



HARVARD UNIVERSITY

2018

Town Gown Report

for the
City of Cambridge

Submitted by:
Harvard Planning Office



Cover Image: *Tercentenary Theatre, Harvard Yard*

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I. EXISTING CONDITIONS

To meet the City of Cambridge's Town Gown reporting requirements, Harvard University annually provides data which characterize the University's population, land and buildings, and payments to the City over the past five years. The data also includes future projections of Harvard's student enrollments, faculty and staffing levels, student housing, and campus facilities. Making meaningful projections or forecasts in these areas is difficult as future change is highly dependent upon a large number of interrelated factors, such as:

- **Priorities established by University leadership** including the President, Provost, Academic and Administrative Deans, the Harvard Corporation and central administrative leadership.
- **Priorities established at the School and Unit level** such as the creation of new academic programs or initiatives, or re-focusing or re-orienting existing programs.
- **The fiscal capacity of the University, and individual schools and units** including endowment performance, unforeseen economic changes, and levels of donor and philanthropic support.
- **Trends in higher education** such as the growth of on-line and distance learning; continuing education and executive education programs; and technological and pedagogical changes.

Given the complex interrelated nature of these factors, the projections included in the Town Gown Report are not to be considered confirmed plans for future growth or change at Harvard, but rather present an estimated range of possible change in key reporting areas based on data trends over the past five years. A projection period of five years has been selected, as it presents a more realistic time horizon for estimating future change, and is also more closely aligned with the capital planning cycle utilized by Harvard's schools and administrative units.

A. FACULTY AND STAFF ¹

	2014	2015	2016	2017	2018	2023
Cambridge Based Staff						
Head Count	12,358	12,343	12,695	12,781	12,999	12,600 - 13,700
FTEs	9,744	10,160	10,434	10,404	10,698	10,300 - 11,700
Postdoctoral Scholars ²	990	1,063	1,193	1,093	1,176	1,000 - 1,200
Cambridge Based Faculty						
Head Count	2,010	2,072	2,102	2,100	2,123	2,100 - 2,200
FTEs	1,778	1,836	1,870	1,884	1,898	1,800 - 2,100
Cambridge Residents Employed at Cambridge Facilities	4,088	3,982	4,146	4,190	4,243	
Number of Cambridge Residents Employed at Boston Facilities	768	754	806	793	791	

¹ Employment figures are as of May 31, 2018 and June 30, 2018 and include TA's, graduate students, postdoctoral scholars, interns and other staff.

² Postdoctoral scholars are included in staff totals reported in Cambridge Based Staff.

B. STUDENTS ³

	2014	2015	2016	2017	2018	2023
Total Undergraduate Degree Students	7,265	7,237	7,333	7,447	7,544	<i>7,400 - 7,600</i>
Day	6,671	6,636	6,634	6,645	6,699	
Evening	[594] ⁴	[601]	[699]	[802]	[845]	
Full Time	6,906 [247]	6,874 [244]	6,893 [259]	6,391 [286]	6,950 [251]	
Part Time	359 [347]	363 [357]	440 [440]	516 [516]	594 [594]	
Total Graduate Degree Students	10,205	10,254	10,487	10,948	11,444	<i>10,700 - 12,500</i>
Day	8,999	8,967	9,015	9,231	9,372	
Evening	[1,206]	[1,287]	[1,472]	[1,717]	[2,072]	
Full Time	9,128 [230]	9,131 [262]	9,200 [290]	9,470 [366]	9,816 [569]	
Part Time	1,077 [976]	1,123 [1,025]	1,287 [1,182]	1,478 [1,351]	1,628 [1,503]	
Total Non-degree Students	6,887	7,336	7,727	7,417	7,621	<i>7,400 - 8,400</i>
Day	331	362	349	351	363	
Evening	[6,556]	[6,974]	[7,378]	[7,066]	[7,258]	
Total Number of Students in Cambridge-Based Schools ⁵	24,357	24,827	25,547	25,821	26,609	<i>25,500 - 28,500</i>

³ Counts as of October 15, 2017 for 2018.

⁴ Numbers in brackets represent students at the Extension School and are a subset of the total number of Full- and Part-time students indicated

⁵ This figure includes all students who are enrolled in Cambridge-based schools, including the Extension School. Some students may reside outside of the greater Boston area or Massachusetts.

C. STUDENT RESIDENCES ⁶

	2014	2015	2016	2017	2018	2023
Number of Undergraduate Students Residing in Cambridge						
In dormitories	6,200	6,164	6,368	6,023	6,020	6,000 - 6,400
With cars garaged in Cambridge	7	10	5	6	3	
In Harvard affiliate housing ⁷	398	386	304	650	648	400 - 700
In non-affiliate housing	99	92	68	99	115	
Number of Graduate Students Residing in Cambridge						
In dormitories	1,259	1,162	1,390	1,338	1,348	1,200 - 1,400
With cars garaged in Cambridge	117	152	139	99	94	
In Harvard affiliate housing	1,551	1,437	1,367	1,355	1,305	1,400 - 1,600
In non-affiliate housing	3,476	3,767	3,326	3,290	3,225	

⁶ Counts are as of Spring 2018.

⁷ The number of undergraduate students residing in Harvard affiliate housing includes 10-20 DeWolfe Street and students temporarily residing in "swing housing" to accommodate the House Renewal program.

D. FACILITIES AND LAND OWNED ⁸

	2014	2015	2016	2017	2018	2023
Acres (Tax Exempt)	190.4	192.7	191.8	191.8	191.8	191.8
Acres (Taxable)	23.1	22.4	22.1	22.1	22.4	22.4
Number of Buildings	392	392	391	391	392	392
Dormitories						
Number of Buildings	75	75	75	75	75	75
Number of Beds	8,160	8,238	7,954	8,099	8,106	8,000 - 8,200
Size of Buildings (SF)	15.9M	16.0M	16.0M	16.1M	16.1M	16.1 - 16.3M
Assembly/Museum	976,088	1,084,879	1,026,278	1,026,278	1,026,278	
Athletic	210,780	210,780	210,780	210,780	210,780	
Classroom	877,524	877,524	877,524	877,524	958,214 ⁹	
Commercial	185,453	185,453	185,453	185,453	185,453	
Healthcare	77,155	77,155	77,155	77,155	77,155	
Laboratory	2,587,479	2,587,479	2,587,479	2,587,479	2,587,479	
Library	1,100,839	1,097,644	1,097,644	1,097,644	1,097,644	
Office	3,085,661	3,087,995	3,164,256	3,164,256	3,164,256	
Residential	5,766,765	5,772,934	5,908,866	5,908,866	5,913,443	
Support	1,071,830	1,071,830	915,070	915,070	915,070	

⁸ All space data as of June 30, 2018.

⁹ Increase reflects completion of Harvard Kennedy School addition completed in late 2017.

Parking Facilities

Harvard University owns and maintains 4,585 non-commercial parking spaces in the City of Cambridge. These spaces constitute the University's parking inventory and are used to support University operations and accommodate faculty, staff, student, and visitor parking. The inventory is updated and approved each December as part of Harvard's annual PTDM Progress Report.

Housing *(This table does not include information about dormitories.)*

	2014	2015	2016	2017	2018
Affiliate Housing - Tax Exempt					
Number of Units:	1,043	1,037	1,037	1,036	1,035
Number of Buildings:	12	12	12	12	12
Affiliate Housing - Taxable					
Number of Units:	892	892	892	889	889
Number of Buildings:	55	55	55	54	54
Other Housing - Tax Exempt					
Number of Units:	None	None	None	None	None
Number of Buildings:	None	None	None	None	None
Other Housing - Taxable					
Number of Units:	None	None	None	None	None
Number of Buildings:	None	None	None	None	None

Property Transfers

Cambridge properties purchased since filing previous Town Gown Report:

Harvard acquired the property at 109 Irving Street by purchase in 2018.

Cambridge properties sold since filing previous Town Gown Report:

None

Planned dispositions or acquisitions:

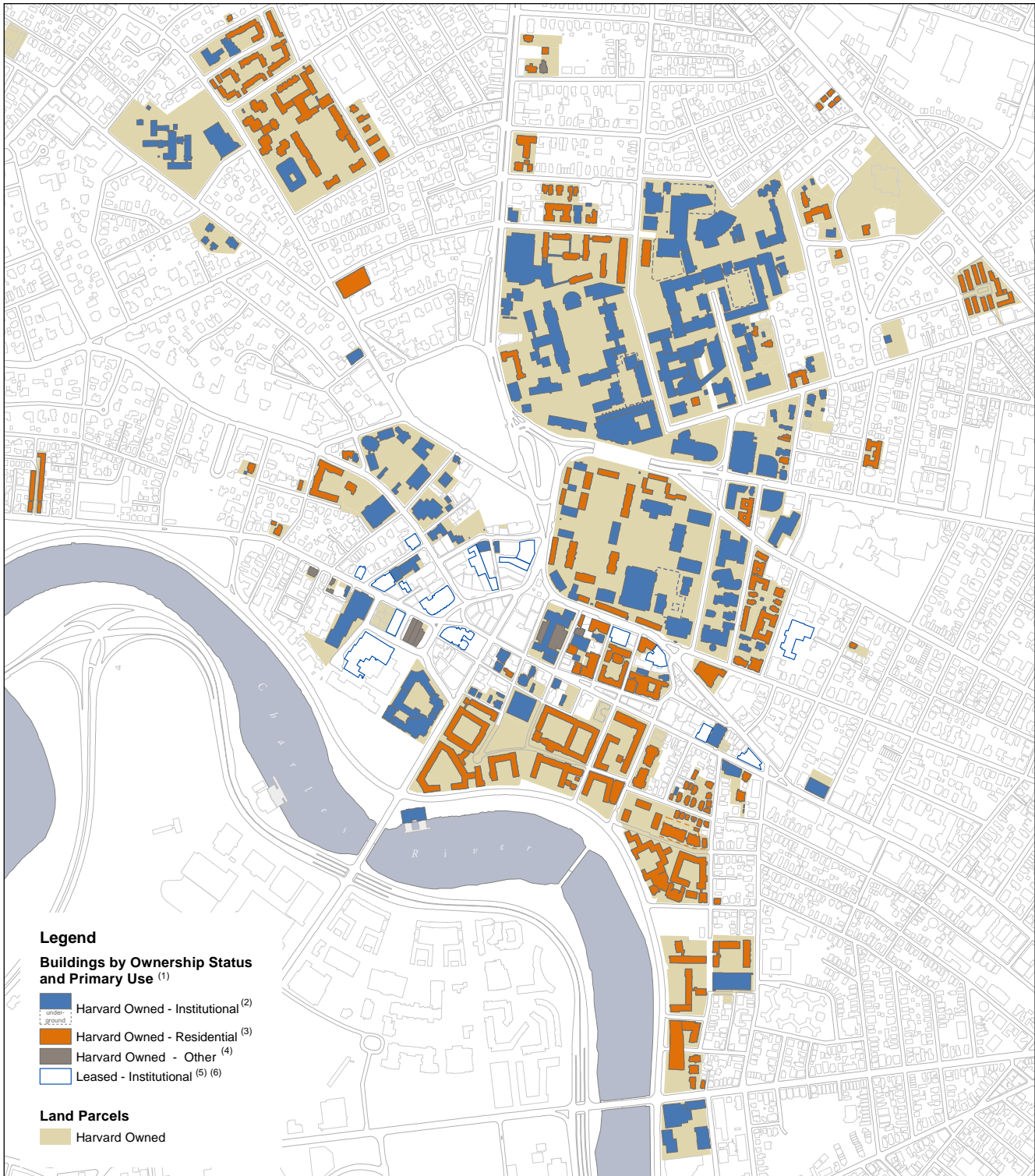
None

E. REAL ESTATE LEASED ¹⁰

Real Estate Leased by Harvard	Sq. Feet	Use
One Bow Street	23,490	Office
One Brattle Square	75,576	Office
One Story Street	12,251	Classroom
10 Ware Street	1,738	Office
100 Edwin H. Land Blvd.	3,365	Office/greenhouse
104 Mt. Auburn Street	24,638	Office
114 Mt. Auburn Street	65,107	Office Healthcare
125 Mt. Auburn Street	36,564	Office
1100 Massachusetts Avenue	17,989	Office
1280 Massachusetts Avenue	18,285	Office
1408-1414 Massachusetts Avenue	50,000	Office
1430 Massachusetts Avenue	11,265	Office
155 Fawcett Street	37,500	Warehouse
20 University Road	32,086	Office
25 Mt. Auburn Street	7,732	Office
44R Brattle Street	8,417	Office
50 Church Street	31,975	Office
625 Massachusetts Avenue	35,295	Office
784 Memorial Drive	61,000	Office
TOTAL	554,273	

¹⁰ Data as of Spring 2018.

Real Estate Owned and Leased in Cambridge by Harvard University



Notes:

1. Primary Use reflects predominant building use.
2. Rowland Institute located at 100 Edwin Land Boulevard is located outside the map coverage area.
3. 33 Elmwood Avenue is located outside the map coverage area.
4. Includes real estate that is vacant or leased to third party.
5. Buildings may be leased by Harvard in whole or in part
6. The following buildings leased by Harvard for institutional use are located outside the map coverage area:
 - 155 Fawcett Street
 - 625 Massachusetts Avenue
 - 784 Memorial Drive

F. PAYMENTS TO CITY OF CAMBRIDGE ¹¹

	2014	2015	2016	2017	2018
Total Payments	\$16,140,324	\$16,858,585	\$18,472,321	\$18,677,526	\$16,899,350
Real Estate Taxes Paid	\$5,829,731	\$5,582,340	\$5,672,860	\$5,834,926	\$6,010,184
Payment in Lieu of Taxes (PILOT)	\$2,968,227	\$3,646,380	\$3,850,071	\$3,955,056	\$4,131,391
Water & Sewer Fees Paid	\$4,623,286	\$5,425,369	\$5,078,739	\$6,157,131	\$5,620,934
Other Fees & ¹² Permits Paid	\$2,719,080	\$2,204,496	\$3,870,651	\$2,730,413	\$1,136,841

Note:

In 2005 Harvard University and the City of Cambridge renewed the PILOT agreement for a fifty-year period with annual escalators.

¹¹ Payments made FY2018 (July 1, 2017 to June 30, 2018).

¹² Amounts reported include some but not all building permit and other construction related fees paid by Harvard to the City of Cambridge.

G. INSTITUTIONAL SHUTTLE INFORMATION

Harvard Transit operates the Harvard Shuttle, which offers safe, reliable and convenient transportation across Harvard's Cambridge and Allston campuses. Harvard Transit continually tracks ridership on all of its routes in order to maximize efficiency and align ridership with the size of shuttle vehicles used, and the frequency of service during different times of the day.

Harvard's Shuttle fleet includes seven 35-foot buses and five 29-foot buses, each with a capacity of 37 passengers. During the academic year, two buses provide service for the River Houses area; three buses serve the Radcliffe Quad area; and two buses operate between Cambridge and Allston. A shuttle service between Harvard Square and Barry's Corner in Allston began operation in December 2015. In the summer, limited weekday Shuttle service is provided on the Allston Express route. Harvard Transit's van fleet also includes five, ten-seat passenger vans equipped with two wheelchair spaces providing service to individuals with special mobility needs on an as-needed basis. Two of the vans run weekdays from 7:30 am – 7:00 pm; and on weekends from 12:00 pm – 7:00 pm. A late evening weeknight van service transports faculty, staff and students safely around campus as a supplement to the shuttle bus system. The service operates between 7:00 pm and 3:00 am, seven days a week throughout the academic year and 7:00 pm – 12:30 am during the summer. In 2018 Harvard launched a new Evening Van app to provide a more efficient and convenient rider experience.

Since 2004, all of Harvard's shuttle vehicles have operated on B-20 biodiesel. Using biodiesel is considered a best practice in the industry and has reduced emissions by fifteen percent. In addition, Shuttle schedules are very precise and do not allow for more than three minutes of idling. Harvard Transit keeps the fleet on a 7–10 year life cycle to ensure that vehicles are equipped with the best technology available and practices proactive maintenance on all vehicles.

Ridership data and efforts both to coordinate shuttle system with other institutions and to streamline shuttle services.

Total passenger ridership for all shuttle routes in FY2018 increased by approximately 2% to 714,000. Harvard Transit collaborates with the Cambridge Traffic, Parking and Transportation Department in planning University shuttle routes. Harvard also works closely with the Cambridge Department of Public Works during construction and events that may require re-routing of Harvard Shuttles.





Harvard has developed a productive working relationship with the Cambridge Police Department to ensure street safety, and have been partners in mitigating such issues as street congestion caused by tourist buses on Massachusetts Avenue.

The University also partners with the MASCO shuttle bus, providing financial support for this system, and sharing Shuttle Tracker technology which provides real-time location of buses on routes. This coordination has reduced service overlap within Cambridge and eliminated the need for a dedicated Harvard shuttle traveling to the Longwood Medical Area in Boston. Although the M2 Cambridge-Harvard Shuttle primarily serves Harvard University Longwood students, faculty and staff, the shuttle is available to others, including members of the public, with the pre-purchase of a ticket (see: www.masco.org/directions/m2-cambridge-harvard-shuttle).

Harvard Campus Shuttle Routes



Legend

-  Mather Express
-  Quad Express
-  Allston Campus Express
-  Barry's Corner

Notes:

This map shows the four principal academic year day-time shuttle bus routes. Harvard also runs evening and weekend shuttle services that cover these same routes but on a different schedule.

Route Name	Description	Frequency	Hours of Operation
Weekday Service - Morning			
Radcliffe Quad (Stadium)	Quad, Square, River Houses, Allston Campus	30 minutes	5:30 am – 7:15 pm
Quad, Square, River Houses, Allston			
Mather Express	River Houses through Square to Kirkland St.	10 minutes	7:30 am – 4:30 pm
Quad Express	Quad, Square, to Kirkland St.	10 minutes	7:30 am – 5:00 pm
Allston Campus Express	Allston Campus, Square, Mass. Ave., Oxford St., Square, Allston Campus	15 minutes	7:00 am – 4:00 pm
Barry's Corner (AM)	Square, JFK St., North Harvard St., Barry's Corner	20 minutes	7:00 am – 10:00 am
Weekday Service - Evenings			
Extended Overnight	River Houses through Square, up Garden St. to Kirkland St. to River Houses	30 minutes	7:30 pm – 4:00 am
Radcliffe Quad-Yard Express	Quad, Square, Quad (up Garden St.)	25 minutes	4:15 pm – 1:00 am
River Houses A, B, & C	River Houses through Square, up Garden St., to Kirkland St., to River Houses	35 minutes	4:15 pm – 1:00 am
Allston Campus Express	Allston Campus, Square, Mass. Ave., Oxford St., Square, Allston Campus	15 minutes	4:00 pm – 12:30 am
Barry's Corner (PM)	Square, JFK St., North Harvard St., Barry's Corner	20 minutes	4:30 pm – 7:30 pm
Weekend Service			
Crimson Campus Cruiser	River Houses through Square, up Garden St. to Kirkland St. to River Houses	35 minutes	8:30 am – 4:30 pm
1636'er	River Houses through Square, up Garden St., to Kirkland St., to River Houses	20 minutes	4:00 pm – 1:00 am
Allston Campus Weekend Express	Allston campus, Square, Quad, Square, Allston Campus	30 minutes	5:00 pm – 8:00 pm
Extended Overnight	River Houses thru Square, up Garden St., to Kirkland St., to River Houses	30 minutes	12:00 am – 5:00 am

II. FUTURE PLANS

A. PLANNING CONTEXT

“We scour the world for students and faculty prepared to demonstrate brilliance in our classrooms, our laboratories, on our playing fields and performance stages, and out in the community striving to make a difference.”

- President Lawrence S. Bacow, Installation Address, October 5, 2018

The recent installation of Harvard’s new President, Larry Bacow, provides an opportunity for the University to take stock of its teaching and research mission and its commitment to making a better Harvard and a better world. Harvard has reaffirmed its commitment to its core principles of truth, excellence, and opportunity, while creating a diverse and inclusive campus culture open to new ideas and where all members have a sense of belonging. This overarching mission is the driving force behind campus planning.

Programmatic Drivers

Harvard’s planning and development activities are informed by several key programmatic drivers. Current objectives within these drivers influence how the University will continue to meet its diverse facility and space needs over the coming years.

Fostering Inclusion and Belonging

Achieving excellence across Harvard’s academic pursuits of teaching, innovative scholarship, scientific discovery, path breaking creativity, and professional expertise requires bringing a broad diversity of perspectives, methods, and experiences to bear on any given area of study or discovery. The final report of the Presidential Task Force on Inclusion and Belonging which was released in 2018 provides a framework for strategic innovation on behalf of diversity, inclusion, and belonging in every school and business unit at Harvard.

Advancing Research and Scholarship

As a modern research university in the 21st century, Harvard must continually strengthen its core academic and research mission through initiatives that support cross-disciplinary research, respond to changing pedagogies and technological innovations, and foster collaborative teaching and learning.

Investing in Science and Engineering

Recognizing the increasingly integrated and collaborative nature of scientific research, Harvard continues to support a wide array of interdisciplinary initiatives. Harvard has re-affirmed its academic commitment to engineering and technology through its development of a major new teaching and research facility for the John A. Paulson School of Engineering and Applied Sciences

which is planned to move to Allston in 2020. Harvard's ongoing investment in capital projects supporting the sciences includes both new construction and the renovation of existing facilities to respond to new initiatives in scientific research.

Supporting the Arts and Humanities

Harvard remains committed to a strong liberal arts education which goes beyond delivering a body of knowledge but seeks to cultivate a deeper intellectual transformation of each student. This commitment is demonstrated in new academic programs such as Theatre, Dance and Media which supports art-making and research across a range of performance and media-based disciplines, and in the reinvention of facilities such as the Sackler Building which will foster cross-disciplinary study in art, architectural history, design, and art-making.

Housing Harvard's Affiliates

Harvard was founded as a residential campus and continues to be a living/learning academic environment today. Fundamental to the undergraduate experience is House life, which has been strengthened by the ongoing commitment to revitalizing the Harvard Houses. Harvard also remains committed to maintaining and improving its affiliate housing by addressing deferred maintenance, enhancing life safety and upgrading living units.

Enhancing the Campus Experience

Harvard recognizes that the experience of campus life is greatly enhanced by its common spaces, landscape, and cultural amenities. Through Harvard's Common Spaces program, which was established in 2008, the University has created new campus spaces that bring the diverse Harvard community together for interaction, collaboration, and the sharing of ideas. The recent completion of the Richard A. and Susan F. Smith Campus Center marks a major achievement in the Harvard Common Spaces initiative. Harvard will continue to identify additional opportunities to enhance the quality of campus life through future planning and development projects.

Physical Context

Harvard's Cambridge campus has an iconic physical identity that encompasses Harvard Square, Harvard Yard, and the Charles River edge to create an experience that is unique to the University. Walls and gates around Harvard Yard distinguish the historic core campus from its busy urban context, and a fine-grain scale of streets and blocks reflects historic settlement patterns. The mix of residential-scale wood frame, multi-story brick, and modern high-rise buildings gives the Cambridge campus a unique character with varied materials and scales that developed incrementally over four centuries.

To support the University's academic mission Harvard seeks to preserve its strong sense of place and provide a welcoming environment through campus-level planning strategies that respect the existing physical context while acknowledging

the need for flexibility and adaptability to accommodate future change. These strategies include the coordination of campus systems and networks (such as, connectivity, open space, infrastructure and sustainability); the balance of renewal and deferred maintenance priorities (facility condition assessments); and the careful study of existing conditions (urban design guidelines and site-specific planning principles) which ensure that future development continues to produce a coherent, attractive, sustainable and well-maintained campus.

Harvard University's Campus Planning Principles

The University implements its plans through development that strives to meet the following planning principles in a balanced way:

- **Preserve Harvard's Historic Character**

Harvard's nearly 400-year-old campus exhibits an incredible range of architectural styles that collectively tell the story of its development. The University will preserve the character-defining fabric of its historic campus while also accommodating and celebrating forward-thinking contemporary architecture for the 21st century. Through careful planning and design Harvard will seek to ensure the successful integration of new and old.

- **Promote Built Form in the Context of Existing Campus Character**

The massing and siting of Harvard's buildings, and their relationship to the surrounding landscape have resulted in a human-scaled and pedestrian-oriented campus with a strong sense of place. In considering new development the University will promote built form which recognizes the relationship between buildings and open space, acknowledges the distinct physical character of different parts of the campus, and strengthens landscape and pedestrian networks.

- **Demonstrate a Commitment to Design Excellence**

Over the course of four centuries, the Harvard campus has benefitted from the contributions of skilled designers such as Charles Bulfinch, H.H. Richardson and Le Corbusier. Harvard will continue to promote a built environment that addresses the University's needs and larger purpose through design that is of its time and place and is informed by current societal needs, technology, sustainability, and design dialogues. The University's commitment to design excellence will include the careful selection of the planners, architects and landscape architects who work on the campus and peer design reviews of all capital projects.

- **Enhance Campus Connectivity**

The day-to-day function of Harvard's campus requires a high degree of connectivity which encompasses pedestrian networks, public transportation, bicycle networks and the accommodation of vehicles. Harvard will seek to enhance and improve connectivity through projects that incorporate a multi-modal approach to connecting the people, places and activities on its campus.

- **Maximize the Utilization of Existing Facilities**

Harvard's programs and operations occupy over sixteen million square feet of space across the Cambridge campus. While recognizing that the institutional uses housed in these facilities will continue to change over time, in meeting its facility and space needs Harvard will seek to maximize the utilization of its existing facilities through renovation, adaptation and re-programming as an alternative to new construction where feasible.

- **Maintain and Enhance Campus Open Space**

The mature landscaped setting and pedestrian orientation of Harvard's Cambridge campus contribute enormously to its physical character and livability. The University will continue to identify key opportunities to improve the campus by preserving and enhancing its campus open spaces and landscape elements, improving its pedestrian orientation, and identifying key opportunities to continue to "green" the campus.

- **Support Ongoing Facility Renewal**

Harvard's ability to accomplish its core teaching and research mission requires a well-maintained physical plant. To ensure a high quality academic and living experience for its students, faculty and staff the University will continue to systematically and adequately invest in renewal activities that address deferred maintenance, upgrade building systems and critical campus infrastructure, and undertake improvements for life-safety and accessibility that will extend the life expectancy and utility of its facilities.

- **Create a Sustainable Campus**

The Harvard campus operates as a living lab, bringing together students, faculty, staff and the community to create a healthier, more sustainable, and resilient campus. Through the implementation of the University-wide Sustainability Plan and continued adherence to Harvard's Green Building Standards the University will advance plans and projects that reduce energy use, encourage high-performance and healthier buildings, and adapt to the challenges of future climate change.

- **Respect Community Context**

Harvard's Cambridge campus is set amidst both the vibrant commercial setting of Harvard Square and well established residential neighborhoods. The University will ensure that new campus development is sensitive to the surrounding built environment, recognizes neighborhood context, and contributes to the broader public good.

*Projects
Recently
Completed*

B. CAPITAL PROJECTS

Richard A. and Susan F. Smith Campus Center (Renovation)



Architect:	Hopkins Architects (Design) Bruner/Cott (Executive Architect)
Landscape Architect:	Michael Van Valkenburgh Associates
Total Square Feet:	95,000 GSF (renovation), 2,943 GSF (net new addition)
Programmatic Driver:	Create new campus center
Green Attributes:	Targeting LEED Gold

The redesign of the Richard A. and Susan F. Smith Campus Center has created a dynamic new center of University life in the heart of Harvard Square, bringing Harvard and the community together in new flexible, accessible and sustainable spaces. The building's renovated façade is the backdrop for newly designed outdoor spaces with ample accessible café-style seating, chess tables, new lighting, and new trees. Light-filled interior spaces include food venues, unique indoor landscape elements, and numerous comfortable spaces for relaxation, studying, informal gathering, programs, and events. The Smith Campus Center fosters a welcoming and vibrant entrance to Harvard University for visitors, Cambridge community members, and current and prospective affiliates of Harvard and promotes a connected and inclusive campus. The project is a transformational improvement of the public realm, with enhanced amenities and unique spaces that do not exist elsewhere in Harvard Square.

To achieve this vision for the campus center, Harvard renovated and selectively reconstructed portions of the building. The redesign respects original architect Josep Lluís Sert's planning and design principles relating to connectivity, scale, massing, light, facade and roofscape. The project received approvals from the Cambridge Historical Commission, Harvard Square Advisory Committee, and Board of Zoning Appeal in 2015. Construction on the campus center renovation was completed in summer 2018.

The Moise Y. Safra Welcome Pavilion and Plaza along Massachusetts Avenue is a dynamic entrance to Harvard University for visitors, current and prospective Harvard affiliates, and the Cambridge community. Serving as the symbolic “front door” to the campus, the Safra Pavilion has been located and designed to welcome people as they arrive to campus. It is a fully-accessible setting where one can mingle, join tours of the campus, and take in views of the square and the city beyond. The Safra Pavilion provides information on campus activities, tours, events, tickets, orientation, and offers a café, ample indoor and outdoor seating, and public restrooms. Chess playing continues with new regulation standard boards and more comfortable seating.

The Arcade remains the central organizing spine of the building. With its open-air vitrine garden, glass facades, and green walls irrigated with rooftop-harvested rainwater, the renovations increase access to daylight and nature for those passing through or taking a seat. Delicious food is available morning through evening at Pavement Coffeehouse, Swissbäkers, Bon Me, Blackbird Doughnuts, and Whole Heart Provisions. Saloniki Greek and Oggi Gourmet are also on-site, accessed via Dunster Street.



Harvard Commons, is a large, multi-level, open plan space at the heart of the Smith Campus Center. A sequence of tiered spaces overlook the principle common area, which is equipped with ample seating and a center stage. This indoor “living room” was designed for flexibility and serves as an everyday hang-out space as well as a venue for movies, talks, performances and events.

The public is welcome to enjoy the **second floor roof terrace**, which feels like a private garden overlooking Harvard Square. Formerly occupied by mechanical equipment, this roof terrace with wood decking and an array of furniture offers a serene setting for a meal or to relax.

Mount Auburn Plaza has been enhanced with new tables, chairs and chess boards. An integrated sloped walkway creates an accessible path of travel from the sidewalk into the building. A new landscaped berm allows a sense of enclosure for this south-facing plaza.



20 Sumner Road (Renovation)



Architect:	Snøhetta
Total Square Feet:	4,600 GSF (renovation)
Programmatic Driver:	Pilot sustainable retrofit of residential wood-frame building
Green Attributes:	Comprehensive sustainability measures

The recently completed project at 20 Sumner Road, dubbed “HouseZero,” is home to the Harvard Center for Green Buildings and Cities (CGBC), a program affiliated with the Harvard Graduate School of Design. The CGBC is a research center focused on creating and improving sustainable, high performance buildings and cities.

The existing wood-frame building has been retrofitted into a living-laboratory and positive-energy prototype for ultra-efficiency that will help the CGBC to understand buildings in new ways. The design of HouseZero was driven by ambitious performance targets, including nearly zero energy for heating and cooling, zero electric lighting during the day, 100 percent natural ventilation, and zero carbon emissions. The building is intended to produce more energy over its lifetime than was used in its renovation and throughout its subsequent operation.

As both a workspace and a research tool, the CGBC will use data from hundreds of sensors embedded within HouseZero's components to continually monitor its performance, providing Harvard's researchers with a new understanding of complex building behavior. This research will fundamentally redefine how structures can interact with and respond to their natural environment to promote efficiency and health. The building envelope and materials utilized in HouseZero were designed to respond to the seasons and the exterior environment, permitting the building to continually adjust itself to optimize occupant comfort. As part of the project, the former surface parking lot at 20 Sumner Road will also be transformed into a landscaped green with a rain garden in Spring 2019.

Biological Laboratories (Renovation)



Architect:	Perkins +Will
Total Square Feet:	219,498 GSF (entire building)
Programmatic Driver:	Upgrade infrastructure to support laboratory research space
Green Attributes:	Energy efficient equipment and energy recovery systems

The Faculty of Arts and Sciences is nearing completion of a multi-phased project to replace outdated and inefficient HVAC and exhaust systems in the Biological Laboratories. Constructed in 1931, the building is one of Harvard's key teaching and research facilities for the life sciences. The new HVAC and exhaust equipment will result in improved environmental conditions for teaching and research. In addition, the new systems will be more energy efficient, have the ability to better direct and control ventilation, and feature energy recovery systems, all of which will combine to reduce the cost of building operation.

Massachusetts Hall (Renovation)



Architect:	Baker/Wohl Architects
Total Square Feet:	N/A
Programmatic Driver:	Restore building exterior, upgrade building systems
Green Attributes:	Improved energy efficiency, added building insulation.

Harvard Real Estate completed a renovation project at Massachusetts Hall that included a comprehensive restoration of the building's Georgian exterior, replacement of central HVAC systems and significant code and life safety upgrades. The scope of exterior restoration, which included selected masonry repointing and repair, reconstruction of chimneys, and new copper gutters and downspouts, was carefully coordinated with the staff of the Cambridge Historical Commission and required the Commission's review and approval.

Constructed in 1720, Massachusetts Hall is Harvard's oldest surviving building, and among its most architecturally and historically significant. Over the span of almost three centuries, the building has seen multiple renovations and changes in use. Originally constructed as a dormitory, the building was converted for use as a lecture hall in 1870. It was renovated and converted back to a dormitory in 1924 and in 1939 the building again underwent a major renovation resulting in its current configuration and use as offices for the University's President and other administrative leadership, while retaining student dormitory rooms on its topmost floor.

Science Center
(Renovation)



- Architect:** Audrey O'Hagan Architects
- Total Square Feet:** 8,375 GSF
- Programmatic Driver:** Upgrade teaching facilities
- Green Attributes:** Furniture, fabrics and materials promote interior environmental health by eliminating harmful chemicals and products.

The Faculty of Arts and Sciences completed a renovation of lecture halls C and D at the Science Center last summer. The renovation included all new finishes - carpet, paint, acoustic ceiling and select wall treatments, furnishings and seating. Additionally, classroom infrastructure was upgraded with new audio visual equipment, lighting and HVAC systems. This project continued the Faculty of Arts and Sciences ongoing efforts to renew its teaching and instructional spaces.

1607 Massachusetts Avenue
(New Construction)



Architect:	NBBJ
Total Square Feet:	20,925 GSF (new construction)
Programmatic Driver:	Create new space for HLS public service programs, improve pedestrian environment
Green Attributes:	Targeting LEED Gold

Harvard Law School recently completed the redevelopment of a site on the corner of Massachusetts Avenue and Everett Street. The new, four-story, 21,000 square foot building at 1607 Massachusetts Avenue was created to support research programs as well as foster and expand the law school's experiential and clinical learning. It serves as the new home for the Center for Health Law and Policy Innovation, which includes the Health Law and Policy and Food Law and Policy Clinics. The building will also house the Islamic Legal Studies Program: Law and Social Change; the Animal Law & Policy Program; the Access to Justice Lab; and the Criminal Justice Institute and Harvard Defenders, a clinical program and student practice organization, respectively, in which students represent clients in criminal hearings;

The brick and wood mixed-use building was designed to smoothly transition between the scale and character of the academic campus and the Massachusetts Avenue mixed-use corridor. The ground floor retail use represents a continuation of a long-established commercial presence at this site, which activates this portion of Massachusetts Avenue. The physical streetscape is improved with new sidewalks and bike racks. This project was approved by the Cambridge Board of Zoning Appeal. The building opened in November 2018.

Lowell House – House Renewal
(Renovation)



Architect:	KieranTimberlake
Total Square Feet:	220,000 GSF (renovation)
Programmatic Driver:	Renew undergraduate House life
Green Attributes:	Targeting LEED Gold

Harvard is continuing the renewal of Lowell House, an undergraduate dormitory built in 1930 as one of the first two purpose-built Harvard Houses. Situated in the center of the River House district, Lowell House is widely recognized by its distinctive bell tower and is noteworthy for its two landscaped courtyards, both fully enclosed by the dormitory's brick neo-Georgian structure.

Consistent with other House Renewal projects, the renovation of Lowell House is designed to respect the building's historic attributes and House culture while upgrading it to support a twenty-first century living and learning environment. The project entails a major renovation of the building, including new interior room layouts, enhanced circulation, new building systems, and significant improvements to accessibility while maintaining the historic and architectural character of the building. The lower level, formerly used as squash courts, will be re-purposed to create new social and academic spaces. Construction on the project is scheduled to be complete in summer 2019.

Harvard continues its multiyear effort to renovate and rehabilitate the undergraduate Houses as part of a broader system-wide renewal. The House system represents one of the most distinctive and important features of a Harvard College education. In the late 1920s, President A. Lawrence Lowell envisioned that it would serve students of different backgrounds, resulting in learning that extended beyond the classroom. Today, more than 98 percent of Harvard College students live on campus. First-year students live in freshman dorms, located in and around Harvard Yard. The overwhelming majority of sophomores, juniors, and seniors live in one of twelve undergraduate Houses, which are located alongside the Charles River or at the Radcliffe Quad, along Garden Street.

The House Renewal program is being undertaken in phases, with the initial focus on the neo-Georgian River Houses set along the Charles River. The majority of the River Houses were constructed in the 1920s and 30s and have had only modest upgrades over the ensuing years. The Houses were also built at a time when building standards and the needs of the student body were very different. The intent of the House Renewal program is to preserve the historic character of these buildings and to sustain President Lowell's original vision of the Houses, while simultaneously transforming them to support a twenty first-century intergenerational learning community that meets the needs of today's students.

Four renewal projects are fully completed – Stone Hall, McKinlock Hall, Dunster House, and Winthrop House. Construction at Lowell House is anticipated for completion in summer 2019. Renovation work at Adams House, the sixth House set for renewal, will begin in its first phase at Claverly Hall starting in June 2019. The pace and sequence of House Renewal is subject to periodic review.



Arthur M. Sackler Building (Renovation)



Architect:	designLAB
Total Square Feet:	52,500 GSF (renovation)
Programmatic Driver:	Address deferred maintenance and accommodate new programmatic uses
Green Attributes:	Targeting LEED Gold

Harvard Real Estate is nearing completion of the renovation of the Sackler Building to address deferred maintenance, improve building systems, and re-purpose the building for new academic use. The project includes the renewal of key building envelope and mechanical systems, including roof replacement and HVAC upgrades.

The Arthur M. Sackler Building, designed by noted British architects James Stirling and Michael Wilford, opened in 1985. The building originally housed collections of the Harvard Art Museums, which were re-located to 32 Quincy Street upon completion of that building's renovation in 2014. The Sackler Building's former gallery spaces are being repurposed to provide new program space for the Faculty of Arts and Science's History of Art and Architecture Department, the Graduate School of Design, and the arts program known as The Annex. The project includes new common spaces, classroom and meeting spaces, design studios, art-making space and offices.

Recognizing the Sackler Building's design significance, the character of the building's key design elements, including the entry lobby which features murals by the artist Sol LeWitt, the monumental main stair, and primary building façades will be retained. Construction on the project began in the Spring of 2017, and occupancy is anticipated early in 2019. The renovated Sackler Building will result in a vibrant space for the study of art, architecture, design and arts-making at Harvard.

Robinson Hall (Renovation)



Architect: Symmes Maini & McKee Associates

Total Square Feet: N/A

Programmatic Driver: Improve access for persons with disabilities, upgrade life safety systems

Green Attributes: TBD

The Faculty of Arts and Sciences is nearing completion of a renovation project at Robinson Hall that will significantly improve access for persons with disabilities. The building was constructed in 1904 as the home of Harvard's Department of Architecture, and today houses the Department of History.

The project's primary component is the installation of a new passenger elevator serving all levels of the building and a sprinkler fire-suppression system. Other accessibility improvements will include renovated accessible toilet rooms, an improved accessible egress, and new handrails at the existing entrance ramp and stairs. The project also includes the renovation of existing spaces necessary to accommodate construction of the new elevator.

The project began construction in June 2018, with expected completion by early 2019.

Schlesinger Library (Renovation)



Architect:	Kennedy & Violich Architecture
Total Square Feet:	16,000 GSF (renovation)
Programmatic Driver:	Improve library facilities to foster interactive access to collections, comprehensive exterior restoration
Green Attributes:	Reducing use of six classes of chemicals of concern in building materials and new furnishings

The Radcliffe Institute for Advanced Study has begun a renovation project at Schlesinger Library that is designed to position the library as a continued leader in special collections libraries. The project's planned interior renovations will re-imagine existing library spaces to foster interactive access to library collections, including an enlarged exhibit/lobby space and a technology-enhanced seminar room. The project also includes a comprehensive restoration of the library exterior that will undertake needed repairs to the building envelope, and window restoration and replacement where necessary. The project began construction in fall 2018, with anticipated completion in the fall of 2019.

Gutman Conference Center
(Renovation)



Architect:	Shepley Bulfinch
Total Square Feet:	16,500 GSF (renovation)
Programmatic Driver:	Provide additional convening space and improve layout and function of existing conference center.
Green Attributes:	TBD

The Harvard Graduate School of Education (HGSE) has begun construction on the renovation of the Gutman Conference Center located on the lower level of the Gutman Library building. The project is designed to materially improve the school's ability to convene practitioners, policy makers, and researchers to further its academic mission.

The HGSE campus is extremely space-constrained and additional convening space is required to support the school's goal of developing closer working relationships with the education sector. The renovated Gutman Conference Center will also provide additional teaching and collaboration space which supports HGSE degree and professional education programs.

The renovation project started construction in summer 2018 with substantial completion anticipated by summer of 2019.

Adams House - *House Renewal*
(Renovation)



Architect:	Beyer Blinder Belle
Total Square Feet:	Approximately 250,000 GSF (renovation)
Programmatic Driver:	Renew undergraduate House life
Green Attributes:	Targeting LEED Gold

Harvard is currently advancing the planning and design for the renewal of Adams House. This undergraduate dormitory is comprised of five separate and architecturally distinct buildings located along Bow and Mount Auburn Streets in Harvard Square. The core of Adams House consists of former private dormitories from the 1890s, which were later united in 1931 when Adams House was founded.

This is the sixth project in Harvard's undergraduate House Renewal campaign. While upgrades to life safety, accessibility, and building systems are fundamental and necessary goals of the project, the broader renewal mission is to preserve the historic character and culture of the Houses while renewing the House experience as part of a twenty-first century approach to liberal arts education.

The construction of Adams House renewal is planned to be sequenced over three phases, running west to east, with each phase corresponding to a single city block. In Phase 1, Harvard will undertake a comprehensive renovation of Claverly Hall (1893), a five-story dormitory, beginning in spring 2019. On the exterior, the project entails an overall restoration of the exterior brick and stone masonry façade, including the cornice and ornamental balconies, and the removal of fire escapes. The project will modify entrances for enhanced accessibility and includes a small rear infill addition for life safety improvements. Work at Claverly Hall has received public approvals from the Cambridge Historical Commission and the Cambridge Board of Zoning Appeal. Subsequent phases are still in early design and are expected to take place after the completion of Claverly Hall in 2020.

Lewis International Law Center (Renovation)



Architect:	Deborah Berke Partners
Total Square Feet:	Renovation: 37,959 GSF; Addition: 12,489 GSF
Programmatic Driver:	Reprogram spaces in the building, address deferred maintenance, add floor area to accommodate growing research programs and improve accessibility.
Green Attributes:	TBD

Harvard Law School is advancing its planning for a project at the Lewis International Law Center that serves to renew and expand the building for new office and academic uses. An addition on the west façade will provide an improved building entrance while also adding new academic space on the 2nd, 3rd, and 4th floors. A new proposed 5th floor will be a light and glassy addition, emphasizing transparency and views to the campus. Its painted metal façade will be complimentary but distinct from the building’s original limestone façade. The project will also address deferred maintenance, including repair of the exterior envelope, improvement to major building systems, and upgrading of all of the utility infrastructure.

The Lewis International Law Center was built in 1957 and designed by Shepley Bulfinch Richardson & Abbott. The building is linked to Areeda Hall via a bridge, which connects to Langdell Library and Griswold Hall.

Gund Hall (Renovation and New Construction)



Architect:	Herzog & De Meuron
Total Square Feet:	162,000 GSF (renovation), TBD GSF (new construction)
Programmatic Driver:	Foster collaboration and innovative teaching; expand teaching facilities
Green Attributes:	TBD

Harvard University Graduate School of Design (Harvard GSD) has selected the architectural firm Herzog & de Meuron, design consultant, and New York-based Beyer Blinder Belle (BBB), architect of record, to design a significant transformation of the School's primary campus building, Gund Hall, into a twenty-first-century center of design education and innovation. The proposed expansion will include new space to be integrated into the heart of the School's existing structure. The reimagined facility will embody the School's visionary and cross-disciplinary work at the intersection of design, pedagogy, research, and practice.

The proposed new space will encourage new forms of cross-disciplinary collaboration by creating an anchored point of intersection among the School's current studio workspace, faculty and departmental offices, seminar rooms and classrooms, research library, production and fabrication facilities, and new interior spaces designed for informal meetings, social gatherings, and public programs. The new addition is expected to add only a minimal amount to Gund Hall's physical footprint, eliminating the need for additional land, thereby preserving Harvard GSD's green space and basketball court. Planning for this project began in 2018.

Houghton Library (Renovation)



Architect:	Ann Beha Architects
Landscape Architect:	Michael Van Valkenburg & Associates
Total Square Feet:	N/A
Programmatic Driver:	Enhance library presence in Harvard Yard, improve library functionality and access to collections, and make accessibility improvements to the site and building.
Green Attributes:	TBD

The Faculty of Arts and Sciences is planning a renovation project at Houghton Library that will significantly improve the library's functionality and access to its collections and exhibition space. The project is expected to include a reorganization of first floor spaces to improve circulation, enhance lobby exhibition space, and add visitor amenities. Planned accessibility improvements include installation of a new elevator, renovated toilet rooms, and site and landscape modifications that will make the front entrance accessible to persons with disabilities.

The Houghton Library was completed in 1942, and was designed by Perry, Shaw and Hepburn. The library is a primary example of the mid-twentieth century Federal Revival style and features several finely detailed interior spaces. It is Harvard's principal repository for rare books and manuscripts, literary and performing arts archives, and other special collections. In addition to its collections, which make it a destination for students and scholars, the Houghton Library hosts exhibitions and events that are open to the public.

Renovation of the Houghton Library is expected to begin in the spring of 2019, with completion anticipated in early 2020.

Harvard Hall (Renovation)



Architect:	Jones Architecture (classroom renovation) Bruner Cott (exterior renewal)
Total Square Feet:	N/A
Programmatic Driver:	Upgrade teaching facilities and address needed exterior repairs
Green Attributes:	TBD

The Faculty of Arts and Sciences is planning a renovation project at Harvard Hall that will include the renovation of several classroom spaces, and repair and restoration work on the building's exterior. Constructed in 1766, Harvard Hall is one of the oldest surviving buildings on Harvard's campus and among its most architecturally and historically significant – as possibly the first collegiate building in America built solely for academic use.

The planned exterior work at Harvard Hall is expected to include the repair and, where necessary, replacement of the building's brownstone base, moldings and cornice elements; brick repair and repointing; recladding and painting of the cupola; and eave and roof repairs. All exterior work is being planned in consultation with staff at the Cambridge Historical Commission and required the Commission's approval.

The classroom renewal component of the project will include new flooring, paint, window treatments, furnishings and seating. Additionally, classroom infrastructure will be upgraded with new audio-visual equipment, lighting and HVAC systems. The Harvard Hall classroom renovation project continues the Faculty of Arts and Sciences' ongoing efforts to renew its teaching and instructional spaces.

Andover Hall
(Renovation and Addition)



Architect:	Ann Beha Architects
Total Square Feet:	53,327 (renovation) 3,723 (addition net new)
Programmatic Driver:	Create new multi-purpose gathering space
Green Attributes:	Targeting LEED Gold

The Harvard Divinity School is planning a renovation and addition project at Andover Hall, which serves as the school's center of academic, administrative and student life. The planned project will include the creation of a new multipurpose gathering space, renovation of existing classrooms with added multi-media capacity, the addition of new instructional spaces, and the creation of a multi-faith worship space in a redesigned chapel. In addition to these key program elements, the project will also make long-needed repairs to the building's envelope. The project also includes upgrades to building systems and improvements to physical accessibility.

Andover Hall was constructed in 1911 and is part of a multi-component building complex that also includes the Harvard-Andover Theological Library, constructed in 1961. The Cloister Link constructed in 2001, which connects Andover Hall with the entrance of the library, will be replaced by a low-rise addition in the building's "notch." The current project will improve the connections and functional relationships between these elements.

The planned project is expected to start construction in summer 2019 with completion anticipated at the end of 2020.

109 Irving Street
(Renovation and Addition)

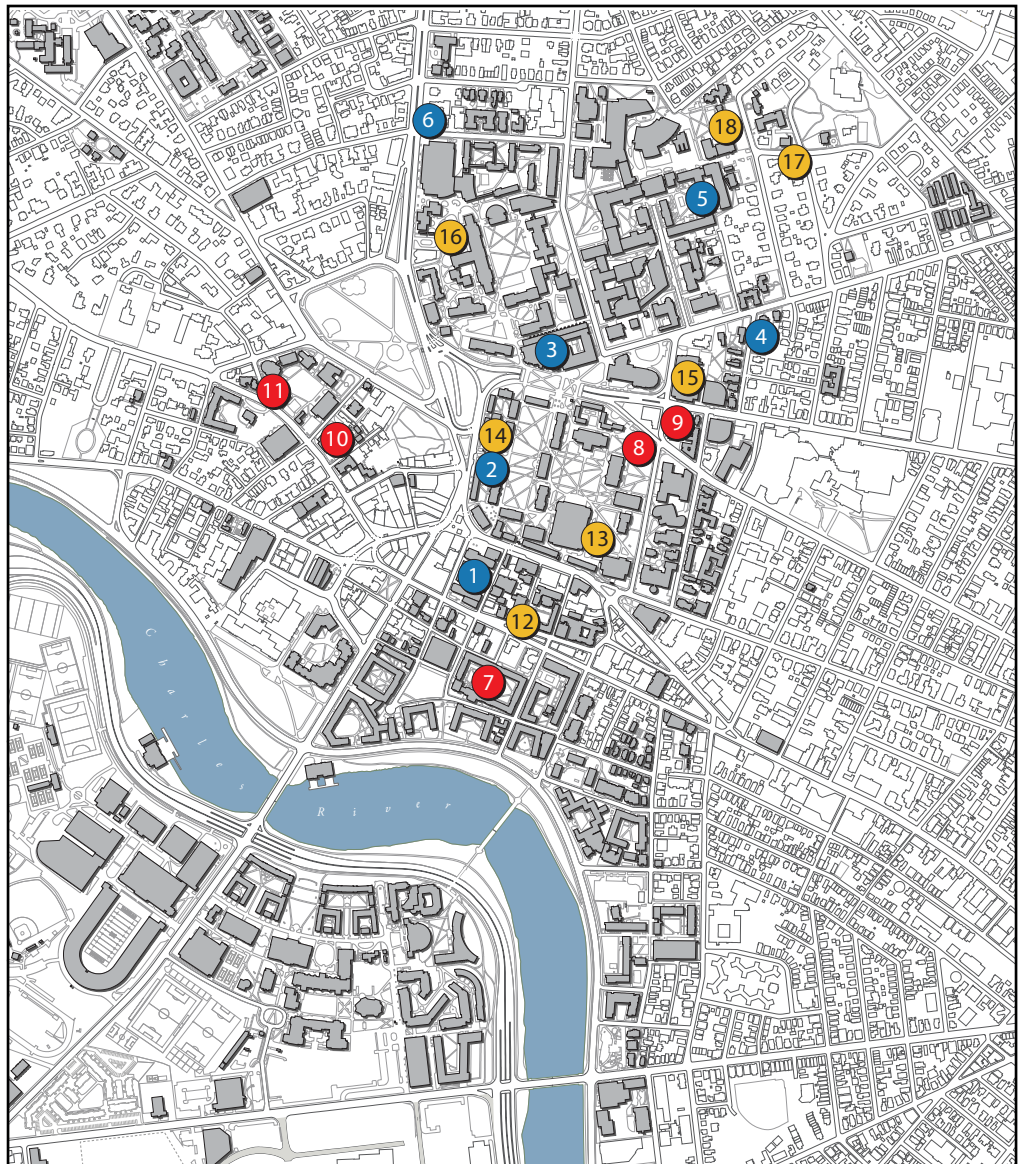


- Architect:** Austin Architects
Total Square Feet: 5,015 GSF
Programmatic Driver: Renovation of historic house for continued residential use
Green Attributes: Targeting LEED certification for homes

Harvard is planning the renovation of 109 Irving Street for continued single-family residential use as affiliate housing. The project includes restoration and renovation of the interior spaces, installation of new utility services; restoration of the building's exterior and roof; and replacement of the rear addition with a one-story porch.

109 Irving Street was designed by William Pitt Wentworth and constructed in 1893. The project is expected to begin construction in early Fall 2019.

1. PROJECT MAP



● Recently Completed
 ● Currently in Construction
 ● Projects in Planning

- | | | |
|------------------------|------------------------------|------------------------------------|
| 1. Smith Campus Center | 7. Lowell House | 12. Adams House |
| 2. Massachusetts Hall | 8. Robinson Hall | 13. Houghton Library |
| 3. Science Center | 9. Sackler Building | 14. Harvard Hall |
| 4. 20 Sumner Road | 10. Gutman Conference Center | 15. Gund Hall |
| 5. Biological Labs | 11. Schlesinger Library | 16. Lewis International Law Center |
| 6. 1607 Mass. Ave. | | 17. 109 Irving Street |
| | | 18. Andover Hall |

2. PROJECT LIST

Project	Programmatic Goal	Green Attributes
Recently Completed		
1. Smith Campus Center	Create new campus center.	Targeting LEED Gold. Green roofs and green walls, Natural daylighting, Rainwater collection and reuse, High performance energy efficient glass facade, Interior garden, and Healthy building materials.
2. Massachusetts Hall	Restore building exterior, upgrade building systems.	LED lighting and occupancy sensor upgrades, Low flow showers, faucets, and water closets, Full building management system controls of HVAC for scheduling occupied/unoccupied hours.
3. Science Center	Upgrade teaching facilities.	Furniture, fabrics and materials promote interior environmental health by eliminating harmful chemicals and products.
4. 20 Sumner Road	Pilot sustainable retrofit of residential wood-frame building.	Thermal mass and radiant surfaces for HVAC, Geothermal heat pump, Solar vent, New fully operable triple-glazed windows, Natural daylighting, Passive solar.
5. Biological Laboratories	Upgrade building infrastructure to support laboratory research space	Energy efficient equipment and energy recovery systems
6. 1607 Massachusetts Ave.	Create new space for HLS public service programs, improve pedestrian environment	Targeting LEED Gold
Currently in Construction		
7. Lowell House	Renew undergraduate House life	Targeting LEED Gold. LED lighting and occupancy sensors throughout, Water saving fixtures, Added exterior façade insulation, Insulated exterior windows, Use of marmoleum (no VCT), No VOCs, FSC wood throughout, New bike racks, Drip irrigation, Automated controls for HVAC, Exterior lighting on photo cells.
8. Robinson Hall	Improve accessibility for persons with disabilities, upgrade life safety systems.	TBD
9. Sackler Building	Address deferred maintenance and accommodate new program.	Targeting LEED Gold
10. Gutman Conference Center	Provide additional convening space and Improve layout and function of existing conference center.	TBD
11. Schlesinger Library	Improve library facility and restore building exterior.	Reducing use of six-classes of chemicals of concern in building materials and new furnishings.
Projects in Planning		
12. Adams House	Renew undergraduate House life.	Targeting LEED Gold. New insulation and windows for greater energy efficiency, Reused materials and sustainably sourced new materials, Construction debris recycling, Water-saving fixtures throughout, High efficiency lighting and HVAC equipment.
13. Houghton Library	Enhance library presence in Harvard Yard and improve interior functionality and accessibility.	TBD
14. Harvard Hall	Upgrade teaching facilities and address needed exterior repairs.	TBD

Project	Programmatic Goal	Green Attributes
● Projects in Planning (cont.)		
15. Gund Hall	Foster collaboration and innovative teaching; expand teaching facilities.	TBD
16. Lewis International Law Center	Reprogram spaces in the building, address deferred maintenance, add floor area to accommodate growing research programs and improve accessibility.	TBD
17. 109 Irving Street	Renovate for single-family affiliate housing	TBD
18. Andover Hall	Create new multi-purpose gathering space.	Targeting LEED Gold

C. HOUSING

Harvard has been a residential campus since its founding nearly four centuries ago, and continues as such today. The University promotes a living/learning environment by offering on-campus housing for undergraduate and graduate students. In fact, half of Harvard's buildings on the Cambridge campus are devoted to housing, comprising approximately 37% of all campus space.

Student and Affiliate Housing

Harvard has a very strong culture of undergraduate housing, with guaranteed housing for all undergraduates, a House system that fosters small academic and social community within the larger context of the College, and an expectation that students will live on campus. As a result, almost all Harvard undergraduates live in on-campus housing. The House system is central to the College and the University is continuing to modernize and improve undergraduate housing through the House Renewal program.

While undergraduates are expected to live on campus, graduate students have a choice to live either on- or off-campus and they often have personal, professional, lifestyle and other reasons for requiring more flexibility in their housing options. Harvard maintains thousands of graduate student and affiliate beds, both in dormitories and apartments, and has the capacity to house approximately 50% of its graduate students. This expansive housing portfolio is usually at or near full occupancy at the beginning of each academic year. The University remains committed to maintaining and expanding its residential portfolio, with current investments in existing on-campus housing, including addressing deferred maintenance and House Renewal. The provision of graduate student and affiliate housing not only supports the University's academic mission, but also relieves some pressure on the local housing market.

Housing Demand and Affordability

Issues of housing demand and affordability are not confined to Harvard Square or the City of Cambridge, and must be viewed within a regional context. The Boston area's numerous colleges and universities attract students but also draw businesses that want to locate near cutting-edge research and a pool of highly skilled local graduates ready for hire. In this context, Harvard sees healthy demand for its on-campus graduate and affiliate housing. However, actual housing demand is very difficult to determine as students may file multiple applications for different housing options (e.g., units in Harvard University Housing (HUH) vs. graduate school dormitories). In addition, not all Cambridge-based students contribute to housing demand. For example, the University estimates that approximately 2,000 students from across the University, mainly doctoral candidates or graduate students involved in research initiatives around the world, live outside of Massachusetts, and therefore do not contribute to the demand for campus housing or impact the local housing market.

The rents for housing units in the Harvard University Housing (HUH) portfolio are set at prevailing market rates, in keeping with the University's affiliated housing rent policy. This policy was established in 1983, after an internal faculty committee review that determined market rate pricing was the most equitable method of allocating and pricing rental units. The review also noted that establishing below-market rents for HUH would be a form of financial aid, which should be determined by each individual school, not via the HUH rent-setting process. Therefore, the cost of housing is considered when financial aid is determined by each academic unit. The HUH housing portfolio

has efficient unit layouts so as to provide small, but comfortable living spaces, at a price point that is amenable to graduate student budgets. HUH has also introduced new leasing options to facilitate more unit-sharing among graduate students.

Harvard prioritizes providing housing for its students and a small number of staff whose job functions require them to spend most of their time on campus. In addition, the University houses about 600 faculty, staff and affiliates, which includes about 350 post-doctoral employees. While demand for this housing is not tracked, there is no indication that it is significant or growing. HUH Faculty Real Estate Services supports the University's efforts to recruit prospective faculty and administrators by helping candidates find the community and home that meets their housing needs at a price they can afford.

*Harvard's
Commitment to
Affordable Housing
Initiatives*

Together, the Cambridge City Government and Harvard have enjoyed a long and successful record of working together to create affordable housing in the City. Harvard has partnered with the City to create and preserve more than 1,600 units of affordable housing; the locations of which span every neighborhood in the City.

Highlights of these efforts include the 20/20/2000 program which is a \$20 million, 20-year, affordable housing low-interest loan fund through which the University provides assistance to help create and preserve affordable housing for low and middle-income residents. Started in 2000 and developed in consultation with local leaders, 20/20/2000 funds have been used to help build or renovate hundreds of units in Cambridge on 31 different development projects and to provide \$17.3 million in financing. It also provided local agencies with \$1 million in direct grants to explore innovative approaches to affordable housing development.

Land costs in Harvard Square have made it very difficult to create affordable housing units; Harvard has worked with the City and the Cambridge Housing Authority to preserve more than 139 units of affordable housing. In addition to the 139 units, Harvard has worked with tenants in former rent control units to set rent levels in a manner consistent with the rent control program; 52 units remain occupied by non-Harvard affiliates that are former rent control tenants.

D. TRANSPORTATION

Transportation Demand Management

Harvard University remains a leader among Cambridge's large employers for its low Single Occupancy Vehicle (SOV) rate. According to the latest PTDM survey results, Harvard's SOV rate remains exceptionally low and is now at 15.7% for Cambridge-based employees and graduate students. Harvard's proactive Transportation Demand Management programs and incentives offered by the CommuterChoice Program continue to provide the incentive necessary to encourage commuters to leave their cars at home.

CommuterChoice Program

CommuterChoice Program offerings include:

- 50% MBTA monthly pass subsidy and pre-tax savings.
- 50-75% Carpool and vanpool subsidy and partner matching.
- Preferential parking for carpools and low-emission vehicles.
- Emergency Ride Home Program for green commuters.
- Discounted annual Zipcar membership.
- Discounted annual Blue Bikes membership.
- Bicycle Commuter Benefit.

Highlights from the past year include:

- Sold an average of over 7,400 subsidized MBTA monthly passes each month.
- 615 bicyclists were reimbursed over \$101,500 for bike commuting expenses.

Parking and Transportation Demand

Harvard's Parking and Transportation Demand Management (PTDM) Plan, approved by the City of Cambridge in 2003, provides a baseline assessment of Harvard's parking supply and management of vehicle trips through the transportation demand measures and strategies offered by the CommuterChoice Program.

The PTDM Plan describes the transportation services and financial incentives that Harvard offers its students, staff, and other affiliates. These programs, which are administered by CommuterChoice, generate a direct positive effect on greenhouse gas emissions by reducing employee and student automobile trips to campus.

A copy of Harvard University's PTDM Plan is available at: <http://home.planningoffice.harvard.edu/pages/reports>. Harvard submits annual PTDM updates which are on file with the City's Community Development Department.

Planning for Bicycle Facilities

Biking continues to be an increasingly popular means of transportation, both nationally and locally. Following publication of the 2015 Bicycle Network Plan, the City of Cambridge has spent the last two years implementing additional bike infrastructure in recognition of cycling's growing role in the City's transportation network. Cycling is also recognized as an integral component of the Harvard's transportation system and is part of Harvard's commitment to building a healthy, more sustainable campus. The University continues to make significant investments in new bicycle facilities on campus and in the collaborative planning and implementation of local and regional cycling initiatives.

New Bicycle Facilities

Over the past several years Harvard has made considerable improvements and enhancements to bike facilities on the Cambridge campus. Recent investments include:

- **Sheltered bike parking:** Harvard provides more than 400 sheltered parking spaces in facilities across its campus. Most recently, the Harvard Kennedy School added 51 long-term, sheltered, secure parking spaces as part of its recent campus expansion project, and 24 secure bike parking spaces and a bike repair station were added to the recently renovated Broadway Garage.
- **Bike rack improvements:** Bike racks at several locations on the Cambridge campus have been upgraded or replaced. The Faculty of Arts and Sciences continues to upgrade existing outdated racks serving its facilities to "U" Racks, which reflect the City of Cambridge standards for bicycle parking.
- **Bicycle repair stations:** There are a total of eleven repair stations on the Cambridge campus.
- **Abandoned bike removal:** Abandoned bikes pose a challenge to bicyclists by reducing the number of available bike parking spaces in addition to causing safety and accessibility problems. CommuterChoice has established a mechanism for abandoned bike removal and donation and has removed abandoned bikes in the Science Center Plaza, the Francis Ave Bike Shelter, and the Harvard Kennedy School over the past year.

An interactive map of all existing bike facilities on Harvard's Cambridge campus is available on the CommuterChoice website (www.commuterchoice.harvard.edu). The map provides locational information on bike routes, parking areas, and key attributes such as rack type and whether parking is sheltered.

Bike Sharing Programs

Harvard continues to collaborate closely with the cities of Cambridge and Boston to support the regional bike-sharing program, BlueBikes, around its main campuses. The University supports seven Cambridge stations, at Peabody Terrace, the River Houses, the Kennedy School, the Law School, the School of Engineering and Applied Sciences, Gund Hall and the Radcliffe Quad.

BlueBikes provides an alternative to driving between the Cambridge, Allston, and Longwood campuses, enhances transit options for areas of the Harvard campus not as well served by existing transit facilities, and improves connections between existing public and private transit modes. The system also contributes to the University's sustainability goals by reducing inter- and intra-campus vehicle trips. Harvard's support for BlueBikes includes offering its affiliates a 30% discount on annual membership. As of September 2018, Harvard had 1,027 active BlueBikes members.

CommuterChoice Cycling Initiatives

The University's CommuterChoice Program also sponsors several initiatives that promote cycling at Harvard. These efforts include:

- **Bike Week** – The annual CommuterChoice Bike Breakfast was held on May 17th outside of Dudley House to celebrate Bike Week. The event attracted over 250 cyclists, featured free bike safety checks, free bike registration with HUPD, and an interactive raffle for cycling equipment, and giveaways including Blue Bikes memberships. The event also provided an opportunity for participants

to meet with representatives from key cycling stakeholder groups including the City of Cambridge, Harvard Construction Mitigation, Bike Harvard, Common Wheels, and MassRIDES.

- **LOOK Campaign** – This initiative, launched in Spring 2014 by HUPD and the Harvard Transportation Department, works to remind motorists, bicyclists and pedestrians to be alert and aware of their surroundings. As part of promotional events, free helmet certificates are distributed to bicyclists, and side mirror stickers designed to combat “dooring” and increase awareness of cyclists were distributed to motorists throughout the Harvard community. The campaign has been rebranded with a theme of greater awareness for all transportation modes, and was relaunched by HUPD in Fall 2018.
- **Bicycle Safety and Repair** – CommuterChoice offers reimbursement to employees for expenses associated with taking bicycle safety or repair classes at local bike shops. It also encourages affiliates to participate in classes held through the City of Cambridge focused on urban cycling, bike repair and maintenance techniques, and women-powered cycling.
- **Discounted Helmets** – Harvard offers \$10 helmets for sale at the CommuterChoice office. Over 2,000 of these helmets have been sold over the past four years.
- **Bike Benefit Program** – This initiative, established in 2013, provides a benefit of up to \$240/year for the purchase, repair, maintenance or storage of a bicycle for eligible employees. The benefit has proven to be extremely popular, with 615 bicyclists being reimbursed over \$101,500 in 2017.
- **Bike Workshops** – In 2018, CommuterChoice sponsored several workshops and events including a bling your bike event to increase visibility of bicyclists in dark conditions, a bike maintenance basics class, a winter bike commuting workshop, and several pop-up bike check-up events.
- Examining Harvard’s existing bicycle network on the central campus and identifying areas for potential improvements.
- Collaborating with the City of Cambridge on municipal bicycle planning initiatives.
- Working with the City of Boston on the installation of bike lanes on Allston roadways to connect the Allston and Cambridge campuses and extend the bike network to the south and west.
- Advocating for the inclusion of new bike lanes on the river bridges that connect Boston and Cambridge as part of planning for MassDOT bridge renovation projects.
- Working with MassDOT to plan for new bike facilities as part of the Allston Interchange project.

Planning for Cycling Networks

E. ANTENNA INSTALLATIONS

Harvard must continue to provide and upgrade the technological infrastructure that supports its teaching and research mission. The increasing use of wireless, web-based, and remote platforms for instruction and collaborative research across the University has led to growing demand for cellular and wireless services, and the need for improved coverage, signal strength and capacity.

Because cellular and wireless services are provided by individual service providers, each with their own communication networks and technologies, the University faces an ongoing need to improve coverage and expand capacity across multiple carriers. This has resulted in a growing number of antenna installations required to meet the communication needs of cellular and wireless users who are served by different carriers.

Distributed Antenna System (DAS)

Harvard continues to implement its neutral host Distributed Antenna System or DAS that enables the University to not only provide better coverage within its buildings and immediately surrounding campus areas, but also to coordinate antenna installations and system improvements among multiple service providers.

The DAS establishes a network of strategically located antenna nodes connected to a common signal source, which accommodates multiple service providers. Each antenna node or “host site” distributes carrier signals to clusters of campus buildings, providing high quality micro level coverage to the University’s end users. To date Harvard has completed five DAS installations in Cambridge, with several other sites currently in planning.

The DAS network allows the University to limit exterior equipment installations to a smaller number of campus nodes that can serve multiple carriers. This significantly reduces the number of antenna installations that are typically required to provide high-quality coverage across multiple wireless communications providers’ systems.

Minimizing Visual Impacts

Where exterior antenna and equipment installations are required, Harvard and its consultants work to minimize their visual impacts to the greatest extent possible. As a general rule, Harvard has sought to exclude antenna installations from its most architecturally significant and iconic campus buildings. Where possible, existing building or other physical elements are used to conceal or minimize the visibility of exterior equipment. This can include mounting antennas against mechanical penthouses, chimneys, vents and other existing rooftop elements, or utilizing existing site fixtures such as light poles for mounting smaller antennas. For such installations, equipment is usually painted to match the background location as closely as possible.

In some instances, antennas and other required equipment utilize a “stealth” treatment that camouflages the equipment to better visually blend in with its surroundings. This can include creating the appearance of brick or other desired background material on antenna panels; enclosing equipment in false chimneys, vents or other roof top elements that simulate those already present on the building; or screening the equipment in visual extensions of existing mechanical penthouses.

In meeting its regulatory obligations for antenna installations, Harvard and its consultants work with City of Cambridge planning and design staff to review proposed installations to identify appropriate locations and visual treatment options. Where applicable, installations proposed within historic districts or neighborhood conservation districts are reviewed with the staff of the Cambridge Historical Commission.

F. CAMPUS TREE RESOURCES

A key physical element of Harvard's Cambridge campus is the existence of many mature trees woven into a campus landscape that serves as a unique space within the urban context of Cambridge.



The types of trees on the campus and their placement help to define campus spaces through their canopy, spacial structure and visual characteristics. Different tree species in four major categories (shade, evergreen, ornamental and fruit) have been historically utilized in specific landscape typologies across the campus.

Shade Trees

Deciduous shade trees with relatively dense and overarching canopies are found throughout the campus, and are the primary trees in the major yards and greens. Shade trees on campus include American Elm, Northern Red Oak, Kentucky Coffee Tree, and Norway Maple.

Evergreen Trees

Evergreens are used as specimens, hedges, screens, or backdrops for ornamental trees, and are scattered throughout the campus, mostly along frontages of buildings or in the interstitial spaces along pedestrian paths. Very few evergreen trees are located in yards, greens, gardens, and courtyard areas. Evergreen species on campus include White Fir, Eastern Hemlock, Colorado Spruce, and Eastern Red Cedar.

Ornamental Trees

Ornamental trees are primarily planted for their color, flowers, leaves, or bark and are often planted with evergreen and shade trees as an accent. Ornamental trees are interspersed throughout the campus but occur mostly in gardens/courtyards and in interstitial spaces along routes. Ornamental trees on campus include Japanese Tree Lilac, Flowering Dogwood, Japanese Maple, Magnolia, and Serviceberry.

Fruit Trees

Fruit trees are a subset of ornamental trees found extensively throughout campus. They are usually found in short rows in gardens and courts, yards, frontages, and in interstitial spaces along pedestrian routes. When located in gardens and courtyards, they are often commingled with shade and ornamental trees. Fruit trees found on campus include Apple, Crabapple, and Pear.

Planning for Tree Resources

Harvard has long recognized the importance of preserving its tree resources as a principle physical element of the Cambridge campus. As part of its assessment of the built and non-built components that comprise the campus, the University maintains information on over 5,000 campus trees. This information which includes tree location, common name and approximate height has been mapped and is publicly accessible on the Harvard University Campus Map (<https://map.harvard.edu>).

Harvard's Landscape Services department has a team of professional arborists and horticulturists who maintain campus trees, shrubs and other plantings. Their work includes scheduled pruning and other tree maintenance, as well as the ongoing assessment of tree condition and health. When disease or damage necessitates tree removal, the arborists coordinate tree replacement with appropriate schools and units and confirm that new plantings are consistent with existing landscape plans.

In addition to maintaining its existing tree resources, the University seeks to increase the number of trees on the campus as part of ongoing planning and development activities. Harvard continues to make significant improvements to the campus landscape with projects that include new tree planting. Past projects include the landscaped quadrangle at the Harvard Divinity School, new street trees along Divinity Avenue, site and street trees at 32 Quincy Street, the sumac grove at the Plaza, and restoration of the tree canopy in Radcliffe Yard. Based on preliminary canopy data provided by the City of Cambridge in 2018, approximately 29% of Harvard's campus land area is covered by tree canopy.

In instances where tree removal is necessary due to damage, poor condition, or construction impacts, Harvard carefully plans for replacement trees that will contribute to the overall landscape design and are well suited to their environment. Harvard evaluates new landscape designs to ensure that they advance the University's sustainability goals by incorporating tree and plant species that are more adaptive to future environmental change, foster biodiversity, assist with stormwater management, and contribute to the reduction of the urban heat island effect.

G. SUSTAINABILITY

TRANSLATING RESEARCH INTO PRACTICE FOR A HEALTHIER FUTURE

Harvard is using its campus as a living lab for how organizations can help accelerate the transition to a healthier, fossil fuel-free future. Faculty and students are encouraged to collaborate with staff in translating research into practice on-campus by piloting and proving exciting new solutions that can be scaled up on the local, regional or global levels.

Harvard's Sustainability Plan and ambitious new University-wide climate action goals, announced in 2018, that aim to become fossil fuel-free by 2050 and fossil fuel-neutral by 2026, provide the framework for action. These commitments provide a unique opportunity to use the campus to directly engage faculty and students in addressing the difficult and unanswered questions and pressing challenges posed by climate change and sustainable development.

- **Campus Sustainability Innovation Fund.** This \$700,000 donor supported fund supports student research projects that tackle challenges faced directly on campus or in the community, and lead to the application of new sustainability strategies. To date, 10 projects spanning six Schools have been funded, including research into the health impacts of biophilic design, as seen in the new green walls at the Smith Campus Center, and a pilot project to conduct real-time monitoring and environmental sampling to assess health performance of indoor environments in buildings.
- **Climate Solutions Living Lab.** This three-year interactive, multi-disciplinary course and research project focuses on studying and designing practical solutions in neighboring communities, elsewhere in United States, and abroad, that help organizations achieve ambitious climate goals. The unique collaboration between Harvard Law School and the Office for Sustainability is designed to bring together graduate students to work on inter-disciplinary teams. Their goal is to craft options that encourage large organizations to invest in economically viable offsite projects that seek to reduce emissions, while considering other factors like human health, community, and governance.

OPTIMIZING FOR HEALTH IN BUILDINGS

Harvard is partnering with its researchers, businesses such as Google and Kaiser Permanente, manufacturers, and non-profit organizations to reduce exposure to harmful chemicals by making it easier to identify and purchase healthier building products. Harvard's Healthier Building Materials Academy (HBMA) is a partnership between the Office for Sustainability and public health, medical, and engineering faculty focused on optimizing for long-term health in the built environment and upstream.

Since the fall of 2016, more than 30 pilot capital projects have been launched across the University as part of the HBMA. These pilot projects have provided the Office for Sustainability with the opportunity to both ground decisions in science and also collaborate with more than 100 manufacturers in order to optimize for health by

promoting transparency and change to the material ingredients in products. Over 10,000 building products have been evaluated as part of this engagement.

The Smith Campus Center is a model for how the design of indoor spaces can help deliver on the mission of strengthening community well-being. The new gathering space provides dramatic access to nature and daylight, eight green walls that clean the air and provide access to biophilia, and sustainable and healthier food vendors. The renovation was also the flagship pilot project for the HBMA:



- All 3,000 pieces of furniture meet the HH-Healthy Interiors Standard (addressing key chemical classes of concern that are usually present in furniture—fluorinated stain repellents, chemical flame retardants, etc.), at no additional cost.
- 75% of the 22 furniture manufacturers had never previously met the HH-Healthy Interiors Standard.
- 100% of the carpet was produced without targeted classes of chemicals of concern.

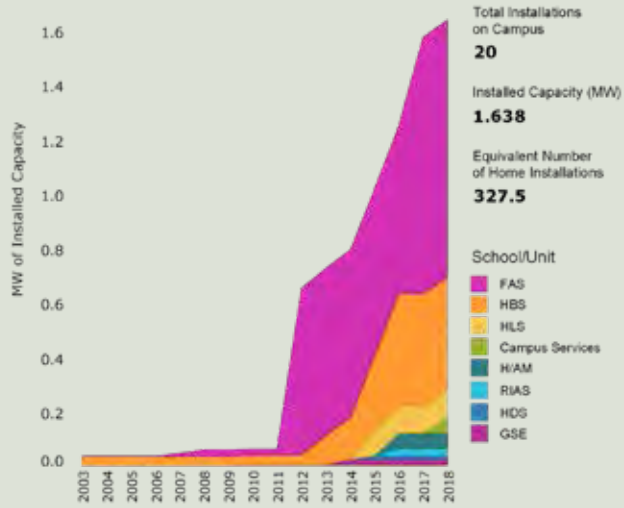
Building on two years of foundational work, the Harvard Office for Sustainability and Harvard T.H. Chan School of Public Health's Healthy Buildings Program in 2018 launched an exciting new collaboration with Google with the aim to transform the marketplace toward healthier building products for all consumers.

MAKING PROGRESS TOGETHER

Harvard's 2017 Sustainability Report details the progress made toward the goals, standards, and commitments in the University's Sustainability Plan adopted in 2014. Highlights include:

- **Greenhouse Gases.** 30 percent reduction in net greenhouse gas emissions, 44 percent reduction in trash per capita, and 26 percent reduction in water use, all from 2006 to 2017.
- **Building Energy Use.** Reductions in building energy use over the past 11 years offset the impact of growth in square footage and the addition of 3 million square feet of energy-intensive space, including lab space.
- **LEED Projects.** 129 LEED-certified green building projects across campus, including the first and second LEED v4 commercial interiors projects in Massachusetts.

- **Solar Power.** More than 1.6MW of on-site solar projects have been installed on Harvard’s rooftops (see below).



- **Classroom Study.** All 900 first-year students at Harvard Business School were tasked with a classroom project addressing how climate change will impact business.
- **University Standards.** Sustainable IT standards were approved by the Harvard CIO Council, and healthful and sustainable food standards and green cleaning standards are currently being developed in collaboration with students and faculty.

*Transparency for
 Accountability
 and Continual
 Improvement*

In 2018, the Harvard Office for Sustainability launched new interactive graphs developed with cutting-edge data analytics and visualization software.

- People inside and outside Harvard can now view the University’s sustainability data easily via an online dashboard.
- A new Data Hub web page aggregates the data sets that are available to students, staff, and faculty for use in ongoing research and benchmarking, and to inform decision making.



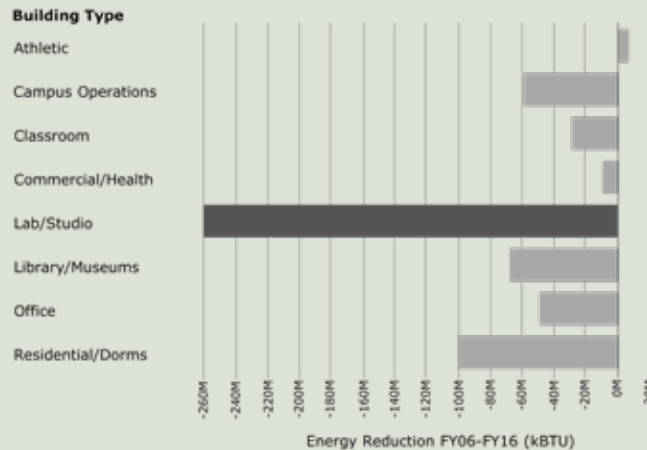
REDUCING LAB ENERGY USE

Spotlight on Green Labs

The Harvard Green Labs Program has collaborated with Environmental Health & Safety and other partners to perform a Laboratory Inhalation Risk Assessment (LIRA). LIRA is a pilot program and method for assessing lab air quality when research processes are happening at the bench. The hypothesis being tested is that labs are overventilated through the general HVAC system, and that airflow could be safely reduced by a third or more in order to save energy without sacrificing ability of scientists to perform their research. This also opens up the opportunity to use that air for additional local ventilation devices if needed, while still saving energy. The pilot program is on track to save 11-20% of the total energy consumed in the pilot lab building.

While laboratory buildings only account for 22% of building area, they make up almost half of overall campus energy use. Looking at the square footage added after 2006, labs make up 60% of the energy usage attributed to these buildings. Although almost all space types individually have seen reductions in energy use, total energy reductions were driven primarily by lab spaces (see graphic below). This helped to neutralize the impact of a growth in energy intensive research and teaching space.

Measured Energy Reduction in Baseline Buildings FY06-16



The Harvard community is addressing lab energy use in two primary ways:

- Incorporating energy efficient, high performance building technology as part of new construction and renovation projects.
- Running a leading Green Labs Program focused on reducing energy consumption through targeted behavior change programs.

BUILDING A MORE RESILIENT CAMPUS

Climate resiliency planning has been integrated into major capital projects on-campus, most notably in the Harvard Kennedy School expansion, House Renewal initiative, and Allston development.

- **Harvard Kennedy School.** As part of the recently completed expansion project at the Harvard Kennedy School, critical building equipment was either situated on higher floors or flood-proofed in order to avoid the possible effects of flooding. A 66,000-gallon rainwater collection tank, which will reduce irrigation water usage by more than half, also provides overflow protection during severe rain or flooding events. A new mechanical penthouse also provides additional space for the relocation of existing building support infrastructure.
- **House Renewal.** Several House Renewal projects have incorporated measures to help slow or reduce the volume of storm water that is ultimately released into

the Charles River. Under-slab drainage and pumping systems have been installed throughout all the renewed Houses. Storm and rainwater capture were included in the Dunster House and Stone Hall projects. At Stone Hall, captured rainwater is used for interior gray water uses, site irrigation, and irrigation at Dunster house.

- **Allston.** In response to a vulnerability assessment, Allston's district energy system was relocated from the basement of the Science & Engineering Complex to an above-grade location. The low-temperature hot water infrastructure that is used to deliver the heat energy is better equipped to handle potential flooding than a conventional steam distribution system. This further bolsters the entire system's resiliency to climate change. The new district energy facility in Allston will host the largest thermal storage tank in Massachusetts and was designed to be as flexible as possible so that emerging technology can be incorporated over time.
- **Green Roofs.** There are now thirteen vegetated green roofs across campus. Located on HKS, HLS, HBS, and HUH properties these living roofs help to promote biodiversity, prevent stormwater runoff, and reduce building energy consumption.

ACCELERATING CHANGE THROUGH EXTERNAL PARTNERSHIPS

Harvard's partnerships with the Cities of Cambridge and Boston, leading businesses, and other higher education institutions help to not only identify shared challenges but create more powerful, scalable solutions. A few examples of Harvard's collaboration with the City of Cambridge include:

- **Cambridge Compact for a Sustainable Future.** The Harvard Office for Sustainability (OFS) continues to serve as Vice Co-Chair leading the Cambridge Compact for a Sustainable Future, as well as serving on the Board and Executive Committee. The committee includes 20 members from the business and higher education sectors.
- **Net Zero.** OFS chairs the Cambridge Net Zero Labs Working Group. This year, the group is working on the second round of an innovative corporate and higher education lab benchmarking study to assess energy use and help generate solutions for lab operations. Last year this group's work was highlighted as a model for advancing lab sustainability and featured as plenary panel of the globally recognized International Sustainable Labs Network annual meeting.
- **Urban Forest Master Plan Task Force.** A representative of the Harvard Planning Office is presently serving on the Task Force which is examining ways to preserve and strengthen tree resources in the City of Cambridge.
- **Cambridge Water Department.** Harvard University Housing (HUH) partnered with the Cambridge Water Department to use their real-time water usage data as part of HUH's ambitious retrofit of their units. The goal was to dramatically reduce water use amongst its portfolio of buildings. To date, water reduction technology has been installed in 1,200 units, resulting in a projected

reduction of 3 million gallons annually and a 30-50% reduction in each building. This pilot can be replicated and a case study will be created to help others with reduction of water use.

- **Resiliency Planning.** In 2018 Harvard hosted a risk management tabletop exercise focused on climate resiliency planning, in partnership with Novartis, MIT and others, as part of our commitment to the Cambridge Compact.
- **Climate Change.** Harvard faculty and researchers from the Harvard Law School Emmett Environmental Law and Policy Clinic have continued to advise city staff on vulnerability planning and Climate Net Zero Action Planning.

CAMPUS LIVEABILITY AND SAFETY

In February 2018, Harvard announced a new initiative to improve pedestrian and cyclist safety by becoming the first higher education institution on the East Coast to install side guards on large trucks. The truck-safety initiative applies not only to vehicles owned by the University, but extends to trucks operated by major vendors as well.

Led by the Office for Sustainability, representatives from a variety of Harvard departments, including Strategic Procurement, Fleet Management, and Environmental Health & Safety, partnered with the U.S. Department of Transportation Volpe Center (Volpe) for over a year to develop a leading truck-safety program aligned with the Volpe Side Guard Standard. It includes two major components:

- **Harvard Vehicles.** After a successful pilot in which side guards were installed on Harvard Mail & Delivery Services box trucks, Harvard fleet technicians are now installing side guards on all existing, eligible Harvard-owned trucks, including box trucks and solid waste and recycling trucks. When possible, new trucks purchased by Harvard will include side guards.
- **Vendor Vehicles.** Harvard is also asking vendors that drive large trucks to campus to install side guards on eligible trucks as quickly as possible. In response, the University's waste-management vendors, Republic Services and Save That Stuff, have installed side guards on all waste-service trucks that serve Harvard's campus. In addition, the University's preferred office supply vendor, WB Mason, has installed sideguards on its larger box trucks. Moving forward, contracts for preferred vendors that bring eligible trucks onto campus will include a requirement to develop and share a plan for meeting the Volpe Side Guard Standard.

III. RELATIONSHIP WITH CAMBRIDGE PUBLIC SCHOOLS

Harvard University is committed to partnerships and programs designed to ensure that all Cambridge Public School (CPS) students achieve academic success. Harvard programs are available in every CPS school in Cambridge, including elementary schools, upper schools, and the Cambridge Rindge and Latin School (CRLS). University programming ranges from curriculum-based programs, to summer school, to enrichment programs for all grade levels and interests. Students from elementary and upper schools, as well as CRLS, engage in learning through visits to the Harvard Museums of Science & Culture, the Harvard Art Museums, the American Repertory Theater, and countless other classrooms, laboratories, and spaces across Harvard's campus.

In addition to student programs, Harvard also seeks to leverage University-wide resources and create opportunities for CPS educators to access training, academic coursework, and workshops. Cambridge educators participate in professional development with Harvard faculty and staff that covers a variety of topics in support of CPS priorities. Through the Harvard Graduate School of Education (HGSE) James Bryant Conant Fellowship, CPS teachers and administrators admitted to HGSE receive full funding for a master's degree. Recognizing the important role that families play in a child's educational success, CPS and Harvard also collaborate on programs that integrate family engagement.

2018 Highlights of Harvard's Engagement with Cambridge Public Schools

Crimson Summer Academy

The Crimson Summer Academy is a rigorous enrichment program that provides academically talented, but financially challenged, high school students with the skills and financial support to thrive and excel in college. Through small group instruction, projects, cultural activities, sustained support and close mentoring relationships with college undergraduate students, the Academy encourages students to expand their vision of what's possible as they prepare to become viable candidates for admission to selective four-year colleges or universities. Students are paid a stipend to engage in program activities during the summer months and provided with an iPad to assist their pursuit of academic excellence. Ninety-four percent of CSA graduates complete college in four years.

Cambridge Harvard Summer Academy

Launched in 2001, the Cambridge Harvard Summer Academy serves as Cambridge's official summer school for high school students. CHSA offers students both enrichment and remedial classes to address achievement and opportunity gaps, as well as to help prevent summer learning loss. The free, six-week summer program boosts student performance, while providing a learning opportunity for master's students in the Teacher Education Program at the Harvard Graduate School of Education, who are paired with Master Teachers from CPS.

Project Teach and CPS 7th Grade

Project Teach is a key component of Cambridge's college awareness curriculum for all 7th grade students in the CPS system. By working with teachers, students, and families, Harvard's Project Teach program demonstrates that college can be an affordable, accessible, and attainable opportunity. A cornerstone of the program includes a day-long visit to the Harvard campus for every CPS 7th grader where they participate in programs tailored to their academic interests. The program content is based on research conducted at Harvard's Graduate School of Education.

8th Grade Science and Engineering Showcase

In a program co-developed by the CPS Science Department and Harvard John A. Paulson School of Engineering and Applied Sciences, all CPS 8th grade students develop a science project during a semester long class which culminates in a spring showcase hosted on Harvard's campus. On the day of the showcase, the students also participate in a series of science lectures and programs led by Harvard faculty.

CRLS – Harvard Marine Science Internships

Through a partnership led by a CRLS marine science teacher and a Harvard University faculty member, CRLS marine biology students are trained and mentored by Harvard postdoctoral students and placed in Harvard labs for research opportunities. This program also includes science-based career exploration opportunities for all CRLS students that participate in biology classes.

CRLS Biology – Harvard Life Sciences Outreach Program

Enabled by a partnership with Harvard's Life Sciences Outreach Program, more than 400 CRLS students visit Harvard teaching labs each year. CRLS biology teachers utilize Harvard laboratories, equipment, reagents, and expertise to lead students through the wet lab portion of the Mitochondrial DNA PCR lab. The program is supported by the Amgen Biotech Experience (ABE) Program.

Harvard Smithsonian Center for Astrophysics (CfA)

CfA partners with CPS in developing programs for a variety of grade levels. CfA experts recently designed the ThinkSpace (Thinking Spatially about the Universe) program, which blends the use of hands-on and computer-based tools in the classroom. Additionally, CfA offers a mentoring program, which provides opportunities for high school juniors and seniors to work on year-long independent research projects in astrophysics under the guidance of a CfA astrophysicist. Students learn what it's like to conduct real, cutting-edge research and work closely with scientists from diverse backgrounds. The CfA also partners with the CPS Science Department to integrate research tested curriculum in all upper schools to deepen student understanding of the four seasons. CPS' Science Education research team embedded spatial thinking activities into the curriculum, which are linked to success in future STEM careers.

EcoMUV

The EcoMUV curriculum developed by the Harvard Graduate School of Education is utilized as part of the CPS 6th grade science studies and uses immersive virtual environments to teach students about ecosystems and causal patterns.

Alewife Stormwater Wetland Field Study

The Cambridge Public Schools' Alewife stormwater wetland field study is an exciting opportunity for all CPS 5th graders to use mobile devices to deepen their understanding of scientific concepts that they simultaneously learn in their classrooms. In recent years, Harvard Graduate School of Education researchers began collaborating with the CPS Maynard Ecology Center to develop virtual science experiences for students, based on Harvard's EcoMOBILE program. The new technology allows students to explore an engineered wetland designed to address polluted stormwater in Cambridge. Harvard research has shown an increase in student learning and engagement as a result of using virtual and mobile technologies prior to, or during, outdoor field experiences, allowing them to become more active and self-directed learners. Additionally, Harvard provided Apple iPods to CPS in order to allow more students to experience this interactive study.

American Repertory Theater (A.R.T.)

Every year, more than 500 CPS students attend performances at the A.R.T. free of charge.

Harvard Museums of Science & Culture

Each year, more than 4,000 CPS students and teachers visit the Harvard Museums of Science & Culture. Educators from the museums routinely work with members of the CPS Department of Science on ways to best align museum programs with curriculum standards. Additionally, all CPS 4th graders participate in programming at the Harvard Museum of Natural History and all CPS 6th graders attend the "Foragers to Farmers" school program at the Harvard Semitic Museum and Peabody Museum of Archaeology & Ethnology where they learn about the rise of agriculture. The program includes utilizing a classroom kit of artifacts developed by the museum.

Harvard Art Museums

Each year, students at the Harvard Graduate School of Education are hired as graduate student teachers at the Harvard Art Museums for a year-long museum education training program and teaching partnership with CRLS. Pairs of graduate student teachers work closely with multiple CRLS classes across disciplines, inviting them into the museum for gallery lessons that integrate works of art in the museum with high school class curricula. The program reaches approximately 250 CRLS students annually. (ALL Cambridge residents receive FREE admission to the museums.)

Mind Matters: Families Make a Difference

Developed by Harvard University, Mind Matters is a 20-hour hands-on learning series that equips Cambridge parents and families of 3-8 year olds with practical tools to build their child's social, emotional, and intellectual skills. Families learn about current research on childhood brain development and how to use these findings to help foster their child's lifelong development. This program is currently offered to five cohorts of families from all CPS elementary schools.

Professional Development for Classroom Educators

The Harvard Graduate School of Education supports CPS educators in identifying and accessing various professional development classes on campus.

James Bryant Conant Fellowship

Cambridge educators participate in professional development opportunities with Harvard faculty and staff that cover a variety of topics in support of CPS priorities and their work in the classroom. Through the Harvard Graduate School of Education's James Bryant Conant Fellowship, CPS teachers and administrators admitted to HGSE receive full-funding for a master's degree.

Summer Science Institute

The Harvard Museum of Natural History, the Faculty of Arts and Sciences (FAS) Office of Science Education, and the CPS Department of Science recently partnered to develop and implement a professional development institute open to upper elementary teachers. The four-day institute focused on the Constructing Explanations and Arguing from Evidence across Physical and Life Science curriculum.

Harvard Extension School Scholarships

Harvard offers CRLS students scholarships for advanced courses at the Harvard Extension School that are either not available at CRLS, or that help them earn future college credit.

Reimagining Integration: Diverse and Equitable Schools Project

The Reimagining Integration: Diverse and Equitable Schools Project (RIDES) started at the Harvard Graduate School of Education in an effort to help diverse schools become places where all children learn at high levels, feel included, appreciate their own and other cultures, and understand and work to dismantle racism. Harvard partners with Fletcher Maynard Academy, CRLS, Graham and Parks School, and Cambridge Street Upper School to provide school leadership and staff with training and resources to build more equitable communities.

Support of the Superintendent

During the past year, Harvard funded a doctoral student from the Harvard Graduate School of Education to work in the office of Cambridge Superintendent Kenneth Salim to assist him with advancing district goals and priorities.

Cambridge Students Attending Harvard

Twenty students from Cambridge, including 16 from CRLS, were accepted to Harvard College for this past academic year. Cambridge schools have historically been pipelines to Harvard, as 105 Cambridge residents, 66 of them CRLS graduates, were admitted during the last five years.

IV. INSTITUTION SPECIFIC INFORMATION REQUESTS

1. Provide an update on plans for Harvard's Allston campus and any potential or anticipated impacts on the City of Cambridge.
 - b. Which programs plan to relocate to the Allston Campus?
 - c. How many students, faculty and staff will be affected by these moves?
 - d. How will the relocation of programs to Allston affect the use of existing Cambridge Facilities?
 - e. What plans are being made to move people back and forth across the river?

Slightly more than half of the faculty of the Harvard John A. Paulson School of Engineering and Applied Sciences will relocate to the Allston campus when the new Science and Engineering Complex opens in the fall of 2020, including academic programs in computer science, materials & mechanical engineering, biomedical engineering, robotics, and electrical engineering. In all, the new Allston complex will support on either a full-time or part-time basis more than 1,800 researchers, students, faculty and staff. The move will free up much needed space on the Cambridge campus, and the University is examining alternatives for future institutional use.

Harvard recently rolled out a new course schedule, as well as added additional shuttle buses, in preparation for the upcoming move. Harvard Transportation Services will continue to monitor traffic and transportation needs and will recommend adjustments to shuttle operations as necessary. Additionally, improvements to bike and pedestrian pathways are already underway in partnership with the City of Cambridge and the City of Boston.

Project and Planning Updates

Institutional Projects

- **Science and Engineering Complex (SEC) / 114 Western Avenue / District Energy Facility**

Façade work is underway on Harvard's Science and Engineering Complex, which is expected to open in the fall of 2020. The new facility, located at 130-140 Western Avenue, will include laboratory and teaching space for the John A. Paulson School of Engineering and Applied Sciences (SEAS). Renovation has begun at 114 Western Avenue for use as offices, classrooms and a new daycare. Construction of the District Energy Facility (DEF) is underway on a site just north of the on-ramp to I-90. The DEF will come online in 2019 to supply the SEC with hot water for heating, chilled water for cooling, and electricity. The new facility is designed to ensure the supply side will be climate resilient, reliable

and highly efficient. On the demand side, the SEC has been designed to be one of the most energy-efficient laboratory buildings of its size.

- **Klarman Hall (Harvard Business School)**

Klarman Hall opened in the fall of 2018 replacing Burden Hall on a site interior to the HBS campus. It serves as a large-scale conference center, a performance space, and a community forum.

- **ArtLab**

The Harvard ArtLab, a one-story building of approximately 9,000 SF is being constructed along North Harvard Street just southwest of Ohiri Field. The new art-making facility will provide experimental working space for faculty and student artists fostering new connections and creative enterprises. The ArtLab will provide additional opportunities for the development of new programs designed to spur collaboration within the arts community at Harvard. The facility is expected to open in 2019.

Other Planning Activities

- **Enterprise Research Campus**

In November 2018 Harvard announced the formation of a new wholly owned subsidiary to oversee development of the Enterprise Research Campus in Allston. The new campus which consists of Harvard property south of Western Avenue is envisioned to become a non-institutional center for various companies, incubators, startups, and social enterprises. In March of 2018, the University received approval from the Boston Planning and Development Agency for a Planned Development Area (PDA) Master Plan encompassing approximately 14 acres. The mixed-use program for the initial phase of development totals 900,000 SF and includes office/lab (400,000 SF), residential (250,000 SF), and a hotel and conference center (250,000 SF). The hotel and conference center was previously included in the Allston Institutional Master Plan. With a future development partner (yet to be determined) additional permitting steps will be required including a PDA Development Plan as well as project-level reviews.

2. Provide an update on planning with the Massachusetts Department of Transportation for the I-90 Allston Interchange Project, for commuter rail, and for the projected West Station.

The Massachusetts Department of Transportation's (MassDOT) I-90 Interchange project is a generational opportunity to transform and modernize neighborhood circulation, create an urban street grid, introduce new urban and regional rail service, remove obstacles that have divided communities for decades, and create new mixed-use development. Harvard continues to work closely with the Baker Administration, along with dozens of stakeholders, through participation in I-90 Task Force meetings and through meetings with MassDOT, the City of Boston and other stakeholders to help maximize the potential benefits the project may deliver. Among the many important elements of the project, Harvard believes that West Station is a critical and essential element to the Interchange project, supported

the inclusion of West Station in the MassDOT plan and has committed financial support to help ensure its certainty. Harvard views West Station as a regional and urban hub that provides not only a commuter rail stop on the Worcester Line to South Station, but as importantly, through the Grand Junction Rail (GJRR) connects commuters to Kendall Square, East Cambridge, Massachusetts General Hospital and North Station, and other employment hubs. The North and South connections by bus will also create key interplay between the Longwood Medical Area, Allston and Harvard Square through North-South connections that have not existed for decades. Between now and the completion of Phase 1 of the MassDOT plan, it is likely that need for service at West Station, including the GJRR, will be driven as much from the demand created in Cambridge, the Longwood Medical Area and those seeking to connect to those employment centers, as from eventual potential development in Allston Landing after the project is concluded.

Harvard first committed financial support to West Station when it was announced in 2014, and in early 2018 that commitment was increased to provide support for both an interim rail option and enhanced financial support for the permanent West Station. Together Harvard has committed up to \$58 million towards the construction of West Station, with \$8 million supporting a possible "early action" interim facility to provide service until the full multi-modal station is built.

Harvard, along with many stakeholders, continues to advocate for modifications to the Draft Environmental Impact Report (DEIR) that it believes significantly improves the project and makes the introduction of West Station more certain. These include consideration of the "Flip" option for location of West Station and the rail facility and elimination of Phase 2 of the DEIR that introduces the permanent layover facility prior to the permanent West Station. As the University seeks project improvements, it is mindful of the importance of moving this important infrastructure project forward, and looks forward to constructively engaging in the months and years ahead.

3. What is Harvard's strategy in selecting tenants for retail sites? How is retail used to enhance the urban experience? Provide information on vacancies and the vacancy rate in retail properties. Particular attention should be paid to a description of the uses on the ground floor of these sites, as they relate to community concerns about maintaining an active retail environment.

Harvard shares the community's interest in maintaining a unique retail environment in Harvard Square. When retail spaces become available, Harvard seeks tenants that will have active ground floor uses, offer goods or services that complement the retail mix in Harvard Square, and are compatible with other University uses in the building. Harvard's ongoing commitment to maintaining a vibrant Harvard Square is illustrated by its leases with more 30 business in the Square, including long-time independent retailers such as the Grolier Poetry Book Shop, Leavitt & Peirce, and Harvard Book Store.

Most of Harvard's properties located in the commercial areas of Harvard Square (for example those across Massachusetts Avenue from Harvard Yard) contain ground floor retail uses. Harvard's general approach is to seek active retail or service uses in ground floor spaces in these buildings. Harvard's newly opened Richard A.

and Susan F. Smith Campus Center features a variety of welcoming, sustainable restaurants. The new vendors include Swissbäkers, Pavement Coffeehouse, Bon Me, Saloniki, WholeHeart Provisions, Blackbird Donuts and Oggi Gourmet. All are experienced and locally-based food operators that complement each other and work well in the context of Harvard Square.

4. How has Harvard supported local businesses during recent Smith Campus Center and Harvard Kennedy School (HKS) construction projects?

Harvard has a robust mitigation office that works closely with all local businesses, as well as the City of Cambridge, to help minimize any disruptions on each project across campus. The office communicates on a regular basis with all of the abutters about any expected impacts, such as street closures, and addresses any and all concerns promptly and to the best of its ability. Additionally, Harvard works extremely hard to keep street and sidewalk closures to a minimum, and posts ample wayfinding signage at all times.

Given its location in the heart of Harvard Square, construction at the Smith Campus Center required a comprehensive mitigation program to ensure that the project minimized any impacts to Harvard Square and supported local businesses. Prior to the project start, the University relocated a number of pre-existing retail tenants to other Harvard Square locations so they could continue operating in the Square. Harvard also undertook efforts to minimize impact to the retail businesses that stayed in the building. The public parking garage remained open as much as possible during construction to provide a valuable resource for visitors to Harvard Square. Harvard's team worked to keep surrounding roadways open to the greatest extent possible during construction, and worked with local businesses to receive deliveries during the scheduled road closures. The project team displayed banners at the corners of the site to highlight that local businesses were open during construction. Harvard's Mitigation Office served as the key liaison to the local businesses, providing them with information regarding any upcoming impacts and serving as a clearinghouse to register any complaints. Pedestrian access was maintained on all streets surrounding the building, though some sidewalks were temporarily closed for safety. The loading zones on Dunster Street and Holyoke Streets were maintained throughout the project. On average approximately 150-200 construction workers were on the job site per day, and these workers regularly patronized the local shops, eateries, and services. Harvard's Environmental Health and Safety team oversaw the rodent control program that the construction team was implementing. Undertaking a significant construction project in a tight urban location is invariably very challenging. At the Smith Campus Center, Harvard used an array of efforts to reduce the negative impacts of construction to maintain a vibrant Harvard Square.

As part of the HKS Pavilions project, the Construction Management Plan included measures to minimize impacts to vehicle and pedestrian circulation around the construction site. During construction, HKS loading and service areas were temporarily relocated to a site immediately south of the campus to remove normal delivery and service vehicles from Eliot Street. At the construction site, mitigation measures included perimeter protection and directional signage, which facilitated continued access to adjacent businesses along Eliot Street throughout the

construction period. In addition, the project brought an average of 80 workers to the site each day during regular construction hours who frequented local businesses and services in Harvard Square.

The completed projects at the Richard A. and Susan F. Smith Campus Center and the John F. Kennedy School of Government have resulted in attractive new public spaces, renewed open space, new local retail tenants, and diverse programming that contribute to Harvard Square's continued vitality as a destination that attracts visitors and residents to the area.

- 5. In addition to the information requested in the Future Plans Narrative section, provide updates about short term and long term plans to address undergraduate and graduate student housing needs, the timeline for action, and the physical planning related to those actions. Specifically include a discussion of the House Renewal Program and how it affects other housing that has been converted to temporary undergraduate housing, such as the former Inn at Harvard. The response should address the following questions:**
 - a. What is the timeframe for the House Renewal Program and will it incorporate the old Radcliffe Quad houses?**
 - b. Discuss the effects of the program on current housing options and choices for graduate students, as well as impacts on affiliate housing owned by Harvard, and potential to add student beds through the House Renewal Program.**
 - c. Does Harvard plan to convert any housing back to graduate student or affiliate use after completion of the House Renewal Program?**
 - d. Discuss the long term plans for undergraduate housing facilities after the House Renewal Program is complete.**
 - e. How does Harvard plan to address ongoing housing needs of graduate students so as to reduce pressure on market rate prices? Has Harvard studied graduate student housing needs, particularly in light of escalating prices for market rate housing? Does Harvard have any plans to add graduate student housing, either in Cambridge or in Boston?**

Harvard University is engaged in a multiyear effort to renew the undergraduate Houses as part of a system-wide renewal. The House Renewal program's initial focus is on the original neo-Georgian Houses along the Charles River, most of which were constructed in the 1920s and 30s and have had only modest upgrades over the ensuing years. The intent of the House Renewal program is to preserve the historic character of these buildings and to sustain the original vision of the Houses, while transforming them to meet the needs of today's students. Planning for this program began nearly 10 years ago. To date, five House renewal projects have been either completed or are in construction, and planning for the sixth House project is underway. The timeline for renewal of the remaining undergraduate Houses along the River and at the Radcliffe Quadrangle is not yet determined. The pace and sequence of House Renewal is subject to periodic review. (See page 26 for additional information on the House Renewal program.)

Harvard is using existing University-owned buildings in and around Harvard Square to provide temporary accommodations to students displaced by House Renewal construction. 1201 Massachusetts Avenue, the former Inn at Harvard, now serves as the central hub of the “swing house” and accommodates the dining, meeting, social, academic, and a portion of the residential spaces for the House under renewal. The building is particularly well suited to this role given its pre-existing layout as a hotel and its location adjacent to Harvard Yard and close to the other Harvard Houses. Several Harvard-owned residential buildings in the area supplement 1201 Massachusetts Avenue, by providing additional residential space for displaced students: 8 Plympton Street, 1306 Massachusetts Avenue, 65 Mt. Auburn Street, 20-20A and 22-24 Prescott Street. The Faculty Dean's temporary accommodations are located at 8 Prescott Street. Together these properties meet the program needs of all the Houses, even those with the largest student populations. During academic years when these buildings are not needed for swing use, they will be used as residences for other Harvard affiliates. Upon completion of the House Renewal program, the five Harvard-owned residential buildings will continue their long-standing role in providing housing to Harvard's graduate students and other affiliates. The long term use of 1201 Massachusetts Avenue has not yet been determined, but it is anticipated to remain in institutional use.

Harvard houses more than 98% of its undergraduate population on campus, promoting a residential campus as part of its core educational mission. With the House Renewal program, Harvard is striving to maintain the same or greater bed capacity within the Houses while accommodating the many building upgrades that require the allocation of additional space. The recent addition of Beren Hall to Gore Hall added approximately 50 student beds to Winthrop House, which will ultimately free up beds in overflow housing for other affiliates including graduate students. The long term vision for undergraduate housing at Harvard remains centered at the Freshmen dorms in Harvard Yard and the Harvard Houses along the River and the Radcliffe Quadrangle. Harvard has no plans at this time to add new undergraduate housing in Allston. By 2008 Harvard University's housing initiative had added nearly 1,000 beds in Cambridge and Boston to increase housing for graduate students. Harvard has also made changes to how certain units are leased in order to encourage apartment sharing, and this has resulted in a more efficient utilization of its housing inventory, and full occupancy of our inventory in recent years. The University continues to re-invest in existing graduate student housing stock, improving systems, safety, and finishes and enhancing programmatic amenities. The multi-year, phased renovation of Soldiers Field Park in Allston is a current example of the ongoing effort to ensure that University-owned housing continues to be an attractive alternative to the private market for University affiliates. Harvard remains open to new opportunities and partnerships with private developers to expand housing offerings on and close to campus. (See page 41 for additional information on housing at Harvard.)

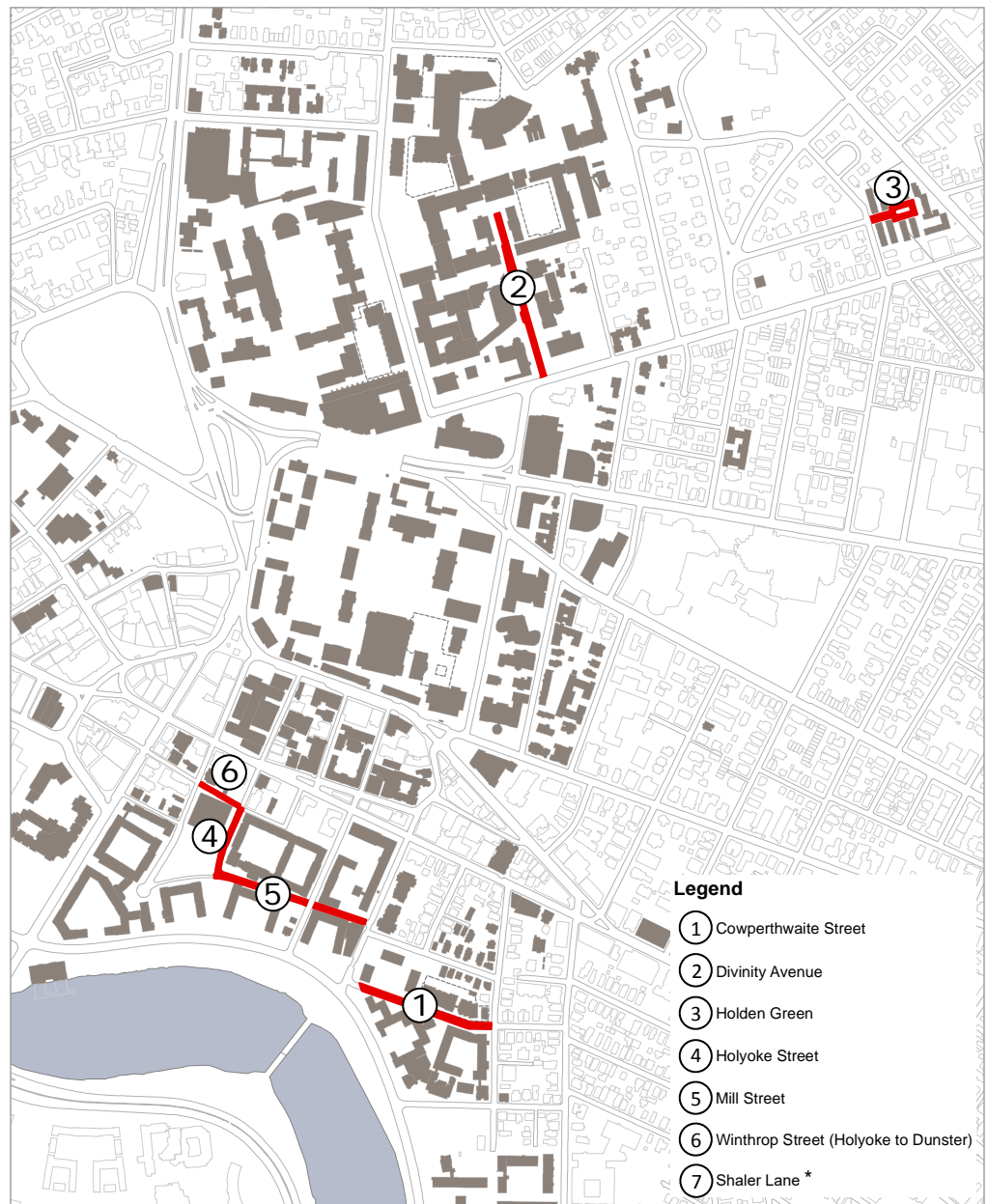
6. Provide an update on the plans for the commercial parcel at Everett Street and Massachusetts Avenue.

See Page 24 for project update.

7. Provide a map of Harvard-owned streets and sidewalks, their condition, and any planned repairs or improvements. How does Harvard coordinate management of streets and sidewalks with the Cambridge Department of Public Works?

The map below highlights the Cambridge streets and sidewalks that are owned by Harvard University.

Harvard-owned Streets



* Shaler Lane is located outside of the map coverage area.

1. Cowperthwaite Street

Cowperthwaite Street is a one way private way connecting DeWolfe Street to Banks Street from west to east. Pedestrian improvements, including new sidewalks and a raised crosswalk, were added when 5 Cowperthwaite Street was built in 2007. As part of the Dunster House renewal, Harvard repaved the western half of Cowperthwaite Street in summer 2015, extending from DeWolfe Street up to the first pedestrian crossing near the 5 Cowperthwaite garage entry.

2. Divinity Avenue

Divinity Avenue is located on Harvard's north campus, beginning at Kirkland Street and continuing north until it reaches the University Herbaria. This street and its sidewalks are in excellent condition, having been repaved in 2014. Over the last several years Harvard has undertaken repairs and improvements to the street including the installation of new brick sidewalks, street trees and lighting.

3. Holden Green

The entry drive into Harvard's affiliate apartment complex at Holden Green is a Harvard-owned private way with the same name. This cul-de-sac is fully surrounded by Harvard's residential buildings, and is located partially in Cambridge and partially in Somerville. As this street is in need of repairs, Harvard has plans to repave it over the next several years. The sidewalks are in good condition.

4. Holyoke Street

The portion of Holyoke Street between Winthrop Street and Mill Street is owned by Harvard University. This section of the street is one-way and in generally good condition. New sidewalks and curb cuts were installed at the intersection with South Street as part of the reconfiguration of the parking area adjacent to the Malkin Athletic Center. The southerly portion is currently off-line due to the Lowell House renewal project. Upon the conclusion of construction in 2019, Holyoke Street will be repaved with rebuilt brick sidewalks and re-used granite curbs on the east side.

5. Mill Street

Mill Street is a one-directional private way located between Holyoke and Dewolfe Streets. One section of Mill Street has been off-line since 2016 due to construction activity at the adjacent Winthrop and Lowell Houses. Upon the conclusion of construction in 2019, Mill Street will be repaved with rebuilt brick sidewalks and re-used granite curbs.

6. Winthrop Street

The portion of Winthrop Street between Holyoke Street and Dunster Street is owned by Harvard University. This one-directional private way is in excellent condition. In 2014 the University repaved the street and rebuilt the sidewalks, replacing concrete with brick paving. New lighting was also installed at that time.

7. Shaler Lane

Shaler Lane is a one-directional private way owned by Harvard University. The way is in excellent condition. Within the last two years Shaler Lane was repaved and restriped, granite curbing was repaired or reset and brick sidewalks were repaired.

Harvard Campus Services performs maintenance, repairs and snow removal on Harvard-owned streets, or subcontracts out this work as necessary. Temporary street closures (for maintenance or other activities including Student Move-In/Out or Commencement events) are coordinated with the City of Cambridge DPW through the Harvard Parking Office.

As part of Harvard construction projects, adjacent streets and sidewalks are often improved. Harvard also contributes to the ongoing to maintenance and improvement of both private and public streets and sidewalks adjacent to Harvard properties across the Cambridge campus. In addition Harvard has contributed financial support to recent Harvard Square infrastructure improvement projects undertaken by the City of Cambridge.

The University works closely with the DPW Commissioner and staff to coordinate on public realm improvement projects. When possible, Harvard provides the city's contractors with laydown areas to facilitate public realm construction projects. During winter snow events, Harvard makes off-street parking available to residents and has also provided space for the City to unload plowed snow.

8. Given the accomplishments described in the 2017 report, what are the next generation goals for campus sustainability?

See Sustainability section Page 49.

9. How does the university address questions of equity and equality as it relates to education and jobs in the community? *

As an institution anchored by an educational and research mission, Harvard University is engaged in work to advance equity and promote equality in a wide range of contexts. The University's mission is also meaningfully connected to the City of Cambridge and its residents through educational programs, economic development, housing initiatives and community partnerships.

Harvard and Cambridge are inextricably linked through their history and commitment to education. Each year, the University strives to strengthen connections to neighbors through education resources for children, families, teachers, schools and life-long learners.

Harvard works closely with the Cambridge Public Schools (CPS) to provide comprehensive programs for students at all stages of their schooling. Many of Harvard's student programs are specifically designed to address equity and promote access to educational opportunity. The Crimson Summer Academy supports academically talented high school students from economically disadvantaged backgrounds. Upon completion of the three-year program, students are then provided scholarships to use at a college or university of their choice. Harvard's Project Teach program seeks to develop a college-going identity among all CPS 7th graders. By working with teachers, students, and families, Project Teach demonstrates that college can be an affordable, accessible, and attainable opportunity. A cornerstone of the program includes a visit to Harvard's campus where students participate in a program tailored to their individual academic interests. Harvard also partners with CRLS on the Cambridge Harvard Summer Academy, which offers both enrichment and remedial programs for local students.

Harvard offers various STEAM (or STEM) initiatives for students of all ages – including, but not limited to, programs that explore neuroscience, outer space, marine biology, biotechnology, other languages and even the history of hip hop. Every CPS 8th grader works with Harvard students on a science project of their choosing, and presents their findings at a showcase on Harvard’s campus. In May 2018, Harvard hosted approximately 400 students, their teachers, and families for the eighth year of this annual event.

Harvard’s commitment to the children and families of Cambridge extends to out-of-school time, through summer programs (including camps), and as a provider of summer jobs for Cambridge teens through the Mayor’s Summer Youth Employment Program. Harvard also offers Cambridge residents free admission to the Harvard Art Museums, and CPS classes can often be found enhancing classroom learning at the Harvard Museum of Natural History.

Twenty students from Cambridge, including 16 from CRLS, were accepted to Harvard College for this past academic year. Cambridge schools have historically been pipelines to Harvard, as 105 Cambridge residents, 66 of them CRLS graduates, were admitted during the last five years. The Harvard Financial Aid Initiative builds on the University’s tradition of expanding access to an affordable college education. Families with an annual income of less than \$65,000 are asked to pay nothing toward the total cost of their child’s education, while families with incomes between \$65,000 and \$150,000 contribute no more than 10 percent of their income. Nearly 55 percent of undergraduates receive need-based grant aid, and 100 percent of Harvard College students can graduate debt free. In the 2017-2018 academic year, \$191 million in institutional need-based grant aid was provided to Harvard College students.

In 2012, Harvard joined forces with MIT to form edX, a nonprofit, open-source platform that features interactive and innovative tools for teaching and studying online. Backed by a shared \$60 million commitment, edX allows 120+ educational partners to distribute course content and other academic materials through 80+ open courses. The goals of edX are to expand access to education worldwide, improve teaching and learning on campuses and beyond, and advance teaching and learning through educational research.

Harvard’s efforts to address equity extend beyond the University’s core educational mission as well. Harvard is committed to working with its host communities to preserve and create quality affordable housing in response to high regional housing costs. Harvard houses 98% of its undergraduates, which relieves pressure on the local housing market. Since 2000, Harvard has partnered with the City of Cambridge alongside other nonprofit lending organizations to finance the development or renovation of more than 1,600 units of affordable housing in every neighborhood in the City.

Harvard also provides support to nonprofit organizations that serve the most vulnerable and needy residents of the city. One particularly close partnership has been with Food for Free. Recognizing that nearly 10 percent of Massachusetts families experience chronic hunger, Harvard University helps address the crisis through a partnership with the Cambridge-based organization, Food for Free. In addition, through the Family Meals initiative, Harvard students work to package

individual, frozen, microwavable meals, to give hungry families with limited cooking facilities a healthy, convenient option. In a typical week during the academic year, Harvard may donate up to 1,200 pounds of food that was never served. Given that the average meal is 1.3 pounds, each week almost 1,000 meals are donated to local families.

The Harvard community teaches, learns, works and lives in Cambridge and the discoveries and knowledge it produces fuel the local economy – providing jobs, generating purchasing, and supporting local businesses. For the past 19 years, Harvard has consistently been the largest employer in the City of Cambridge, and employs approximately 3,800 Cambridge residents across the University at all levels of employment.

When engaged in construction, Harvard is committed to utilizing union labor for all major capital projects to ensure that workers are getting paid a fair wage and receiving the appropriate benefits and training. Harvard is a major supporter and sponsor of the Boston Building Trades Pathways Program which is an innovative program designed to attract and retain a diverse workforce in the construction industry focusing on women and minorities.

In FY17, the University attracted more than \$868 million in research funding, fueling science, medical discoveries, health improvements, and spending in the local economy. Harvard is the largest purchaser of goods and services in the city, further contributing to job creation and the strength of the local economy. The majority of Harvard spending went to purchase supplies, maintain and expand the University's physical plan, and run the University. Of that, \$140 million was spent on construction and to purchase supplies and services in Cambridge. The University also attracts hundreds of thousands of visitors annually, adding to the vitality of Harvard Square and supporting its many, local small businesses.

College's commitment to financial aid extends to every student accepted. One in five undergraduate families are not required to contribute to the full cost of their child's education, as they have annual incomes of less than \$65,000. More than 80% percent of Harvard College's Class of 2017 graduated debt free. Harvard awards grants only and never requires students to take out loans to cover the cost of their education. As part of its financial aid program, Harvard spent over \$4.8 million in 2017 to help low-income students pay for health insurance, travel costs home, fees for events and performances, and more so every student can equitably engage in the Harvard experience.

In support of expanding access to education for learners of all ages, Harvard joined forces with MIT in 2012 to form edX, a not-for-profit, open-source online learning platform that features interactive and innovative tools for teaching and studying via the web. Backed by a shared \$60 million commitment, edX allows over 95 educational partners to distribute course content and other academic materials through 80+ open courses. As of the summer of 2017, there were over 58,000 course participants in Massachusetts and over 128,000 Massachusetts course registrations.

Harvard's efforts to address equity extend beyond the University's core educational mission as well. Harvard is committed to working with its host communities to preserve and create quality affordable housing in response to high regional housing costs. Harvard houses 98% of its undergraduates, which relieves pressure on the local

housing market. Since 2000, Harvard has partnered with the City of Cambridge alongside other non-profit lending organizations to finance the development or renovation of over 1600 units of affordable housing--the locations of which span every neighborhood in Cambridge.

Harvard also provides support to nonprofit organizations that serve the most vulnerable and needy residents of the city. One particularly close partnership has been with Food for Free. Recognizing that nearly 10 percent of Massachusetts families experience chronic hunger, Harvard University Dining Services helps address the crisis through a partnership with the Cambridge-based organization, Food for Free. Since it was started in 2014, the Harvard Food Program has donated an average of 40,000 pounds of bulk food donations per year, translating into roughly 30,700 meals per year.

The Harvard community teaches, learns, works, and lives in Cambridge and the discoveries and knowledge it produces fuel the local economy—providing jobs, generating purchasing, and supporting local businesses. For the past 18 years, Harvard has consistently been the largest employer in the City of Cambridge, and employs approximately 5,000 Cambridge residents across the University at all levels of employment.

In FY16, the University attracted over \$840 million in research funding, fueling science, medical discoveries, health improvements, and spending in the local economy. Harvard is the largest purchaser of goods and services in the city, further contributing to job creation and the strength of the local economy. The majority of Harvard spending went to purchase supplies, maintain and expand the University's physical plant, and run the University. In FY16, \$146 million was spent on construction and to purchase supplies and services in Cambridge. The University also attracts hundreds of thousands of visitors annually, adding to the vitality of Harvard Square and supporting its many local, small businesses.

** Note this question has been modified to reflect the Planning Board discussion at the Town Gown presentation meeting held February 7, 2017.*

10. Has Harvard mapped tree locations on campus? If so, how has this affected future plans for planning and property management? If not are there any plans to map all campus trees?

See Campus Tree Resources Page 47.



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