

2020 Town Gown Report to the City of Cambridge



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Massachusetts
Institute of
Technology

2020 Town Gown Report

MIT's 2020 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.


On the Cover

Cover photos feature MIT students, staff, and researchers at work during Covid-19.

<p>Graduate student Nicholas Demos designs new mirror materials for better gravitational-wave detection.</p>	<p>MIT Facilities staff distributing PPE to the Cambridge Community during the initial Covid-19 shutdown.</p>	<p>MIT student exiting a Covid-19 testing site.</p> <p>Photo: Gretchen Ertl</p>
<p>MIT's Director of Social Media Strategy Jenny Fowler works from home with her daughter.</p>	<p>MIT student studies while wearing a mask outdoors.</p>	<p>MIT Medical staff readies a flu shot during the 2020 Flu Shot Clinic.</p> <p>Photo: David Tytell/MIT</p>
<p>Tim the Beaver teaches his class how to correctly wear a mask.</p>	<p>Two ambassadors welcome MIT students back to campus for Fall semester.</p> <p>Photo: Gretchen Ertl</p>	<p>MIT senior Tommy Strei at his remote work space.</p>
<p>MIT volunteers get ready to go on a "Democracy Stroll" to heal divisions following the 2020 presidential election.</p> <p>Photo: David Barber/MIT</p>	<p>A researcher for Singapore-MIT Alliance for Research and Technology, which received a grant to develop rapid Covid-19 testing, works in the lab.</p>	<p>A member of the MIT community checks in to MIT Medical to be tested for Covid-19.</p> <p>Photo: Melanie Gonick/MIT</p>

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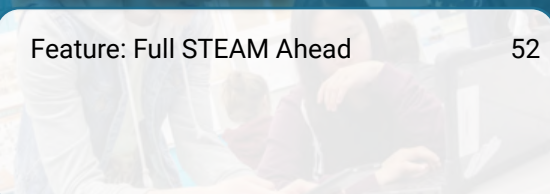
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Covid-19

The challenges of Covid-19 brought an unprecedented urgency to MIT's Town Gown relationship with Cambridge. From the beginning of the pandemic, the City and MIT knew instinctively that they had to fully support one another and maintain daily contact on all aspects of the virus. MIT focused both locally and globally to try and address the crisis. Campus researchers and makers pursued immediate and longer term solutions to protect the broader public. Some reached for their 3-D printers to test novel ways to create inexpensive PPE and testing kits, while others hunkered down in their labs to understand the nature of the new virus. The campus mobilized to tackle coronavirus the MIT way – by relying on the science, working the problem, and modeling a solution for our community and beyond.

Locally, the MIT community rolled up its collective sleeves to support the City of Cambridge in a variety of ways:

\$250,000 to support a temporary homeless shelter at the War Memorial Recreation Center and Field House.

Together, MIT and Harvard University [provided](#) \$500,000 of funding for this temporary City-run facility offering safe housing, isolation, and medical treatment for homeless individuals.

\$250,000 for coronavirus testing

The Institute contributed \$250,000 for free coronavirus testing for Cambridge residents.

\$50,000 to the Mayor's Disaster Relief Fund

MIT donated funds to help provide [emergency assistance](#) to Cambridge residents who are experiencing financial hardship due to Covid-19.

\$65,000 raised from campus employees

The MIT community banded together through fundraising activities, auctions, and direct contributions to get much-needed funds out quickly to residents. Among other efforts, the Community Giving Office created a Neighborhood Response Fund in support of six local nonprofits that actively support our neighbors. MIT Sloan coordinated a faculty auction which raised money for the Cambridge Community Foundation and the Mayor's Disaster Relief Fund.

Suspension of rent for 33 retail tenants

The Institute immediately suspended rent for all of its retail tenants in Central Square, Kendall Square, and on campus. As a result of this support, 32 of these tenants are now open again for business.





Personal Protective Equipment (PPE)

Forty thousand face shields (fabricated by MIT's Project Manus) were provided to Cambridge first responders, and 900,000 other pieces of PPE were distributed locally. Cambridge needs were prioritized, and repeated donations were made to the Cambridge Health Alliance, Cambridge Police Department, Cambridge Fire Department, Mount Auburn Hospital, CASPAR homeless shelter, and other local nonprofits.

Emergency K-12 educational resources

A consortium of MIT education professionals developed and launched the 10-week K-12 on-line enrichment program [Full STEAM Ahead](#). More information about this program can be found in the "MIT and Cambridge Public Schools" section. MIT also delivered nearly 50 new desks to Cambridge families with students who are learning from home.

Assistance to the Cambridge workforce

[The Job Connector by MIT](#) continues to provide virtual counseling and online workshops for Cambridge residents, focusing on topics like which business sectors are currently hiring and how best to navigate the state's unemployment process.

Augmented support for local nonprofits

Several MIT offices (Government and Community Relations, Community Services, and

the Priscilla King Gray Public Service Center) increased their support of Cambridge nonprofits that provide basic services to residents. This support included additional funding, advocacy, guidance, and PPE donations.

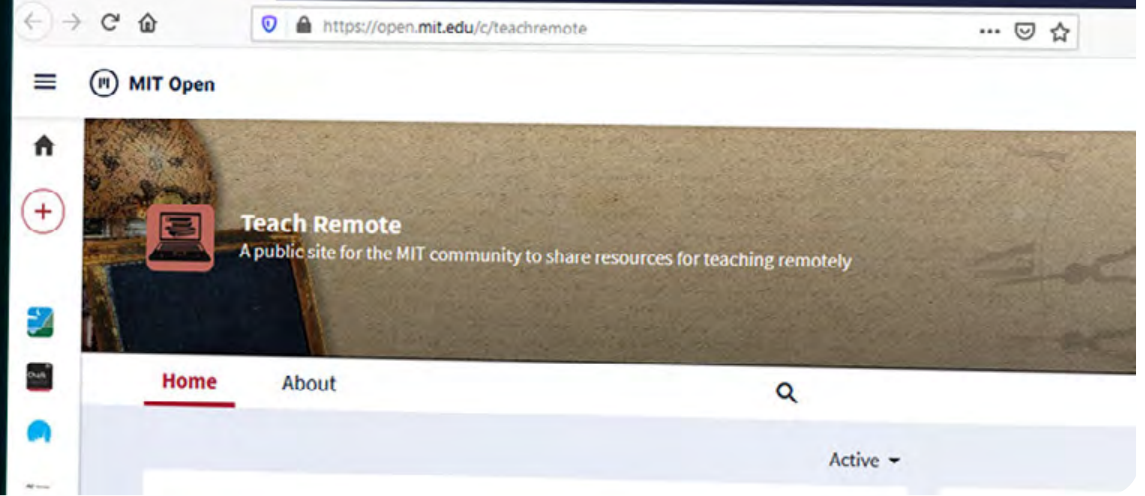
Sharing time and expertise

Jill Crittenden, a research scientist at MIT's McGovern Institute for Brain Research, serves as co-chair of Cambridge's COVID-19 [Expert Advisory Panel](#) and also developed food market/takeout safety [guidance](#) that was implemented locally in collaboration with the Cambridge Public Health Department. MIT staff serve on the Mayor's Disaster Relief Fundraising Taskforce and the Cambridge Community Foundation's [Cambridge Artist Relief Fund](#) grant review committee.

Housing for Cambridge emergency personnel

MIT provided access to housing for healthy and sick Cambridge first responders.

MIT's and the City's shared Covid experience has opened up new doors of understanding and collaboration that will help us face future challenges together. Regardless of this silver lining, we are all devastated by the loss of Cambridge residents, friends, and family to the virus.



Moving an entire campus online

In the span of one week in March, MIT went from a bustling hands-on research campus to a remote-learning institution. This quick shift required an extraordinary commitment of time, resources, and effort, challenging staff, faculty, and students to develop smart solutions to a global pandemic. Those tasked with supporting students through the transition had the added responsibility of accommodating each student's individual circumstances.

MIT Medical, which began monitoring Covid-19 in January, mobilized in early February to support students returning to campus after the four-week Independent Activities Period (IAP). Anyone returning from regions affected by Covid-19 was asked to self-quarantine for a full 14 days, and all quarantining students were supported by the Division of Student Life's CARE team as well as MIT Medical.

As the pandemic progressed globally, MIT Medical worked with leaders from across the Institute to prepare MIT for Covid-19 while closely monitoring the situation at nearby colleges and universities and across the region. When it became apparent that dramatic action would be needed to limit campus density and reduce the risk of spreading the virus, all classes were moved online and the closure of undergraduate residence halls was expedited.

A team of individuals from across the Chancellor's area led the effort to help students leave campus and safely return home. Faced with an extremely tight deadline, staff mobilized to assist departing residents, providing profes-

sional storage services, boxes, and in-residence storage space. Housing and Residential Services worked with a moving company to store more than 11,670 boxes of personal belongings. The students, feeling the weight of both their coursework and the sudden upheaval of their living arrangements, made a herculean effort. In recognition of all the challenges they faced, they were provided with financial and personal support — including reimbursement assistance for travel expenses — to make their transition as smooth as possible despite the pandemic. Many students coped with the unprecedented events by leaning on their peer groups and MIT's student support services.

A process was quickly developed to determine who needed to stay on campus, and MIT made the decision to continue housing hundreds of students who were unable to return home due to visa issues, safety issues, or other reasons. MIT's graduate students continued to carry out their research and coursework on campus. More than 180 members of the Housing and Residential Services team remained on campus to support MIT students and staff who would live in emergency housing — including security, janitorial, maintenance and operational employees.

Once the campus was de-densified, all of the support resources across the Institute quickly pivoted to begin providing remote services. In support of student mental health, a coaching team with more than 500 volunteers was set up to help students maintain their connection to the Institute and their peers. To enable the rapid shift to remote teaching, learning, and working,

Information Systems and Technology (IS&T) expanded its longstanding student laptop loan service and launched a new iPad loan program. IS&T's Computing Equipment Loan Program received more than 2,500 requests from students, faculty, and staff over the next nine months, and distributed 593 WiFi hotspots, 601 laptops, 260 tablets, and 914 additional peripherals. IS&T's iPad loan program for undergrad-

uates and teaching assistants distributed nearly 4,000 iPads to students in 50 states and 73 countries and territories. Additionally, the Office of Digital Learning and IS&T supported all spring 2020 MIT classes during the emergency transition to remote teaching and learning. This included the rapid deployment of Zoom, Slack, and the Canvas learning management system as well as training and resource sites for faculty.

Opening the campus safely

Working in close collaboration with Cambridge emergency management officials, MIT developed a conservative approach to bringing undergraduate students back to campus that minimized risk to both the MIT and the broader Cambridge communities. MIT invited a limited number of undergraduate students back to campus for fall 2020, based on operational factors including testing capacity, the ability to house one student per room, the ability to provide medical attention if needed, and the fact that MIT's graduate students would be living on campus as well.

Per MIT's conservative approach, everyone living or working on campus is required to com-

plete a daily health attestation to track potential symptoms of Covid-19 and is tested for Covid-19 regularly. The Institute also established and promoted a wide range of policies regarding the importance of wearing masks, maintaining physical distance, washing hands, limiting room capacities, and more. As a result of MIT's health and safety protocols, the overall campus rate of infection – including students, faculty, postdocs, and staff – has remained far below typical population rates of infection.

MIT continues to work closely with the City of Cambridge as it plans for winter/spring 2021.



Diversity and Inclusion

MIT is committed to nurturing a diverse community that celebrates every individual from every corner of the globe and empowers people of every race, gender, and other social identity. This entails endeavoring to promote a workplace of inclusion that welcomes and supports people of all backgrounds and with different viewpoints, experiences, talents, and ideas. The Institute's mission to advance knowledge and educate students in science, engineering, business, architecture, and the arts extends to preparing all members of the MIT community to embrace diversity and equity, creating a respectful and caring community that inspires all to do their best.

Leading MIT's commitment to diversity and inclusion is the Institute Community and Equity Office (ICEO), led by its newly appointed Officer, John Dozier, in collaboration with Associate Provost and Professor Timothy Jamison. Under this new leadership, the ICEO office has developed an overarching strategy that focuses on the composition of the campus and identifies pathways to achievement for every student, staff member, postdoc, and faculty member, ensuring a sense of belonging among all individuals. To track these pillars of action, commitments are measured by performance targets and goals that create accountability and identify areas in need of additional support.

To that end, the ICEO and Associate Provost are building a network of support across campus to help implement diversity, equity, and inclusion (DEI) goals. Building this capacity

and infrastructure, including the establishment of senior staff and faculty DEI roles in every school and college, is a priority investment for the Institute. Additionally, the ICEO office is tracking the implementation of 46 recommendations from MIT President L. Rafael Reif, the National Academies of Science Engineering and Mathematics (NASEM), the MIT Black Student Union, and the MIT Black Graduate Student Association. With a focus on scholarships, admission, retention of underrepresented minorities, service contracts, and training for all community members, MIT is taking a whole-campus approach and challenging every area to view its work through a DEI lens.

One example of a new DEI initiative is in the procurement of architectural services for modestly-scaled projects on campus. While minority- and women-owned businesses were always welcome to compete for these service contracts, the recruitment of such firms has become the foremost principle governing procurement for this work.

Diversity and Inclusion in Campus Spaces

While the Institute continues to build an equitable community on campus, planners are taking a critical look at how to create welcoming physical spaces and populate those spaces with programming that engages the broader Cambridge community.

Central to increasing community diversity at MIT is the improvement of access to and through the physical campus. The Institute's





goal is to be more permeable and inviting, welcoming neighbors to include cross-campus routes in their daily lives. Planned and existing access improvements include:

- A new entrance gateway to MIT and the new Kendall open space areas;
- The two-way protected bicycle way coupled with traffic signals for crossing Memorial Drive, extending protected access from East Cambridge to the Charles River;
- Direct financial and design participation in the implementation of the Grand Junction multi-use path through the campus; and

Four improved crossings of the Grand Junction tracks:

- Adjacent to the new Central Utilities Plant and the Schwarzman College of Computing;
- On Massachusetts Avenue in front of the planned conversion of the Metropolitan Warehouse to the new home of the School of Architecture and Planning and Project Manus;
- At the new plaza leading to Pacific Street adjacent to the New Vassar undergraduate residence; and
- At Fort Washington Park, via the proposed conversion of a narrow path through a large parking lot into a landscaped walkway and open space.

An essential component of welcoming neighbors to campus is the extension of an invitation — and encouragement to participate in active

programming. The Open Space Programming team's approach to creating diverse and inclusive events is to co-produce and collaborate on programming with community-based artists, musicians, nonprofit organizations, and other creative partners. Partnerships make both program content and audience participation stronger because events reflect the interests of local neighborhoods and neighbors are more willing to stop by if they see that a familiar organization, artist, or friend is involved.

Building and maintaining relationships with local organizations and maintaining open lines of dialogue are essential to the work of building successful community spaces. In addition to inviting partners and collaborators to MIT, the Open Space Programming team also encourages the MIT community to attend and participate in programs organized outside of MIT. This mutual participation builds trust and ensures that the Open Space team's ideas are in sync with community goals and narratives.

Volpe Redevelopment Project

The Volpe redevelopment project team is using a holistic approach with its plans for the 10-acre site, to create a vibrant, inclusive mixed-use district that builds connections and a stronger sense of community. The project team is hosting five community workshops in late 2020 and early 2021 to gather input on how best to create a truly equitable and inclusive environment while developing the community center, open space, retail, housing, and employment opportunities at Volpe.

Students, Faculty, & Staff

Student Population

Over the course of the last 40 years, the undergraduate population at MIT has remained within the range of 4,000-4,600 students. To illustrate this stability, MIT's undergraduate student population was 4,577 in 1981 while the reported figure for 2020 is 4,516 - a difference of only 61 students.

Enrollment of graduate students and the number of post-doctoral employees fluctuates depending on the independent decisions of academic departments. These decisions are governed by a variety of factors including the availability of research fund-

ing, the ability of international students to obtain visas, and more recently the impacts of a global pandemic. Over the last ten years, the average annual growth rate for graduate students was 1.3%. Over the last five years, the average annual growth rate has dropped to 0.7%.

With the opening of the Schwarzman College of Computing, MIT expects its student population to increase over the next decade, matching the augmented teaching and research facilities and faculty available to serve them.

Student Body	2016	2017	2018	2019	2020	2030
Total Undergraduate Students	4,474	4,489	4,489	4,550	4,516	4,600
Day	4,474	4,489	4,489	4,550	4,516	
Evening	N/A	N/A	N/A	N/A	N/A	
Full Time	4,440	4,444	4,456	4,506	4,487	
Part Time	34	45	33	44	29	
Total Graduate Students	6,537	6,599	6,695	6,742	6,780*	6,500-6,800
Day	6,537	6,599	6,695	6,742	6,780	
Evening	N/A	N/A	N/A	N/A	N/A	
Full Time	6,523	6,592	6,571	6,740	6,774	
Part Time	14	7	124	2	6	
Non-Degree Students	226	191	197	195	159	
Day	226	191	197	195	159	
Evening	N/A	N/A	N/A	N/A	N/A	
Total Students Attending Classes in Cambridge	11,237	11,279	11,381	11,487	11,455	11,100-11,500
Non-resident students not included	94	97	85	87	65	

* International students account for 42% of the 2020 graduate student population.



Faculty and Staff

MIT's faculty and staff employment is largely based on the needs and strategies developed at the department, laboratory, and center (DLC) unit level rather than through a central Institute-wide planning process.

Approximately 105 DLCs manage their own staffing in support of their objectives with funding that is assembled from a variety of sources. There was a reduction of more than 900 employees in the recession more than a decade ago. The staff population did not recover to pre-recession levels until 2015. Since then, staff population has grown at an annual rate of 1.5%, although employee growth has been flat in the past year. The proportion of employees who are Cambridge residents, around 20%, has been stable for the last decade.

Postdoctoral employees are staff who have completed their formal education but continue to gain research experience by working in academic laboratories, similar to how medical doctors complete a residency program to specialize in a field of medicine. The number of postdoctoral employees has dropped at an annual rate of -0.8% since 2015, remaining nearly flat at 1,452 for this year.

The number of faculty members has been growing at 0.5% annually since 2010. The Schwarzman College of Computing is expected to increase the faculty headcount by 50 over the next several years.

Faculty and Staff	2016	2017	2018	2019	2020	2030
Cambridge-based Staff						
Head Count	10,234	10,596	10,801	10,813	10,805	10,000-11,000
FTEs	8,743	9,009	9,148	9,217	9,198	
Post-Doctoral Staff**	1,486	1,488	1,442	1,434	1,452	
Cambridge-based Faculty						
Head Count	1,019	1,020	1,027	1,037	1,050	1,100
FTEs	1,010	1,013	1,020	1,028	1,041	
Number of Cambridge Residents Employed at Cambridge Facilities	2,494	2,552	2,575	2,560	2,524	2,500-2,750

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

Housing

Undergraduate Housing

MIT guarantees four years of consecutive on-campus housing to all undergraduates and requires all first-year students to live on campus. According to the latest [City of Boston Student Housing Trends](#) report, MIT houses a higher percentage of its undergraduate population than all but three of the 27 reporting institutions. As a whole, the reporting colleges and universities house less than 50% of their undergraduate population.

MIT is about to obtain a certificate of occupancy for 450 new beds of undergraduate housing on Vassar Street. This will provide flexibility in renovating the existing undergraduate housing stock.

Graduate Housing

Through the Volpe rezoning process in fall 2017, MIT committed to delivering a total of 950 new and converted graduate student beds. Students will occupy more than 450 new apartments in the Kendall Square Site 4 residence, with 201 units to be retired at Eastgate Apartments (E55). Approximately 135 graduate beds have been converted at 70 Amherst Street, and additional graduate housing opportunities have been made available by expanding graduate resident advisor beds in undergraduate facilities. MIT will be filing for special permits for up to 690 new graduate student beds before the end of 2020, thus exceeding the 950-bed commitment.

Even before these major gains in graduate student housing, MIT has been a leader in the provision of graduate student housing. According to the [Boston Student Housing Trends](#) report, only 11% of the reported 55,000 graduate stu-

Housing	Tax Exempt		Taxable	
	MIT-Owned and Managed Housing	Other Housing	MIT-Owned and Managed Housing*	Other Housing
2016				
Units	0	0	164	930
Buildings	0	0	12	7
2017				
Units	0	0	163	930
Buildings	0	0	12	7
2018				
Units	0	0	163	939
Buildings	0	0	12	7
2019				
Units	0	0	163	939
Buildings	0	0	11	7
2020				
Units	0	0	163	939
Buildings	0	0	11	7
2030				
Units	0	0	163	939
Buildings	0	0	11	7

* Occupied by both MIT and Non-MIT residents.



Faculty and Staff Housing

dents in the region live in university-provided housing; in contrast, MIT provides 34% of its graduate students with housing, three times the rate of other Boston area institutions. MIT provides housing for 49% of its students that choose to live in Cambridge.

While no estimate has been made of the expected impact, the Institute anticipates that the addition of more than 1,000 new graduate student beds and the optimization of on-campus housing for MIT graduate students will ease some pressure in the local housing market.

To assist with the high cost of housing in the region, MIT provides flexible and tax-efficient low-interest mortgage programs for its faculty. The overall program has proven to be an important recruiting and retention tool and is similar to programs offered by peer institutions. MIT's program enrolls approximately 75% of eligible faculty. More than 500 faculty members have participated, of whom 146 participants have lived in Cambridge. An important goal of the program is to promote the ability for faculty to choose where they would like to live in the region.

Student Residences	2016	2017	2018	2019	2020	2030
Undergraduate Students Residing in Cambridge						
In Institute-approved housing	3,654	3,652	3,555	3,626	3,591	3,600-3,700
In off-campus housing owned & managed by MIT	0	1	0	0	0	
In off-campus non-MIT housing	109	107	159	146	126	
Graduate Students Residing in Cambridge						
In Institute-approved housing	2,044	2,221	2,262	2,348	2,446	3,200-3,500
In off-campus housing owned & managed by MIT	35	27	22	32	38	
In off-campus non-MIT housing	2,610	2,468	2,500	2,415	2,422	
Student Parking						
Number of student parking permits issued (including resident and commuter parking)*	294	194	219	364**	451	

*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.

**Change in the number of active permits from previous years is the result of a change in reporting methodology.

Transportation

By connecting programs, education, modes of transportation, and personal decision-making, MIT strives to create a new awareness and shared understanding of transportation choices and their impacts. To that end, MIT launched the Access MIT program in the fall of 2016 with the goal of reducing parking demand on campus through new commuting incentives and a shift from annual to daily parking fees for employees. This shift in parking policy has removed the financial commitment of the traditional year-long parking pass, instead allowing commuters to travel to campus via bike, subway, bus, or another method on days that they can, without being charged for parking.

Employees at MIT have a no-cost transit pass embedded in their ID cards, enabling them greater flexibility to choose how they get to work every day. MBTA pay-per-use billing has allowed MIT to offer this benefit to its full-time employees. These efforts are designed to help mitigate traffic congestion in and around MIT and advance a culture of low carbon commuting.

Access MIT Program benefits include:

- Free, unrestricted use of the MBTA subway and local bus systems for benefits-eligible Cambridge campus MIT faculty and staff;
- 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.

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 situated in 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 bike parking spaces and other bicycle infrastructure to meet the needs of our growing and enthusiastic cycling community.

MIT created a Bicycle Commuter Benefit Pro-

Photo: Gretchen Ertl



program in 2009 for full-time employees. The program provides a reimbursement of up to \$300 per year for the purchase, improvements, repair, or storage of a bicycle used for commuting to MIT. To increase flexibility for MIT commuters, revisions to the program were made this year that allow all cyclists to claim a partial subsidy even if they participate in other MIT-subsidized parking or transit programs.

MIT’s [“Getting around MIT by Bicycle”](#) map and information pamphlet provides information on bike lanes, bike parking areas, and bike repair stations. The brochure also educates the community on bike safety, etiquette, and security, and communicates the need to share the road with pedestrians, vehicles, and other roadway users.

MIT sponsors four Bluebikes stations with a total of 102 docks on campus. Two of the stations have been in place since the bike-share program began in Cambridge in 2012. These stations are some of the busiest in Cambridge and are located near 77 Massachusetts Avenue and on Vassar

Street near the intersection with Main Street. Additional Bluebikes stations were installed on campus at Carleton Street and Hayward Street as part of the Kendall Square Initiative.

In addition to sponsoring Bluebikes stations, MIT subsidizes annual Bluebikes memberships for MIT students, staff, and faculty, offering memberships at \$35/year (regularly \$99/year). The subsidy has been very well received.

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 encourages the use of sustainable transportation methods, but also recognizes that it is necessary for many people to drive to campus. To serve its students, faculty, staff, and visitors, MIT maintains a campus-wide inventory of vehicular parking spaces. MIT community members with parking accounts are assigned to specific parking areas around campus based primarily on where they work.

Parking spaces maintained in Cambridge

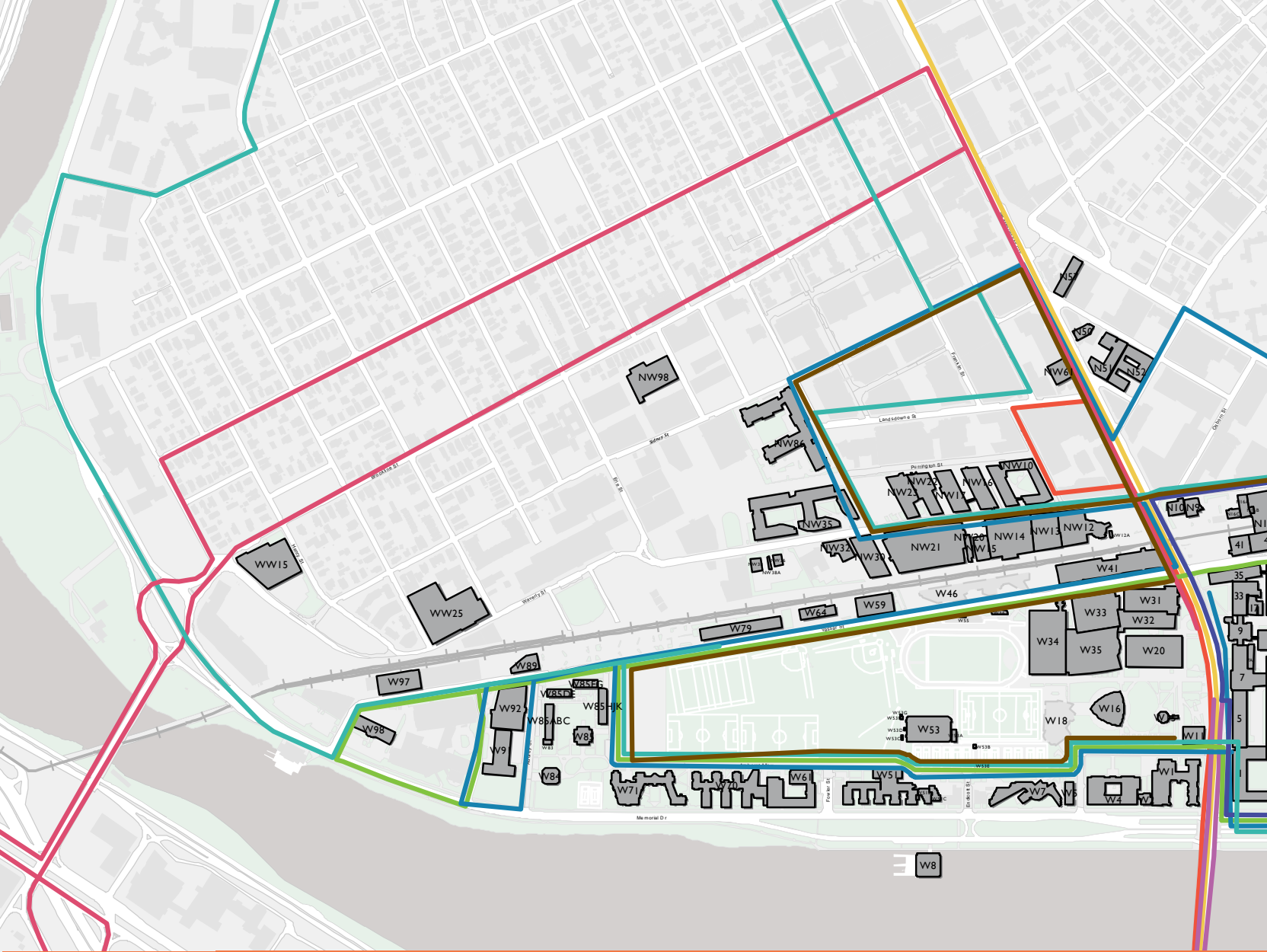
Number of parking spaces maintained on campus as reported in the annual MIT Parking Inventory 3,794

Point of Origin for Commuter Trips to Cambridge

Next survey is planned for 2022 due to Covid-19.

Commuting Mode of Choice

Commuting Mode	2012	2014	2016	2018	2020
Drove alone entire way	22%	21%	18%	18%	Next survey planned for 2022 due to Covid-19.
Took public transportation	41%	39%	42%	43%	
Carpooled	6%	6%	5%	5%	
Bicycled	15%	15%	16%	16%	
Walked	13%	14%	15%	15%	
Other	3%	5%	3%	3%	














MIT Shuttle Routes

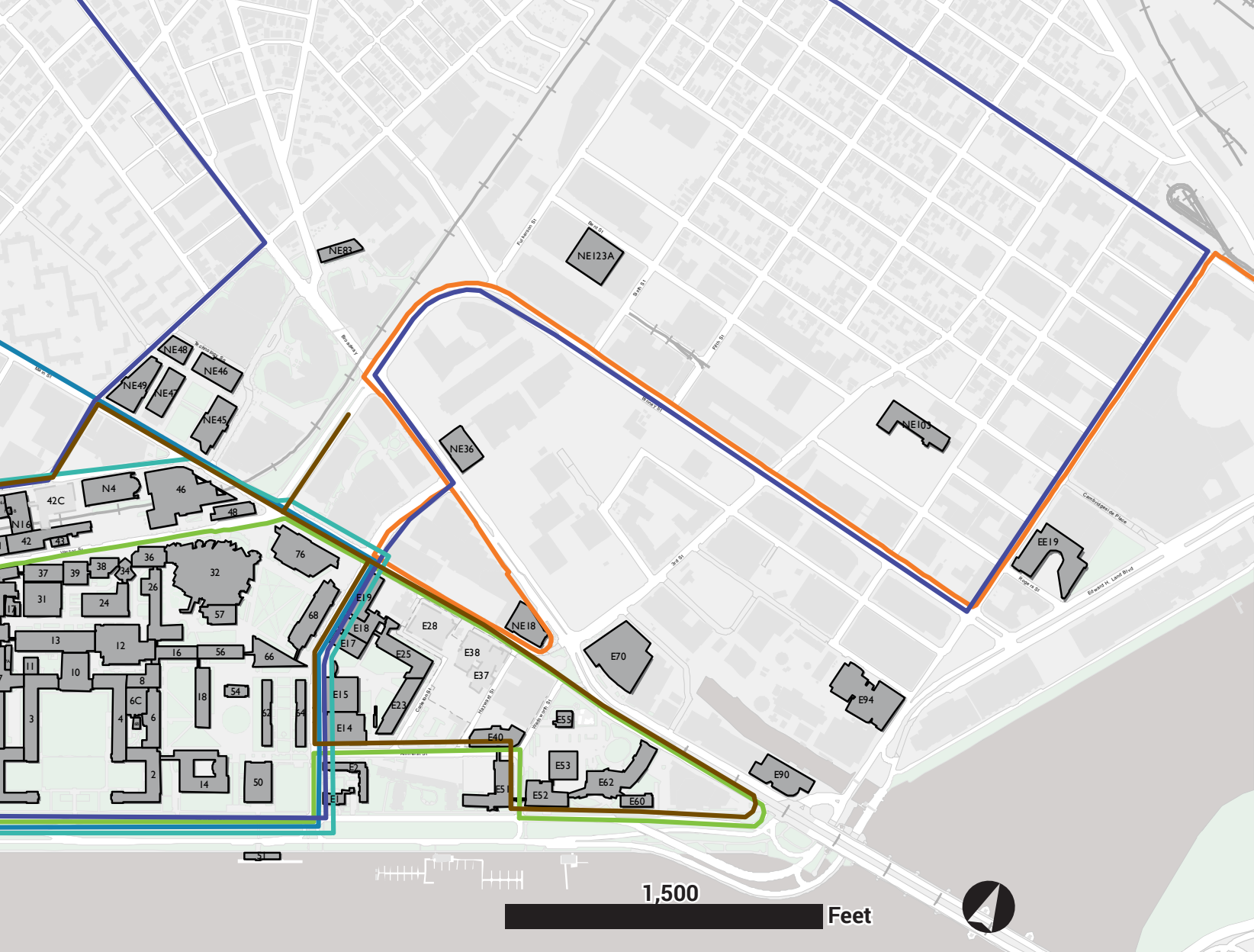
(Data as of June 30, 2020)

Buildings with academic occupancy shown

Route Name

Vehicle Type

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



Capacity	Frequency of Operation		Weekday Hours of Operation	Weekend Hours of Operation
	Peak	Off-Peak		
30 seats	10 min	20 min	6:15AM-11:00PM	---
30 seats	30 min	30 min	8:00AM-5:54PM	---
30 seats	40 min	30 min	6:00PM-11:00PM	6:00PM-11:00PM
14 seats	40 min	30 min	6:00PM-11:00PM	6:00PM-11:00PM
30 seats	20 min	30 min	6:00PM-1:00AM	6:00PM-1:00AM
30 seats	35 min	35 min	6:00PM-11:00PM	6:00PM-11:00PM
---	30 min	20 min	6:20AM-7:40PM	---
---	30 min	20 min	6:20AM-11:00PM	---
30 seats	45 min	45 min	11:30AM-4:30PM (Wednesday only)	11:30AM-4:30PM (Sundays only)
30 seats	60 min	60 min	---	11:00AM-3:05PM
14 seats	On Demand		11:00PM-2:30AM	11:00PM-3:30AM

Transportation Policy and Advocacy

MIT has been a major supporter of improvements to local and regional transportation, working closely with the City of Cambridge, the Kendall Square Association, the Cambridge Re-development Authority, the Cambridge Innovation Center, and other local organizations on the Transport Kendall campaign.

The Transport Kendall campaign focus areas include:

- Grand Junction Corridor: Maximizing transportation benefits for pedestrians, cyclists, and transit riders

- MBTA Red Line: Improving operational capacity and reliability to meet current and future demands

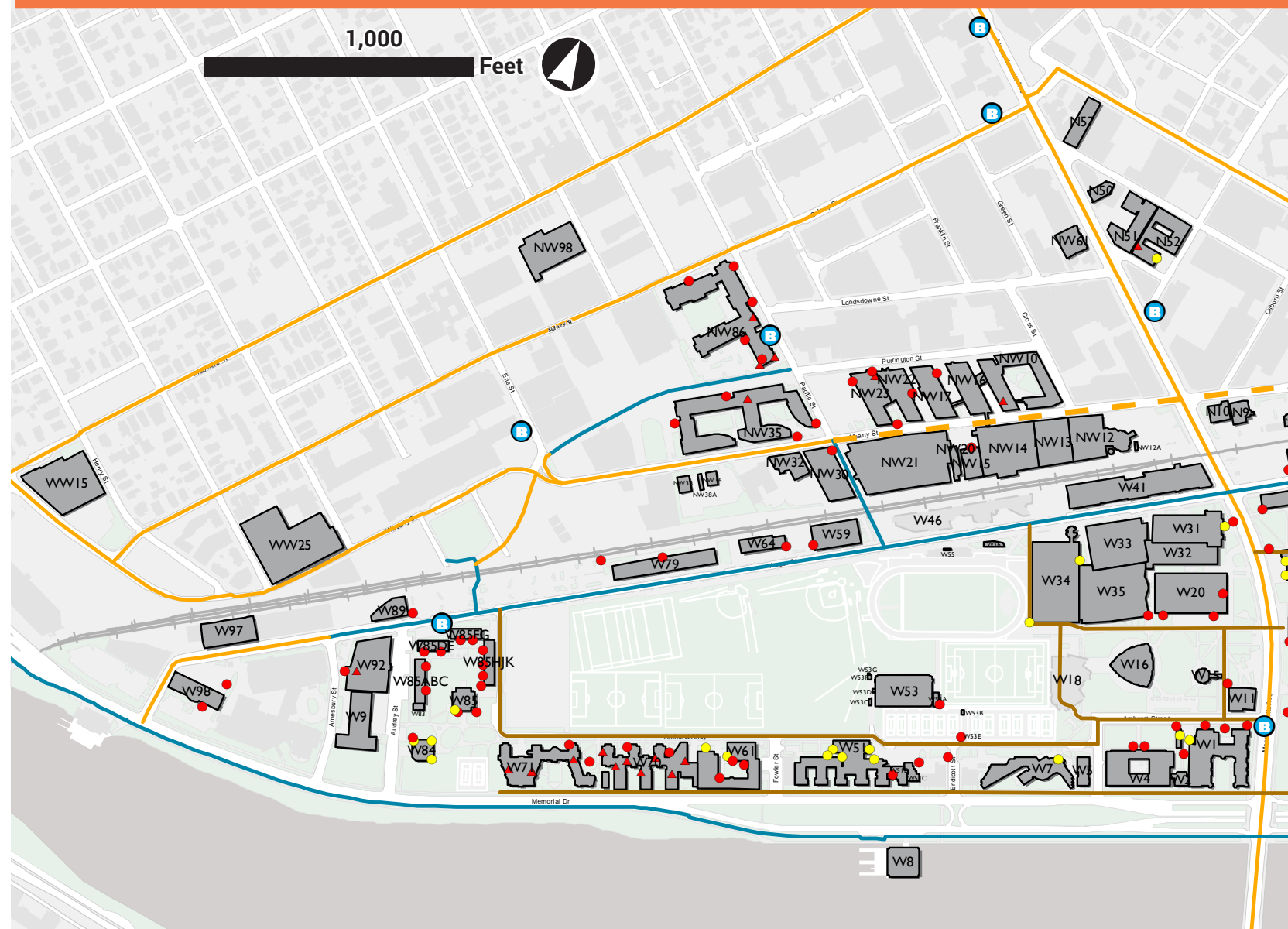
- MBTA Bus Connections: Improving and increasing direct connections to and from Kendall Square

MIT has advocated directly for a Grand Junction transit and multi-use path connection to the proposed West Station as part of the I-90 interchange project. In December 2019, the Institute provided a detailed letter to MassDOT and the Federal Highway Administration in response to the National Environmental Poli-

MIT Bicycle Infrastructure

(Data as of June 30, 2020)

- Outdoor bike racks
- ▲ Indoor bike racks

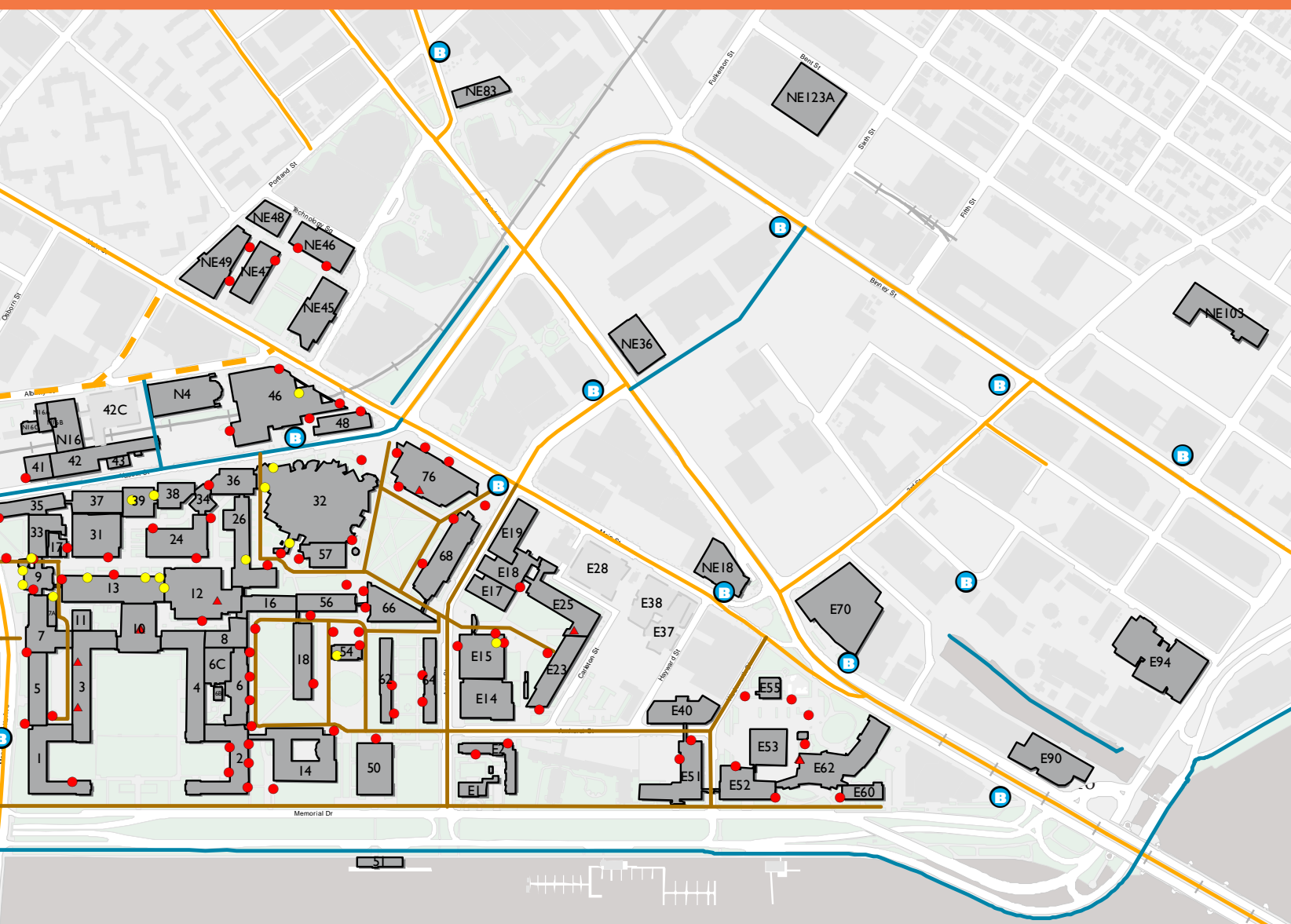


cy Act Review Scoping document for the I-90 Allston Multimodal Project. In October 2020, MIT signed on to a letter to MassDOT Secretary Pollack seeking to make the modified all-at-grade I-90 solution the preferred alternative for this critical project.

MIT joined with 18 other large employers in Kendall for the Transportation ADVANCE initiative, sponsored by the Kendall Square Association. The purpose of ADVANCE is to engage Kendall employers, generate near-term transportation pilot projects for local companies, and tell the story of that experience. MIT hopes to

share its experience with Access MIT as an improved employee transit subsidy program with a switch from annual parking rates to a daily parking fee. Unfortunately, the pilot programs set to launch in March 2020 were put on hold as a result of Covid-19. Interest and participation in the ADVANCE has continued, as have plans for post-Covid pilot projects.

- Outdoor, covered bike racks
- Major campus pathways
- On-street bike routes
- B Bluebikes Stations
- Off-street bike routes
- On-street planned bike routes



Campus Planning

The projects that are being completed in 2020-2021, despite delays to construction imposed by the Covid pandemic, are building blocks for the Institute's strategy of strengthening infrastructure and initiating key renovations to create welcoming and active places for all people. These projects will greatly improve energy resiliency and efficiency and will unlock the opportunity for large-scale residential renovations over several years.

The Kendall Square projects will create a greater sense of place for both the Institute and its neighbors and will more seamlessly integrate academic pursuits with industry. The project designs aim to convey the Institute's "MIT-ness" by highlighting innovation in its many forms and enabling all visitors to experience the fast-paced excitement that is characteristic of MIT and Kendall Square.

Even as the initial set of Kendall projects open, other projects in Kendall and at Volpe are in planning, design, or construction. All of these projects will create and extend open space and a renewed streetscape – enlivening Kendall

Square, the Volpe parcel, and the MIT campus.

In addition, a new set of campus projects – a new music facility, the Burton Conner renovation, the Metropolitan Warehouse renovation, the Schwarzman College of Computing, the Grand Junction Multi-use Path, and the West Campus Graduate Student Dormitory – will provide additional streetscape and place-making opportunities as well as extend transportation infrastructure.

Key Projects being completed in 2020 - 2021

MIT Museum

A new purpose-designed building will provide 200% more programmatic space for the MIT Museum, including galleries, classrooms, and meeting rooms. Site 5 (314 Main Street), which will house the museum, will also include the MIT Press Bookstore, ground floor retail, and commercial office space. The building will welcome the public as a literal and figurative second entranceway to the Institute, framing a vibrant crossroads in Kendall Square.





MIT WELCOME CENTER

MIT Admissions

A newly created MIT Welcome Center, housed beneath the new graduate residence in Kendall Square at Site 4 (290 Main Street), will be the new face of the Institute for prospective students and campus visitors. Within the same building, an auditorium will provide a gathering space for admissions programming as well as for a range of presentations from the wider MIT and Cambridge communities.

Innovation and Entrepreneurship Hub

This new hub will house the MIT Innovation Initiative and other key partners in the Institute-wide innovation ecosystem in Building E38 at Site 4. The upper five floors will become open multi-use spaces for makers, students, researchers, and staff, powering the exchange of ideas between the problem solvers of MIT and the broader innovation community of Kendall Square.

Open Space

Two acres of new and repurposed open space will invite the MIT, Kendall, and Cambridge communities to come together to unwind, connect, and discover. Pockets of activity programmed by MIT — such as pop-up performances, hands-on science activities, and outdoor movies — will draw in passersby and infuse the Kendall area with a vibrant energy.

New MBTA Headhouse

Partly due to Covid delays, the new MBTA headhouse construction has lagged behind the new MIT buildings adjacent to it. Completing this key infrastructure is central to the full experience of the new Kendall gateway to MIT.

Graduate Tower at Site 4

This new residential space opened in November 2020 and offers MIT's graduate students, including those with families, a campus home at the nexus of academia and industry. The new residence features more than 450 apartments; a host of common areas including study spaces, a playroom, and a terrace; and a childcare center to benefit the entire MIT community.

Central Utilities Plant Expansion

The upgraded Central Utilities Plant will conserve energy and lower emissions while also improving the resiliency of the campus. By upgrading the cogeneration plant, MIT is creating a flexible power system that positions the Institute to explore emerging sustainability and efficiency measures. Able to adapt and evolve in response to advances in the energy field, the new plant is central to MIT's commitment to reduce greenhouse gas emissions at least 32% by 2030.

New Vassar

The new 450-bed residence hall opening in January 2021 will not only be a great contribution to the student life experience at MIT, it will also provide MIT with added flexibility and capacity to pursue renewal projects across other areas of the housing system.

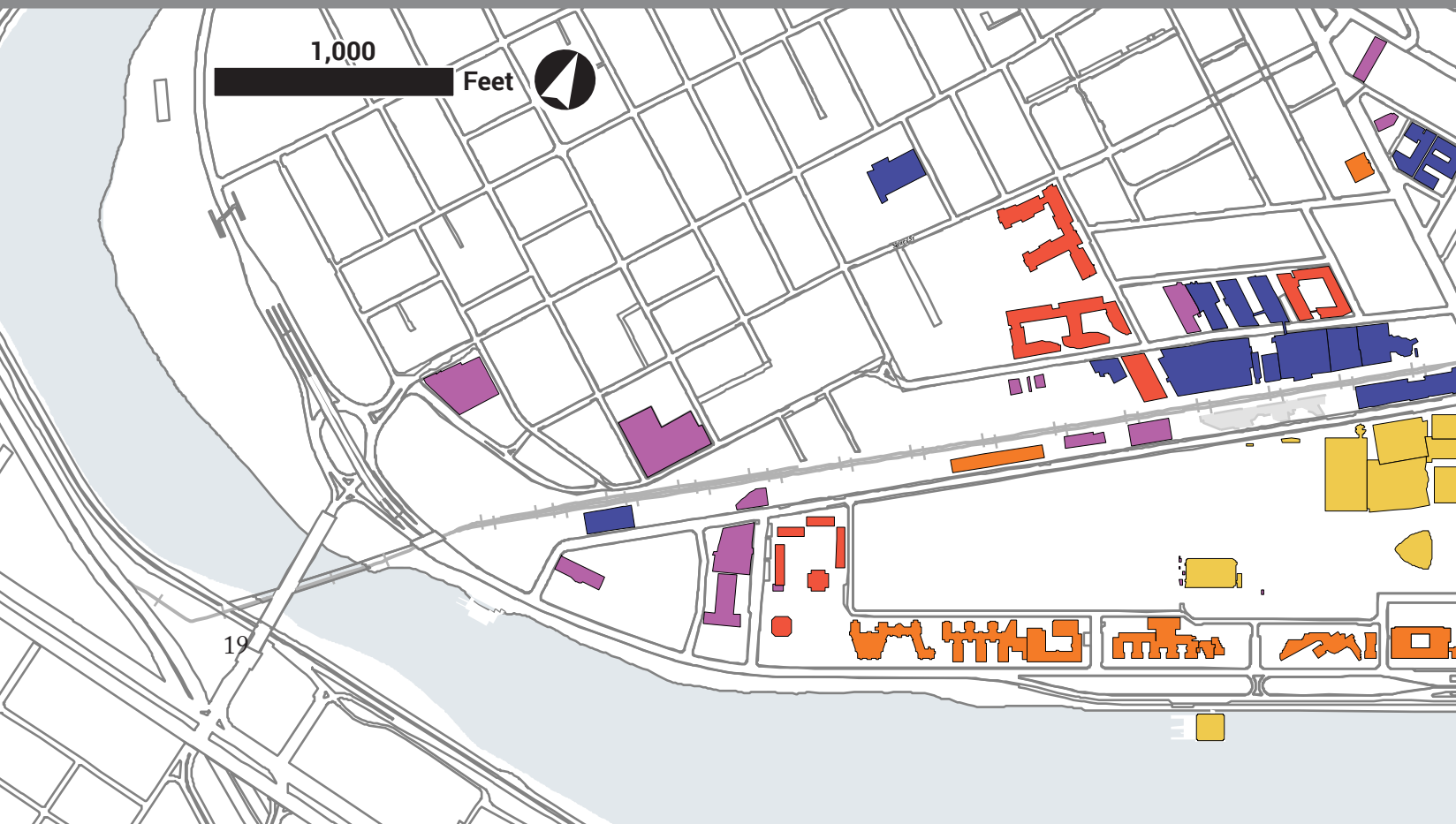
Facilities and Land Owned	2016	2017	2018	2019	2020
Acres					
Tax Exempt	166	166	166	168	168
Taxable	92	92	92	90	90
Number of Buildings (academic)	111	114	114	115	115
Dormitories					
Number of Buildings	27	28	28	28	28
Number of Beds	5,422	5,898	5,662	5,997	5,964
Size of Buildings (gross square feet unless otherwise noted)					
Institutional/Academic	7,036,694	7,235,839	6,985,293	7,223,070	7,223,070
Student Activities/Athletic/Service	2,247,058	2,243,358	2,068,551	2,063,599	2,063,599
Dormitory/Nontaxable Residential	2,866,373	2,882,602	2,882,602	2,882,602	2,894,036
Commercial (in square feet)	6,109,827	6,337,516	6,403,144	6,408,948	6,380,578
Taxable Residential (in rental units)	163	163	163	163	163

Property Transfers

None

MIT Buildings and Occupied Spaces by Use

(Data as of June 30, 2020)



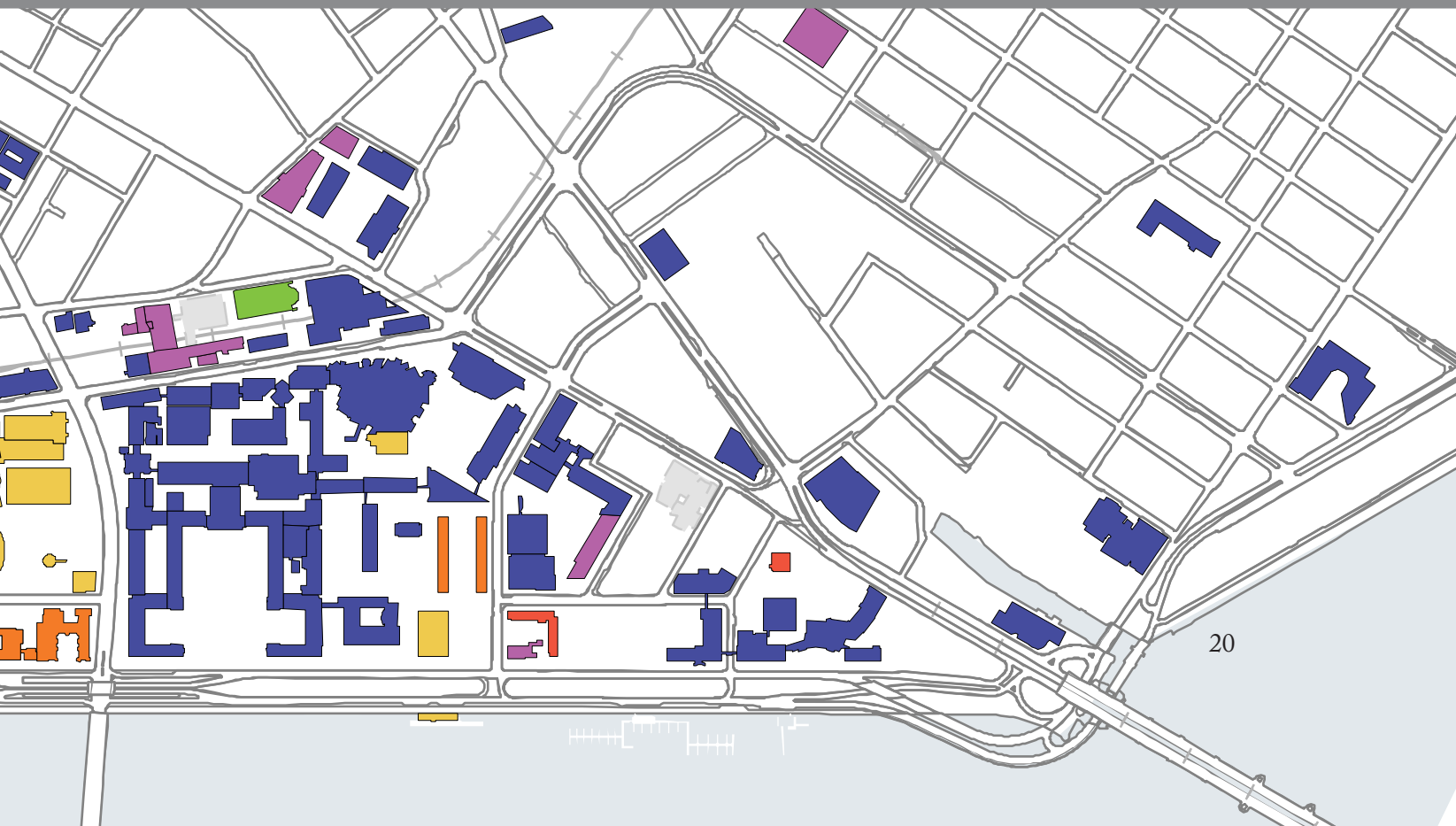
Real Estate Leased

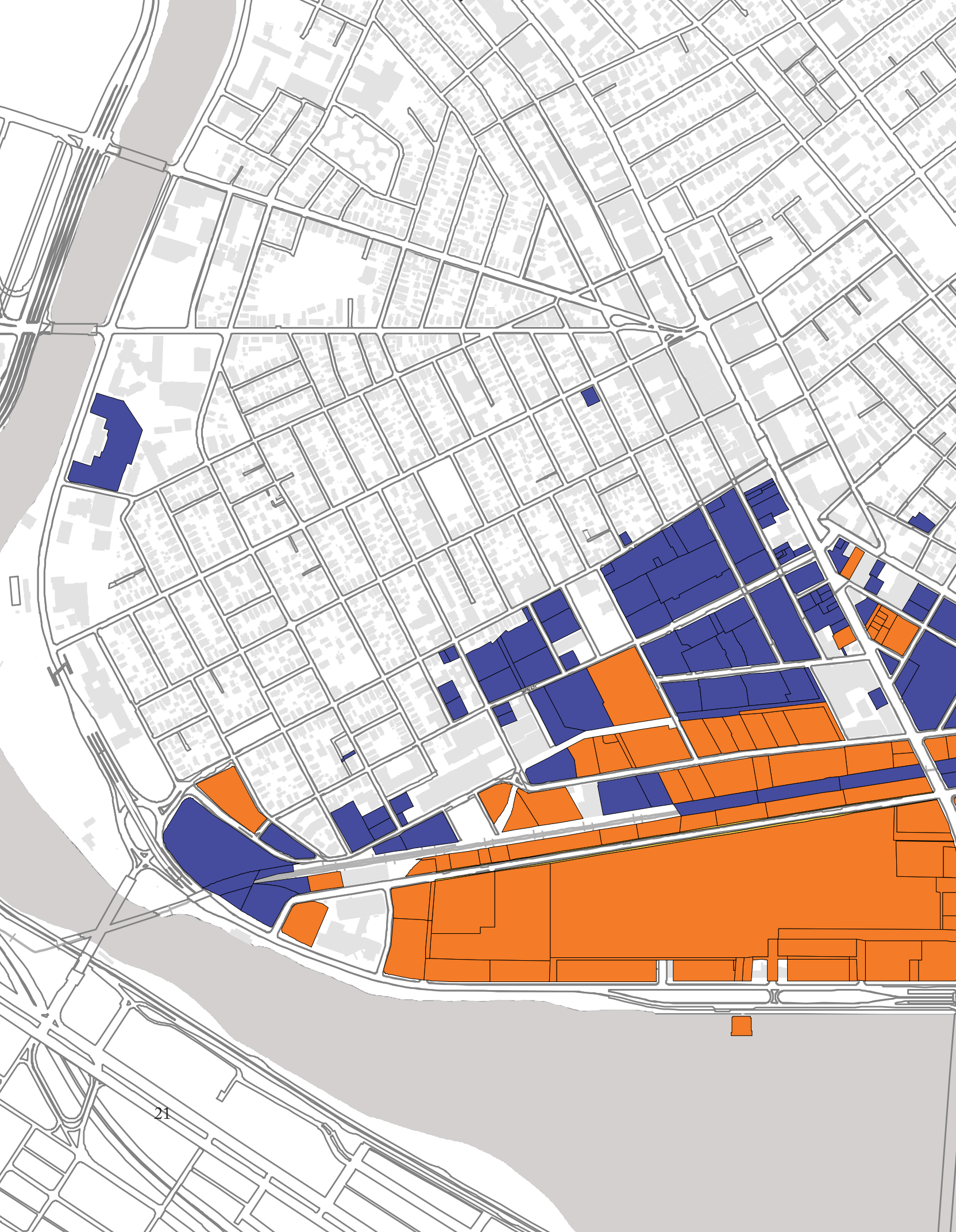
Use	Leased Location*	Sq Ft**
Institutional/Academic	1 Cambridge Center	20,509
Institutional/Academic	1 Kendall Center	15,085
Institutional/Academic	1 Kendall Square, Building 300 - 4th-5th Floor	22,506
Institutional/Academic	1 Main Street - Suite 1250	31,836
Institutional/Academic	1 Main Street - Suite 900	31,571
Institutional/Academic	1 Rogers Street - 3rd Floor	24,046
Institutional/Academic	105 Broadway - 6th-7th Floor	47,488
Institutional/Academic	222 Third Street - Suite 300	2,584
Institutional/Academic	245 First Street - Suite 1500	19,805
Institutional/Academic	300 Tech Square - 2nd Floor	6,451
Institutional/Academic	400 Tech Square - 6th Floor	10,901
Institutional/Academic	500 Tech Square	93,108
Institutional/Academic	600 Tech Square - 2nd-4th Floor	83,561
Institutional/Academic	600 Tech Square - 5th Floor	25,346
Institutional/Academic	700 Tech Square	15,753
Total		450,550

* Leased by MIT from third-party landlords.

**The Sq Ft may only be a portion of the entire building.

Athletics & Student Life
 Residential - Undergraduate
 Parking Garage

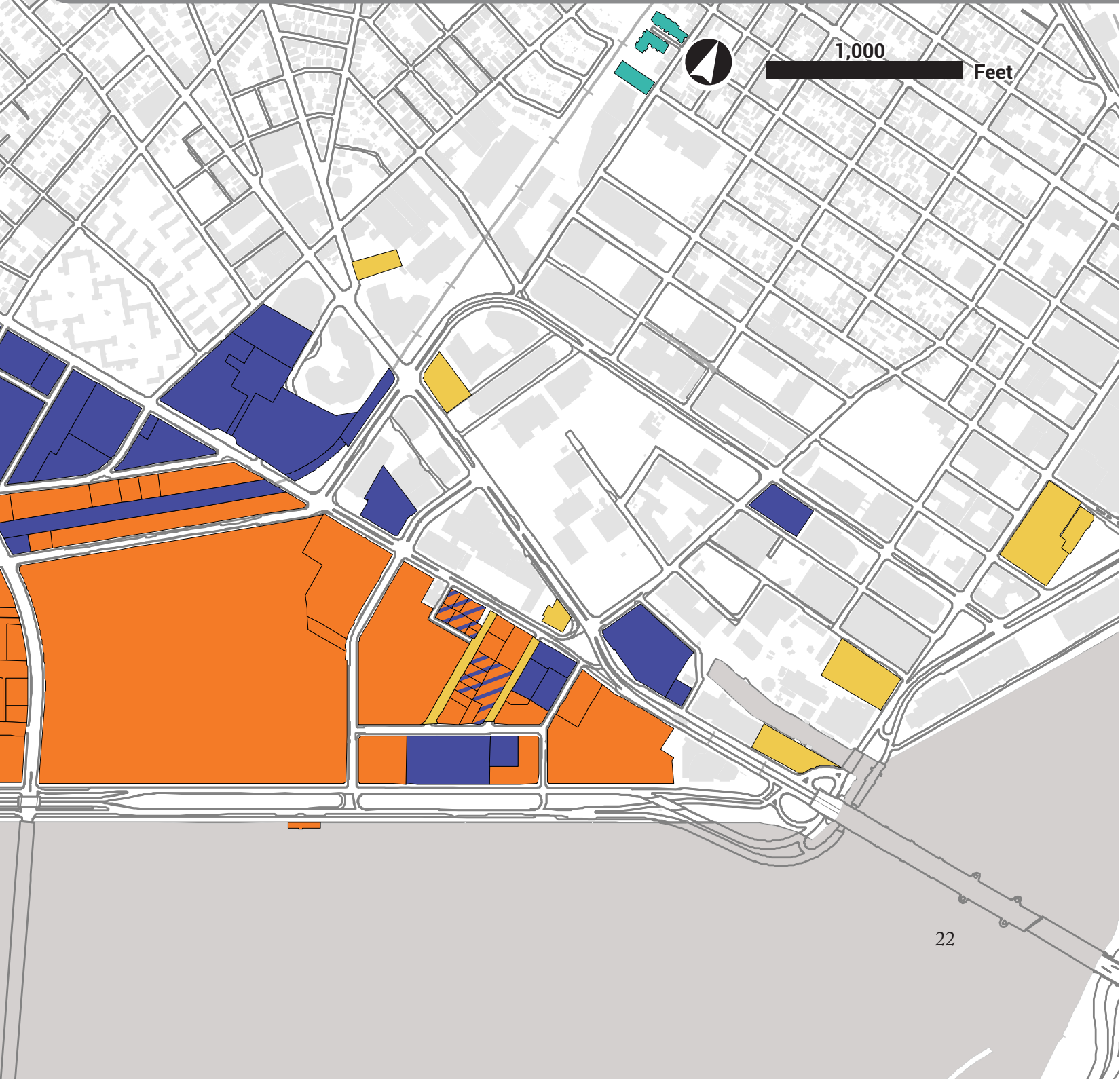




MIT Property in Cambridge

Data as of June 30, 2020

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



Renewed Central Spine on Vassar Street

Vassar Street is celebrated for its first-in-the-nation bicycle track that transformed a drab industrial service corridor by burying utilities underground and creating a cohesive streetscape of trees with attractive paving and street lighting. This work happened in two phases, east and west of Massachusetts Avenue, between 2002 and 2008. Four important projects were built along both ends of the new Vassar Street: the Stata Center (Building 32, home of computer science laboratories and the Department of Linguistics and Philosophy), the Brain and Cognitive Sciences Center (Building 46), the Zesiger Center (W35, the pool and recreation facility) and Simmons Hall (W79, an undergraduate residence hall).

A renewed effort to strengthen Vassar Street as a central spine on the campus is now underway and will unfold in the first half of this decade. Similar to the earlier program, this effort involves a dual emphasis on the public realm and on core campus activities. A key goal is to not only strengthen the east-west spine but also make the campus more porous and inviting for north-south access.

The Grand Junction bicycle and pedestrian path is the keystone for generating opportunities to enliven the railroad corridor running east to west and enhance the track crossings running north to south. MIT has contributed \$1,000,000 for the design and construction of the pathway to date and has committed an additional \$8,000,000 plus an easement to facilitate path construction across MIT-owned property.

The Central Utilities Plant (CUP) expansion, the Grand Junction Multi-use Path, and the Schwarzman College of Computing building provide the first opportunities to enhance this more porous spine. The walkway from Albany/CUP across the Grand Junction Multi-use Path to Vassar/Schwarzman College of Computing is the central and key feature of larger campus greening plans. An existing narrow asphalt path across the railroad tracks will be transformed into an attractive walkway that connects MIT, the adjacent innovation activities across Albany Street, the retail on Main Street, and the Cambridge community beyond. This enhanced pedestrian and cycling railroad crossing breaks up a 19th-century industrial superblock and will serve as a major crossroad on the planned Grand Junction Multi-use Path.

Future Development Opportunities

Data as of June 30, 2020 (buildings with academic occupancy shown)



While the trees on the western end of Vassar Street have fared well, many of the trees on the eastern end of Vassar have not. MIT has reestablished the structural soil and planted 36 new trees from Massachusetts Avenue to Main Street. The plan going forward is to carefully coordinate with ongoing utility and building construction along Vassar Street, including the planned Schwarzman College of Computing building (Building 45).

The renovation of the Metropolitan Storage Warehouse for the School of Architecture and Planning and Project Manus will bring new life to this historic structure, dramatically altering this section of Vassar Street and enlivening the Massachusetts Avenue corner. This location will be a major street crossing for the Grand Junction Multi-use Path and an opportunity to go south to MIT and Boston or north into Central Square and beyond. The first step in the redevelopment of the core MIT campus on Massachusetts Avenue from Albany to Vassar Street, this project provides an opportunity to create an improved and expanded sidewalk and landscape space on Vassar Street by reclaiming an area previously used as a loading zone.

The construction of the new undergraduate residence on Vassar Street has brought major improvements to the Vassar streetscape with new plantings, creative architecture, bike parking, and benches. By enlarging and transforming the space south of the Multi-use Path and the Grand Junction tracks into a lively urban plaza, this project improves the pedestrian environment and properly connect cyclists to and from the Vassar Street cycle tracks. The West Campus Graduate Student Dormitory provides the final piece of the plan, at least for the near future, for a north-south crossing on the Grand Junction Multi-use Path. Fort Washington Park lies to the north of the path, and a major landscaped plaza and walkway will be built next to the new dormitory. This enhanced connection will bring pedestrians and cyclists into a growing portion of the MIT campus and provide connections to the Charles River, including the signalized crossing on Amesbury Street.



Capital Renewal

Stewardship of the campus requires continued investment to preserve iconic buildings and to renew systems that support the teaching, research, and student life mission of MIT. Many of the large building renovation projects initiated through the MIT 2030 capital plan have created modern spaces with the updated energy-efficient systems needed to meet the challenging demands of contemporary research. Additionally, capital renewal has enhanced community and residential spaces essential for the thousands of people who work, play, and live in this vibrant community. The Institute recognizes this is a long-term effort which requires careful planning of resources and attention to mitigation of construction disruption. The ambitions for the renewal program are high and, with perseverance, progress will continue as teams work to retire deferred maintenance and sustain MIT's position as a global leader in teaching and research. A few of the renewal projects initiated over the past year are highlighted here.

Building 7 Dome

Architect William Wells Bosworth integrated two monumental domes into the original Main Group complex. The two domes mark the primary entrance points of the original MIT campus at Killian Court (Building 10) overlooking the most public green space on the Charles River and on Massachusetts Avenue at Building 7. MIT embarked on the renewal of the Building 7 Great Dome after its more than 80-year-old asphalt waterproofing began to fail and leaks began to damage the interior plaster dome. Led by a restoration team of Simpson, Gumpertz and Hager, Inc. and executed by Tishman Construction, the lower rings of the Dome limestone were carefully measured and disassembled, with new waterproofing installed over the original concrete structure, all to be rebuilt within a 12-month period. Careful planning, engineering, and construction logistics were key elements in order to preserve the historic architectural details, minimize disruption in Lobby 7, and most of all ensure the repairs will extend the life of this legacy building.



Central Utility Plant Medium Temperature Hot Water

The ongoing conversion of the campus from high pressure steam distribution to medium temperature hot water is one step in meeting the Institute's goal to reduce greenhouse gases at least 32% by 2030. In addition to a direct reduction in campus greenhouse gases, the transition to a modern district energy heating system provides enhanced resiliency, increased reliability and safety, lower energy losses, and lower life-cycle and maintenance costs.

The project includes a rooftop mechanical addition on Building 42, the existing Central Utilities Plant. This addition will house a central hot water heat exchange plant that will convert steam to hot water for more effective thermal distribution to campus buildings. The project will also address code updates in Building 42, add architectural screening to improve views on Vassar Street, install a new hot water distribution piping system for the Schwarzman College of Computing, and enable the future transition of the Brain and Cognitive Sciences Building (46) to medium temperature hot water. Harnessing our internal knowledge, MIT engineers began the development of the design plans which were then completed by Vanderweil Engineers.

Building 46 Energy Enhancements

Constructed in 2001, the Brain and Cognitive Sciences Building (46) is one of the highest energy users on campus, accounting for approximately 8% of total campus energy consumption and roughly 8% of campus emissions. Reducing energy usage in this high-intensity research building will further the Institute's goal to reduce greenhouse gases at least 32% by 2030. The building was originally designed to support the greatest flexibility in the use of space for research; its research programs have now crystallized, and opportunities to reduce energy consumption are possible.

Without sacrificing research potential and researcher safety, the energy enhancements will optimize the airflow requirements of the building through a series of measures including installation of occupancy sensors, relocation of diffusers to improve airflow effectiveness within the lab spaces, and discharge air temperature and static pressure resets. The majority of these measures are accomplished through modification of control sequences and the completion of a re-balancing effort throughout the building. These measures will reduce energy consumption and improve occupant comfort. Additional measures include installation of variable frequency drives, retrofitting existing lighting fixtures with new LEDs, and expansion of the lighting control system.

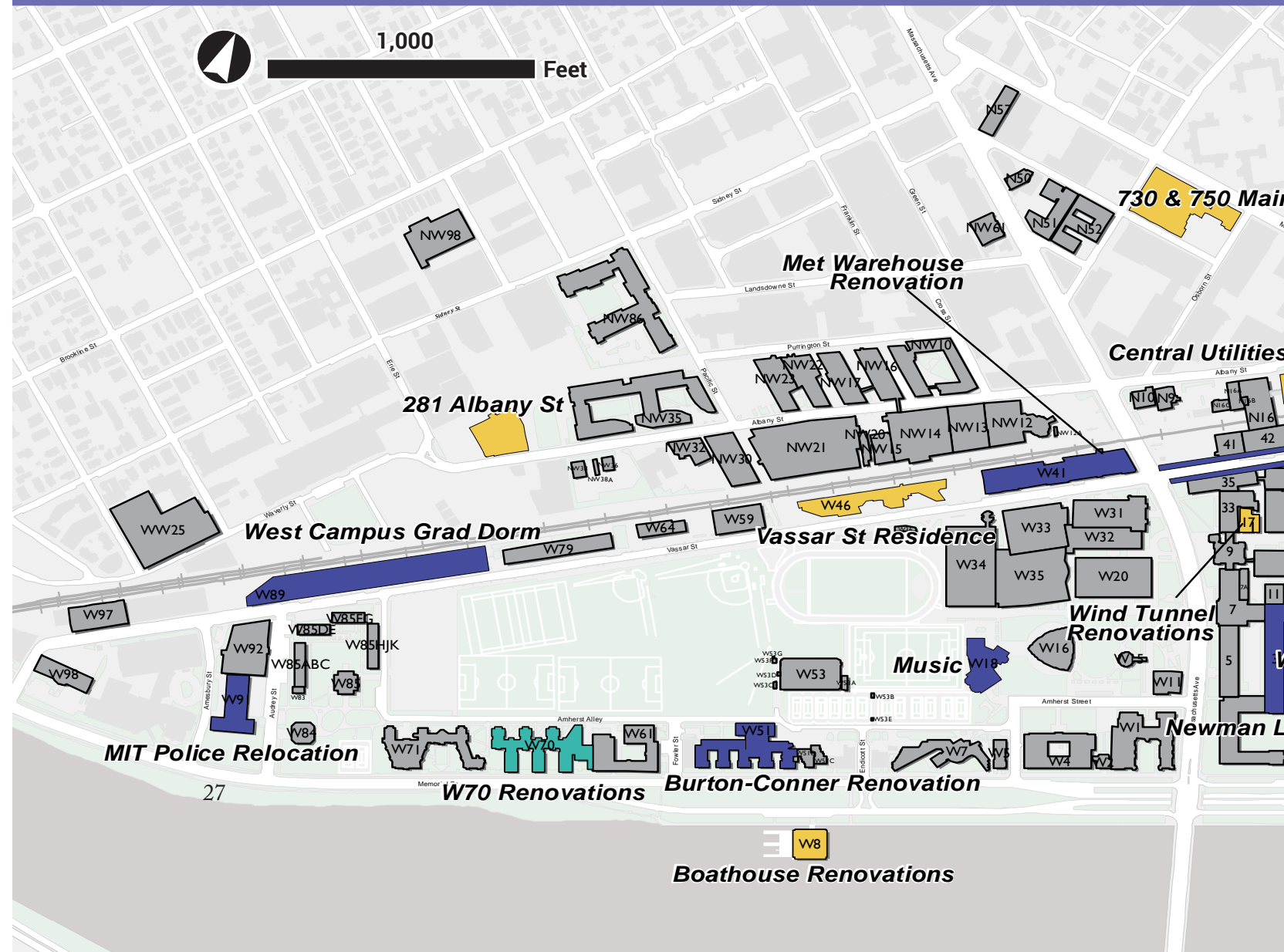




Projects In Construction

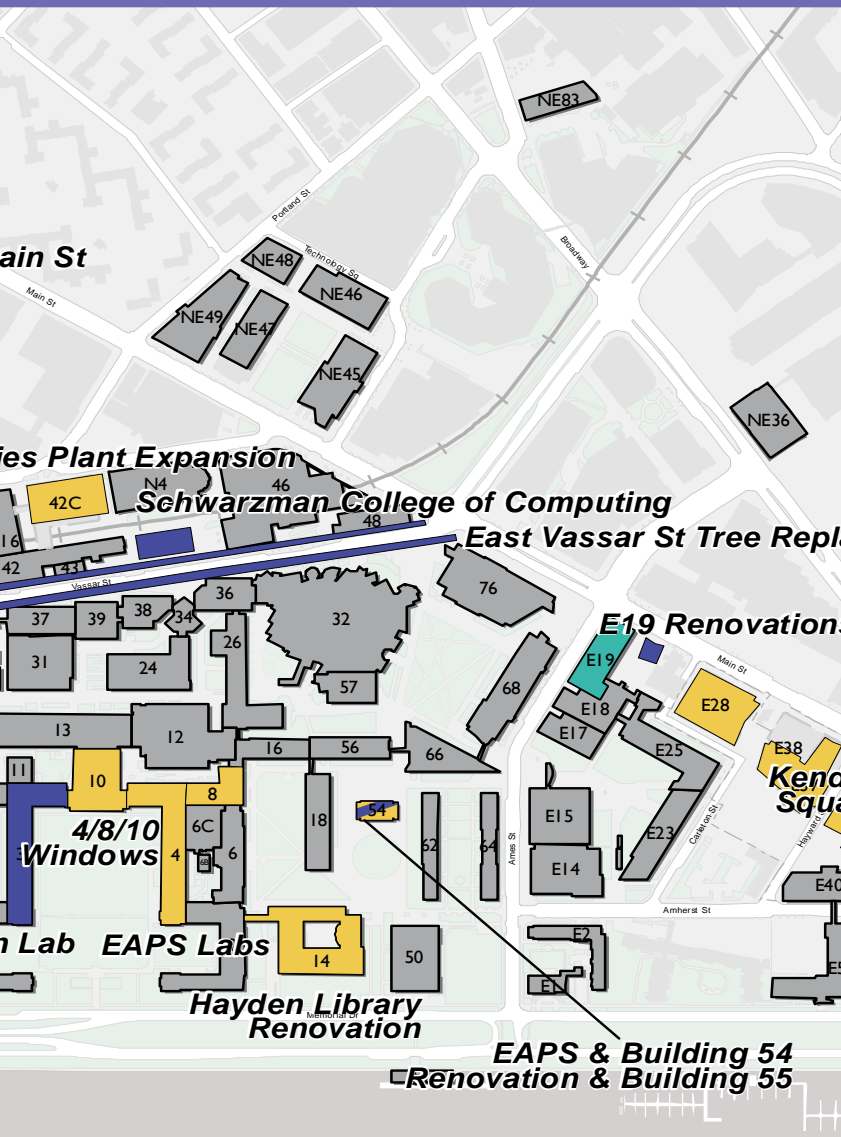
Building 4 Laboratory Renovation

MIT is renovating 12,000 square feet of space for the Department of Earth, Atmospheric and Planetary Sciences (EAPS). EAPS plans to establish world-class wet lab facilities in support of the department's research in the fields of climate science and atmospheric chemistry. The project team, including Payette Associates (design) and Columbia Construction, is targeting LEED Gold in the Commercial Interiors program with completion planned for 2021.



281 Albany Street

The renovation of this 32,000 square foot research & development building includes the reconfiguration of the interior layout to better accommodate life science companies and the installation of new mechanical systems to improve energy efficiency. Construction started in 2020 and is expected to be completed in 2021.



MIT Major Projects

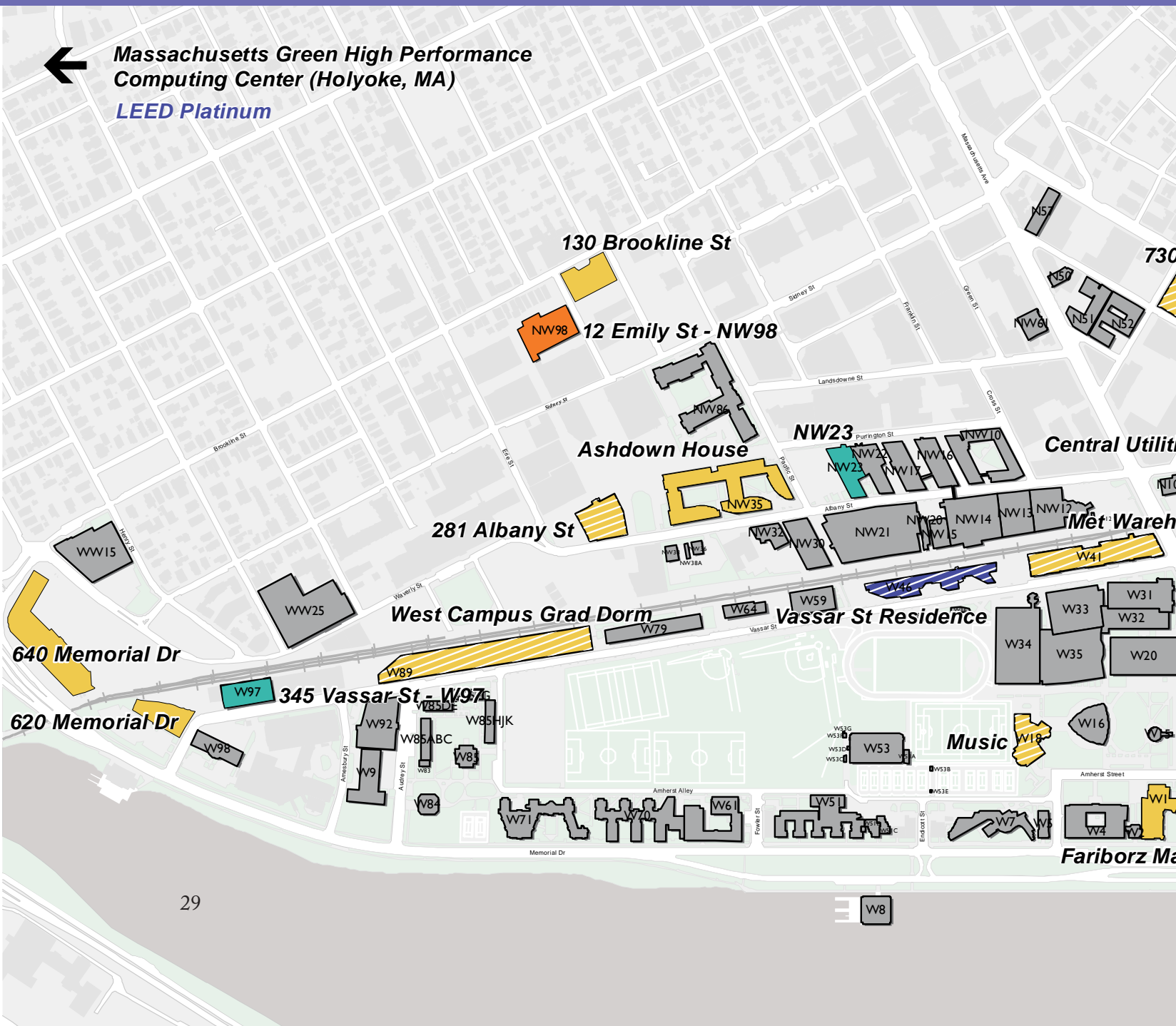
Data as of June 30, 2020 (buildings with academic occupancy shown)

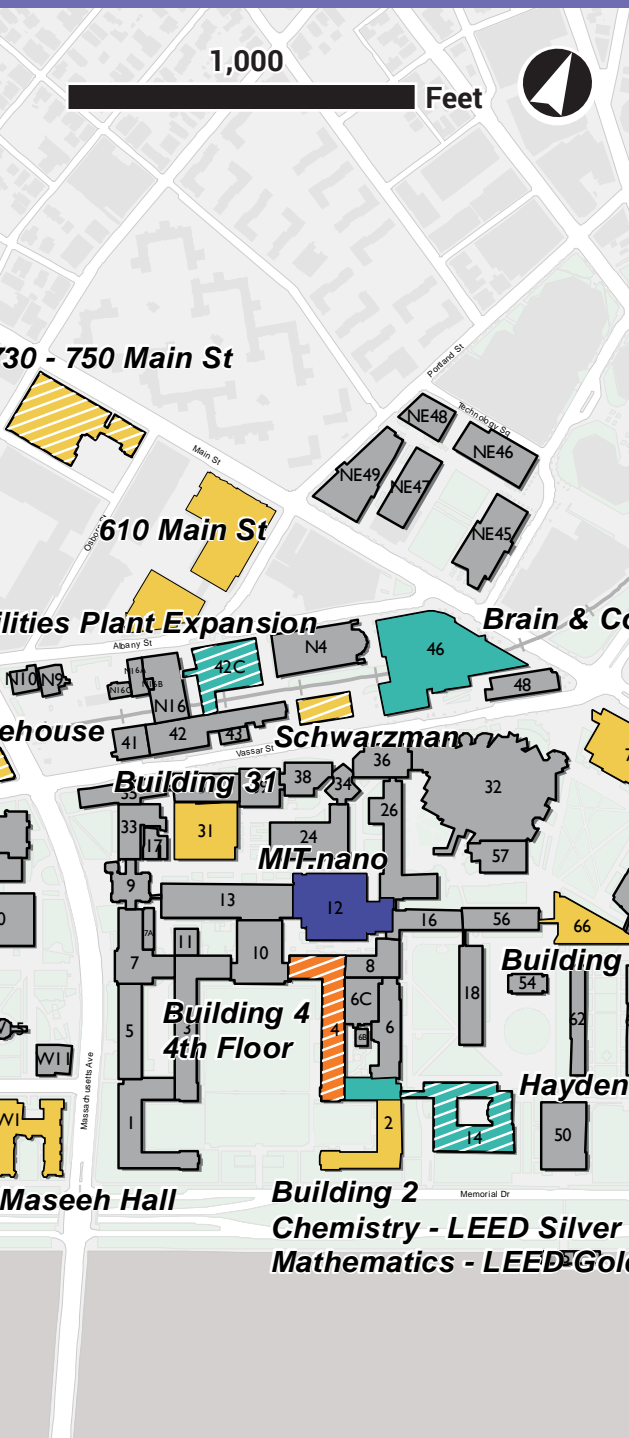
- Planning/Design
- Construction
- Completed

Construction Mitigation

MIT recognizes that construction projects can be disruptive and strives to minimize the inconvenience construction creates. The Institute works closely with city staff to develop construction mitigation plans for all projects to ensure that truck routes, location of access gates, and hours of construction operation have the least possible impact on neighbors. MIT provides periodic online updates on construction activi-

ties using the coUrbanize platform, conducts frequent meetings with abutters, and provides detailed responses to all questions received via email. In addition, the Institute works closely with individual retailers that may be affected by the construction activities to ensure that their patrons know they are open for business. This includes helping tenants with additional signage and sending notices to tenant lists.





MIT LEED Certified Buildings

Data as of June 30, 2020 (buildings with academic occupancy shown)

- LEED Platinum
- LEED Gold
- LEED Silver
- LEED Gold - Commercial Interior
- Planned LEED Platinum
- Planned LEED Gold
- Planned LEED Silver
- Planned LEED Gold - Commercial Interior

Kendall Square Initiative

Construction on Site 3, the commercial research & development building at 238 Main Street, started in 2019. Work on the new structure and exterior envelope is complete, and interior core work is ongoing, as is the renovation and restoration of the existing historically significant building. The base building is scheduled to be completed in fall 2021, together with the interior fit-out for the first tenant. Interior work for remaining tenants will continue into 2022.

Construction on Site 1, the 300-unit apartment building at 165 Main Street, started earlier in 2020. The project, which includes 54 affordable units, 9 middle-income units, and 36 innovation units, is expected to be completed in 2022.

Note: Many of the Kendall Square Initiative projects listed in this section have been completed as of the publication date of this report. For consistency, they are kept in the “In Construction” section as they were not completed by the end of the Town Gown reporting period.

One Broadway - Site 1

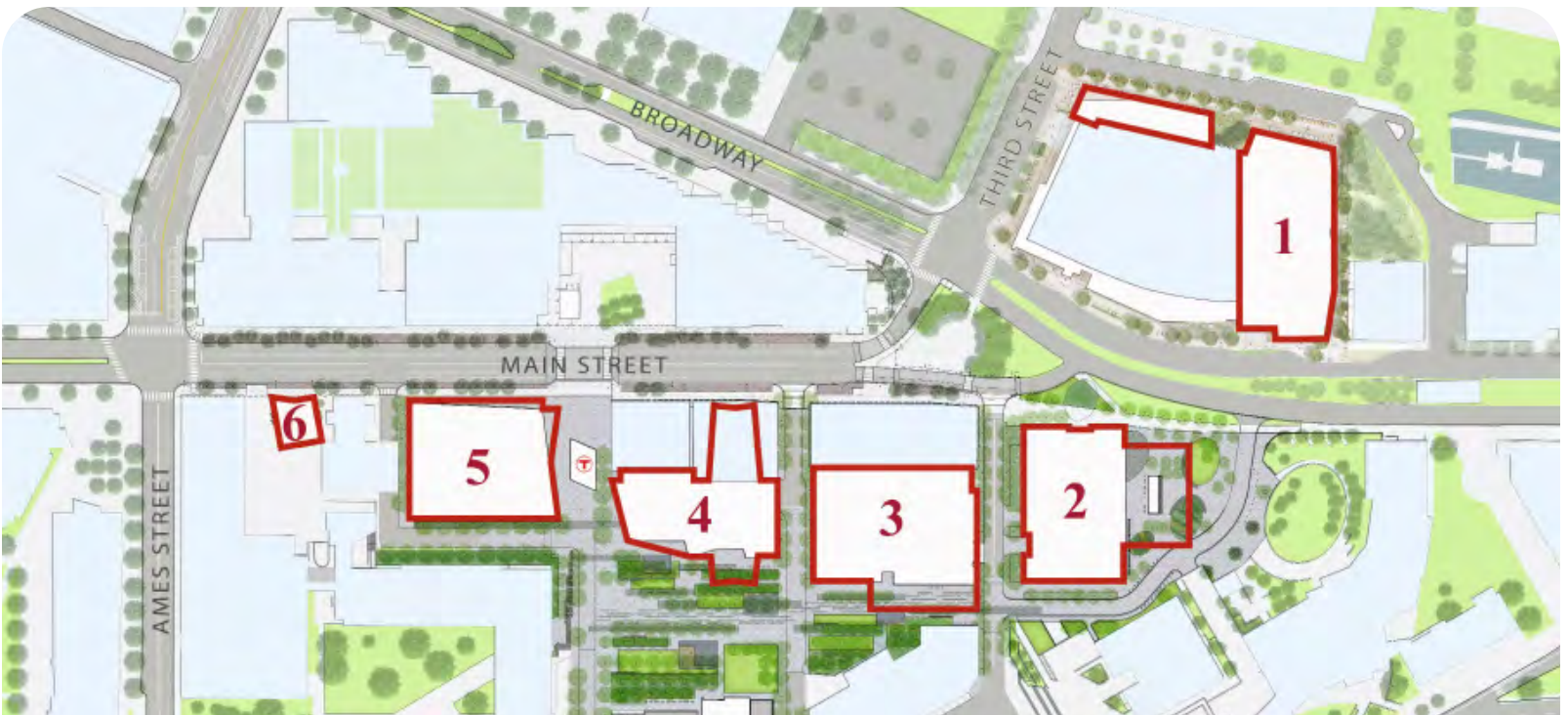
Construction around the existing One Broadway building on Site 1 is now complete. The initial phase, completed in 2019, included the relocation of the One Broadway lobby, the ad-



dition of new retail space on Third Street and Broadway (including Shy Bird and a relocated Dunkin’ Donuts), and the addition of Brothers Marketplace, the long-awaited and much-needed grocery store.

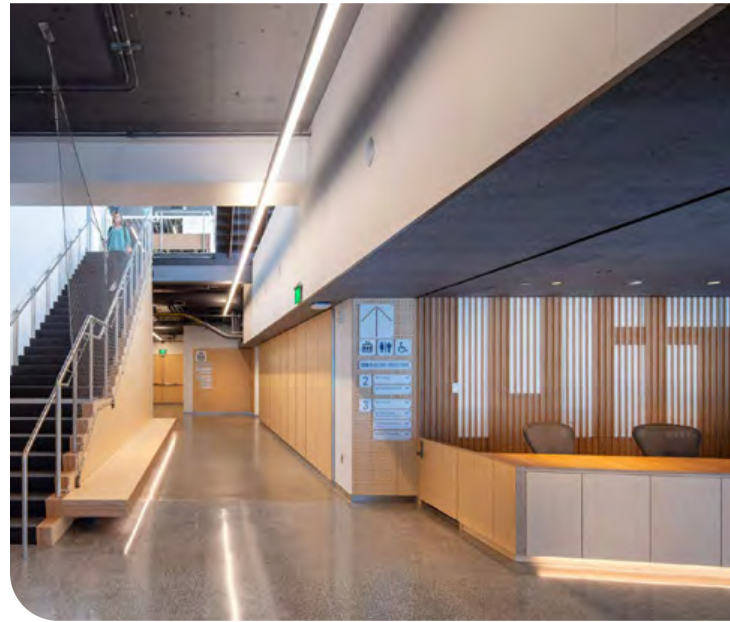
The second phase, completed in 2020, included the retail addition on the north side of One Broadway on Broad Canal Way. The first tenant, K-OOP Hair Styling, opened for business earlier this year, and the second tenant has completed interior construction. MIT is actively leasing the third and remaining space to complete this much-anticipated double-loaded retail corridor.

Kendall Square Initiative Site Map



290 Main Street - Site 4

Construction on Site 4 (290 Main Street) is now complete. More than 450 beds of graduate student housing are currently available at the Graduate Tower at Site 4. The remainder of the building will be completed in 2021, including a lively innovation center, retail space on Main Street, a new home for MIT Admissions (the MIT Welcome Center), and program space for three sustainability groups: the Office of Sustainability (MITOS), the Environmental Solutions Initiative (ESI), and the Abdul Latif Jameel Water and Food Systems Lab (J-WAFS).



314 Main Street - Site 5

Construction on Site 5 (314 Main Street) broke ground in October 2018. The contractor completed the base building and interior fit-out for the first tenant, Cambridge Mobile Telematics, in 2020. Interior work for the MIT Museum is ongoing and will be followed by the installation of exhibits. Interior work for the remaining tenants, including the MIT Press Bookstore, will continue into 2021. The lobby of the building is pictured below.



SoMa Garage

Construction of the below-grade garage and loading facilities south of Main Street started in early 2017 and was completed in 2020. The garage serves both academic users and commercial tenants at 238 Main Street and 314 Main Street.



Open Space Programming

In 2019-2020, the MIT Open Space Programming team continued to engage audiences with a range of active and vibrant programs geared toward the MIT, Cambridge, and Kendall Square communities. The team's work is enhanced with input from an Open Space and Retail Advisory Committee composed of members from the Kendall, Cambridge, and MIT communities.

Before the Covid-19 pandemic, the Open Space team piloted concepts in a variety of spaces around MIT's campus to help inform the planning for the Kendall open space areas. All of the programs presented were free, open to the public, and attended by a mix of participants from MIT, Kendall, and Cambridge.

In August 2019, the team presented "A Breath of Fresh Air," a series of fitness and wellness classes, in collaboration with Community Wellness at MIT Medical. This took place on MIT's Saxon Lawn, at the corner of Memorial Drive and Ames Street.

On a beautiful sunny day in September 2019, the team created a "mini park" for Cambridge's (PARK)ing Day, transforming two parking spots in MIT's Ford Lot (near the corner of Main and Ames Streets) into a space for relaxation, connection, and play. At the event, talented arts apprentices from the [Community Art Center](#) led

art-making activities, and participants enjoyed games and puzzles.

In November 2019, the team organized pop-up lawn games created by MIT's Game Lab and served hot apple cider in MIT's North Corridor (or the "Outfinite," as it is known by MIT students). On the unseasonably warm day, the team experimented with "self-serve" activities that participants could enjoy on their own.

Following the success of 2019's Winter Family Day, the team organized a second annual MIT Winter Family Day in January of 2020, featuring a wide range of indoor and outdoor programs on MIT's Hockfield Court, at the Stata Center, and in the Koch Institute. Featured Cambridge and MIT collaborators for Winter Family Day included: [Band Land Brass Band](#) (a band of CRLS students); [Jean Appolon Expressions](#); the MIT Museum; [the Department of Play](#); [DJ Philip Tan](#); the Koch Institute for Integrative Cancer Research at MIT; MIT MechE Biomimetic Robotics Lab; [Math Talk](#); and MIT Beaver Works.

In March 2020, all in-person programs went on a "pandemic pause," and the Open Space group experimented with virtual and hybrid programs. In May, the team organized a networking event where partners and collaborators from past open



space programming could connect and share out how they were navigating the pandemic. An unexpected silver lining to this program was the opportunity to introduce programming partners to each other from across the MIT, Cambridge, and Kendall communities.

Later in May 2020, the team organized an activity centered around community building and gratitude, where participants used Zoom to join a simple art-making activity and create a “Thank you” collage for the front-line staff working on MIT’s campus.

In August 2020, the team presented a modified “A Breath of Fresh Air” series (the fitness and wellness program previously held in person) to be all virtual. The program connected audiences with free classes, including: Creative Dance for Kids (and Families) with Jean Appolon and Meghan McGrath; Gentle Yoga with Hadasah Segal; Mindfulness Meditation with Ashley Norwood; and BollyX with Fen Tung. Classes were pre-recorded and made available for one week, giving participants more flexibility to fit the classes into their schedules and leading to a 250% increase in participation.

In collaboration with the Media Lab’s Lab for Social Machines (LSM), the team piloted a “Sprout Pets” activity for children ages 8-12 in

August 2020. Twenty-two children were paired up with 18 coaches and received a Sprout Pet kit with fun, personalized enrichment activities and projects (both digital and physical) to foster curiosity and creativity during the pandemic.

In addition to presenting virtual programs, the Open Space Programming team has been working closely with MIT’s Admissions team to prepare for the MIT Welcome Center to open (once it is safe to do so). As the first stop for most people visiting MIT, the inviting space includes a front desk, a 220-seat auditorium, restrooms, and a beautiful gathering area with views over the open space outside. The Open Space Programming team is eager to work with Cambridge and Kendall collaborators on public events at the Center.

Construction on the Kendall open space is due to be completed by fall 2021, and the team will begin presenting in-person programs as soon as it is safe to do so.



In Construction

Vassar Street (East of Massachusetts Avenue)

A 2016 conditions assessment and a 2017 infrastructure study suggested that Vassar Street would benefit from a rehabilitation project between Massachusetts Avenue and Main Street. The project will result in a revitalized streetscape and would involve the aeration, irrigation, and replanting of street trees.

The landscape architect CRJA-IBI is the designer for this project. Work was planned for spring 2020, but was delayed and completed in the fall. The rehabilitation involves plantings around the site of the Schwarzman College of Computing, and this effort will be deferred to provide a successful integration with that project.

New Vassar

This new undergraduate residence hall located on Vassar Street between W59 (Heinz Building) and the Metropolitan Warehouse will provide approximately 450 new beds for undergraduate students. There are also 12 graduate resident advisor units as well as head of house and associate head of house apartments to support the community.

The design of the residence 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.

Outside the building, inviting benches will be located along the edge of Vassar Street, and a tree-filled entry courtyard and a plaza area will provide green space and gathering opportunities. The project is on track to meet LEED v4 Platinum certification under the Homes and Multifamily Midrise program and is designed to be solar-ready and Net Zero Ready.

The design architect is Michael Maltzan Architecture and the executive architect is DiMella Shaffer. Construction, managed by Walsh Brothers, was originally scheduled to be completed for fall semester and (delayed by the pandemic) will be substantially complete in December 2020.





Central Utilities Plant Upgrade

Work continues to upgrade MIT's Central Utilities Plant (CUP), a distributed energy resource that powers the campus microgrid with thermal and electric energy. The CUP upgrade is essential to the Institute's sustainability goals and will improve campus resiliency by creating an enhanced, more efficient, more flexible power system. The CUP's efficiency and environmental gains will result from the installation of new and upgraded equipment as well as the switch to natural gas and the elimination of No.6 oil use. Regulated pollutants will be reduced 25% from 2014 levels. Greenhouse gas emissions are expected to be 10% lower than 2014 levels, offsetting a projected 10% increase in greenhouse gas emissions due to energy demands created by new buildings and program growth.

Two new gas turbines will provide up to 44 MW of power to the campus. The turbines will allow MIT buildings that are served by the CUP to be self-sufficient should there be an extended utility outage. In most situations when outside power is lost, the new turbines will maintain or restore heat and electricity, safeguarding residences and protecting vital research. Construction of the new cogeneration plant housing the turbines commenced in the summer of 2017. Both new turbines are anticipated to be in operation in 2021.

The engineer for the project is Vanderweil Engineers' Power Group. The architect for the building is Ellenzweig, the firm that has led the architectural design for MIT's CUP for the past 20+ years.

730 - 750 Main Street

Last summer, MIT announced the expansion of The Engine (the entity launched by MIT that invests in early-stage tough tech companies) to 750 Main Street, a property MIT previously identified as an optimal size for a research and development building. The renovation of this building and the expansion and renovation of the adjacent 730 Main Street building will further support the innovation ecosystem extending from Kendall Square. Construction started in early 2020, and the project is expected to be completed in 2022.



In Construction

Hayden Library

Originally designed by Voorhees, Walker, Foley & Smith, Hayden Library (Building 14) first opened in 1951 and has served for nearly 70 years as a central element of the campus. MIT has undertaken a project to renew and restore the Library's first two floors and mezzanine levels and to update the main reading rooms and office spaces to reflect the changing nature of the research library for today's students and faculty. Kennedy & Violich Architecture is the designer for the Hayden Library renovation, and Elaine Construction is the construction manager.

The program includes new interactive spaces such as a café and a multipurpose event and teaching space, improved office spaces, and a variety of quiet and collaborative work spaces for both individuals and groups.

Building 14 will also receive a range of infrastructure upgrades including systems improvements to support the new program, required code and accessibility upgrades, enlarged and renovated restrooms, and updates to improve energy performance. Exterior work will include restoration of the north and south windows, repairs to sections of the limestone walls, and refurbishment of the northeast entrance. The project is targeting LEED Gold v4 certification. Delayed by Covid-imposed work interruptions, the project will be completed in early 2021.

Building 54 Priority Infrastructure Renewal

The Green Building (Building 54), designed by I.M. Pei & Associates and completed in 1964, is a 22-story Brutalist concrete tower with 20 uniform floors above a double-height open entrance loggia. Currently, it is home to the Department of Earth, Atmosphere and Planetary Sciences, MIT's Environmental Solutions Initiative, and Woods Hole Oceanographic Institute programs. Led by the design firm of Beyer Blinder Belle Architects & Planners LLP and the engineering firm of BR+A Consulting Engineers, the project will enable the ongoing and long-term research needs for the building by addressing deficiencies in the building envelope and elevators, providing reliable electrical and mechanical systems, and ensuring the building is accessible to the community. The infrastructure renewal project will renew the masonry facade, replace the roof and main electrical substations, upgrade the restrooms and other building interiors, renew the primary mechanical systems, renew the building's three elevators, and conduct all code-required life safety upgrades. Barr & Barr is the construction manager. Work will be completed in early 2023





Pierce Boathouse

Originally designed by Anderson, Beckwith & Haible and dedicated in 1966, MIT's Harold W. Pierce Boathouse began as the home of a single crew team. The Institute's rowing program has grown considerably since then and now consists of four Division 1 varsity squads (80 men and 90 women). MIT club rowers also use the boathouse's storage and launch space, as do several public and community groups.

The Boathouse project includes new windows, updates to docks and launching areas, and a deck extension to add a second means of egress. In-

side, the renovation will include multiple building updates, including larger men's and women's locker rooms, expanded boat storage, new offices, and increased training spaces as well as a meeting area and other building upgrades. Construction was delayed by the Covid pandemic but is expected to be completed in early 2021.

Peterson Architects and Bruner/Cott Architects are the designers of the Pierce Boathouse renovation, and Shawmut Design and Construction is the construction manager.

Wright Brothers Wind Tunnel

Since it first opened in September 1938, MIT's Wright Brothers Wind Tunnel has been an instrumental tool in the development of aerospace, architectural, vehicular, sports, and other engineering systems. Testing at the facility has ranged from aircraft and ground structure aerelasticity to the aerodynamics of subway station entrances, space suits, racing bicycles, and Olympic ski suits. After 80 years of service, the landmark facility is now undergoing a renovation and modernization project.

The new tunnel will incorporate state-of-the-art technologies and equipment that will expand its capacity while lowering its fan motor power consumption. With a planned test area volume of 1700 cubic feet and the ability to test speeds

up to 200 mph, it is expected to be the largest and most advanced academic wind tunnel in the nation. Located at Building 17 on the site of the original tunnel (which has been dismantled), the new facility will retain the Wright Brothers Wind Tunnel name.

Renovation plans include updated control facilities, a full rehabilitation of Building 17, and infrastructure updates in Building 37 and in the Building 33 Hangar. The project will also create direct connections between the tunnel and AeroAstro workshops. The Imai Keller Moore Architects firm is the designer of the renovation, and Turner Construction is the construction manager.

In Planning and Design

Schwarzman College of Computing

The MIT Schwarzman College of Computing is a new and unique interdisciplinary organization at MIT. The mission of the College is to address the opportunities and challenges of the computing age — from hardware and software to algorithms and artificial intelligence — by transforming the capabilities of academia in three key areas:

- **Computing fields:** Support the rapid growth and evolution of computer science and computational areas of allied fields such as electrical engineering, as reflected notably in the rise of artificial intelligence;

- **Computing across disciplines:** Facilitate productive research and teaching collaborations between computing and other fields, rather than placing one field in service of another;
- **Social and ethical aspects of computing:** Lead the development of and changes in academic research and education, and effectively inform practice and policy in industry and government.

The College's unique structure is at once both broad, cutting across all of MIT, and focused as a home for computer science and artificial in-

MIT Cellular Antenna Installations

Data as of June 30, 2020

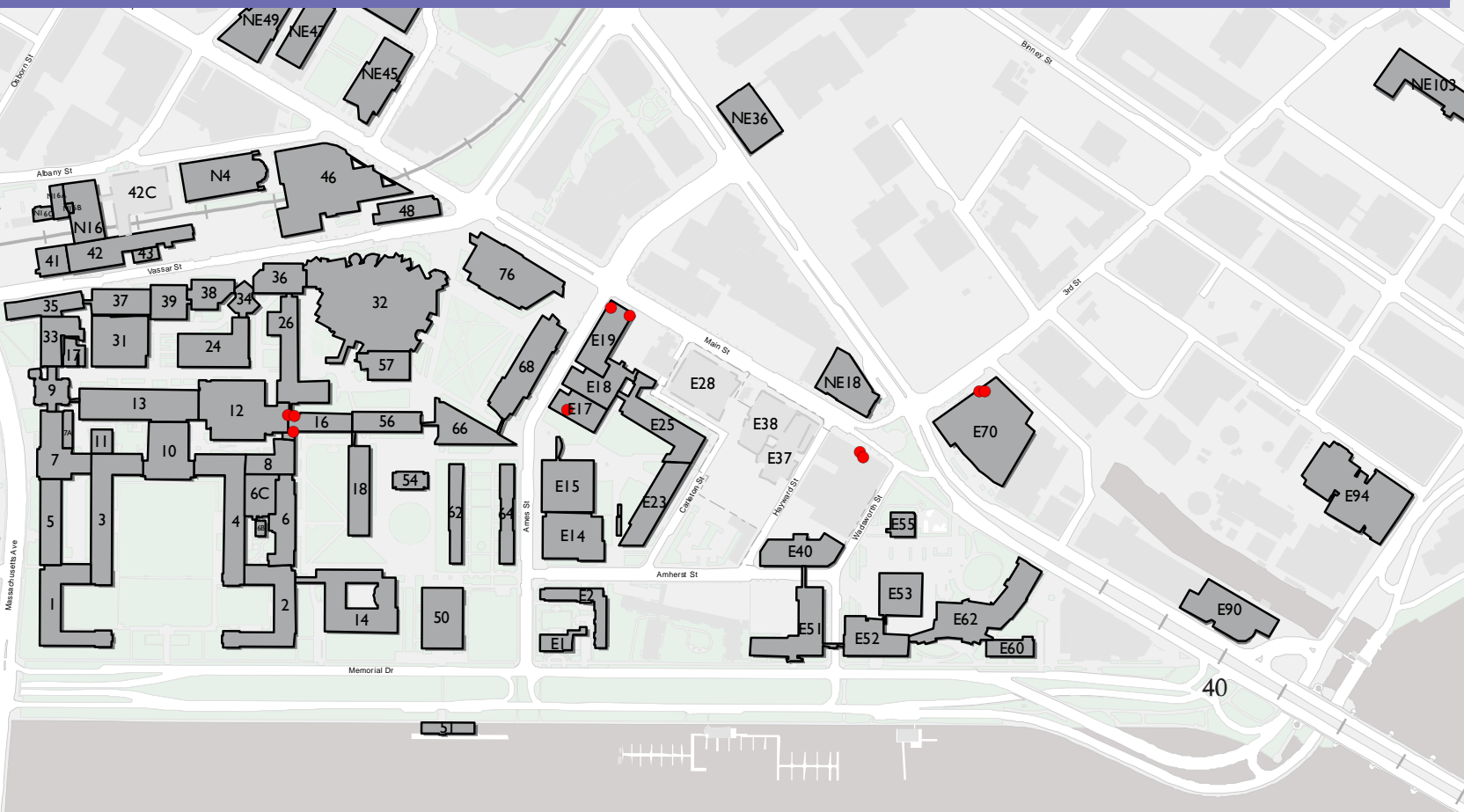


telligence education and research. As a result, it will strengthen the computing fields and more effectively and creatively connect AI and computing to every discipline.

MIT has cleared the site at the location of the former Building 44 and has begun enabling work for the new building for the College. Applications for permitting will be filed before the end of 2020, and the building is scheduled for completion in 2023. The designer is Skidmore, Owings and Merrill LLP, and Suffolk Construction is the construction manager.



● Cellular Antenna Locations





Metropolitan Storage Warehouse

Designed by Peabody & Stearns and built in 1895, the Metropolitan Storage Warehouse is one of the oldest buildings on the MIT campus. It is listed on the State Register of Historic Places and has been determined eligible for listing on the National Register of Historic Places. With its square brick tower and crenellated corbelled cornice, it resembles a medieval castle on a city street corner.

MIT's adaptive reuse of the Metropolitan Warehouse building will redevelop it as a center of interdisciplinary design research and education and as a new home for the School of Architecture and Planning (SA+P). The building will also house a flagship makerspace, an independent and collaborative creative space envisioned by Project Manus as a substantial addition to the MIT Makersystem. Elements being designed include new classrooms, design studio space that will significantly increase MIT's capacity for arts and design programming, new faculty offices, and areas for meetings and collaborative activities.

The adaptive reuse of the structure will endeavor to preserve the building's historic character while leveraging and valorizing its existing spaces and infrastructure to serve the needs of current and future programming. The strategic integration of old and new will enhance the interdisciplinary interactions between SA+P and other schools at MIT.

Diller Scofidio + Renfro is the designer, and Shawmut Design and Construction is the construction manager for the Metropolitan Warehouse project.

Music Building

MIT's conservatory-level music program, offering performance, composition, music technology, and scholarship, is a popular choice; more than 1,500 students enroll in music courses each year, and a variety of ensembles and chamber groups thrive on campus. With the current and future needs of the music program in mind, the Institute is building a new state-of-the-art Music Building that will support the program's curricular requirements.

Sited adjacent to Kresge Auditorium, the building will include spaces for performance, rehearsal, professional-level recording, research, and instruction, as well as a large-scale, purpose-built performance lab that will enable experimentation with various formats. The building will incorporate acoustical design elements for optimal listening, playing, and recording. The Music Building project is moving forward thanks to a cornerstone gift from Joyce Linde, a longtime supporter of MIT and the arts. Design is underway, with construction set to begin in 2021 with a target completion date of 2023. Sejima and Nishizawa and Associates (SANAA) and Perry Dean Rogers Partners Architects are the designers for the Music Building, and Lee Kennedy Company is the construction manager.

Building 54 Classroom and Building 55

The Cecil and Ida Green Building (Building 54) is the headquarters of MIT's Department of Earth, Atmospheric and Planetary Sciences (EAPS). While construction to update infrastructure is ongoing (see page 37 for more information), planning is underway to give Building 54 a major facelift, renovate its primary lecture hall, and build a new LEED-certified addition that will offer a window into the important work taking place inside. The upgrade will allow construction of an Earth and Environment Pavilion, to be called Building 55, designed to be a vital center for environmental and climate research on MIT's campus. The project will yield about 12,000 square feet of additional space, providing new meeting places, classrooms, and study areas. The enlarged and revamped Green Building is expected to help EAPS attract and retain top faculty and students. The project's other ambitious objective is to enhance the research undertaken within the department by collocating EAPS, the MIT-Woods Hole Oceanographic Institution Joint Program, and the MIT Environmental Solutions Initiative, affording greater opportunities for interaction and the cross-pollination of ideas.

Anmahian Winton Architects is the designer of Building 55, and Barr & Barr is the construction manager.



Kendall Site 2

The proposed building at Site 2 is the last of the major commercial research and development projects in the Kendall Square Initiative. MIT received a special permit for this building in 2016 (together with the other Kendall Square projects) and is now advancing the design in anticipation of final design review by the Planning Board in 2021. Abatement and demolition

of the existing building on the site (Eastgate, a graduate student dormitory) was originally anticipated to occur immediately following the completion of the new graduate dormitory at Site 4. This work has been rescheduled until after the end of the current academic year to allow for continued student occupancy during the ongoing coronavirus pandemic.

Burton Conner Residence Hall Renewal

Burton Conner is a 168,000 gsf residence hall at 410 Memorial Drive overlooking the Charles River. The five-story building contains 67 suites, comprising approximately 240 rooms, nine graduate resident advisor apartments, and one head of house suite, housing a total of approximately 375 undergraduates. Originally built as the Riverside Apartment Hotel in 1927, MIT acquired the building in 1948, and a dining hall was added in 1960. The last major renovation occurred nearly 50 years ago. Many of the building's systems are beyond their useful life.

As part of the Institute's ongoing efforts to renew existing residence halls and provide additional housing options to its community, Burton

Conner will undergo a major renovation. Led by the architectural firm of Goody Clancy and to be constructed by Consigli Construction, the project will address priority areas in the building envelope and infrastructure systems; include programmatic improvements to student common spaces, bathrooms, kitchens, and the Porter Room; and provide updated furniture for bedrooms, suite common rooms, floor lounges, and community spaces. These building-wide improvements ensure compliance with all state and local building and accessibility requirements, provide for sustainability and climate resiliency, and seek to enhance the student experience. The building will be taken offline in January 2021 with a scheduled reopening in August 2022.





Render: DesignDistill
Photo: Steve Dunwell Photography, Inc

Volpe Redevelopment

After completing utility-enabling work on the Volpe parcel in 2019, MIT commenced work on behalf of the federal government to begin the new facility for the Volpe Transportation Center. The contractor completed work on the below-grade parking garage and foundations and has started steel erection. The government project is expected to be completed in late 2023.

The Institute completed early preparatory planning work for the remaining 10 acres of the Volpe site and commenced the master plan special permit process in 2020. Consistent with the zoning that the City Council passed in 2017, the proposed development includes four commercial buildings, four residential buildings, over 25% open space, and a community center.

West Campus Graduate Student Dormitory

As part of MIT's Volpe zoning commitment to expand the stock of graduate student housing, MIT is planning to build up to 690 new graduate student beds at the site of the MIT Police Station and the West Parking Lot, both on the western end of Vassar Street. The MIT Police headquarters will be relocated to W91, on Audrey Street facing Memorial Drive.

Kieran Timberlake is the designer for the project, and John Moriarty & Associates is the construction manager. Consistent with MIT's Volpe zoning commitment, this project will file for permits by the end of 2020. Construction is planned to start in late 2021.



— MIT’s central portal to campus sustainability data — through newly added dashboards on waste stream contamination (available to the MIT community and general public), transportation and parking, and climate resiliency. The new MIT Climate Resiliency Dashboard is the result of an ongoing research collaboration and data sharing commitment between MIT and the City of Cambridge. The dashboard communicates projected potential risk to the campus from flooding under both today’s climate and a future changed climate. Complementing the City’s Flood Viewer, the dashboard completes the projected flooding picture of such potential risk to Cambridge. The projected flood information shared is based on climate change scenarios that are drawn from the best available science

while including ranges of uncertainty. The projected flood information will be revisited regularly to reflect updated projections specific to local climate change. All visualizations and data sets in the DataPool aid MIT community members in understanding past trends, identifying solutions, and preparing for future sustainability challenges.

One of MIT’s newly completed buildings, MIT.nano (Building 12), received the U.S. Green Building Council’s LEED Platinum certification for sustainable practices in new construction in 2020. Starting in 2016, MIT made a commitment that all new campus construction and major renovation projects must be designed to achieve a minimum of LEED Gold certifi-



cation. MIT.nano joins the Morris and Sophie Chang Building (Building E52) as the second LEED Platinum-certified building on campus. There are 18 total LEED-certified spaces and buildings at MIT.

As the pandemic drastically increased the need for personal protective equipment (PPE) for the MIT community, campus sustainability researchers began to focus on ways to sustainably equip community members with these essential items. In response, an interdisciplinary research team formed to identify short- and long-term sustainable procurement, sourcing, and disposal strategies for PPE at MIT with a focus on solutions scalable beyond campus as well. The research is supported by the Campus Sustainability Incubator Fund — administered by MITOS — which seeks to enable MIT community members to use the campus itself for research in sustainable operations, management, and design.

MIT also continued its efforts around sustainable procurement and materials management by advancing purchasing programs and recycling, food waste collection, and reuse systems that design out waste from the campus, in turn supporting Cambridge efforts. In 2020, several innovative waste pilots were completed at locations across campus, while soon-to-be occupants of the new E38 project in Kendall Square worked together to implement waste collection practices to drive sustainable behavior. MIT continues to serve on and chair the Cambridge Recycling Advisory Committee to help ensure a community-wide approach to zero waste efforts. In August, MIT worked with the City of Cambridge to provide an accessible site for its Household Hazardous Waste collection day.

After receiving a \$250,000 grant from the Henry P. Kendall Foundation in early 2020, MIT was poised to begin a project that would bring more Massachusetts-grown surplus crops into the dining halls at MIT by strengthening partnerships with local food partners. While this project is on hold during the Covid-19 pandemic, MIT continues to set the groundwork for building a low-carbon food system that incorporates social justice and sustainability.

Through the Access MIT program, the Institute continues to provide generous subsidies for staff, faculty, and post-docs for low-carbon commuting — including subway, bus, bicycling, and commuter rail — which resulted in a nearly 15% decrease in parking at gated facilities on campus in the first three years of the program.

Moving Toward Carbon Neutrality

Throughout 2020, MIT undertook collaborations focused on helping shape the implementation of the City's Net Zero Action Plan adopted in 2015. The Action Plan identified a path forward for moving the City toward net zero greenhouse gas emissions. MIT offices, including the Department of Facilities; the Environment, Health, and Safety Office; MITOS; and MITIMCo participated in numerous working groups organized by the City to provide stakeholder input on various components of the plan including new construction requirements, existing building energy efficiency, energy performance reporting, renewable energy procurement and generation, lab energy use, and local low-carbon energy supply.

Since 2015, MIT has been working aggressively toward the goal of a minimum 32% reduction in greenhouse gas (GHG) emissions by 2030 as



2030 | 100-Year Storm

This map illustrates modeled peak flood elevation in the event of a future potential 10.2" 24-hour storm on campus under a changed climate. Each year, the probability of this event is 1%. However, over the course of 50 years, there's 39% chance that this event will happen. The assumptions for this modeled storm are based on anticipated climate changes in 2030.

How to read this map?

The projected flood depth is represented by a gradient of blue color, where darker color indicates higher water depth. Clicking on a projected flood polygon will open a pop-up window with location specific ground elevation, water depth, and peak water elevation. Zooming in will expose the peak flood elevation for every point.

Note that the water depth and peak water elevation values are the result of a modeling exercise based on the best available science and involve ranges of uncertainty. Assumptions about future



called for in the MIT Plan for Action on Climate Change. Overall net emissions are now 24% below MIT's 2014 baseline, with emissions on campus reduced 6% over the previous fiscal year. This reduction was driven in part by gains in building-level energy efficiency investments, increased operational efficiency of the Central Utilities Plant (CUP), a less intense heating season, lower energy demand on campus spurred by Covid-19, and reduced carbon-intensity of the local electricity grid.

Campus energy efficiency remains a core component of MIT's multi-faceted strategy to reduce emissions. Energy audits of existing campus buildings focus on improved efficiency and enable significant energy and emissions savings. MIT's Department of Facilities continually tracks building energy use to prioritize these audits for buildings with the greatest potential for energy and emissions impact and, in turn, reduction. Energy audits follow a process of study, design, and implementation with energy usage and emissions reductions often realized one to two years following the beginning of the project.

MITOS continues to develop data to build a preliminary analysis of the Institute's Scope 3, or indirect, GHG emissions. This is done to inform MIT's total greenhouse gas emissions activities (in addition to Scopes 1 + 2) and explore where strategic opportunities may exist to reduce emissions beyond what MIT is currently tracking. This effort has been collecting available emissions data including that of purchased

goods and services, MIT-sponsored travel, commuting, and capital goods (furniture, fixtures, tools, etc.) using the World Resources Institute/World Business Council for Sustainable Development GHG Protocol for Scope 3 framework.

Climate Resiliency

The MIT Climate Resiliency Committee, overseen by MITOS, works to collaboratively assess, plan, and operationalize a climate resilient MIT. It seeks to ensure a campus community that continues to fulfill its mission in the face of current and future climate risks and disruptions due to flooding from more frequent and extreme rains, storm surges, and rising sea-levels, as well as extreme heat events.

Managing the uncertainty of these climate risks requires understanding challenges and identifying adaptive opportunities through integrated "layers of resilience": community, buildings, infrastructure, and site. These layers are both interdependent and collectively critical to supporting MIT's mission. Experts from the MIT Joint Program on the Science and Policy of Global Change serve as partners contributing new research to reduce the uncertainty for operational decision-making.

This applied research resiliency collaboration evaluates probabilities and models campus exposure to: 1) "flash flood" 1-3 hour intense rains; 2) day-long rain events from tropical storms, hurricanes, and nor'easters; and 3) storm surge and sea level rise. Flood risk modeling is also

integrating planning approaches learned from MIT's Covid campus response into climate resiliency planning by prioritizing protection and adaptation of critical research facilities, community functions, and core campus operations.

Benefitting from a data sharing and collaboration commitment with the City of Cambridge, the newly unveiled MIT Climate Resiliency Dashboard seeks to translate the science of these climate risks into visual maps for use in operational and strategic decision making about campus-wide planning, capital renewal, new capital projects, and community preparedness. This dashboard's interface was designed by MIT students and created using the latest campus stormwater model that is harmonized with the City of Cambridge Flood Viewer and the City's flood risk model. Representatives from MIT also serve on the City of Cambridge Climate Resiliency Zoning Task Force.

Open Sourcing Solutions

MIT is currently researching a number of climate change risks for open sourcing of findings to serve both the campus and Cambridge. Starting in 2020, MIT has begun hosting a quarterly research and modeling collaborative meeting among MIT research scientists, City staff, and modeling experts. Research findings to be explored through this MIT-City Flood Risk Collaboration include:

- Flash-flood modeling of historic Cambridge short duration rain events
- Updated characterization of future, changed climate conditions for Cambridge
- Upriver Charles River Basin flow risks to Cambridge
- Scale and intensity of convective storms in Cambridge under a changed climate
- Joint probability of different flooding events

Tree Resources

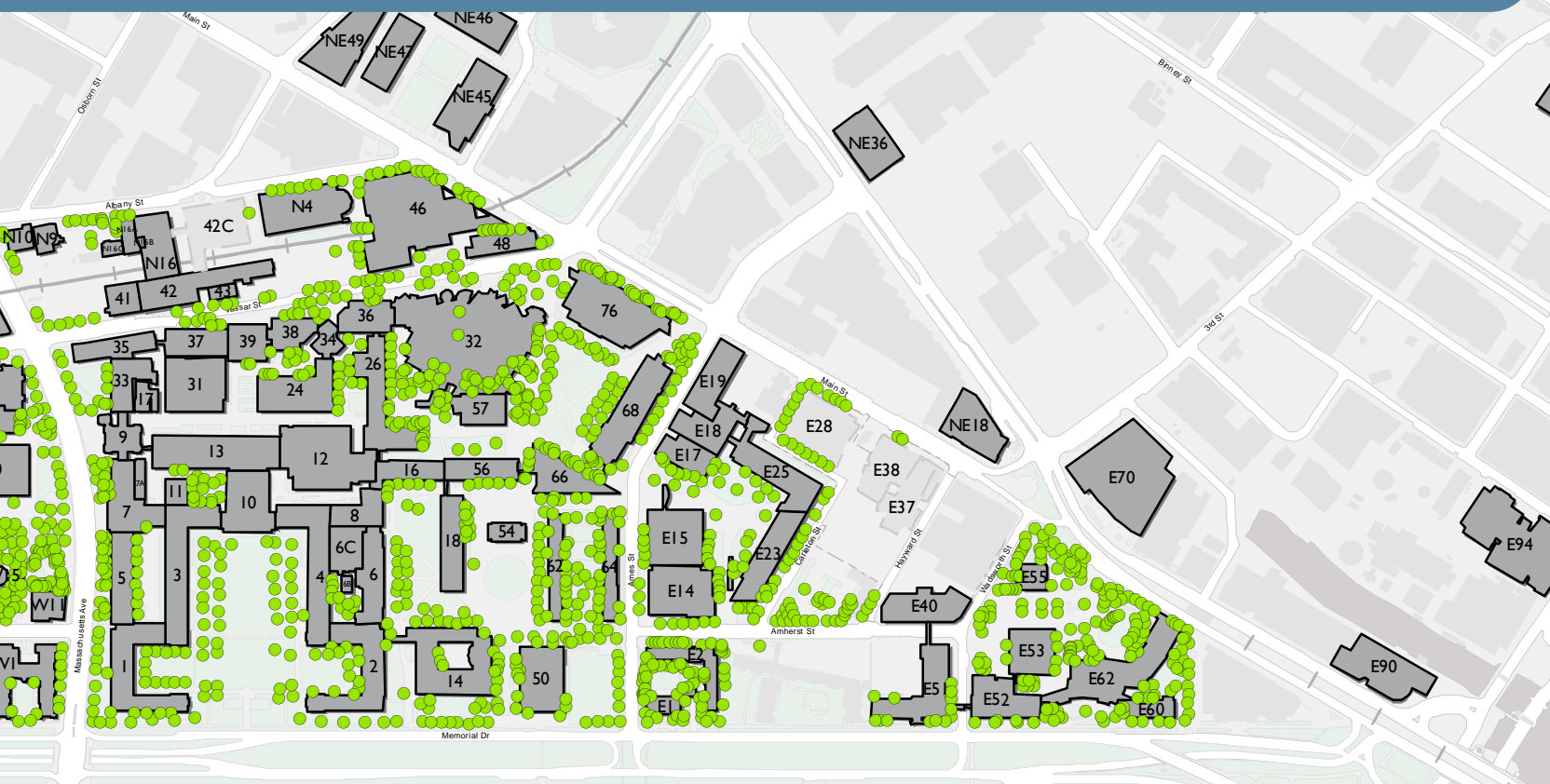
● Tree Locations



Looking Forward

Looking ahead to 2021, MIT will maintain its approach of applying what we know, empowering people to act, and pioneering solutions in sustainability to continue meeting aggressive goals. We will continue to seek collective engagement and action on priority areas that include:

- A commitment to developing an equity-focused approach to sustainability that begins by envisioning a safe, just, and healthy future for MIT, the City of Cambridge, and the world;
- Climate change and net zero action planning, including modeling and planning for climate adaptation and investments for a resilient campus;
- Modeling and planning for a climate resilient MIT;
- Expansion of data collection, data sources, and visualizations;
- Working collaboratively to transform the campus food system to promote health and system and individual sustainability;
- Managing the impact of the Institute's purchasing and waste systems in a manner that takes the full lifecycle costs and impacts of materials and products into consideration;
- Broadening and deepening MIT's commitment to sustainable transportation and robust participation in Access MIT;
- Utilization of both new and established strategies to mitigate campus emissions;
- Seeking a comprehensive understanding of our water use patterns in an effort to reduce overall demand and consumption across campus.



MIT and Cambridge Public Schools

The shift to remote work and learning during Covid impacted MIT's planned 2020 pK-12 activities. For safety reasons, all in-person educational activities were suspended, including the anticipated Tech Experience collaboration between MIT and the CRLS High School Extension Program.

Undeterred, MIT's pK-12 community pivoted to find alternatives so that high quality STEAM programming could continue. Within weeks af-

ter the pandemic broke, the pK-12 community launched Full STEAM Ahead, a website that both created new activities and curated existing online STEAM enrichment activities. Additionally, MIT supported offline efforts like the Cambridge STEAM Initiative's STEAM@Home resources, which included its innovative idea to print STEAM activities on lunch bags distributed to Cambridge Public School students at the end of the academic year.

Summer Youth Employment Program

With Covid-19 restricting the ability to have on-site employees, the Summer Youth Employment Program was completely reimaged as an academic enrichment activity instead. MIT OGCR and the MIT Museum partnered with the Department of Human Service Programs Summer Youth Employment Program to host 20+ rising 9th graders from Cambridge's Rise Up Program.

Over the course of three weeks this past summer, educators from the MIT Museum met with students and teachers in the Cambridge Rise Up Program to carry out a pilot program around environmental health and citizen science. After modeling the scientific process through a dust collection and analysis project (using cell phones and scanning electron microscopes), the

students discussed what environmental health factors would be interesting to study in the context of their communities and outlined a plan for how to test these factors.

Students focused on what kinds of scientific questions are most relevant to them and their community, how those questions could be tested given certain constraints and resources, and the longer term goal of seeking equitable change in community environmental health. Thanks to students diving deeper into these topics, there were great student-led discussions on sample size, questions to ask subjects if collecting interviews, and factors involving the safety of the student scientist in collecting data. Feedback from this pilot will inform a student-led citizen science program in the fall.

Selected K-12 Educational Offerings

AI Education

A curated set of MIT projects that encourages children to get started learning about artificial intelligence and related skills.

<https://aieducation.mit.edu/projects>

MIT Museum

Hands-on STEAM workshops and opportunities for students and educators.

<https://mitmuseum.mit.edu/>

Edgerton Center

Fun, 3-hour hands-on STEM workshops that reach over 500 Cambridge students a year.

<https://edgerton.mit.edu/>

KeyPals and NetPals

Cambridge School Volunteers mentorship program pairing MIT staff and graduate students with CPS students for one-on-one engagement.

<https://www.csvinc.org/category/keypals/>



FullSTEAM Ahead

Full STEAM Ahead began as an online resource hub to provide robust curated content to K-12 students, teachers, and parents during the first surge of the Covid-19 pandemic, when schools around the world started to shut down in rapid succession. Within days of the full-campus evacuation in mid-March, members of MIT's pK-12 education community came together on Zoom to organize a coordinated response. It was Professor Eric Klopfer, director of the Scheller Teacher Education Program (STEP), who first suggested an online resource hub with a highly interactive hands-on learning component and signed on to lead the project along with Claudia Urrea and the MIT pK-12 Action Group.

In a matter of weeks, the core team had built the site and were compiling resources in consultation with local school systems. Office of Government and Community Relations (OGCR) K-12 Outreach Administrator Rohan Kundargi

communicated with colleagues in the Cambridge Public Schools in order to better understand student and teacher needs. As a result, the interactive site was able to meet Massachusetts data privacy and security requirements, making it easier for teachers to turn to as a resource.

With support from the Abdul Latif Jameel World Education Lab (J-WEL) and a monumental effort of coordination, the hub has grown into a vibrant learning community. During the first six months of shut-down, the team created 10 custom interactive learning packages and two highly successful online summer programs. One summer program, Full STEAM Ahead Into Summer, worked with over 325 middle school students from around the Commonwealth (30% from Cambridge) to prevent a "Covid-slide" or falling behind due to the pandemic. Learn more at <https://fullsteam.mit.edu>

MIT Impact Scholarship

The MIT Impact Scholarship celebrated its fourth year of awarding scholarships to ten phenomenal students (6 Cambridge Rindge and Latin School students, 2 Prospect Hill Academy students, and 2 Community Charter School of Cambridge students) from a range of backgrounds. Instead of focusing on traditional academic markers, students are selected for the scholarship based on the impact they bring to

the people around them; all awardees have compelling personal narratives of making a difference in their larger communities. After a full review by school and MIT staff, ten \$10,000 scholarships were awarded pending confirmation of continuing full-time college enrollment, bringing the current total amount of scholarships awarded to \$400,000.

Direct Economic Impact

Payments to the City of Cambridge					
	FY 16	FY 17	FY 18	FY 19	FY20
Real Estate Taxes Paid*	\$50,185,924	\$54,891,906	\$56,971,040	\$60,291,173	\$65,318,882
Payment in Lieu of Taxes (PILOT)**	\$2,020,593	\$2,080,717	\$ 2,211,875	\$2,150,218	\$2,211,549
Water and Sewer Fees Paid	\$8,898,350	\$8,315,850	\$7,937,273	\$8,536,068	\$7,812,810
Other Fees and Permits Paid	\$6,754,417	\$5,644,924	\$11,483,296	\$5,006,735	\$8,242,958
Total Payments	\$67,859,284	\$70,933,397	\$78,603,484	\$75,984,194	\$83,586,199

* 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 \$35.9M million in Cambridge businesses in FY20. This program, together with taxes paid, payments in lieu of taxes, and municipal fees, brought MIT's 2020 direct economic contribution to the City to almost \$120 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.

President Reif has committed the Institute to increasing purchasing and contracting with Black- and minority-owned businesses, including those in the City of Cambridge. To support these efforts, the Small and Diverse Business Program is working on a baseline supplier diversity analysis and tools to support campus purchasers with visi-

MIT's FY20 real estate tax payment represents 14.9% of the City's total tax revenue stream.

#1 Taxpayer in Cambridge

bility into their suppliers, their credentials, place of business, and other helpful information. The program will work with partners both on and off campus to assist small and diverse businesses in addressing MIT's complex organizational needs.

The Job Connector by MIT

The Job Connector by MIT had a successful first year despite the challenges brought on by Covid-19. Hosting four new programs, organizing two job fairs, and participating in over 350 interactions with 275 clients, Job Connector staff found numerous opportunities to become integrated into the Cambridge workforce development landscape and support residents. By working with local partners, the Job Connector hosted an apprenticeship training program with Building Pathways, an IT skills training course with Just-A-Start, and organized a three-part unemployment webinar with the City of Cambridge's Department of Human Service Programs. A new career pathways program has just been launched in partnership with My Brother's Keeper, and several other initiatives are in planning for 2021.

Just-A-Start

Building on MIT's long term partnership with Just-A-Start, a Cambridge nonprofit providing affordable housing, education, and workforce training, the Job Connector helped to recruit applicants and provide classroom space for the agency's IT skills training program.

Building Pathways

Working with Building Pathways, a nonprofit focused on recruiting workers for trade apprenticeships, Job Connector staff hosted events and information sessions to reach out to local applicants. After successfully building a cohort of 18 participants, the Building Pathways Pre-

Apprenticeship program utilized Job Connector space and resources to hold its 200-hour career exploration training.

Unemployment in the Time of Covid-19

In response to the unprecedented employment challenges related to Covid-19, the Job Connector worked with the City of Cambridge Department of Human Service Programs' Office of Workforce Development (OWD) and Community Learning Center (CLC) to create a three-part seminar series that answered timely questions about unemployment. Local employment attorney Beth Myers discussed the legal aspects of employment and unemployment during Covid-19, while the OWD and CLC staff explained the application process for unemployment insurance. The series wrapped up with a presentation by Job Connector staff with tips and strategies on staying "job ready" during Covid-19.

Career Pathways

The Job Connector continues to identify opportunities to create meaningful and effective programming even during Covid. Partnering with My Brother's Keeper Cambridge, a nonprofit organization dedicated to disrupting barriers faced by young people of color, the Job Connector is co-producing a five-week life skills and employment readiness training program for local 18 to 26 year olds. Based on initial success and interest, the program will be expanded to include a second cohort in January 2021.



