, the Vassar Street undergraduate residence hall, the Access MIT mobility campaign, and the Institute's comprehensive sustainability and resiliency programs. Every activity reported in these pages serves to advance MIT's mission of teaching and research as the Institute strives to address local and global challenges that impact society and the planet.

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# Students, Faculty, & Staff

MIT's undergraduate student population is maintained around 4,500 as a matter of Institute policy. From 2006, when the population was just over 4,000, it slowly grew in a planned effort to match the historic total of 4,500. The population has remained effectively unchanged since reaching the total in 2014. This year's population is coincidentally identical to last year's number of 4,489 students.

Unlike undergraduate enrollment, there is not an overall plan to make changes to the graduate student population or the appointment of post-doctoral employees. Enrollment fluctuates depending on the independent decisions of academic departments.

These decisions are governed by a variety of factors including the availability of research funding and the ability of international students to obtain visas. Since 2014, the average annual growth rate for graduate students dropped to 0.8% and the post-doctoral employee growth rate averaged 0.6%.

MIT's faculty and staff employment is largely based on the needs and strategies developed at the department, laboratory, and center (DLC) unit level, rather than by a central Institute-wide planning process. Approximately 105 DLCs manage their own staffing in support of their objectives with funding that is often assembled from a variety of sources. After a reduction of more

Student Body	2014	2015	2016	2017	2018	2028
Total Undergraduate Students	4,510	4,476	4,474	<b>4,489</b>	<b>4,489</b>	4,500
Day	4,510	4,476	4,474	<b>4,489</b>	<b>4,489</b>	
Evening	N/A	N/A	N/A	<b>N/A</b>	<b>N/A</b>	
Full Time	4,485	4,442	4,440	<b>4,444</b>	<b>4,456</b>	
Part Time	25	34	34	<b>45</b>	<b>33</b>	
Total Graduate Students	6,528	6,560	6,537	<b>6,599</b>	<b>6,695*</b>	6,500-6,700
Day	6,528	6,560	6,537	<b>6,599</b>	<b>6,695</b>	
Evening	NA	N/A	N/A	<b>N/A</b>	<b>N/A</b>	
Full Time	6,514	6,509	6,523	<b>6,592</b>	<b>6,571</b>	
Part Time	14	51	14	<b>7</b>	<b>124</b>	
Non-Degree Students	182	204	226	<b>191</b>	<b>197</b>	
Day	182	204	226	<b>191</b>	<b>197</b>	
Evening	N/A	N/A	N/A	<b>N/A</b>	<b>N/A</b>	
Total Students Attending Classes in Cambridge	11,220	11,240	11,237	<b>11,279</b>	<b>11,381</b>	11,100-11,400
Non-resident students not included	81	79	94	<b>97</b>	<b>85</b>	

\* International students account for 42% of the 2018 graduate student population.

Faculty & Staff	2014	2015	2016	2017	2018	2028
Cambridge-based Staff						
Head Count	9,692	10,039	10,234	10,596	<b>10,801</b>	10,000-11,000
FTEs	8,294	8,599	8,743 <sup>‡</sup>	9,009	<b>9,148</b>	
Post-Doctoral Staff**	1,421	1,515	1,486	1,488	<b>1,442</b>	
Cambridge-based Faculty						
Head Count	1,012	1,004	1,019	1,020	<b>1,027</b>	1,100
FTEs	1,005	999	1,010 <sup>‡</sup>	1,013	<b>1,020</b>	
Number of Cambridge Residents Employed at Cambridge Facilities	2,347	2,391	2,494	2,552	<b>2,575</b>	2,500-2,750

\*\* Post-doctoral employees are included in the headcount for Cambridge-based staff.

‡ Starting in 2016, FTEs are calculated using "part time equals 1/3 full time" methodology instead of "percent effort."

than 900 employees in the recession a decade ago, staff population recovered to pre-recession levels by 2015 and is now growing at an annual rate of 1.9%, with a full-time equivalent count at 9,148.

25 years, but with the announcement of the Schwarzman College of Computing, the faculty head count is anticipated to increase by 50 over the next several years. As of 2018, the faculty head count is 1,027.

The number of tenured faculty members has remained stable at around 1,000 for the last



# Housing

MIT houses 96.5% of its undergraduates in MIT-approved housing, primarily in on campus residence halls but also in fraternities, sororities and independent living groups in Cambridge and Boston. MIT offers four years of housing to all undergraduates and requires all freshman to live on campus. The minor increase in undergraduates residing in Cambridge private housing for the 2018 reporting year can be partially attributed to the conversion of 70 Amherst Street to graduate student housing on a pilot basis. All undergraduates previously residing in 70 Amherst Street were offered alternate housing on campus, though some chose off-campus options.

MIT is constructing 450 new beds of undergraduate housing on Vassar Street for occupancy in the fall of 2020. This will provide flexibility for renovation of the existing undergraduate housing stock. This renewal program started with the complete renovation of New House (W70) which was completed for fall 2018 occupancy.

The housing needs of the graduate student population have been studied extensively, including

in the Clay report (2014) and most recently in the Graduate Student Housing Working Group report (2018). The recommendations from those reports included the addition of 500 – 1,100 new beds for graduate students. MIT responded by making a commitment to deliver 450 beds of graduate housing in Kendall Square, now under construction; 500 additional new beds, now being planned; and to convert 200 additional beds. The retirement of the Eastgate (E55) housing in the future is anticipated, along with renovations of the existing graduate housing stock over time.

In addition to these commitments to increase housing on campus, MIT also responded to the Working Group report and student feedback by making several adjustments to management policies. These changes are intended to make the best use of existing resources and be responsive to graduate student needs by:

- Guaranteeing a second year of housing in some facilities. Previously, only one year of housing was guaranteed. This particularly deterred master's degree students who expect to be on campus for only two years.
- Allowing roommates to sign up for housing

Housing	Tax Exempt		Taxable	
	MIT-Owned & Managed Housing	Other Housing	MIT-Owned & Managed Housing*	Other Housing
<b>2014</b>				
Units	0	0	164	930
Buildings	0	0	13	7
<b>2015</b>				
Units	0	0	164	930
Buildings	0	0	13	7
<b>2016</b>				
Units	0	0	164	930
Buildings	0	0	12	7
<b>2017</b>				
Units	0	0	163	930
Buildings	0	0	12	7
<b>2018</b>				
Units	0	0	163	939
Buildings	0	0	12	7
<b>2028</b>				
Units	0	0	163	939
Buildings	0	0	12	7

Student Residences	2014	2015	2016	2017	2018	2028
<b>Undergraduate Students Residing in Cambridge</b>						
In Institute-approved housing	3,577	3,543	3,654	3,652	<b>3,555</b>	3,600-3,700
In off-campus housing owned & managed by MIT	0	0	0	1	<b>0</b>	
In off-campus non-MIT housing	71	77	109	107	<b>159</b>	
<b>Graduate Students Residing in Cambridge</b>						
In Institute-approved housing	2,430	2,384	2,044	2,221	<b>2,262</b>	3,200-3,500
In off-campus housing owned & managed by MIT	59	44	35	27	<b>22</b>	
In off-campus non-MIT housing	1,884	1,876	2,610	2,468	<b>2,500</b>	
<b>Student Parking</b>						
Number of student parking permits issued (including resident and commuter parking)*	--	--	294	194	<b>219</b>	

\*Reporting on permits rather than spaces as we have done in previous years allows MIT to more accurately reflect the number of students driving on or around campus.

as a group. Approximately 80 groups were accommodated this year;

- Opening up some efficiencies and 1-bedroom units to couples in previously singles-only buildings and to singles in previously family-only buildings.

These measures have resulted in accommodating more graduate students in existing on-campus housing. While no estimate has been made of the expected impact of the new graduate student housing and the management policy changes on the Cambridge housing market, we anticipate that additional and optimized on-campus housing for MIT graduate students will ease some pressure in the local housing market.

Like every employer in Greater Boston, MIT is impacted by high housing costs. The housing shortage imposes a burden on existing and prospective employees at all levels of the organization, including service and professional staff, and academic employees including post-doctoral researchers and faculty. High housing costs can create transportation and quality of life issues, as employees find they must search further from campus to find suitable housing they can afford. However, MIT is taking major steps to

build housing that will be available to all families in Cambridge and the region, including its own employees. MIT is planning to build approximately 1,700 units of housing in Kendall and at Volpe, of which approximately 300 would be affordable units. This amounts to 16% of the 10,600 net new units forecast by Envision Cambridge by 2030.

According to the Metropolitan Area Planning Council (MAPC), since 2010 the 15 cities and towns of the Metro Mayors Coalition (including Cambridge) have only permitted 32,500 new housing units. At that rate, MIT's new housing will represent 3.8% of these municipalities' production through 2030. MAPC anticipates multi-family rental housing demand in the inner core (roughly inside Route 128) from 2020 – 2030 to be 15,600 units. MIT's housing will meet 10.9% of this regional demand. In addition, MIT will be reducing demand by expanding opportunities for MIT graduate students to rent purpose-built, on-campus housing rather than residing in private housing in Cambridge and the regional market.

# Transportation

By connecting programs, education, modes of transportation, and personal decision-making, MIT strives to create a new awareness and shared understanding of transportation choices and their impacts. To that end, the Parking and Transportation Office, in coordination with the MIT Transit Lab, the Institute's Committee for Transportation and Parking, and the Office of Sustainability, developed the vision and defined the goals of the Access MIT initiative to create a variety of affordable, low-carbon transportation options and to change the way the MIT community thinks about traveling and commuting.

## Access MIT

MIT launched the Access MIT program in the fall of 2016 with the goal of reducing parking demand on campus through new commuting incentives and a shift from annual to daily parking fees for employees. Employees at MIT now have a no-cost transit pass embedded in their ID cards, enabling them greater flexibility to choose how they get to work every day. MBTA pay-per-use billing has allowed MIT to offer

this benefit to its full-time employees in a cost-effective manner. These efforts are designed to help mitigate traffic congestion in and around the MIT environs, and advance a culture of low-carbon commuting.

In 2018, the Parking and Transportation Office expanded the reach of Access MIT by retooling and transforming its parking system. Previously, the infrastructure of MIT's "ungated" lots prohibited its parkers from taking advantage of the \$10 daily parking rate, which launched as part of Access MIT in the regular gated parking lots. In the ungated lots, there was no way to charge parkers on a daily basis without a gate. Now, using new technology, parkers in MIT's ungated lots have their license plates scanned every day, enabling the daily rate across all MIT-owned lots. These parkers have been unlocked from the annual financial commitment of the traditional year-long parking pass. They can opt to commute via bike, subway, bus, or another method on days that they can, without being charged for parking.



**I'm in keep-it-flexible mode**

**Cecilia Stuopis**  
Director of MIT Medical



## Change your ride once a week. Keep it flexible and stress-free.

**Your commute counts.  
Switch it up.**

[web.mit.edu/accessmit](http://web.mit.edu/accessmit)

**accessMIT**



Access MIT Program benefits include:

- Free, unrestricted use of the MBTA subway and local bus systems for benefits-eligible Cambridge campus MIT faculty, staff, and postdocs;
- A 60% commuter rail subsidy;
- A 50% subsidy for parking at MBTA stations, up to \$100 per month;
- A shift from annual to daily pay-per-day parking;
- A commuter dashboard for MIT employees that tracks your commute, helps plan trips, and matches carpoolers up with each other.

The Institute encourages the use of sustainable transportation methods, but also recognizes that it is necessary for many people to drive to campus. To serve its students, faculty, staff and visitors, MIT maintains a campus-wide inventory of vehicular parking spaces. MIT community members with parking permits are assigned to areas of campus based upon where they primarily live or work, as well as their preferences.

### Parking spaces maintained in Cambridge

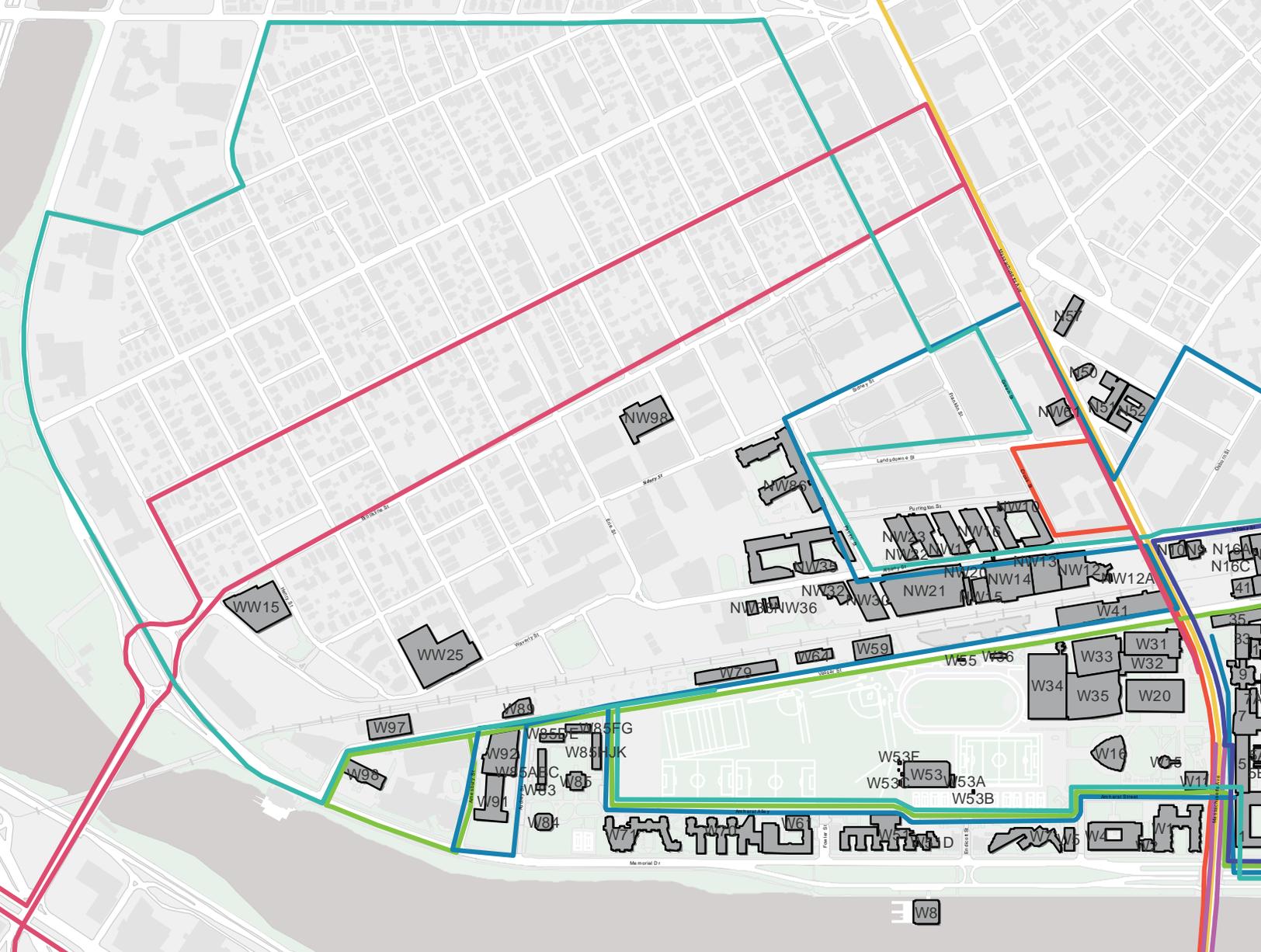
Number of parking spaces maintained on campus as reported in the annual MIT Parking Inventory 3,879

### Point of Origin for Commuter Trips to Cambridge

Home Location	Count	Percentage
Cambridge	2,575	21.8%
Boston	1,659	14.0%
Somerville	921	7.8%
Arlington	430	3.6%
Brookline	399	3.4%
Newton	306	2.6%
Medford	286	2.4%
Belmont	261	2.2%
Lexington	236	2.0%
Quincy	227	1.9%
Watertown	185	1.6%
Malden	149	1.3%
Winchester	119	1.0%
Waltham	113	1.0%
Melrose	95	0.8%
North Of Boston	624	5.3%
West of Boston	128	1.1%
South Of Boston	87	0.7%
Outside 128	1,737	14.7%
Outside 495	383	3.2%
Connecticut	20	0.2%
Maine	26	0.2%
New Hampshire	141	1.2%
Rhode Island	73	0.6%
Vermont	10	0.1%
Outside New England	385	3.3%
Outside US	253	2.1%
<b>Grand Total</b>	<b>11,828</b>	<b>100.0%</b>

### Commuting Mode of Choice

Commuting Mode	2010	2012	2014	2016	2018
Drove alone entire way	20%	22%	21%	18%	18%
Took public transportation	42%	41%	39%	42%	43%
Carpooled	7%	6%	6%	5%	5%
Bicycled	14%	15%	15%	16%	16%
Walked	15%	13%	14%	15%	15%
Other	3%	3%	5%	3%	3%



## MIT Shuttle Routes

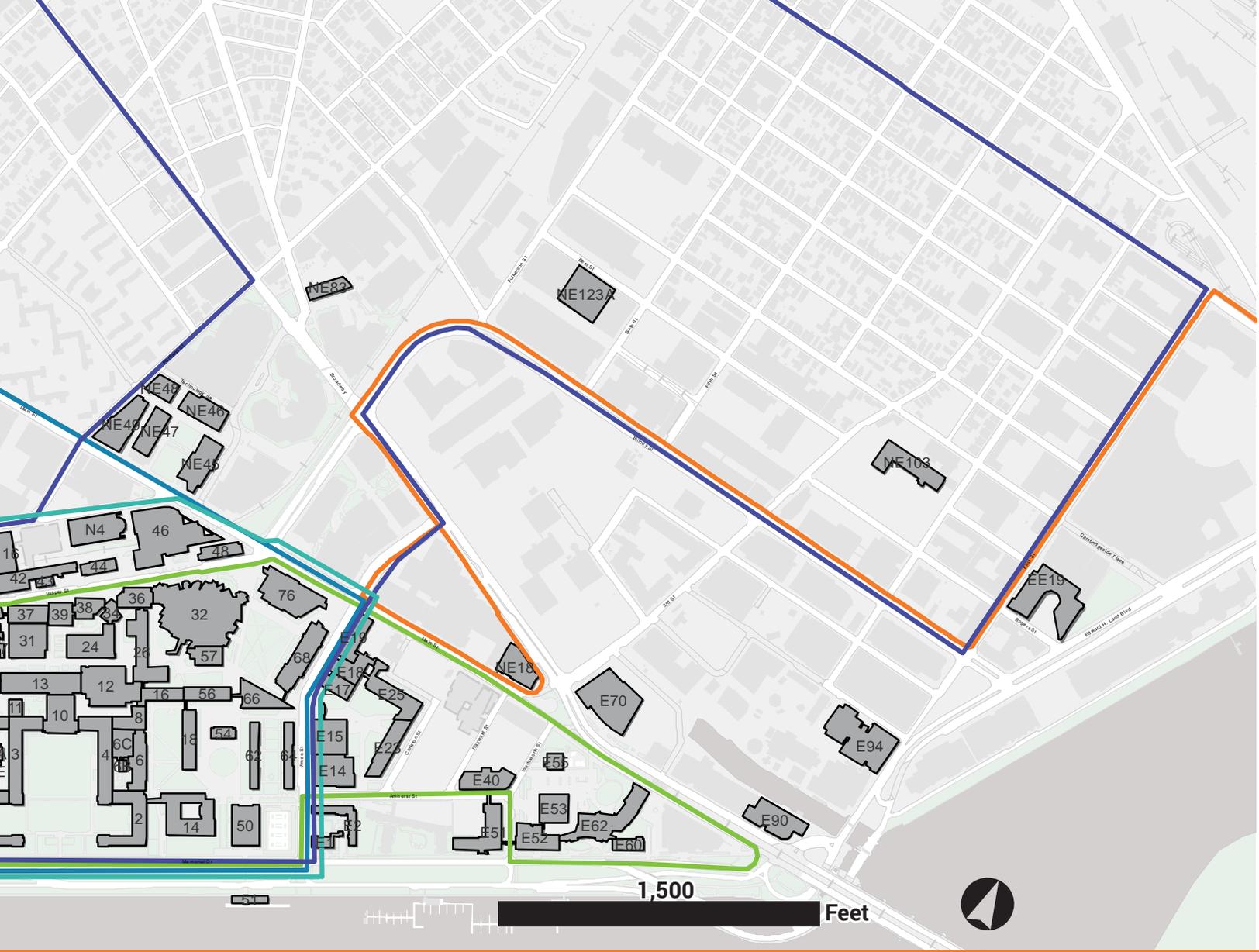
(Data as of June 30, 2018)

Buildings with academic occupancy shown

Route Name

Vehicle Type

	Tech Shuttle	Mid-size transit, biodiesel
	Boston Daytime Shuttle (May-Sept)	Mid-size transit, biodiesel
	Saferide Cambridge East/Somerville	Mid-size transit, biodiesel
	Saferide Cambridge West/Brookline	Mini-bus, gas
	Saferide Boston East	Mid-size transit, biodiesel
	Saferide Campus Route	Mid-size transit, biodiesel
	EZRide by CRTMA	---
	M2 Shuttle	---
	Trader Joe's Shuttle (Sundays)	Mid-size transit, biodiesel
	Costco Shuttle (3 Sundays a month)	Mid-size transit, biodiesel
	On Demand Shuttle	Mini-bus, gas



Capacity	Frequency of Operation		Weekday Hours of Operation	Weekend Hours of Operation	Annual Ridership	Academic occupancy shown
	Peak	Off-Peak				
30 seats	10 min	20 min	6:15AM-7:10PM	---	146,243	
30 seats	30 min	30 min	8:00AM-5:55PM	---	39,873	
30 seats	30 min	40 min	6:05PM-11:00PM	6:05PM-11:00PM	81,570	
14 seats	30 min	40 min	6:05PM-11:00PM	6:05PM-11:00PM		
30 seats	20 min	30 min	6:00PM-1:00AM	6:00PM-1:00AM		
30 seats	20 min	20 min	6:05PM-11:00PM	6:05PM-11:00PM	453,321	
---	---	---	---	---		
---	---	---	---	---	---	
30 seats	45 min	45 min	---	11:30AM-4:30PM	1,745	
30 seats	45 min	45 min	---	11:00AM - 3:30PM		
14 seats	On Demand	---	11:00PM-2:15AM	11:00PM-3:15AM	---	9



## Shuttle Bus Coordination Efforts

MIT's shuttle service is designed to ensure safety and meet the demands of faculty, staff, and student users. The Institute periodically adjusts its shuttle services to best serve the community. There is very little overlap of MIT shuttle service with other public or private shuttle services. The MIT northwest campus is serviced by the EZ-Ride shuttle which is operated by the Charles River TMA (CRTMA).

To better serve its community, MIT implemented an OnDemand shuttle program last year. SafeRide shuttles switch from a fixed-route to an OnDemand mode at 11PM each night. During the OnDemand mode, instead of waiting at a shuttle stop, members of the MIT community who need a safe ride can use the TransLoc Rider mobile app or online service to request a pickup

and drop-off at locations within the designated SafeRide zone. A 14-passenger van provides door-to-door transportation similar to Uber or Lyft. This service adjustment has proven very successful in serving the MIT community, particularly students.

The Parking and Transportation Office in cooperation with the Graduate Student Council and Undergraduate Association also operates a Sunday afternoon grocery shuttle with service to Trader Joe's and Whole Foods Market from campus residences. This has resulted in better service with fewer vehicles on the road.

All MIT shuttles require riders to show their MIT ID.



## Bicycle Commuting

MIT is committed to providing amenities to support and encourage students, faculty, and staff to commute to campus by bicycle. The Institute maintains over 5,000 bike parking spaces across campus. All bike racks are located with a focus on providing secure, accessible, well-lit spaces close to building entrances and placed indoors or in covered areas where possible. MIT plans to continue to provide additional parking spaces and other bicycle infrastructure to meet the needs of our growing and enthusiastic cycling community.

MIT created a Bicycle Commuter Benefit Program in 2009 for fulltime employees. The program provides a reimbursement of \$20/month (\$240/year) for the purchase, improvements, repair or storage of a bicycle used for commuting to MIT. Additionally, bicycle commuters who need to drive to campus a few times per month have the option of purchasing an occasional parking permit. Approximately 160 cyclists took advantage of the program this year.

MIT's "Getting around MIT by Bicycle" map and information pamphlet ([http://mit.edu/facilities/transportation/docs/Getting\\_Around\\_by\\_Bike.pdf](http://mit.edu/facilities/transportation/docs/Getting_Around_by_Bike.pdf)) provides information on bike lanes, bike parking areas, and bike repair stations. The brochure also educates the community on bike safety, etiquette, security, and communicates the need to "share the road" with pedestrians, vehicles, and other roadway users.

MIT sponsors four Blue Bikes (formerly Hubway) stations with a total of 102 docks on campus. Two of the stations have been in place since

the bike-share program began in Cambridge in 2012. These stations are some of the busiest in Cambridge and are located near 77 Massachusetts Avenue and on Vassar Street near the intersection with Main Street. Three additional Blue Bikes stations are planned within the Kendall Square Initiative.

In addition to sponsoring Blue Bikes stations, MIT subsidizes annual Blue Bikes memberships for all MIT students, staff, and faculty, offering memberships at \$35/year (regularly \$99/year). The subsidy has been very well received, with approximately 2,650 MIT Blue Bikes members.

MIT is designated as a Silver Level Bicycle Friendly University by the League of American Bicyclists for its excellent bike infrastructure and programs. The Institute also earned a first place award in the 2018 Mass Commute Bicycle Challenge for most bike commuter miles traveled. The Institute has won this award for seven of the past eight years.

One opportunity for MIT to improve bicycling and pedestrian infrastructure is through the proposed Grand Junction multi-use path. Working with advocates and the City of Cambridge, MIT completed a feasibility study of the use of Institute property for the Grand Junction path in 2014 and has committed \$8.5 million to fund the design and construction of this community path on its property.



# Campus Planning

## Major Initiatives

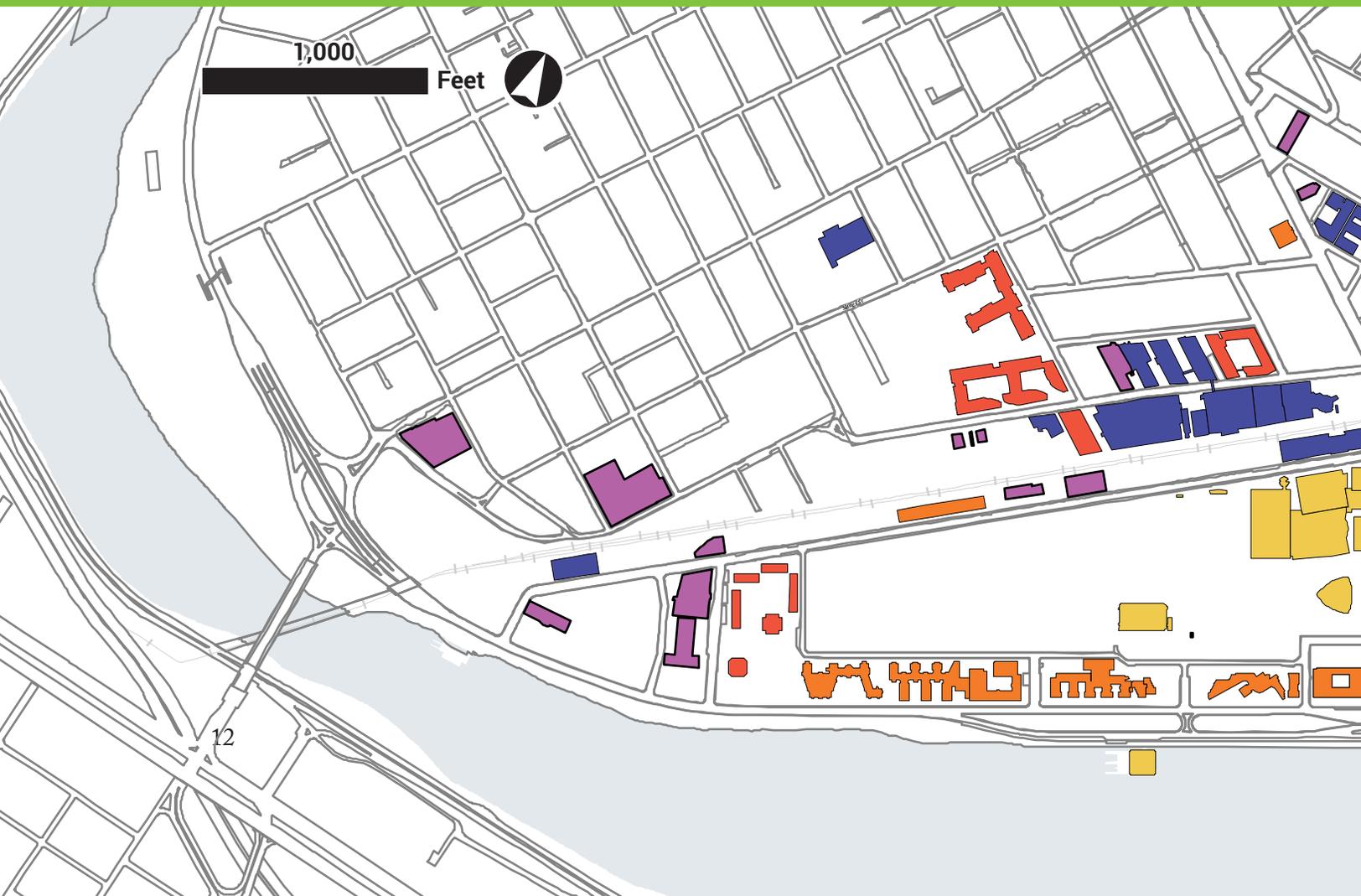
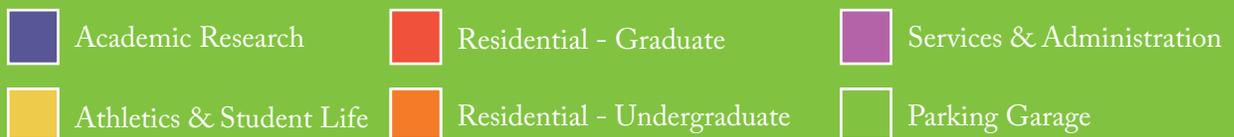
The concrete is going up for the new graduate residence hall in the center of the Kendall Square Initiative. The steel for the expanded Central Utility Plant for two new cogeneration turbines on Albany Street is in place. The cranes have been erected for the Vassar Street undergraduate residence. These projects represent major long-term investments in the City and campus infrastructure. Together, they will benefit both the

MIT and Cambridge communities, and support research initiatives and collaborations far into the future.

In and around these projects, MIT has new opportunities for making campus improvements to the streets (both public and private), plazas and green space.

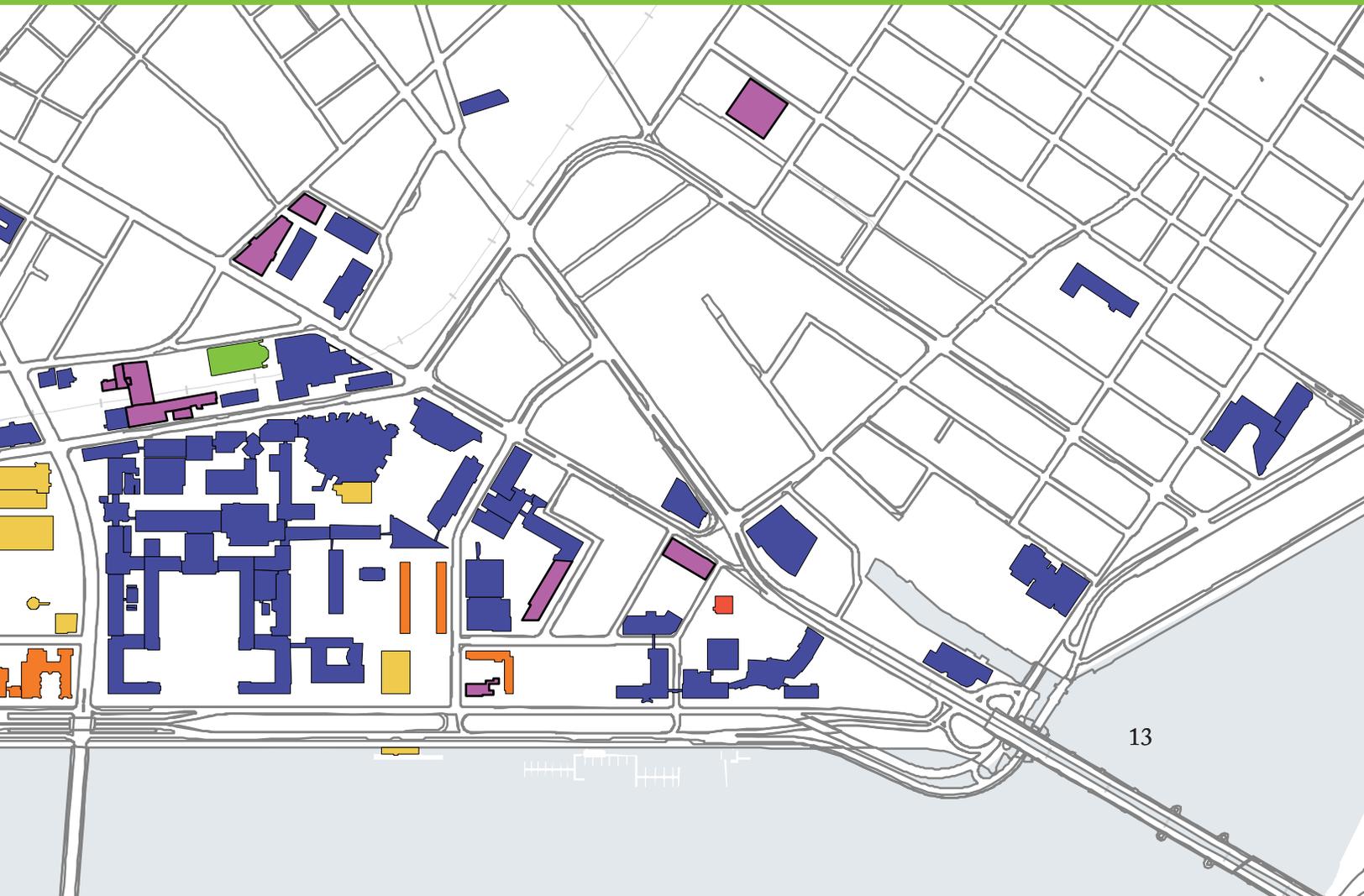
## MIT Buildings and Occupied Spaces by Use

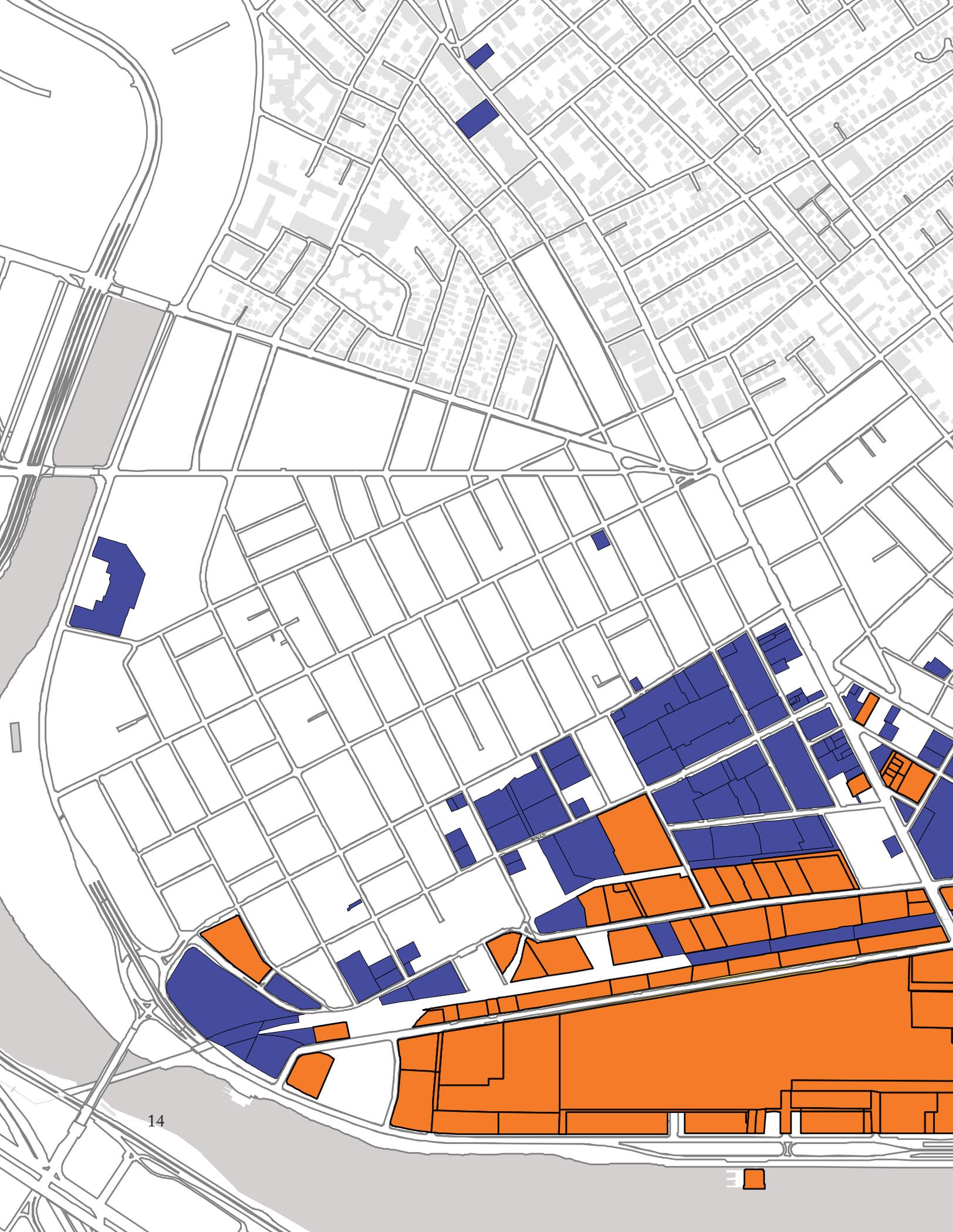
(Data as of June 30, 2018)



## Facilities and Land Owned

	2014	2015	2016	2017	2018
<b>Acres</b>					
Tax Exempt	163	163	166	166	<b>166</b>
Taxable	93	95	92	92	<b>92</b>
Number of Buildings (academic)	111	108	111	114	<b>114</b>
<b>Dormitories</b>					
Number of Buildings	28	28	27	28	<b>28</b>
Number of Beds	5,800	5,739	5,422	5,898	<b>5,662</b>
<b>Size of Buildings (gross square feet unless otherwise noted)</b>					
Institutional/Academic	6,811,817	6,927,275	7,036,694	7,235,839	<b>6,985,293</b>
Student Activities/Athletic/Service	2,366,093	2,195,897	2,247,058	2,243,358	<b>2,068,551</b>
Dormitory/Nontaxable Residential	2,921,880	2,922,128	2,866,373	2,882,602	<b>2,882,602</b>
Commercial (in square feet)	5,344,990	5,356,423	6,109,827	6,337,516	<b>6,403,144</b>
Taxable Residential (in rental units)	164	164	163	163	<b>163</b>





# Cambridge

## Watertown MIT Property in Cambridge

Data as of June 30, 2018

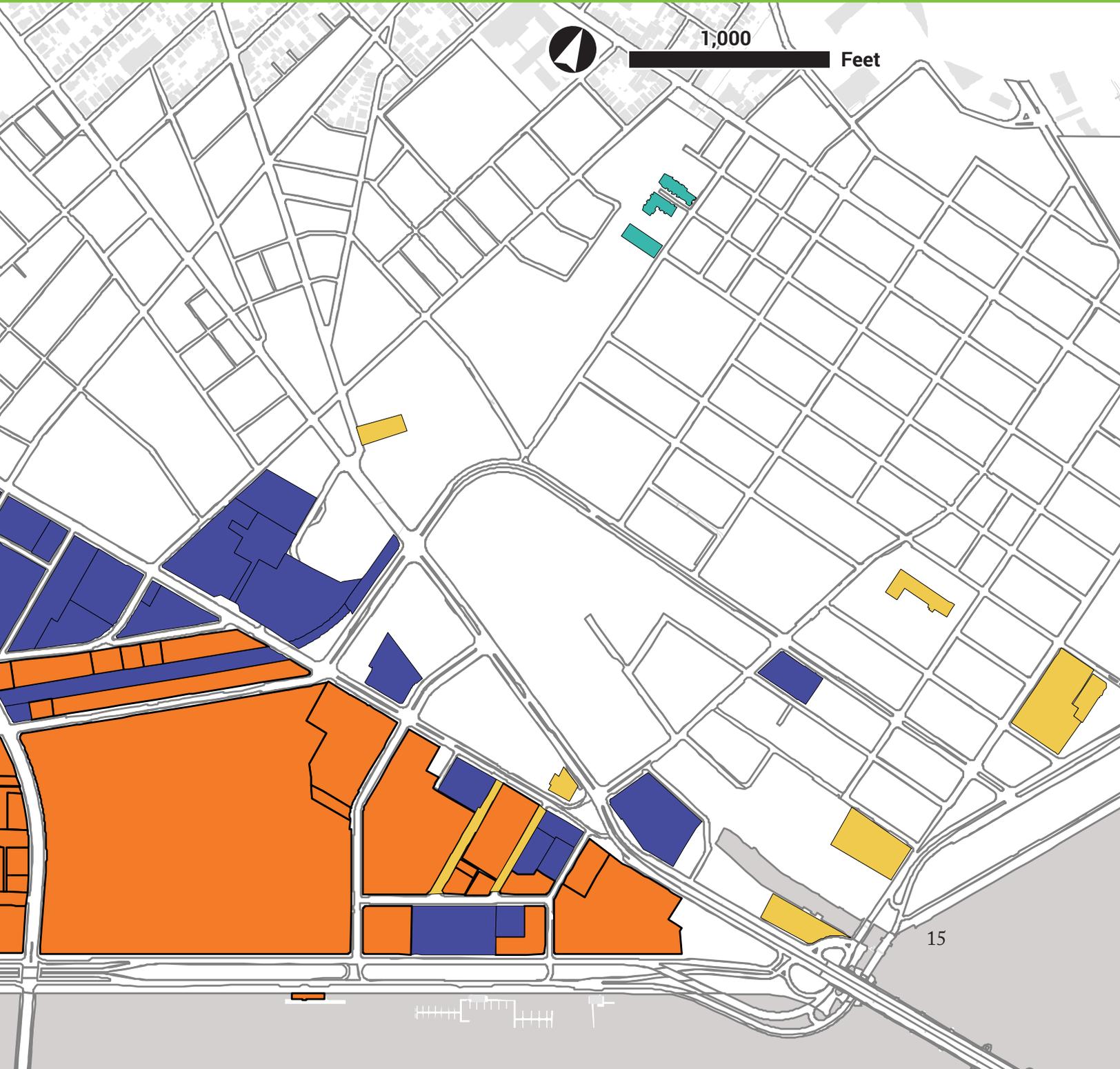
**Boston**  
Academic Plant  
Academic Leased

Investment Property  
Investment Property -  
Condominium Only

**Boston**



Miles



## Commercial Corridors

Areas of campus that border major commercial corridors also provide opportunities to improve the campus and the city. The 730-750 Main Street block (in the “North” area of the Future Development Opportunities map) is an optimal size for a research & development building. MIT is beginning the planning and design for this property, which is expected to include a combination of renovating the existing buildings and some new construction of office and lab facilities to further support the innovation ecosystem extending from Kendall Square. In

addition, redevelopment of this site would allow for the continuation of the emerging retail corridor along Main Street.

Another key step will be the redevelopment of the triangular-shaped 600 Main Street block. This site is relatively close to the core campus and its scale makes it an attractive site for research uses. The site also provides an opportunity to complete the street frontage along Main Street opposite Technology Square with retail and restaurant space.

## Property Transfers

**Cambridge properties purchased since filing previous Town Gown Report: 139 Main St.**

**Cambridge properties sold since filing previous Town Gown Report: None**

**Planned dispositions or acquisitions: None**

## Future Development Opportunities

Data as of June 30, 2018 (buildings with academic occupancy shown)



## Real Estate Leased

Use	Leased Location*	Sq Ft**
Institutional/Academic	1 Cambridge	35,594
Institutional/Academic	1 Kendall	22,506
Institutional/Academic	1 Main St	63,407
Institutional/Academic	1 Rogers	24,046
Institutional/Academic	105 Broadway	47,488
Institutional/Academic	222 Third Street	2,584
Institutional/Academic	245 First St	19,805
Institutional/Academic	300 Tech Sq	6,451
Institutional/Academic	400 Tech Sq	10,901
Institutional/Academic	500 Tech Sq	93,108
Institutional/Academic	600 Tech Sq	108,907
Institutional/Academic	700 Tech Sq	14,253
	<b>Total</b>	<b>449,050</b>

\* Leased by MIT from third-party landlords.

\*\*The square footage may only be a portion of the entire building.



## Capital Renewal

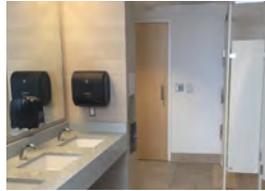
Addressing deferred maintenance continues to be prioritized as an integral part of overall campus renewal. Fiscal year 2016 saw a reduction in deferred maintenance for the first time in recent decades and progress continued through fiscal year 2018. MIT's campus-wide facility condition index (FCI), which is the ratio of deferred maintenance to replacement value, improved for the third consecutive year, decreasing from 0.24 in 2016 to 0.21 in 2018. A combination of extensive renovations and system renewal projects

benefiting more than 72 campus buildings contributed to this reduction. At the end of fiscal year 2018, the total backlog of deferred maintenance lowered to \$1.5 billion (or \$120 per square foot, down from a peak of \$156 per square foot in fiscal year 2014) with renewal prioritization underway for projects including renovation of campus residences, upgrade of teaching and research buildings, and renewal of aged underground infrastructure.

## Seen



Space renovation



Rest rooms

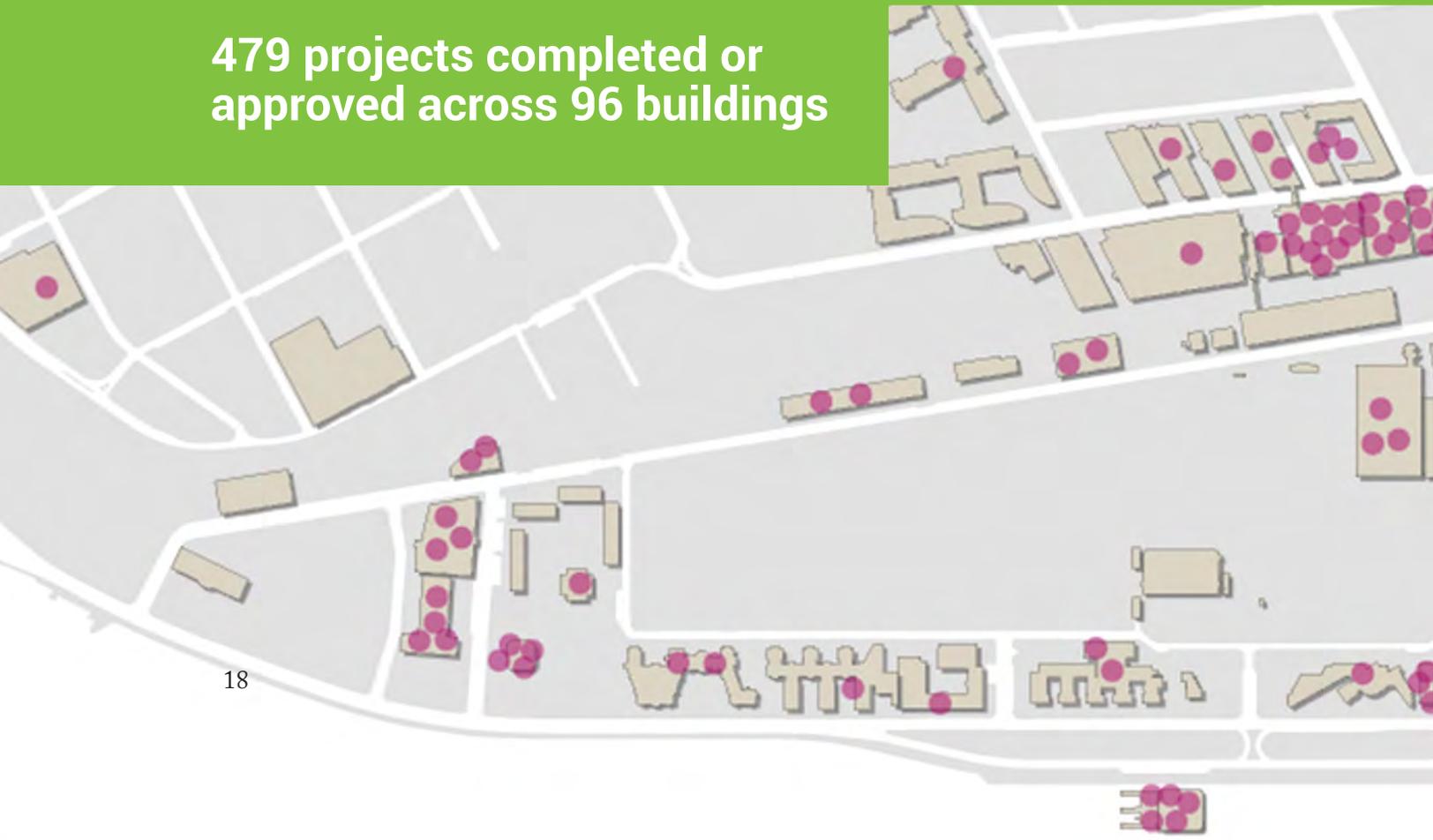


Façades



Elevators

**479 projects completed or approved across 96 buildings**



## Capital renewal peer benchmarks



## Unseen



Teledata Room



Roofs



HVAC



Electrical



## Campus Streetscapes and Open Space

### North Corridor

The North Corridor project, associated with the construction of MIT.nano, has transformed former vehicular service drives and surface parking into a green, pedestrian-friendly campus crossing. Landscape beds capture and filter stormwater. A new corridor and courtyard, planted extensively with trees, create welcoming new campus open spaces that connect Building 9 at Massachusetts Avenue to a renovated Building 31, the new MIT.nano (Building 12) and then on to the Stata Center and North Court.

### Vassar Street, Metropolitan Storage Warehouse, & the Undergraduate Residence

Vassar Street is celebrated for its first-in-the-nation bicycle track that transformed a drab, industrial service corridor by burying utilities underground and creating a cohesive streetscape of trees with attractive paving and street lighting. Fifteen years on, it is due for some renewal.

The basic streetscape (lights, pavers, and the cycle track) is in reasonable condition, with spot repairs in order. However, many of the trees planted in the Main Street to Massachusetts

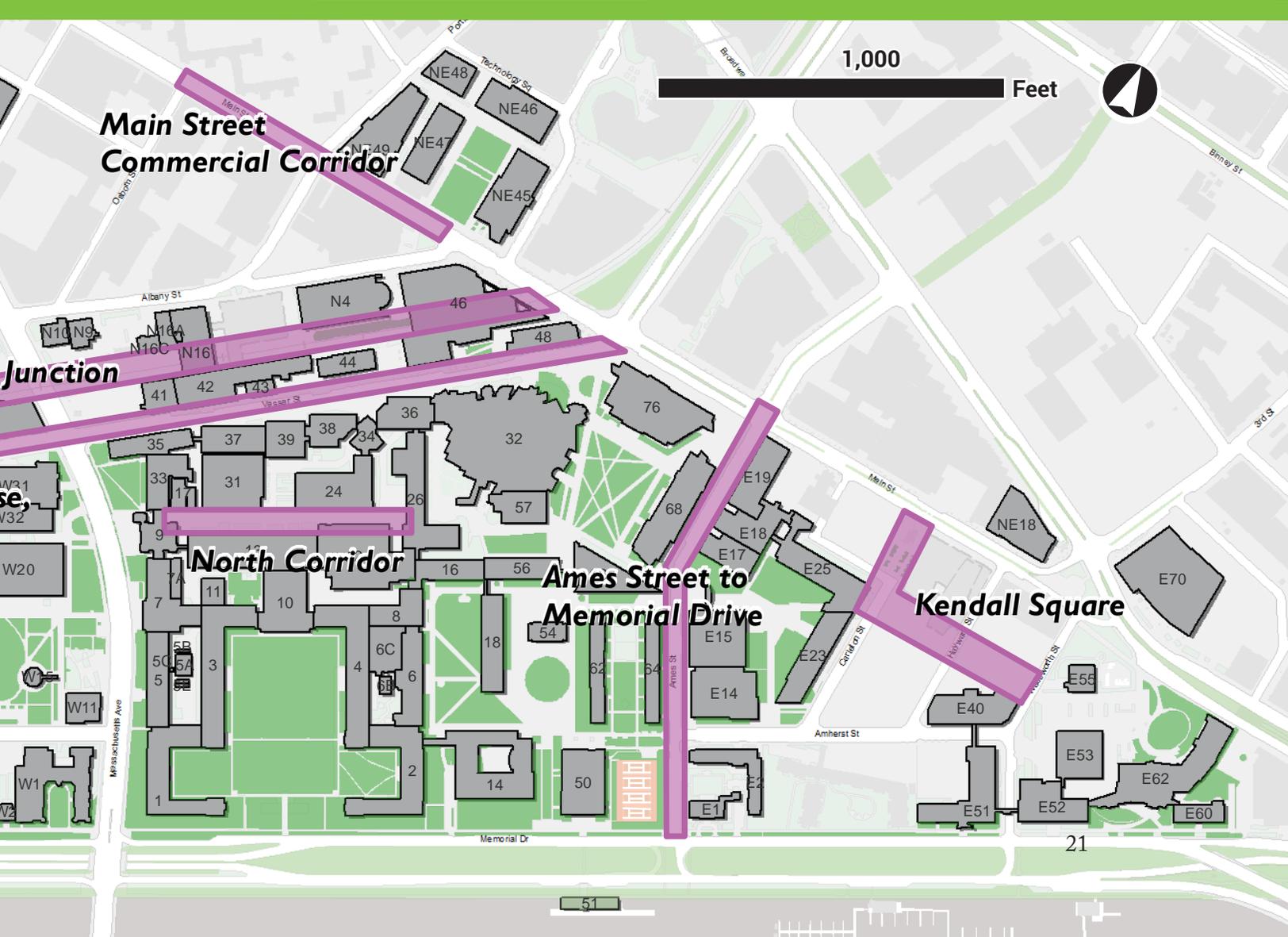


Avenue section have not flourished. MIT will be reestablishing the structural soil and planting more than 50 new trees. The plan is to carefully coordinate with ongoing utility and building construction along Vassar Street. The new trees will be planted in the fall of 2019 or spring of 2020.

The new undergraduate residence on Vassar Street will improve the Vassar streetscape in the vicinity of Pacific Street with new planting, creative architecture, bike parking, and benches. It will also take a major pedestrian crossing of the railroad tracks at Pacific Street and enlarge and transform the space into a lively urban plaza that will improve the pedestrian environment

and properly connect cyclists to and from the east- and west-bound Vassar cycle tracks.

The proposed use of the Metropolitan Storage Warehouse for the School of Architecture and Planning and the Project Manus makerspace will bring new life to this historic structure and dramatically alter this section of Vassar Street and enliven the Massachusetts Avenue corner. The adaptive rehabilitation of Metropolitan Storage Warehouse will provide a critical link between a renewed Vassar Street with new trees east of Massachusetts Avenue and the enhanced streetscape of the new undergraduate residence to the west.



## Grand Junction

The Grand Junction bicycle and pedestrian path is located along the northern edge of the main campus. MIT contributed \$500,000 for the design and construction of a pathway for bicyclists and pedestrians alongside the rail line between Main Street and Broadway, and has contributed another \$500,000 for the design of a multi-use pathway that would run on MIT property in the railroad corridor west of Main Street. MIT will provide an additional \$8 million for the construction of this pathway. The 2014 MIT feasibility study demonstrated that while a pathway is possible, it would not be without its own challenges and compromises. Unlike most areas on the Grand Junction, long abandoned by industrial customers, the right-of-way is an everyday part of MIT's service and utility network. While a future transit use in the corridor has been contemplated for some time, the Kendall Square Mobility Task Force report confirmed that the desired 10-15 minute headway service that is believed to be needed to entice drivers to switch commuting modes will require two-track service, now available only in a portion of the corridor. Despite these challenges, MIT believes that the transformation of the Grand Junction will further knit the Cambridge and MIT com-

munities together. Cambridge and MIT will be poised to take advantage of new connections to North Station, Allston and beyond.

## Ames Street and Memorial Drive

One of the biggest opportunities to improve open space is by making safe and inviting connections between existing open spaces in the City. In 2019, MIT will be designing and building a two-way at-grade cycle track on Ames from Main Street to Memorial Drive, extending the improvements underway for the 6th Street landscaped walkway and the two-way cycle track on Ames Street from Broadway to Main Street. With approval from the Department of Conservation and Recreation (DCR), MIT is planning to build a new signalized crossing to the Paul Dudley White multi-use path along the Charles River. This new signal would continue MIT's practice of installing key traffic signals along Memorial Drive in front of the campus. These include the traffic signals at Wadsworth Street, Massachusetts Avenue and at Endicott Street. Most recently, MIT partnered with DCR for the installation of a speed feedback sign on the eastbound lane of Memorial Drive to slow vehicles emerging from the Massachusetts Avenue underpass.





## Kendall Square

The Kendall Square Site 4 (see site map on page 30) development that is under construction will serve to shape the East Campus Gateway by creating new graduate student housing, as well as homes for MIT's Admissions Office, an innovation and entrepreneurship hub, a childcare center, active retail concepts, and the MIT Forum, which will provide shared space for community programming.

The Site 5 building will include the MIT Museum, the MIT Press Bookstore, ground floor retail, and commercial office space and frame a vibrant crossroads. MIT will implement an inviting new public realm with a dynamic gateway and diverse programming. The objective for the open space area is to create a welcoming destination that has the everyday feel of an open house — where passers-by might come upon an interactive art installation, a participative science experiment, or an invention being tested

out by students. The aim is to convey the Institute's "MIT-ness" by highlighting innovation in its many forms so that Cambridge residents and visitors from around the world can experience the fast-paced excitement that is characteristic of Kendall Square.

The heart of the new campus Gateway will be a two-acre landscaped plaza that will host wide-ranging campus and community events (artist rendering on the left), including art, science experiments, inventions, and other engaging elements showcasing MIT's innovative and welcoming spirit. The Institute has recently hired Jessie Schlosser Smith (pictured above) as its new director of open space programming; she is already beginning to collaborate with faculty, students, staff, and members of the Cambridge community to envision memorable programming for the outdoor spaces that will create a vibrant urban experience.

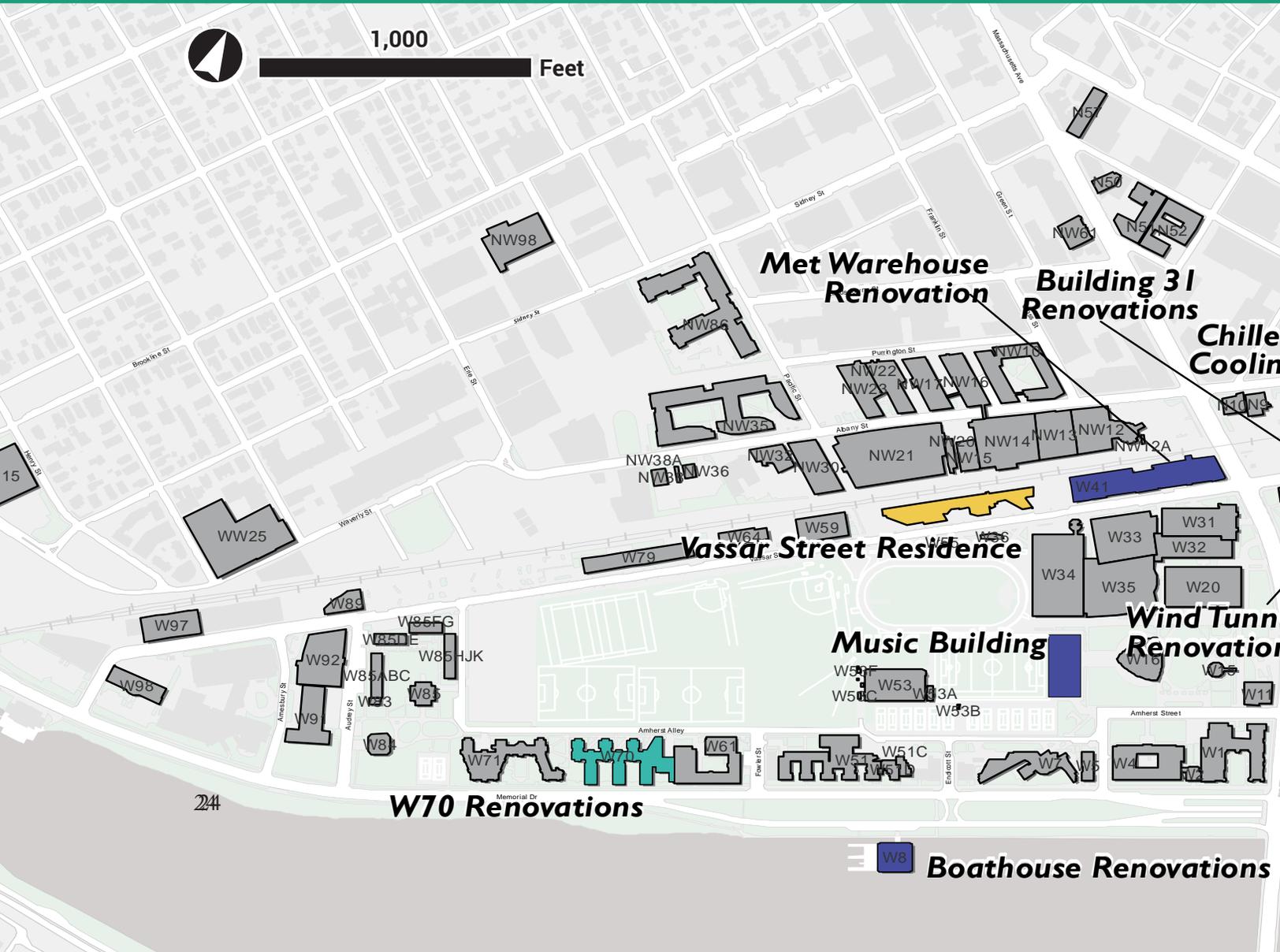


# Projects

## Completed in Reporting Period

### Building 31

Mechanical Engineering and Aeronautics and Astronautics occupy Building 31, which was one of the highest ranked buildings for deferred maintenance. The scope of this project included reconstructing structural bays, creating a new high bay area, and renewing offices, labs and common spaces. An additional 13,000 gross square feet of space was created. The project was designed by Imai Keller Moore Architects, completed in August 2017 and has been certified LEED Gold.



## MIT.nano

Dedicated to experimentation and instruction, MIT.nano represents one of the largest commitments to research in MIT's history. The facility will carry the last two decades of nanoscale characterization and investigation into new realms of application and discovery.

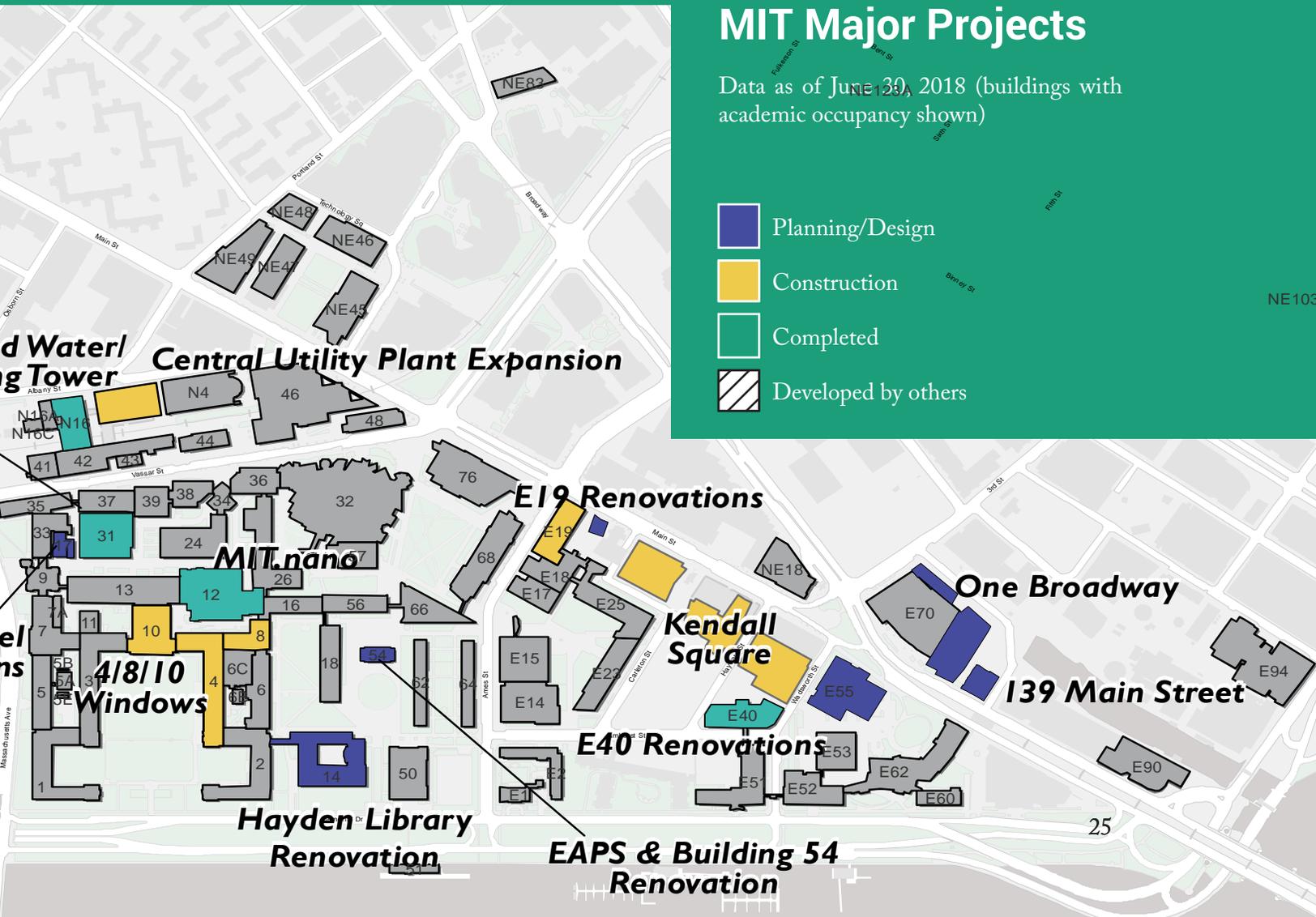
This new building, located in the interior of MIT's main campus, will support materials research at the nanoscale and will accommodate top programmatic priorities expressed by the deans of the School of Science and the School of Engineering. MIT.nano is five stories and 216,000 gross square feet. It was designed by Wilson Architects and construction was completed in June 2018. The project is currently tracking to achieve LEED Gold certification.



## MIT Major Projects

Data as of June 30, 2018 (buildings with academic occupancy shown)

- Planning/Design
- Construction
- Completed
- Developed by others

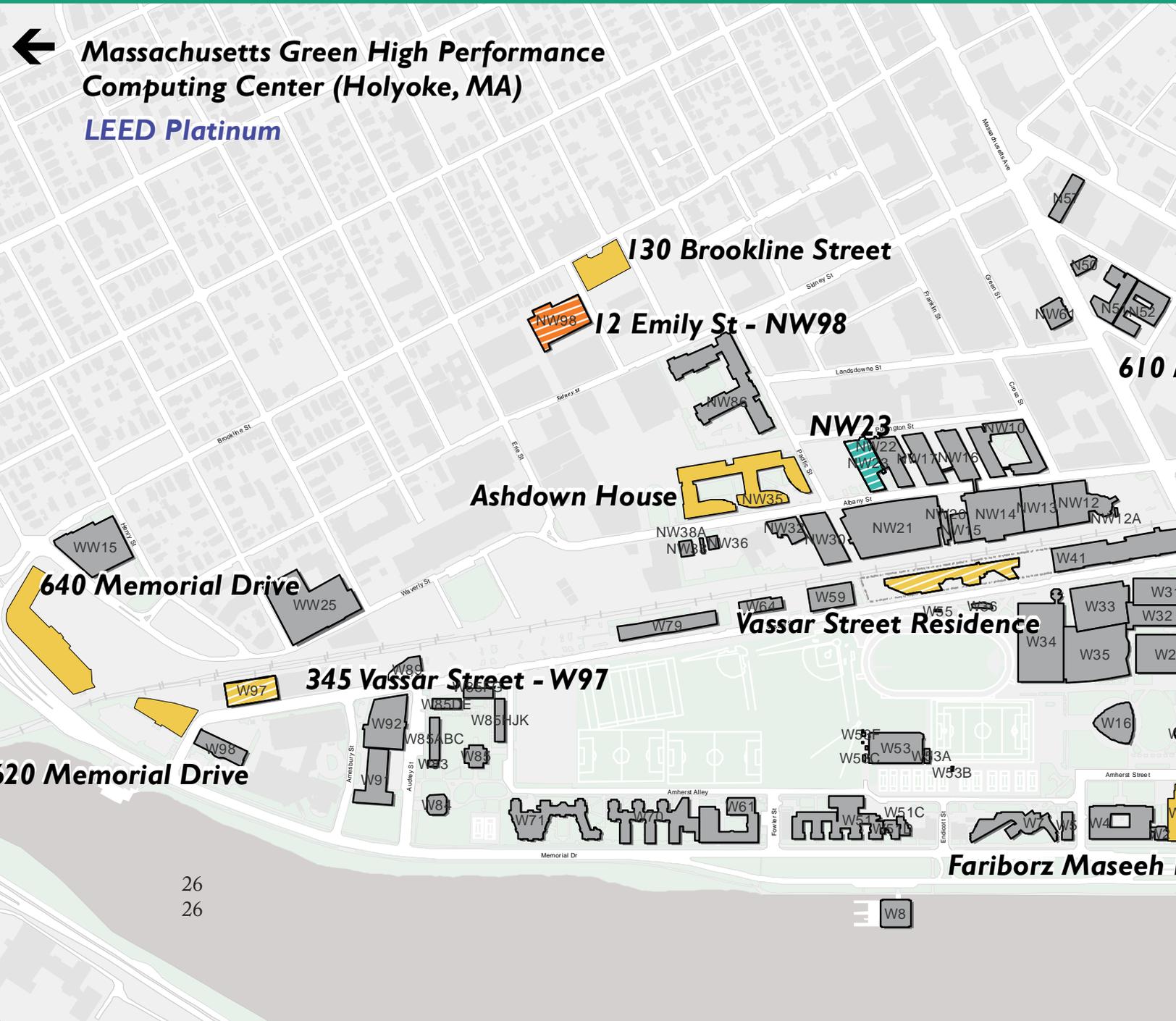




## Completed in Reporting Period

### W70 Renovation

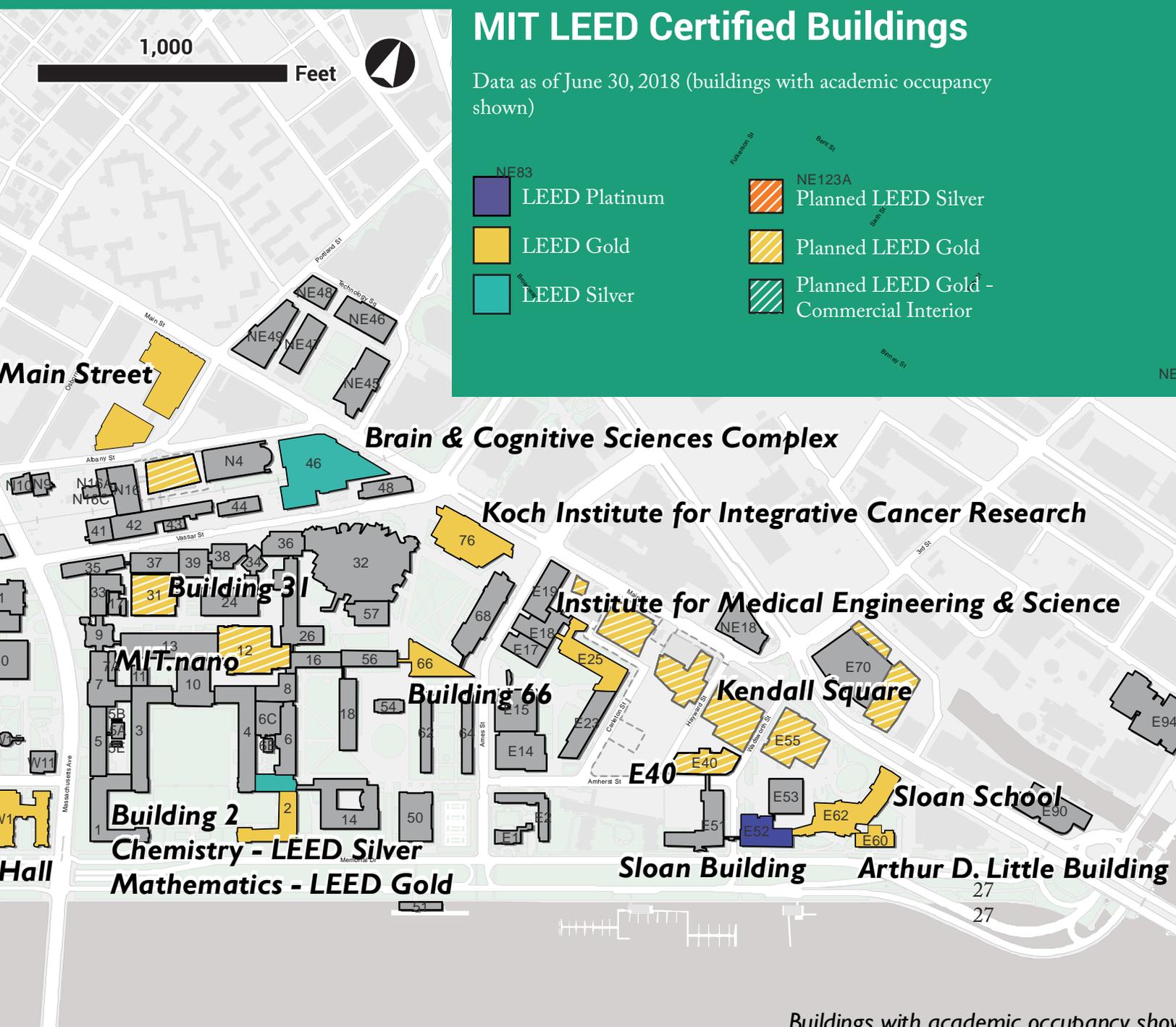
MIT completed a full renovation of the six undergraduate residential houses in W70. The project was designed by Goody Clancy and construction was completed for Fall 2018 re-occupancy.



## E40 Center for Transportation & Logistics Renovation

The Center for Transportation and Logistics (CTL) has launched MIT's first MicroMaster's program, as well as a new Blended Master's Program. This project accommodates the programmatic needs of these new programs as well as CTL's existing Supply Chain and Logistics Excellence (SCALE) projects and the AgeLab. The program includes improved office and collaborative spaces on the second floor and a new

classroom on the 3rd floor to accommodate MIT's MicroMaster's program. In addition to the program, the project included building code and ADA/MAAB required upgrades as well as selected infrastructure improvements. The project was designed by Gensler and is on track for LEED Gold certification in the Commercial Interiors program. The project was completed in December 2017.





## In Construction

### Building 4 Laboratory Renovation

The Chemistry Undergraduate Teaching Laboratory has relocated from Building 4 to the new MIT.nano building, vacating approximately 20,000 gross square feet on the 4th floor. The relocation of this major teaching laboratory presents the opportunity to fully renovate 12,000 square feet of space for the Department of Earth, Atmospheric & Planetary Sciences (EAPS). EAPS plans to establish world-class wet lab facilities in support of the department's research in the fields of climate science and atmospheric chemistry. The remaining quarter of the space will be reserved for future wet labs. The project is designed by Payette Associates. The project is targeting LEED Gold in the Commercial Interiors program. Completion is expected in 2020.

### Central Utility Plant upgrade

Work continues to upgrade MIT's Central Utilities Plant (CUP), a distributed energy resource (DER) that powers the campus microgrid with thermal and electric energy. The CUP upgrade is essential to the Institute's sustainability goals and will improve campus resiliency by creating an enhanced, more efficient, more flexible power system. The CUP's efficiency and environmental gains will result from the installation of new and upgraded equipment as well as the switch to natural gas and the elimination of No.6 oil use. Starting in 2020, greenhouse gas emissions are expected to be 10 percent lower than 2014 levels, offsetting a projected 10 percent increase in greenhouse gas emissions due to energy demands created by new buildings and program growth.

Two new gas turbines will provide up to 44 MW of power to the campus. The turbines will allow

MIT buildings that are served by the CUP to be self-sufficient should there be an extended utility outage. Construction of the new cogeneration plant housing the turbines commenced in the summer of 2017. Startup and commissioning is planned for October 2019 with the expectation that the plant will be fully operational in April 2020. The existing gas turbine will be retired when the new plant is fully operational.

The new plant building is located in a former parking lot south of Albany Street, adjacent to the existing plant and next to MIT's Albany Street parking garage. The building will serve as a new entrance to the MIT CUP. The engineer for the project is Vanderweil Engineers' Power Group. The architect for the building is Ellenzweig, the firm that has led the architectural design for MIT's CUP for the past 20+ years.





## Vassar Street Residence

As part of its current Capital Renewal program, MIT is formulating a long-term plan to renew its undergraduate residences. This process will require vacating one residence at a time as each is renovated. The new residence hall will partially replace beds lost from the removal of Bexley Hall on Massachusetts Avenue. To provide housing during the renovation process, this project creates a new undergraduate residence hall with a capacity of 450 beds located on Vassar Street at the former sites of the West Garage (W45) and the Grounds Services facilities (W56/W57).

The residence hall's design (influenced by the Architectural Principles Document developed by a team of MIT students, faculty heads of house, and staff) includes rooms arranged in "clusters" of 35-38 students in a mix of singles and doubles with shared community spaces such as lounges and study rooms. Throughout the building, stairways have been located and de-

signed to encourage communication and travel between the clusters. Residents will also enjoy larger shared community spaces such as study lounges, music rooms, a private courtyard, and other flexible spaces. A dining facility on the first floor, open to the MIT community, will include a kitchen area where students will have the opportunity to cook for themselves.

The sustainability goals of the project include meeting a minimum LEED v4 Gold certification under the Homes and Multifamily Midrise program, as well as being solar-ready and Net Zero Ready. The W45 Garage was demolished last winter and site preparation took place in the spring and summer. The foundation is being set and steel is being erected in the fall of 2018. The design architect is Michael Maltzan Architecture and the executive architect is DiMella Shaffer. Construction, managed by Walsh Brothers, is scheduled to be completed by summer 2020 for fall semester occupancy.



## 139 Main Street

Following the Institute's acquisition of this 37,600 square foot historic building, MIT completed the design for the restoration of the building and commenced the renovation in late 2017.

The space is being built out with smaller office suites to meet the needs of small and mid-size tenants in the market. The base building and tenant improvements are expected to be complete in early 2019.

## In Construction: Kendall Square Initiative

The Kendall Square Initiative includes six buildings: three sites will house office and/or R&D uses, one site will provide graduate student housing, an MIT Welcome Center, and other administrative office uses, and one site is proposed as a small retail building. Each building will include retail and/or active uses on the ground floor. The development also includes a significantly publicly-accessible open space south of Main Street, and other landscape improvements throughout.

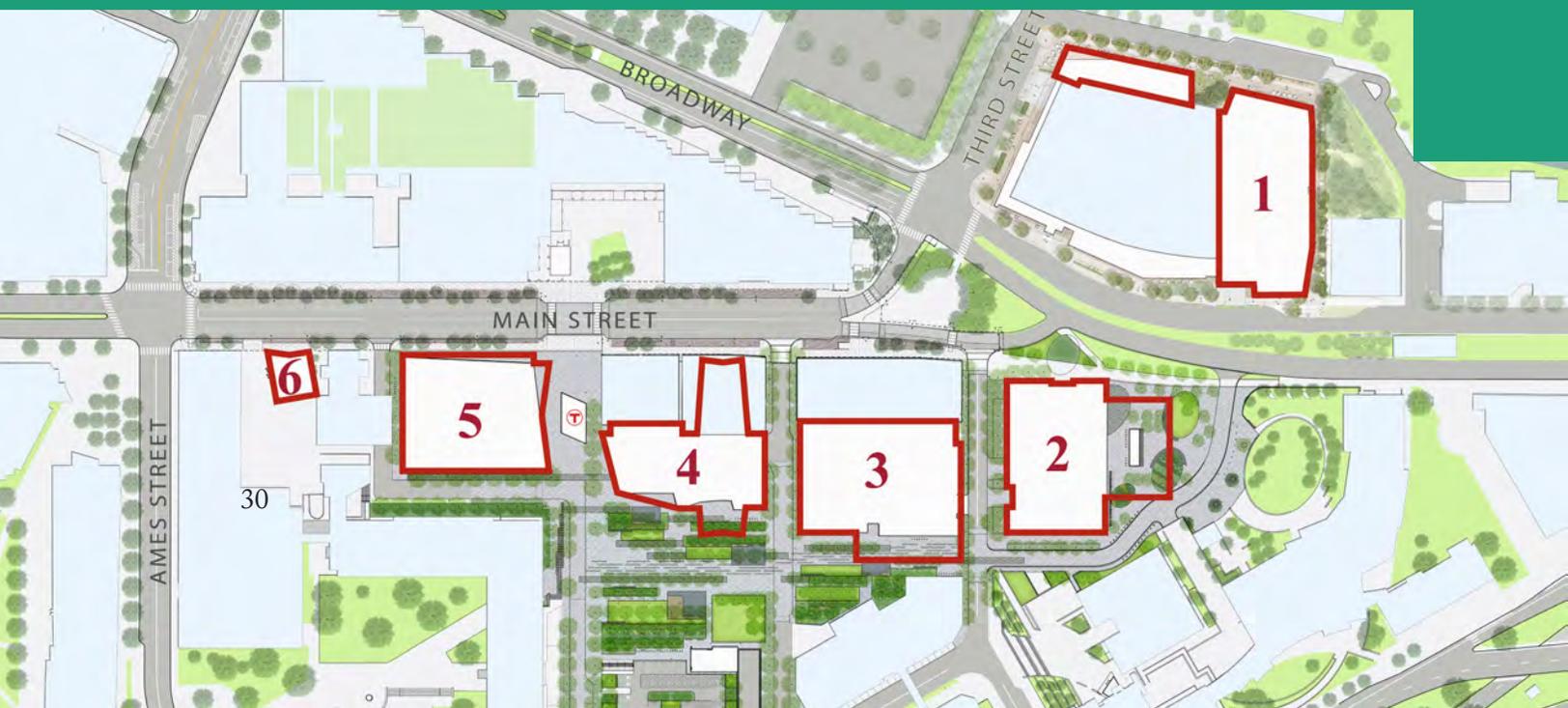
The project retains and incorporates the three historic buildings along Main Street: the Kendall Building (238 Main Street, now Site 4); the J.L. Hammett Building (264 Main Street, now Site 4) and the Suffolk Building (292 Main Street, now site 3). Construction of the utility infrastructure started in late summer 2016 and is expected to be complete by the end of 2018. The project includes new municipal water, sewer, and drain lines; private utility electric, gas, and telephone/data lines; and MIT electric, telephone/data, steam, and chilled water lines.

Construction of the below-grade garage and loading facilities south of Main Street started in early 2017. Construction is projected to continue through 2020, with completion anticipated prior to the occupancy of any of the buildings

south of Main Street. Using an “up-down” construction method will enable construction of the buildings from grade up while development of the garage moves from the surface to the lowest level. The slurry wall support of excavation system in the garage was completed and mass excavation started in 2018. As of this report, the garage has reached the P1 level and will continue to move downward as vertical construction commences on the buildings above.

Construction on Site 4 continued through 2018 and will open to new graduate students in the fall of 2020. While interior renovations continue in the historic E38 and E39 structures, structural steel and concrete for the residential structure have been installed and construction of the façade panels for the building will begin by the end of the year.

Construction on Site 5 broke ground on October 9, 2018 in a celebration that included the entire community – MIT faculty, staff, and students, neighborhood residents, city councillors and staff, and children from the Margaret Fuller Neighborhood House, the Community Arts Center, and the East End House. Earlier this year on August 1st, MIT announced that Boeing would take 100,000 square feet of Site 5 to establish the Aerospace and Autonomy Center,



which will focus on advancing enabling technologies for autonomous aircraft. MIT expects to complete the base building in 2020.

Construction has started on the north side of Main Street with improvements to the existing One Broadway building. This initial phase includes the relocation of the lobby and the ad-

dition of new retail space on Third Street and Broadway. Earlier this year, Dunkin Donuts opened a new location on the Third Street side of One Broadway, and construction is underway for a Brothers Marketplace to open in late summer 2019. Construction of the residential building (Site 1) and additional retail space along Broad Canal Way will follow.



## MIT Museum in Kendall

The MIT Museum is relocating the public facing programs of the Museum to the new Site 5 building in Kendall Square, directly adjacent to the Kendall/MIT MBTA station. The Museum will occupy part of the ground floor, all of the second and third floors and some space in the basement level. The move to Kendall allows the Museum to nearly double the exhibition areas and provide better public program space that can spill out into the gateway showcasing MIT

and engaging the public. Some academic operations will remain at the Museum's current site of N52. Site 5 Building construction is underway. Design for the Museum space is expected to be complete in early 2019 and the new Museum will be ready to open by June 2021. Both the Site 5 building and the Museum are planning on LEED Gold. The Museum's LEED certification will be in the Commercial Interior program.

# In Construction: Kendall Square Initiative

## Site 4 MIT Gateway and Graduate Student Housing

The Site 4 project incorporates two existing buildings on Main Street. E38 will be completely renovated to accommodate ground-floor retail space and the Admissions offices on the second floor. Above these, the building's five upper floors will be transformed into a new Innovation and Entrepreneurship Hub: open, multi-use spaces for student makers and entrepreneurs, researchers, and staff, and a new home for the MIT Innovation Initiative, Deshpande Center, Legatum Center, and other related programs.

Next door, E39 will be renovated to include ground-floor retail, two floors of academic office space, and a residence building providing 454 housing units (2-bedroom, 1-bedroom, and efficiencies) for MIT graduate students. The housing facility will be anchored by a three-level "Podium" housing a childcare facility, common space for the residents, and an active community and academic space – the Forum – featuring a 200-seat auditorium and movable walls for flexibility in configuration.

In a variety of ways, Site 4 is designed to serve as a bridge between the MIT campus and the City of Cambridge. The entire ground floor of the Forum will feature floor-to-ceiling windows that offer a view of the activity within. When not serving to introduce student applicants to the campus, the Forum will be available to other MIT groups and to

the broader Cambridge community. Along its southern side, Site 4 will border a welcoming open space designed to encourage pedestrian traffic, providing trees, landscaping, and seating as well as space for special and seasonal events.

Given its location, the Site 4 project will help power the exchange of ideas by situating MIT problem solvers among industry innovators, and its active ground floor uses are expected to create a dynamic and engaging environment that will add vitality to Kendall Square and MIT's east campus.

Site 4 will have access to underground parking being developed as part of the Kendall Square project and will provide long-term and short-term bicycle parking. It is targeting LEED v4 Gold certification.



## In Planning & Design

### MIT Stephen A. Schwarzman College of Computing

MIT recently announced a new \$1 billion commitment to address the global opportunities and challenges presented by the prevalence of computing and the rise of artificial intelligence (AI). The initiative marks the single largest investment in computing and AI by an American academic institution, and will help position the United States to lead the world in preparing for the rapid evolution of computing and AI.

At the heart of this endeavor will be the new MIT Stephen A. Schwarzman College of Computing, made possible by a \$350 million foundational gift from Mr. Schwarzman, the chairman, CEO and co-founder of Blackstone, a leading global asset manager.

Headquartered in a signature new building on MIT's campus, the new MIT Schwarzman College of Computing will be an interdisciplinary hub for work in computer science, AI, data science, and related fields. The College will:

- reorient MIT to bring the power of computing and AI to all fields of study at MIT, al-

lowing the future of computing and AI to be shaped by insights from all other disciplines;

- create 50 new faculty positions that will be located both within the College and jointly with other departments across MIT — nearly doubling MIT's academic capability in computing and AI;
- give MIT's five schools a shared structure for collaborative education, research, and innovation in computing and AI;
- educate students in every discipline to responsibly use and develop AI and computing technologies to help make a better world; and
- transform education and research in public policy and ethical considerations relevant to computing and AI.

The planning for the building to house the new College is underway, but no location or architect has been selected.

### New Graduate Student Housing

As part of last year's commitment to expand the stock of graduate student housing, MIT is planning for 500 new beds. The siting process is underway and has focused on locations in the West and Northwest campus areas. Consistent with MIT's commitment, this project is on track to file for permits by the end of 2020. No architect has been selected for this project.



## In Planning & Design

### Hayden Library

Designed by the firm of Voorhees, Walker, Foley & Smith and completed in 1951, the 144,000 gross square foot Building 14 (Hayden Library) is a significant core element of the MIT Campus. Located along the Charles River and connected to MIT's original Main Group buildings, Building 14 is composed of four wings surrounding an uncovered interior courtyard (Liptchitz Courtyard) and full basement.

In the Hayden Library project, MIT is looking to renovate approximately 35,000 square feet within the main reading rooms and office spaces on two floors to reflect the changing nature of the research library for today's students and faculty. The program also includes new, flexible classrooms, a café, and an event space.

Kennedy & Violic Architecture has been selected for a Conceptual Design and Program-

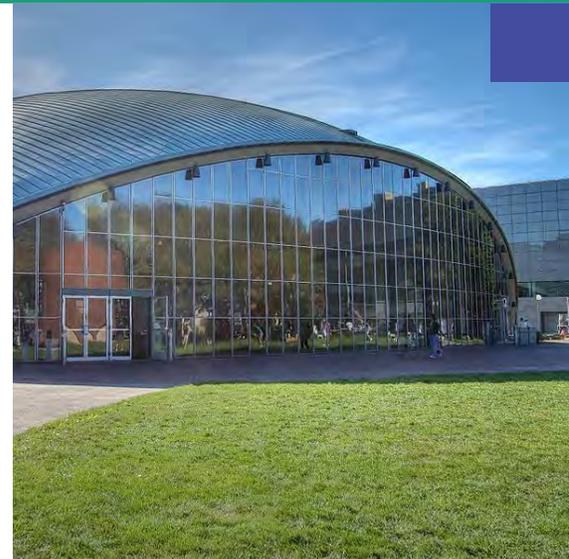


ming phase to validate the preliminary program, provide conceptual design options, and evaluate required code and accessibility upgrades to the building. The project is targeting LEED Gold Certification.

### Music

A new facility will be designed to meet the current and future needs of MIT's Music program and will house a new performance space. It will be constructed adjacent to Kresge Auditorium, which has served for decades as the primary performance facility for MIT Music and Theatre Arts productions and for student arts organizations. With space for lectures, practice, and performance, the new building will consolidate many of the Music program's activities into one location and incorporate critical aspects of acoustical design for optimal listening, playing, and recording.

The building's centerpiece, a purpose-built performance lab, will provide a uniquely flexible, large-scale space for experimenting with various performance formats, including the ability to stage unconventional music events and employ flexible seating. In addition, the performance lab and a recording studio will offer professional-level chamber music recording, a new resource for the MIT campus. Other principal spaces include a music technology classroom, music technology lab, two student production labs and specialty storage for instruments. This project is still in planning, and an architect has not been selected.



*Kresge Auditorium*



## Pierce Boathouse

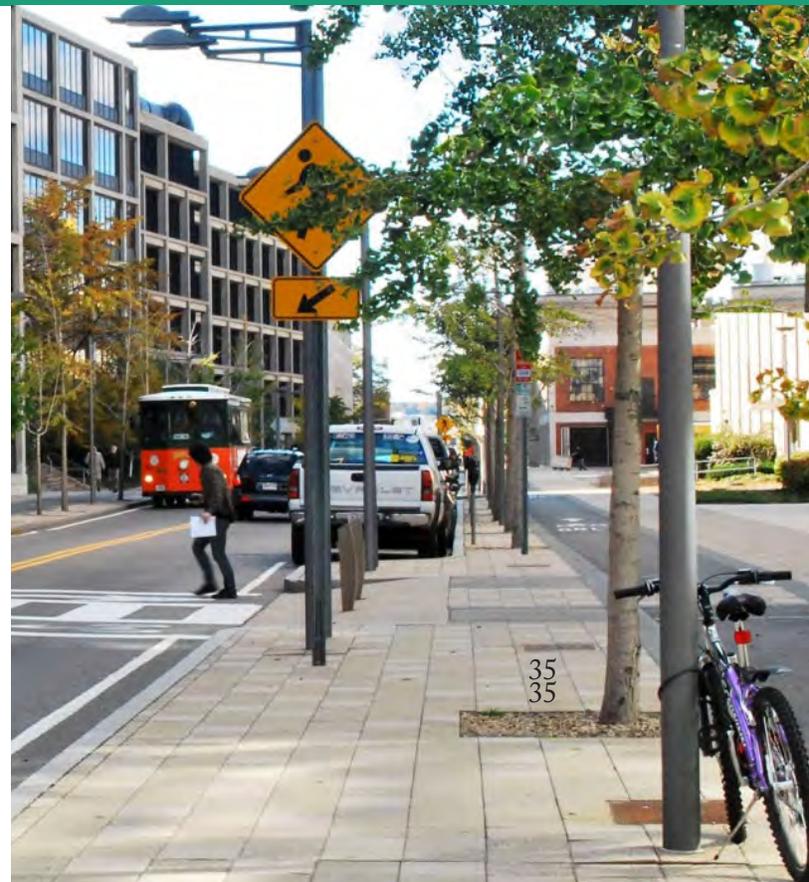
Located on the Charles River along Memorial Drive, the Harold Whitworth Pierce Boathouse was designed by the firm of Anderson Beck with & Haible and dedicated on September 9, 1966. The 22,000 square foot building was designed to house one all-male Varsity crew team. The current facility houses 64 ergometers and a fleet of more than 50 shells, including eights, fours, pairs, and singles housed in four boat bays. Pierce Boathouse now hosts 80 men and 80 women that comprise four Division 1 varsity squad teams. In addition, various MIT clubs and community groups have been utilizing the storage and launch space for their own crew activities.

The proposed exterior renovation to the boat house will feature new insulated windows, improve dock access to comply with ADA requirements, and extend the deck to Memorial Drive, adding a second egress from the building. The extensive interior renovation will provide more space for increased cardio and weight training, improve the men's and women's locker rooms, add coach space, and increase the amount of dedicated boat storage, while renewing key building systems.

This project is still in planning, and an architect has not been selected.

## Vassar Street (East of Massachusetts Avenue)

A 2016 conditions assessment and a 2017 infrastructure study have suggested a Vassar Street rehabilitation project between Massachusetts Avenue and Main Street. The project will result in a updated treeway, including aeration, irrigation, drainage, 45,000 cubic feet of structural soils, and the replanting of 51 street trees. The project will also include the repair and replacement of site furnishings such as street lights and bollards, the repainting of crosswalks and cycle track graphics, and other site improvements. The landscape architect CRJA-IBI has been hired and design has begun.



# Sustainability

MIT's Office of Sustainability (MITOS) continues to develop and implement a campus sustainability model that both advances the mission of academic excellence at MIT and seeks to transform the campus itself into an active demonstration of the Institute's ability to address the world's great challenges. Our applied methodology seeks thoughtful partners from which to learn and co-create innovative strategies to solve for sustainability at the individual, campus, city and global scale.

Two highlights for 2018 are the launch of the MIT Sustainability Data Pool web portal, a first of its kind sustainability data platform accessible by MIT community members. Secondly, our data driven approach has led to a deep un-

derstanding of the impact of changing climate on the MIT campus and broader Cambridge community.

New sustainability efforts in 2018 have brought together a group of stakeholders from MIT's operational and academic communities to explore the cultural, administrative, and environmental dimensions of the MIT food system. In a complex and lively urban environment like Cambridge, the group is exploring strategies to concurrently address important issues of food security and sustainability, focusing on approaches such as building community and mindful eating through the design of food spaces, access to healthy meals, procurement of sustainable food, and the reduction of food waste.

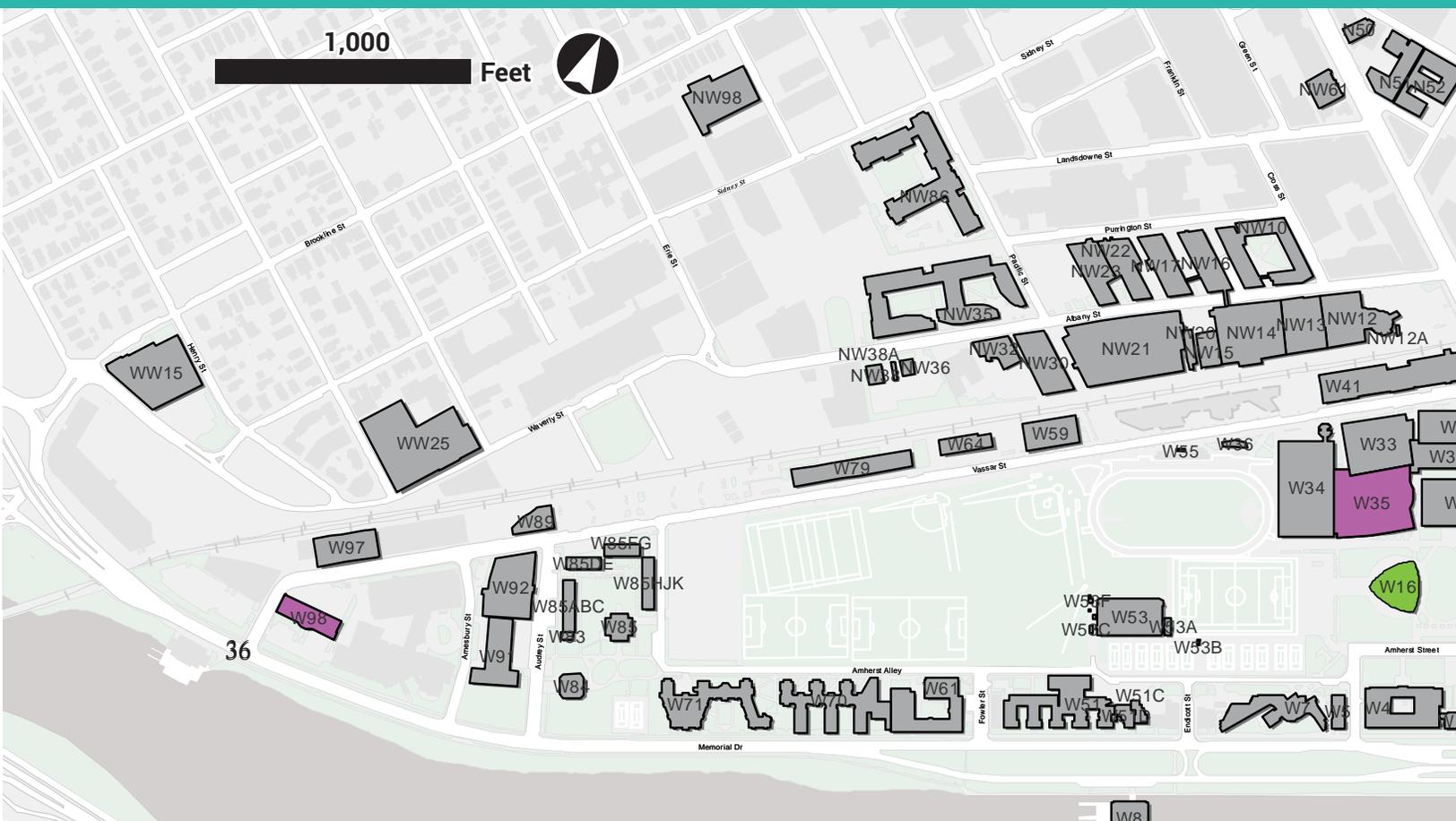
## MIT Energy Efficiency Upgrade Projects

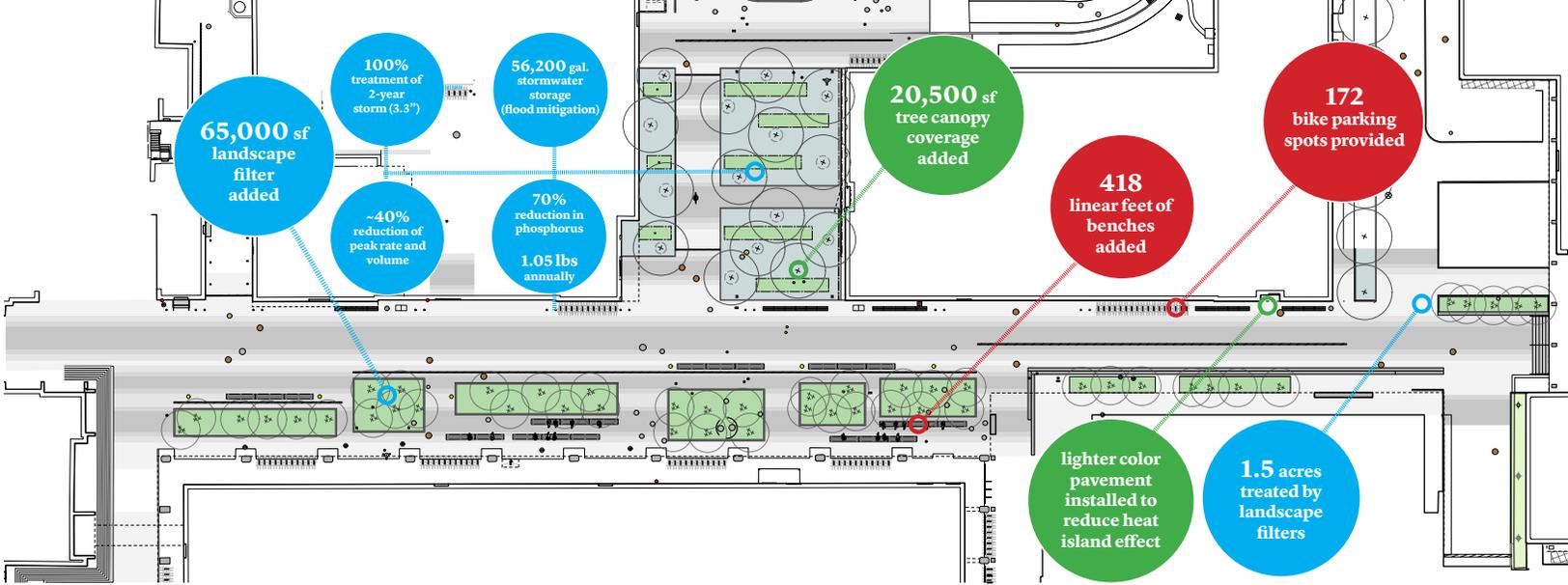
Data as of June 30, 2018  
(buildings with academic occupancy shown)

 In Construction or Planned for 2018/2019

 Completed in 2017/2018

N57





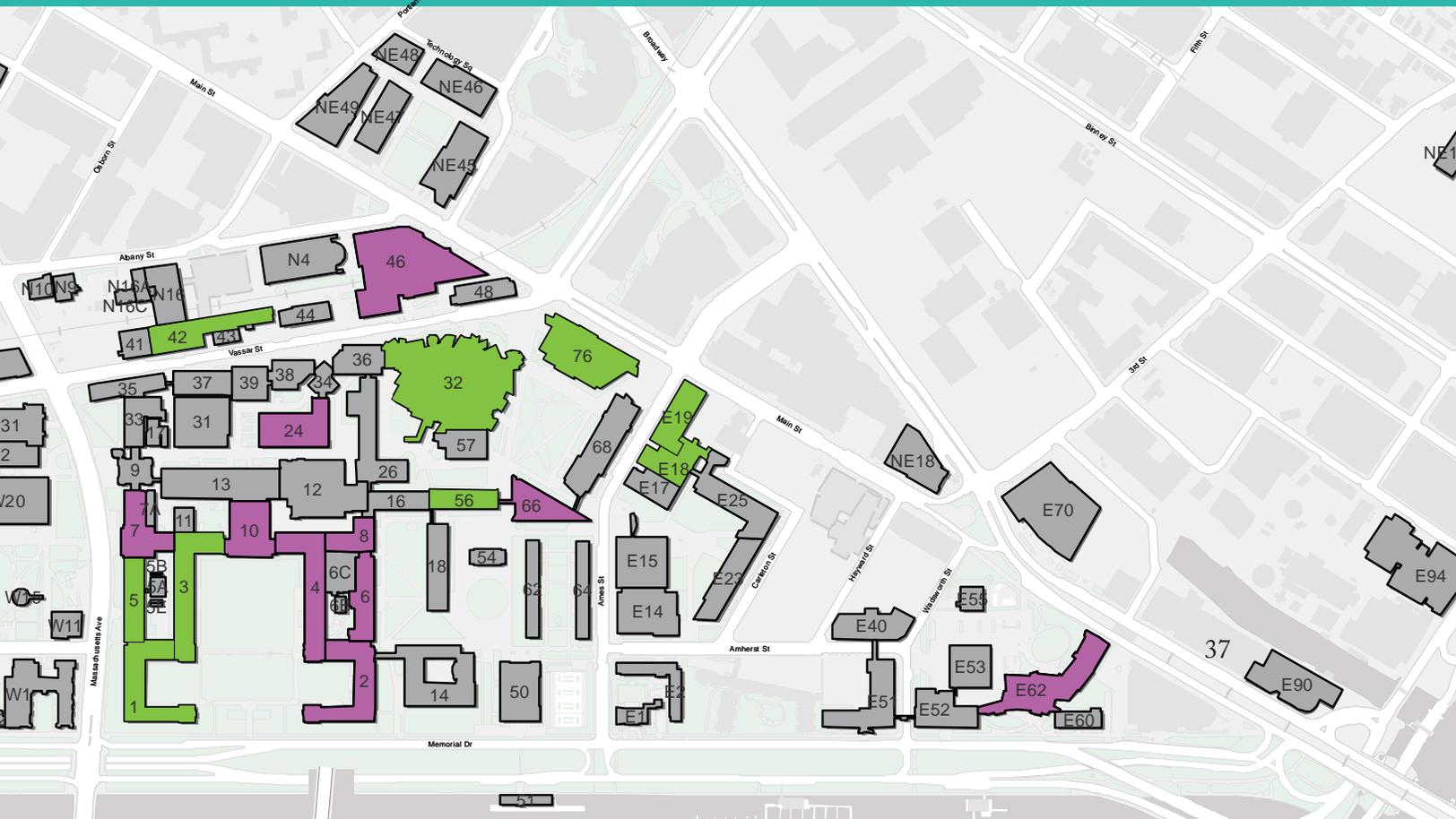
## Tree Resources

Despite its urban setting, MIT's Cambridge campus hosts more than 2,200 trees. Increasingly, campus redevelopment projects incorporate trees as part of landscape-based systems that enhance climate resiliency and sustainability while creating welcoming open spaces.

In 2018 we planted 115 trees around MIT.nano, adding a projected 20,500 sf of mature canopy, and transforming a utilitarian service drive into a pedestrian-friendly "cool corridor" and cross-campus link. Landscape filtration beds collect

and cleanse more than 50,000 gallons of stormwater (see above). Starting in 2019, projected tree plantings include approximately:

- 30 new trees at the Vassar Street Residence Hall on a former surface parking lot
- 50 replacement trees on East Vassar Street
- 200 new trees with the Kendall Square Initiative, representing more than 20 species, creating broad species diversity and a vibrant new campus open space.



## Climate Resiliency

MIT's partnership with the City of Cambridge is vital for addressing collective urban and regional-scale climate challenges of flooding and heat risks. These collaborative activities are demonstrating how cities and university partners can conduct joint town-gown resiliency planning.

Together, MIT and the City are growing a more resilient campus and city through two parallel efforts designed to reduce the uncertainty of current and future climate risks: 1.) integrated campus and city flood risk modelling, and 2.) a collective approach to identifying steps for promoting continuity of business and research activities for Cambridge institutions.

1.) Flood risk modelling: An integrated modelling of flood risks was launched by the City via the Cambridge Climate Vulnerability Assessment (CCVA) in 2015 and refined in 2017. This City-led mapping of current and future flood risks provided a broad understanding of potential impacts for Cambridge. In 2018, MIT advanced the 2017 CCVA modelling by investing in a more refined flood risk map for East Cambridge and the MIT campus. MIT's activities included collecting approximately 500 additional field data points, updating the model with recent stormwater management projects and generating new flood risk maps that match the same CCVA scenarios for current and future (2070) 1% and 10% probability precipitation events. The completed mapping will enable MIT and the City to strategically and collaboratively explore and prioritize flood mitigation efforts at both campus and city scales.

MIT has also engaged research scientists from the MIT Joint Program for the Science and Policy of Global Change to advance the CCVA findings about climate risks by forecasting the likelihood of joint climate risks, such as the probability for heavy rain events to occur within a similar time period as higher river water levels which could combine for a consequential flood impact to the Cambridge region. Upon completion of this research, MIT will share these

findings with the Cambridge community, further reducing the region's uncertainty for managing current and future risks.

2.) Promoting continuity of business and research activities: In parallel with the risk modelling, MIT has been leading conversations with the City and Cambridge businesses through the Cambridge Compact for a Sustainable Future. Building on the momentum and interest from a June 2017 session led by MIT and Novartis on collaborative resiliency planning, MIT, the City, Novartis, and Harvard University organized a "Business Continuity Climate Resiliency Tabletop Exercise" (<https://cambridgecompact.org/climate-resiliency-tabletop-exercise/>) in January 2018 that hosted 80 representatives from 20 Cambridge businesses, city and state governmental offices to identify collaborative opportunities for reducing the risk of adverse business and research disruptions from climate events.

The exercise identified common supply chain and service dependencies shared by Cambridge businesses and prioritized which services, if disrupted, could be most consequential for Cambridge institutions. The event revealed a significant number of interdependencies among Cambridge stakeholders including vendors, utilities and transportation and gaps in supply chain resiliency. New collaboration opportunities with Cambridge institutions have been opened for collectively approaching critical and common vendors to strengthen supply chain vulnerabilities.

The exercise allowed for increased awareness of gaps and obstacles in resource sharing in a climate-based disaster, as well as after action items to resolve these issues and improve coordination and communication throughout Cambridge. The Situation Manual provides an overview of the exercise and information on the exercise objectives, structure, and guidelines. The After Action Report outlines the strengths and the areas of improvement that resulted from the exercise.



This January 2018 “tabletop” exercise engaged nearly 20 institutions from Cambridge as well as regional and state offices to identify gaps in regional business continuity and begin exploring collective steps that can enhance the region’s business and research continuity.

## Climate Mitigation

Progress towards meeting MIT’s campus greenhouse gas reduction goal of at least 32% by 2030 from 2014 emission level continues on pace. In addition to continuing energy efficiency investments across campus, the strong performance of MIT’s solar energy purchase agreement con-

tributed to fiscal year 2018 performance that reduced our overall GHG emissions 4% below last year’s level, and 20% below our 2014 baseline. Diverse efforts are underway to envision a carbon-neutral campus, in partnership with faculty, students, staff and the City partners.

## Looking Forward

In FY2019, MIT is forging ahead to ensure continued success with the work that was seeded in FY2018 and previous years, while informing a new forward-looking vision. MITOS will continue to seek collective engagement and action on priority areas that include:

- Climate change: forging ahead with strategies for mitigation, adaptation and resiliency;
- Materials management: measuring, analyzing and eventually managing the impact of the Institute’s purchasing and waste systems in a manner that takes the full lifecycle costs and impacts of materials and products into consideration;
- Sustainable design & construction: continuing to ensure that we have access to the knowledge and processes needed to enable our campus growth while minimizing our impacts;
- Food and culture: exploring ways to connect food choices to community health, sustainable agriculture and climate change;
- Water: seeking a comprehensive understanding of our water use patterns in an effort to reduce overall demand and consumption across campus;
- Sustainable transportation: broadening and deepening MIT’s commitment and robust participation in Access MIT;
- Data collection and analysis: launching the centralized sustainability data hub to inform and learn from our decision-making processes and institutional impacts;
- Leveraging the campus as a test bed for research, innovation, and teaching to improve understanding of systems and inform decision making.

# MIT & Cambridge Public Schools

MIT extends its mission to advance knowledge through a variety of academic enrichment opportunities for Cambridge students, and continues to work with Cambridge Public Schools to deepen engagement and participation. In this reporting period, MIT launched an Impact Scholarship program, started building the Pathways to Invention program, and hired a K-12 Community Outreach Administrator to strengthen coordination and communications around Institute educational offerings for local youth.

## MIT Impact Scholarship

During the MIT2016 celebration commemorating 100 years in Cambridge, the Institute announced a scholarship program for college-bound Cambridge seniors attending Cambridge Rindge & Latin School (CRLS), Prospect Hill Academy (PHA), and the Community Charter School of Cambridge (CCSC). Created to recognize and inspire the power of personal impact for Cambridge youth, the MIT Impact Scholarship also serves to reinforce MIT's belief that every individual has the ability to make valuable personal contributions that make the world a better place.

Now in its second year, the Impact Scholarship was awarded to ten phenomenal students (6 CRLS students, 2 PHA students, and 2 CCSC students) from a range of backgrounds. One student detailed how her own experiences living in a homeless shelter inspired her to volunteer at the Harvard Square homeless shelter. Displaying the empathy and warmth she had earlier

experienced from shelter staff, she recounts how she built relationships to impact shelter residents. Another student brought together peers to discuss the experiences of underrepresented minority students, turning their discussions into a theatrical performance for the community. All awardees had stories just as compelling, describing their personal impact on the larger community.

The application process drew increased interest in the scholarship's second year, with over 100 seniors applying. After a full review by school and MIT staff, ten \$10,000 scholarships were awarded pending confirmation of continuing full-time college enrollment.



## Pathways to Invention

The Pathways to Invention program, launched in concert with The Engine, continues to deepen its partnership with the Fletcher Maynard Academy (FMA). As the talented teachers at FMA build and develop their vision for the maker space, Pathways to Invention has been present to encourage the development of the space and provide resources and advice. Pathways has also worked to bring MIT speakers to Fletcher Maynard Academy to encourage young learners. MIT Senior Class President Colin Webb spoke to the entire school about



his journey to MIT and met privately with the Qualls Academy (3rd through 5th grade boys) to answer questions.

## K-12 Outreach Administrator

As part of the MIT2016 celebration, MIT announced the creation of a K-12 Community Outreach Administrator to help the Institute's more than 120 educational outreach programs better connect with the needs of the Cambridge community. To accomplish this goal, the office hired Rohan Kundargi to be a proactive liaison to strengthen lines of communication between MIT and the Cambridge Public Schools, community based organizations, Cambridge charter schools, Cambridge out-of-school time offerings

and other educational programs. Additionally, he will work in collaboration with local partners and will sit on the city-wide STEAM advisory board to further develop MIT's understanding of the needs of local K-12 students, including perceived educational gaps and opportunities. Formerly the Science Outreach Coordinator at Gonzaga University, Rohan brings his knowledge and enthusiasm for K-12 STEM programming to MIT's outreach environment.

## Selected K-12 Educational Offerings

### Office of Digital Learning

Leading MIT's effort to provide universal access to quality education through online platforms.  
<https://openlearning.mit.edu>

### Cambridge Science Festival

Offering over 250 STEM events during the 10-day festival in Cambridge.  
<https://www.cambridgesciencefestival.org/>

### MIT Museum

Hands-on STEAM workshops and field trip opportunities for students in grades 6-12.  
<https://mitmuseum.mit.edu/>

### Summer Youth Employment Program

Mentoring, resume workshops, and workplace experience for City youth.

### Edgerton Center

Fun, 3-hour hands-on STEM workshops that reach over 500 Cambridge students a year.  
<https://edgerton.mit.edu/>

### Lemelson Center

Offers programs that teach STEM through invention-based design activities.  
<https://lemelson.mit.edu/>

### Beaver Works

Project-based learning program designed to foster research skills in talented students.  
<https://beaverworks.ll.mit.edu/>

### KeyPals and NetPals

Mentorship program pairing adults with Cambridge students for one-on-one e-mail exchanges.

# Direct Economic Impact

Payments to the City of Cambridge					
	FY 14	FY 15	FY 16	FY 17	FY 18
Real Estate Taxes Paid*	\$41,878,455	\$44,900,590	\$50,185,924	\$54,891,906	<b>\$56,971,040</b>
Payment in Lieu of Taxes (PILOT)**	\$2,208,979	\$2,019,677	\$2,020,593	\$2,080,717	<b>\$ 2,211,875</b>
Water & Sewer Fees Paid	\$5,993,315	\$6,99,916	\$8,898,350	\$8,315,850	<b>\$7,937,273</b>
Other Fees & Permits Paid	\$6,042,590	\$3,765,563	\$6,754,417	\$5,644,924	<b>\$11,483,296</b>
<b>Total Payments</b>	<b>\$56,123,339</b>	<b>\$57,685,746</b>	<b>\$67,859,284</b>	<b>\$70,933,397</b>	<b>\$78,603,484</b>

\* Includes real estate taxes paid by MIT, taxes paid on MIT-owned property through ground leases, and real estate taxes generated by Independent Living Groups.

\*\* The amount of MIT's PILOT payment is governed by the 2004 agreement between MIT and the City of Cambridge.

## Cambridge First Purchasing Program

MIT's Cambridge First Purchasing Program resulted in the additional investment of over \$56 million in Cambridge businesses in FY 18. This program, together with taxes paid, payments in lieu of taxes, and municipal fees, brought MIT's 2018 direct economic contribution to the City to more than \$134 million. This figure does not include MIT's indirect investment in Cambridge such as student spending and the salaries of more than 2,500 residents employed by the Institute.

MIT's FY18 real estate tax payment represents 14.6% of the City's total tax revenue stream.

#1 Taxpayer in Cambridge

## Opportunity in the Innovation Economy

### The Foundry

In April 2018, the Cambridge Redevelopment Authority unanimously passed a motion to recommend the Foundry Consortium, led by Lemelson-MIT, as the operator of the Foundry Building at 101 Rogers Street. After a \$30 million renovation, the 10,000 square foot space is scheduled to open in 2021 as a community space for programs in arts, entrepreneurship, technology, and workforce education. The goal of the Foundry is to facilitate access for residents, especially underrepresented communities and adjacent neighborhoods, to the dynamic working and learning environment of Kendall Square.

### MIT Job Connector

In conjunction with its Volpe site zoning approval, MIT will be creating a Job Connector program for Cambridge residents. MIT staff are currently working with a consultant to collect input from public officials, residents, and neighborhood representatives about what kinds of workforce development and job readiness programs and support are most needed in the community. The Job Connector will be located on Main Street in Cambridge near The Port neighborhood and is expected to open in Spring 2019.

### The Engine

The Engine was launched in October 2016 to provide a home for “tough tech” - transformative technology that takes the long view in solving the world’s important challenges through the convergence of breakthrough science, engineering, and leadership. The team has already invested in 13 companies and is on pace to invest in 10 to 12 additional companies next year. The Engine headquarters in Central Square provides 26,000 square feet of space, and MIT seeks to make additional space available in close proximity to campus. The Engine expansion vision continues to focus on creating a magnet for tough tech in Cambridge.

As a connector in the Innovation Economy, the Engine opened its doors and provided tours to the young inventors from the Lemelson-MIT program in groups of 15-20. The tours served two purposes. First, Lemelson-MIT InvenTeams comprised of high school students, educators and mentors were able to see what their futures might include by talking to people actively involved with the innovation ecosystem around MIT. Secondly, local businesses and organizations learned about the Lemelson-MIT Program’s invention education and the work it does to develop young inventors.



