MIT 2016

Celebrating a Century in Cambridge

Town Gown Report to the City of Cambridge

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Contents

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2015-2016 Term (7/1/15 - 6/30/16)

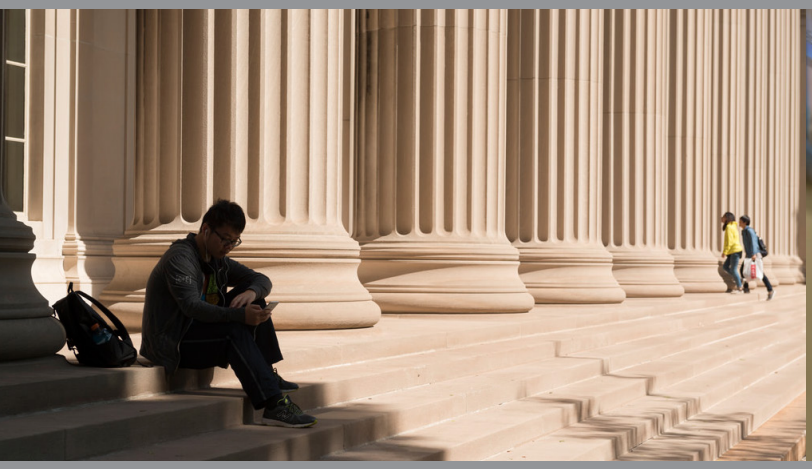
Existing Conditions

Faculty & Staff

	2012	2013	2014	2015	**2016**	**2026 (projected)**
Cambridge-based Staff						
Head Count	9,124	9,329	9,692	10,039	**10,234**	**10,000-11,000**
FTEs	7,707	7,954	8,294	8,599	**8,743**[2]	
Post-Doctoral Staff [1]		1,402	1,421	1,515	**1,486**	
Cambridge-based Faculty						
Head Count	1,003	1,007	1,012	1,004	**1,019**	**~1,100**
FTEs	997	1,002	1,005	999	**1,010**[2]	
Number of Cambridge Residents Employed at Cambridge Facilities	2,359	2,305	2,347	2,391	**2,494**	**~2,500**

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

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



Student Body

	2012	2013	2014	2015	**2016**	**2026 (projected)**
Total Undergraduate Students	4,363	4,477	4,510	4,476	**4,474**	**4,500**
Day	4,363	4,477	4,510	4,476	**4,474**	
Evening	N/A	N/A	N/A	N/A	**N/A**	
Full Time	4,335	4,456	4,485	4,442	**4,440**	
Part Time	28	21	25	34	**34**	
Total Graduate Students[2]	6,259	6,431	6,528	6,560	**6,537**	**6,400-6,600**
Day	6,259	6,431	6,528	6,560	**6,537**	
Evening	N/A	N/A	NA	N/A	**N/A**	
Full Time	6,229	6,417	6,514	6,509	**6,523**	
Part Time	30	14	14	51	**14**	
Non-Degree Students	173	189[3]	182	204	**226**	
Day	173	189[3]	182	204	**226**	
Evening	N/A	N/A	N/A	N/A	**N/A**	
Total Students Attending Classes in Cambridge	10,795	11,097	11,220	11,240	**11,237**	**11,000-11,300**
Non-resident students not included	99	92	81	79	**94**	

2 There is not an overall plan to make changes to the graduate student population. 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. International students account for approximately 43% of the 2016 graduate student population.

3 2013 numbers erroneously counted 163 students instead of 189.

Student Residences

	2012	2013	2014	2015	**2016**	**2026 (projected)**
Number of Undergraduate Students residing in Cambridge						
In Institute-approved housing (includes dormitories, fraternities, sororities and independent living groups)	3,503	3,589	3,577	3,543	**3,654**	**3,600-3,700**
In off-campus housing owned and managed by MIT	22	7	0	0	**0**	
In off-campus non-MIT housing	71	66	71	77	**109**	
Number of Graduate Students residing in Cambridge						
In Institute-approved housing (includes dormitories, fraternities, sororities and independent living groups)	2,352	2,392	2,430	2,384	**2,044**[4]	**2,100-2,500**
In off-campus housing owned and managed by MIT	111	123	59	44	**35**	
In off-campus non-MIT housing	1,736	1,779	1,884	1,876	**2,610**[5]	
Student Parking						
Number of parking spaces maintained for undergraduate and graduate students (including resident and commuter parking)	1,103	1,103	1,103	1,103	**1,103**	

4 The decrease in graduate students residing in Institute-approved housing is due to the renovation of Sidney Pacific Graduate Residence. The units have been reinstated and will be reflected in next year's Town Gown Report.

5 The increase in the number of students living off campus in Cambridge results from a higher percentage of students reporting their term addresses to the Institute, after a request was made by MIT (off-campus students are not required to report their term addresses).

Facilities & Land Owned[6]

	2012	2013	2014	2015	**2016**
Acres					
Tax Exempt	161	161	163	163	**166**
Taxable	93	93	93	95	**92**
Number of Buildings (academic)	110	109	111	108	**111**
Dormitories					
Number of Buildings	28	28	28	28	**27**
Number of Beds	5,940	5,940	5,800	5,739	**5,422**
Size of Buildings (gross floor area)					
Institutional/Academic	6,800,368	6,808,234	6,811,817	6,927,275	**7,036,694**
Student Activities/Athletic/Service	2,469,050	2,418,825	2,366,093	2,195,897	**2,247,058**
Dormitory/Nontaxable Residential	2,924,151	2,921,880	2,921,880	2,922,128	**2,866,373**
Commercial[7]	4,962,958	4,962,958	5,344,990	5,356,423	**6,109,827**
Taxable Residential[8]	164	164	164	164	**163**

Parking spaces maintained in Cambridge

Number of parking spaces maintained for students:	1,103
Number of parking spaces maintained for faculty, staff and visitors:	3,321

6 MIT and the City agreed that sub-area divisions are unnecessary in this section.
7 MIT's commercial properties are measured by rentable square feet.
8 MIT's taxable residential properties are measured by rental units.

Housing

	Tax Exempt: MIT-Owned and Managed Housing	Tax Exempt: Other Housing	Taxable: MIT-Owned and Managed Housing[9]	Taxable: Other Housing (Univ. Park & 100 Mem. Dr. Ground Leases)
2012				
Number of Units	none	none	164	930
Number of Buildings	none	none	15	7
2013				
Number of Units	none	none	164	930
Number of Buildings	none	none	15	7
2014				
Number of Units	none	none	164	930
Number of Buildings	none	none	13	7
2015				
Number of Units	none	none	164	930
Number of Buildings	none	none	13	7
2016				
Number of Units	**none**	**none**	**163**	**930**
Number of Buildings	**none**	**none**	**12**	**7**
2026 (Projected)				
Number of Units	none	none	164	930
Number of Buildings	none	none	12	7

Property Transfers

Cambridge properties purchased since filing previous Town Gown Report:

415 Main Street

Cambridge properties sold since filing previous Town Gown Report:

None

Planned dispositions or acquisitions:

None

9 Occupied by both MIT and Non-MIT residents.

Real Estate Leased

Use	Leased Location[10]	Square Feet[11]
Institutional/Academic	1 Cambridge Center	35,594
Institutional/Academic	11 Cambridge Center	10,940
Institutional/Academic	245 First Street	19,805
Institutional/Academic	300 Tech Square	6,451
Institutional/Academic	400 Tech Square	10,901
Institutional/Academic	500 Tech Square	93,108
Institutional/Academic	600 Tech Square	108,907
Institutional/Academic	700 Tech Square	14,253
Institutional/Academic	One Charles Street	36,228
Institutional/Academic	One Main Street	63,142
Institutional/Academic	One Rogers Street	24,046
Institutional/Academic	One Kendall, Building 300	22,506
	Total	**445,881**

Payments to City of Cambridge

	FY 12	FY 13	FY 14	FY 15	FY 16
Real Estate Taxes Paid*[12]	$36,524,580	$38,656,349	$41,878,455	$44,900,590	**$50,185,924**
Payment in Lieu of Taxes (PILOT)[13]	$2,354,917	$2,210,567	$2,208,979	$2,019,677	**$2,020,593**
Water & Sewer Fees Paid	$5,997,575	$5,658,543	$5,993,315	$6,99,916	**$8,898,350**
Other Fees & Permits Paid	$1,218,687	$2,003,749	$6,042,590	$3,765,563	**$6,754,417**
Total Payments**	$46,095,759	$48,529,208	$56,123,339	$57,685,746	**$67,859,284**

* MIT's FY 16 real estate tax payment represents 14.2% of the City's total tax revenue stream.

** MIT's Cambridge First Purchasing Program resulted in the additional investment of over $74.2 million in Cambridge businesses in FY 16. This program, together with taxes paid, payments in lieu of taxes, and municipal fees, brought MIT's 2016 direct economic contribution to the City to more than $142 million. This figure does not include MIT's indirect investment in Cambridge such as student spending and the salaries of nearly 2,500 residents employed by the Institute.

10 Leased by MIT from third-party landlords.

11 The square footage will, in most cases, only be a portion of the entire building.

12 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.

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

Institutional Shuttle Information

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 minute peak 20 minute offpeak	6:15AM-7:10PM	none
Boston Daytime Shuttle	Mid-size transit 30 seats, biodiesel	30 minute (Sept-May)	8:00AM-5:55PM	none
Saferide Cambridge East /Somerville	Mid-size transit 30 seats, biodiesel	30 minute peak 40 minute off peak	6:05PM-2:33AM	6:05PM-3:33AM
Saferide Cambridge West/Brookline	Mini-Bus 14 seats	30 minute peak 40 minute off peak	6:05PM-2:33AM	6:05PM-3:33AM
Saferide Boston East	Mid-size transit 30 seats, biodiesel	20 minute peak 30 minute off peak	6:00PM-2:26AM	6:00PM-3:26AM
Saferide Campus Route	Mid-size transit 30 seats, biodiesel	20 minute	6:00PM-2:38AM	6:00PM-3:38AM
Grocery Shuttle	Mid-size transit 30 seats, biodiesel	45 minute	none	11:30AM-4:30PM

Ridership Data

Route Name	Annual Ridership
Tech Shuttle	328,000
Combined Saferide Shuttles	235,000
Boston Daytime Shuttle	100,000
Grocery Shuttle	6,500
EZRide (Northwest Shuttle)[14]	300,000

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

All MIT shuttles require riders to show their MIT ID.

14 Operated by CRTMA.

Planning for MIT's Future

In the Town Gown report each year, MIT takes the opportunity to highlight campus priorities that reflect the work of the Institute's faculty, students, and staff. These initiatives inform our campus planning processes as they have an effect on how MIT organizes its space and operations. This year's highlights include a historic milestone, MIT's role in the innovation ecosystem, the Institute's Campaign for a Better World, and climate and resiliency.

Celebrating a Century in Cambridge

MIT commemorated its 1916 move from Boston to Cambridge with a semester-long Century in Cambridge celebration called MIT2016 that attracted more than 60,000 people. The public events began with a reception at the MIT Museum, the site of the celebration exhibit "Imagining New Technology: Building MIT in Cambridge." Subsequent events throughout the spring included two academic symposia, an open house, a day of service, concert and theater arts performances, a pageant, dance parties, and an unprecedented parade and competition—by land and water—over the Charles River.

The overarching MIT2016 theme explored how the Institute and the City of Cambridge shaped one another. The first academic symposium, "Designing Places for Inventing the Future: The Campus—Then, Now, Next", examined how MIT's partnership with the City of Cambridge led to the development of Kendall Square and Cambridge as a hub for technology and life sciences.

The second academic symposium, "Beyond 2016: MIT's Frontiers of the Future," highlighted the Institute's faculty, with 13 MIT professors presenting their groundbreaking research in short, dynamic talks. Multimedia transitions between each speaker took the audience on an immersive campus tour by foot, drone, and skateboard.

Recognizing and honoring MIT's unique relationship with the City of Cambridge remained a principal, ongoing theme throughout the campus centennial celebration. The Together in Service program united MIT with its host City through a collection drive in March and a Day of Service in April, when more than 500 volunteers from the MIT community participated in volunteer service projects throughout Cambridge and Boston. Also on that day, the Graduate Student Council collaborated with the City of Cambridge for its first-ever serve-a-

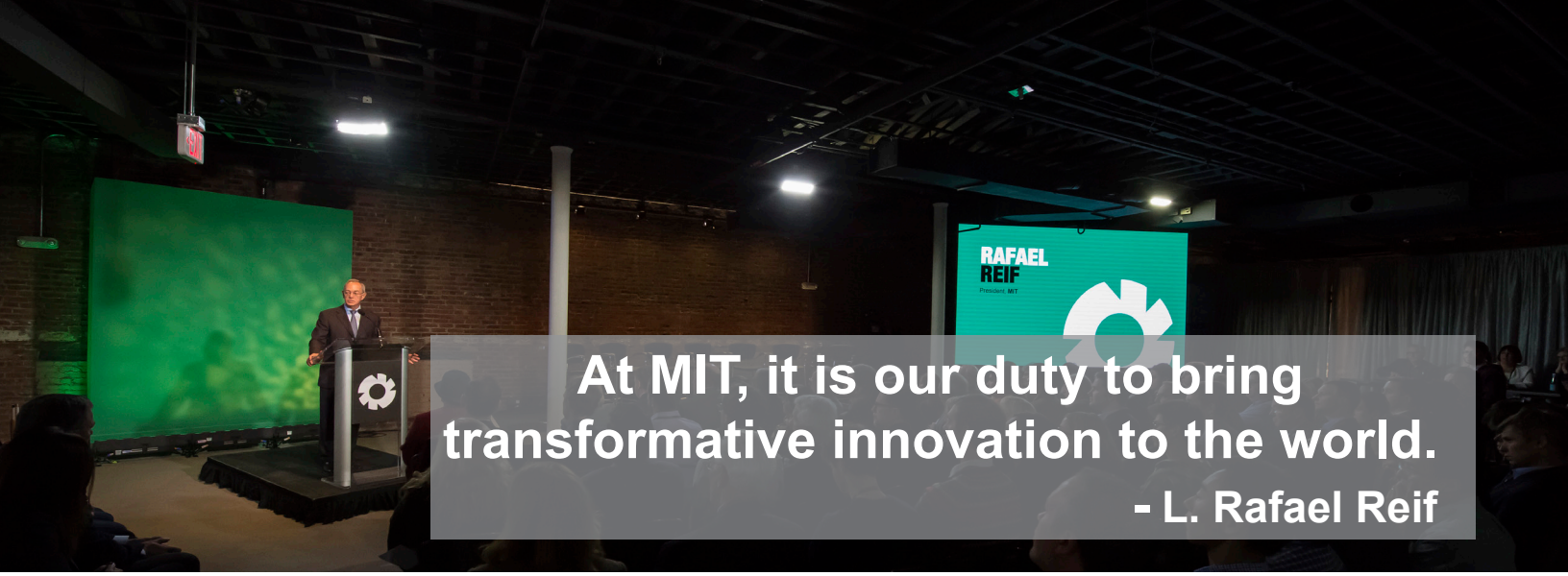
thon, a hackathon-style event that brought together individuals from the MIT community and the City to collaborate on designing solutions to pressing civic needs.

On the closing weekend of the Cambridge Science Festival in April, the Institute opened its doors to the public for "Under the Dome: Come Explore MIT!" — its first open house in five years. A crowd exceeding 40,000 visitors of all ages explored, enjoyed, and learned from more than 350 activities, including lectures by eight distinguished MIT faculty members whose topics ranged from 3D-printing to gravitational waves to climate change to human expedition to Mars.

The centerpiece of the MIT2016 celebration was the May 7 Moving Day, which comprised three unique events: an afternoon procession and competition to cross the Charles River by land and water, an evening pageant in Killian Court, and late-night dance parties across MIT's campus. The inspiration for Moving Day came from the original festivities that occurred June 12–14, 1916, the dates of the Institute's ceremonious move from Boston to Cambridge. In 2016, a crowd of 10,000 watched Crossing the Charles, the community parade and competition expressing "how MIT moves" — autonomously or not, via representations of transport through artistic expression, or by demonstration of transport other than physical, such as that of thought or emotion. On the evening of May 7, Killian Court was the site of Mind and Hand: A Pageant! — a multimedia event that brought to life the spirits of Mens and Manus to debate the true essence of MIT, which concluded with a spectacular fireworks show over the Charles River.

Beyond MIT2016's scheduled events, the MIT Infinite History collection expanded to add a second chapter of interviews, which includes several public officials from the City of Cambridge. In addition, a collection of 26 interviews with a cross-section of Cambridge people called "Voices of Cambridge" was produced to demonstrate the great variety of relationships between the MIT and Cambridge communities. These productions can be found on the MIT2016 website: mit2016.mit.edu

The Celebrating a Century in Cambridge events were a tremendous success. MIT was delighted that so many Cantabrigians joined in the festivities as the Institute honored its host City at this important 100-year mark.



MIT's Role in the Innovation Ecosystem

MIT has long played a pivotal role in the local and regional innovation ecosystem. The recognition of the synergistic powers between academia and industry dates as far back as MIT's origins. For example, when MIT moved to Cambridge in 1916, Arthur D. Little, which had been located near the Institute in Boston, moved with MIT to be next door to it in Cambridge. The "Power of Proximity" was a valued concept a century ago, and remains a critical factor as we continue to collectively advance our shared innovation ecosystem in Cambridge.

Over the years, the Institute has created many programs and mechanisms to help make sure that research and technologies created in its labs and centers can ultimately reach the marketplace and make a positive impact in the world. Through these longstanding efforts to foster entrepreneurship and innovation, the Institute has learned much about what is needed to support the full entrepreneurial life cycle. Some examples of catalyzing programs include:

- the **Martin Trust Center for MIT Entrepreneurship** was created some 25 years ago to provide expertise, support, and connections to help students become effective entrepreneurs;
- the **MIT Deshpande Center for Technological Innovation** was established in 2002 to bring innovative technologies from the lab to the marketplace in the form of breakthrough products and new companies;
- the development of more than 130,000 square feet of makerspace on campus, including the student-run **MIT MakerWorks**, offer both fabrication and measurement tools;
- the **MIT Innovation Initiative** was launched several years ago to facilitate the development of solutions addressing pressing challenges;
- the **Kendall Square Initiative** is a bold reimagining of MIT-owned property that aims to combine new buildings, open space, restaurants, and research and commercial space to bring all-day activity to the innovation hub in Kendall Square; and
- most recently, on October 26, the launch of **The Engine** — MIT's new enterprise to support startups that are working on scientific and technological innovation with the potential for transformative societal impact — is the latest manifestation of the Institute's continuing desire to help move research out of the laboratory and into the marketplace.

The Engine is designed to meet an underserved need. In Cambridge and in Greater Boston, many breakthrough innovations cannot effectively leave the lab because companies pursuing capital- and time-intensive technologies have difficulty finding stable support and access to the resources they need. The Engine will provide startups "patient" capital; affordable workspaces; access to specialized equipment; and streamlined business services — all through a specially developed online marketplace — and a community of like-minded entrepreneurs in order to power a network of innovation networks.

The Engine seeks eventually to support in steady state 60 locally based startups, primarily those that are developing "tough" technologies — breakthrough ideas that require time and capital to commercialize — in a range of sectors including biotechnology, robotics, manufacturing, medical devices, and energy.

As part of The Engine, MIT is starting a pilot program with the City of Cambridge — "Pathways to Invention" — designed to give Cambridge schoolchildren hands-on experiences, at MIT and around the City, that introduce them to the work of invention and to the college and career paths that lead to it.

In the long run, The Engine aims to link Cambridge, Boston, and other Massachusetts cities and regions as an interconnected network — and to link its activities to those of other centers of innovation across the world, such as MIT's innovation activities in Hong Kong and Singapore. This new initiative to catalyze innovation is a key component of an overarching MIT effort to help make a better world.

Campaign for a Better World

A comprehensive fundraising initiative — the MIT Campaign for a Better World — aims to raise $5 billion to advance the Institute's work on some of the most pressing global challenges. The campaign will build on MIT's history of discovery, knowledge creation, and innovation, and bolster that important work to enable a future where:

- fundamental science unlocks new knowledge;
- climate change yields to climate action;
- clean energy is universal;
- everyone can count on clean water and nourishing food;
- disease is detected before it has symptoms;
- Alzheimer's itself is just a memory;
- good ideas don't languish in the lab but flourish in the marketplace;
- daring companies create thriving industries and achieve lasting progress;
- prosperity is measured not in dollars alone but in the currency of art, culture, and understanding;
- quality education is radically more available; and
- the world's undiscovered talent is offered a digital path to a creative future.

To ensure that MIT continues to attract a community of exceptionally talented students and faculty, and provides the infrastructure their pioneering work demands, the Campaign is also committed to strengthening the Institute's core — increasing resources for undergraduate financial aid, graduate fellowships, and professorships; reimagining residential living and educational spaces; and developing innovative research facilities such as MIT.nano.

The Campaign for a Better World is guided by six priority areas that span the full breadth of MIT:

- Discovery Science: Transforming our world through fundamental scientific research
- Human Health: Defining the future of health through advances in basic science and engineering — informed by expertise in disciplines such as management, economics, and political science
- Innovation and Entrepreneurship: Accelerating the path from idea to impact
- Teaching, Learning, and Living: Reimagining education for the 21st-century learner
- The MIT Core: Attracting extraordinary students and faculty, and providing them with the resources they need to thrive
- Health of the Planet: Addressing critical environmental and sustainability challenges facing humankind through science, technology, design, management, and policy.

Climate & Resiliency

In October 2015, MIT released its five-year Plan for Action on Climate Change, outlining the steps that the Institute will take to intensify its impact in advancing solutions to the urgent problem of global climate change. The goal of the plan is "to minimize emission of carbon dioxide, methane and other global warming agents into the atmosphere, and to devise pathways for adaptation to climate change, through the active involvement of the MIT community, proactively engaged with industry, government, academia, foundations, philanthropists and the public." Many offices, programs, initiatives, and labs at MIT play a role in the Institute's climate action efforts.

Progress to date on Climate and Resiliency:

The five-year plan will enhance efforts in five key areas of climate action, now called the "five pillars."

Pillar A: Improve our understanding of climate change and advance novel, targeted mitigation and adaptation solutions

The Environmental Solutions Initiative (ESI) supports climate and environmental research via a multidisciplinary seed grant program. The first round of seed grants commenced in 2015 and included projects specifically focused on climate research, implications of climate change in urban contexts, and a range of strategies for improving the sustainability of human populations and resource extraction.

Pillar B: Accelerate progress towards low- and zero-carbon energy technologies

The MIT Energy Initiative (MITEI) is standing up eight new Low-Carbon Energy Centers (LCECs). MITEI has been meeting with numerous industry leaders and government officials to discuss membership in the LCECs.

Pillar C: Educate a new generation of climate, energy and environmental innovators

Student interest in environment and sustainability at MIT is strong, according to a survey conducted by the MIT Undergraduate Association's Sustainability Committee in March 2016. The Committee is also working with ESI to conduct a survey and focus groups to analyze student interest in the Environment and Sustainability Minor; these will be completed by Earth Day, April 22, 2017.

The Environmental Solutions Initiative is committed to expanding learning experiences on environmental topics across schools and degree programs for MIT students. The scope of this effort will touch both undergraduate and graduate education, and will lead to co-curricular and extracurricular opportunities to maximize learning opportunities for students interested in engaging on progress toward environmental solutions.

Pillar D: Share what we know, and learn from others around the world

Climate CoLab, a project of the MIT Center for Collective Intelligence, is a crowdsourcing platform that allows people to collaborate with one another and work with experts to create, analyze, and select detailed proposals to address climate change. In October 2015, the Climate CoLab launched a contest inviting ideas on how MIT alumni can help implement the Plan for Action. The contest received a strong response, and the judging panel of MIT alumni are now reviewing and selecting the most promising entries from among the 90 submitted.

Pillar E: Use our community as a test bed for change

The Plan for Action called for reducing campus carbon emissions by at least 32% by 2030 from a 2014 baseline, aspiring to carbon neutrality as soon as possible. As an important step in measuring the impact of the Institute's sustainability efforts, the MIT Office of Sustainability (MITOS) published the campus' first official Greenhouse Gas Inventory in 2015-2016. The Inventory – which is updated annually – will enable us to now track and review which strategies will significantly reduce the campus's carbon footprint over time.

In an effort to advance the MIT campus as a "test bed for change," two internal working groups were launched to explore the following critical issues: greenhouse gas emissions and campus vulnerability and resiliency.

The Greenhouse Gas (GHG) Working Group set out to produce a road map for MIT to achieve its initial 32% greenhouse gas emissions reduction goal by 2030 and is looking beyond this already. The emerging plan informs strategies to scale up investments in energy efficiency, design to high performance building standards, renew MIT's Central Utility Plant and invest in on- and off-site renewable energy.

The Campus Resiliency Committee (CRC) is working to identify the climate impact risks faced by MIT from drought to flooding. Building upon the work of Cambridge and Boston, the CRC has initiated a collaborative evaluation and planning process to understand how the campus ought to prepare for uncertain impacts. A primary area of focus is how to keep priority academic and research operations online in the event of climate-related impacts, while accelerating solutions for regional livability and long-term resilience.

As part of the overall campus GHG emissions reduction target, MIT is in the process of eliminating the use of fuel oil in campus power generation. The Institute has finalized a gas supply agreement with Eversource which will allow the campus cogeneration plant to run entirely on natural gas by 2020, with the exception of emergencies and testing.

In addition, the Department of Facilities formally adopted Leadership in Energy and Environmental Design (LEED) Gold version 4 as the campus design standard for all new construction and major renovations. Furthermore, a comprehensive roof assessment tool is in development that will make it possible to assess roofs' suitability for renewable energy installation, use as green roofs or blue roofs (which capture rainwater for beneficial uses), and potential for reducing the impact of the urban heat island effect.

Notable Climate Milestones

MIT reduced our campus greenhouse gas emissions 7% between FY2014-FY2016. MIT joined an alliance of two Boston-based partners (Boston Medical and Friends of Post Office Square) via an initiative of A Better City (ABC) to develop a 60-megawatt solar photovoltaic farm in North Carolina that has led to a long term power purchase agreement. MIT will purchase solar energy equivalent to 40 percent of its current electricity use, which will neutralize its emissions by 17% from its base.

Sustainability

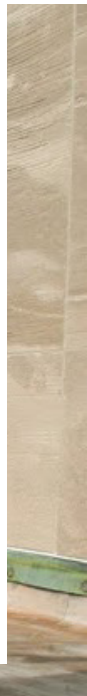
In light of the Institute's historic 100th year in Cambridge, the momentum to advance sustainability at MIT intensified with a public commitment to place climate - from research to action - at the forefront of MIT's agenda. MIT made progress on a number of fronts ranging from publishing the first comprehensive greenhouse gas inventory of the campus, to resetting the course for sustainable design and construction, stormwater and land management, materials and waste management, and green labs, as set out by its Sustainability Working Group Recommendations.

Underlying our progress is the need to advance accessible, reliable and replicable data streams to inform our understanding of the state of the campus today and solutions for tomorrow. The Sustainability Data Management collaborative was launched to design and implement MIT's first ever Sustainability Data Hub to provide access to a breadth of MIT data – from parking and transit to building energy and waste data. The data will be stored in a centralized location, where it can be searchable, securely accessible to a broader audience, and seamlessly fed into data analytics tools and user-friendly dashboards. The ultimate goal of this project is to contribute a significant resource to the MIT campus and surrounding community that enhances the ability to use information related to sustainability.

Looking forward

MIT, with leadership from the Office of Sustainability, Department of Facilities and many other campus partners, will continue to seek collective engagement and action on priority areas that include:

- 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, a new vision for getting to, from, and around 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 food choices to community health, sustainable agriculture and climate change;
- Sustainable design and construction – continuing to ensure that we have access to the knowledge and processes needed to advance MIT's mission 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 effort to reduce overall demand and consumption across campus.



Planning in Support of MIT's Mission

MIT's investment in the Kendall Square Initiative, the construction of the new MIT.nano and the design of the expanded Central Utility Plant (CUP) for two new co-generation turbines are the primary planning and development activities on which the Institute is focused. These projects represent long term investments in the City and campus infrastructure. They will provide support for research initiatives and collaborations far into the future.

Main Street Corridor

The 730-750 Main Street block 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. The retail space at 610 Main Street North will be opening soon. 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.

Massachusetts Avenue Corridor

Just to the south of the new Novartis buildings, there are parcels on the east side of Massachusetts Avenue, stretching from Albany Street, across the railroad tracks to Vassar Street which are underutilized and could provide a site for a variety of academic uses, in close proximity to the core academic campus. The unique design of the new Novartis building and the lively retail and restaurant uses that are just about to open (Health Yoga Life and Saloniki, an innovative and customizable take on Greek food) will support the opportunity to extend the urban quality of Massachusetts Avenue, eventually closing the gap on the street between Lafayette Square and the main block of MIT's historic campus. The frontage on MIT property on Albany, Massachusetts Avenue and Vassar Street would allow for ground floor uses that would further contribute to the activation of the area. On the opposite side of the street, while the potential uses of the Metropolitan Storage building are being considered, the desire to re-open a retail or restaurant use on Massachusetts Avenue at this location remains strong.

Last year, MIT announced the future relocation of the MIT Museum to Kendall Square as part of the Kendall Square Initiative. The Museum currently occupies prominent ground floor space fronting on Massachusetts Avenue at MIT Building N51. As plans for the future use of this space develop, MIT will ensure that it remains active, engaging, and contributes positively to the public realm. Meanwhile, the MIT Press Bookstore relocated from Kendall Square to 301 Mass Ave in October of this year. This move will enable the renovation of 292 Main Street (MIT Building E38) as part of the Kendall Square Initiative. See page 28 for further details on the Kendall Square Initiative.

Further up Massachusetts Avenue towards Lafayette Square, MIT, in a joint venture with Forest City, redeveloped most of the block between Blanche Street and Landsdowne Street. The joint venture developed an office/laboratory facility (for Takeda) with ground floor retail at 300 Massachusetts Avenue. Two tenants – University Stationery, relocating from across the street, and Heartbreak Hill Running Company – have opened for business, and two more – Pagu and Roxy's/A4cade – are expected to open this winter.

Boston Magazine describes the partnership between Roxy's Grilled Cheese founder James DiSabatino and Area Four's Michael Krupp this way: "Krupp's team curating the cocktails; Roxy's offering their most extensive menu of burgers and grilled cheeses to date; and a host of New England arcade collectors furnishing the entertainment (think vintage pinball machines and dozens of 8-bit classics)."

Through these initiatives, MIT hopes to continue the transformation of this section of Massachusetts Avenue into a vibrant and attractive corridor connecting the Institute to Lafayette Square and beyond.

Volpe Parcel

In 2015 the General Services Administration (GSA) invited bids to develop a new federal building on the site to house the Volpe Center; in return, the successful bidder would recover its costs by redeveloping the remainder of the parcel. In November, MIT learned that the GSA had made an initial selection of MIT as its partner on the Volpe Center site.

MIT's bid reflects two guiding principles that President Reif has articulated and is advancing: our desire to foster Kendall Square's growth into one of the world's most compelling innovation districts, and MIT's longstanding efforts to help make sure that technologies created on our campus can reach the marketplace and make a positive impact in the world.

MIT's engagement with the Volpe property will allow MIT to further help shape the Kendall district — which is expected to provide long-term benefits for industry collaborators, neighbors, and for the Institute itself. While it is not anticipated

that the Volpe property will house academic buildings in the near term, it is important to note that the long-term proceeds from the successful bid will support the Institute's academic and research enterprise for decades to come. Additionally, it is expected that a developed Volpe parcel will contribute to creating even more exciting Kendall Square environs for members of the MIT community to live and work.

The Insititute learned a great deal through the Kendall Square Initiative process about how best to integrate the desires of the neighborhood, the business community, and the MIT community. MIT expects the tremendous contributions that dynamic street fronts, good retail, conveniently located housing, and active open space can bring to mixed-use developments, and plans to follow that same framework as we envision the future of the Volpe site with City and neighborhood colleagues.

MIT looks forward to working with the federal government, the City of Cambridge, our Kendall Square neighbors, and the MIT community as this process advances.

Capital Renewal

Addressing deferred maintenance has been prioritized as an integral part of overall campus renewal. This year was the first in recent decades that a reduction in the deferred maintenance backlog was realized, with 80 percent of campus buildings benefitting from the Capital Renewal program. This program will continue to be a central pillar of academic investment, with on-going planning and implementation of renewal projects throughout campus.

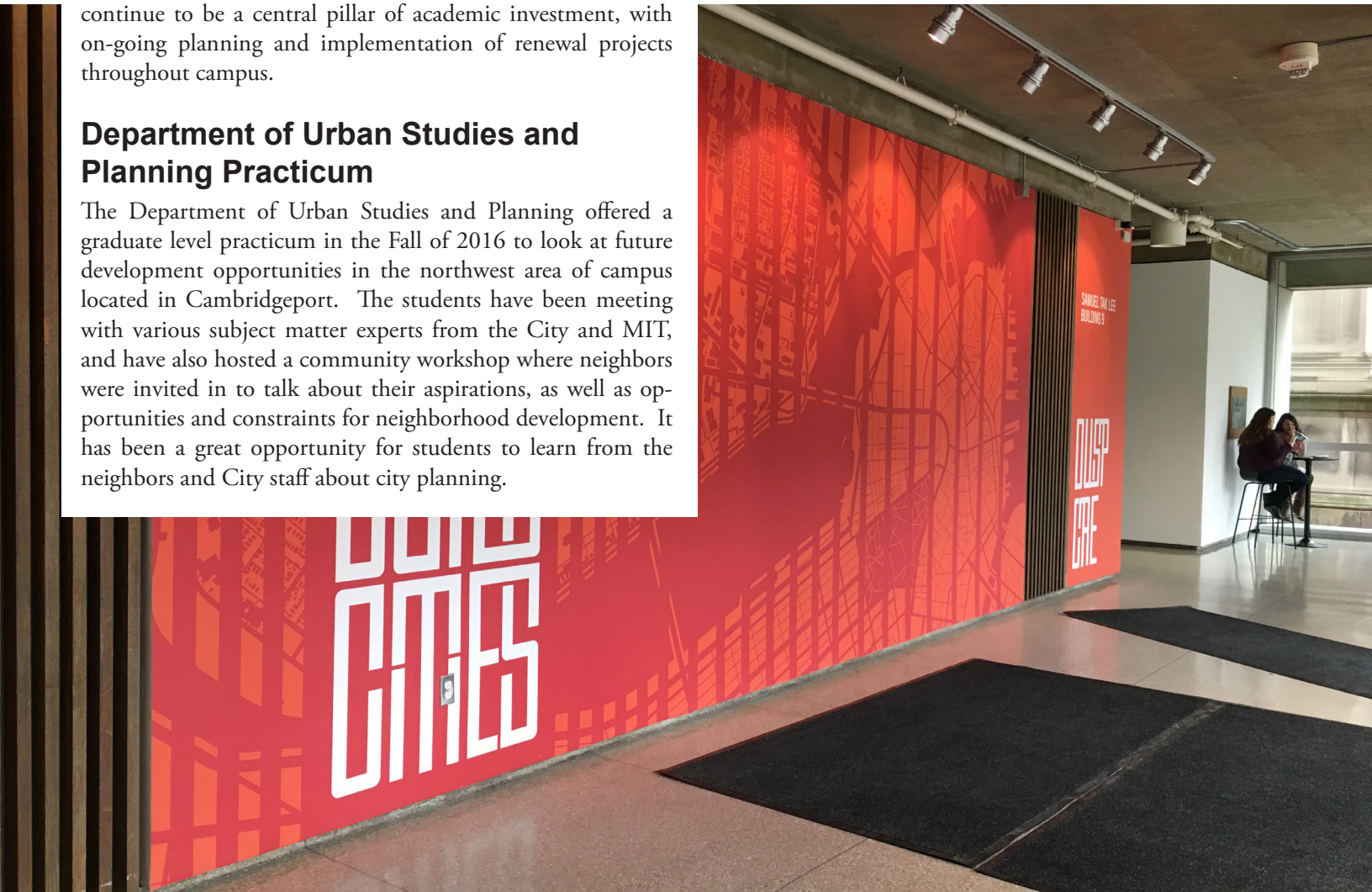
Department of Urban Studies and Planning Practicum

The Department of Urban Studies and Planning offered a graduate level practicum in the Fall of 2016 to look at future development opportunities in the northwest area of campus located in Cambridgeport. The students have been meeting with various subject matter experts from the City and MIT, and have also hosted a community workshop where neighbors were invited in to talk about their aspirations, as well as opportunities and constraints for neighborhood development. It has been a great opportunity for students to learn from the neighbors and City staff about city planning.

Historic Preservation

With consultants Public Archaeology Lab (PAL), the MIT Office of Campus Planning completed a Historic Inventory and Assessment of MIT's campus resources in November 2016. The new 2016 Inventory and Assessment together with an assessment of MIT properties along the edge of campus completed in 2002, create a planning tool for future discussions of development options between MIT, the Cambridge Historical Commission (CHC) and other City of Cambridge departments. This tool is part of the recently established written protocol between MIT and the CHC that formalizes what has been an informal review process. The Institute and the City of Cambridge have agreed to staff reviews of any renovations, demolitions and/or additions to the historic resources.

In 2016, MIT received an unprecedented six Historic Preservation Awards from the Cambridge Historical Commission recognizing the Institute's commitment as a dedicated steward of its historic properties. Those projects included: Building 2 (Simons Building), Building W31 (duPont Athletic Center), Building E52 (Morris and Sophie Chang Building), Building W16 (Kresge Auditorium), Building W15 (MIT Chapel), and Building NW23 (195 Albany Street).



Students, Faculty & Staff

The 2008 – 2016 numbers of enrolled graduate students and the hiring of post-doctoral employees have trended up over these years, although the current year shows a modest decrease in both categories. The growth in the number of graduate students increased from less than 2% in the first three years of the period and then peaked at 3.6% growth in 2012. The growth rate in graduate students has steadily declined since that time, turning negative in the current year. Post-doctoral employment grew more substantially in the first half of the period compared with the second half, with the growth rate dropping from an average of 8.0% to 2.7%, with the most recent year trending negative.

One explanation for the early increase in post-doctoral numbers and the more recent decline is based on the expected stability of individual graduate programs. Financial uncertainty stemming from the Great Recession, in terms of federal and private resources available for research in the future, 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 to hire post-doctoral employees to support the current 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, including the kinds of considerations noted above. These decisions are governed by a variety of factors including the availability of research funding and the ability of international students to obtain visas.

The visiting student population can be broken into two parts: exchange students and visiting researchers. There are on average 43 exchange students, typically weighted to undergraduates over graduates, who are enrolled in a degree program elsewhere but are resident on campus. Over the last ten years there have been as many as 51 exchange students and as few as 28. Visiting researchers are overwhelmingly graduate students enrolled elsewhere, but invited to MIT to conduct research. There have been an average of 278 such research students, with a maximum of 307 and a minimum of 216. These are on-going programs that do not appear to have any particular growth trend over time, either positive or negative. The visiting research students are invited by individual departments, subject, as noted above, to variations in funding and specific opportunities.

The Institute changed its methodology of counting part-time staff from using "percent effort" to "part time equals 1/3 full time." Despite this change, the average rate of increase over the last four years has remained consistent at about 3% growth. For more than 25 years, the number of tenured faculty members has remained stable at around 1,000. The undergraduate population also remains stable at 4,474, just under the target of 4,500.

Housing

Undergraduate Housing

There has been an intense investigation of opportunities to provide new undergraduate housing on campus to enable the renovation of older existing residences. Early in 2016, MIT conducted a study of the potential conversion of the Metropolitan Warehouse into a new undergraduate residence combined with maker spaces and other community innovation opportunities. Now the Institute's focus for student housing opportunities has shifted to exploring alternative sites for a new undergraduate residence hall, expected to be in the West Campus area.

A committee of students, faculty, and staff formed by Vice President and Dean for Student Life Suzy Nelson has released a document with academic, social, and dining goals for future residence halls. Since August, the Architectural Principles for MIT Undergraduate Residences Committee has been synthesizing information from various sources — including MIT reports and surveys, regulations, and industry standards — and gathering community feedback in order to develop a roadmap for the design, construction, and programming of new undergraduate residence halls.

This month, MIT has launched the design for the renewal of W70 New House, which is in need of a comprehensive renovation. The renovation will allow for the undergraduate affinity communities that currently occupy the building to be maintained during the renovation period and will allow for them to return to a revitalized and updated building in 2020.

Graduate Housing

MIT is planning a new graduate residence at Site 4 in the Kendall Square Initiative development. The new housing provides 456 graduate student housing units, 250 of which are net new units. The building will replace the 201 family units in the existing Eastgate housing facility, in advance of that aging building's removal. The graduate housing component of the Kendall Square Initiative arose from an analysis by the Graduate Student Housing Working Group, which City of Cambridge staff participated in. Its final report recommended adding new housing to accommodate 500 to 600 graduate students. MIT leadership determined that approximately half of that housing could be placed within the Kendall Square Initiative, and that the other half would be sited elsewhere on campus. It is anticipated that the new graduate units will be integrated into the existing graduate communities in the west and northwest campus as part of an effort to strengthen those communities.

AccessMIT

Under the leadership of the MIT Committee for Transportation and Parking, the newly launched AccessMIT program is an initiative to create a variety of affordable, low-carbon transportation options and change the way the MIT community thinks about commuting.

Over the past decade, the MIT Transit Lab, in collaboration with MIT's Parking and Transportation Office, has focused on how faculty, staff, students, and visitors travel to and from MIT. Supported by their research, MIT has set out to reduce parking demand on campus with the launch of a new program, which combines pay-per-day parking for most parkers with free access to MBTA subway and local bus.

Additional benefits include increased subsidies for parking at MBTA stations and commuter rail tickets. In partnership with the Office of Sustainability, the team is also launching a public awareness campaign to accompany the new benefits and reframe the commuting experience.

Relationship with Cambridge Public Schools

MIT shares excitement about learning through a variety of academic enrichment opportunities for Cambridge Public Schools (CPS) students. Some highlights of partnerships, programming, and resources are described below.

Celebrating a Century in Cambridge

To commemorate MIT's 100th year in Cambridge in 2016, the Institute is implementing two educational initiatives for Cambridge students and the local community.

- In partnership with Cambridge Rindge and Latin School (CRLS), Prospect Hill Academy Charter School, and the Community Charter School of Cambridge, MIT is starting a scholarship program for Cambridge college-bound seniors to assist with the cost of college.
- MIT is establishing a new K-12 outreach administrator position that will focus on coordination and communications around the Institute's K-12 offerings, including connecting MIT educational outreach programs to academic needs in the Cambridge community.

Pathways to Invention

MIT recently announced the launch of "The Engine," a new kind of enterprise designed to support startup companies working on scientific and technological innovation with the potential for transformative societal impact. As part of this initiative, MIT is creating a pilot "Pathways to Invention" program at the Fletcher Maynard Academy to introduce CPS youth to invention and entrepreneurship through mentorship and programmatic support.

Edgerton Center

The Edgerton Center reaches hundreds of CPS middle school students during the academic year by offering three-hour, project-based lessons in science and engineering. At CRLS, the Center provided LEGO biology sets and teacher workshops in molecular biology, and an Edgerton Center advisor/Center for Environmental Health Sciences staff member is on the Advisory Board of the Biotechnology Program at RSTA. Fletcher-Maynard Academy students in grades 3, 4 and 5 participated in a one-week workshop on "Kinetic Sculpture" run by Edgerton Center staff. Additionally, students in Pre-K, Kindergarten, and grade 5 at the Benjamin Banneker Charter Public School (BBCPS) worked with Edgerton Center instructors on Design Thinking, a tool to create a shared common practice and vocabulary to solve real-world, "sticky" problems. The Edgerton Center also provided professional development for BBCPS teachers on curriculum development utilizing Design Thinking.

MIT Museum

The MIT Museum welcomes Cambridge families and students to campus, including offering free admission on the last Sunday of every month from September through June, and for Cambridge Public Library cardholders in July and August. The Museum often waives admission fees and provides educational workshops for underserved camp groups and out-of-school time out-of-school time student groups from organizations such as the East End House and the Cambridge Youth Enrichment Program. The local community also participates in Museum-curated STEM events such as "Girls Days," "Living in the Future," "Friday After Thanksgiving (F.A.T.) Chain Reaction," and "Science on Saturday." The Museum hosted summer interns from CRLS in public programming and outreach, and welcomed teens from the Community Art Center, Science Club for Girls, and Cambridge Community Television to showcase their projects.

Cambridge Science Festival

MIT also interacts with the CPS community through the Cambridge Science Festival, which attracts nearly 100,000 attendees annually. The "Science Carnival Robot Zoo" is held in the CRLS gym, and CPS students and staff demonstrate their science activities and inventions to an audience of roughly 20,000 visitors, many of whom are CPS families. In addition, CRLS students serve on the Festival's Teen Advisory Board, and Deputy School Superintendent Carolyn Turk serves on the Festival's Steering Committee. CPS students also participate in the Festival-run "Curiosity Challenge" and "MIT Science Trivia Challenge."

Additional Programming and Resources

MIT participates in KeyPals and NetPals in partnership with Cambridge School Volunteers. Fifth grade students at the Kennedy-Longfellow School and 7th grade students at the Putnam Avenue Upper School are paired with MIT staff and graduate students for friendly emails and a glimpse into a variety of careers.

The MIT Center for Materials Science and Engineering (CMSE) "Science and Engineering Program for Middle School Students" is a one-week summer program for 7th and 8th graders in the Putnam Avenue Upper School led by CMSE faculty, staff, and students. Students are introduced to materials science and engineering through hands-on activities. A CPS educator participated in CMSE "Research Experience for Teachers Program."

CPS students participated in several MIT academic enrichment programs: PRIMES (Program for Research in Mathematics, Engineering and Science), Circle (a high school level after school program for studying math in greater depth with MIT professors and undergraduate students), Amphibious Achievement (an academic and athletic mentorship program for high school students run by MIT undergraduates), and DynaMIT (a week-long summer science program for middle school students run by MIT undergraduates). In addition, CRLS students participated in an Apprenticeship Challenge (through funding provided by the MA Life Sciences Center) at BioBuilder, a nonprofit founded by Natalie Kuldell, Education Outreach Coordinator in the Department of Biological Engineering at MIT. Working in bio design teams for eight weeks in after school sessions, the apprentices received hands-on training in labs and strengthened their STEM knowledge and professional skills.

MIT's Office of Engineering Outreach Programs runs science and engineering enrichment programming for middle and high school students. CPS students participated in three OEOP programs (SEED, a five and a half year science and engineering program for students from Cambridge, Boston, and Lawrence) E2 (a one-week science and engineering program for rising high school seniors from across the country), and MITES (a six-week science and engineering program for rising high school seniors from across the country).

The Summer Youth Employment Program welcomes Cambridge youth seeking work opportunities at MIT. Nine youth between the ages of 16 and 21 participated in the 2016 summer program. In partnership with the City's Office of Workforce Development Summer Jobs Campaign, the program employed youth in the Department of Facilities, Information Systems & Technology (IS&T), Libraries, the Office of the Vice President for Finance (VPF), and Human Resources (HR). The youth were supervised and mentored by MIT staff, and took part in resume writing and diversity and inclusion workshops. In addition to gaining workplace experience, the youth also explored possible opportunities at the Institute during the academic year and beyond.

Cambridge public schools use Scratch, a programming language developed by the MIT Media Lab. This free resource helps students develop their creative and collaboration skills by way of interactive animations and stories.

Other Support

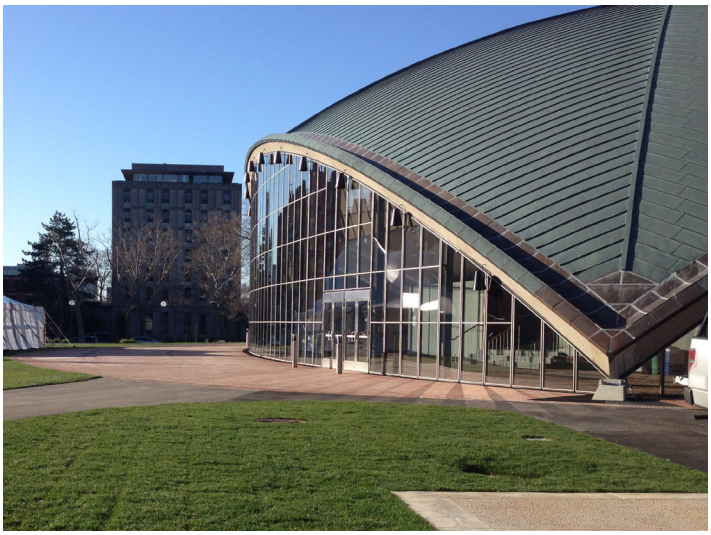
The Institute is also committed to collaboration with the CPS and the City's charter schools through providing in-kind campus space for Community Charter School of Cambridge and Prospect Hill Academy Charter School commencements, and trainings for CRLS teachers and administrators. Additionally, MIT provided financial support to dozens of local nonprofits offering education-focused programming. Cambridge agencies serving youth and their families were also served by hundreds of MIT student, faculty, and staff volunteers through the Priscilla King Gray Public Service Center.

List of Projects

Completed

Building W16 – Kresge Auditorium

Completed in 1955 and designed by architect Eero Saarinen, Kresge is an internationally recognized icon of mid-century modern architecture. Kresge Auditorium is the largest auditorium facility on campus and seats 1,200 people. The building is a very heavily used Institute resource that also provides facilities for major Institute and student events, as well as for the Music and Theater Arts academic programs. The building infrastructure renewal highlights included a complete replacement of the mechanical systems, enlargement and upgraded restroom facilities, a new curtainwall assembly system that matches all original glazing profiles, new brick plazas, selective house lighting replacement, isolated structural repairs and waterproofing. The project was completed in March 2016.

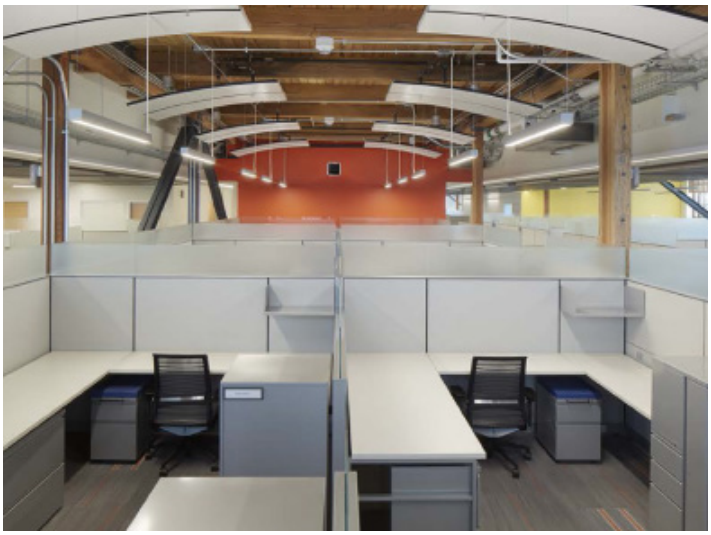


Building NW86 – Sidney Pacific

NW86 is a graduate residence with 681 beds opened in 2002. This HVAC project included installation of six new air handling units, new shafts for supply air ducts, re-insulation of chilled water distribution, rework of bathroom exhaust systems and rebalancing of the entire building. Work was done in two phases to allow for partial occupancy. The project was completed in August (just after the Town-Gown reporting period) and the residence hall is now fully occupied.

Building NW23 – 195 Albany Street

As part of an effort to better utilize some existing campus buildings and to activate the west portion of campus with new uses, Building NW23 was renovated as office space for Campus Services, Campus Construction, Maintenance & Utilities and the Office of Campus Planning. The project was a full building renovation that included installation of new windows and a new roof. The work also included new energy efficient mechanical and electrical systems, a replacement of the existing entry curtainwall, a new walkway, entry, seismic upgrades, elevator upgrades and stairs. Construction was completed in January 2016. The project is presently on track for LEED v4 Silver Certification.



Grand Junction Park and Community Path (Cambridge Redevelopment Authority)

As part of MIT's Kendall Square PUD-5 zoning petition in 2013, MIT agreed to fund $500,000 for the construction of a park and community path between Binney Street and Main Street along Galileo Galilei Way. Construction commenced on the project in 2015 and was completed earlier this year. The project was managed by the Cambridge Redevelopment Authority.

Building E52 – Sloan and Economics Department

MIT renovated this building to accommodate a conference center, the Department of Economics, and other administrative units of the Sloan School of Management. Building E52 began construction in September 2013 and was completed in December 2015. The building is on track for LEED certification at the Gold level.

Building 2 – Mathematics Department

This completed project is another step forward in renewing the Main Group buildings for state-of-the-art education and research. The portion of Building 2 which houses MIT's Department of Mathematics was completed in December 2015. The project was completed using sustainable design and construction initiatives and is currently on track to achieve LEED Gold certification.

620 Memorial Drive

620 Memorial Drive was an 87,000 square foot research and development facility previously owned and occupied by Pfizer. MIT is acquired the property in 2014 and converted the building into a multi-tenant R&D facility for small and mid-size biotechnology companies. Renovations were completed earlier this year and the property is full leased to five different companies.

In Construction

Kendall Square Utility Enabling

The Kendall Square South of Main Street (SoMa) enabling project includes utility and infrastructure improvements and modifications related to the construction of the Kendall Square Initiative buildings. Improvements include new municipal water, sewer, and drain lines; private utility electric, gas, and tel/data lines; and MIT electric, tel/data, steam, and chilled water lines. Construction started in late summer this year and is expected to continue through the end of 2017.

610 Main North

The base building construction and tenant improvements for Pfizer at 610 Main Street North — a 280,000 square foot multidisciplinary laboratory facility — has been completed. Construction of tenant improvements for Pfizer's sub-tenants on the upper floors has commenced and is expected to be complete in mid-2017. The building includes retail space along the Main Street edge which will accommodate four tenants. Leases have been executed with two tenants – Sulmona and Café Luna – and tenants are being pursued for the remaining spaces. The Institute expects that there will be leases for the remaining spaces and complete construction in all the retail space by mid-2017.

12 Emily Street

12 Emily Street was a research and development facility previously occupied for many years by several biotechnology and pharmaceutical companies, including Acceleron Parma, Inc., Aveo Pharmaceuticals, Inc., and Compucyte Corporation. MIT is repurposing the building 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 and is expected to be completed in 2017.

Building W97 – Theater Arts

In an effort to consolidate MIT's Theater Arts activities and spaces, the department will be relocated to 345 Vassar Street, Building W97. The program will include rehearsal spaces, costume shop and storage, experimentation, performance space, and office and administrative space. Relocation of these activities, particularly the performance space, will help activate the Vassar Street and west campus area. Planning for this move began in early 2015 and renovation is expected to be complete in March 2017. The project is currently tracking to achieve LEED Gold certification.

Central Utility Plant (CUP) – Chilled Water

As part of the CUP upgrades to support MIT's future growth, modifications are being made to the plant's chilled water systems and the chiller hall housing in Building N16 is being 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 CUP upgrades will bring three major improvements: improved campus power resilience, reduced GHG emissions, and reduced regulated pollutant emissions. The original expansion was started in 2009 and is expected to be complete in March 2017.

Building 31

MIT's Mechanical Engineering and Aeronautics and Astronautics Departments occupy Building 31. It is one of the highest ranked buildings for deferred maintenance. The scope includes reconstructing structural bays, creating new high bay areas, and renewing offices, labs and common spaces. The net additional space is planned to be approximately 15,000 gross square feet. Project completion is scheduled for 2017. The project is currently tracking to achieve LEED Gold certification.

By Others

181 Massachusetts Avenue (Novartis)

Novartis Institutes for BioMedical Research leased a four-acre parcel of MIT land at 181 Massachusetts Avenue (corner of Albany Street) to augment the Novartis Cambridge Campus, where its global research headquarters are located. By expanding in proximity to MIT and other research institutions, Novartis has created an ideal environment for interdisciplinary collaboration, open communication, and exchange of knowledge. The Novartis Cambridge Campus serves as an important connection between Kendall and Central Squares. Its expansion has added vibrancy to the area with ample green space, pedestrian connections, and street-level retail space. The project encompassed the construction of two new buildings with 550,000 square feet of laboratory, office, and retail space, and the renovation of the parcel's remaining existing structure. Per MIT's lease requirements, the building on Massachusetts Avenue includes retail space, extending active ground floor uses along this important commercial corridor. Novartis completed and occupied the R&D space in late 2015, and two retailers are expected to open by the end of the year: Health Yoga Life, which has an existing studio in Beacon Hill, and Saloniki, a Greek restaurant co-owned by Jody Adams, with an existing location in the Fenway neighborhood.

300 Massachusetts Avenue (Forest City)

MIT and longtime development partner Forest City collaborated to redevelop a portion of Massachusetts Avenue – part of the 300 Mass Ave block adjacent to MIT's Random Hall dormitory. This project involved the construction of a new mixed-use building designed to bring significant new retail vitality to the area and provide research space to further advance the Cambridge innovation ecosystem. The base building and tenant improvements were completed earlier this year and Takeda has taken occupancy. The ground floor of the building includes 15,000 SF of retail, capable of supporting several retail operations. Two tenants – University Stationary, relocating from across the street, and Heartbreak Hill Running Company – have opened for business, and two more – Pagu and Roxy's/A4cade – are under construction and are expected to open this winter.

In Planning and Design

Central Utility Plant Upgrade

The CUP Project will upgrade the existing plant to provide the additional utilities necessary to support MIT's research and teaching activities through 2030. 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 is planned to commence in April 2017, with the startup and commissioning in October 2019 and cogeneration plant operation in April 2020. The existing gas turbine, which has reached the end of its useful life, 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. The Institute plans to bring forward a site-related variance application to the Planning Board and Board of Zoning Appeal in the coming months.

Undergraduate Residences

MIT is planning for a renovation of New House (W70) undergraduate residence and a new undergraduate residence in the West Campus. The new residence will permit major renovations of older, existing undergraduate residences.

Kendall Square Initiative

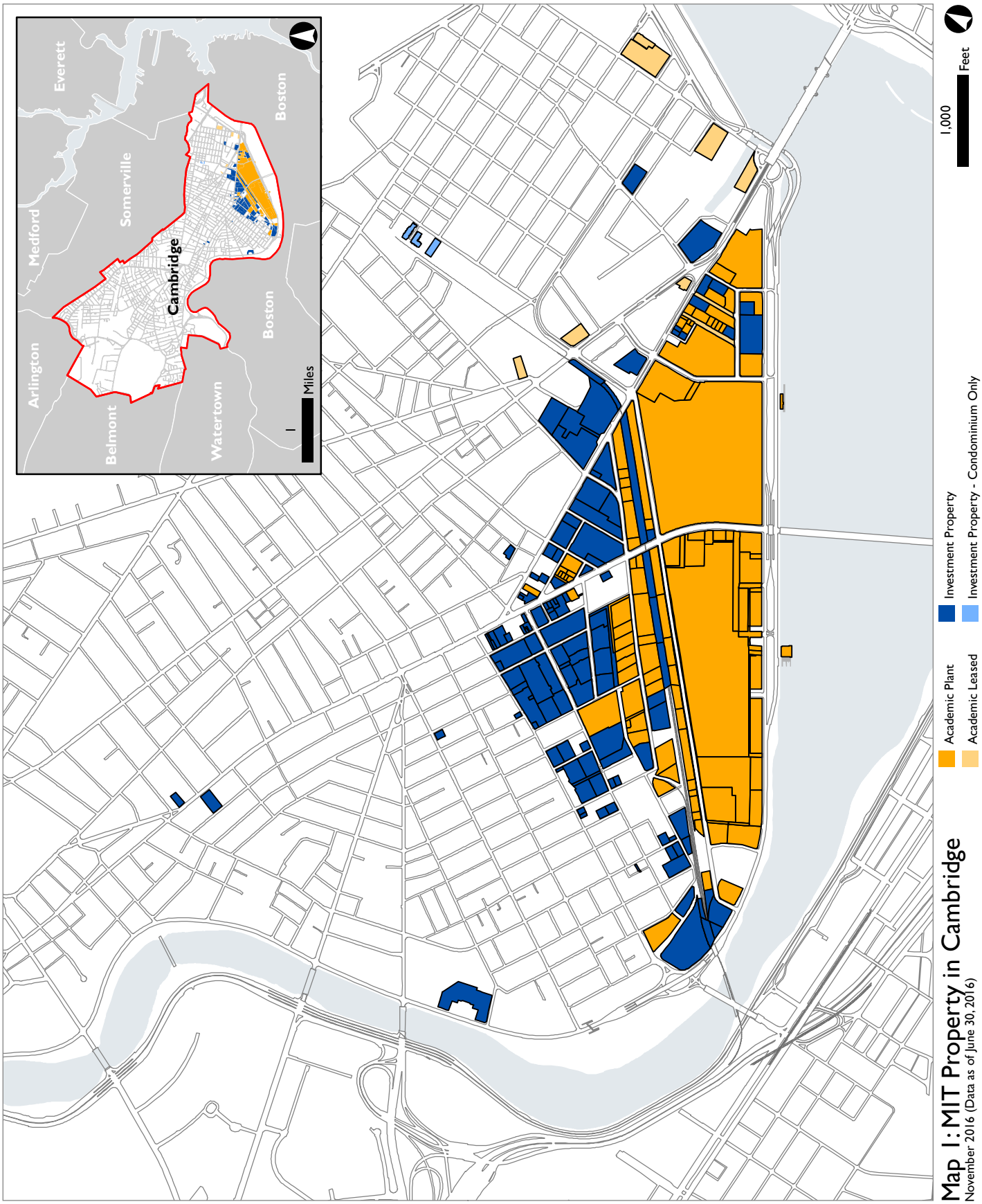
The Kendall Square Initiative includes six buildings: three will house office and/or R&D uses, one will provide graduate student housing, an MIT Welcome Center, and other administrative office uses, one will house market rate and affordable housing, and one is proposed as a small retail building. Each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

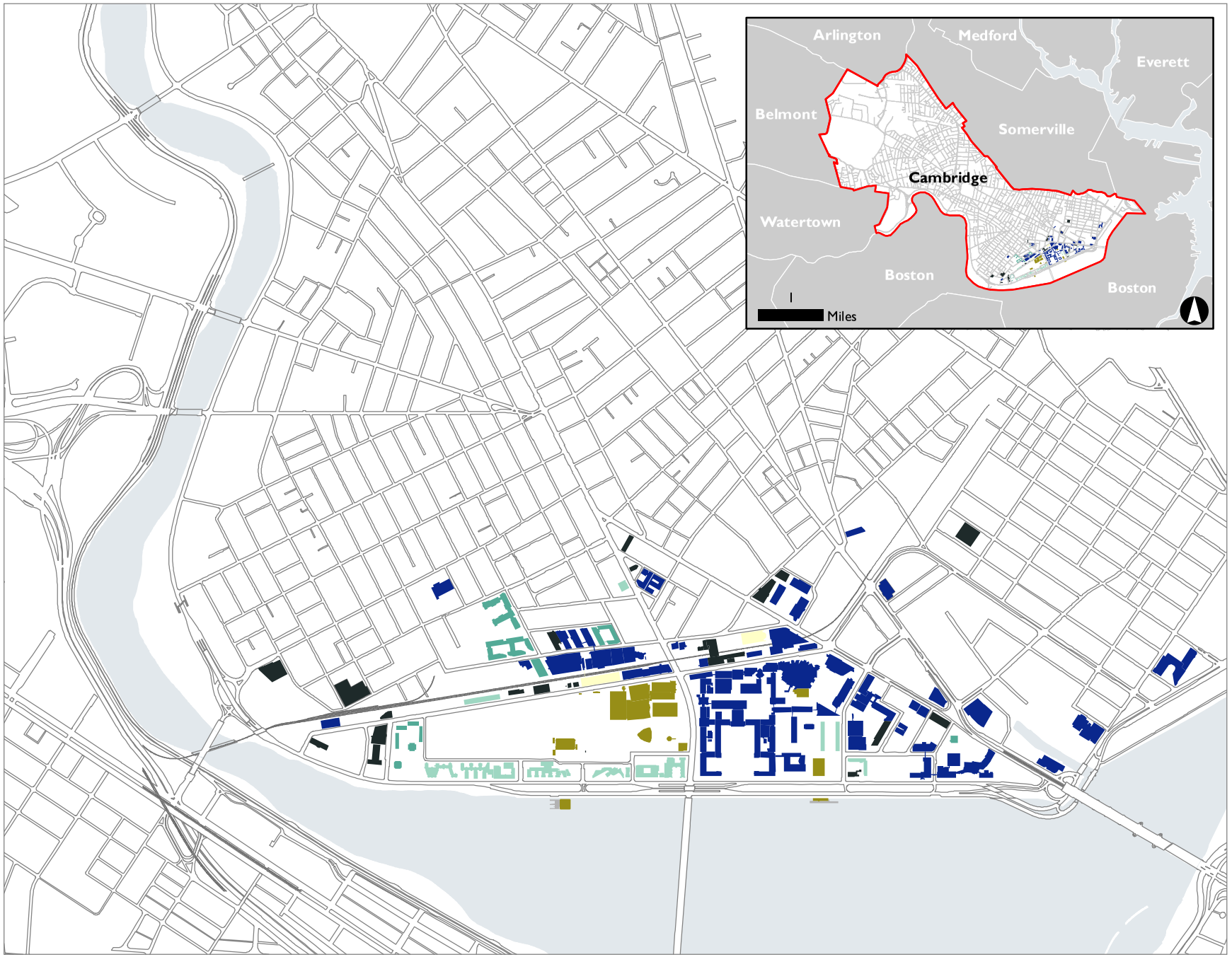
The project will retain and incorporate the three historic buildings along Main Street: the Kendall Building (238 Main Street, E48); the J.L. Hammett Building (264 Main Street, E39) and the Suffolk Building (292 Main Street; E38). The ground floor retail space in these buildings will be repositioned and the buildings will be modified to increase accessibility and porosity of retail and other active uses. The ground floors of existing buildings along Wadsworth Street, Hayward Street and Carleton Street will also be modified to include active uses as they integrate into the active ground floors of the new buildings. MIT believes that celebrating the three historic buildings and integrating their design with the contemporary buildings serves as a physical expression of the evolution of Kendall Square from its early industrial roots to a center of innovation.

The landscape is designed to be a series of cohesive and pedestrian-oriented open spaces, connected by upgraded streetscapes to adjacent properties and neighborhoods. Each street leads into landscaped open spaces and extends access to areas that will promote greater public use. The open spaces are the connective tissue of the Kendall Square Initiative, connecting the MIT east and main campuses and connecting the campus and the community to the north.

In May 2016, the Planning Board voted unanimously to grant PUD and Article 19 Special Permits for the overall development, and MIT has started the final design review of each of the buildings with the Board. Construction of the utility enabling work has commenced. This will be followed by below-grade construction of the garage and then the buildings.

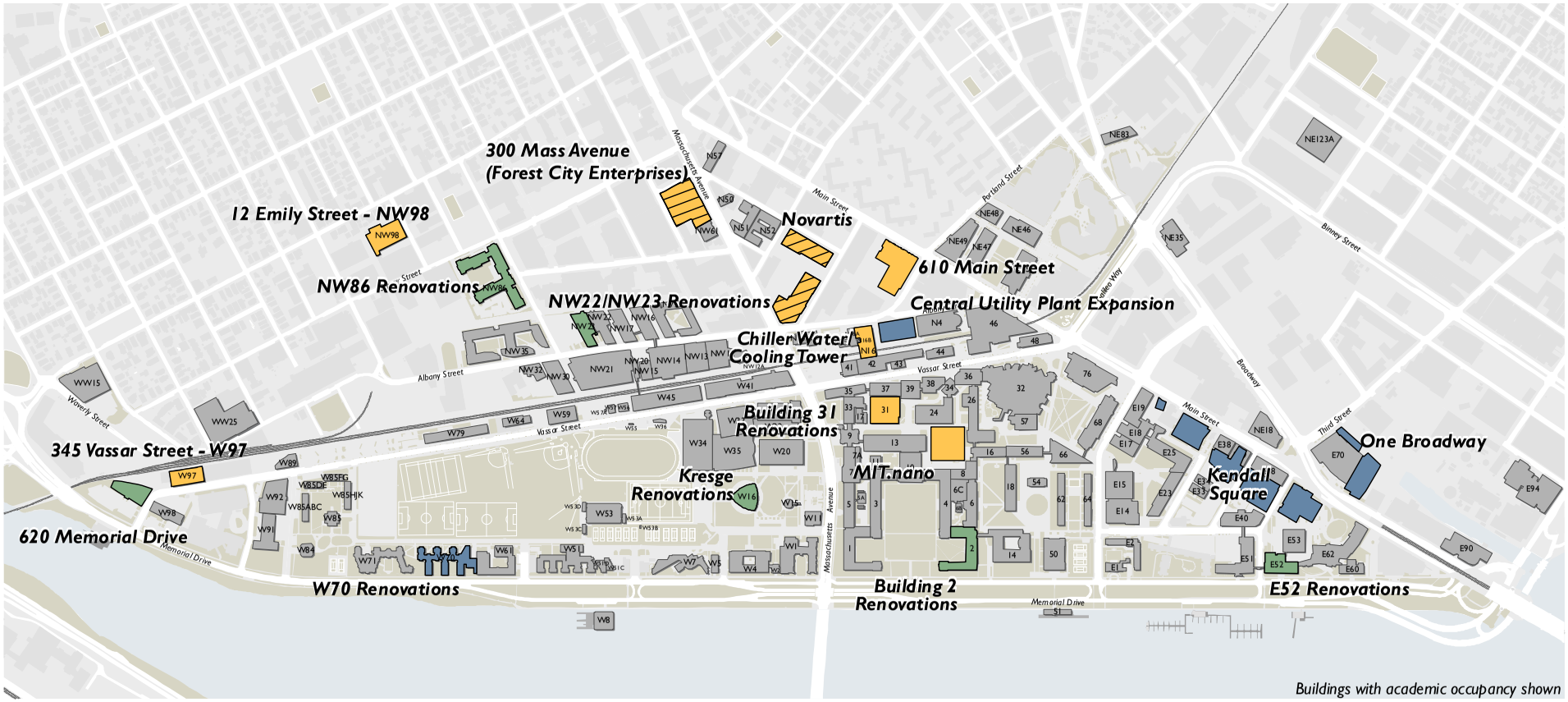
Mapping Requirements





Map 1a: MIT Buildings and Occupied Spaces by Use

November 2016 (Data as of June 30, 2016)

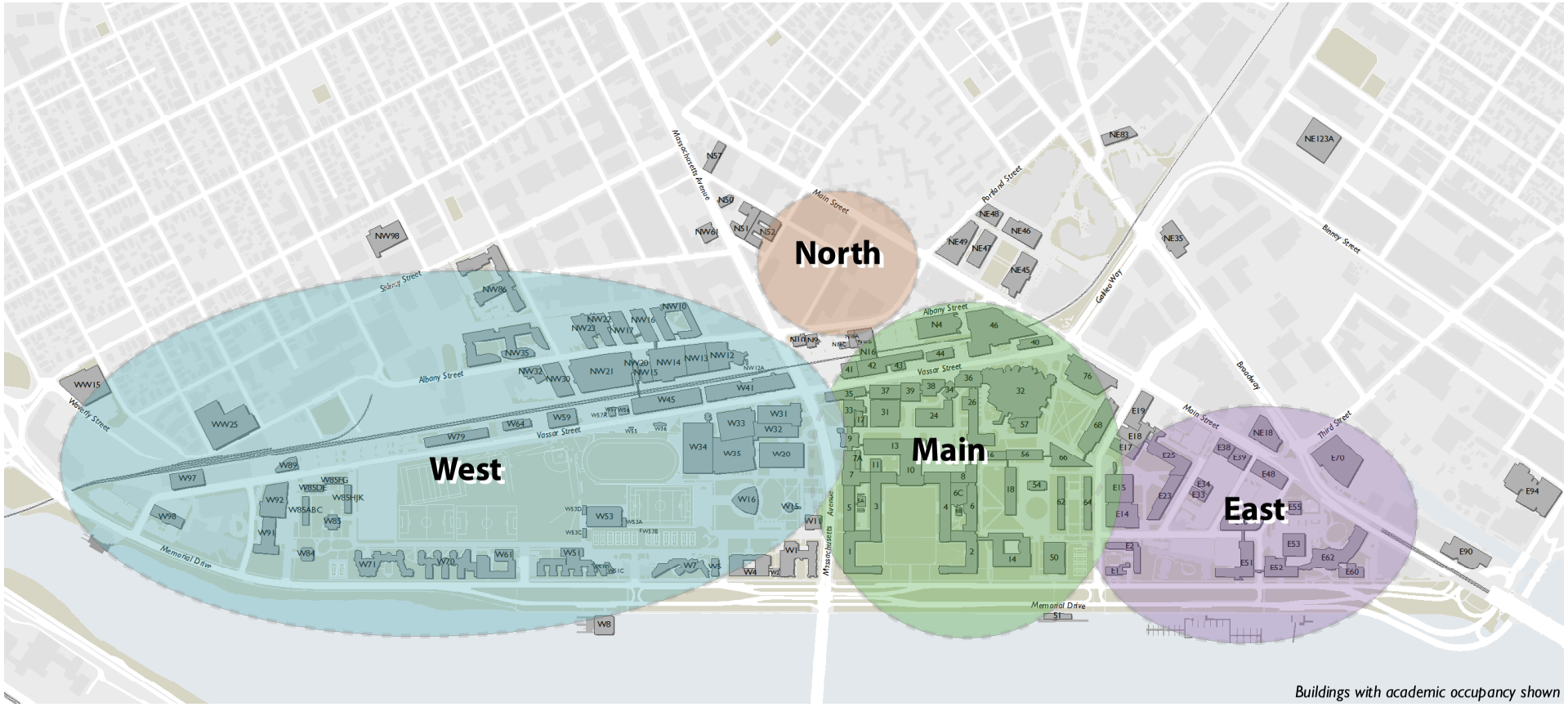


Map 2: MIT Major Projects

November 2016 (Data as of June 30, 2016)

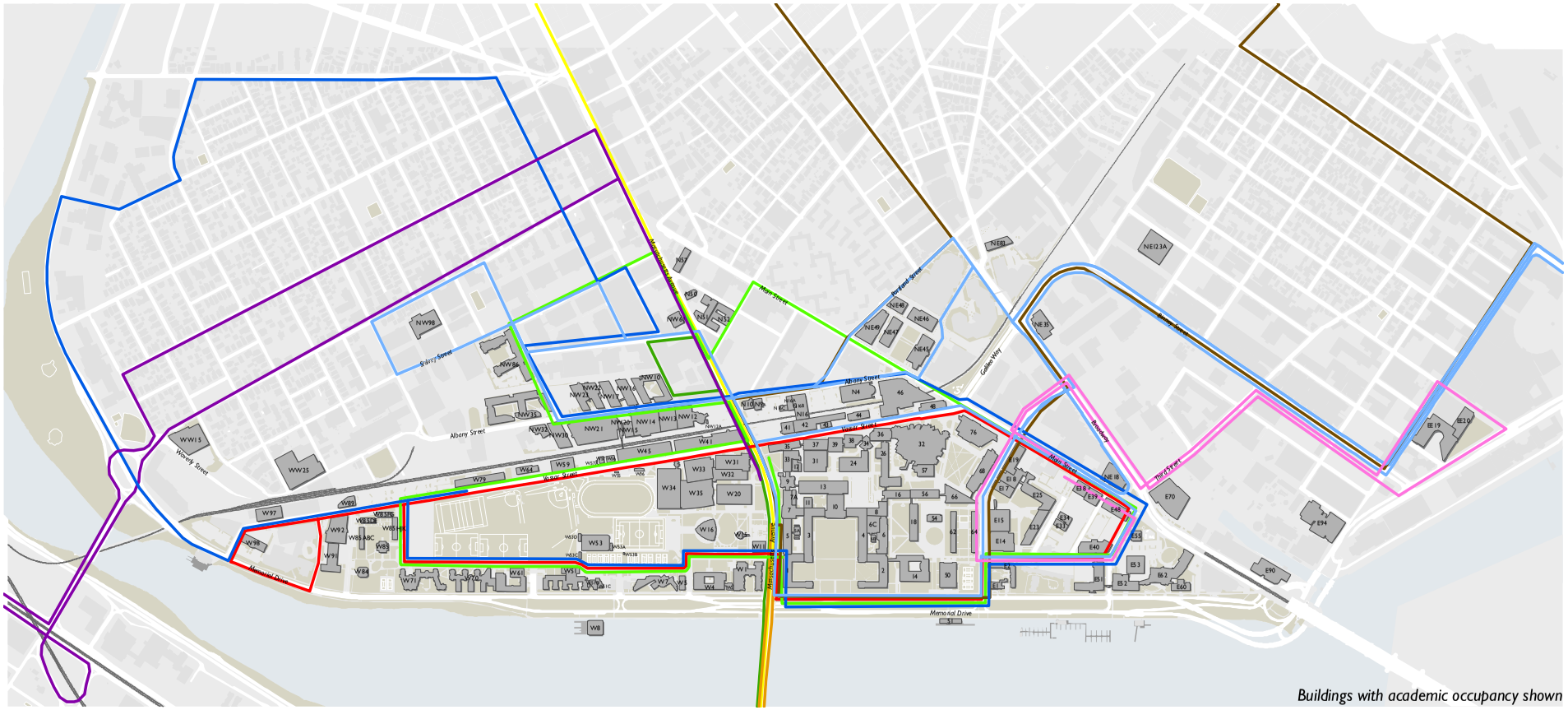
Planning/Design | Construction | Completed | Development By Others

1,000 Feet



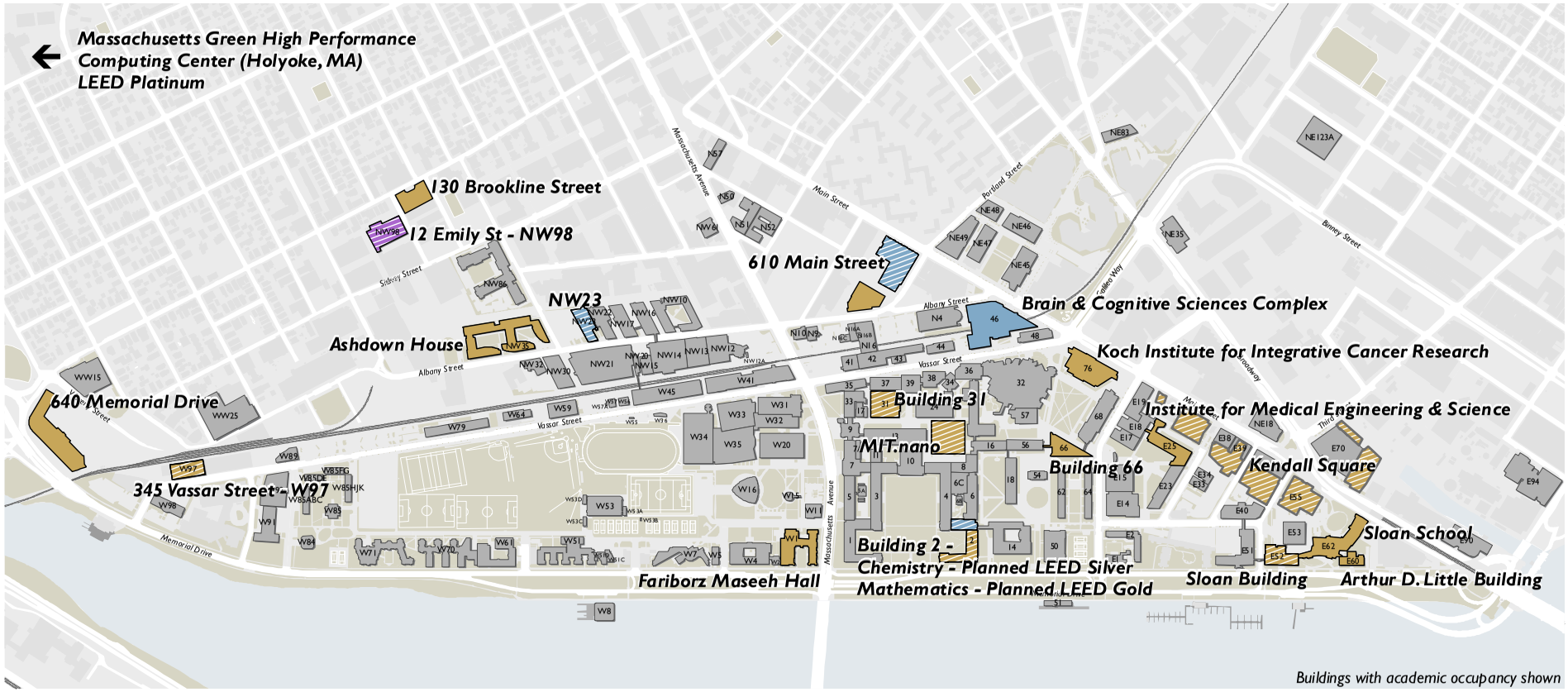
Map 3: Future Development Opportunities

November 2016 (Data as of June 30, 2016)



Map 4: MIT Shuttle Routes

November 2016 (Data as of June 30, 2016)



Map 5: MIT LEED Certified Buildings

November 2016 (Data as of June 30, 2016)

LEED Certified

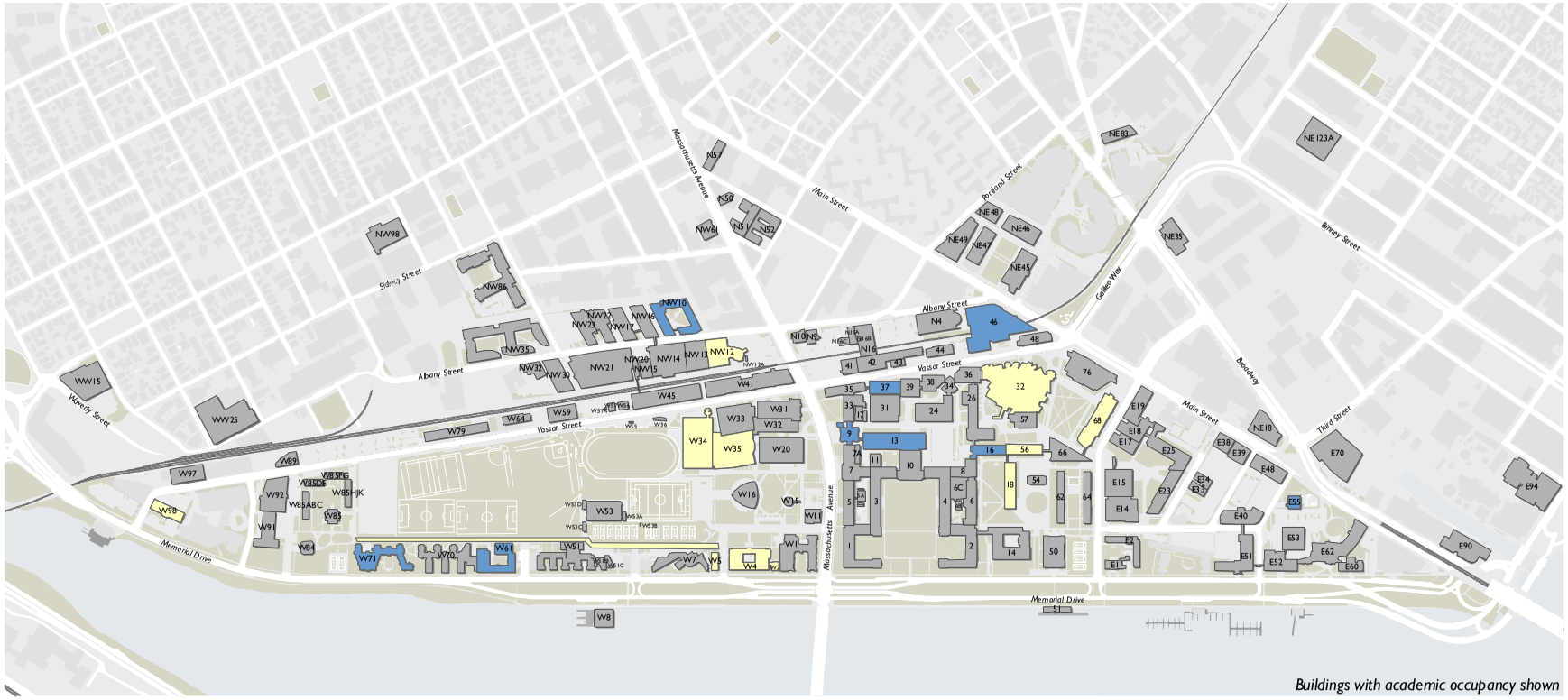
LEED Gold | LEED Silver

Plannned LEED Certified

Planned LEED Gold | Planned LEED Silver

Planned LEED Gold - Commercial Interior

1,000 Feet



Map 6: MIT Energy Efficiency Upgrade Projects

November 2016 (Data as of June 30, 2016)

Buildings and Spaces with Energy Efficiency Upgrade Projects

Completed in 2015/2016

In Construction or Planned for 2016/2017

Transportation Demand Management

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%

Point of Origin for Commuter Trips to Cambridge

Home Location	Headcount	Percentage
Cambridge	2,494	22.2%
Boston	1,574	14.0%
Somerville	818	7.3%
Arlington	406	3.6%
Brookline	350	3.1%
Newton	303	2.7%
Medford	268	2.4%
Belmont	257	2.3%
Lexington	238	2.1%
Quincy	215	1.9%
Watertown	186	1.7%
Malden	154	1.4%
Waltham	120	1.1%
Acton	74	0.7%
Bedford	32	0.3%
North Of Boston	766	6.8%
South of Boston	80	0.7%
West of Boston	124	1.1%
Outside 128	1,609	14.3%
Outside 495	373	3.3%
Out of State - Connecticut	22	0.2%
Out of State - Maine	19	0.2%
Out of State - New Hampshire	129	1.1%
Out of State - Rhode Island	63	0.6%
Out of State - Vermont	6	0.1%
Outside New England	342	3.0%
Outside US	230	2.0%
Unknown	1	0.0%
Grand Total	11,253	100.0%

TDM 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. Just within the past year, MIT installed a total of 106 new bike parking spaces. All bike racks have been 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 full-time 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 250 cyclists took advantage of the program this year, compared to 200 last year – an increase of approximately 25%.

MIT released an updated version of the annual "Getting around MIT by Bicycle" map and information pamphlet (http://bit.ly/MIT-bike-brochure). The map 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 is proud to sponsor four 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. 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. Additionally, MIT worked with the City of Cambridge and Motivate to install and sponsor two new stations in the west portion of its campus in November 2015. MIT has also participated in Hubway winter operations the past three years and has agreed to participate each winter going forward.

In addition to sponsoring Hubway stations, MIT subsidizes annual Hubway memberships for all MIT students, staff, and faculty, offering memberships at $25/year (regularly $85/year). The subsidy has been very well received, with the number of MIT Hubway members increasing nearly 50% in the past two years from 1,400 to 2,050 participants.

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 2016 Mass Commute Bicycle Challenge for most bike commuter miles traveled. The Institute has won this award for five of the past six 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 MIT property for the Grand Junction path in 2014. More recently, MIT has been a part of the Kendall Square Mobility Task Force (KSMTF), which has taken initial steps to examine the potential for transit service along the Grand Junction. The MIT Grand Junction report recommended, "on-going coordination between MassDOT, the City of Cambridge and MIT…to address the range of issues transit service would involve." It is anticipated that the findings and recommendations of the Task Force and the City plans to design and build the path north from Binney Street will stipulate that no construction take place which would preclude the contemplated transit connections to North Station and the future West Station across the Charles in Allston.

Institution Specific Information Requests

1. Provide updates on MIT plans to take to address housing needs, the timeline for action, and physical planning related to those actions. Please include a discussion of the effect of planned and needed dormitory improvements on availability of housing for undergraduate and graduate students.
   Housing, Page 21

2. Review the expansion in enrollment of graduate students, visiting students, and post-doctoral fellows since 2008. Discuss the reasons for this increase in enrollment and discuss the prospects for further changes in enrollment in coming years.
   Faculty, Students & Staff, Page 20

3. Provide an update on long term academic and non-academic planning for the main campus, with a particular focus on all potential locations for academic uses and plans for green space and edges along Massachusetts Avenue, particularly near the railroad crossing, edges adjacent to Area 4, and edges adjacent or near the Charles River.
   Capital Planning, Capital Renewal, and Historic Preservation, Page 18

4. Provide information on MIT's plans for ground floor retail along Main Street and in both Kendall Square and Central Square. What strategy does MIT follow in selecting tenants for retail sites? How is retail used to enhance the urban experience?
   Capital Planning, Capital Renewal, and Historic Preservation, Page 18

5. Provide an update for plans for vacant and underutilized MIT properties along Massachusetts Avenue.
   Capital Planning, Capital Renewal, and Historic Preservation, Page 18

6. Discuss planning for bicycle facilities on campus, including Hubway stations.
   TDM Strategy Updates, Page 37

7. Provide an update on the feasibility study being conducted for a multi-use path along the Grand Junction railroad right-of-way.
   TDM Strategy Updates, Page 37

8. Report on planning for the West sector of campus, including the area adjacent to Fort Washington Park and MIT owned property in lower Cambridgeport.
   Housing, Page 21

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