

# 2017 Town Gown Report

MIT's 2017 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

The number of graduate students and post-doctoral employees grew between 2008 to 2017, but that trend has slowed in the current year with almost no growth for graduate students (0.3%) or for post-doctoral employees (0.1%). The average annual growth rate in the number of graduate students was 1.5% from 2008 to 2013, but it has declined to an average of 0.4% since 2014. Post-doctoral employment grew faster in the 2008 to 2013 period compared with 2014 to 2017, with the average growth rate dropping from 7.3% to 1.5%.

As noted in last year's report, one explanation for the early increase in post-doctoral numbers may have been the perception of instability within individual graduate programs. Financial uncertainty regarding federal and private resources avail-

able for research in the future may have resulted in a reluctance to enroll graduate students in a multi-year degree program for which resources might not be available in the later years of the graduate student's career at MIT. However, sufficient funding was available at that time to hire post-doctoral employees to support ongoing research. More broadly, 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.

From 2008 to 2014, the undergraduate popula-

Student Body	2013	2014	2015	2016	2017	2027
<b>Total Undergraduate Students</b>	4,477	4,510	4,476	4,474	<b>4,489</b>	4,500
Day	4,477	4,510	4,476	4,474	<b>4,489</b>	
Evening	N/A	N/A	N/A	N/A	<b>N/A</b>	
Full Time	4,456	4,485	4,442	4,440	<b>4,444</b>	
Part Time	21	25	34	34	<b>45</b>	
<b>Total Graduate Students</b>	6,431	6,528	6,560	6,537	<b>6,599</b>	6,400-6,600
Day	6,431	6,528	6,560	6,537	<b>6,599</b>	
Evening	N/A	NA	N/A	N/A	<b>N/A</b>	
Full Time	6,417	6,514	6,509	6,523	<b>6,592</b>	
Part Time	14	14	51	14	<b>7</b>	
<b>Non-Degree Students</b>	189	182	204	226	<b>191</b>	
Day	189	182	204	226	<b>191</b>	
Evening	N/A	N/A	N/A	N/A	<b>N/A</b>	
<b>Total Students Attending Classes in Cambridge</b>	11,097	11,220	11,240	11,237	<b>11,279</b>	11,000-11,300
Non-resident students not included	92	81	79	94	<b>97</b>	

Faculty & Staff	2013	2014	2015	2016	2017	2027
<b>Cambridge-based Staff</b>						
Head Count	9,329	9,692	10,039	10,234	<b>10,596</b>	10,000-11,000
FTEs	7,954	8,294	8,599	8,743 <sup>‡</sup>	<b>9,009</b>	
Post-Doctoral Staff**	1,402	1,421	1,515	1,486	<b>1,488</b>	
<b>Cambridge-based Faculty</b>						
Head Count	1,007	1,012	1,004	1,019	<b>1,020</b>	1,100
FTEs	1,002	1,005	999	1,010 <sup>‡</sup>	<b>1,013</b>	
<b>Number of Cambridge Residents Employed at Cambridge Facilities</b>	2,305	2,347	2,391	2,494	<b>2,552</b>	2,500

\*\* 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."

tion grew slowly in a planned effort to match the historic total undergraduate population of 4,500. After reaching this level in 2014, the undergraduate population has remained unchanged. This year's population remains stable at 4,489, just under the target of 4,500.

For more than 25 years, the number of tenured faculty members has remained stable at around 1,000. While there was a decrease in staff due to the great recession, the staff population has recovered to pre-recession levels and is growing at a rate of 1.4% annually.

International students account for 42% of the 2017 graduate student population.



# Housing

## Undergraduate Housing

As part of its mission to enhance the campus environment, the Institute is focused on a number of factors when planning for housing: strengthening connections between northwest and west campus, enlivening Vassar Street and Amherst Alley, creating connections through the athletic fields, and activating the western edge of campus. In keeping with these objectives, MIT is advancing a proposed undergraduate residence hall on the site of the West Garage parking facility on Vassar Street. The site, which is close to the center of the campus and near the existing Simmons undergraduate residence hall and campus athletic facilities, is ideally suited for undergraduate life.

The residence hall's design has been influenced by a set of architectural principles developed by a team of MIT students, faculty heads of house, and staff. The design features rooms arranged in "clusters" with shared community spaces including lounges, music rooms, study rooms, and

other flexible spaces. Throughout the building, stairways have been located and designed to encourage communication and travel between the clusters.

An MIT dining facility on the first floor will include a kitchen area where students will have the opportunity to cook for themselves. The project would add 450 new dormitory beds with a target completion date of Fall 2020. Outside, inviting benches and a plaza connecting the Pacific Street railroad crossing to the residence hall will provide a welcoming environment for students and the public to enjoy.

In addition to enhancing the student life experience at MIT, the new residence will provide MIT with flexibility and capacity as it continues its comprehensive renewal of campus housing. For example, the phased renovation at New House (W70) is ongoing, and is expected to be completed in 2018.

Student Residences	2013	2014	2015	2016	2017	2027
<b>Undergraduate Students Residing in Cambridge</b>						
In Institute-approved housing	3,589	3,577	3,543	3,654	<b>3,652</b>	3,600-3,700
In off-campus housing owned & managed by MIT	7	0	0	0	<b>1</b>	
In off-campus non-MIT housing	66	71	77	109	<b>107</b>	
<b>Graduate Students Residing in Cambridge</b>						
In Institute-approved housing	2,392	2,430	2,384	2,044	<b>2,221</b>	3,200-3,500
In off-campus housing owned & managed by MIT	123	59	44	35	<b>27</b>	
In off-campus non-MIT housing	1,779	1,884	1,876	2,610	<b>2,468</b>	
<b>Student Parking</b>						
Number of student parking permits issued (including resident and commuter parking)*	--	--	--	294	<b>194</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.



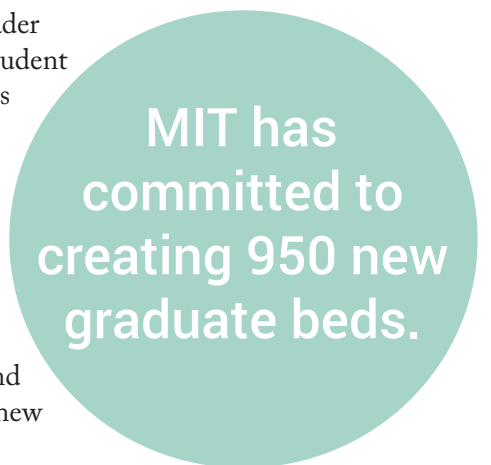
Housing	Tax Exempt		Taxable	
	MIT-Owned & Managed Housing	Other Housing	MIT-Owned & Managed Housing*	Other Housing
<b>2013</b>				
Units	0	0	164	930
Buildings	0	0	15	7
<b>2014</b>				
Units	0	0	164	930
Buildings	0	0	13	7
<b>2015</b>				
Units	0	0	164	930
Buildings	0	0	13	7
<b>2016</b>				
Units	0	0	163	930
Buildings	0	0	12	7
<b>2017</b>				
Units	0	0	163	930
Buildings	0	0	12	7
<b>2027</b>				
Units	0	0	163	930
Buildings	0	0	12	7

\* Occupied by both MIT and Non-MIT residents.

## Graduate Housing

At the urging of MIT graduate students and others in the broader Cambridge community, the Institute established a Graduate Student Housing Working Group to examine current housing needs. As a result of that group's analysis, MIT announced the Institute's commitment to create 950 graduate student beds (over the baseline of 2017 inventory) which will be either in permitting or online by the end of 2020. This will be achieved in three ways: the construction of a Kendall Square graduate student residence hall with 250 net new beds; a minimum of 200 new graduate student housing beds, either by the conversion of existing beds or the creation of new beds in existing inventory; and the construction of new facilities that will provide at least 500 new graduate student beds, likely in the West Campus area.

This major commitment will improve access to housing for MIT's graduate students and help to take pressure off the area housing market. The commitment was also integrated within MIT's Volpe zoning agreement, and will be formally reviewed, along with general graduate student housing needs, every three years.



# Transportation

## Shuttle 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).

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

Route Name	Annual Ridership
Tech Shuttle	170,360
Combined Saferide Shuttles	382,230
Boston Daytime Shuttle	32,629
Grocery Shuttle	2,253
EZRide by CRTMA (Northwest Shuttle)	524,430

campus residences. This has resulted in better service with fewer vehicles on the road.

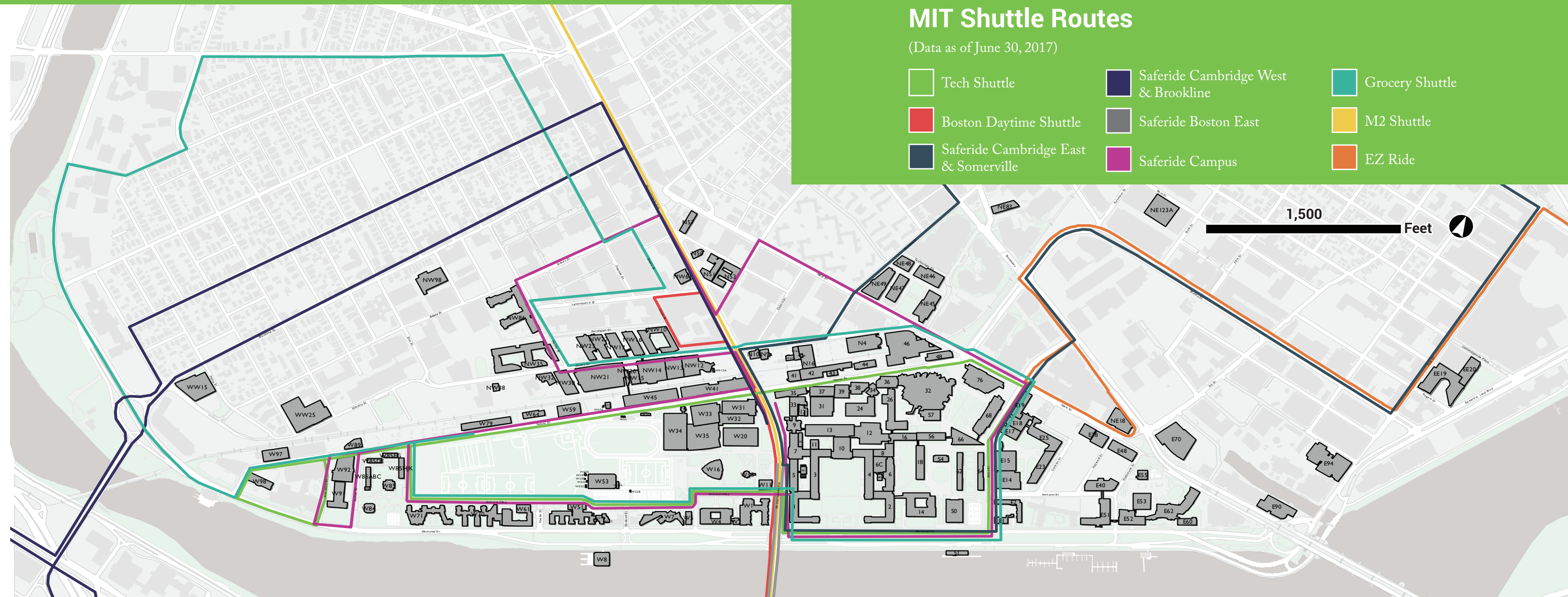
All MIT shuttles require riders to show their MIT ID.

Route Name	Vehicle Type and Capacity	Frequency of Operation	Weekday Hours of Operation	Weekend Hours of Operation
Tech Shuttle	Mid-size transit 30 seats, biodiesel	10 min peak 20 min off peak	6:15AM- 7:10PM	---
Boston Daytime Shuttle	Mid-size transit 30 seats, biodiesel	30 min (Sept-May)	8:00AM- 5:55PM	---
Saferide Cambridge East/Somerville	Mid-size transit 30 seats, biodiesel	30 min peak 40 min off peak	6:05PM- 2:33AM	6:05PM- 3:33AM
Saferide Cambridge West/Brookline	Mini-bus 14 seats	30 min peak 40 min off peak	6:05PM- 2:33AM	6:05PM- 3:33AM
Saferide Boston East	Mid-size transit 30 seats, biodiesel	20 min peak 30 min off peak	6:00PM- 2:26AM	6:00PM- 3:26AM
Saferide Campus Route	Mid-size transit 30 seats, biodiesel	20 min	6:00PM- 2:38AM	6:00PM- 3:38AM
Grocery Shuttle	Mid-size transit 30 seats, biodiesel	45 min	---	11:30AM- 4:30PM

## MIT Shuttle Routes

(Data as of June 30, 2017)

- Tech Shuttle
- Saferide Cambridge West & Brookline
- Grocery Shuttle
- Boston Daytime Shuttle
- Saferide Boston East
- M2 Shuttle
- Saferide Cambridge East & Somerville
- Saferide Campus
- EZ Ride



# Access MIT

The Access MIT initiative seeks to increase flexible, affordable, and low carbon transportation options for the MIT community. A combination of new benefits launched in September 2016 was designed to incentivize employee parkers to take alternative modes more often, while providing those who regularly bike, walk, and take transit with even more flexibility. Overall, the new program seeks to address the shared challenges of traffic congestion, parking demand, and climate change, while making MIT into an active test-bed for urban mobility solutions.

The new program shifted the majority of employee parkers with annual permits to daily parking rates, releasing parkers from the financial commitment of a yearly pass. Increased public transit benefits, including a free transit pass embedded in MIT employee ID cards, now enables employees to take the subway or local bus for free on days they choose not to park. In conjunction with new benefits, the Parking and Transportation Office, in partnership with the Office of Sustainability, launched a public awareness campaign, featuring real commuter stories from around the Institute.

A commuting survey conducted shortly after the program launch revealed that Access MIT benefits had already influenced the commuting decisions of the majority of staff. Many survey

respondents highlighted the additional financial and quality of life benefits of the new program, such as: "I save \$14 everyday between the tunnel and MIT parking with the new free pass on the T. Plus it is actually faster than driving and much less stressful." Each month, approximately 6,000 employees are now using their transit passes in their ID cards.

Researchers at the MIT Transit Lab, who were critical to the design of the new program, are working closely with the Institute Committee for Transportation and Parking and the Office of Sustainability to measure and analyze the impact of these programs.



## Program Benefits

- 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 plans at MIT gated lots
- A commuter dashboard for MIT employees that tracks commutes, helps plan trips, and matches carpoolers with one another
- Access MIT Pass which embeds a T-Pass directly into an employee's MIT ID

**Try a low-carbon commute once a week. Make a difference.**

**Your commute counts. Switch it up.**  
[web.mit.edu/accessmit](http://web.mit.edu/accessmit)

**accessMIT**



**I'm in climate action mode**

**John Sterman**  
*Jay W. Forrester Professor of Management*

John puts sustainable practices to work every day by biking to the T.

## Find a Better Commute.

Make an impact on your schedule, your budget, and your planet.

<b>A</b> Start
<b>B</b> Destination
<b>Let's Go!</b>



## Point of Origin for Commuter Trips to Cambridge

Home Location	Count	Percentage
Cambridge	2,552	22.0%
Boston	1,639	14.1%
Somerville	900	7.7%
Arlington	427	3.7%
Brookline	372	3.2%
Newton	298	2.6%
Medford	290	2.5%
Belmont	259	2.2%
Lexington	246	2.1%
Quincy	230	2.0%
Watertown	201	1.7%
Malden	153	1.3%
Winchester	113	1.0%
Waltham	111	1.0%
Melrose	98	0.8%
North of Boston	602	5.2%
South of Boston	76	0.7%
West of Boston	137	1.2%
Outside 128	1,713	14.7%
Outside 495	371	3.2%
Connecticut	18	0.2%
Maine	20	0.2%
New Hampshire	129	1.1%
Rhode Island	62	0.5%
Vermont	5	0.0%
Outside New England	361	3.1%
Outside US	232	2.0%
Unknown	1	0.0%
Grand Total	11,616	100.0%

## Mobility Strategy Updates

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 280 cyclists took advantage of the program this year, compared to 200 in 2015 – an increase of nearly 40% over two years.

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 Hubway stations with a total of 102 docks on campus. Two of the stations have been in place since the bike-share pro-



gram 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. MIT has also participated in Hubway winter operations over the past four years and has agreed to participate on an ongoing basis. Three additional Hubway stations are planned within the Kendall Square Initiative.

In addition to sponsoring Hubway stations, MIT subsidizes annual Hubway memberships for all MIT students, staff, and faculty, offering memberships at \$35/year (regularly \$99/year). The subsidy has been very well received, with the number of MIT Hubway members increasing exponentially over the past few years, doubling from 1,800 members in 2015 to 3,640 this year.

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 2017 Mass Commute Bicycle

Challenge for most bike commuter miles traveled. The Institute has won this award for six of the past seven 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 recently made a commitment to work with the City to design and build this community path on its property.

The Institute encourages the use of sustainable transportation methods, but also recognizes that it is necessary for many people to drive around 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	4,004
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## Commuting Mode of Choice

Commuting Mode	2008	2010	2012	2014	2016
Drove alone entire way	22%	20%	22%	21%	18%
Took public transportation	41%	42%	41%	39%	42%
Carpooled	7%	7%	6%	6%	5%
Bicycled	13%	14%	15%	15%	16%
Walked	15%	15%	13%	14%	15%
Other	3%	3%	3%	5%	3%

# Campus Planning

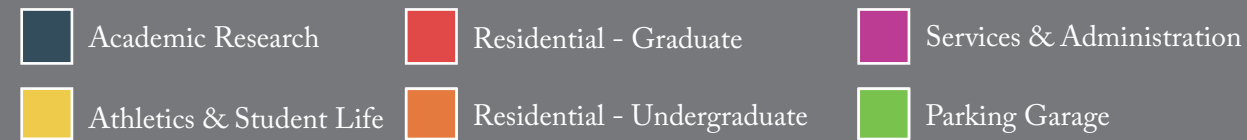
## Major Initiatives

MIT has begun construction on the new graduate residence hall in the center of the Kendall Square Initiative, along with site, utility and garage construction. The expanded Central Utility Plant for two new cogeneration turbines on Albany Street is underway. The construction

of MIT.nano will be complete next year. 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.

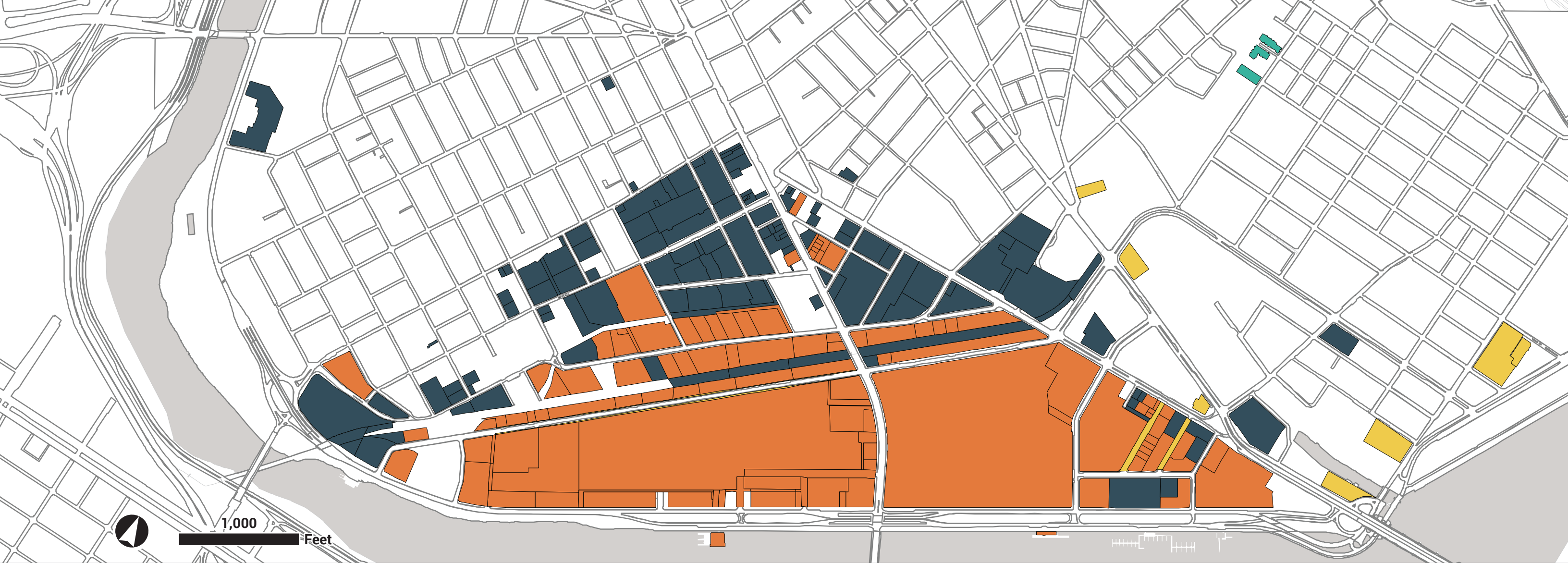
## MIT Buildings and Occupied Spaces by Use

(Data as of June 30, 2017)



Facilities and Land Owned	2013	2014	2015	2016	2017
<b>Acres</b>					
Tax Exempt	161	163	163	166	<b>166</b>
Taxable	93	93	95	92	<b>92</b>
Number of Buildings (academic)	109	111	108	111	<b>114</b>
<b>Dormitories</b>					
Number of Buildings	28	28	28	27	<b>28</b>
Number of Beds	5,940	5,800	5,739	5,422	<b>5,898</b>
<b>Size of Buildings (gross floor area)</b>					
Institutional/Academic	6,808,234	6,811,817	6,927,275	7,036,694	<b>7,235,839</b>
Student Activities/Athletic/Service	2,418,825	2,366,093	2,195,897	2,247,058	<b>2,243,358</b>
Dormitory/Nontaxable Residential	2,921,880	2,921,880	2,922,128	2,866,373	<b>2,882,602</b>
Commercial (in square feet)	4,962,958	5,344,990	5,356,423	6,109,827	<b>6,337,516</b>
Taxable Residential (in rental units)	164	164	164	163	<b>163</b>





# MIT Property in Cambridge

Data as of June 30, 2017

- Academic Plant
- Academic Leased
- Investment Property
- Investment Property - Condominium Only

## Property Transfers

### Cambridge properties purchased since filing previous Town Gown Report:

Charlotte's Way and 7 Landsdowne Street

### Cambridge properties sold since filing previous Town Gown Report:

None

### Planned dispositions or acquisitions:

Volpe Parcel acquisition

## Real Estate Leased

Use	Leased Location*	Sq Ft**
Institutional/Academic	1 Cambridge Center	35,594
Institutional/Academic	245 First Street	19,805
Institutional/Academic	300 Technology Square	6,451
Institutional/Academic	400 Technology Square	10,901
Institutional/Academic	500 Technology Square	93,108
Institutional/Academic	600 Technology Square	108,907
Institutional/Academic	700 Technology Square	14,253
Institutional/Academic	One Charles Street	36,228
Institutional/Academic	One Kendall, Bldg. 300	22,506
Institutional/Academic	One Main Street	63,142
Institutional/Academic	One Rogers	24,046
<b>Total</b>		<b>434,941</b>

\* Leased by MIT from third-party landlords.

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



## Planning for the Campus: Buildings, Streets, and Open Space

The Institute has been engaged in a practice of improving the campus by removing above-grade garages, redeveloping surface parking lots, and removing obsolete buildings, particularly in the center of campus. MIT's new opportunities for campus improvement include working with the existing buildings, streets (both public and private), plazas and green spaces.

MIT has been collaborating with the City of Cambridge on campus resiliency in the face of climate change. In a parallel and now integrated initiative, a broad assessment of storm water management and landscape ecology is taking place. The effort includes mitigating projected more frequent and intense storms and rising temperatures with integrated, multi-benefit approaches to stormwater management that address water quality, quantity, and heat island effect. MIT will seek to use a combination of

engineered solutions and green infrastructure that can itself be part of campus open space improvements.

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 anticipates renovating the existing buildings into office and lab facilities to further support the innovation ecosystem in 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 academic research or administrative uses. The site also provides an opportunity to complete the

street frontage along Main Street with retail and restaurant space on both sides of the street opposite Technology Square.

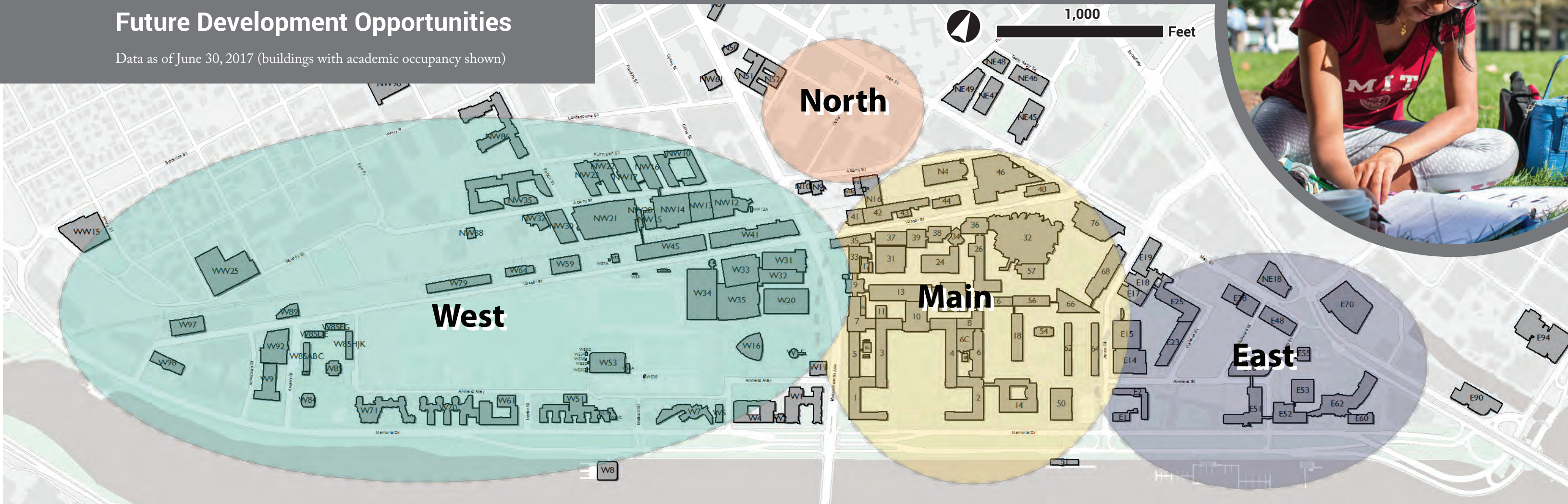
One opportunity for campus improvement to a major cross-campus corridor, not easily appreciated from city streets, is the North Corridor project. Associated with construction of MIT.nano, site improvements will transform former service drives and parking lots. Green infrastructure and trees will create a greener, pedestrian-friendly landscaped courtyard and corridor that connects Building 9 at Massachusetts Avenue to a renovated Building 31, the new MIT.nano (Building 12) and on to Stata and North Court.

Parallel to North Corridor is Vassar Street. This first-in-the-nation bicycle track transformed what had been a drab, industrial service corridor. Fifteen years on, it is now due for some renew-

al. 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 failed. MIT is carrying out a forensic investigation to determine why such a widespread failure happened, despite the care that went into the original design: structured soil, hardy species, and irrigation. The plan is to carefully coordinate with ongoing utility and building construction in or near Vassar Street and to have all new trees planted over the next 24 months.

## Future Development Opportunities

Data as of June 30, 2017 (buildings with academic occupancy shown)



Two housing projects have major open space components. The Kendall Square (Site 4) graduate student housing development that is now underway has a key open space element: the planned gateway around the new Kendall MBTA head house and the major open space between Carleton and Wadsworth Streets. MIT is planning to program this space in a way that reflects the best of MIT and engages both the Cambridge and MIT communities.

The new undergraduate residence on Vassar Street will improve the Vassar streetscape down to 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 eastbound Vassar cycle track.

There are investigations into a new use for the Metropolitan Storage Warehouse. New life in this historic structure will dramatically alter this section of Vassar Street and enliven the Massachusetts Avenue corner. An 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 streetscape of the new undergraduate residence to the west.

A key initiative will be the Grand Junction project, located along the northern edge of the main campus. MIT has now committed \$8.5 million to the design and construction of a pathway for bicyclists and pedestrians alongside the rail line that runs on MIT property. The 2014 MIT feasibility study demonstrated that while a path-

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

One of the biggest opportunities to improve open space is by making safe and inviting connections between existing open spaces and the City. MIT will be designing and building a two-way cycle track on Ames from Main Street to Memorial Drive, extending the improvements scheduled for the 6th Street landscaped walkway and the two-way cycle track on Ames Street from Broadway to Main Street. With the cooperation of the Department of Conservation and Recreation (DCR), MIT will build a new signalized crossing to the Paul Dudley White multi-use path along the Charles River.

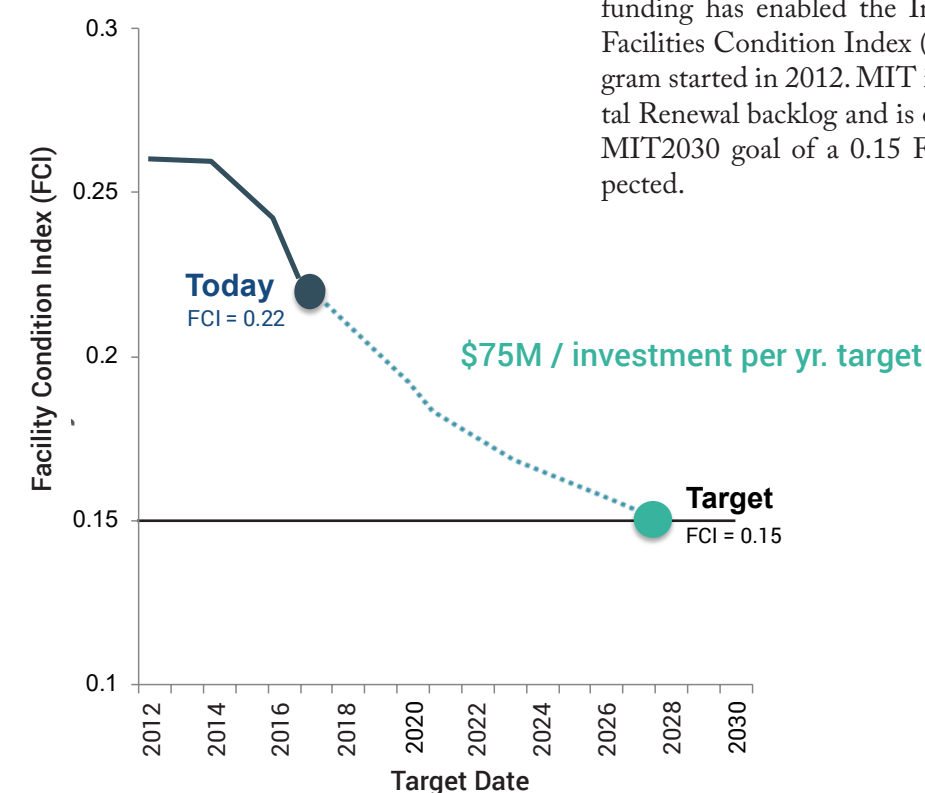
This new signal will continue MIT's tradition of installing traffic signals all along Memorial Drive in front of the campus. These include the traffic signals at Wadsworth Street, Massachusetts Avenue and at Endicott Street.

## Capital Renewal

Retirement of deferred maintenance continues to be an integral part of overall campus renewal. FY2016 was the first year in recent decades that realized a reduction in deferred maintenance, and progress continued in FY2017. For the second consecutive year, MIT's campus-wide facility condition index (FCI), which is the ratio of deferred maintenance to replacement value, decreased from 0.24 to 0.22. A combination of extensive renovations to buildings and system renewal projects benefiting more than 70 campus buildings contributed to this continued

reduction. At the end of FY 17, the total backlog of deferred maintenance was \$1.57 billion, which is equal to \$125 per square foot compared to \$140 per square foot at peer research institutions. There have been reports of increasing deferred maintenance at higher education institutions in the United States, while MIT is experiencing a decline because of concerted efforts to address the backlog. The Institute remains on track to meet its goal of a 0.15 FCI by the year 2030.

## Capital Renewal Funding



This chart demonstrates how Capital Renewal funding has enabled the Institute to lower its Facilities Condition Index (FCI) since the program started in 2012. MIT is reducing its Capital Renewal backlog and is on track to meet the MIT2030 goal of a 0.15 FCI earlier than expected.

### Focus of FY12-FY17

Focus on safety, code compliance, priority systems, i.e., leaking roofs, loose masonry, non-functional mechanical systems, antiquated fire protection systems.

### Focus for FY18

- Space transformation in priority buildings
- GHG emissions reduction opportunities
- Cost savings from energy and operations
- Research resiliency and flexibility



# Projects

## Completed in Reporting Period

### 12 Emily Street - NW98



MIT repurposed 12 Emily Street as the home for the Institute's Sea Grant marine research program and the collaborative Advanced Functional Fabrics of America (AFFOA) Institute. Renovation of the 32,000 square foot building started in early 2016. The Sea Grant space was completed in January 2017 and the AFFOA space was completed in May 2017.

### 345 Vassar Street - W97

As part of enabling for Kendall Square development, and in an effort to consolidate MIT's Theater Arts activities and spaces, the program was relocated to 345 Vassar Street, Building W97. The program includes rehearsal spaces, a costume shop and storage, experimental and performance space, and office and administrative space. Relocation of these activities, particularly the performance space, will help activate the west campus.

MIT's own theater faculty will also be able to develop more of their works on campus, involving MIT students in the process. The flexible facility allows for more theater research focused on experimental work, as well as providing the campus with new space for debates, exhibitions, conferences, and installations. Planning for this move began in early 2015 and renovation was complete in March 2017.



# Completed in Reporting Period

## 610 Main North

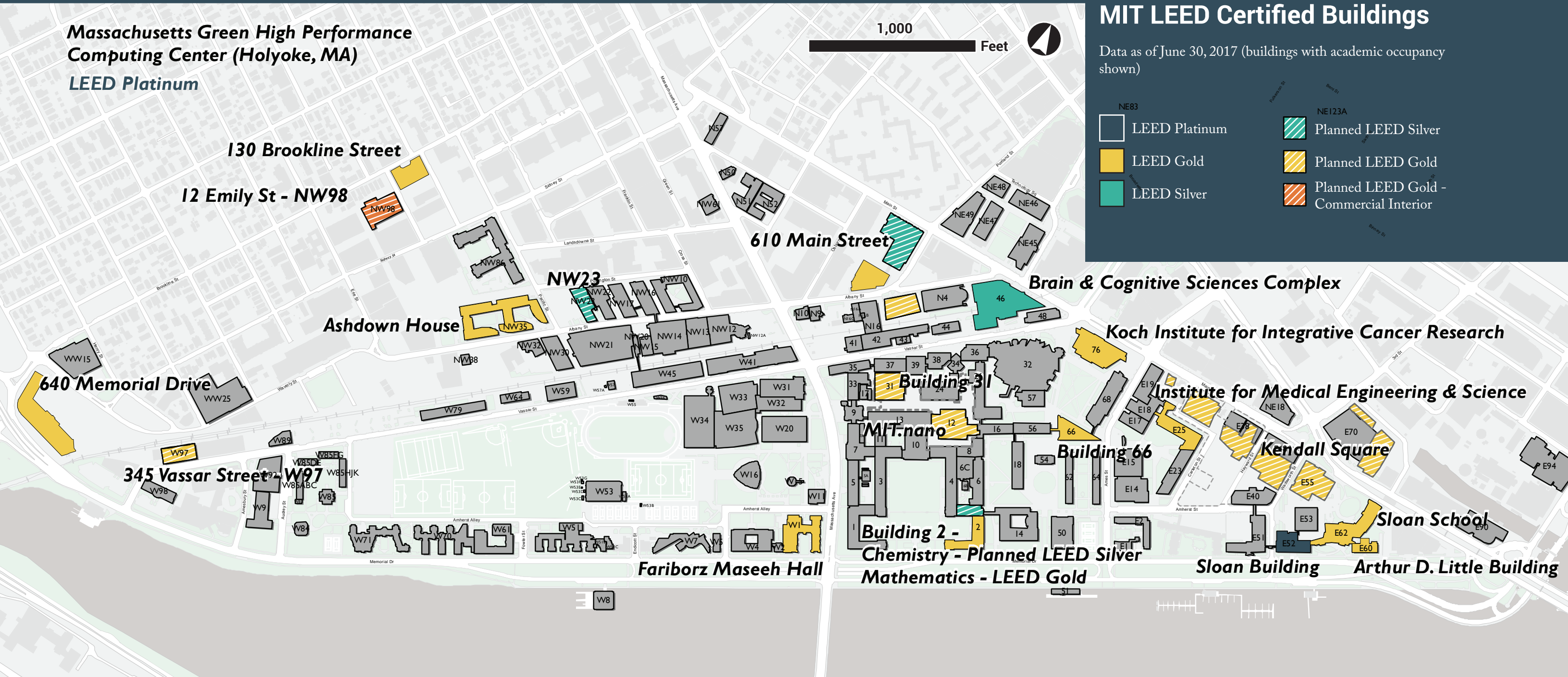


MIT has completed construction of the base building and tenant improvements for Pfizer and Pfizer's sub-tenants at 610 Main Street North, a 280,000 square foot multidisciplinary laboratory facility. MIT has leased the retail spaces along the Main Street edge to four tenants. Sulmona and Café Luna are open for business, and the remaining two tenants, Boston Burger Company and Aveda Salon, are expected to complete their interior work and open in early 2018.

## Building 31



Mechanical Engineering and Aeronautics and Astronautics occupy Building 31. It was one of the highest ranked buildings for deferred maintenance. The scope of this project included reconstructing structural bays, creating new high bay area, and renewing offices, labs and common spaces. An additional 13,000 sf of space was created. The project was completed in August 2017 (just after the Town Gown reporting period).



## In Construction

### E40 Center for Transportation & Logistics Renovation

The Center for Transportation and Logistics (CTL) is preparing to launch MIT's first MicroMaster's program, as well as a new Blended Master's Program. This project will accommodate 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 MicroMasters program. In addition to the program, the project includes building code and ADA/MAAB required upgrades as well as selected infrastructure improvements. Completion is scheduled for December 2017.



### W70 Renovation

MIT is undertaking a full renovation of the six undergraduate residential houses in W70. The project is currently on track to achieve LEED Gold status and construction is expected to be complete in August 2018 for Fall 2018 re-occupancy.

### 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 will be five stories and 216,000 gross square feet. Construction is projected to be complete by 2018. The project is currently tracking to achieve LEED Gold certification.



## Central Utility Plant Upgrade

In this reporting period, the multi-phase Central Utility Plant (CUP) upgrade spans both the "Completed" and "In Construction" categories. Upgrades at the Central Utilities Plant will help MIT lower emissions, improve campus resiliency and sustainability, and create a more flexible power system for incorporating future innovations. The upgrade will provide the additional utilities necessary to support MIT's projected growth through 2030.

### Completed in Reporting Period

Modifications were made to the plant's chilled water systems, and the chiller hall housing in Building N16 was expanded. Upgrades include the replacement of five older cooling towers with three more efficient and quieter towers, and two new 2,500 ton chillers. The original expansion was started in 2009 and completed in March 2017.

### In Construction

Two new gas turbines will provide up to 44MW 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 a new cogeneration plant housing the turbines commenced in the summer of 2017, with the startup and commissioning planned in October 2019 and cogeneration plant operation in April 2020. The existing gas turbine will be retired when the new plant is fully operational. The new plant building will be located in the existing 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 architect for the building is Ellenzweig Associates, the firm that has led the architectural design for MIT's CUP for the past 20+ years.



## 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, one site will house market rate and affordable housing, 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 significant 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, E48); the J.L. Hammett Building (264 Main Street, E39) and the Suffolk Building (292 Main Street; E38).

In May 2016, the Planning Board voted unanimously to grant PUD and Article 19 Special Permits for the overall development, and MIT has completed the final design review of buildings on Sites 1, 3, 4, and 5 with the Board.

Construction of the utility infrastructure started in late summer 2016 and is expected to be completed in mid-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. This project is expected 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.

Construction on Site 4 started earlier this year with interior abatement, demolition, and structural work to support the tower above. Construction of the new portions of Site 4 and Sites 3 and 5 will follow.

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 addition of new retail space on Third Street and Broadway. Construction of the residential building (Site 1) and additional retail space along Broad Canal Way will follow.



### Kendall Square Initiative: By the Numbers



**Open Space**  
Over 1.8 Acres



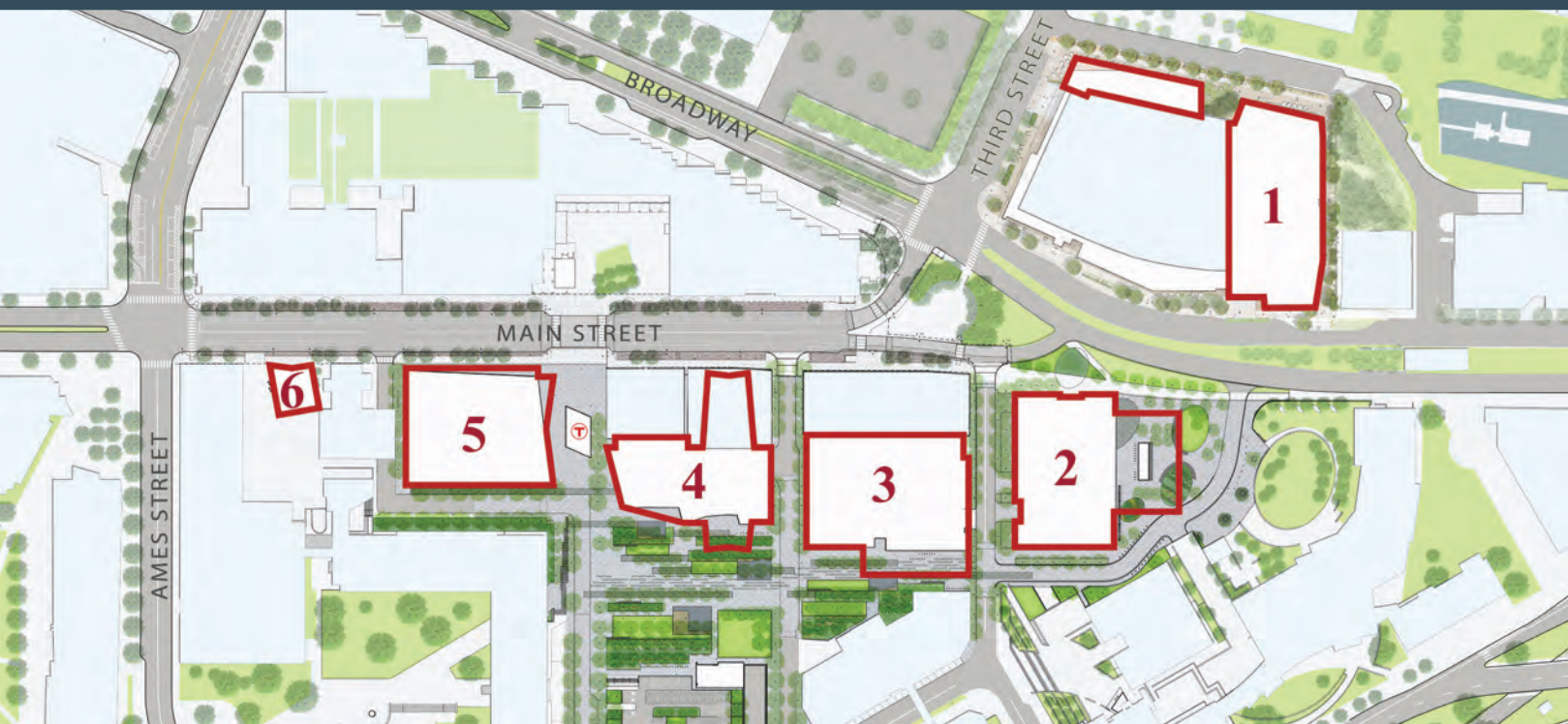
**Residential**  
450 Graduate & 290 Other



**Office**  
888,000 SQ FT



**Retail**  
115,000 SQ FT



### My Vision Mural

With construction commencing in Kendall Square, a new 32-panel mural has been installed along Main Street and represents the first phase of the MIT-sponsored multi-year Creative Current initiative with the Community Art Center (CAC). This joint MIT/CAC collaboration is designed to build artistic and professional skills in youth and create connections between Port residents, Kendall Square workers, and the MIT community.

During the first phase of the Creative Current initiative, MIT introduced Community Art Center youth to the work of the architectural and construction industries that make projects such as the Kendall Square Initiative a reality. At site visits, students met with the architectural firm Perkins+Will, as well as Turner Construction to learn about those professions. In addition, youth visited the “Kendall Square Observatory” at the MIT Media Lab to learn about digital platforms dedicated to urban planning.

The learning opportunity culminated in the creation of the “My Vision Mural” (pictured above) which stretches along Main Street in front of Site 3, 4, & 5 construction.

## In Planning & Design

### 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 of the Museum's back of house functions including the Cambridge Science Festival administration, collections research, collections storage and exhibitions assembly will remain in N52. Design for the space is expected to be complete in Summer 2018.

### Building 4 Laboratory Renovation

In the summer of 2018, the Chemistry Undergraduate Teaching Laboratory will relocate 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 the space for two departments: the Department of Earth, Atmospheric & Planetary Sciences (EAPS) and the Department of Materials Science and Engineering (DMSE). In three quarters of the space, 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 for DMSE. Project completion is expected in 2019.



### Vassar Street Residence

As part of its current Capital Renewal Program, MIT is formulating a long-term plan to renew undergraduate residences. This process will involve 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. 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 current site of the West Garage (W45) and the Grounds Services facility (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 designed 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 as well as being solar-ready and Net Zero Ready. Demolition and site preparation are planned for this winter and foundation work is expected to begin in April. Construction is projected to be completed by Summer 2020 for Fall semester occupancy.



### 139 Main Street

In September 2017, MIT completed its acquisition of this historic building from the American National Red Cross. The Institute has started working on designs for the restoration of the building and expects to commence the renovation work in 2018. The building will be leased to office tenants.



# In Planning & Design: Volpe Site Redevelopment

A January 2017 agreement between MIT and the U.S. General Services Administration (GSA) set into motion a process to redevelop the John A. Volpe National Transportation Systems Center parcel in Kendall Square. The 14-acre site is slated to become a mixed-use district with housing, retail, open space, community space, and commercial and lab space — creating a new vibrant hub of activity on one of the last undeveloped parcels in Kendall Square. A

critical element of the MIT-GSA agreement is that the Institute will design and construct a new Volpe headquarters on four acres of the site before it develops the remaining ten acres. Volpe officials and MIT staff are working with architectural firm Skidmore, Owings, and Merrill to design the new federal building and have also hired the same landscape architect — Reed-Hilderbrand — in an effort to optimize the seamlessness of the overall development.

## Volpe: By the Numbers

The collaboratively-developed Volpe redevelopment proposal includes:



**Open Space**  
Approximately 2.5 acres



**Commercial**  
1.7 million SQ FT including retail and active street uses



**Residential**  
1,400 units including:  
280 affordable  
20 middle income



**Retail & Active Uses**  
in 65% of ground floor space on main streets



**Innovation Space**  
5% of space created will be dedicated to entrepreneurship and incubator activity



**Height limits**  
ranging from 170 feet to 500 feet

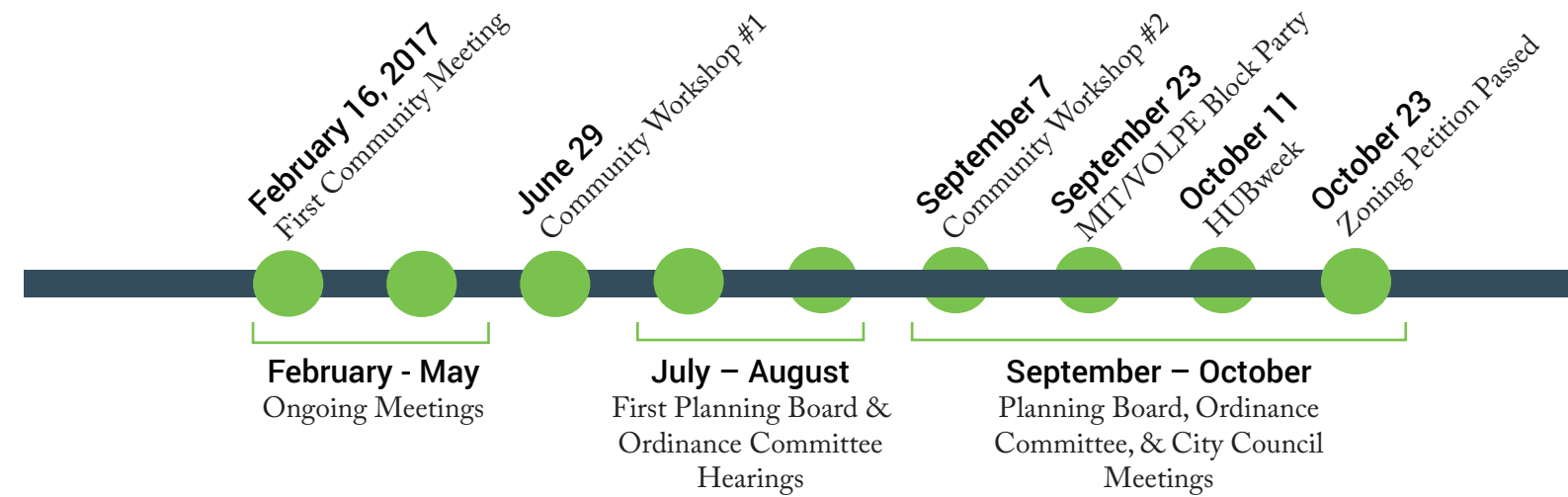
## Community Benefits

MIT's approved zoning petition also includes commitments to a variety of community benefits:

- implementation of a multiuse community path on MIT's property in the Grand Junction railroad corridor;
- creation of an on-site community center with a job connector program;
- contribution toward transit improvement programs;
- support for ongoing innovation arts programs in Kendall Square;
- contribution to Cambridge's fund for non-profits; and
- support for ongoing community event programming in Kendall Square.

As required by the City of Cambridge, the project will contribute to the city's Affordable Housing Trust, which provides resources to individuals and families seeking housing. This is in addition to the approximately 300 low- and middle-income units that will be included in the development.

In response to the urging of MIT graduate students and the City Council, MIT's zoning agreement also includes a commitment to build 950 new graduate student units, which will allow the Institute to house more than 50 percent of its current graduate student population on campus.



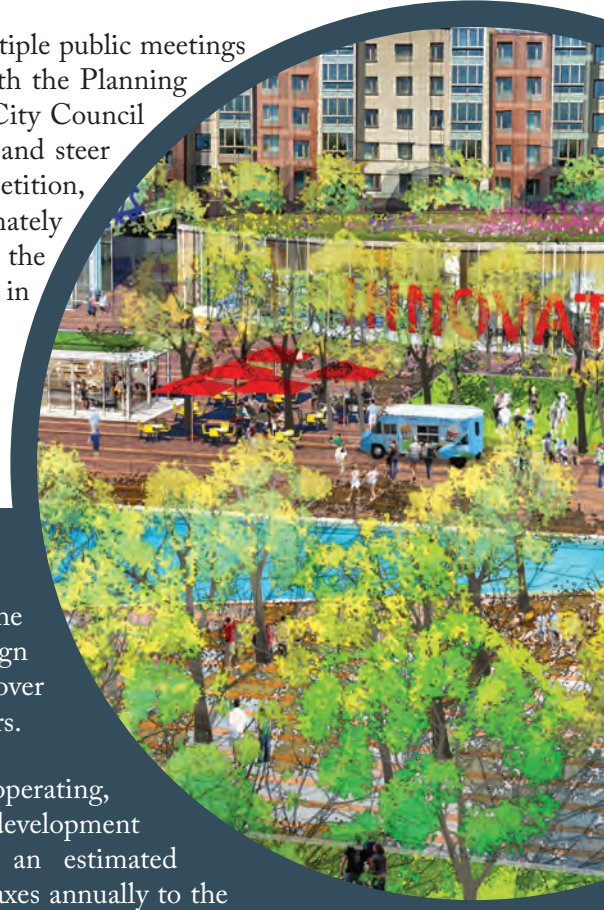
## Community Process Timeline

In order to advance this unique and transformational opportunity, MIT hosted more than 80 community meetings to gather input over a nine-month period. The Institute held traditional meetings with presentations and discussions, interactive workshops to promote dialogue, and large-scale events including a block party and a HUBweek showcase called 'MIT/Kendall Square: Innovation Playground,' to demonstrate 'what could be' on the Volpe site.

The Institute also worked closely with the Cambridge Volpe Working Group, which was comprised of residents, business representatives, city staff and officials, and MIT representatives to

prepare a set of "Planning and Design Principles" to guide the redevelopment.

In addition, multiple public meetings and hearings with the Planning Board and the City Council served to shape and steer MIT's zoning petition, which was ultimately approved by the City Council in October 2017.



## Next Steps

MIT and the GSA are proceeding with the design of the new Volpe headquarters, with construction expected to commence in 2019.

In the meantime, MIT will be working to formulate a planned unit development, or PUD, which will further define the buildings, uses, and spaces for the remaining ten acres. This work will be done in conjunction with the Planning Board and City staff within the context of a public review process. After that, design review for the buildings and the open space will also take place with the Planning Board. MIT hopes

to complete the PUD and design review process over the next few years.

Once built and operating, MIT's Volpe development will contribute an estimated \$23 million in taxes annually to the City of Cambridge on what was previously a tax-exempt site.

More information about the Volpe project is available at [volpe.mit.edu](http://volpe.mit.edu).



# Sustainability

MIT is developing campus-scale solutions to the global challenges of a changing planet, while advancing its commitments to academic excellence and building a better world. MIT strengthened its commitment to sustainability leadership this past year via a number of public commitments and new programs that advance urban mobility, greenhouse gas mitigation, climate resiliency, innovation for sustainability and open access to data to advance the campus as a test bed for learning and innovation.

Two highlights that have impacts beyond the walls of the Institute include MIT's recent solar power purchase agreement (PPA) bringing large-scale renewable energy into MIT's campus power portfolio, and the announcement of

Access MIT. MIT rolled out this new vision for commuting by increasing employee incentives for flexible, affordable, and low-carbon commuting while committing to a 10% reduction in parking demand. This past year, MIT's first major renewable energy power purchase was announced and went live accounting for a 9% reduction in emissions from November 2016 – June 2017. MIT representatives have actively shared their PPA experience and knowledge in the local community (and beyond) to support peer institutions and organizations innovate and implement leading sustainability practices on their campuses and in their organizations.

The PPA was one of several initiatives that have contributed to MIT's continued progress in

reducing campus greenhouse gas emissions to advance the Institute's Plan for Action on Climate Change. Diverse programs are underway to achieve the Plan's call for at least a 32% reduction in campus greenhouse gas emissions by the year 2030. Since the baseline year of 2014, emissions have been reduced 16%.

Additional highlights of projects that impact both the campus and city include MIT's efforts on climate resiliency and the emergence of the campus as a test bed for sustainability solutions.

MIT staff continued to play a leadership role in the governance and implementation of the Cambridge Compact for a Sustainable Future

through its membership on the Board of Directors, Executive Committee, and working groups. Highlights for MIT included expanding the boundaries of the Compact's collective impact model through engaging new networks including the Kendall Square Association, Boston Green Ribbon Commission and new biotech companies, and providing a platform for action on collaborative climate mitigation and resiliency planning.



## MIT Energy Efficiency Upgrade Projects

Data as of June 30, 2017 (buildings with academic occupancy shown)

- Completed in 2016/2017
- In Construction or Planned for 2017/2018

**96% of MIT's GHG emissions are from heating, cooling, and powering building structures.**





## COMMUNITY

23,000 + people

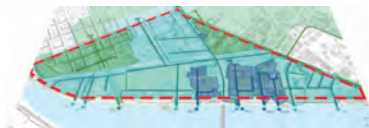
A healthy, resilient, and prepared community fulfills MIT's mission



## BUILDINGS

140 + buildings

Where research, education, and knowledge transfer happen



## UTILITIES

15 + utilities

Protecting vital infrastructure (i.e. steam, electric, water, etc.)



## SITE

168 + acres

Capacity of soil and trees to absorb floodwater and mitigate heat



# Campus Sustainability Incubator Fund

## Transforming the Campus into an Urban Living Lab

The Campus Sustainability Incubator Fund, launched by the MIT Office of Sustainability in Spring 2017, provides seed funds to select teams of students, faculty, and researchers to explore the physical operations and social context in which they are working, living and learning at MIT. The fund was made possible through a generous gift from Malcom M. Strandberg. The

first round of funding was awarded in summer 2017 to four project teams led, respectively, by Kripa Varanasi of the Department of Mechanical Engineering, Randy Kirchain and Jeremy Gregory of the Concrete Sustainability Hub, Lisa Anderson of the Department of Chemical Engineering, and Danielle Dahan of the Center for Energy and Environmental Policy Research.

## Layers of Climate Resilience – Integrated Campus + City Scale

Adapting to climate changes requires understanding and solving interdependent challenges across four resiliency systems (site, utilities, buildings, community) while integrating across campus and city scales.

### Climate Resiliency Planning

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

Together, MIT and the City are seeking a common understanding of the spatial dimension and extent of rainfall flooding in East Cambridge, in both current and future climates. An integrated risk modeling initiative is connecting campus researchers with city planners and engineers to generate more refined maps of Cambridge and MIT climate vulnerabilities.

In parallel with the risk modeling, the City and MIT hosted a Cambridge Compact event in June 2017 with representatives from 20 Cambridge businesses to identify opportunities for resiliency planning collaboration. A consensus emerged that businesses are eager to collaborate to strengthen continuity of business and research operations in the face of climate change. MIT, the City, Harvard, Novartis and Boston Properties are now planning a winter 2018 tabletop exercise with Cambridge businesses to identify business and research continuity risks and opportunities. The findings will inform collaborative adaptation planning such as shared service agreements for partners city-wide.

### Looking Forward

In FY2018, MIT is continuing to collaborate with multi-disciplinary partners across the City and Institute to ensure success into the future. We will continue to seek collective engagement in the areas of:

**Climate change:** forging ahead with strategies for mitigation, adaptation and resiliency;

**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;

**Food and culture:** exploring ways to connect the campus food system to community health, sustainable agriculture and climate change;

**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;

**Stormwater and ecological land management:** seeking an understanding as to how the ecological systems of our urban campus perform and how we prepare for a changing climate;

**Water:** seeking a comprehensive understanding of our use patterns in an efforts to reduce overall demand and consumption across campus and thus contributing to the affiliated risks for the watershed.

**Leveraging the campus as a test bed for research:** innovation and teaching that lead to improved understanding of the systems at hand and deeply informed 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 new 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 served to reinforce MIT's belief that every individual has the ability to make valuable personal contributions that make the world a better place.

Working closely with the administrative staff of the three high schools, MIT Admissions, and Student Financial Services, the Office of Government and Community Relations developed guidelines for award criteria, selection, distribution, oversight, and administration. The

first organizational meeting in October 2016 provided a foundation of understanding which was followed by detailed discussions to ensure students at each school had an equitable opportunity to be awarded a scholarship. With all stakeholders in agreement, MIT launched the first application and decision process in the spring of 2017.

The inaugural application process resulted in 85 total applications, estimated 20% of graduating Cambridge seniors applying for consideration. With the help of high school administration, the applicants were narrowed down to 14 finalists for MIT's consideration. After a full review of applicant information and essays, ten \$10,000 MIT Impact Scholarships (six at CRLS, two at PHA, and two at CCSC) were awarded pending confirmation of continuing full-time college enrollment.



## Pathways to Invention

As part of The Engine, MIT created "Pathways to Invention" with the City of Cambridge in 2016, designed to give Cambridge schoolchildren at the Fletcher Maynard Academy (FMA) hands-on experiences that introduce them to the work of invention and to the college and career paths that lead to it. This past year, MIT staff curated and ran several key activities such as a professional development workshop for educators and a Balloon Tower Challenge for FMA 3rd, 4th, and 5th graders. As part of the continuing organization of the program, a

Lemelson-MIT Advisory Team was created and the FMA dedicated a Basement Invention Space to house program activities. Lastly, there is continued collaboration between Lemelson-MIT, FMA, and Rindge School of Technical Arts at CRLS to ensure safety training for students working with tools.



## 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 Administrator will 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. Addition-

ally, the administrator 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. To that end, the administrator is currently connecting with MIT and Cambridge partners as part of an initial listening tour to obtain input about what is most needed and where there might be opportunities for the Institute to engage.

## 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/>

### MIT Center for Arts, Science, & Technology

Features Artist in Residence workshops to demonstrate the integration of arts in STEAM. <https://arts.mit.edu/cast/>

### 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 13	FY 14	FY 15	FY 16	FY 17
Real Estate Taxes Paid*	\$38,656,349	\$41,878,455	\$44,900,590	\$50,185,924	<b>\$54,891,906</b>
Payment in Lieu of Taxes (PILOT)**	\$2,210,567	\$2,208,979	\$2,019,677	\$2,020,593	<b>\$2,080,717</b>
Water & Sewer Fees Paid	\$5,658,543	\$5,993,315	\$6,99,916	\$8,898,350	<b>\$8,315,850</b>
Other Fees & Permits Paid	\$2,003,749	\$6,042,590	\$3,765,563	\$6,754,417	<b>\$5,644,924</b>
<b>Total Payments</b>	<b>\$48,529,208</b>	<b>\$56,123,339</b>	<b>\$57,685,746</b>	<b>\$67,859,284</b>	<b>\$70,933,397</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 \$66.1 million in Cambridge businesses in FY 17. This program, together with taxes paid, payments in lieu of taxes, and municipal fees, brought MIT's 2017 direct economic contribution to the City to more than \$137 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.


### Innovation Economy by the Numbers



794 inventions were disclosed by MIT in FY2017 with 296 patents issued. There has been a 40% increase in technology disclosures received in the last 10 years.



Over 700 companies are collaborating with MIT faculty and students on projects of mutual interest. 500 of those companies are within walking distance.



31% of companies founded by MIT alumni are based in Massachusetts with 8% choosing Cambridge - the highest proportion of any city in the world.



MIT's FY17 real estate tax payment represents 14.7% of the City's total tax revenue stream.

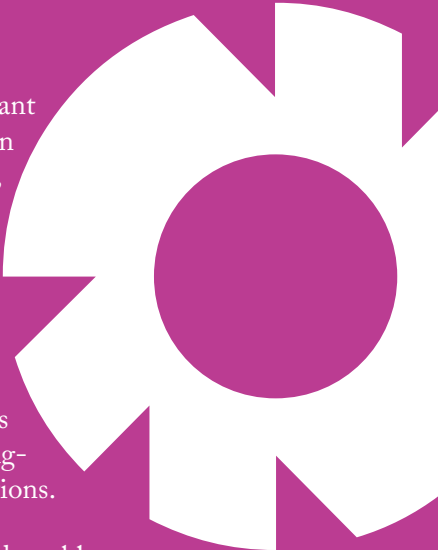
#1 Taxpayer in Cambridge

## The Engine

The Engine — a new venture launched by MIT in 2016 — has made significant early progress in its mission of supporting 'tough tech' startups. Headquartered in Central Square, The Engine established its organizational and leadership structure, developed its policies and procedures, raised \$200 million in investment funds, and identified its first seven startups. Analytical Space, Baseload Renewables, C2Sense, iSee, Kytopen, Suono Bio, and Via Separations are developing innovations poised for transformative impact on aerospace, renewable energy, synthetic biology, medicine, and other sectors.

The seven founding startups are utilizing the three floors at the 501 Massachusetts Avenue location — including conference rooms, makerspaces, labs with cutting-edge equipment, computer stations, and other amenities — to advance their inventions.

The Engine combines funding and an open network of technical facilities to provide stable financial support ("patient capital") and access to costly resources. It focuses on startups developing "tough" technologies — breakthrough ideas that require time to commercialize — in a range of sectors including robotics, manufacturing and materials, health, biotechnology, and energy.



### **On the Back:**

On October 31, 1979, a group of MIT hackers “rescued” a life-sized fiberglass steer from the Hilltop Steakhouse in Saugus, Massachusetts and transported him to his new home atop the Great Dome. When “Ferdie” was returned to his owners at the Hilltop, management placed a mortar board on his head and a diploma in his mouth. Ferdie has since been donated to the MIT museum and currently grazes above the Forbes Family Cafe in the Ray and Maria Stata Center (Building 32).

### **Image Credits:**

Theater Arts Building - Jonathan Sachs, MIT.Nano - Wilson Architects, Central Utilities Plant - Ellenzweig, KSI Building 4 - NADAAA, My Vision Mural - Community Art Center, Vassar Residence - Michael Maltzan Architecture, Volpe - Elkus Manfredi Architects, Sustainability Conference - Ken Richardson Photography, Sustainability Incubator Fund - Paul Wolff, Impact Scholarship with Paul Parravano & Student - Prospect Hill Academy, Impact Scholarship with Sarah Gallop - Cambridge Public Schools.

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