

2011  
Harvard University's

# Town Gown Report



*for the*  
City of Cambridge

*Submitted by:*  
Harvard Planning & Project Management



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# I. EXISTING CONDITIONS

## A. FACULTY & STAFF <sup>1</sup>

	2008	2009	2010	2011
<b>Cambridge Based Staff<sup>1</sup></b>				
Head Count	12,017	12,027	11,444	11,644
FTEs	9,725	9,761	9,146	9,300
<b>Cambridge Based Faculty</b>				
Head Count	1,760	1,783	1,715	1,755
FTEs	1,590	1,621	1,572	1,605
<b>Number of Cambridge Residents Employed at Cambridge Facilities</b>				
	<b>4,166</b>	<b>4,105</b>	<b>3,927</b>	<b>3,897</b>
<b>Number of Cambridge Residents Employed at Boston Facilities</b>				
	<b>732</b>	<b>720</b>	<b>747</b>	<b>754</b>

### *Ten-year projection*

Growth projections are influenced by many factors and no central University department has undertaken such projections for faculty and staff counts.

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<sup>1</sup> Employment figures are as of June 30, 2011.

## B. STUDENT BODY<sup>2</sup>

	2008	2009	2010	2011
<b>Total Undergraduate Degree Students</b>	<b>7,081</b>	<b>7,156</b>	<b>7,181</b>	<b>7,255</b>
Day	6,648	6,678	6,655	6,641
Evening	[433]	[478]	[526]	[614]
Full Time	6,837 [196]	6,890 [223]	6,869 [219]	6,909 [276]
Part Time	244 [237]	266 [255]	312 [307]	346 [338]
<b>Total Graduate Degree Students</b>	<b>9,238</b>	<b>9,486</b>	<b>10,191</b>	<b>10,211</b>
Day	8,538	8,557	8,730	8,896
Evening	[700]	[929]	[1,461]	[1,315]
Full Time	8,495 [147]	8,485 [126]	8,767 [220]	8,868 [126]
Part Time	743 [553]	1,001 [803]	1,424 [1,241]	1,343 [1,189]
<b>Total Non-degree Students</b>	<b>5,653</b>	<b>6,172</b>	<b>6,525</b>	<b>6,354</b>
Day	353	313	285	322
Evening	[5,300]	[5,859]	[6,240]	[6,032]
<b>Total Number of Students in Cambridge</b>	<b>21,972</b>	<b>22,814</b>	<b>23,897<sup>3</sup></b>	<b>23,820</b>

Numbers in brackets represent students at the Extension School and are a subset of the total number of Full and Part Time students indicated.

### *Ten-year projection*

As is the case with faculty and staff counts, no central University department has undertaken projections regarding future student population.

<sup>2</sup> Counts as of October 15, 2010 for 2011. Includes all non-degree students enrolled in day or evening classes, such as persons taking classes at Harvard Extension School.

<sup>3</sup> Growth is primarily attributable to increases in students attending Harvard Extension School.

## C. STUDENT RESIDENCES

	2008	2009	2010	2011
<b>Number of Undergraduate Students Residing in Cambridge</b>				
In dormitories	6,485	6,566	6,566	6,363 <sup>4</sup>
With cars garaged in Cambridge	33	17	22	12
In off-campus affiliate housing	0	0	0	0
In off-campus non-affiliate housing	112	115	109	162 <sup>5</sup>
<b>Number of Graduate Students Residing in Cambridge</b>				
In dormitories	1,164	1,181	1,270	1,230
With cars garaged in Cambridge	132	208 <sup>6</sup>	156	177
In off-campus affiliate housing	1,546	1,747 <sup>7</sup>	1,706	1,731
In off-campus non-affiliate housing	3,347	3,333	3,279	3,447

### *Ten-year projection*

Harvard's housing stock is managed as a University-wide resource to accommodate the needs of the larger University community including students participating in executive education programs, junior faculty, and family members of affiliates.

<sup>4</sup> Prior to 2011 the figures reported were beds available for undergraduate students. Beginning in 2011 the number of undergraduate students residing in Cambridge dormitories is reported. Includes undergraduates housed at 10-20 DeWolfe Street.

<sup>5</sup> Includes 36 visiting students. Visiting students were not reported in prior years.

<sup>6</sup> The increase in graduate students parking in Cambridge is due in part to provisions for student parking at the 5 Cowperthwaite Street and 10 Akron Street garages.

<sup>7</sup> The completion of 10 Akron Street and three wood frame houses on Hingham Street and Western Avenue increased the availability of affiliate housing for graduate students in Cambridge.

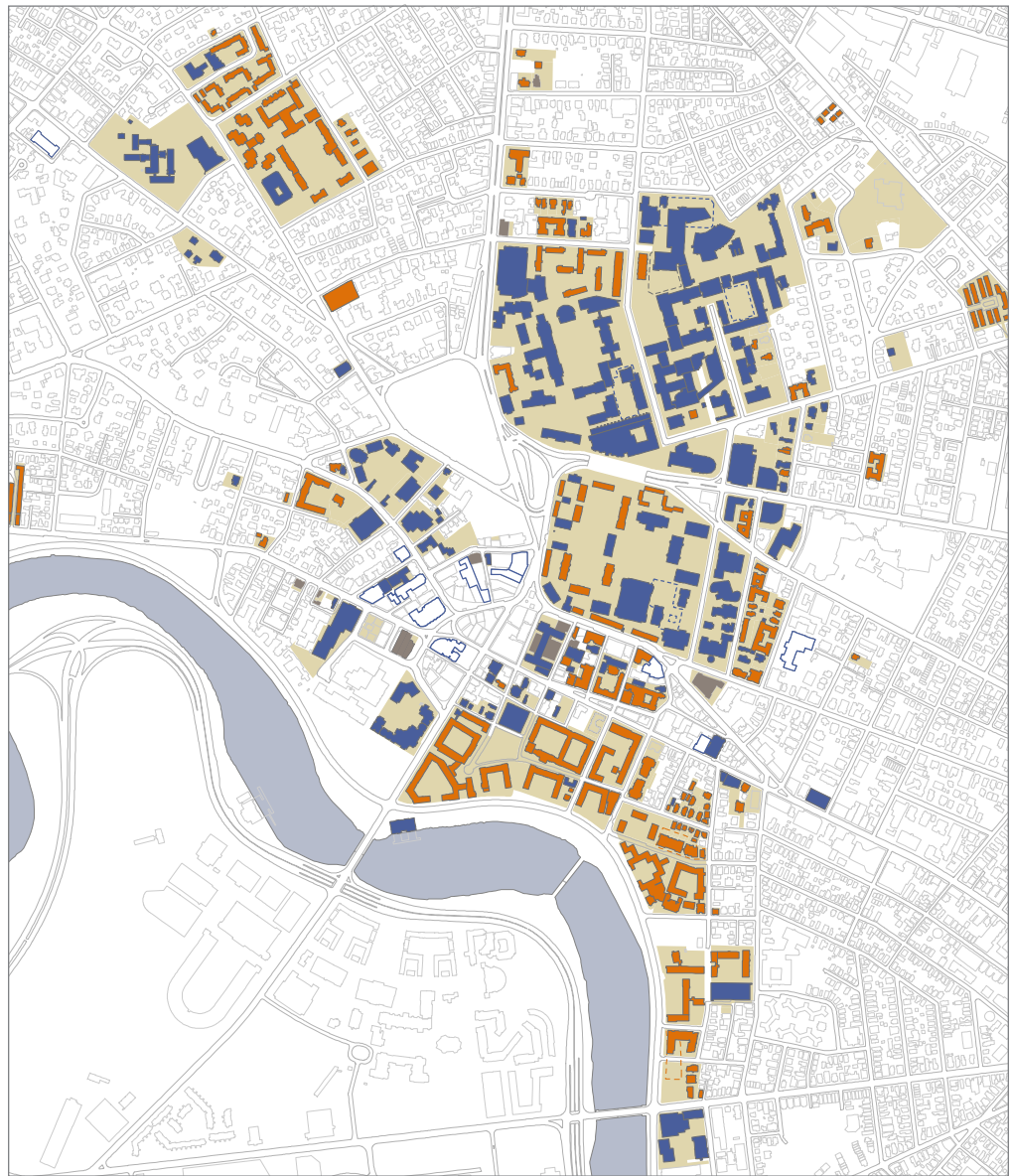
## D. FACILITIES & LAND OWNED

	2008	2009	2010	2011
Acres (Tax Exempt) <sup>8</sup>	201.59	201.59	201.59	202.6 <sup>9</sup>
Acres (Taxable) <sup>8</sup>	24.61	24.61	24.61	24.97 <sup>9</sup>
Number of Buildings <sup>10</sup>	395	395	388	390 <sup>9</sup>
<b>Dormitories</b>				
Number of Buildings	77	80	80	74 <sup>11</sup>
Number of Beds	7,791	7,917	7,918	8,287 <sup>12</sup>
<b>Size of Buildings (GFA)</b>				
Assembly/ museum	884,536	884,536	997,167	987,520
Athletic	225,761	225,761	210,780	210,780
Classroom	482,330	866,512	866,512	866,512
Commercial	282,045	282,045	282,045	282,045
Healthcare	77,155	77,155	77,155	77,155
Laboratory	2,861,537	2,485,937	2,546,699	2,546,699
Library	1,122,453	1,154,716	1,086,080	1,091,446
Office	2,496,780	2,882,301	2,880,697	2,871,984
Residential	5,713,873	5,714,655	5,646,543	5,663,194
Support	923,487	886,349	881,041	881,041

8. As of January 1, 2011, as reported on Tax Report ABC submitted to the City of Cambridge.
9. The net increase in acreage and building counts reflects Harvard's 2010 acquisition of four buildings (9 Ash Street, 20 Sumner Road, 40 and 42 Kirkland Street) and the demolition of two buildings (Fogg Museum Library Addition and Werner Otto Hall Addition).
10. The number of buildings reported reflects all of Harvard's Cambridge buildings, both taxable and tax-exempt.
11. The building number reported in prior years included several buildings ancillary to dormitory residential buildings which have been excluded from the 2011 building count.
12. The overall increase in dormitory beds reflects a more accurate accounting of existing undergraduate student beds and does not represent an increase in the capacity to house students. Dormitory beds are utilized by students and other members of the residential community including resident scholars and tutors.



*Real Estate Owned  
and Leased by  
Harvard for  
University Use*



**Legend**

**Buildings by Ownership Status and Primary Use <sup>(1)</sup>**

- Harvard Owned - Institutional <sup>(2)</sup>
- Harvard Owned - Residential <sup>(3)</sup>
- Harvard Owned - Other <sup>(4)</sup>
- Leased <sup>(5)</sup> - Institutional <sup>(6)</sup>

**Land Parcels**

- Harvard Owned

**Notes:**

- (1) Primary Use reflects predominant building use.
- (2) The Rowland Institute located at 100 Edwin Land Blvd is located outside the map coverage area.
- (3) 1791 Massachusetts Avenue is located outside the map coverage and is Harvard Owned - Residential.
- (4) Includes real estate 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  
One Kendal Square.

## Parking Facilities

Harvard University owns and maintains 4,576 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 as part of Harvard's annual PTDM Progress Report. Harvard updates the parking inventory annually in December.

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

	2008	2009	2010	2011
<b>Affiliate Housing - Tax Exempt</b>				
Number of Units:	878	1,047 <sup>13</sup>	1,047	1,047
Number of Buildings:	8	12 <sup>13</sup>	12	12
<b>Affiliate Housing - Taxable</b>				
Number of Units:	891	889	889	890 <sup>14</sup>
Number of Buildings:	53	53	53	54 <sup>14</sup>
<b>Other Housing - Tax Exempt</b>				
Number of Units:	None	None	None	None
Number of Buildings:	None	None	None	None
<b>Other Housing - Taxable</b>				
Number of Units:	None	None	None	None
Number of Buildings:	None	None	None	None

13. The increase in the number of exempt affiliate units and buildings from 2008 is due to the construction of new buildings and units at 10 Akron Street, 28 Hingham Street, 30 Hingham Street, and 387 Western Avenue. (Two basement units were removed at other locations.)

14. The number of taxable affiliate buildings and units has been corrected to add 11 Kirkland Place, which was left out of previous reports.

**Property Transfers**

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

None

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

None

**Planned dispositions or acquisitions:**

None

## E. REAL ESTATE LEASED

Real Estate Leased by Harvard	Sq Feet	Tenant	Use
One Bow Street	8,450	FAS	Office
One Brattle Square	18,737	HKS	Office
One Kendall Square	27,000	HMS	Laboratory
One Story Street	6,125	DCE	Classroom
10 Ware Street	2,000	UIS	Office
104 Mt. Auburn Street	12,312	FAS	Office
104 Mt. Auburn Street	7,166	Provost	Office
125 Mt. Auburn Street	36,564	HLS	Office
1408-1414 Massachusetts Ave	50,000	FAS	Office
1430 Massachusetts Avenue	8,256	FAS/GSAS	Office
155 Fawcett Street	34,000	FAS/ART	Warehouse
25 Mt. Auburn Street	7,732	LASPAU	Office
44 Brattle Street	10,193	GSE	Office
44R Brattle Street	8,417	GSE	Office
50 Church Street	22,680	GSE	Office
625 Massachusetts Avenue	41,141	FAS	Office
<b>TOTAL</b>	<b>300,773</b>		

## F. PAYMENTS TO CITY OF CAMBRIDGE

	2008	2009	2010	2011
<b>Total Payments</b>	<b>\$13,388,612</b>	<b>\$13,366,092</b>	<b>\$14,282,663</b>	<b>\$15,987,554</b>
Real Estate Taxes Paid:	\$4,806,268	\$4,906,603	\$5,065,482	\$5,165,704
Payment in Lieu of Taxes (PILOT):	\$2,173,492	\$2,248,730	\$2,575,890	\$2,709,788
Water & Sewer Fees Paid:	\$5,159,149	\$4,994,405	\$5,258,274	\$5,564,756
Other Fees & Permits Paid:	\$1,249,703	\$1,216,354	\$1,383,017	\$2,547,306

### *Ten-year projection:*

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

## G. INSTITUTIONAL SHUTTLE INFORMATION

Route Name	Description	Frequency	Hours of Operation
<b>Weekday Service - Morning</b>			
Radcliffe Quad (Stadium)	Quad, Square, River Houses, Allston Campus	30 minutes	5:30 am to 7:15 am
Soldiers Field Park (II)	Allston Campus, Square, Quad, Square, Allston Campus	20 minutes	7:15 am to 10:30 am
<b>Weekday Service – All Day</b>			
Mather Express	River Houses through Square to Kirkland St.	10 minutes	7:30 am to 4:30 pm
Radcliffe Quad (Express)	Quad, Square to Kirkland St.	10 minutes	7:30 am to 5 pm
Allston Campus	Allston Campus, Square, Mass Ave, Oxford St, Square, Allston Campus	20 minutes	7:50 am to 4 pm
<b>Weekday Service - Evenings</b>			
Extended Overnight	River Houses through Square, up Garden St. to Kirkland St. to River Houses	30 minutes	7:30 pm to 4 am
Radcliffe Quad-Yard Express	Quad, Square, Quad (up Garden St.)	25 minutes	4:15 pm to 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 to 1:00 am
Soldiers Field Park (III)	Allston Campus, Square, Kirkland St., Square, Allston Campus	35 minutes	4:00 pm to 9 pm
Allston Campus	Allston Campus, Square, Mass Ave, Oxford St, Square, Allston Campus	20 minutes	4:00 pm-12:30am
<b>Weekend Service</b>			
Crimson Campus Cruiser	River Houses through Square, up Garden St. to Kirkland St to River Houses	35 minutes	12:00 pm to 4:30 pm
1636'er	River Houses through Square, up Garden St. to Kirkland St to River Houses	20 minutes	4:00 pm to 1:00 am
Soldiers Field Park (I)	Allston campus, Square, Quad, Square, Allston Campus	30 minutes	4:30 pm to 8:00 pm
Extended Overnight	River Houses thru Square up Garden St. to Kirkland St. to River Houses	30 minutes	12:00 am to 5:00 am

*Harvard Campus Shuttle Routes*



**Legend**

- Mather Express
- Quad Express
- Allston Campus Express

**Notes:**

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



Harvard's Passenger Transport Shuttle fleet includes five 35-foot buses and five 29-foot buses (each of the ten buses has 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. In the summer, limited weekday shuttle service is provided on the Soldiers Field Park route. Additionally, Harvard's Passenger Transport Van fleet includes five, ten-seat passenger vans and two wheelchair passenger vans. On weekdays, two of the vans run from 7:30 am-7 pm; on weekends the vans run from 12 pm-7 pm. These vans provide service to individuals with mobility impairments or medical conditions on an as-needed basis. On weeknights, an evening van service is designed to transport faculty, staff and students safely about the campus area as a supplement to the shuttle bus system. The evening service operates between 7 pm and 3 am, seven days a week throughout the academic year and 7 pm-12:30 am during the summer.

All of the shuttle vehicles operate on B-20 biodiesel. Using biodiesel is considered a best practice in this industry and has reduced emissions by 15 percent. On an annual basis, emissions are reduced by 96,725 lbs per bus fleet and 43,091 lbs per van fleet. Harvard's Transport Service Department keeps the fleet on a short life cycle to ensure that the best technology available is being used and practices proactive maintenance on all vehicles.

Schedules are very precise and do not allow for more than three minutes of idling, less than the five minutes allowed by anti-idling regulations.

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

Total passenger ridership for all Harvard shuttle routes in FY2011 was 824,761.

Harvard's Passenger Transport Service Department collaborates with the Cambridge Traffic, Parking and Transportation Department in the planning of 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. Most recently, during the re-design of Harvard Square, several Harvard shuttle routes were altered in order to help alleviate traffic delays and congestion in the area. Harvard and the City work together during snow events to clear shuttle stops.

Harvard has developed a good working relationship with the Cambridge Police Department in dealing with the safety needs of the streets that we share and have been partners in mitigating issues such as over-crowding caused by tourist buses on Massachusetts Avenue.

The University has partnered with the MASCO shuttle bus and, in addition to providing financial support for this system, shares ShuttleTracker technology ([www.shuttle.harvard.edu](http://www.shuttle.harvard.edu)), a real-time tracking system developed for PTS that shows the location of buses on their routes. This coordination has limited service overlap within Cambridge and eliminates the need for a dedicated Harvard shuttle traveling to the Medical Area in Boston. Opportunities for collaboration with other institutions have been limited due to the liability of having non-Harvard affiliated passengers riding on our vehicles.



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## II. FUTURE PLANS

### A. DEVELOPMENT OVER THE PAST 5 YEARS

Harvard continues to make strategic investments on the Cambridge campus to further its academic mission and improve the quality of campus life. The primary drivers of physical planning and development on the Cambridge campus continue to be: supporting academic programs and research; housing Harvard affiliates; enhancing the campus experience; promoting campus sustainability; and improving campus infrastructure.

#### *Supporting Academic Programs and Research*

Support for academic and research programs has been the primary driver for Harvard's physical planning and development. Over the past several years there has been substantial investment in the development of new and renovated facilities that support academic study and research. In particular, new and renovated science and engineering facilities have strengthened research and teaching in such key areas as stem cell research, systems biology, nanotechnology, and advanced computing. Significant projects include:

- **Northwest Building** - New building for interdisciplinary science research and teaching for a range of disciplines including neuroscience, bioengineering, particle physics, and biophysics
- **Sherman Fairchild Building** – Comprehensive renovation of science building to house the Department of Stem Cell and Regenerative Biology
- **Wasserstein Hall, Caspersen Student Center, and Clinical Wing** - New Harvard Law School building containing classrooms, offices and student activity space

#### *Housing Harvard's Affiliates*

With the completion of graduate student and affiliate housing projects in Riverside in 2008, Harvard reached its goal of having the capacity to house 50% of its graduate, professional, and medical students. Harvard's total housing portfolio has over 8,000 units and over 13,000 beds, requiring an ongoing commitment to re-investment to improve housing for students and affiliates. In recent years a priority has been life safety and building system upgrades, and interior renovations across the housing portfolio. Significant projects include:

- **Riverside Housing** - Creation of 500 beds of graduate student and affiliate housing in multiple buildings
- **Undergraduate Houses and House Masters' Residences** - Life safety improvements in over 20 residential buildings serving Harvard College
- **Harvard Law School Dormitories** – Renovation of three woodframe houses relocated as part of a larger Harvard Law School development project

### *Enhancing the Campus Experience*

The University has undertaken many projects over the past several years that contribute to the quality of campus life for students, faculty and staff. Projects have included improvements in non-academic facilities for students and affiliates, investments in the campus' artistic and cultural resources, and the enhancement of the campus landscape. Significant projects include:

- **32 Quincy Street** – Major renovation and expansion to create a consolidated state-of-the-art facility serving the Harvard Art Museums
- **Harvard Community Garden** – Student-run sustainable urban agriculture in Harvard Square
- **Rockefeller Hall Landscape** – Transformation of former surface parking lots into a new landscaped quad at Harvard Divinity School

### *Promoting Campus-Wide Sustainability*

The University has continued to demonstrate its commitment to addressing the challenges of climate change and environmental sustainability. Across campus the University is reducing the environmental impact of existing buildings and constructing and renovating healthier buildings and offices to live, work, and learn. Key indicators of this ongoing commitment include:

- **LEED Certifications** – Harvard continues to be a leader with 61 LEED certified building projects
- **Greenhouse Gas (GHG) Reduction** – Continued progress in meeting the University's goal of 30% GHG reduction by 2016
- **Green Building Standards** – Life cycle costing, integrated design and energy modeling for capital projects

### *Improving Campus Infrastructure*

To support Harvard's Cambridge campus, which contains over 380 buildings with over 15 million square feet of space, and to enable future development, it is essential to continually upgrade and expand the University's centralized utility infrastructure and parking facilities. Over the last five years there has been a significant investment in critical campus infrastructure including the following projects:

- **Blackstone Station (Renovation of 46 Blackstone and Blackstone Steam Plant)** – Renovation and upgrade of the complex of historic buildings at 46 Blackstone Street housing Campus Services
- **Satellite Chilled Water Plant (Northwest Science Building)** – New chilled water plant supporting space conditioning and process cooling across the Cambridge campus
- **Parking Facilities: 52 Oxford Street, 5 Cowperthwaite Street, 10 Akron Street, 10 Everett Street** – Construction of underground parking garages as part of the re-development of existing campus sites

## B. CAPITAL PROJECTS

*Projects  
Recently  
Completed*

### **Wasserstein Hall, Caspersen Student Center and Clinical Wing (New Building)**



<b>Architect:</b>	Robert A.M. Stern Architect
<b>Total Square Feet:</b>	256,000 GSF (additional 223,000 GSF in garage)
<b>Programmatic Driver:</b>	Replacement of inadequate academic facilities and student activity space; relocation of parking underground
<b>Green Attributes:</b>	Targeting LEED Gold

Construction of the Law School's new building, Wasserstein Hall, Caspersen Student Center, and Clinical Wing project (formerly referred to as the Northwest Corner Building Project) at the corner of Everett Street and Massachusetts Avenue was recently completed and the buildings will be formally placed in service in January 2012. The new building will improve the environment for teaching and learning, providing new classrooms, academic and clinical offices, and new spaces for student activities.

The new building complex houses three centers:

- **Wasserstein Hall**, bordering Massachusetts Avenue, features a range of classrooms and other learning spaces designed for 21st century legal education.
- **Caspersen Student Center**, adjacent to Harkness Commons, serves as a central gathering place for students and as a home for student organizations, journals, and social activities.
- **Clinical Wing**, on the Everett Street side of the site, houses the School's expanding clinical programs — the educational ground where theory and practice meet. This

facility will join together clinical programs currently dispersed throughout the campus and beyond.

In addition to responding to programmatic and student needs, the project provides major physical improvements to the area benefiting both the Harvard campus and adjacent neighborhoods. These improvements include a building design that recognizes the site's important interface with Massachusetts Avenue and the community. The project also features a 695-car below-grade parking garage that replaces the demolished above grade Everett Street garage and surface lots displaced by the project. Construction of the garage component was completed in August 2010, and the garage is now operational. By placing parking underground and improving pedestrian connections, the building creates an attractive and more welcoming northern gateway to the Law School and to the Harvard University campus from adjacent neighborhoods.

The creation of a new central Law School landscaped courtyard on the south side of this building completes the transformation of this part of the Harvard Law School campus. (See Projects in Planning – Pound Hall.)

## Sherman Fairchild Building (Interior Renovation)



*Photo Credit: Payette Associates, Image by Rachellyn Schoen.*

<b>Architect:</b>	Payette Associates
<b>Total Square Feet:</b>	110,000 SF renovation
<b>Programmatic Driver:</b>	Interdisciplinary research and teaching
<b>Green Attributes:</b>	Targeting LEED Platinum

Construction is complete on the renovation of the Sherman Fairchild Building, which is now occupied by the Department of Stem Cell and Regenerative Biology (SCRB). This major renovation included a much-needed replacement of the building's 30-year-old infrastructure with more efficient modern systems, and a complete reconfiguration of the four laboratory floors to provide flexible, open wet labs, and to enhance daylighting and views throughout the space. The basement level was developed as a state-of-the-art zebrafish facility supporting research in regenerative biology.

It is expected that the project will earn a LEED Platinum designation. Some of the energy conservation measures incorporated include chilled beams, enthalpy wheels for heat recovery, grey water reuse, and sensor controlled LED task lighting at lab benches.



## Engineering Science Laboratory (Interior Renovation)



<b>Architect:</b>	Douglas Okun Architects
<b>Total Square Feet:</b>	11,000 SF of renovated space
<b>Programmatic Driver:</b>	Interdisciplinary teaching and research
<b>Green Attributes:</b>	Targeting LEED Gold

The School of Engineering and Applied Sciences has recently completed a renovation of the Engineering Science Laboratory at 58 Oxford Street. The main driver of this project was renovation of several interior lab spaces to accommodate new research laboratories for the Wyss Institute for Biologically Inspired Engineering and SEAS Faculty. The project included the installation of new fire alarm and protection systems and water service. The project also called for limited exterior improvements, most notably the creation of a new accessible walkway at the Oxford Street entrance, as well as entrance upgrades, an improved loading dock, and landscaping upgrades.

*Projects  
Currently in  
Construction*

**Harvard Art Museums: 32 Quincy Street**  
(Renovation and Expansion)



<b>Architect:</b>	Renzo Piano Building Workshop (Architect of record: Payette Associates)
<b>Total Square Feet:</b>	204,000 GSF (includes 50,000 GSF demolition, 104,000 GSF renovation, 100,000 GSF new construction)
<b>Programmatic Driver:</b>	Address facility deficiencies; expand and restore to meet Harvard Art Museums' programmatic needs
<b>Green Attributes:</b>	Targeting LEED Gold

Harvard Art Museums' project to renovate and expand its facilities located at 32 Quincy Street is well underway. The project will bring together Harvard Art Museums' three constituent museums—the Fogg Museum, the Busch-Reisinger Museum, and the Arthur M. Sackler Museum—in one state-of-the-art facility. The new facility will enhance the teaching and research mission of the Art Museums and create far more accessibility to their renowned collections through additional exhibition space, as well as an expanded object-based study center complex where visitors can view and study works of art that are not on display. Visitor amenities such as a café and museum shop will also be included.

Construction began at the site in 2010 with selective demolition and abatement. Excavation along Prescott Street was completed in fall 2011. The restoration of the historic building is advancing and construction of new above-ground space is in the early stages.

Architect Renzo Piano, with local design partner Payette Associates, developed a design that respectfully preserves the original 1927 building, including its historic façades on Broadway and Quincy Street and the iconic interior courtyard. The design required the removal of later additions to the original 1927 structure to allow for new construction that will provide functional space for a world-class art institution and support its new program. A new gallery addition will be constructed along Prescott Street that will provide the community with a second entrance of equal significance to the existing entrance on Quincy Street. A new glass rooftop addition will allow important natural light to filter into the museums' conservation labs and the study center complex, as well as the courtyard below.

The expansion is designed to minimize impact upon the historic structure, is distinct in its architectural expression, and respects the residential neighborhood and the historic Carpenter Center. New landscaping will also enhance the public realm with more usable green space and bicycle parking. The project is designed to follow the University's sustainability initiatives with the intention of attaining LEED Gold certification.

Skanska USA Building Inc. is managing construction of the project. Removal of material from demolition has been achieved with a recycling rate of 97%. The original building's envelope has been braced with heavy steel members to provide structural integrity until the new structural system is in place.

The Arthur M. Sackler Museum at 485 Broadway remains open during the construction on Quincy Street and has been reinstalled with representative works from the collections of all three museums.



## Fay House (Renovation)



*Photo Credit:  
Heather Langham, RIAS*

<b>Architect:</b>	Venturi Scott Brown and Associates
<b>Total Square Feet:</b>	20,600 GSF renovation
<b>Programmatic Driver:</b>	Improvement of administrative space
<b>Green Attributes:</b>	Targeting LEED Gold

The Radcliffe Institute for Advanced Study began construction on the comprehensive renovation of Fay House in June 2011. The earliest portion of the building was built in 1807 as a residence, and the structure has evolved over time with numerous additions and renovations. The interior of this historic structure will be re-configured to optimize the building's functionality and improve its efficiency while retaining the building's historic character. Fay House will continue to be the home of many of the Institute's administrative offices.

Specific project components include: making the building fully accessible; addressing building life safety with new egress stairs, and new fire detection and suppression systems; improving occupant comfort and efficiency by updating heating, cooling, plumbing, electrical, and telephone/data systems; and undertaking repairs to the building exterior. The project is expected to be completed in Spring 2012.

## Gutman Library - First Floor (Interior Renovation)



<b>Architect:</b>	Baker Design Group
<b>Total Square Feet:</b>	36,000 GSF
<b>Programmatic Driver:</b>	Re-purpose first floor space to create a campus focus and gathering space
<b>Green Attributes:</b>	Targeting LEED Gold

The Harvard Graduate School of Education (HGSE) has begun a renovation project at Gutman Library which will transform the first floor of this building into a campus center that will serve as a natural hub and gathering space for the HGSE community.

The project will move many of the Library offices and support functions to the second floor, allowing the first floor to be re-purposed as a center for collaboration and interaction. The renovated first floor will include a campus café, various soft seating clusters, and a reading room/art gallery that doubles as a large flexible community event space. The transformed first floor will also serve as an inviting new entryway to HGSE's conference center located on the lower level of the building.

The renovation of the second floor will create an open and collaborative office suite for the Library and feature new circulation and reference areas as well as additional quiet study rooms, doctoral student offices, and computer stations. The new layout is expected to enhance communication and collaboration among work groups and provide greater flexibility for internal rearrangement of space as the needs of the Library change over time.

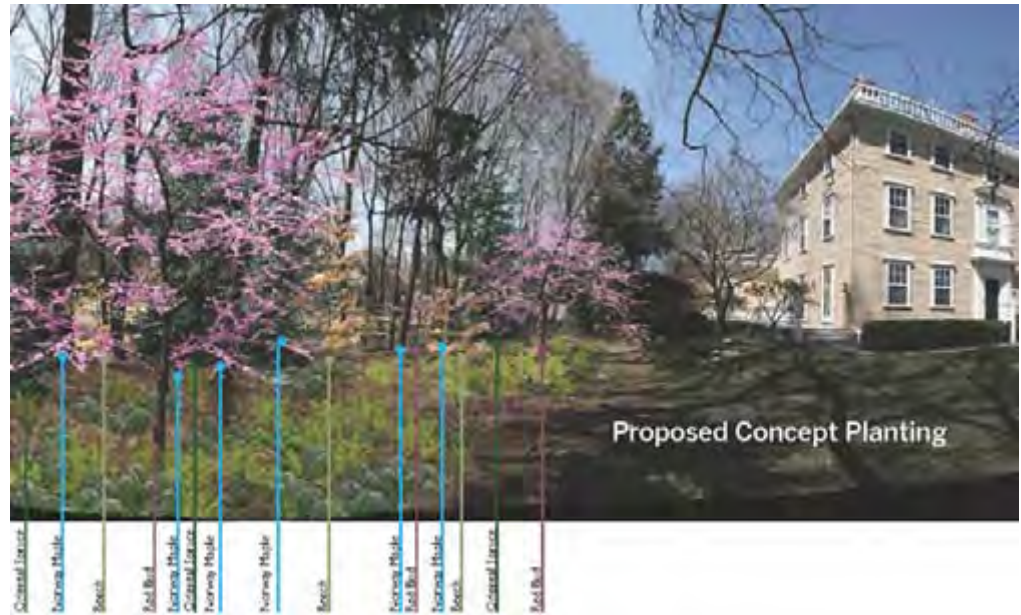
**15 Hawthorn Street**  
(Restoration and Renovation)



**Architect:** Boyes-Watson Architects  
**Total Square Feet:** 8,000 GSF  
**Programmatic Driver:** Housing Harvard's affiliates  
**Green Attributes:** Targeting LEED for Homes Certification

In 2008, Harvard received the property at 15 Hawthorn Street (1896) as a gift to the University. Currently Harvard is in the process of fully restoring the exterior of the building with minor changes as well as renovating and reconfiguring the interior spaces. Upon completion, the house will be used as a single family residence for a Harvard affiliate. The project received a Certificate of Appropriateness from the Cambridge Historical Commission in July 2011. Construction at 15 Hawthorn is anticipated for completion in spring of 2012.

### 33 Elmwood Street (Woodland Renewal)



**Landscape Architect:** Michael Van Valkenburgh Associates, Inc.

**Total Square Feet:** Approx. 42,000 SF

**Programmatic Driver:** Improvement of campus landscape

**Green Attributes:** Removal of invasive species, re-introduction of native plantings

Harvard Real Estate has begun the initial phase of a multi-year project to renew the woodland area at 33 Elmwood Avenue. Over the years the woodland area along the Fresh Pond Parkway has become dominated by Norway Maples, a highly invasive non-native tree species. The project will include the gradual removal of the Norway Maples, the thinning of the existing tree canopy allowing sunlight to support new understory growth, and the introduction of a more diverse palette of native planting. Future planting will include additional canopy trees and a variety of understory plants. The project, which began in the Fall of 2011, is expected to be implemented in phases over the next 10 years.



**Old Quincy (Mather Hall)**  
(Renovation)



<b>Architect:</b>	KieranTimberlake
<b>Total Square Feet:</b>	58,000 GSF
<b>Programmatic Driver:</b>	Renew undergraduate House life
<b>Green Attributes:</b>	Targeting LEED Gold

The undergraduate House system has been a defining feature of Harvard College since the system was first established by President A. Lawrence Lowell in 1930. The undergraduate Houses, which formalize Harvard's centuries-old tradition of learning and living together, are in need of a comprehensive renewal. After an extensive planning and programming process, Harvard has commenced the design of a test project at Old Quincy (Mather Hall), a 5-story, brick dormitory part of the larger Quincy House. Old Quincy's size and neo-Georgian architecture will provide valuable lessons that can be applied to other House buildings.

The architectural firm, KieranTimberlake, has been hired to develop plans and designs that will preserve the historic character and culture of the House, while renewing the House life experience as a part of a twenty-first century approach to liberal arts education. The project calls for a major renovation of the building, including updated interior room layouts, enhanced circulation, new social and academic spaces, new building systems, and significant improvements to accessibility. Construction of this project is scheduled to begin in 2012.

Harvard is anticipating the future renewal of other undergraduate Houses, but the timing and phasing of overall House renewal will depend on funding, and will also be considered in the context of the University's overall capital plan.

## **Cambridge Street Overpass** (Surface Treatment)

- Landscape Architect:** StossLU  
**Total Square Feet:** Approx. 52,000  
**Programmatic Driver:** Improvement of landscape and pedestrian circulation  
**Green Attributes:** Studying options including storm water management

As part of the ongoing coordination with the planned repairs to the Cambridge Street tunnel, Harvard is continuing its study of possible landscape and pedestrian circulation improvements to the overpass between Harvard Yard and the Science Center. Initial enabling work for this project is expected to begin in Spring 2012 with completion in Spring 2013.

## Radcliffe Landscape Improvements



- Landscape Architect:** Stephen Stimson Associates  
**Total Square Feet:** Approximately 1.2 acres landscape  
**Programmatic Driver:** Improvement of campus open space  
**Green Attributes:** Improved site drainage, maintenance of existing tree canopy

The Radcliffe Institute for Advanced Study is completing design work for several landscape projects that will complete the implementation of its Landscape Master Plan. To date Radcliffe has undertaken landscape improvements as part of the renovation of Byerly Hall in 2008, and completed the restoration of the “Sunken Garden” at the corner of Garden Street and Appian Way in 2009.

The final phase of landscape improvements, which is expected to begin in Spring 2012, will focus on Radcliffe Yard which serves as the principal organizing space connecting the Institute’s buildings and activities. Key project components include measures to improve site drainage and address soil compaction; enhancing the character of the transition areas between the perimeter path and building entrances; and clarifying wayfinding for visitors to Radcliffe Yard. The project will also create a new area for changing landscape and public art installations adjacent to the Radcliffe Yard.

**Gannett House**  
(Renovation)



<b>Architect:</b>	Austin Architects
<b>Total Square Feet:</b>	8,660 GSF
<b>Programmatic Driver:</b>	Improve building infrastructure and accessibility
<b>Green Attributes:</b>	To be determined

Harvard Law School is in the early stages of planning for a renovation of Gannett House, a three-story Greek Revival house built in 1830. The project is primarily intended to address a number of deferred maintenance issues including envelope stabilization and updated building systems. The project will also result in improvements to the building's overall accessibility and sustainability. Upon completion of the renovation, Gannett House will continue as the home of the Harvard Law Review, as it has been since 1925.



## **Pound Hall** (Partial Demolition and Crossroads Project)



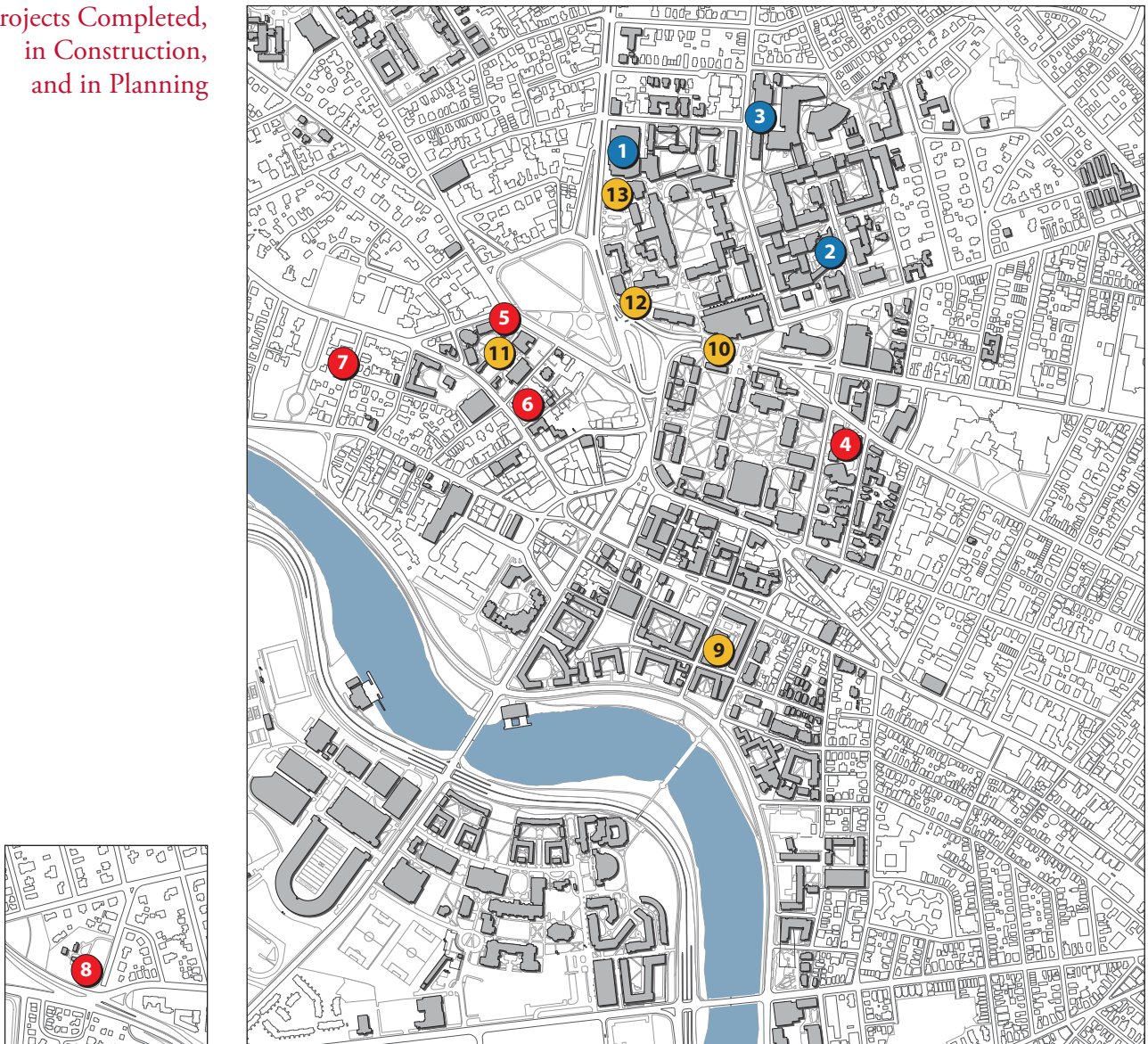
<b>Architect:</b>	Finegold Alexander & Associates, Inc.
<b>Total Square Feet:</b>	39,000 GSF demolition
<b>Programmatic Driver:</b>	Create campus gathering space
<b>Green Attributes:</b>	Incorporating sustainable materials and methods

Harvard Law School is planning to undertake exterior modifications to Pound Hall as part of a major re-landscaping effort to create a “Crossroads” for the Harvard Law School campus. This project re-envisioned what is currently passive, residual space into a vibrant, active landscape that functions both as a major campus pedestrian route as well as a centering gathering space. This project was conceived as part of the larger Harvard Law School campus master plan, to be executed upon completion of the adjacent Wasserstein Hall Caspersen Student Center Clinical Wing (WCC) building. Collectively the project aims to create a new “heart” of the Harvard Law School campus as part of a series of linked landscaped areas connecting Massachusetts Avenue to the route to Harvard Yard through the interior of the campus.

To accommodate the programming goals and better facilitate the Crossroads’ connections to the surrounding buildings, the project proposes the partial demolition of approximately one-third of Pound Hall’s east wing. The classroom and meeting spaces eliminated through the removal of this wing have been replaced in the WCC. A new façade designed to complement the distinct modernist architecture of the building will re-clad Pound Hall’s remaining east wing and will incorporate a new entry to the building. Together with the entries for the WCC, this new entry to Pound Hall will front the Crossroads directly, activating its role as a campus hub. The project is scheduled to begin in February 2012.

# 1. PROJECT MAP

Projects Completed,  
in Construction,  
and in Planning



**Recently Completed**

- 1. Wasserstein Hall, Caspersen Student Center and Clinical Wing
- 2. Sherman Fairchild Building
- 3. Engineering Science Laboratory

**Currently in Construction**

- 4. Harvard Art Museums: 32 Quincy Street
- 5. Fay House
- 6. Gutman Library
- 7. 15 Hawthorn Street
- 8. 33 Elmwood Woodland Renewal

**In Planning**

- 9. Old Quincy (Mather Hall)
- 10. Cambridge Street Overpass
- 11. Radcliffe Landscape Improvements
- 12. Gannett House
- 13. Pound Hall

## 2. PROJECT LIST

Project	Programmatic Goal	Green Attributes
<b>● Recently Completed</b>		
1. Wasserstein Hall Caspersen Student Center and Clinical Wing (HLS Northwest Corner Building)	Replacement of inadequate academic facilities and student activity space; relocation of parking underground	LEED Registered, targeting Gold; Daylight and occupancy sensors Indoor air quality monitoring systems High-performance glazing for heating insulation, operable windows for natural ventilation Recycled and re-used construction materials Green roof Filtered water bottle filling stations Displacement ventilation Rainwater harvesting system Bike parking and a shower for cycling commuters 75% of construction waste re-cycled
2. Sherman Fairchild Laboratory (Department of Stem Cell and Regenerative Biology)	Improve space for interdisciplinary science research and teaching	Targeting LEED Gold with a goal of Platinum Photovoltaic arrays on the roof to produce clean renewable energy A heat shift chiller and chilled beams that boost HVAC system efficiency Enthalpy wheels to recover waste heat and cooling from the exhaust Solid state, energy-efficient, LED-task lighting over lab bench areas Utility sub-metering to allow for more efficient building operations High-performance, low-face velocity fume hoods to reduce ventilation needs Real-time utility touch screens to educate and engage occupants Environmentally-preferred and non-toxic materials
3. Engineering Science Laboratory	Improve building infrastructure and accessibility; support collaborative research	Targeting LEED Gold
<b>● Currently in Construction</b>		
4. 32 Quincy Street (Harvard Art Museums)	Improve access to collections, promote outreach to new audiences, foster collaboration among curatorial departments, and enhance the museum's role in Harvard's educational mission	LEED registered; targeting Gold Recycle demolition debris Reduction in use of potable water and complete rainwater harvesting Energy-efficient building envelope Automated systems to balance natural lighting and improve energy efficiency Heating and cooling systems with heat recovery to reduce energy consumption 24/7 building management system to respond immediately to changing weather and occupancy Custom designed and energy-efficient gallery lighting systems Use of certified renewable lumber

*Project List  
(cont'd)*

Project	Programmatic Goal	Green Attributes
5. Fay House renovation (RIAS)	Improvement of RIAS administrative space	Targeting LEED Gold; re-use of existing building fabric, new energy efficient building systems; use of sustainable building materials
6. Gutman Library – First Floor	Improve student spaces	Targeting LEED Gold
7. 15 Hawthorn Street	Provide affiliate housing	Targeting LEED for Homes Certification
8. 33 Elmwood Woodland Renewal	Improvement of campus landscape	Removal of invasive species, re-introduction of native plant materials
<b>In Planning</b>		
9. Old Quincy Renovation	Improve undergraduate housing	Targeting LEED Gold
10. Cambridge Street Overpass	Improvement of landscape and circulation	Exploring options, including various approaches for storm water management
11. Radcliffe Landscape Improvements	Improvement of campus open space	Improved site drainage, maintenance of existing tree canopy
12. Gannett House	Improve academic experience	TBD
13. Pound Hall	Improvement of campus open space	Recycled landscaping materials Water efficient plantings Reduced storm water run-off Increased rainwater infiltration, Low-flow/dual-flush plumbing fixtures Sub-metered utilities to monitor energy use Low VOC emitting adhesives, sealants, paints, wood and agrifiber products. 75% of construction waste recycled or reused



## C. OTHER PLANNING PRIORITIES

### *Allston Planning*

In the summer of 2011, the Harvard Allston Work Team presented the University with the following set of five recommendations for proposed next steps in Allston.

- Resume planning and development of the Western Avenue foundation (science site) as an innovative, interdisciplinary health and life science center
- Develop an enterprise research campus in Allston Landing North, creating a gateway to a collaborative community for business, investment capital, research and science Development
- Enhance the vibrancy of Barry's Corner through housing and other amenities
- Enable academic growth by preserving land adjacent to the existing campus, consistent with past planning
- Explore the feasibility of a conference center and hotel to accommodate the academic and research sector

These recommendations were endorsed by the President and the Harvard Corporation in September, and initial implementation is expected in two distinct but related phases of work.

Phase one includes three major components:

- Moving ahead on a Health and Life Science Center on the Western Avenue foundation, driven by academic planning under the leadership of the Provost. As a program of specific health, life and interdisciplinary science research uses is identified, the building plan will be evaluated and re-programmed to ensure the optimization of science and research space.
- Planning for a new residential commons and retail center in the Barry's Corner area. Rental housing for Harvard graduate students, visiting scholars, faculty members and others will be combined with retail facilities and amenities for the entire neighborhood. After soliciting ideas and feedback from the community to inform planning for Barry's Corner, the University plans to issue a Request for Proposals (RFP) for third-party development partners to plan, build and manage the residential commons and retail center. Depending on the pace of the design and permitting processes, construction could begin in 2013.
- This phase will also include site assessment and academic planning for the current Charlesview Apartments site along Western Avenue and North Harvard Street. As soon as the new Charlesview Residences are occupied, and prior to demolition at the existing site, Harvard will provide an update on the site assessment, academic planning and timeline.

Phase two will focus on Allston Landing North and include the identification of appropriate development partners to assist in planning and developing an Enterprise Research Campus, which could potentially include a hotel and conference center. The Enterprise Research Campus is intended to serve as a gateway to a collaborative community for business, investment capital, and research and science development. This activity will be explored in tandem with phase one, but with longer-term objectives and timeframes.

Harvard anticipates that the planning efforts associated with these two phases will result in a new Institutional Master Plan Notification Form (IMPNF) submission by the end of 2012, a process which will include a series of conversations with the Boston Redevelopment Authority and the community that will ultimately lead to a new Institutional Master Plan for Harvard in Allston.

## *Planning for Bicycle Facilities*

Cycling is recognized as an integral component of the University's transportation system and is part of our commitment to building a healthy, more sustainable campus. Harvard's twelve Schools and various administrative units have long supported the strengthening of the cycling network and facilities across our campuses. In recent years there has been increased investment in new bicycle facilities and in collaborative planning with local and regional cycling initiatives.

### **New Bicycle Facilities**

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

- **Sheltered bike-parking facilities** in the North Yard (Francis Avenue), Harvard Law School, Broadway Garage, Harvard Graduate School of Design, and Riverside housing. These stations provide more than 400 sheltered parking spaces.
- **New or improved bike racks**, throughout the Cambridge campus that allow cyclists to lock their bikes while at class or work.
- **Bicycle repair station** located at Pound Hall (Harvard Law School) which allows cyclists from across the Harvard community to pump air into their tires, make adjustments and perform minor bike repairs.

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

### **Bicycle Facility Guidelines**

Harvard University's Cambridge Campus Transportation Guidelines (2006) include considerations for the provision of bicycle parking and other facilities as part of Harvard's commitment to strengthening its campus bicycle network. The University works with individual campus project proponents and broader groups of stakeholders to implement recommendations for:

- Siting of bicycle facilities as part of Harvard's overall campus transportation network.
- Provision of long and short-term bicycle parking.
- Provision of covered or weather protected parking where feasible.
- Appropriate bike rack design consistent with the City of Cambridge standards.
- Provision of building amenities such as interior bike parking and changing, locker and shower rooms to encourage bicycle commuting.

## **Bike Sharing Programs**

Harvard's Cambridge campus is served by several bike sharing programs which provide cycling transportation alternatives without owning a bicycle. These programs include:

### **Hubway**

Harvard is collaborating closely with the cities of Cambridge and Boston to bring the regional bike-sharing program, Hubway, to Harvard's main campuses. A total of nine stations will be located on Harvard's campuses, with four on the Cambridge campus expected to open in 2012.

The Hubway bike-sharing system will provide an exciting new transportation alternative for faculty, staff, students and visitors, and will enhance Harvard's CommuterChoice Program. The system will give Harvard the ability to better connect areas of the campus not as well served by existing transit systems and enable more transit connections between existing public and private transit modes for Harvard affiliates and the general public. This program will also help to contribute to the University's sustainability goals by reducing inter- and intra-campus vehicle trips.

### **CrimsonBikes**

This student-initiated bike sharing program began operating as LevBikes in 2009 with a modest fleet of six bikes at Leverett House using a simple honor-based checkout system. In May 2010 LevBikes was awarded a grant from Harvard University's Office for Sustainability that provided necessary capital for development of the program including the creation of a website that enabled and monitored reservations at any time of day. These changes greatly increased its usage.

In 2010 LevBikes and VeriFast Cycles, a bike-share program piloted by Harvard's Environmental Action Committee, merged their efforts to create CrimsonBikes. CrimsonBikes aims to be Harvard's first Campus-wide bike share, testing an innovative model through the set-up of multiple checkout stations throughout campus.

### **Read & Ride Bikeshare**

A collaborative effort of the Harvard Law School Library and the HLS Green Living Program, the Read & Ride Bikeshare is an innovative program that provides free short- and long-term bike loans to all HLS community members.

The program was envisioned by HLS library staff looking for a way to help their document delivery assistants get around campus more easily. Recognizing that they could use existing library loan technology to loan out bikes the same way they loan out books, the vision was expanded to provide a bike sharing service to the entire HLS community.

The current fleet of 4 bikes (all donated by graduating students) can be checked out for 3-hour or 24-hour periods at the Langdell Library circulation desk. The program is supported and co-maintained by students in the HLS Green Living Program who encourage using bikes as an emissions-free transportation alternative for getting around campus and Harvard Square.

## CommuterChoice Cycling Initiatives

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

- **Bike Week** – Harvard participates annually in this event. As part of Bike Week activities in 2011, nearly 150 Harvard cyclists registered for the Mass Commuter Challenge, a friendly competition between Massachusetts businesses, institutions and municipalities to encourage bike commuting during the week. Other events included the CommuterChoice Bike Breakfast inside the Holyoke Center Arcade, which featured free bike safety checks, a raffle for cycling equipment, and giveaways such as leg bands, safety lights, bike safety brochures, and bike maps.
- **Safety Classes** - From May – October 2011 CommuterChoice offered Safe Cycling Classes to learn about urban cycling, rules of the road, and how to ride safely and legally in traffic and included two hours of in-class discussion and one hour of on-the-road practice in a variety of traffic scenarios.
- **Departmental Bike Program** – CommuterChoice offers a subsidy to University departments for the purchase one or more bicycles to support department members' travel around campus in an environmentally sustainable and healthy manner during the work day. CommuterChoice orders bikes, registers them with the Harvard University Police Department (HUPD) and labels them with the department name. The program also assists with purchasing needed accessories, coordinating regular maintenance, and establishing a monitoring system for the bikes.

## Planning for Cycling Networks

Harvard continues to support the improvement and growth of local and regional bike networks that connect our campus with the City of Cambridge and the greater Boston area. These efforts include:

- 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 implementation of the North Harvard Street and Western Avenue bike lanes which provide important cycle links between the Allston and Cambridge campuses.
- 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.



## D. SUSTAINABILITY

Harvard is committed to addressing the challenges of climate change and environmental sustainability through academic research and by translating that research into action on campus. The commitment to creating a healthier, more sustainable campus is driven by three flagship University-wide commitments, administered through the Office for Sustainability and in partnership with the Schools and Central Administration:

- **Greenhouse Gas (GHG) Reduction Goal** to reduce GHG emissions 30% below a 2006 baseline by 2016, including growth (adopted in 2008).
- Comprehensive **Green Building Standards** for capital projects, renovations and building system upgrades that require a smart design process incorporating life cycle costing, integrated design, energy modeling and other elements that ensure opportunities for sustainable design and operations are fully assessed and that performance requirements are achieved in a cost-effective manner (Adopted 2009, building on the 2007 Green Building Guidelines).
- **Campus-wide Sustainability Principles** that provide a broad vision to guide University operations and planning (adopted in 2004).

### Greenhouse Gas Reduction Goal Progress and Update

**Between FY 2006 and FY 2010 Harvard reduced net GHG emissions by 10%**, one-third of the way to the GHG reduction goal, despite sizeable growth in Harvard's building portfolio. Excluding growth and taking data from the base buildings alone, GHG emissions fell by 20% in the five-year study period, which attests to the significant energy reduction technologies and behavior campaigns implemented by each School and unit with the support of OFS.

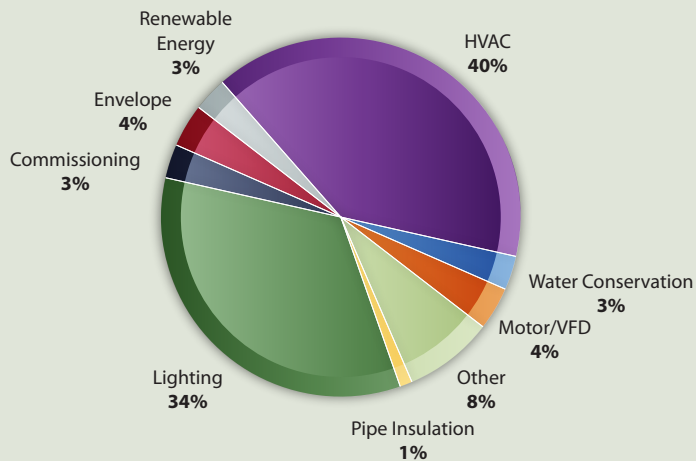
This reduction has been the result of actions in several areas:

- **Energy Demand.** Heating, cooling and power for buildings accounts for a significant component of Harvard's GHG emissions. Energy conservation measure projects (ECMs) and individual behavior change are very effective tools in reducing GHG emissions. For example, energy "walkthroughs" at Harvard Law School resulted in 80% of offices turning off electronics and 78% turning back thermostats during vacation, a 48% and 16% improvement from FY10 respectively.
- **Campus Utilities.** Harvard's Cambridge steam and chilled water plants have made significant improvements in their efficiency and GHG intensity. **The Blackstone Steam Plant is 24% less GHG intensive in FY10 compared to FY06 and the two main chilled water plants combined are 23% less intensive.** The Blackstone Steam Plant is also a co-generation facility, housing a 5 MW steam turbine-generator which produces electric power as a byproduct of steam production. Co-generation reduces the amount of electricity purchased from the grid, equivalent to about 6,000 MTCDE annually.
- **Energy Audits.** Harvard has set a goal to perform energy audits on 100% of the campus, and has already audited or commissioned all of the highest-GHG emitting buildings. **To date, over 175 ASHRAE level 1, 2 or higher energy audits have been performed on 12 million square feet of office, lab, residential and academic**

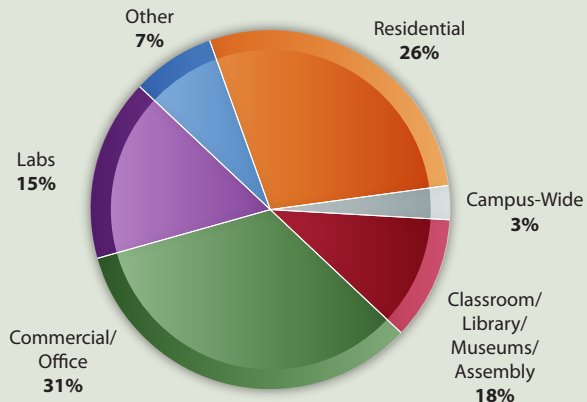
**space.** These audits have resulted in 563 energy conservation recommendations that represent an average GHG reduction of 34% (from FY06 baseline), average energy reduction of 33% (from FY06 baseline) and estimated annual savings of over \$1.2 million. The average return on investment for these measures is just over three years.

- **Energy Conservation Measures (ECMs).** Schools and central administrative units integrate energy conservation measures over \$100,000 in their annual Capital Plans. This process embeds GHG Reduction planning into the University’s capital planning process. **To date, Harvard’s Schools and administrative units have implemented over 800 energy conservation measures.** An additional 860 cost-effective ECMs have been identified as part of the capital planning process.
- The ECMs completed in the past six years have reduced building energy consumption predominantly from lighting and HVAC systems. Harvard is also committed to ensuring that existing building mechanical systems operate as efficiently as possible by undergoing an effort to “commission” buildings to optimize building performance and energy efficiency.

### ECMs Completed Through FY2011



### ECMs by Building Category



## Student Weatherization Projects

Based on the success of the 2010 student-staff collaboration that led to the weatherization of the Phillips Brooks House, Harvard continued its program in which students partner with staff to weatherize buildings on campus. In April 2011 students and staff weatherized the Morton Prince House (see case study below) and in October 2011 they came together to weatherize the buildings that house Harvard Career Services and the Office of the Arts.

### Weatherization Case Study:



*Harvard students help weatherize Morton Prince House.*

More than 30 members of the Harvard community rolled up their sleeves on Saturday April 2, 2011 to weatherize the Morton Prince House, home to the Freshman Dean's Office (FDO). In a workday organized by the student-run Environmental Action Committee, FDO, Faculty of Arts and Sciences Green Program, Green Building Services, the Harvard Office for Sustainability, and Campus Services Facilities Maintenance Operations, teams of students, staff and administrators worked together to implement 11 energy conservation measures that will improve the building's energy efficiency. Five student leaders coordinated groups working on installing pipe insulation,

low-flow sink aerators, high efficiency light bulbs, and improved recycling signage, among other tasks.

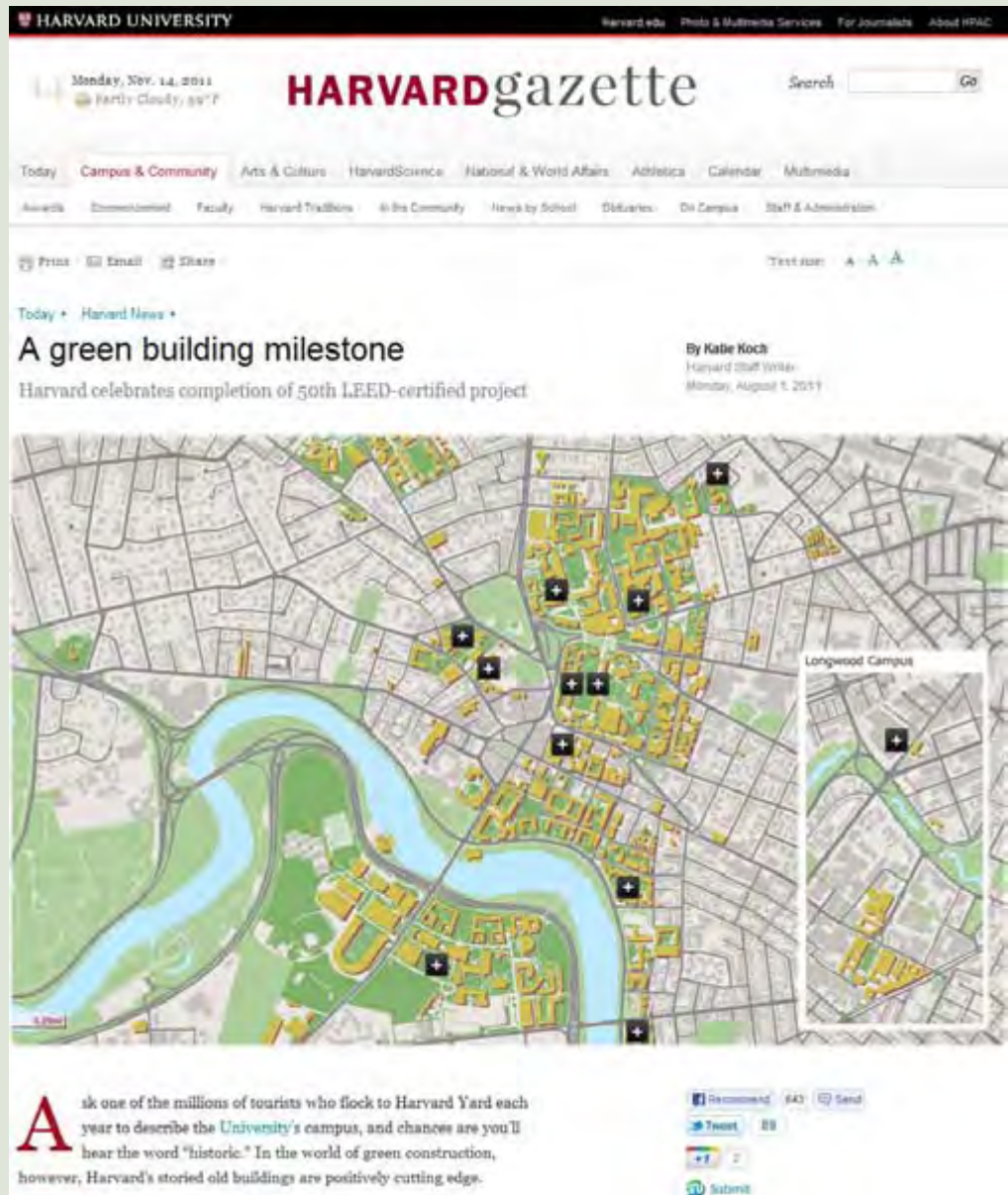
An audit conducted by Campus Services Energy Auditing Service revealed 11 low-cost conservation measures that would lead to an annual reduction of 5.9 tons of carbon dioxide equivalent, a 26% improvement from the building's current energy consumption, and \$1,928 in annual cost savings. All of the recommended conservation measures were implemented on April 2.

## Greener, Healthier Buildings

In August 2011, the US Green Building Council (USGBC) announced Harvard University had become the first higher education institution in the world to achieve its 50th LEED certification. The green building milestone included six platinum-level projects and represents more than 1.5 million square feet of labs, dormitories, libraries, classrooms, and offices. An additional 3 million square feet of space is registered and pursuing LEED certification. Energy models suggest that the 14 LEED new construction projects that have performed energy modeling have delivered more than \$1.5 million in energy savings annually and a reduction of more than 4,000 metric tons of carbon dioxide equivalent (MTCDE) annually, which equates to an average reduction of 34 percent below industry energy standards.

As of October 2011, a total of 93 Harvard projects, 65 of them in Cambridge, have received or are seeking certification with the USGBC (44 Cambridge projects have achieved LEED certification). The Harvard Green Building Services team posts case studies for each LEED certified project on the Green Building Resource website at:

<http://green.harvard.edu/theresource/>. The website also provides resources and tools to the Harvard community and the community at-large to support implementation of pragmatic Green Building Standards.



To view an interactive map of some of Harvard's LEED projects visit: <http://news.harvard.edu/gazette/story/2011/08/a-green-building-milestone/>

## Renewable Energy

Harvard University invests in renewable energy alternatives in two ways: through our power purchasing decisions and by investing in on-site renewable energy installations. Approximately 17% of Harvard's electricity needs are met through clean, renewable sources, most of which is purchased energy which contributes to our regulatory Renewable Portfolio Standard obligation. In addition, small-scale on-site renewable wind and solar energy installations located across the Harvard campus produce 600kW of power, serve as testing sites for new technologies and raise awareness about renewable energy alternatives.

Many University vehicles, including all the shuttle buses, are fueled with a blend of Biodiesel and Ultra-low Sulfur Diesel. Biodiesel is made from renewable resources like soybeans, which lowers dependence on foreign oil. Ultra-low Sulfur Diesel is cleaner-burning and produces far fewer particulate emissions than conventional diesel.

## Reducing the Environmental Footprint of Campus Operations

### Green Cleaning



Harvard's Facilities Maintenance Operations (FMO) Custodial Services, which provides Custodial Services to portions of the Cambridge campus, is the only cleaning service in Massachusetts to have achieved Green Seal™ certification, an industry mark of sustainable cleaning practices. In addition, the Campus Services group is currently the only in-house cleaning service in all higher education to be so certified. This latest accomplishment is another important milestone in Harvard's goal to integrate sustainability into all of its daily campus operations.

The Green Seal™ certification was a multi-year process that required Harvard's Custodial Services group to adjust cleaning products and procedures as well as invest in new equipment. Staff was also required to complete 24 hours of specialized training in product selection and use, as well as cleaning techniques with new equipment.

Green Seal™ standards include:

- Each building must have a customized cleaning program to meet its specific environmental needs.
- Products must be registered as “environmentally preferable” by Green Seal™.
- Procedures must be designed around the environment and health of building occupants.
- Procedures must comply with strict environmental safety regulations.

### Organic Landscaping

Harvard University's Facilities Maintenance Operations (FMO) group has continued to expand its highly successful Organic Landscaping Program which is now implemented across over 80 acres of University landscape – including the highly visible and heavily used Harvard Yard.

The program replaces chemical fertilizers, pesticides, herbicides, and fungicides with specially brewed organic teas. These liquid biological amendments are specifically designed to restore the natural nutrient cycling system. Results typically include increased root growth of 3-5 inches, a significant reduction in irrigation requirements due to enhanced moisture retention, and increased levels of beneficial nitrogen. To learn more, visit [www.uos.harvard.edu/fmo/landscape](http://www.uos.harvard.edu/fmo/landscape).



## Greening the Campus

Harvard continues to seek opportunities to physically green its campus, most notably through the replacement of surface parking lots with new landscaped areas such as the Harvard Divinity School's transformation of a former parking area into a landscaped quad. Projects such as these not only create attractive green spaces but also improve stormwater management by reducing the amount of impervious surfaces on campus.

## Transportation Programs

A key component of Harvard's sustainability strategy is programs which encourage sustainable modes of transportation. These efforts, including those managed by Campus Services' CommuterChoice Program, provide the Harvard community the opportunity to drive less, reducing congestion by encouraging carpooling/car sharing, bicycling, walking and transit use among faculty, staff and students. Recent efforts include investment in additional and improved bike facilities, expanded campus bike share programs and strong institutional support for the Hubway regional bike share program in both Cambridge and Boston (See page 34). Additional information on CommuterChoice initiatives can be found in the Transportation Demand Section of the report.

## Waste Reduction

In addition to Harvard's commitment to recycling and composting in buildings and during events, the University is committed to reducing waste through reuse and using less. Harvard's per capita trash plunged 60% from 1989-2011 because of the University's focus on using less materials.

In 1989, Harvard students moving out dumped 289 tons of couches, clothing, books and a little trash into dumpsters brought in around campus. By comparison, in 2010, Harvard students discarded only 30 tons, an all-time low. Last year, students donated nearly 200 truckloads of reusable goods during Move-out for the Harvard Habitat for Humanity Stuff Sale, Cosos of Adams House, the Cambridge Family Shelter and other charities. This success is the result of Harvard Habitat for Humanity and their massive sorting effort at their warehouse in Allston and the FAS Green Program's undergraduate volunteers who located and publicized reuse shelves in all the Houses and dorms throughout the year and saved thousands of goods from the landfill by putting them into the hands of those who could use them.

In addition, Semi-New Computers <http://www.semi-newcomputers.com/>, based on Harvard's Allston campus, takes used PC's from the Harvard waste stream and refurbishes them for re-sale, offering our neighbors a substantial discount.



## Building a Culture of Sustainability

A major component of Harvard's sustainability strategy is building a culture of sustainability that brings about lasting change in behaviors. Programs such as the Green Office Program, Green Teams, Student Sustainability Grants, and Green Carpet Awards supported by the Office for Sustainability, and other University initiatives encourage individual actions that advance campus sustainability. Recent highlights include:

- As of August 2011, there were 132 Green Offices with over 2400 employees.
- Student Sustainability Grants have supported over 20 projects across the University.
- Increased integration of sustainability in student and new employee orientation.
- Harvard's Food Literacy Project continues its highly successful weekly seasonal farmer's market, now in its sixth year, which provides fresh produce and other foods from Massachusetts farmers and food artisans for the Harvard and Cambridge community.



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### III. TRANSPORTATION DEMAND MANAGEMENT

Harvard University remains a leader among Cambridge's large employers for consistently reducing its exceptionally low SOV rate. When it was approved in 2003, Harvard's Parking and Transportation Demand Management (PTDM) Plan targeted a goal of reducing the University's Single Occupancy Vehicle (SOV) rate by 10% (from 27.4% to 24.7%). This goal was surpassed the following year when Harvard achieved an SOV rate of 17.0%. According to the latest PTDM survey results Harvard's SOV rate has continued to remain low and is now at 15.9%<sup>1</sup> 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. Harvard's low SOV rate and the reduction of trips to Cambridge reflect the University's ongoing commitment to the programs and measures contained in Harvard's PTDM Plan. Harvard's CommuterChoice Program tracks and monitors the transportation demand management programs and incentives that it provides, and is committed to improving the University's programs based on annual survey data and program feedback. CommuterChoice Program offerings include:

#### *CommuterChoice Program*

- MBTA monthly pass subsidy and pre-tax savings.
- Pre-tax savings on purchase of private transit passes and commuter checks.
- Carpool partner matching and carpool registration.
- Assistance with vanpool formation.
- Discounted and preferential parking for carpools and vanpools.
- Emergency Ride Home Program for carpools and vanpoolers.
- Discounted Zipcar™ membership.
- Information on safe bicycle routes and general bicycle safety.
- Departmental Bike Program: <http://www.commuterchoice.harvard.edu/bicycling/>
- Walk to Work programs and information.
- HarvardWalks! A walking map of the Cambridge campus (3rd printing).
- Information on local transit options.
- Assistance with transportation information as it relates to moving to the area or relocation.
- Park and Ride information.
- Outreach to the University's Transportation Coordinators, representing all of the University's Departments.

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1. Harvard has refined its survey methodology to more closely meet the PTDM reporting requirements. Harvard's SOV rate would equal 11.9% this year if the original methodology was applied.

## Highlights from the past year include:

### T Pass Program

- Sold on average over 6,600 MBTA monthly passes each month.

### Ridesharing/Car-Sharing

- Implemented Zimride, on-line ride matching software for carpools and/or one-time rides.
- Increased Zipcar membership to over 8,500 registered participants.
- Piloted Zipcar for Harvard affiliates under 21 years of age - first university in Greater Boston.
- Added 10 Zipcars to Harvard's fleet (totaling 20) including a pick-up truck and Plug-In Hybrid.
- Supported RelayRides, neighbor-to-neighbor carsharing, by dedicating spaces on campus.
- Partnered with MassRIDES to offer NuRide, a rewards program for sustainable travel.

### Bicycles

- Continued participation in Departmental Bike Program: 20 departments and 43 bikes, including electric bikes.
- Instituted on-line reservation system for Departmental Bike Program with "Geared Up" safety video.
- Taught Safe Cycling Classes: Two hours of in-class instruction and one hour on-the-road practice.
- Offered discounted bike helmets for purchase.
- Held "Fix a Flat Tire" clinics.
- Awarded 2011 Boston Bike Friendly Business Gold Level Award.
- Participated in Bay State Bike Week with 147 Commuter Challenge registrants.

### Commuting Awards

- Won MassRIDES Car Free Day Commuter Challenge (Sept. 2010) with approximately 1,720 participants.
- Awarded a Massachusetts Excellence in Commuter Options (ECO) Award, Pinnacle Level.

## *Parking and Transportation Demand Management Plan*

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. Harvard's PTDM programs, which are administered by CommuterChoice, are having 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://www.upo.harvard.edu>. Harvard submits annual PTDM updates which are on file with the City's Community Development Department.

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## IV. INSTITUTION SPECIFIC INFORMATION REQUESTS

1. **Provide an update on plans for Harvard’s Allston campus and any anticipated impacts on the City of Cambridge.**

See Future Plans narrative.

2. **Provide an update on the Fogg Museum project, with particular attention of possible effects on the surrounding community and streetscape.**

See Future Plans narrative.

3. **Describe plans for properties currently held by the University on or abutting Massachusetts Avenue. Particular attention should be paid to a description of the uses intended for the ground floor of these sites, as related to community concerns about maintaining an active retail environment.**

Harvard has no plans for any significant changes in the use of its properties located on or abutting Massachusetts Avenue. Most of these properties are located on the Harvard campus and are expected to continue in their current institutional academic uses.

Properties located in commercial areas in Harvard Square (for example those across Massachusetts Avenue from Harvard Yard) contain ground floor retail uses with housing for Harvard affiliates on upper stories. Harvard leases space to over 30 businesses in the Square, including many long-time Massachusetts Avenue retailers such as the Grolier Book Shop, Leavitt & Peirce, Harvard Bookstore, and Bartley’s Burger Cottage. Harvard shares the community’s interest in continuing such uses which contribute to a unique retail environment in Harvard Square.

Harvard’s newest building on Massachusetts Avenue is Wasserstein Hall Caspersen Student Center Clinical Wing (WCC) at the Harvard Law School. The development of this new academic and student center for the Law School campus has resulted in significant landscape improvements along Massachusetts Avenue. The new building houses the Harvard Law School COOP (the Law School’s bookstore) at the corner of Everett Street, and nearby, the school’s public service legal clinic also generates new activity along this section of Massachusetts Avenue.

4. **Discuss planning for bicycle facilities on campus.**

See Future Plans narrative.







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