

# CHAPTER 1

**BACKGROUND,  
POLICIES, & GOALS**



## INTRODUCTION

Cambridge is a great place for people to bicycle, whether for a trip to the grocery store, a ride along the river, or a pleasant way to get to work. This can be seen in the large numbers of people who are out and about on a bike. Many days see multitudes of people using the bike facilities going to work or school on a weekday morning, or enjoying a family trip on a weekend.

There are many factors that contribute to Cambridge's bike friendliness. The compact nature of the city has helped to support the growth of bicycling in the city, as has the strong student population, dynamic workforce, and residents who choose Cambridge because of its livability. Cambridge's robust bicycle infrastructure is also responsible for the ever-increasing numbers. Many sections of Cambridge are well served by bicycle-friendly infrastructure, but there are still significant gaps and areas in need of improvement.

The Cambridge Bicycle Plan lays out a vision for where we as a city want to be. The fundamental guiding principle for this plan is to enable people of all ages and abilities to bicycle safely and comfortably throughout the city. This Plan provides the framework for developing a network of Complete Streets and supporting programs and policies that will help meet this goal.

**Complete Streets** are streets for everyone. They are designed and operated to enable **safe access for all users**, including pedestrians, bicyclists, motorists and transit riders **of all ages and abilities**. Complete Streets make it easy to cross the street, walk to shops, and bicycle to work.

# POLICY CONTEXT

The Cambridge Bicycle Plan is supported by a set of local policies as well as policies at the regional, state and national level that promote bicycling.<sup>1</sup>

## CAMBRIDGE BICYCLE POLICIES

- + Bicycling will be promoted as a form of transportation for people of all ages and abilities.
- + Street design will be based on Complete Streets principles.
- + Traffic safety education and enforcement will support bicycle safety.
- + Facilities will be built to encourage more people of all ages and abilities to bicycle, and to better accommodate people currently riding.
- + Bicycling conditions must be given careful consideration when improvements are made for other modes, to avoid adverse impacts and ensure safe bicycling conditions.
- + Improvements for bicycling will be considered in all roadway projects undertaken in the city.

- + New development projects will be designed and built to encourage users and occupants to access buildings by bicycle.
- + Priority will be given to enable children to bicycle safely to school and other destinations through Safe Routes to School programs, bicycle education programs, and supportive infrastructure design.

Note: A companion document, the Cambridge Pedestrian Plan,<sup>2</sup> provides the policies and design guidelines related to walking facilities.

## CAMBRIDGE MUNICIPAL POLICIES

### VEHICLE TRIP REDUCTION ORDINANCE

In 1992, Cambridge enacted the Vehicle Trip Reduction Ordinance<sup>3</sup> with a goal of making the city more livable by reducing automobile use and promoting non-polluting forms of transportation. The ordinance established the Bicycle and Pedestrian Mobility Program and a requirement to “design and implement a program to encourage



greater use of bicycles as alternatives to single-occupancy vehicles within the city.” The ordinance also required the development of a Bicycle Plan and the implementation of a bicycle network.

## GROWTH POLICY DOCUMENT

In 1993, the City of Cambridge published Cambridge Growth Policy Document: Toward a Sustainable Future.<sup>4</sup> 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.”

In 2007, the City published an update to this plan, which provides information about the progress that has been made in the years since the initial document was published, and reaffirms the commitment to supporting and enhancing sustainable transportation, including bicycling.

## CLIMATE PROTECTION PLAN

In December 2002, the City Council adopted the Climate Protection Plan.<sup>5</sup> The plan set a goal of reducing greenhouse gas emissions by 20 percent below 1990 levels by 2010. Over 100 actions were proposed to achieve the goal. Among the specific actions identified:

“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.”

Subsequently, in 2009, the Plan was amended with a set of interim recommendations noting that “reducing single-occupancy vehicle travel requires strong, coordinated action. Shifting trips to non-SOV modes, such as public transit, high-occupancy vehicles, bicycling, and walking reduces greenhouse gas emissions.”

### 10.17.050 Bicycle and pedestrian mobility program.

The position of Bicycle and Pedestrian Coordinator is created within the Traffic and Parking Department. The City Manager shall, within one month of the effective date of this provision, designate the Bicycle and Pedestrian Coordinator. The Bicycle and Pedestrian Coordinator shall devote at least fifty percent of his/her time to carrying out the tasks required by this provision. The Bicycle and Pedestrian Coordinator shall, in conjunction with the Commuter Mobility Coordinator and the City’s existing Bicycle Advisory Committee, (i) **design and implement a program to encourage greater use of bicycles as alternatives to single-occupancy vehicles within the city** and, (ii) focus the attention of the City on the needs of pedestrians. **The program will include, but is not limited to:**

**A. Development of a Cambridge Bicycle Master Plan;**

**B. Development of a Cambridge Pedestrian Master Plan;**

**C. Development and evaluation of recommendations for a regional network of bicycle paths and bicycle priority streets favoring both bicycles and pedestrians;**

**D. Consultation with Cambridge residents, business, institutions and property owners;**

**E. Funding of bicycle amenities and storage facilities;**

**F. Funding for pedestrian amenities; and**

**G. Provision of bicycles for use by City police and Traffic and Parking Department. The program shall be funded at an initial level of twenty-five thousand dollars annually; these funds shall be in addition to, and not utilized for, the salary of the Bicycle and Pedestrian Coordinator. (Ord. 1139 (part), 1992)**

Building development in Cambridge is subject to several requirements through the [Zoning Ordinance](#)<sup>6</sup> and the [Parking and Transportation Demand Ordinance](#).<sup>7</sup>

## ZONING ORDINANCE

For larger projects requiring a Special Permit, proponents must show that the project does not have an adverse impact on the bicycling environment, and may be required to mitigate impacts so that additional support of bicycling is provided. The ordinance states: “Development should be pedestrian and bicycle-friendly... Pedestrians and cyclists are able to access the site safely and conveniently; cyclists should have secure storage facilities conveniently located on-site and out of the weather. If bicycle parking is provided in a garage, special attention must be made to providing safe access to the facilities from the outside.” Zoning ordinances are discussed in greater detail in Chapter 6.

## PARKING AND TRANSPORTATION DEMAND MANAGEMENT ORDINANCE

Passed in 1998, the Parking and Transportation Demand Management (PTDM) Ordinance requires anyone adding vehicle parking spaces to commit to an approved plan to limit the number of single occupancy vehicle (SOV) trips going to a particular site. The approved plan must include specific ways the proponent will promote non-SOV travel and the projects will have ongoing monitoring to ensure compliance. People who ride bicycles benefit from this policy in several ways. Fewer vehicle trips being made within the city creates an easier environment for bicycle travel, and required improvements and programs promote and enhance bicycling. The PTDM ordinance is discussed in greater detail in Chapter 6.



**“I cycle this stretch of road to go grocery shopping. The traffic is truly too fast! This whole area needs more separation and traffic calming.”**

## SCHOOL WELLNESS POLICY

The Cambridge School Wellness Policy<sup>8</sup> outlines key goals that relate to promoting physical activity and active transportation to and from school for Cambridge Public School students:

“The Cambridge School Committee recognizes the relationship between student well-being, health and wellness and student achievement as well as the importance of a comprehensive district wellness policy. The School Committee is committed to protecting children’s health, well-being and ability to learn to their fullest potential by supporting a school environment that promotes healthy choices and fosters lifelong habits with respect to eating and physical activity. Therefore the district has created this Wellness Policy including goals for nutrition, physical activity and physical education, and health and nutrition education. The Wellness Policy adheres to relevant state and federal regulation and is evidence based.

Students and staff will be encouraged to engage in active transportation (walking, bike riding, etc.) to and from school and to support a healthy and active lifestyle from an early age by working to make bicycling and walking to school a safer and more appealing mode of transportation.”



## CITY COUNCIL GOALS

The Cambridge City Council sets guiding goals that are updated from time to time. The current list of goals<sup>9</sup> contains several that are relevant to bicycling:

- + **Promote a Healthy Community and Environment to advance Cambridge as a leader in public health and environmental sustainability.**
- + **Promote Public Safety and address the challenges and opportunities for multiple modes of transportation to safely share roads and sidewalks.**
- + **Foster Community and Support Neighborhood Vitality.** Support opportunities for citizens to participate and to know each other within their neighborhoods and across the city.
- + **Promote Doing Business in Cambridge** and work to strengthen our mutually beneficial partnerships with businesses and universities.

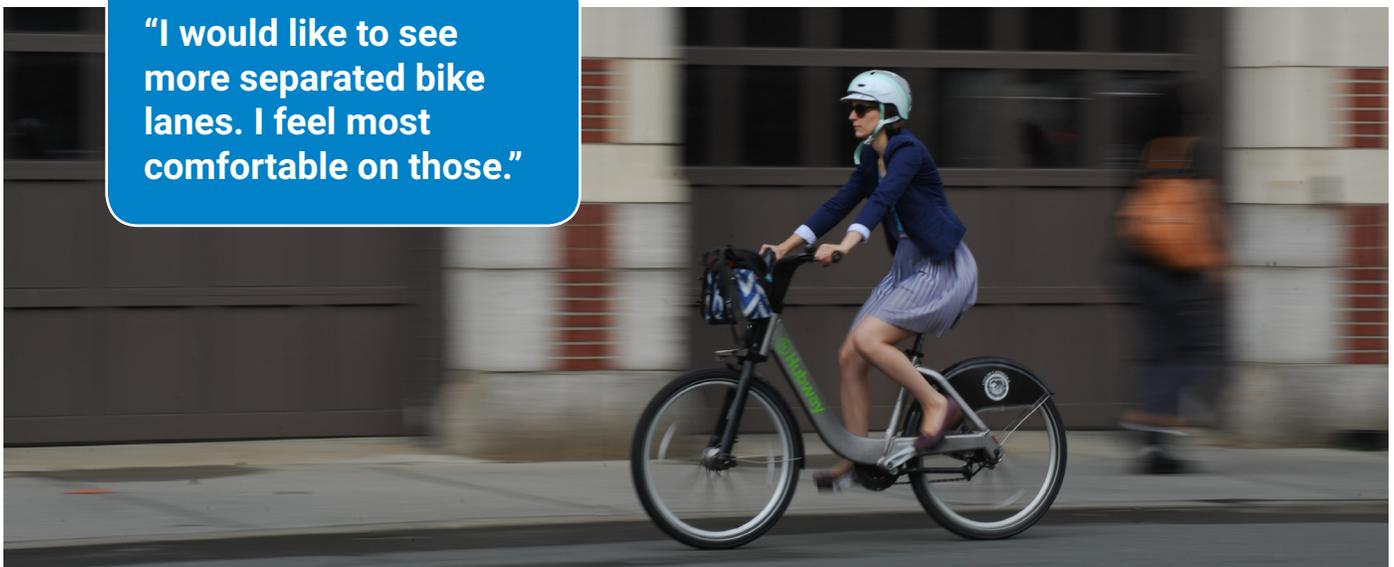
## REGIONAL POLICIES

**Metropolitan Area Planning Council (MAPC)** is the region's planning agency. Its stated policy is that it "supports, promotes and facilitates the increased use of bicycle transportation..... [and is] dedicated to helping local authorities plan, fund and implement projects that enhance bicycle transportation."

In 2007, the Regional Bicycle Plan<sup>10</sup> was published, which outlines the following Goals and Strategies for the greater Boston area, in which Cambridge is located:

- + **Encourage more trips by bicycle in each community.**
- + **Make bicycling and bicycle accommodations a part of standard operating procedure.**
- + **Improve evaluation and prioritization of bicycle project proposals.**
- + **Assist and encourage local initiatives.**
- + **Work with state and federal agencies to simplify and coordinate funding programs.**
- + **Increase regional knowledge about bicycling.**

"I would like to see more separated bike lanes. I feel most comfortable on those."



## STATE POLICIES

The Commonwealth of Massachusetts has developed a number of policies and initiatives that support and enhance bicycle transportation. Referenced here are the most relevant.

### MASSACHUSETTS DEPARTMENT OF TRANSPORTATION PROJECT DEVELOPMENT AND DESIGN GUIDE (2006)<sup>11</sup>

In this document, three Guiding Principles are laid out: Multimodal Consideration, Context-Sensitive Design, and a Clear Project Development Process. The document defines Multimodal Consideration as the following:

“To ensure that the safety and mobility of all users of the transportation system (pedestrians, cyclists and drivers) are considered equally through all phases of a project so that even the most vulnerable (e.g., children and the elderly) can feel and be safe within the public right of way.”

### MASSACHUSETTS DEPARTMENT OF TRANSPORTATION GREENDOT POLICY,<sup>12</sup> JUNE 2010, UPDATED 2012 AND 2014

GreenDOT is the Massachusetts Department of Transportation’s Comprehensive Sustainability Initiative. Through this initiative, policies for promoting and supporting bicycling are articulated.

#### Key goals:

- + **Design a multimodal transportation system.**
- + **Promote healthy transportation and livable communities.**
- + **Triple mode share of bicycling, transit and walking by 2030.**

### MASSACHUSETTS DEPARTMENT OF TRANSPORTATION HEALTHY TRANSPORTATION POLICY DIRECTIVE, SEPTEMBER 9, 2013

“All MassDOT funded and/or designed projects shall seek to increase and encourage more pedestrian, bicycle and transit trips. MassDOT has established a statewide mode shift goal that seeks to triple the distance traveled by walking, bicycling and transit by 2030, promoting intermodal access to the maximum extent feasible will help the agency meet this goal.”<sup>13</sup>

## FEDERAL POLICIES

Bicycle transportation is supported at the federal level by the United States Department of Transportation [Policy Statement on Bicycle and Pedestrian Accommodation, March 2010](#):<sup>14</sup>

“The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes.”

More information and details on federal policies and programs can be found [here](#).

# PLAN VISION, GOALS & TARGETS

## VISION

Bicycling is an important component of Cambridge's transportation system. Cantabrigians envision the day when they will be able to bicycle safely and comfortably to all destinations within the city. Streets and roads will be well designed to accommodate bicycling as a mode of transportation for people of all ages and abilities.



## GOALS

- ① Make a significant shift towards bicycling as a sustainable transportation mode
- ② Create a transportation system that is safe for users of all ages and abilities
- ③ Innovate and be an early adopter of best practices in bicycle infrastructure

## TARGETS

- Ⓐ By 2020, 10% of all trips in Cambridge will be made by bicycle
- Ⓑ By 2030, 20% of all trips in Cambridge will be made by bicycle
- Ⓒ By 2020, the percentage of children walking and bicycling to school will increase 20% over 2015 numbers
- Ⓓ Crash rates will continue to decrease with a goal of zero fatalities or serious injuries by 2020
- Ⓔ All streets will be bicycle friendly
- Ⓕ New facilities are prioritized based on the Bicycle Network Vision

## DEVELOPING THE VISION

Cambridge's high-quality bicycle infrastructure and programs have made it one of the most bicycle-friendly cities in the country. Its large and passionate bicycling community was an invaluable resource to developing the Cambridge Bicycle Plan and Bicycle Network Vision, providing information on the experience and needs of those who know local biking conditions best. This plan reflects the many voices of those who live, work and travel in Cambridge and who participated in the process at on many levels.

In order to develop a network that will provide safe and convenient biking options for people of all ages and abilities, the planning team conducted a variety of activities listed below to gather input from the public, assess existing biking conditions in the city, and ultimately develop a Bicycle Network Vision.

### ONLINE SURVEYS

To understand what users want, the City developed a survey asking about their bicycle travel, what bicycle facilities were preferred, and information about children riding. The survey was taken by 733 people. Details on the survey results may be found in Chapter 3.

### STREET TEAMS

In 2013-14, staff and volunteers collected comments at various venues throughout the city, using paper maps. Initiated by the Cambridge Bicycle Committee, this proved a popular way for people to voice their particular concerns, and resulted in about two dozen maps full of hundreds of comments.



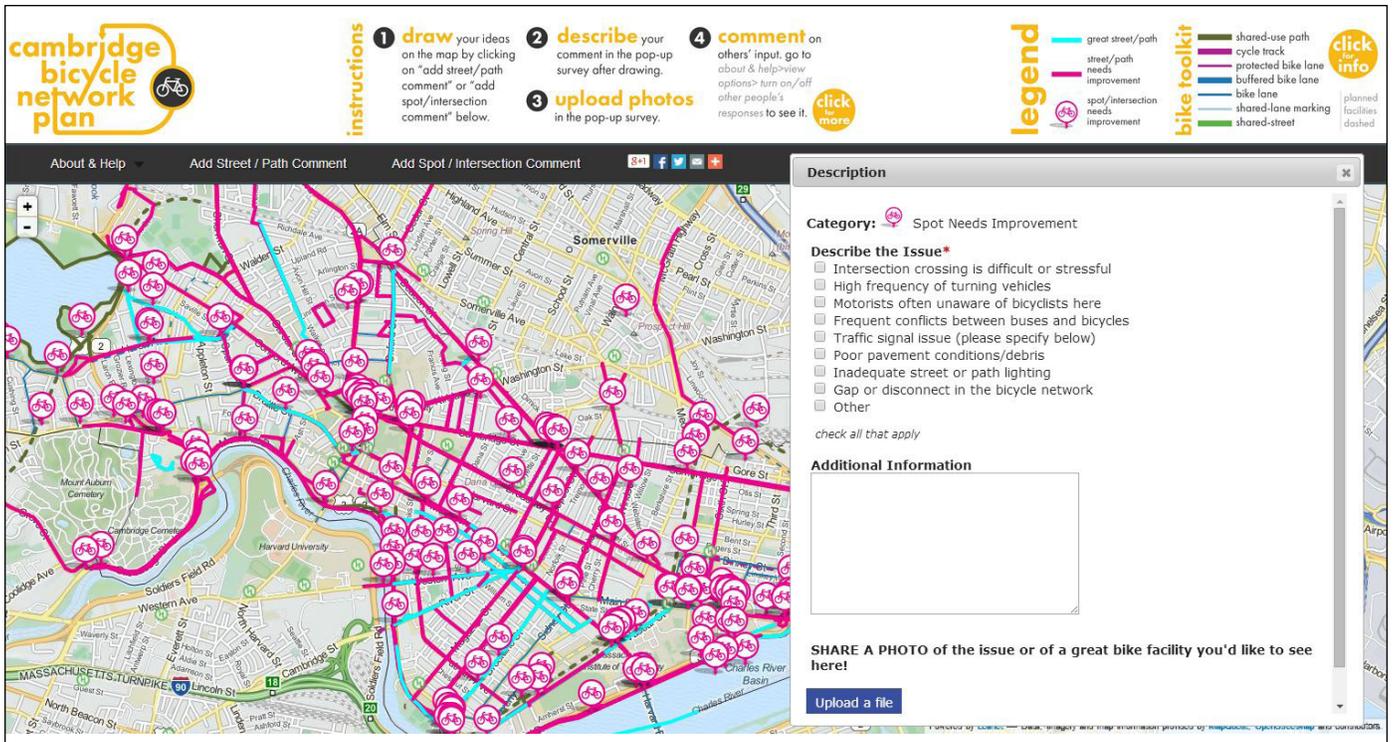


Figure 1.1: Screenshot of WikiMap #1

## WIKIMAP #1

In June 2014, an online WikiMap was launched to collect place-based comments on biking conditions in Cambridge (Figure 1.1). Users were asked to indicate streets or paths in the city where they enjoy biking as well as streets, paths, or intersections that are in need of improvement. 995 unique comments were collected from WikiMap users over the course of several months.

## BICYCLE COUNT DATA ASSESSMENT

Data from biannual counts at 17 different locations throughout the city were mapped and analyzed to determine areas of greatest bicycling activity in the city. Staff extrapolated count data to determine the bicycling rates on key corridors (described more in Chapter 3).

## BICYCLE CRASH DATA ASSESSMENT

Utilizing extensive and detailed data from the Cambridge Police Department, crashes involving bicyclists throughout the city from 2008-2012 were analyzed. Crash data provided insight on broad scale trends such as where bicycle crashes occurred with the highest frequency and what types of crashes occur commonly in specific locations (described more Chapter 3).

## BICYCLE LEVEL OF COMFORT ANALYSIS

The Cambridge Bicycle Level of Comfort (BLC) Analysis is a planning tool used to quantify the level of comfort that an average bicyclist is likely to perceive while riding on any road or path. This analysis utilized an array of data about the physical and operational characteristics of all streets in

the city to assign a Level of Comfort ranking. Vetted multiple times by City staff and residents, the analysis fed directly into the development of network plan recommendations.

## PUBLIC MEETING #1

In addition to public comments gathered through online surveys, online WikiMaps, and myriad comments collected on paper maps at bike-related events, the City held two public open house events during the bike plan update process. The first, held at the Cambridge Public Library on June 12, 2014, was aimed at collecting public knowledge about existing bicycling conditions in the City including a chance to review and comment on the crash data analysis, the BLC, and the existing bicycle network.

## BICYCLE NETWORK VISION

Based on public input from the survey and WikiMap, BLC, and crash and count data, the planning team developed a Bicycle Network Vision (BNV). The BNV is a network of streets and paths where high-comfort bicycle infrastructure should be prioritized in order to provide seamless connections by bike for people of all ages and abilities between important destinations. The BNV recommends three different levels of accommodation for bicyclists including off-street paths, increased separation, and reduced speed/volume, depending on roadway and land use characteristics. Although the City considers all streets to be part of a greater bike network, the BNV's goal is to identify and prioritize streets where infrastructure improvements would provide the greatest benefit for creating a network for people of all ages and abilities.



## WIKIMAP #2

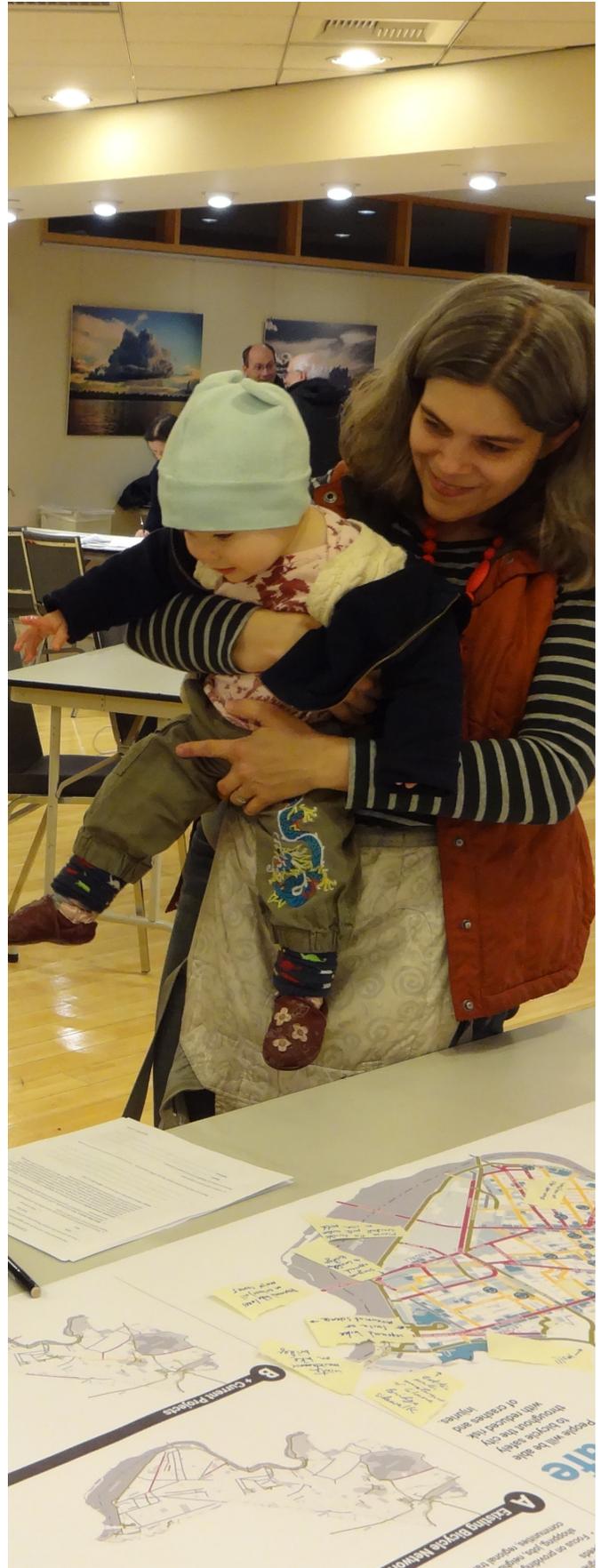
In the fall of 2014, following the creation of the Draft BNV, people were asked for their input on the recommended network. The WikiMap asked users to rank the importance of any street or path in the Draft BNV as well as to draw in any missing connections in the plan. During the 5 week comment period, 214 comments were collected and reviewed in order to further refine network plan recommendations.

## PUBLIC MEETING #2

The second public meeting was held at Cambridge Community College on December 4, 2014. Over 100 members of the community attended this event to review and comment on the Draft BNV and to provide additional input on the existing conditions analyses presented at the first open house. Input gathered during this meeting was compiled and reviewed to make further revisions to the Draft BNV.

## TOWARDS A BIKEABLE FUTURE

The 2015 Bicycle Plan: Toward a Bikeable Future describes current efforts and programs to promote bicycling in Cambridge, and lays out a framework for the future. It is intended to be a living document, with annual updates on the progress made towards implementing policies and projects, and laying out new priorities. It will serve as a reference for information and a guide for how we envision our future as a city where people of all ages and abilities feel safe and comfortable riding a bike.



## HOW THE BICYCLE NETWORK VISION WILL BE USED

The Bicycle Network Vision creates an aspirational concept for a complete system, enabling people of all ages and abilities to travel more safely and comfortably throughout the city. It is intended to be used as a guide and reference for long, medium, and short term infrastructure projects undertaken in the city including projects that are part of the City's Five Year Plan for Street & Sidewalk Reconstruction.

### MULTIMODAL APPROACH

The streets and sidewalks of Cambridge represent the greatest resource of public space in the city. People use them not only for traveling along, but also for "staying" activities such as sitting on benches or enjoying sidewalk cafes, and the spaces are used for green infrastructure including trees, planting areas and stormwater management. Space is also used for parking automobiles and bicycles as well as for infrastructure that supports transit use, such as bus stops, shelters and subway entrances.

As each street is evaluated for improvements, these components will be taken into consideration, with an emphasis on the overall public policies and goals as referenced earlier in this chapter, and with attention given to public input. The overarching guidance will continue to be in creating Complete Streets, ensuring that they are designed and operated to enable safe access for all users, while enhancing mobility for sustainable transportation modes.

### FIVE YEAR PLAN FOR STREET & SIDEWALK RECONSTRUCTION

The Department of Public Works maintains a Five Year Sidewalk and Street Reconstruction Plan that identifies the streets and sidewalks that are anticipated to be reconstructed each year for the next 5 years. The plan can be found here:

<https://www.cambridgema.gov/theworks/ourservices/engineering/aboutengineering/>



## GOALS OF THE 5 YEAR PLAN:

- + **Reconstruct streets, sidewalks and bicycle facilities with an emphasis on a Complete Streets approach: designing the street for all users**
- + **Provide for comprehensive inspection/repair and upgrading of City utilities, as well as public utilities, so as to ensure new street system integrity is maintained for as long as possible once construction is complete**
- + **Maintain safe, accessible streets and sidewalks**
- + **Reconstruct streets, sidewalks and bicycle facilities in a prioritized fashion based on need**
- + **Construct projects efficiently with minimum disruption to community life**
- + **Effectively communicate design and construction projects with neighborhoods and facilitate a more integrated design process**
- + **Provide reasonable access for all users, during street reconstruction**

The Bicycle Network Vision will be used as an overlay to this Plan, in order to identify and prioritize areas with non-existent or inadequate bicycle facilities, particularly where reconstruction could improve connectivity and route continuity for people who bicycle.

## STREET REDESIGN PROCESSES

Street reconstruction projects look at how improvements can be made for all users, with a complete streets emphasis, to enable people of all ages and abilities to travel safely. All projects ensure accessibility with reference to the Americans with Disabilities (ADA) and Massachusetts Architectural Access Board (AAB) standards.

Major projects include a public participation process, where public input is given on how specific street designs can best meet the City's policies and the community's goals. Residents and users are encouraged to participate in these opportunities, which are announced through mailings, direct flyering, and City website and social media outlets.

## PRIVATE DEVELOPMENT INFRASTRUCTURE IMPROVEMENTS AND MITIGATION MEASURES

Infrastructure improvements are often made in connection with private development projects, particularly for larger projects. For many larger projects, mitigation requirements are part of the project permitting process. These improvements and requirements should be made with reference to the Bicycle Network Vision.

## ENDNOTES

- 1 See Appendix A for a broader set of policy references.
- 2 Cambridge Community Development Department. "Cambridge Pedestrian Plan." Cambridge, MA: City of Cambridge, MA, 2000. <http://www.cambridgema.gov/CDD/Transportation/programs/currentprograms/pedestrianplan.aspx>.
- 3 Cambridge, MA, Code of Ordinances. Chapter 10.17 – Vehicle Trip Reduction Ordinance. Ord. 1139, 1992. [https://www.municode.com/library/ma/cambridge/codes/code\\_of\\_ordinances?nodetid=TIT10VETR\\_CH10.17VETRREOR](https://www.municode.com/library/ma/cambridge/codes/code_of_ordinances?nodetid=TIT10VETR_CH10.17VETRREOR).
- 4 Cambridge Planning Board and Community Development Department. "Cambridge Growth Policy Document: Toward a Sustainable Future." Cambridge, MA: City of Cambridge, MA, 1992. <http://www.cambridgema.gov/CDD/planud/masterplan/growthpolicy>.
- 5 City of Cambridge. "Climate Protection Plan." Cambridge, MA: City of Cambridge, MA, 2002. Adopted by City Council December 2002. <http://www.cambridgema.gov/CDD/climateandenergy/climatechangeplanning.aspx>.
- 6 Cambridge, MA, Cambridge Zoning Ordinance. Article 19, Project Review. Ord. 1363, 2015. [https://www.cambridgema.gov/~/.media/Files/CDD/ZoningDevel/Ordinance/zo\\_article19\\_1363.ashx](https://www.cambridgema.gov/~/.media/Files/CDD/ZoningDevel/Ordinance/zo_article19_1363.ashx).
- 7 Cambridge, MA, Code of Ordinances. Chapter 10.18 – Parking and Transportation Demand Management Ordinance. Ord. 1211, November 16, 1998. <http://www.cambridgema.gov/CDD/Transportation/fordevelopers/ptdm.aspx>.
- 8 Cambridge School Committee. "Cambridge Public Schools Wellness Policy," 2013. Adopted October 1, 2013. [http://www.cpsd.us/UserFiles/Servers/Server\\_3042785/File/Migration/Wellness\\_Policy.pdf?rev=0](http://www.cpsd.us/UserFiles/Servers/Server_3042785/File/Migration/Wellness_Policy.pdf?rev=0).
- 9 Cambridge City Council. "City Council Goals." Cambridge-MA.gov, December 13, 2011. <http://www.cambridgema.gov/ccouncil/citycouncilgoals.aspx>.
- 10 Metropolitan Area Planning Council. "Regional Bicycle Plan." Boston, MA, 2007. [http://www.mapc.org/sites/default/files/Regional\\_Bicycle\\_Plan\\_-\\_2007.pdf](http://www.mapc.org/sites/default/files/Regional_Bicycle_Plan_-_2007.pdf).
- 11 Massachusetts Department of Transportation. "MassDOT Project Development and Design Guide." MassDOT Highway Division, 2006. <http://www.massdot.state.ma.us/highway/DoingBusinessWithUs/ManualsPublicationsForms/ProjectDevelopmentDesignGuide.aspx>.
- 12 "GreenDOT." MassDOT, 2015. <http://www.massdot.state.ma.us/greendot>.
- 13 "MassDOT Implements New Healthy Transportation Policy Directive; Prioritizes Inclusion of Bicycle, Transit, Walking Options." MassDOT News & Updates, September 30, 2013. <http://www.massdot.state.ma.us/main/tabid/1075/ctl/detail/mid/2937/itemid/350/MassDOT-Implements-New-Healthy-Transportation-Policy-Directive--Prioritizes-Inclusion-of-Bicycle--Transit--Walking-Options.aspx>.
- 14 "United States Department of Transportation Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations." U.S. Department of Transportation Federal Highway Administration: Bicycle & Pedestrian, March 15, 2010. [http://www.fhwa.dot.gov/environment/bicycle\\_pedestrian/overview/policy\\_accom.cfm](http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm).