

Case Study — Cambridge Bicycle Programs

In Brief

<i>Location:</i>	Cambridge, Massachusetts
<i>Policy type:</i>	Transportation System Efficiency, Land Use
<i>Sector:</i>	Transportation
<i>Start Date:</i>	1992
<i>Summary:</i>	The city's bicycle program has a successful history of providing bicycle-related education and integrating improvements in bicycle infrastructure into the city's existing planned capital activities and land use processes at minimal additional cost.
<i>Impact:</i>	From 1992 to 2010, the total length of bicycle facilities grew from 6 to 39.30 miles. The number of bicyclists documented in an annual bike count grew from under 3,000 in 2002 to more than 6,000 in 2008. The percentage of commutes by Cambridge residents made by bicycle has grown from 3.9% in 2000 to 5.8% for 2006–08, contributing in part to the corresponding decrease in drive-alone commutes: down from 35.3% to 30.5%.

Overview

The city's Bicycle Program was created in 1992 and is administered within the Division of Environmental and Transportation Planning, a part of the Department of Community Development. The program includes 1) installation of bicycle lanes and related improvements as streets are reconstructed and other development takes place, 2) the installation of bicycle parking around the city, 3) working with a community bicycle committee, and 4) the provision of educational materials and programs about bicycle safety in schools and elsewhere in the community.

The program is guided by a series of principles that are integrated into bicycle-related work across city departments:

- It is the policy of the city of Cambridge to promote bicycling as a form of transportation.
- Facilities will be built to encourage primarily transportation and utilitarian cycling and secondarily recreational cycling.
- Traffic safety education and enforcement will support bicycle safety.
- Facilities will be built to encourage more cyclists to ride, in addition to accommodating current levels of cycling more effectively.
- Improvements for cycling shall be considered in all roadway projects undertaken in the city.
- Improvements for other modes of transportation must not adversely impact bicycling.
- Bicycle facilities shall be built to support safe traveling.



The Vassar Street cycle track



Bike "pedal & park" facility, secure bike parking at Alewife MBTA transit station

- Bicycle circulation should be managed so that conflicts with other modes of travel are minimized, and safety improved for all.
- New development projects will be designed and built to encourage users and occupants to access buildings by bicycle.

Bicycles have been a priority for the city of Cambridge since at least 1992. In that year the city adopted the Vehicle Trip Reduction Ordinance (City Code [Chapter 10.17](#)) aimed at creating a more livable city through reducing automobile use and encouraging alternative, less polluting forms of transportation. The ordinance established the Bicycle and Pedestrian Mobility Program with a mandate to "design and implement a program to encourage greater use of bicycles as alternatives to single-occupancy vehicles within the city."

In 1993 the city created its Growth Policy Document, "[Toward a Sustainable Future](#)." This document put forward a long-term plan and strategic policies to guide the sustainable development of the city. Policy 23 states: "Encourage all reasonable forms of non automobile travel including, for example, making improvements to the city's infrastructure which would promote bicycling and walking." This document was updated in 2007 and the commitment to bicycling was reaffirmed.

In 2002, the city adopted a [Climate Protection Plan](#) that aimed to reduce greenhouse gas emission to 20% below 1990 levels by 2010. This plan reemphasized bicycling-related aims, including the action item to "Improve facilities for walking and cycling. Install more bicycle lanes and parking facilities; create and improve off-road paths including railroad rights-of-way; expand efforts to retrofit streets and intersections to better accommodate bicycles and pedestrians."

Most of these initiatives were the product of Cambridge's "Plan E" form of government — a strong City Council (which creates guiding documents) and a City Manager and staff (which implement policy and coordinate across departments). However, Cambridge also has a Bicycle Committee that promotes bicycle issues and acts as a citizen advisory group. Established in 1991, the committee was instrumental in getting more attention from city government focused on biking issues. The committee is made up mostly of citizen members who live or work in Cambridge and also has representation from the Departments of Public Works, Policy, Traffic and Parking, and Community Development, and the Bicycle and Pedestrian Coordinator for the city, as well as representation from Harvard University, MIT, and other large institutions in the city.

Management and Budget

The city develops new bicycle facilities through four principal channels:

1. *Piggyback onto planned street improvements* — This is the primary implementation method for new bike infrastructure. The Public Works Department develops the [Five Year Street and Sidewalk Reconstruction Plan](#) based on needs to prioritize where investments will be made, and updates it regularly. After the plan is proposed, staff from across city departments sit down and talk about the integration of various needs, including bike planning, into the planned reconstruction. The details of proposals for new bicycle infrastructure are developed by staff and consultants, in conjunction with Bicycle Committee review; major projects go through a larger community process.

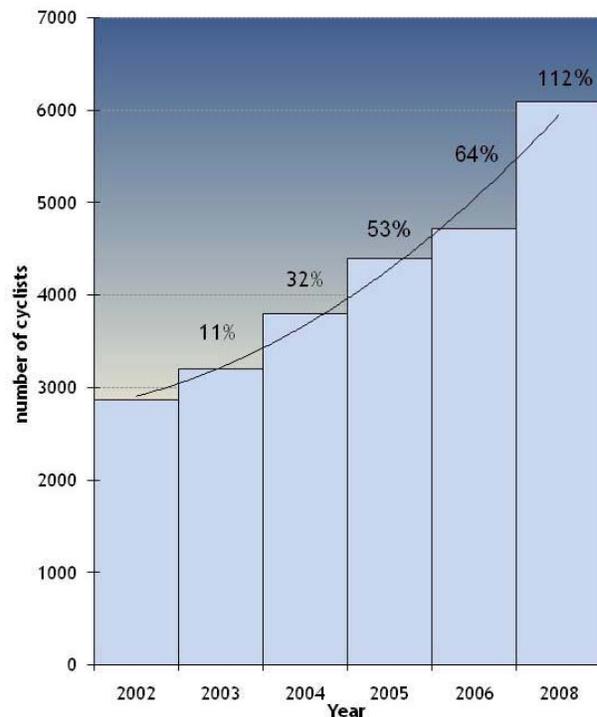
Cambridge policies consider all roadways in the city as bikeways. To implement this policy, staff in the bicycle program aim to use the reconstruction process to eventually make every street bike friendly. This doesn't mean that all streets will have bike lanes, but rather that each street will integrate one of a palette of options: bike lanes, traffic calming, special roadway markings or signals, etc. Funding for bike improvements made in this way is part of the budget for any project — it is not segregated. Most street reconstruction projects come through the Public Works Department, which oversees sewer infrastructure and street maintenance in the city. Funds come through local, state, and federal sources. A separate budget allocated to traffic calming measures comes from the city's general fund. A large advantage of this integrated development method is that the additional costs of bike infrastructure are very small when integrated into a planned road and infrastructure improvement project.

2. *Requirements for new private developments* — Based on the city's [Zoning Ordinance](#) and [Parking and Transportation Demand Management Ordinance](#) (PTDM), private developers are required to meet certain guidelines related to accommodating bicycles in their projects and when reconstructing streets and other infrastructure adjacent to their development. Any non-residential development that adds parking spaces is subject to the PTDM ordinance, and it will not receive permits or variances until a plan for compliance is approved. Unique in the country when adopted in 1998, these requirements limit the percentage of people coming to the site by single-occupancy vehicles. According to [an analysis by PTDM staff](#), the ordinance has successfully limited the growth in new automobile trips in the city, resulting in the elimination of over 38 million vehicle miles traveled (24% less than if the requirement wasn't in place) related to developments subject to the program.
3. *Integration in large infrastructure projects* — A few larger road and infrastructure construction projects need dedicated pots of money such as those from federal transportation programs (ISTEA, TEA-21, SAFETEA-LU, etc.). For these projects, bicycle infrastructure will be planned, funded, and implemented as a piece of that project. One example is the [Fresh Pond Parkway Project](#), paid for partly with ISTEA Enhancement funds and partially from city funds.
4. *Reconstruction of state-owned roads and bridges* — For state roads that run through the city and bridges, all of which are state-owned, the city has no direct ability to implement bicycle improvements. However, the city makes it a policy to work with and strongly encourage the state to make those facilities as bike-friendly as possible.

In addition to developing bicycle infrastructure, education is an important part of the city's bicycle program. Collaborations between city departments, nonprofit organizations, and the city's schools have developed informational materials and conducted programs for both adults and children. Materials developed include bike maps and brochures. Informational campaigns have included one targeted at bikers promoting bike lights and one titled "Watch for Bikes" targeted at drivers, which included decals, brochures, safety information on bus shelter ads, flyers, and online materials. Educational programs include bike registration and on-bike training at public events, programs hosted by the police and the nonprofit Cycle Kids in public schools. Additionally the city is hosting a neighborhood pilot program called [CitySmart](#) to use social marketing to encourage sustainable transportation choices, including biking.

Performance

Although rigorous data collection methods on bike infrastructure have only been in place over the past few years, the trends in bike ridership and bicycle infrastructure are correlated. In 1992 the city had only six miles of off-street bicycle paths designed primarily for recreation and no on-road facilities. The city installed its first on-street bike lane in October 1995 and bike facility development continued to accelerate over the next decade and half. By 2004 there 30.23 total miles of bike facilities, in 2008 there were 37.65 miles, and by December 2010 a total of 39.30 miles — including 18.15 miles of dedicated on-street bike lanes.¹ The number of bike facility miles in the city is more than one-quarter the total length of all streets in



Increasing Bicycle Counts in Cambridge 2002-2010 and Percent Increase Relative to 2002. Courtesy of the Cambridge Community Development Department

¹ All lengths are calculated as linear feet of street, and not counting facilities on both sides of two-way streets.

the city (147.1 miles). Even after the years of new facility development, as of the end of 2010 there were still an additional 6.6 miles planned.

Additionally, as of the end of 2010 the city has 730 bicycle racks on public property. These have been installed through a variety of policy mechanisms including integration in all new public infrastructure projects, as required components of new private developments, and installed directly on sidewalks by the city's bicycle parking program. From 2005 through 2009 the bicycle parking program installed 248 racks. Installation of 80 more racks in 2010 was funded by the Energy Efficiency and Conservation Block Grant (EECBG) from the 2009 American Recovery and Reinvestment Act (ARRA).

According to a bicycle count data collected by the city annually at 17 intersections, bicycling in the city more than doubled from 2002 to 2008. Increases were seen each year, from under 3,000 in 2002 to more than 6,000 in 2008 (see chart). After 2008 the city began collecting bicycle count data bi-annually. At the time of publication the 2010 count was still being finalized, but the overall trend was continuing upward.

Additionally, [data](#) from the 2000 Census and the 2006–08 American Community Survey show that the percentage of commutes by Cambridge residents made by bicycle has grown from 3.9% in 2000 to 5.8% for 2006–08. Similar upward trends were seen for people who work in Cambridge regardless of where they live: up from 2.4% to 3.4%. Although small relative to the total number of commutes, this increase has likely contributed in part to the corresponding decrease in drive-alone commutes: down from 35.3% to 30.5% among residents and from 50.6% to 46.4% among all workers.

Lessons Learned

The nearly two decades of experience in bicycle policy at the City of Cambridge provides takeaways for other communities looking to implement or expand a policy in this area:

- **Be opportunistic** — *Don't wait for the perfect plan. Dive in and take action on the opportunities available.* For example, in developing on-street bicycle facilities Cambridge made most of its impact at little incremental cost through partnering effectively with other city agencies, especially Public Works, to integrate bicycle infrastructure into projects that were already being planned.
- **Be patient** — *It may take a while before you see results.* Cambridge's approach to encouraging bicycling did not emerge fully formed in 1992, rather the city's policy toward bikes slowly evolved over the course of the 1990s and early 2000s and only really saw big increases in biking from the efforts beginning in the second decade.

Related Resources

Cambridge Bicycle Programs portal: <http://www2.cambridgema.gov/cdd/et/bike/index.html>

Information on bicycle lanes in Cambridge:
http://www2.cambridgema.gov/cdd/et/bike/bike_lanes.html

A report produced by the city in 2010 on "Bicycle Trends in Cambridge":
http://www2.cambridgema.gov/cdd/et/bike/bike_trends_2010.pdf

A portal to more information on bicycle programs and policies around the country: www.bicyclinginfo.org

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