

Appendix A:

LTS Analysis



Appendix A – Bicycle Level of Stress Analysis

The Bicycle Level of Traffic Stress analysis prepared for the Watertown Bicycle and Pedestrian Plan is based on a methodology originally developed by researchers at the Mineta Transportation Institute, and advanced by Peter Furth, Professor of Civil and Environmental Engineering, Northeastern University College of Engineering. The methodology identifies typical conditions for bicycle facilities, vehicle speed, vehicle volume, on-street, parking, and transit service and applies them to street segments according to roadway classification. The data and assumptions used in the Plan are detailed below.

Data Sampling

The Town of Watertown’s Department of Public Works (DPW) GIS based street inventory data was used to classify every street in town. The DPW classification system uses 6 classes, with each of the classes having the following title:

- Class 1: Limited access highway
- Class 2: Multi-lane highway, not limited access
- Class 3: Other numbered route
- Class 4: Major road – arterials and collectors
- Class 5: Minor street or road (with road inventory information)
- Class 6: Minor street or road (with minimal road inventory information – a “local” street for our purposes)

Data was sampled for each of the six roadway classes identified above. The sampling defined parameters for each set of criteria, which was applied to all remaining streets in each class, including where data was not available.

Streets included in the 2018 Evaluation Report for the Town-Wide Traffic Counting Program conducted by the Town of Watertown Department of Public Works were summarized first for Average Daily Traffic (ADT) and 85th percentile speed. For streets not included in the 2018 Evaluation Report, ADT and 85th percentile speed data was taken from the database of all available Watertown traffic counts, including automatic traffic recorder (ATR) data, turning movement counts (TMCs), and speed studies received from the Watertown Department of Community Development and Planning, the Watertown Department of Public Works, Watertown Zoning Relief Petitions, or the Town of Watertown. All available speed data was summarized. ADT data was summarized by DPW class and includes the following notes and methodologies:

- Class 1-2: No available ADT data
- Class 3-4: All available Class 3-4 ADT data were referenced
- Class 5: At least 1-2 samples taken from every alphabet letter by street name
- Class 6: All available Class 6 ADT was referenced.

As mentioned above, for Classes 1, 2, 3, 4, and 6, all available ADT data was referenced. A limited number of ADT data was sampled for Class 5 streets. It was at this time that we noted that the DPW classification system grouped the majority of Watertown roads into Class 5. Based on desktop and field observations it was clear that there was a large amount of variation in roadway ADT and speed within Class 5. To further classify streets in the DPW Class 5 category, federal functional classifications were referenced. According to federal functional classifications, numerous roads within the DPW Class 5 are

listed as urban minor arterials, and the remainder of the Class 5 roads are listed as local streets. Based on this comparison, roadways listed as urban minor arterials were maintained as Class 5 roadways, and the remainder of DPW Class 5 roadways were reclassified as Class 6 local streets. Based on available speed and ADT data, the following parameters listed in Table 1 were estimated for streets in each class:

Table 1: ADT and 85th Percentile Bins by DPW Class

DPW Class	ADT (Vehicles/Day)	85th Percentile Speed (mph)
1	n/a	n/a
2	19000	37
3	15000	31
4	12000	35
5	4001	28
6	2001	25

The information outlined in Table 1 is then used to classify each street in terms of bike level of traffic stress. It should be noted that there are no Class 1 roadways in Watertown according to DPW classifications.

Bus Facilities

MBTA Bus routes were documented from the MBTA system wide map.¹ The MBTA's Winter 2020 schedule was used to document frequently of service for each route running through Watertown.²

Bus route classifications were determined as follows:

- Frequent: If bus wait time is at most every 30 minutes based on available bus schedule
- Infrequent: If bus wait time is at least 30 minutes based on available bus schedule

The following corridors were identified with the bus facilities:

- Galen St: two lines: 52, 57. 52: Every 30-40 min. 57: 10-30 min. Frequent
- Watertown St: 59: Every half hour to 40 min. Infrequent
- Arsenal to Main: 70: every 5-30 min. Frequent
- Mt auburn: 71: every 10-20 min. Frequent
- Belmont St: 73/71. 73: every 5-20 min. Frequent
- Belmont St: 554: every half an hour to one hour. Infrequent
- Pleasant St se: 558: one schedule for half hour interval, otherwise >one hour. Infrequent

Bicycle Level of Traffic Stress Roadway Classification Methodology:

Level 1: If

- Separated bike lane or
- Shared with vehicle traffic and (speeds < 30 mph, ADT < 2000 vehicles)

¹ <https://cdn.mbta.com/sites/default/files/maps/2019-12-22-mbta-system-map-2020-full.pdf>

² <https://www.mbta.com/schedules/bus>



Level 2: If

- Buffered bike lane and (or(speeds < 35 mph, ADT < 15000 vehicles)) or
- Bike lane and no parking and no bus route or
- Shared with vehicle traffic and (speeds < 30 mph, 2000 vehicles ≤ ADT ≤ 4000 vehicles)

Level 3: If

- Bike lane and (or(parking, infrequent bus) or
- Shared with vehicle traffic and (or(no bus, infrequent bus), and (or(4000 vehicles < ADT < 10000 vehicles))

Level 4: If

- Shared with vehicle traffic and (speeds > 30 mph, 10000 < ADT < 15000) or
- Shared with vehicle traffic and frequent bus or
- Shared with vehicle traffic and (speeds < 30 mph, ADT >10000 vehicles) or
- Shared and (speeds > 35 mph, ADT < 10000 vehicles)

Level 5: If

- Shared and (or(speeds > 35 mph, ADT > 15000 vehicles)

Manual Updates

The initial results of the bicycle level of traffic stress analysis were reviewed and compared to desktop and field reviews of existing conditions, as well as local knowledge of each corridor. The following manual updates were completed so that the bicycle level of traffic stress more accurately represents current conditions:

- Arlington south of Mount Auburn Street: 3 to 4 based on desktop and field review
- Arlington Street near intersection with Mt. Auburn Street: 3 to 5 based on desktop and field review
- Arsenal Street: 4 to 5 where no separated facility based on desktop and field review
- Cottage Street: 1 to 2 based on desktop and field review (high cut through route)
- Greenough Boulevard: 3 to 4 due to high speeds
- Kingsbury Avenue: unclassified because it is located on campus
- Main Street near Watertown Square: 4 to 5 based on local review
- Mount Auburn Street: 4 to 5 based on local review
- Repton Circle: unclassified as not a public street
- Talcott Avenue: unclassified as not a public street
- Thompson Street: unclassified as not a public street
- Welch Avenue: unclassified as not a public street
- Wheeler Avenue: unclassified as not a public street
- Wooley Avenue: unclassified as not a public street

Appendix B-1:

Public Feedback Summary



Appendix B-1:

Public Feedback Summary



Public Feedback Summary Public Meeting #1 and Community Survey Prepared February 17, 2020 by McMahon Associates

The following document provides a summary of key themes and comments generated from the first public meeting and the community survey developed as part of the Watertown Bicycle and Pedestrian Plan public outreach process.

1. Public Meeting #1 Summary

The first public meeting for the Watertown Bicycle and Pedestrian Plan was held on Monday, January 27, 2020. The purpose of the meeting was to provide a project overview, information on existing conditions for walking and biking, and collect feedback on priorities for pedestrian and bicycle improvements, as well as gain an understanding of the public's priorities for addressing trends emerging from the planning process and for the overall vision for the plan. The meeting was attended by 62 members of the general public as well as Bicycle and Pedestrian Committee and Steering Committee members. A combination of a presentation and interactive stations were used to present educational information and collect feedback. Public feedback was collected in several ways:

- Interactive boards used to collect input on specific topics, such as priority locations for bicycle and pedestrian improvements, and input on identified emerging trends and developing a vision for the plan. A full set of boards the boards presented is available in Appendix A.
- Comment cards to collect additional station-specific feedback as well as general input.
- The community survey available on electronic tablets.





- Complete Streets: Plant and maintain trees, high curb around tree pits, larger tree pits (or longer), wider planting strips, structural soil
- Mt. Auburn Street project will cause more problems for vehicles, which are part of the users in town

Station 2: Summary of Feedback

Station two provided a summary of feedback on the plan from the Steering Committee and Bicycle and Pedestrian Committee, as well as a summary of recommendations from previous plans. Feedback collected is a combination of sticky notes posted on a board to collect additional feedback for what to consider in the plan, show in Figure 2, as well as comment cards.

- Enforcement – involve police in bicycle and pedestrian safety, enforce vehicles running red lights, enforce that pedestrians and bicyclists follow rules
- Need for covered and secure bike parking at express bus stops and new commercial construction. Require bike parking for new commercial construction.
- Improve safety through traffic calming and road diets
- Consider conflicts between bicyclists and pedestrians - separate bike lanes from pedestrian walkways around senior living buildings and complexes
- Maintenance of roads/bike lanes, more and continuous bike lanes
- Improve sidewalks with granite curbs and street trees, especially around Cunniff School and Middle School (dangerous for kids walking to school) and in business districts
- Shared bus/bike lanes must be continuous to avoid confusion
- Would like to know how community path can be done along Irving Street (very narrow) and beyond to link with western part. Why not make an opening under the bridge at Patton and Arsenal

Figure 2: Station 2 Public Comment Board





- and use the old railroad right-of-way?
- Provide bike signals at major intersections
 - Street trees on sidewalks should not interfere with sidewalks and bike paths
 - Snow removal on sidewalks
 - Find alternate bike routes around congested areas like Coolidge Square and Arlington Street
 - Use caution with speed bumps
 - Whatever is planned should not require loss or removal of parking or travel lanes
 - Locations identified with safety issues: Belmont Street and Greenough Boulevard for bicyclists, pedestrian refuge island on North Beacon is not safe, Watertown Square for pedestrians

Station 3: Issues and Opportunities

Participants were asked to identify their top two priority locations with sticky dots on a map for pedestrian and bicycle improvements, seen in Figure 3. The locations that generated the largest number of dots are listed in Table 1. As seen in the table, Watertown Square generated the largest number of dots for both pedestrians and bicyclists. Other similar themes across both modes include conditions on Mount Auburn Street and improving connections between the roadway network and off-street paths including the Community Path, Cambridge-Watertown Greenway, and Charles River Path. Specific comments on issues at these locations provided via comment cards are summarized below Figure 3.

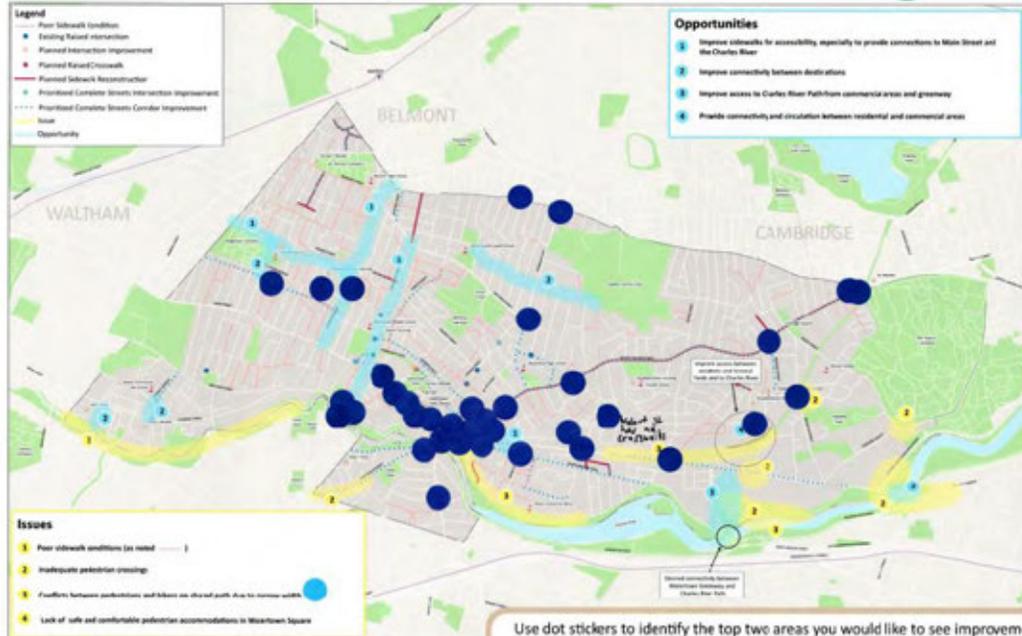
Table 1: Locations Generating the Highest Number of Dots/Comments

PRIORITY LOCATIONS	
Pedestrian	Bicycle
Watertown Square 10 dots	Watertown Square 6 dots
Main Street from Forest Street to Watertown Square 5 dots	Mount Auburn Street 4 dots
Mount Auburn Street 5 dots	Connection between Summer Street and Arsenal Street 4 dots
Pleasant Street between Bacon Street and Myrtle Street/access to Charles River Path 3 dots	Walnut Street connection to Greenway and Community Path 3 dots
Arlington Street at Nichols Street/Greenway entrance 1 dot (+ 2 comments)	Arsenal Street at Greenough Boulevard 3 dots



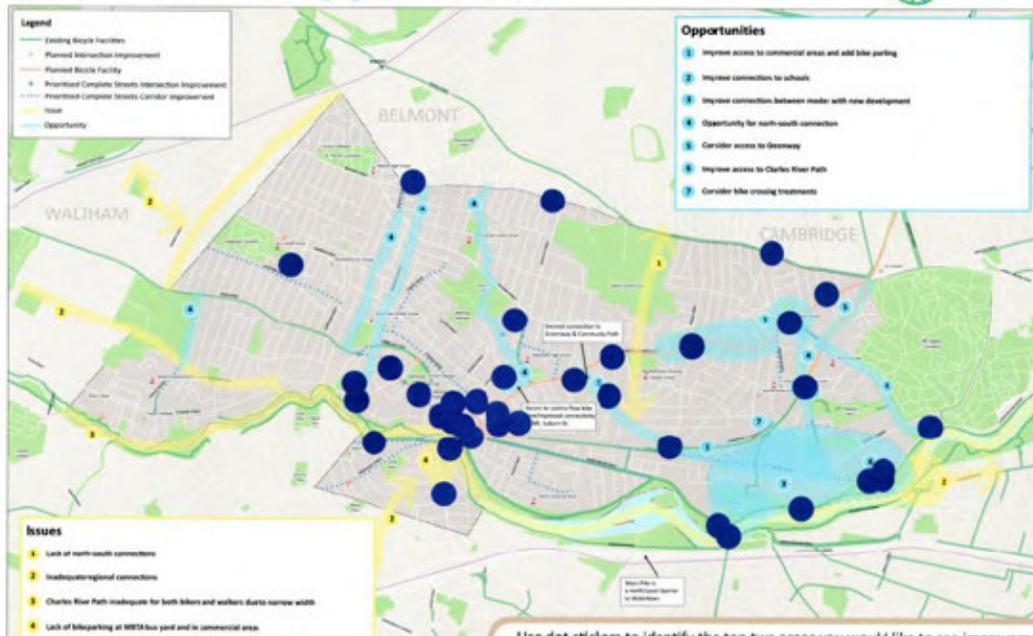
Figure 3: Station 3 Pedestrian and Bicycle Maps

Pedestrian Issues & Opportunities



Public Meeting, January 27, 2020

Bicycle Issues & Opportunities



Public Meeting, January 27, 2020



Pedestrian Specific Comments

- Improvements from Galen Street into Watertown Square
- Mt. Auburn Street at Summer Street crossing and at Coolidge Square – dangerous crossings
- Mt. Auburn Street – not enough crossings
- Pleasant Street between Bacon Street and Myrtle Street/access to Charles River Path – crosswalks to access DCR parking lot and Howe Park
- Arlington Street at Nichols Street/Greenway entrance – right turning cars cannot see pedestrians on sidewalk, narrow sidewalk with light pole, prioritize pedestrians at signal, get rid of permission right turn where path extension will be. Very dangerous for pedestrians. Push out curb so turn is less gradual.
- Improvements at intersections between Ridgelawn Cemetery and Lexington Street
- Spring Street at Summer Street – drivers do not yield to pedestrians, poor lighting, common school walking route
- Alignment of detectable warning panels is confusing at corners with a wide radius
- Bigelow Avenue at Nichols Avenue - “spoke” arrangement of sidewalks through grass curb extensions at northwest and northeast corners are confusing for seeing impaired

Bicycle Specific Comments

- Improvements from Galen Street into Watertown Square to improve accessibility to businesses and Charles River
- Mt. Auburn Street between Bigelow and Arlington Street – not enough room for bikes
- Summer Street to Arsenal Street – awkward crossing to community path
- From Arlington Street at Belmont Street, Templeton Parkway to Grove Street is a good north-south bicycle connection
- North Beacon Street and Greenough Boulevard – bicyclist hit by SUV

Station 4: Bicycle and Pedestrian Toolboxes

Station 4 provided information on eight pedestrian facilities and eight bicycle facilities. The following summarizes comments received on comment cards:

- Provide bike parking
 - Commercial districts (require for new development)
 - Watertown Square
- Pedestrian crossings
 - Improve and increase number of crosswalks along Belmont Street
 - RRFB between post office and library lacks audio cue for seeing impaired
 - Leading pedestrian intervals do not help, as drivers turn without yielding - preference for concurrent phasing
 - Pedestrian push buttons frustrate drivers when they are pushed, but pedestrians cross anyway when no cars are coming
 - Crosswalks needed with anti-skid aggregate to prevent bicyclists from slipping
- Bicycle facilities

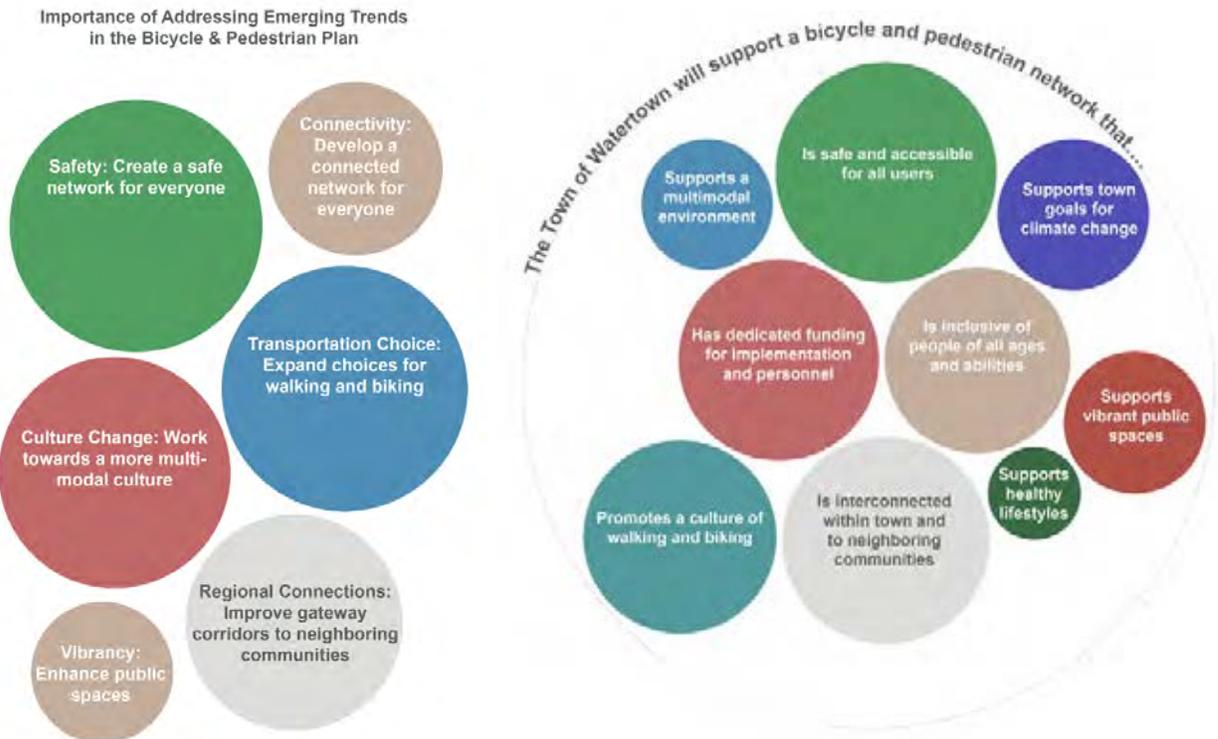


- Preference for double buffered bike lane, separated bike lane, and protected intersections. Separated bike lanes separate bicyclists from pedestrians.
- Two stage bike box and bike signals are not helpful

Station 5: Emerging Trends & Vision

Participants were asked to rate the importance of key words and phrases summarizing emerging trends identified through the planning process with the Steering Committee and Bicycle and Pedestrian Committee using sticky dots, as seen in Figure 5 (next page). These ideas were then presented in the form of draft vision statements for the plan, where participants could rank how important they saw these elements for inclusion in the plan’s vision. Figure 4 illustrates the emerging trends and vision elements that were rated most important, symbolized by circle size.² Overall, there was general agreement in the importance of all of the identified vision elements and emerging trends. The trends that generated the most agreement on their importance were safety and culture change, and expanding transportation choice. The ideas that generated the most agreement for their inclusion in the vision were again safety, along with providing an interconnected network, inclusive facilities, and having dedicated funding.

Figure 4: Public Priorities for the Bicycle & Pedestrian Plan Vision



² Results were tallied by “very important”, “neutral”, and “not important”. A neutral or not important vote was subtracted from the “very important” total to generate one number per category.



The identified key themes from the public feedback will be used to develop the vision and goals for the Bicycle and Pedestrian Plan. Comments related to specific locations and facility types, as well as the need for maintenance, enforcement, policies and programs will be used to develop recommendations for the plan.

Additional Overall Comments

Submitted comment cards that do not pertain to a specific station are summarized below:

- **Plowing/Snow Removal**
 - Town owned property in Watertown Square
 - Better adherence to existing business snow removal requirement
 - Need resident snow shoveling ordinance. Newton has one – ticketing would make it serious
- **Crossings**
 - Crosswalks not painted
 - Traffic lights do not work
 - Lack of traffic lights at crosswalks
- **Enforcement**
 - Enforce traffic laws. When motorists consistently run red lights no one feels safe.
 - Close calls with pedestrians and bicyclists from motorists running red lights, most blatantly at Watertown Square. Traffic enforcement is the first priority in pedestrian and cyclist safety.
- **Fix existing infrastructure - bike sensors at Myrtle and Pleasant do not work. Cyclist must trigger light by riding to pedestrian button or wait for a car to trigger the signal**
- **As a pedestrian, highest priorities are clear sidewalks good repair, and safe street crossings. Snow removal and lack of shade trees prevents me from walking.**
- **Right on red conflict, bicycle conflict with pedestrians, educate bicyclists, make Winter Street one-way.**



2. Community Survey Summary

A community survey was released from January 10, 2020 to February 10, 2020. The survey was publicized on the public meeting flyer, available to take at the public meeting, and distributed through the Town’s and the Bicycle and Pedestrian Committee’s existing networks. A community survey is an important element of public engagement, as not everyone has the ability to attend public meetings to express their opinions. The survey generated a total of 821 responses, 574 of which were complete responses. A full set of survey questions and responses is available in Appendix B. The following summary is based on the 574 complete responses, as this provides a more complete understanding of priorities.

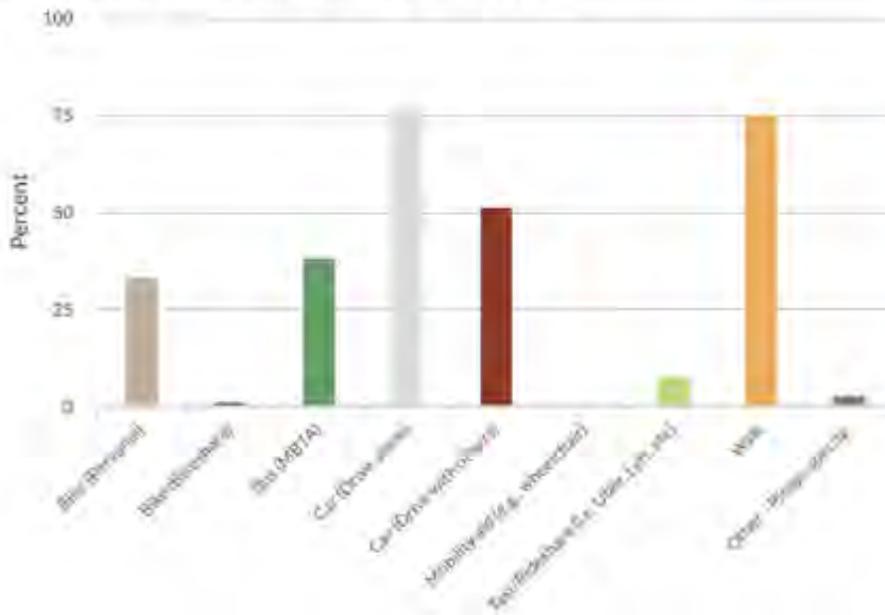
The majority of survey respondents (92%) were Watertown residents. Nearly half of respondents (46%) were between 30 and 49 years of age, over a quarter (27%) were between 50 and 64, while one-fifth (21%) were from 65 to 79 years old. Fewer than 5% of respondents were adults under the age of 30. Among those who opted to answer the question about gender identity, respondents skewed female, with 329 women completing the survey and 231 men.

The following is a summary of the major trends that emerged from the data.

Getting Around Watertown

The dominant form of transportation reported in Watertown is driving alone (77%), followed closely by walking (75%). Just over half (52%) of respondents report carpooling at least once per week, and 38% report using the MBTA bus at least once a week. Just over one third (34%) of respondents report using a bicycle for transportation at least once a week as well.

1. Which transportation modes do you regularly (at least once a week) use to get around Watertown? Select all that apply:



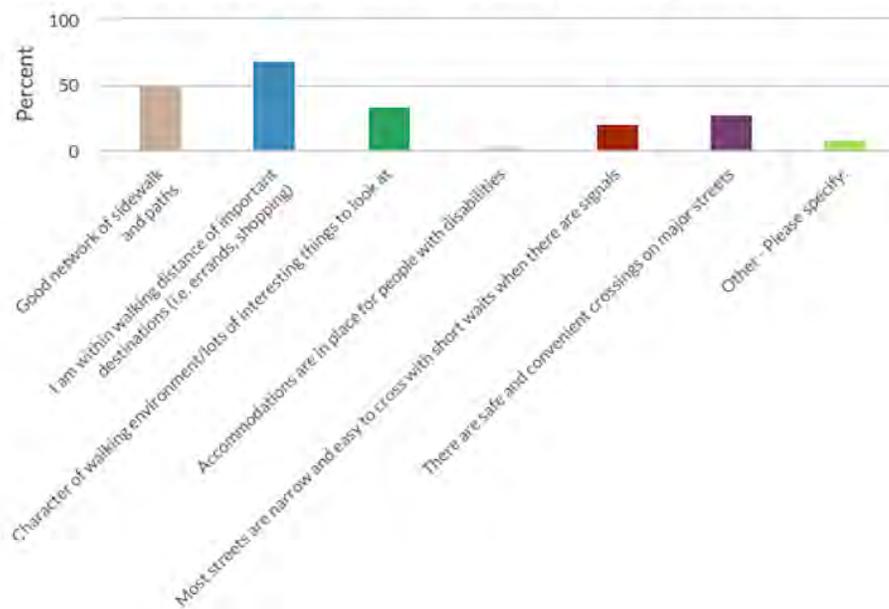
Question 4 reveals that 70% of respondents find walking in Watertown to be just as safe in Watertown as in neighboring municipalities, compared to question 15, which shows that only 55% of respondents find conditions for biking as safe in Watertown as in neighboring communities. Overall, the survey reveals strong interest in improving conditions for both biking and walking, with several key points highlighted below:

- Having important destinations close by is what people like most about walking and biking.
- Motorist behavior and poor maintenance of sidewalks and streets were reported as the biggest barriers to walking and biking.
- If conditions improved for walking and biking, people are most interested in taking trips for recreation/fun and exercise, followed by trips for personal errands.
- Improving walking and biking connections to recreational areas, off-road paths, and schools are the highest priorities.
- The top rated pedestrian facilities to improve conditions are improved street lighting, Rapid Rectangular Flashing Beacons, and pedestrian refuge islands.
- The top rated bicycle facilities to improve conditions are shared use paths, grade separated bicycle lanes, and buffered bicycle lanes.
- The top three things respondents would like the town to do to encourage walking and biking are improved maintenance of streets and sidewalks, improved snow removal from sidewalks and paths, and construction of more/safer on-street bike lanes.

Walking in Watertown

The top reason people reported liking to walk in Watertown is that they are within walking distance of importance destinations (e.g., errands or shopping), as seen in results for question 2. This is noteworthy because it shows that Watertown has a foundation upon which to increase the number of walking trips, with people’s origins and destinations within close proximity.

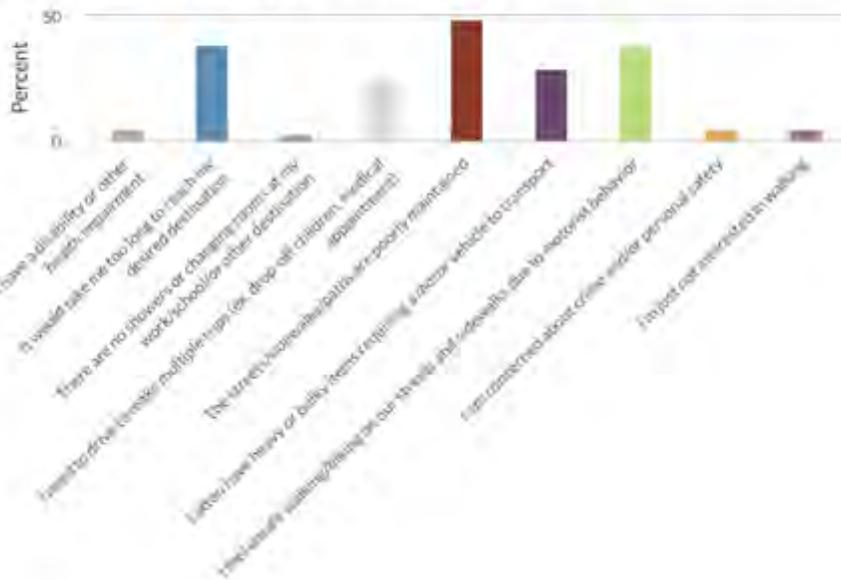
2. What do you like most about walking (including use of a mobility aid, such as a wheelchair or walker) in Watertown? Select up to three:





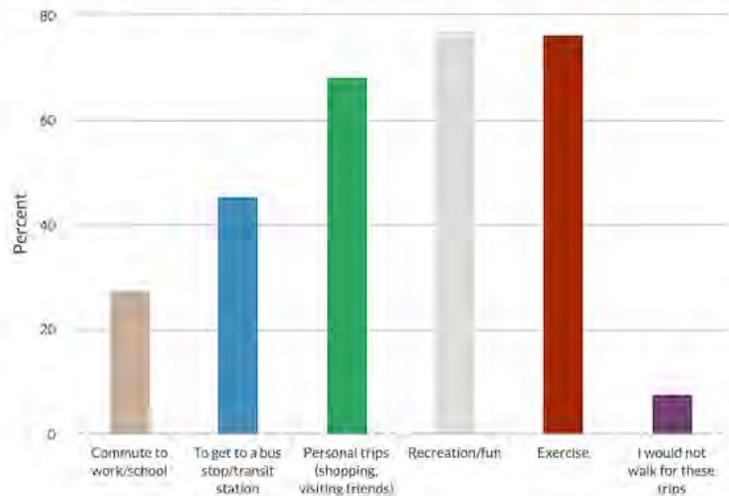
The top three reasons people find walking to be challenging in Watertown are poorly maintained streets and sidewalks (49%), that it would take too long to reach a desired destination (39%), and feeling unsafe due to motorist behavior (38%). This reveals how the plan can address what people find challenging about walking through physical improvements to sidewalks and streets, traffic calming tactics, and through enforcement and education regarding driver behavior. It also shows that while many destinations may be within walking distance for some, as shown by the results of question 2, not all destinations are within reach by walking for the whole population, which may depend on where they reside or mobility limitations.

3. Which of the following makes walking in Watertown more challenging for you? This includes travel using a mobility aid (such as a wheelchair or walker). Select all that apply:



In question 8, which asked how often people would take different trip types by walking if conditions improved, over three-fourths of respondents (77%) reported that they would travel on foot more often for recreational/fun trips. Exercise was roughly equal at 76%, followed by personal trips like shopping or visiting friends at 68%. The lowest response was for commuting to work or school, at 27%. These results may illustrate a priority to improve walking conditions providing connections to parks, trails, and open space.

8. If conditions improved for walking in Watertown, what trip types would you like to take via walking (or continue/take more of if you already make these trips)? Select all that apply:



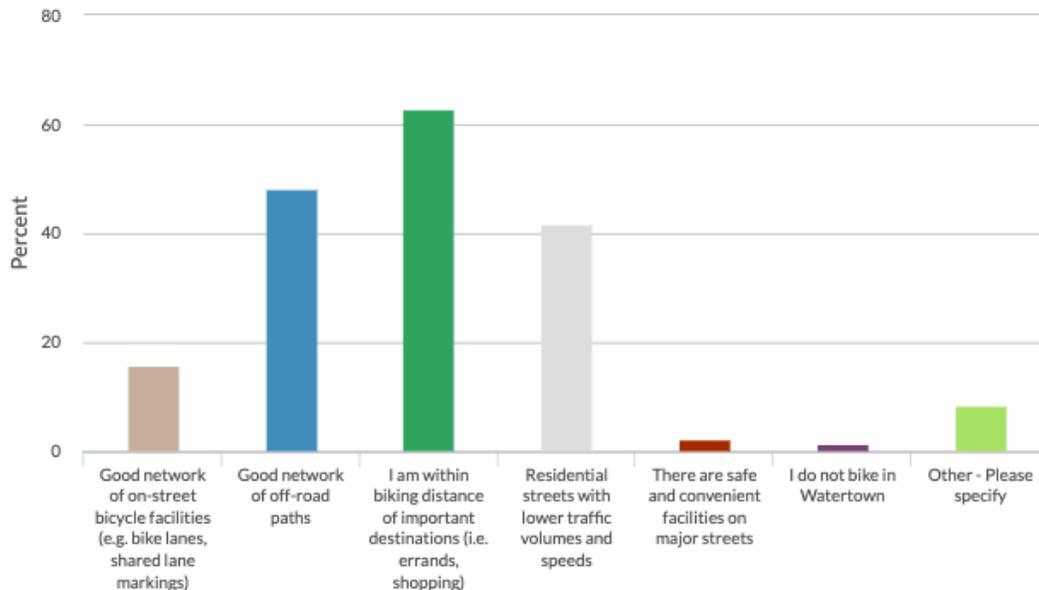
Biking in Watertown

Nearly half of all survey respondents (48%) were bicyclists, with 24% reporting they bike regularly and another 24% reporting they bike occasionally (see question 11). While 48% of respondents report biking either regularly or occasionally, 23% say they do not, but that they would like to bike. This is an important datum as it demonstrates room for growth: if conditions were improved, those people could be moved into the “occasionally” or “regularly” columns.

Top responses to question 12, which asked “What prevents you from biking in Watertown?” were feeling unsafe due to motorist behavior (53%) and poor maintenance of streets and paths (30%). These responses mirror those that prevent people from walking in Watertown, which stresses the importance of infrastructure maintenance, as well as traffic calming, enforcement, and education to address motorist behavior.

Responses to questions about biking in Watertown were similar to those regarding walking. The top response to the question on what people like best about biking in Watertown is the same as that regarding walking in Watertown: 63% of respondents note that they are within biking distance of important destinations. As with walking, this establishes a basis for increasing the number of trips taken by bike, as infrastructure improvements for safety and comfort can make these short trips more desirable.

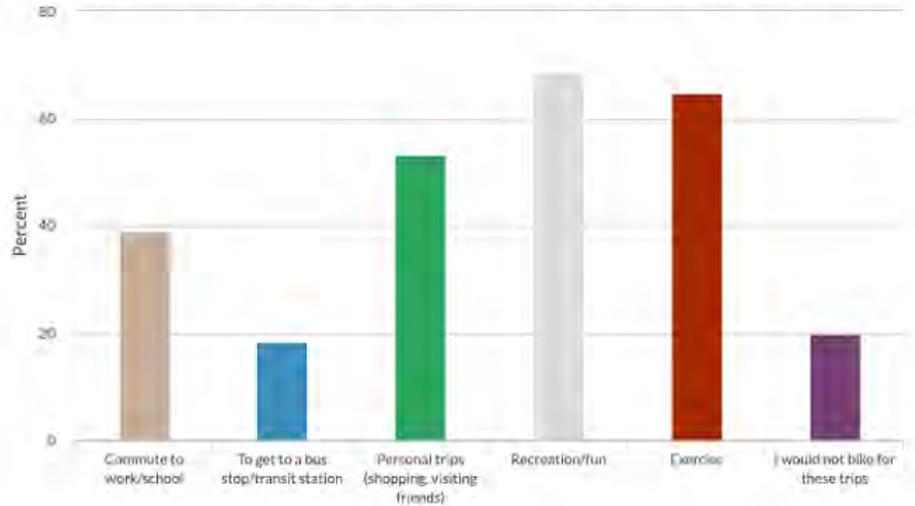
14. What do you like most about biking in Watertown? Select up to three:



When asked about what trip types people would bicycle for, or more often for, given improved conditions, the top responses were recreation/fun (69%), exercise (65%), and personal trips such as shopping or visiting friends (53%). Ranked lower were for commuting to work or school (39%), and to reach a transit stop (19%). These responses are again important because it suggests that infrastructure upgrades and policy improvements have the potential to make walking and biking trips both safe and practical transportation choices in Watertown, leading to mode shift.



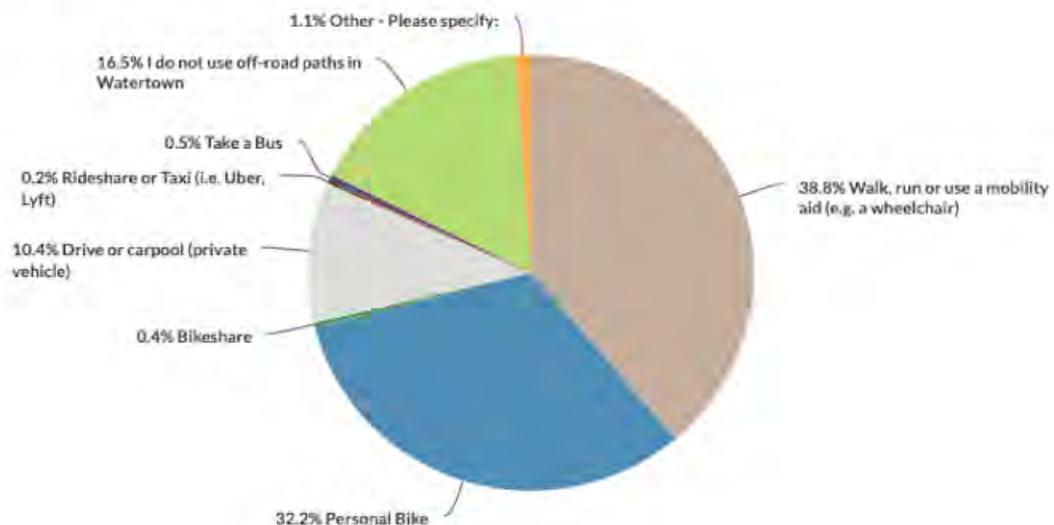
19. If conditions improved for biking in Watertown, what trip types would you like to take via bike (or continue/take more of if you already make these trips)? Select all that apply:



Questions 17 and 18 provide information on the type of trips people take by bike. With 19% of people reporting that they bike to commute to work or school a few times per year, there is potential for growth. This is a population that could increase their frequency of bike commuting if conditions were improved. This is true also for those who bike for exercise (27% a few times per year) and for personal trips (36% a few times per year).

Questions 22 and 23 relate to biking to destinations in Watertown. The majority of people (38%) reach off-road paths on foot or with a mobility device, following by 32% using their bike, and one in 10 (10%) driving. This demonstrates that there is likely demand for improving walking and biking connections between off-road paths and residential neighborhoods. In ranking how important it is to have good walking and biking access to specific destinations in Watertown, the top-ranked destinations considered to be very important are schools (75%), off-road paths (72%),

22. How do you typically get to off-road paths in Watertown?





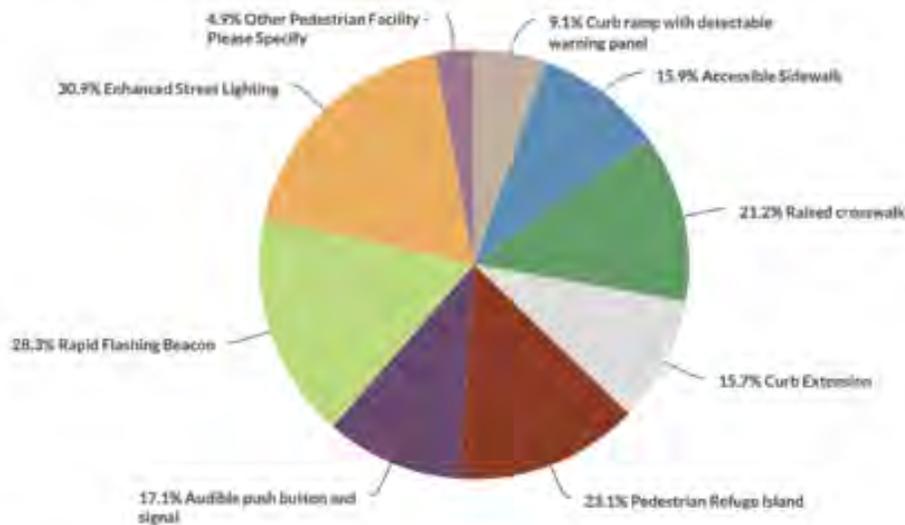
and local parks and recreation areas (71%). This reinforces the importance of improving links to parks and off-road paths, reflecting the previous results showing that recreational trips and trips for exercise are the ones that people would do more often by walking or biking.

Questions 24 and 25 regard biking to school. Approximately one-third of respondents have school-age children, and of those, fewer than half have kids that walk or bike to school (15% of all survey respondents). The top three reasons given for children not walking or biking to school were concerns over motorist behavior (43%), child’s young age or lack of cycling skills (39%), and living too far from school (31%).

Bicycle and Pedestrian Facilities

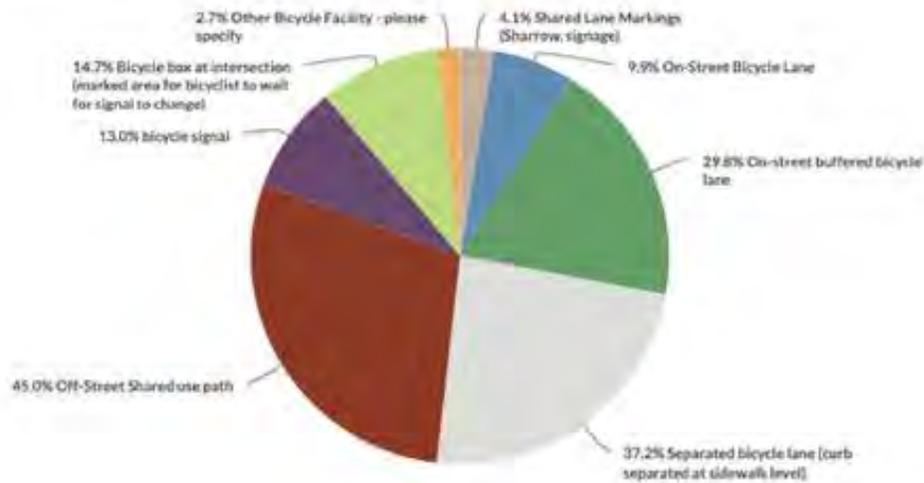
Survey responses in both multiple-choice and open-response questions reveal the type of improvements desired to make conditions better for walking and biking. Respondents frequently referenced Cambridge for examples of how Watertown can become more pedestrian- and bicycle-friendly. The top improvements sought to improve walking were improved street lighting (31%), installation of Rectangular Rapid Flashing Beacons (28%), pedestrian refuge islands (23%), and raised crosswalks (21%). The top improvements sought to improve bicycling conditions were construction of more off-street shared-use paths (45%), grade-separated bike lanes (37%), and buffered bike lanes (30%).

9. Please select the top three pedestrian facilities you would like to see considered in Watertown to improve walking conditions. Select up to three:





20. Please select the top three bicycle facilities you would like to see considered in Watertown to improve biking conditions. Select up to three:



Open-response questions provided additional information. When asked about what other municipalities are doing to make walking and biking safer, several improvements were noted multiple times: better enforcement of existing traffic laws, construction of more shared-use paths, and ensuring that shared-use paths and bike lanes be connected in a town-wide network, so that routes can be created connecting all neighborhoods. Specific locations noted as desirable to reach on foot or by bike include schools, greenways, parks, commercial centers, the library, residential neighborhoods, and transit stops.

Finally, question 26 asked respondents to select three things they'd like Watertown to do to encourage greater walking and biking. The top three options selected were improved maintenance of streets and sidewalks (54%), improved snow removal from sidewalks and paths (39%), and construction of more/safer on-street bike lanes (33%).

Appendix B-2:

Public Meeting #1 Boards



Station 1



Watertown

BICYCLE & PEDESTRIAN PLAN

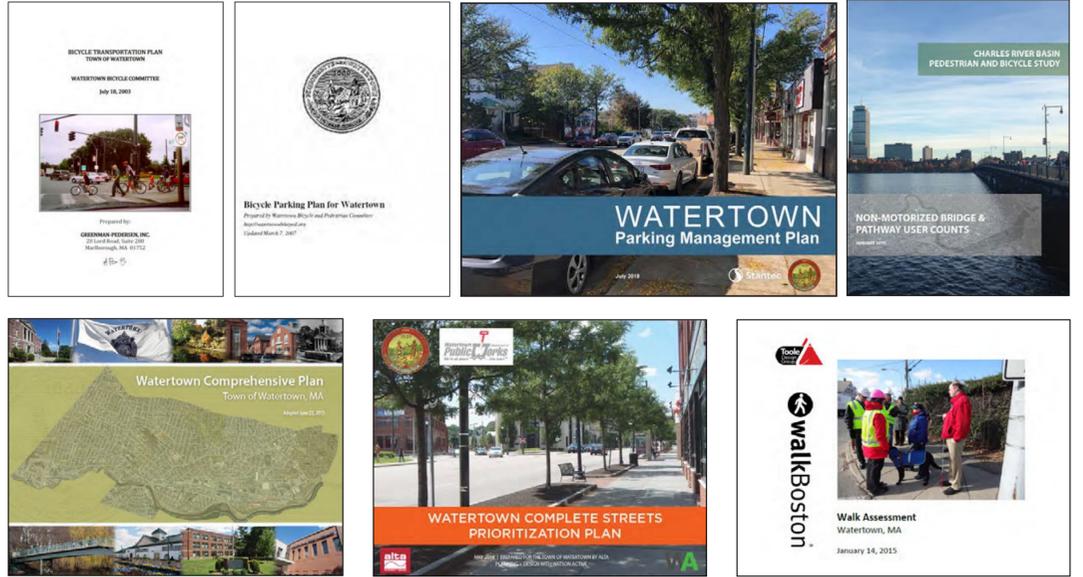


This is a project of:
 Department of Community Development
 and Planning
 Department of Public Works Engineering
 Division
 Watertown Bicycle and Pedestrian
 Committee

PROJECT DESCRIPTION

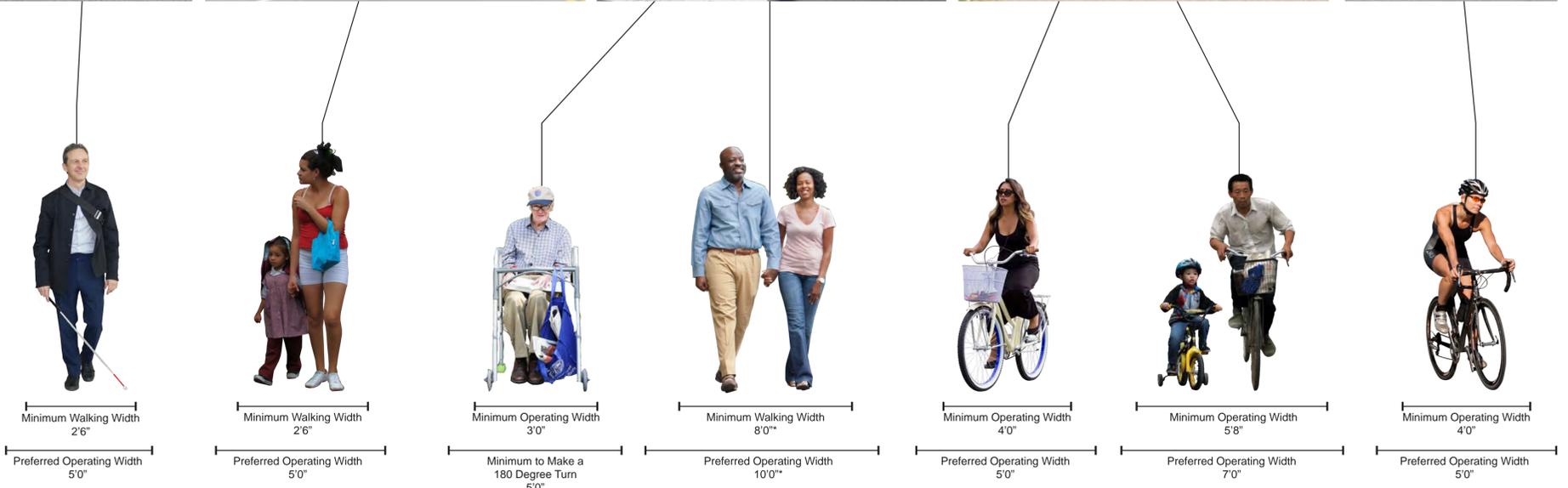
Watertown encourages active transportation—walking, biking and transit—to help reduce congestion, and improve both air quality and public health. The Watertown Bicycle & Pedestrian Plan will help achieve those goals by identifying and prioritizing future improvements to the Town’s streets and walkways, making it easier for people of all ages and abilities to choose more active forms of transportation. The plan will identify new and improved bicycle and pedestrian connections in Watertown and to the region’s larger active transportation network, to help people get where they want to go easily and safely, and car-free. A series of public meetings and engagement with local community and advocacy groups will help inform the plan.

RELATED PROJECTS



WHO ARE WE PLANNING FOR?

The Watertown Bicycle & Pedestrian Plan will make the town easier and safer for people of all ages and abilities, no matter how one chooses to get around town.



Bicycle & Pedestrian height and width characteristics provided by Guide for the Planning, Design, and Operation of Pedestrian Facilities AASHTO (2004), Guide for the Development of Bicycle Facilities (2012), and Boston Complete Streets Design Guidelines (2013).

TIMELINE



HOW DO I LEARN MORE?

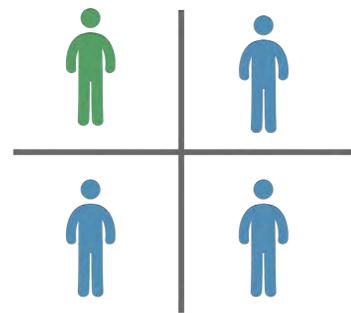
View the Plan’s Webpage here: <https://www.watertown-ma.gov/957/Bicycle-Pedestrian-Planning-2019-2020>

Laura Wiener, Senior Transportation Planner lwiener@watertown-ma.gov (617) 972-6417

Current Travel Trends

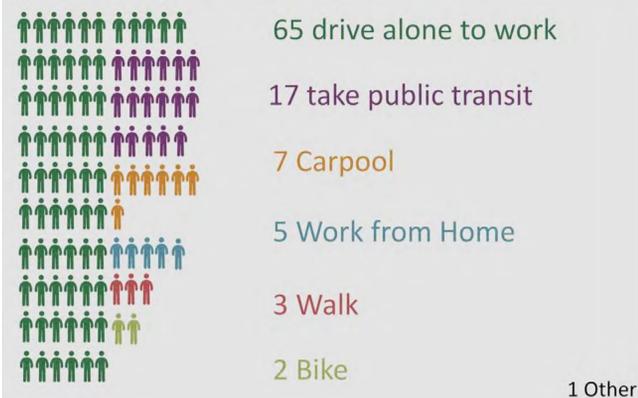
Mobility in Watertown

How could these trends shift with improved bicycle and pedestrian networks?

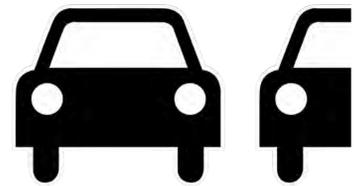


One in four Watertown residents chooses an environmentally sustainable mode to get to work

Out of every 100 residents...



2013-2017 American Community Survey Journey to Work Data



Average vehicles per household (1.3)

2014 Massachusetts vehicle census, summary by MAPC

Almost 20% of Watertown Workers Live in Watertown

Percentage of residents who work in...

Boston	27%
Watertown	19%
Cambridge	11%
Waltham	6%
Newton	5%

Percentage of workers who live in...

Watertown	18%
Boston	16%
Waltham	8%
Newton	4%
Cambridge	4%

2010 U.S. Census County to County Flows

Between April 2018-Sept 2019 17,600 Lime bike trips started in Watertown



70% of trips that started in Watertown ended in Watertown

Trips that start in Watertown end in...

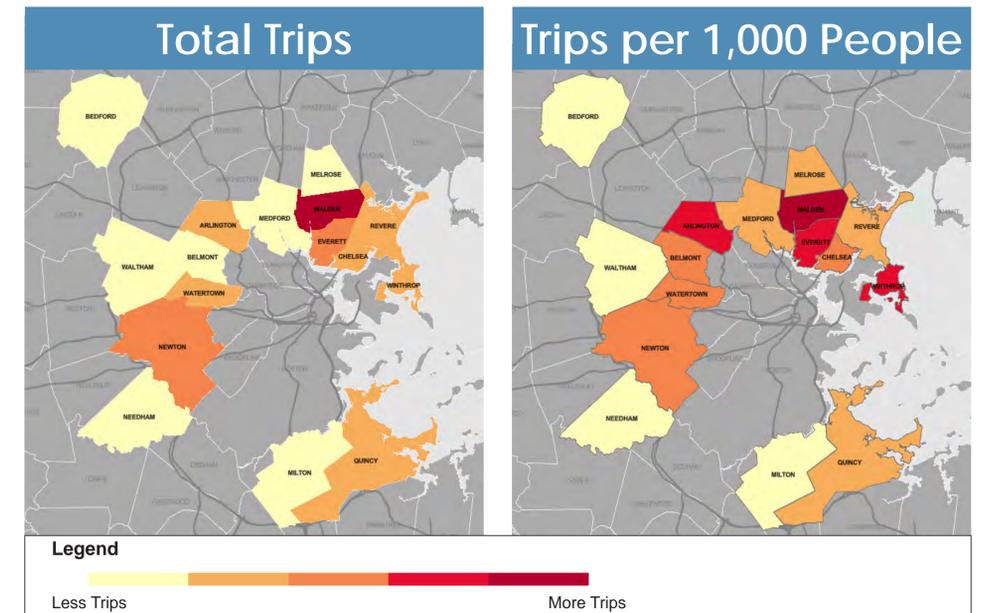
Watertown	70%
Newton	12%
Boston	5%
Waltham	5%

Trips that end in Watertown start in...

Belmont	9%
Waltham	9%
Newton	6%

MAPC Lime bike data, trips between April 1, 2018 and September 30, 2019, "trips per 1,000 people" includes residents and employees

Lime Bike Data Trends



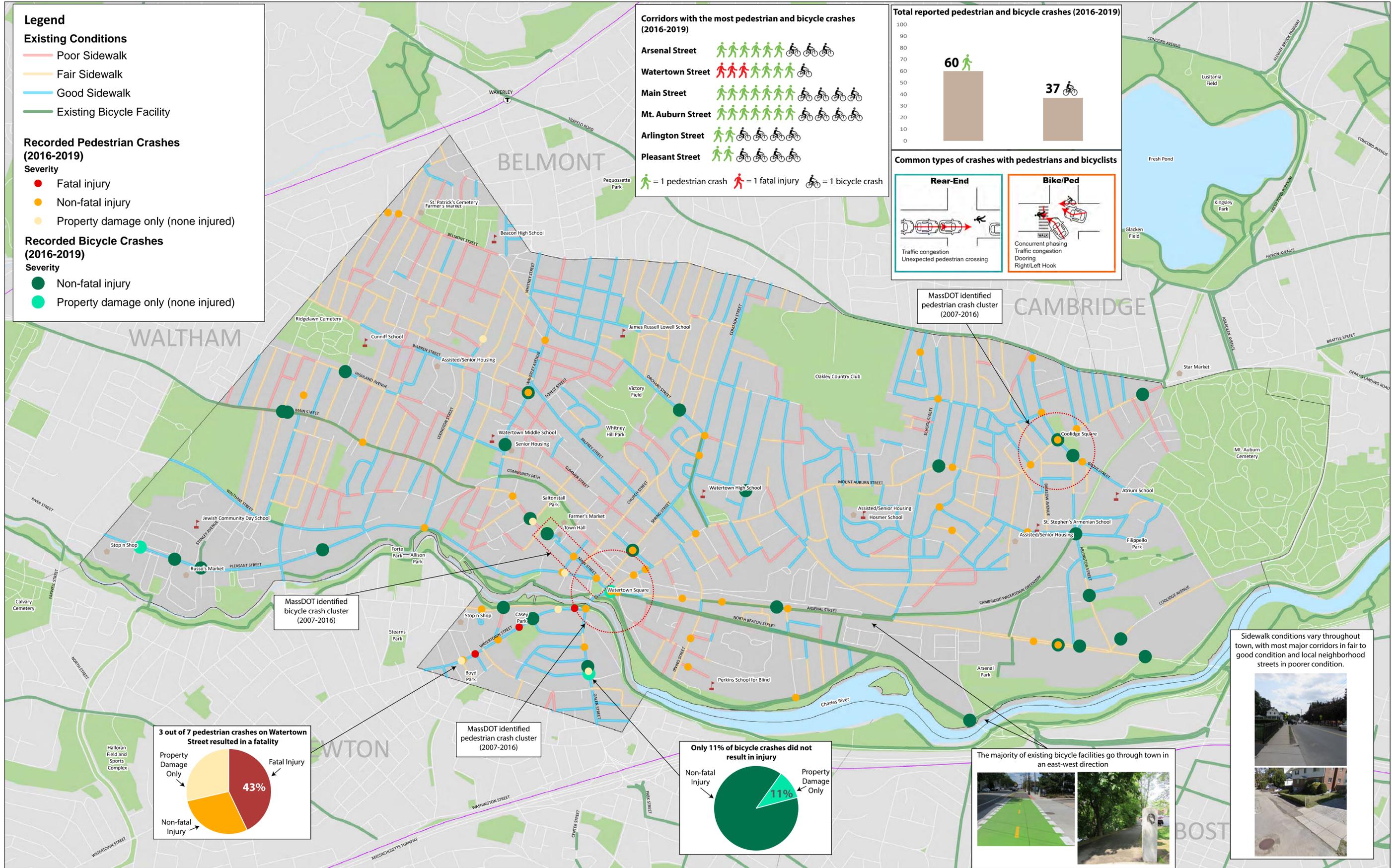
Lime bikes usage in Watertown is average compared to the region



Most traveled routes by Lime bike users

Although the Charles River Bike Path is the most popular route, on-road facilities are still needed to meet demand for more direct routes, including Main Street for those coming from west of Watertown Square and Arsenal Street to connect east to Brighton and Cambridge.

Existing Conditions & Safety



Data source: MassDOT crash data portal, recorded crashes 2016-2019.

Summary of On-Going Bicycle & Pedestrian Projects



Legend

- Existing Bicycle Facilities
- Planned Intersection Improvement
- Planned Bicycle Facility
- Prioritized Complete Streets Intersection Improvement
- Prioritized Complete Streets Corridor Improvement

Reconstruction of Main Street, Waverley Avenue to Thaxter Street
Bicycle lanes, curb extensions, and traffic signal improvements at Waverley Avenue will be added to Main Street. The project is currently in planning/design.



Watertown Community Path
The path will connect the Watertown-Cambridge Greenway to Pleasant Street to Watertown Square and the Charles River. The segment from School Street to Irving Street is already complete with a separated two-way bicycle lane on Arsenal Street.



Reconstruction of Mount Auburn Street
Curb extensions, traffic signal improvements, and buffered bicycle lanes will be added from Patten Street to Belmont Street. Construction is estimated to begin in Spring 2022.



Watertown-Cambridge Greenway Extension
The Watertown-Cambridge Greenway will be extended by 1.25 miles into Cambridge connecting to Fresh Pond and regional bike paths. The extension is under construction.



Complete Streets Prioritization Plan
(As noted in legend)
The Complete Streets Plan was completed in May 2018 and includes 24 pedestrian and bicycle projects recommended for implementation by Town Council. Three projects were funded for construction in 2020:

- o Raised crosswalk on Warren Street at Cuniff School
- o Raised crosswalk on Whites Avenue at Linear Park and widening of Community Path through Saltonstall Park
- o Crosswalk improvements on Watertown Street at Theurer Park



Galen Street at Watertown Street & Nonantum Road
Safety improvements will be provided at this high crash location (identified by MassDOT 2016-2019), with construction estimated to begin in Spring 2023.

Watertown Square Improvements
Design alternatives are being evaluated for a multimodal approach to the Square. Some multimodal approaches were identified in the MassDOT Arsenal Street Corridor Study.



Annual Road Program: Town-wide
This program includes the reconstruction of sidewalks and implementation of ADA-compliant curb ramps. Bike lanes, shoulders, or shared lane markings (sharrows) are added where feasible. Since 2015 there have been seven miles of roadway repaved and sidewalks reconstructed.



Station 2

When the Steering Committee and Bicycle & Pedestrian Committee were asked about challenges, opportunities, and what a successful bicycle and pedestrian plan looks like, the following key words emerged. **Bold words** were heard multiple times.



What is the greatest opportunity presented with this project?

Improve safety

Focus on all people

Enhance vibrancy

Increase mode shift/**mode choice**

Increase **local/neighborhood connectivity** (resident trips)

Incorporate private **development**

Change culture/educate population

Remove physical impediments to walking/biking



What is the biggest challenge this project will face?

Predominant car culture

Dedicated funding

Post-construction maintenance (snow)

E-scooters/emerging modes

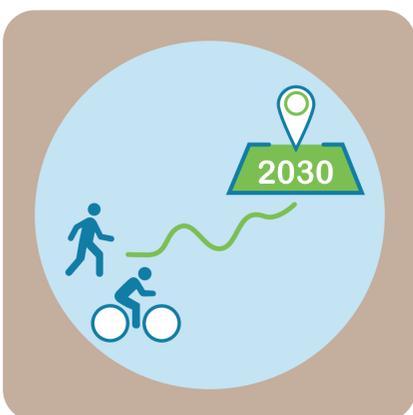
Needs of specific populations (aging, blind and low vision)

Pace of change and development

Public Support

Creating a vision

Ongoing project coordination (i.e., Watertown Square)



What does a successful plan look like to you? Now... and 10 years from now?

Shifting **mode choices** – especially for short trips

Changing **culture**

Development of a strategic and measurable plan

Safe, connected network

Short & long term improvements

Enhance **vibrancy**

Recommendations from Previous Plans



Watertown for All Ages Focus Group Report (2019)

- Improve sidewalks, but maintain trees
- Improve snow removal on sidewalks
- Ensure bicyclists and scooters do not obstruct sidewalks
- Provide tactile markings for blind/low vision pedestrians
- Increase use of and improve pedestrian audible signals
- Improve crossings by reducing crossing distances and improving timing on walk lights

Mount Auburn Street Project (2018)

- Increase pedestrian safety with “road diet” concept to reduce pedestrian crossing lengths and increase visibility at crosswalks
- Provide safe, continuous bicycle facilities



Watertown Comprehensive Plan (2015)

Goal 3

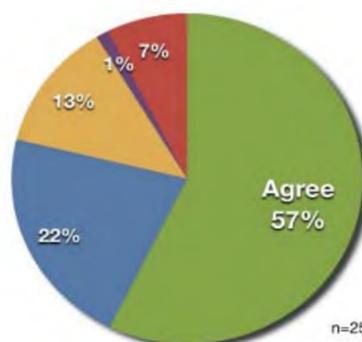
Pedestrians and Bicycle Access. Promote, improve and enhance pedestrian and bicycle access and facilities to ensure that Watertown can accommodate non-motorized forms of transportation.

Watertown Parking Management Plan (2019)

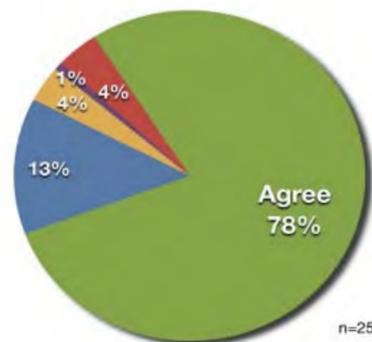
- Reduce parking demand (in commercial areas) by enhancing access for non-vehicle modes
- Plan for more bicycle parking near commercial hubs
- Invest in additional crosswalks and pedestrian infrastructure between parking lots and stores to enhance walkability and safety (in business districts)

Watertown Community Path Survey (2010)

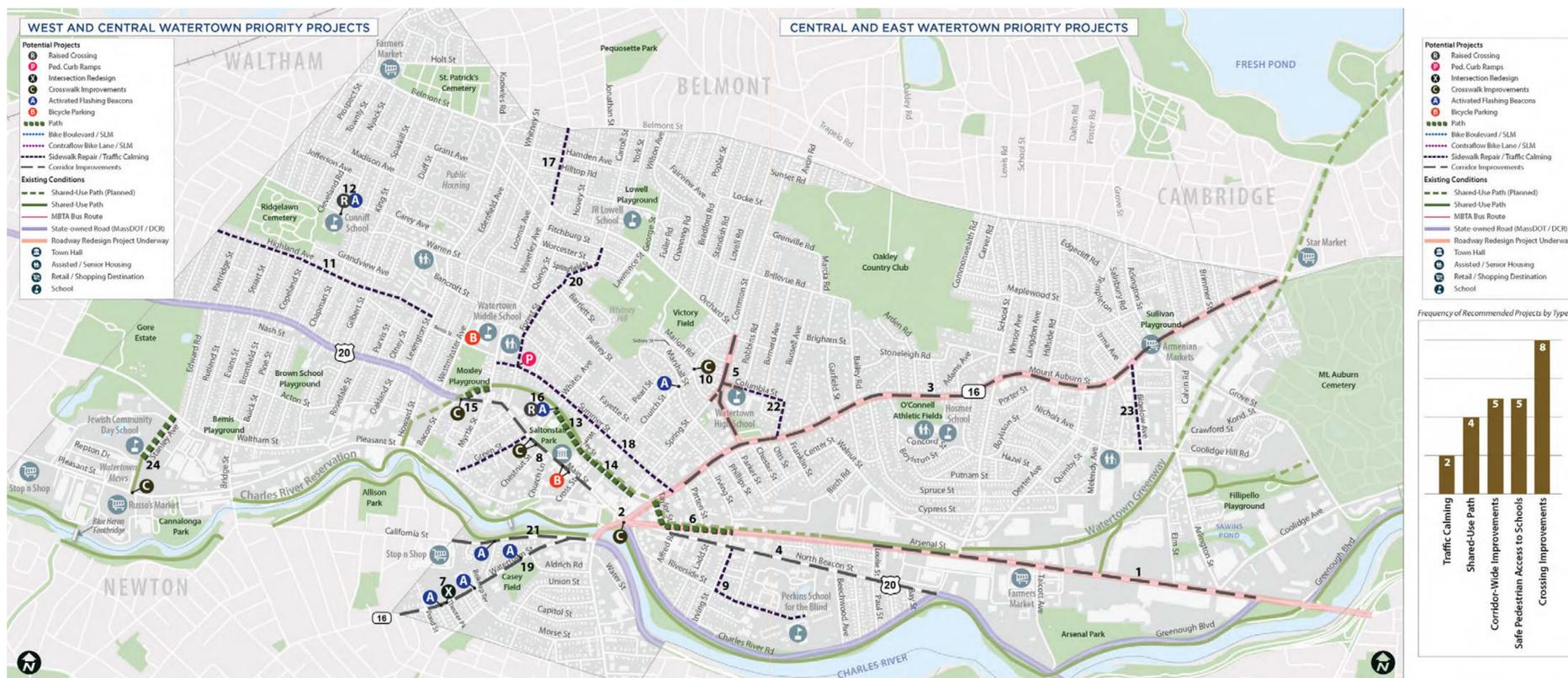
I would use the path to access shops and restaurants in Watertown Square



I would use the Path for exercise and recreation



Complete Streets Prioritization Plan (2018)



Your Feedback



Use a sticky note to tell us what feedback from prior efforts is most important to incorporate or address in the Bicycle and Pedestrian Plan.

Road Diet *

Bike crashes or near misses with pedestrians *

The Recent changes on Belmont St. were a disaster for Biking. An opportunity to make a good wide 15 bike lane was squandered

Enforcement
No enforcement = *
town is only paying lip service.
We've got amazing cops; lets get them involved more in bike/ped safety.

Would like to know how community paths can be done along Irving Street (very narrow) and beyond to hook up with western part. Why not make opening under bridge at Patton's Arsenal and use it for a path

Bike connectivity & safety

Bike parking * facilities at express bus stop in Watertown Square * covered and secure

Improve Watertown Sq. for pedestrians
"refuge" island on N. Beacon is not safe

Fix the Roads!
Re-paint bike lanes to increase visibility
Coordinate Traffic lights for better flow
more dedicated bike lanes

Greenough Blvd.
① Protected Bike Lane w/ Bollards
② More street lights. A bit unwelcoming to ride/walk there at night/winter evenings
③ Turn lights on/off on N. Beacon.

Bike parking *

REPAIR PATCH REGULATIONS AND AGGRESSIVE FINES FOR POOR REPAIR

Bus/Bike Lane share ~~other~~ cannot stop - start - must be continuous. Cars get frustrated and behave unexpectedly

This town needs sidewalks, granite curbs and street trees! The streets around the Cummitt and Middle schools are pathetic and dangerous for kids walking to school.

Bike signals at major intersections like Watertown Square

Address intersection of N. Beacon/Noradum Road leading into Brighton.

Walkability in business districts

Whatever is planned, it should not require the loss or removal of any parking or travel lanes

The Best Bike lane in the area is ~~at~~ Heron Ave in Cambridge

Snow removal on sidewalks: the town has committed to ~~to~~ maintaining the public space used by cars by plowing. Why does the town not commit to maintaining the public space used by pedestrians by clearing sidewalks? Precedent: Burlington sidewalk snow removal should be a public service.

Consider creating "alt" bike routes or bike by-passes in congested areas.
Coolidge Sq. - use Nicksols or Wobleswood.
Arlington St - use Templeton Pkwy + Salisbury

Overcome car culture

Separate bike lanes from pedestrian walkways around senior living buildings + complexes * priority!

Safety works both ways, cyclists and pedestrians should and NEED to be held accountable, and fined accordingly ~~to~~ the same as motorists

Running ~~at~~ red lights should be made illegal - and enforce the law with stiff fines!

PLEASE CONSIDER RAISING THE BICYCLE LANE AND MAKE PEDESTRIAN LANE ONE-WAY. - SIMILARLY TO MANY PLACES IN AMSTERDAM.

Provide safe, continuous bike facilities

Be careful with speed bumps because they can be difficult for cars to go over. they will do damage to some cars.

Reconstruct sidewalks/bike paths to accommodate tree roots: structural soil helps roots not to heave the path

Bike parking required for all new commercial construction + sidewalk renovation in commercial areas

Enforce traffic laws! Motorists running red lights = the biggest barrier to comfort + safety!

make/design/ designate slow traffic streets 15mi/hr to make it safer on narrow streets

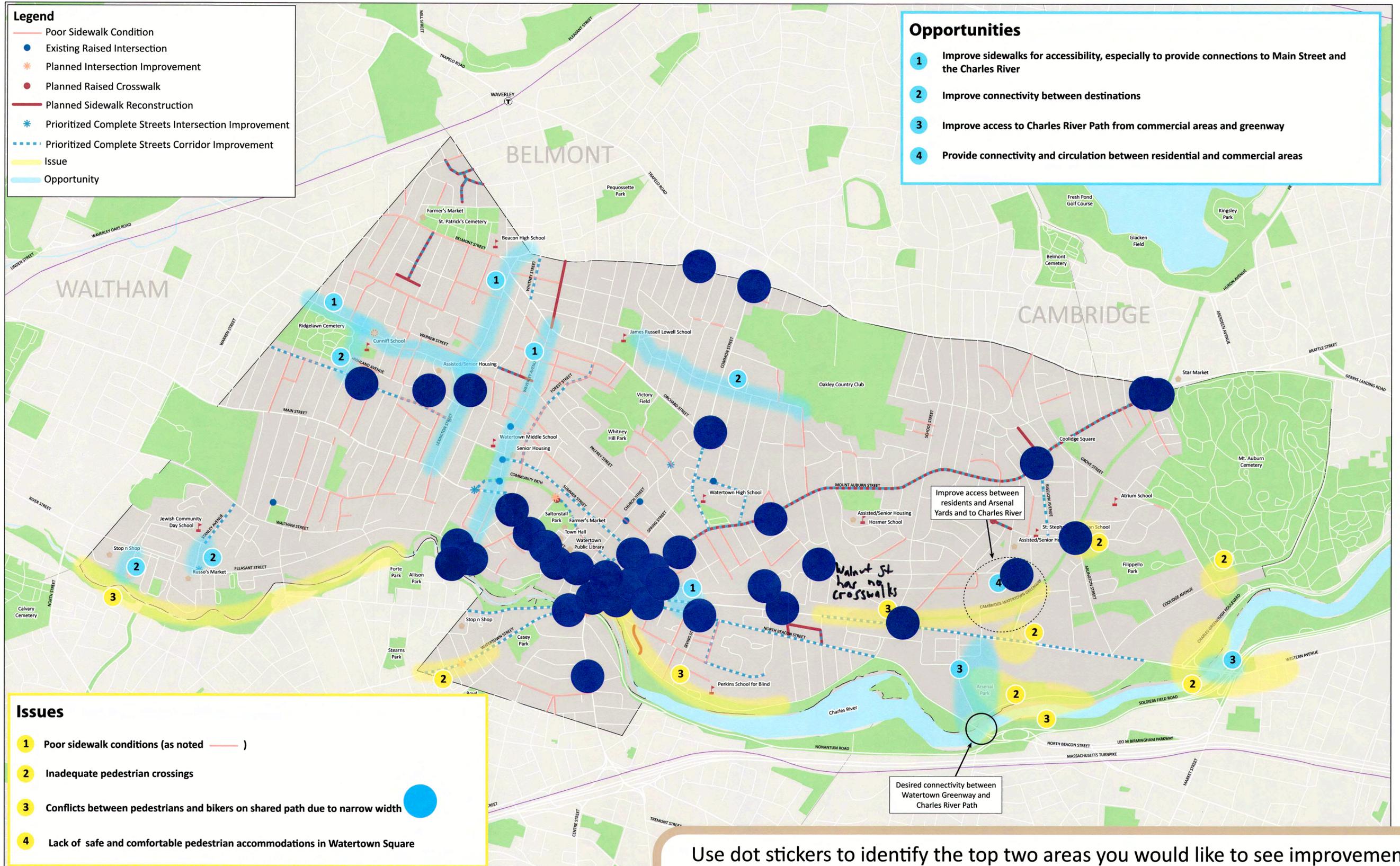
Improve Overall safety

Invest in infrastructure to enhance walkability

Changing Culture

Station 3

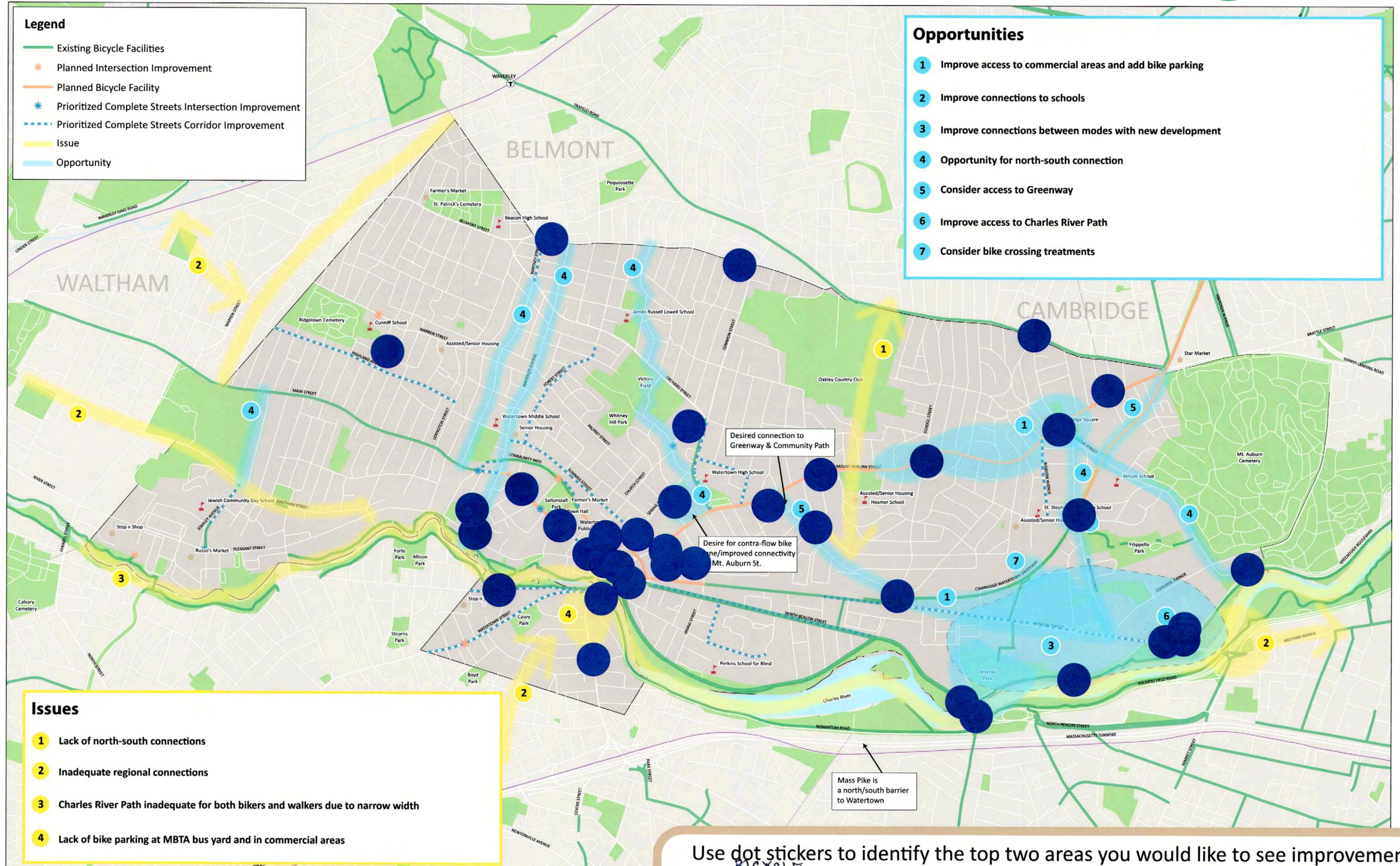
Pedestrian Issues & Opportunities



Town-Wide Pedestrian Network
Issues and Opportunities Identified by Steering Committee and Bicycle & Pedestrian Committee

Use dot stickers to identify the top two areas you would like to see improvements for pedestrians. Limit 2 dots per person. If you have an issue or opportunity not noted on the map, record it on an index card.

Bicycle Issues & Opportunities



Town-Wide Bicycle Network
Issues and Opportunities Identified by Steering Committee and Bicycle & Pedestrian Committee

Use dot stickers to identify the top two areas you would like to see improvements for ~~pedestrians~~ **bicyclists**. Limit 2 dots per person. If you have an issue or opportunity not noted on the map, record it on an index card.

Existing Bicycle Level of Traffic Stress



BICYCLE LEVEL OF STRESS



CRITERIA

- * Separated bike lane
- * Shared lane with speed < 30 mph and with ADT < 2,000
- * Buffered bike lane
- * Bike lane with no parking and no bus route
- * Shared lane with speed < 30 mph and with ADT between 2,000 and 4,000
- * Bike lane with parking and/or infrequent bus route
- * Shared lane with speed between 30 and 35 mph or with ADT between 4,000 and 10,000
- * Shared lane with frequent bus route
- * Shared lane with speed between 30 mph and 35 mph or with ADT between 10,000 and 15,000
- * Shared lane with multi-lane vehicular traffic or speed > 35 mph or with ADT > 15,000

Station 4

Pedestrian Facilities

Pedestrian facilities enhance the everyday walking experience for people of all ages and abilities. Typically, pedestrian facilities can positively impact the average person’s walking experience in a few different ways: they can make walking on sidewalks a more pleasant, convenient, and attractive experience; they can improve the visibility of pedestrian crossings; and they can also encourage people to stay and enjoy the public environment, which can increase the overall vibrancy of a particular neighborhood or commercial area.

Curb Ramp with Detectable Warning Panel



Description:
Detectable warning panels are applied at curb ramps to provide a tactile cue where pedestrians will cross into another zone, such as the street or a bicycle lane.

They can be seen at crossings on Main Street in front of the Watertown Public Library.

Places to Use:
Neighborhood Street, Commercial Corridor, Regional Connector, Recreation, Near Schools

Pedestrian Refuge Island



Description:
Pedestrian refuge islands reduce the distance a pedestrian must cross at one time, reducing exposure time in the intersection. They are ideal for locations with high speeds and traffic volumes, and where there are three or more lanes of traffic. Buffered areas on both sides of the island should be considered.

A pedestrian refuge island is used for the crossing across North Beacon Street at Watertown Square.

Places to Use:
Commercial Corridor, Regional Connector

Audible Push Button & Signal



Description:
An audible pedestrian signal communicates information about the crossing, such as “walk” and “don’t walk” at signalized intersections. Push buttons are located low enough to be accessible for persons with mobility challenges and incorporate vibrotactile surfaces for visually impaired pedestrians.

They are used at the intersection of Arsenal Street and Irving Street.

Places to Use:
Neighborhood Street, Commercial Corridor, Regional Connector, Recreation, Near Schools

Rapid Rectangular Flashing Beacon



Description:
RRFBs use an irregular flash pattern to alert motorists to a crossing pedestrian. They can be activated by a push button or through a pedestrian detection system.

An RRFB is used on Main Street in between Watertown Town Hall and Watertown Public Library.

Places to Use:
Commercial Corridor, Regional Connector, Near Schools

Enhanced Street Lighting



Description:
Street lighting at a crosswalk increases the comfort and safety for pedestrians traveling at night. Lighting can be placed on both sides of the street at and approaching pedestrian crosswalks to improve pedestrian visibility to drivers.

Places to Use:
Neighborhood Street, Commercial Corridor, Regional Connector

Pedestrian Hybrid Beacon



Description:
Pedestrian Hybrid Beacons (also called HAWK beacons) are activated by pedestrians and display three phases of lights to oncoming vehicles to warn them to prepare to stop, to stop, and to proceed with caution if no pedestrians are present. Pedestrian Hybrid Beacons provide protected pedestrian crossings as needed and include accessibility features such as an audible message and vibrating arrow button to announce when the WALK signal is active.

Places to Use:
Commercial Corridor, Regional Connector, Near Schools

Decorative Pavement Crosswalk



Description:
Decorative treatments can be used in crosswalks to improve crosswalk visibility, promote traffic calming, and to enhance the vibrancy of public spaces. Treatments may include brick or other patterned surfaces.

Decorative crosswalks are used at the intersection of Waverley Avenue and Orchard Street.

Places to Use:
Neighborhood Street, Commercial Corridor, Regional Connector, Recreation, Near Schools

Leading Pedestrian Interval Signal Optimization



Description:
A leading pedestrian interval (LPI) gives pedestrians a head start when entering an intersection with a corresponding green signal for traffic traveling in the same direction. This increases the visibility of pedestrians in a crosswalk to turning vehicles.

Places to Use:
Neighborhood Street, Commercial Corridor, Regional Connector, Recreation, Near Schools

Bicycle Facilities

Bicycle facilities are the building blocks for creating healthier, more sustainable alternatives for transportation networks where people rely heavily on automobiles for daily trips. Currently only 2% of Watertown residents bike to work, although almost 20% work within Watertown. Bicycle facilities can offer a convenient way for people to shift shorter, local trips to a more sustainable mode. There is a wide variety of bicycle facilities which offer different levels of comfort, physical, and perceived safety for people who wish to ride their bicycles, so it is important to think of the types of people who would ideally be using a facility when selecting elements to include in a local bicycle network.

Double Buffered Bicycle Lane



Description:

Buffered bicycle lanes resemble traditional bicycle lanes with painted markings, but contain a painted buffer separating the bicycle lane from adjacent moving vehicular traffic. A double buffer provides protection from both moving vehicles and parked cars.

A double buffered bicycle lane will be provided on Mt. Auburn Street.

Places to Use:

Neighborhood Street, Commercial Corridor, Regional Connector

Bicycle Signal



Description:

Bicycle signals can be used at signalized intersections to provide distinct phases for bicyclists. They can improve the safety and visibility of bikers by providing a green signal ahead of vehicular traffic.

Places to Use:

Commercial Corridor, Regional Connector

Separated Bicycle Lane



Description:

Separated bicycle facilities are physically separated from vehicular traffic. They can facilitate bicycle connections along roadways where on-road facilities may be too stressful for users. They may be further protected from traffic with a parking lane or planting strip.

Places to Use:

Commercial Corridor, Regional Connector

Contraflow On-Street Bicycle Lane



Description:

Contra-flow bicycle lanes can be installed on a one-way street to allow bicyclists two-way access. This can help prioritize the most direct route possible for bicyclists by providing direct connections to bus stops in neighborhoods where one-way streets are prevalent.

Places to Use:

Neighborhood Street, Commercial Corridor

Two-Way Bicycle Lane



Description:

A two-way bicycle lane allows bicyclists to move in both directions along a roadway. They can be used on streets where contra-flow bicycle travel is desired or where one side of the street provides a more direct connection to another bicycle facility. Buffers or separation should be used to reduce the level of stress experienced by cyclists.

A two-way separated bicycle lane is provided on Arsenal Street.

Places to Use:

Commercial Corridor, Regional Connector

Two Stage Turn Bicycle Box



Description:

A two stage turn bicycle box provides a dedicated space and visible way for bicycles to make a turn across traffic, such as turn left from a right-side bicycle lane. Bicyclists are able to make this turn without having to merge into traffic lanes.

A two stage turn bicycle box is used on Arsenal Street at Irving Street.

Places to Use:

Commercial Corridor, Regional Connector

Bicycle Box



Description:

Bicycle boxes are designated areas at the front of a traffic lane at a signalized intersection that provide bicyclists with a dedicated waiting space and visible way to get ahead of vehicles when a traffic signal turns from red to green.

A bicycle box is under construction on Common Street at Spring Street.

Places to Use:

Commercial Corridor, Regional Connector

Protected Intersection



Description:

A protected intersection provides physically separated crossings and designated waiting areas for bicyclists at each intersection approach, using a combination of tools. This increases the level of comfort for bikers by increasing visibility and sightlines to turning vehicles and reducing the time and distances bikers are exposed to conflict.

Places to Use:

Commercial Corridor, Regional Connector

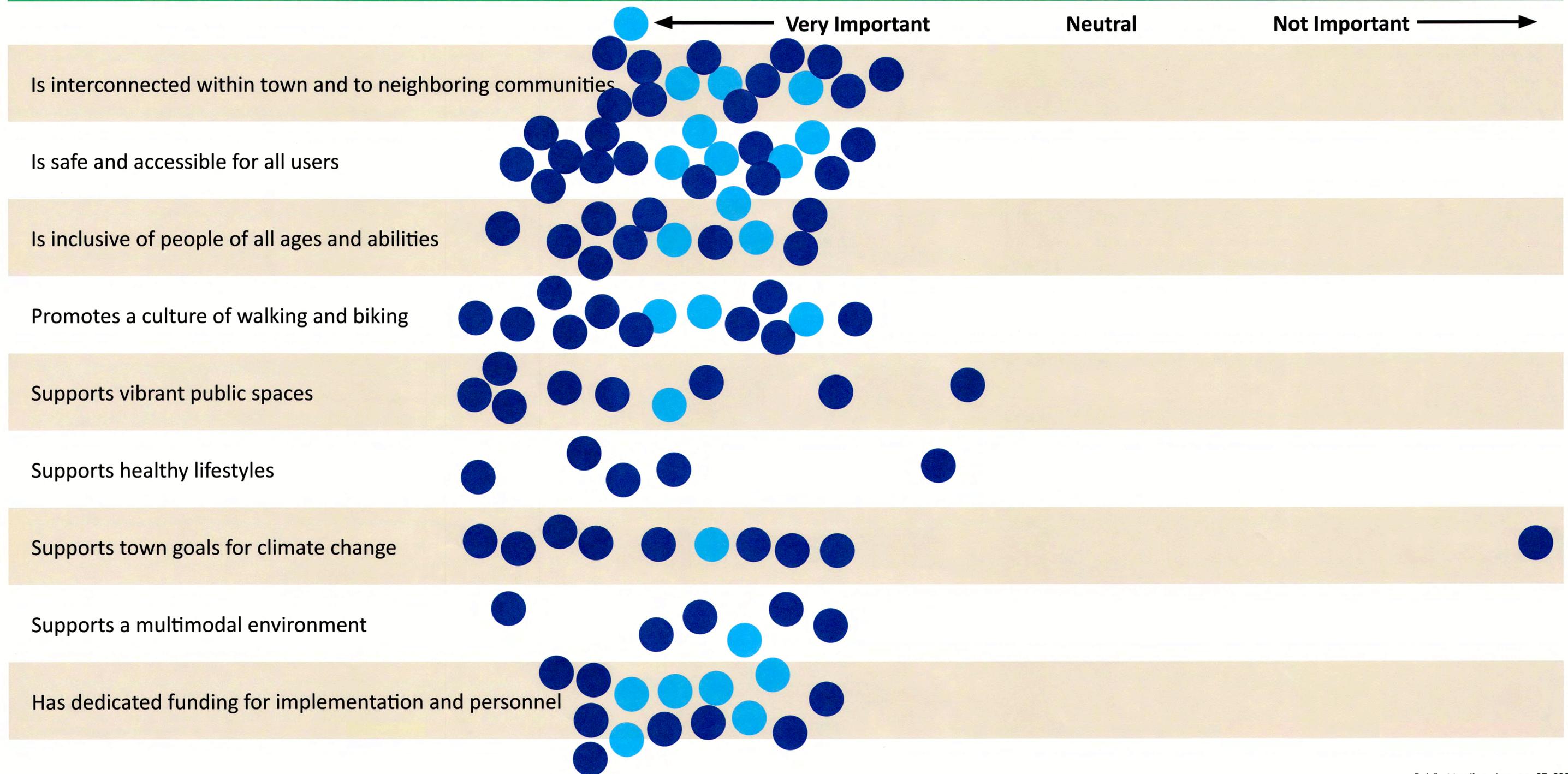
Station 5

Drafting a Vision

Help draft the vision for the Watertown Bicycle & Pedestrian Plan

Using a total of 4 dot stickers, place them on the statements you think are most or least important to the vision for the Bicycle and Pedestrian Plan. You may distribute them however you would like.

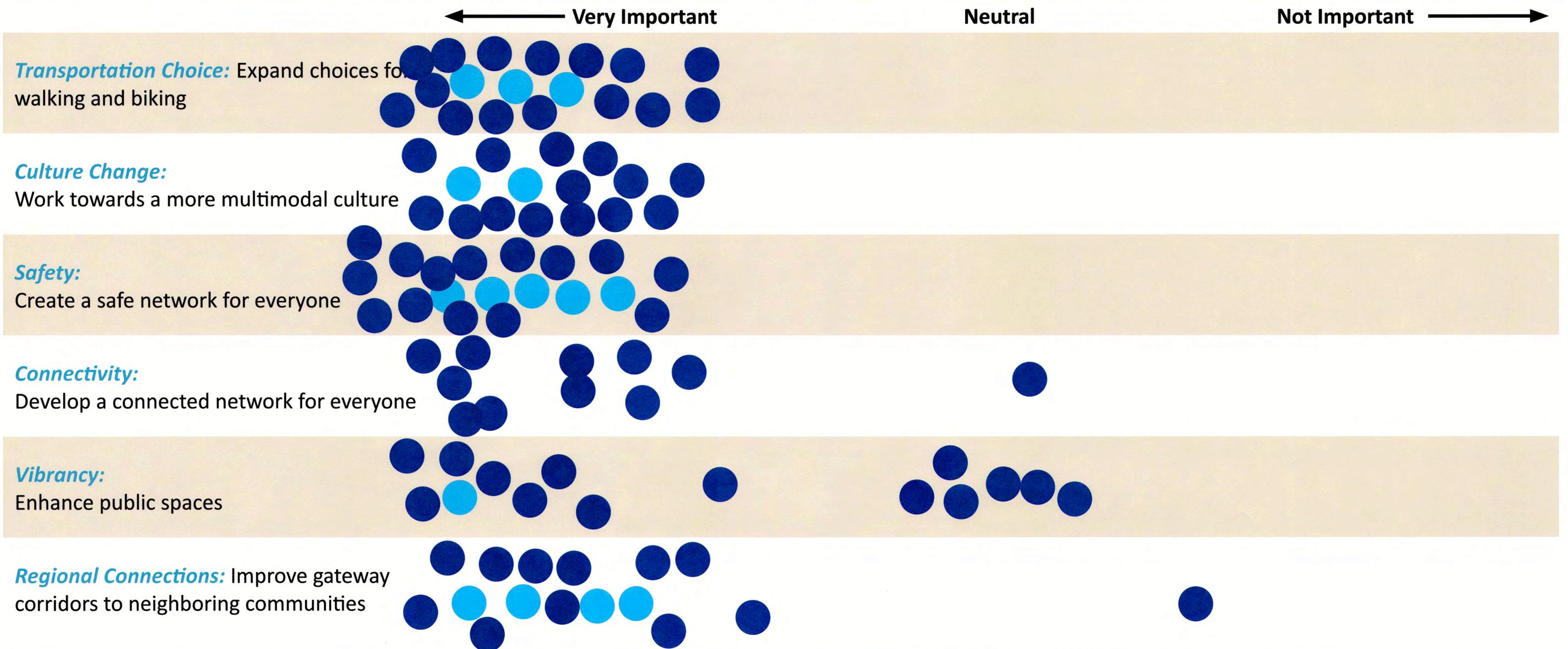
The Town of Watertown will support a bicycle and pedestrian network that....



Emerging Trends

Based on what you have learned tonight, rate how important it is to you for the Bicycle and Pedestrian Plan to address each emerging trend. Use one dot sticker to vote on each trend.

The Watertown Bicycle and Pedestrian Plan will...



Did we miss one?

Please use an index card to record an emerging trend not captured here that is important to you.

Appendix B-3:

Community Survey Results



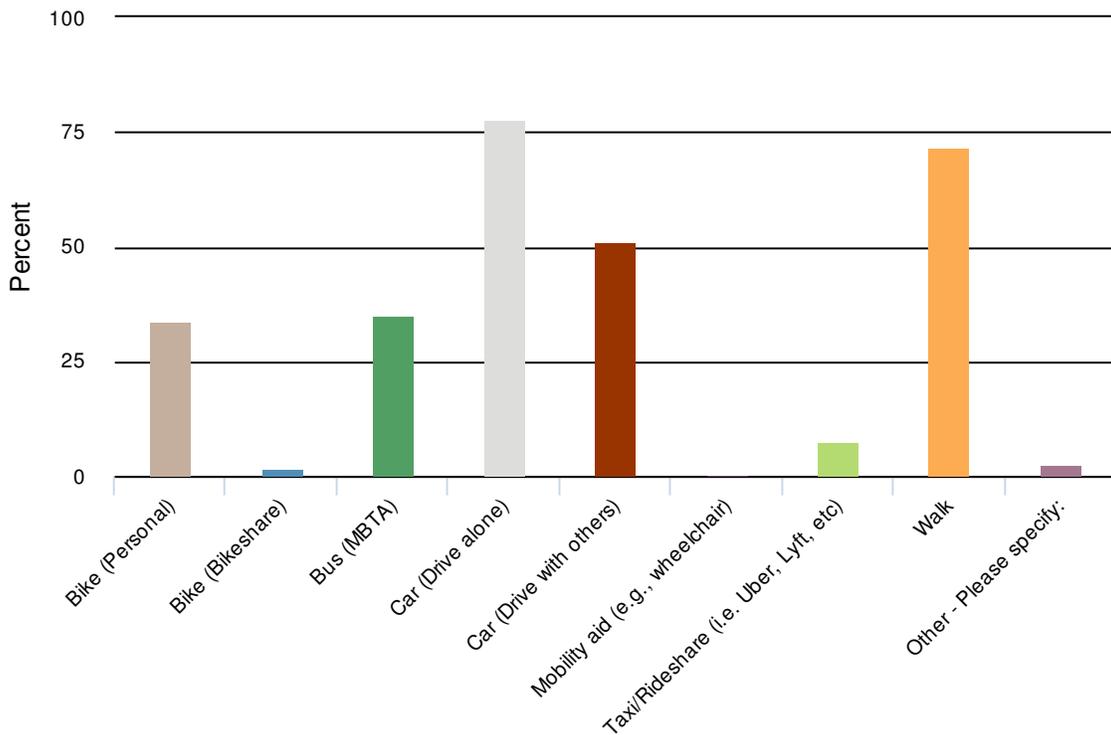
Report for Watertown Bicycle and Pedestrian Plan - Public Survey

Response Counts



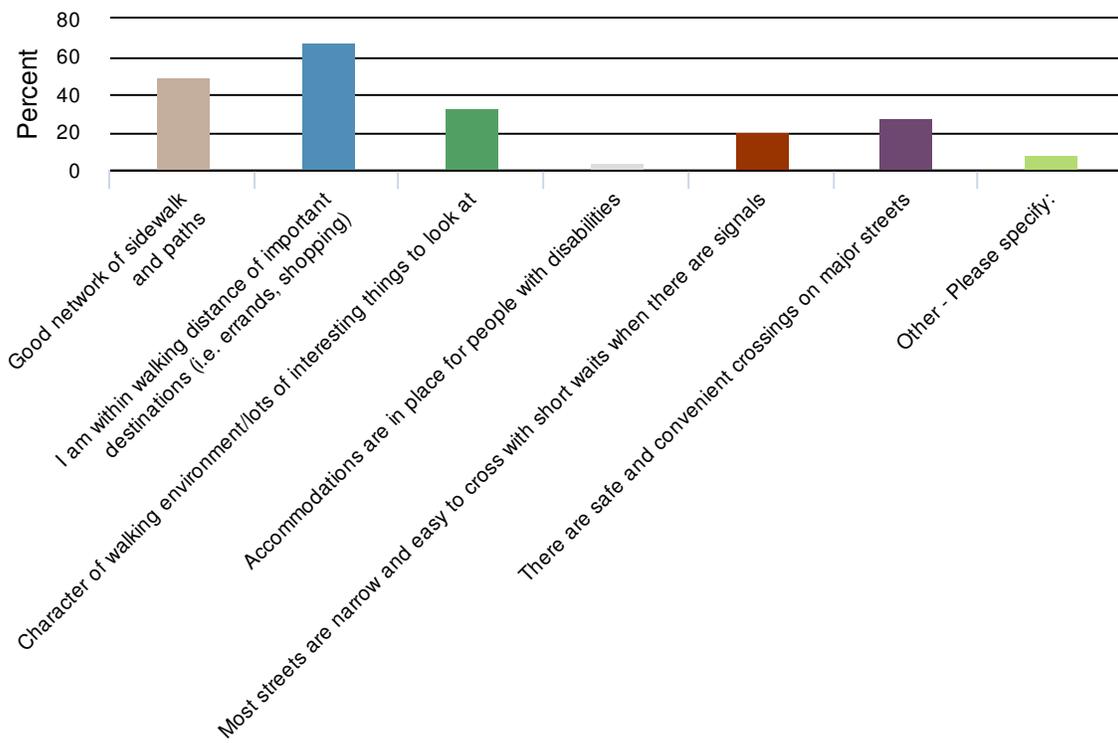
Totals: 821

1. Which transportation modes do you regularly (at least once a week) use to get around Watertown? Select all that apply:



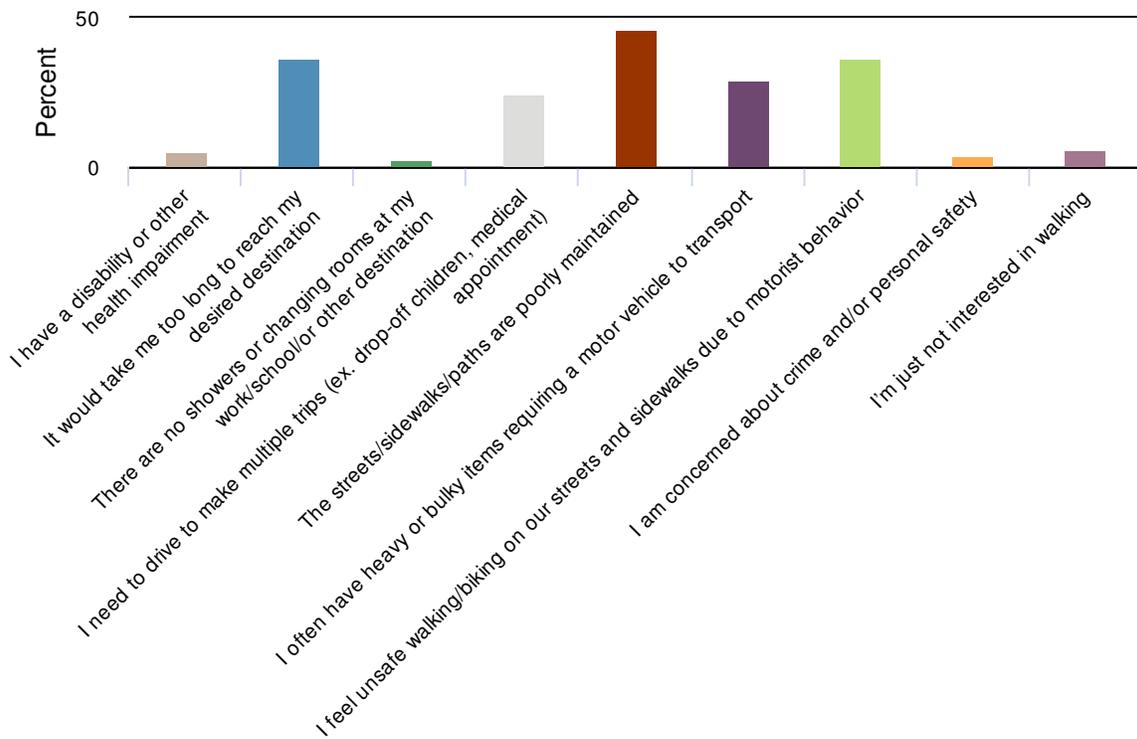
Value		Percent	Responses
Bike (Personal)		33.9%	261
Bike (Bikeshare)		1.7%	13
Bus (MBTA)		35.2%	271
Car (Drive alone)		77.5%	596
Car (Drive with others)		51.2%	394
Mobility aid (e.g., wheelchair)		0.5%	4
Taxi/Rideshare (i.e. Uber, Lyft, etc)		7.4%	57
Walk		71.8%	552
Other - Please specify:		2.6%	20

2. What do you like most about walking (including use of a mobility aid, such as a wheelchair or walker) in Watertown? Select up to three:



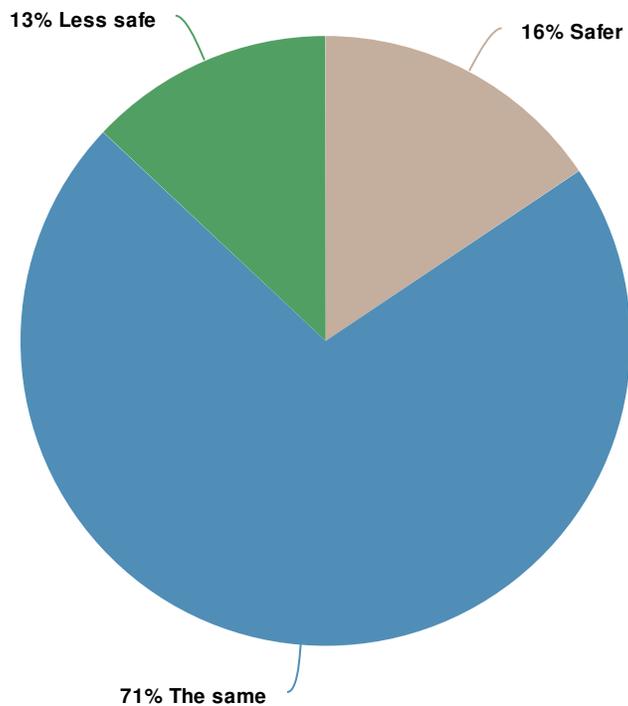
Value	Percent	Responses
Good network of sidewalk and paths	49.0%	333
I am within walking distance of important destinations (i.e. errands, shopping)	67.5%	458
Character of walking environment/lots of interesting things to look at	32.7%	222
Accommodations are in place for people with disabilities	4.3%	29
Most streets are narrow and easy to cross with short waits when there are signals	20.2%	137
There are safe and convenient crossings on major streets	28.1%	191
Other - Please specify:	8.4%	57

3. Which of the following makes walking in Watertown more challenging for you? This includes travel using a mobility aid (such as a wheelchair or walker). Select all that apply:



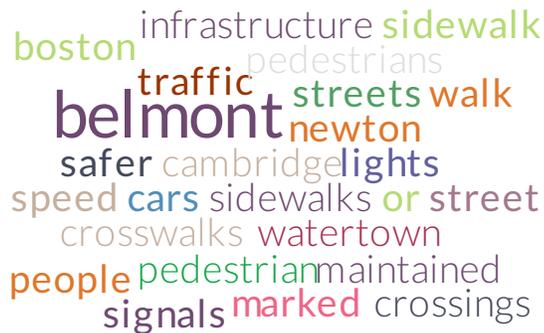
Value	Percent	Responses
I have a disability or other health impairment	5.0%	32
It would take me too long to reach my desired destination	36.5%	233
There are no showers or changing rooms at my work/school/or other destination	2.7%	17
I need to drive to make multiple trips (ex. drop-off children, medical appointment)	24.8%	158
The streets/sidewalks/paths are poorly maintained	45.8%	292
I often have heavy or bulky items requiring a motor vehicle to transport	29.2%	186
I feel unsafe walking/biking on our streets and sidewalks due to motorist behavior	36.4%	232
I am concerned about crime and/or personal safety	4.2%	27
I'm just not interested in walking	6.0%	38

4. Is walking in Watertown safer, the same, or less safe than walking in neighboring towns?



Value		Percent	Responses
Safer		15.6%	108
The same		71.4%	494
Less safe		13.0%	90
			Totals: 692

5. Please tell us which neighboring towns you think are safer for walking, and why:



6. How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types:

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Commuter to work/school	86	57	44	24	367	578
Count	86	57	44	24	367	578
Row %	14.9%	9.9%	7.6%	4.2%	63.5%	

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
To get to a bus stop/transit station Count Row %	78 13.2%	67 11.4%	97 16.5%	88 14.9%	259 44.0%	589
Personal trips (shopping, visiting friends) Count Row %	41 6.9%	142 23.9%	135 22.8%	60 10.1%	215 36.3%	593
Recreation/fun Count Row %	53 9.0%	145 24.7%	120 20.4%	50 8.5%	219 37.3%	587
Exercise Count Row %	69 11.8%	139 23.8%	103 17.6%	52 8.9%	222 37.9%	585
Access to and parking near the 504 Express Bus is paramount to my happiness.:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Commute to the gym:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Dog Walking:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Dog walking:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Dog walking :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Errands :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Go to work:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	0 0.0%	1 100.0%	0 0.0%	1
Going to daycare:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
I don't use either: How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1
Kid school drop-off and pickup: How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Medical appt: How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Mobility aid is white cane: How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	Afew times a week	Afew times a month	Afew times a year	Never	Responses
Personal appointments :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Pick child up from school:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Qualifications: my walking is not done in the winter months.:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Shopping:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
<p>Take granddaughter for ride in stroller:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types:</p> <p>Count Row %</p>	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
<p>To avoid parking meters:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types:</p> <p>Count Row %</p>	0 0.0%	0 0.0%	0 0.0%	1 100.0%	0 0.0%	1
<p>To get to shopping area quicker:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types:</p> <p>Count Row %</p>	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
<p>To go to my gym :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types:</p> <p>Count Row %</p>	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
To walk to my car parked far away in the winter b/c of that terrible street ban. :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Volunteer or religious activities :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk around victory Field and my neighborhood. :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Walk dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2
Walk dog :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk dogs:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk the dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk the dog :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Walking dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Walking dogs :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walking my child to and from school:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Walking my dogs:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Walking our dog :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Walking the dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Work:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
dog walking:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
errands:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
to get someplace close - ie, the Library, post office, local restaurant, etc.:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
walk dog; get out of house w/stroller for mind health; connect to off-road option:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
walk my dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 50.0%	1 50.0%	0 0.0%	0 0.0%	0 0.0%	2
walking dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on the streets and sidewalks of Watertown for each of the following trip types: Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
Totals Total Responses						593

7. How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown?

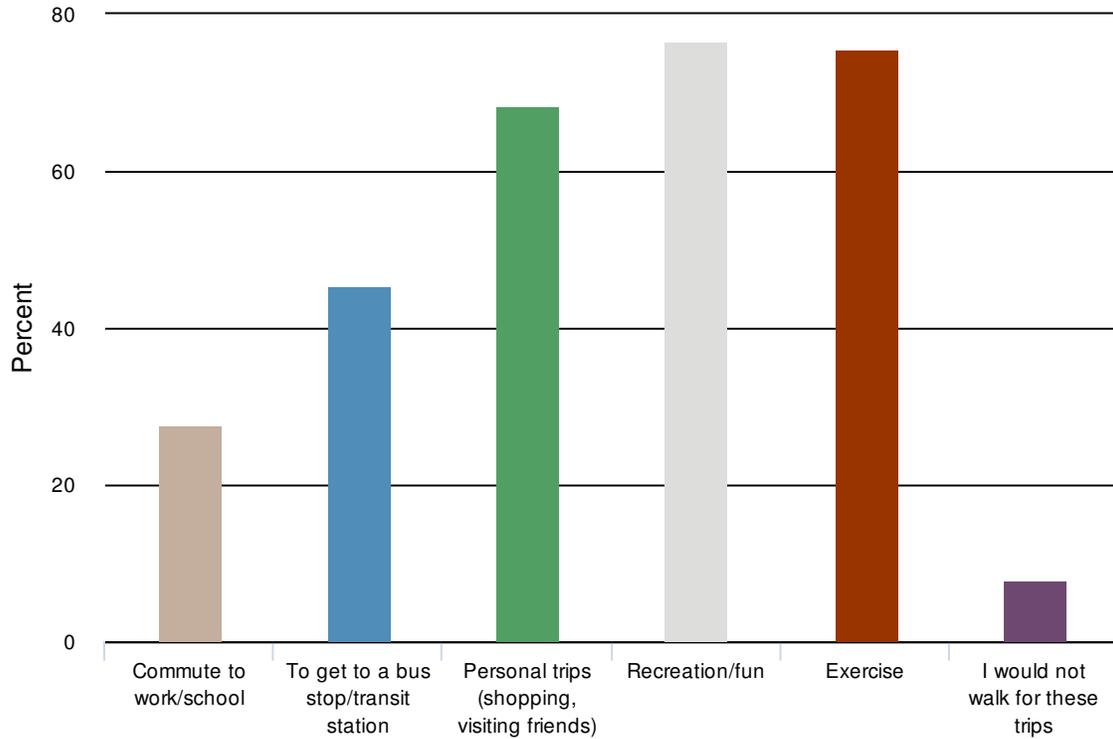
	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Commute to work/school						
Count	23	31	45	34	429	562
Row %	4.1%	5.5%	8.0%	6.0%	76.3%	
To get to a bus stop/transit station						
Count	12	10	32	47	447	548
Row %	2.2%	1.8%	5.8%	8.6%	81.6%	
Personal trips (Shopping, visiting friends)						
Count	6	31	73	62	387	559
Row %	1.1%	5.5%	13.1%	11.1%	69.2%	
Recreation/fun						
Count	17	74	117	112	256	576
Row %	3.0%	12.8%	20.3%	19.4%	44.4%	
Exercise						
Count	22	81	115	93	255	566
Row %	3.9%	14.3%	20.3%	16.4%	45.1%	
Artist/Photographer reasons:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown?						
Count	0	0	1	0	0	1
Row %	0.0%	0.0%	100.0%	0.0%	0.0%	
Dog walking:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown?						
Count	0	1	0	0	0	1
Row %	0.0%	100.0%	0.0%	0.0%	0.0%	

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Dog walking :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
I don't use either:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1
I don't use ann mobility aid:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1
Take grandchild for a stroll:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
To get somewhere faster.:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Unexpected errands:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Walk dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Walk dogs:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Walk dogs :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Walk the dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1

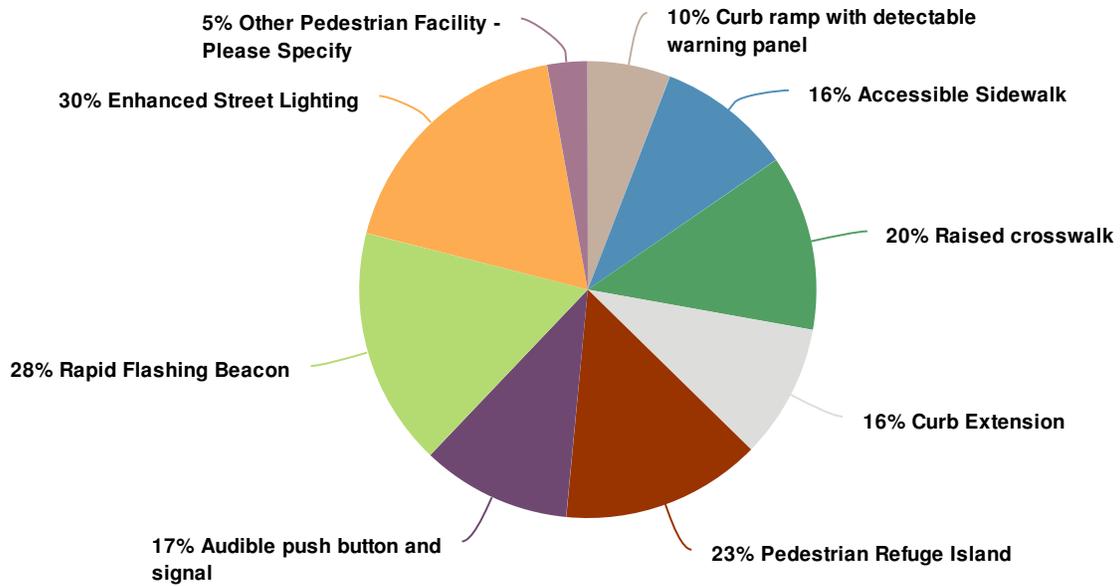
	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Walk the dog :How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1
dog walking:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
n/a:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1
walk my dog:How often do you walk, run, or travel with a mobility aid (such as a wheelchair or walker) on off-road paths (such as the Charles River Greenway or Community Path) in Watertown? Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1
Totals						
Total Responses						576

8. If conditions improved for walking in Watertown, what trip types would you like to take via walking (or continue/take more of if you already make these trips)? Select all that apply:



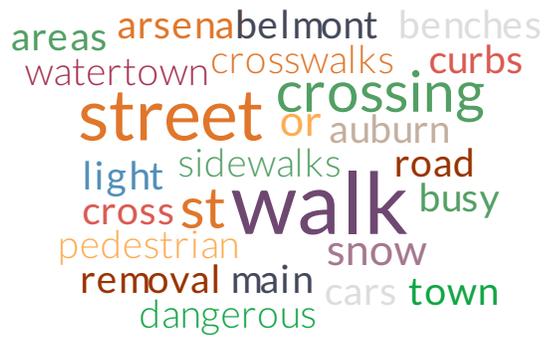
Value	Percent	Responses
Commute to work/school	27.6%	162
To get to a bus stop/transit station	45.4%	266
Personal trips (shopping, visiting friends)	68.3%	400
Recreation/fun	76.5%	448
Exercise	75.6%	443
I would not walk for these trips	7.8%	46

9. Please select the top three pedestrian facilities you would like to see considered in Watertown to improve walking conditions. Select up to three:

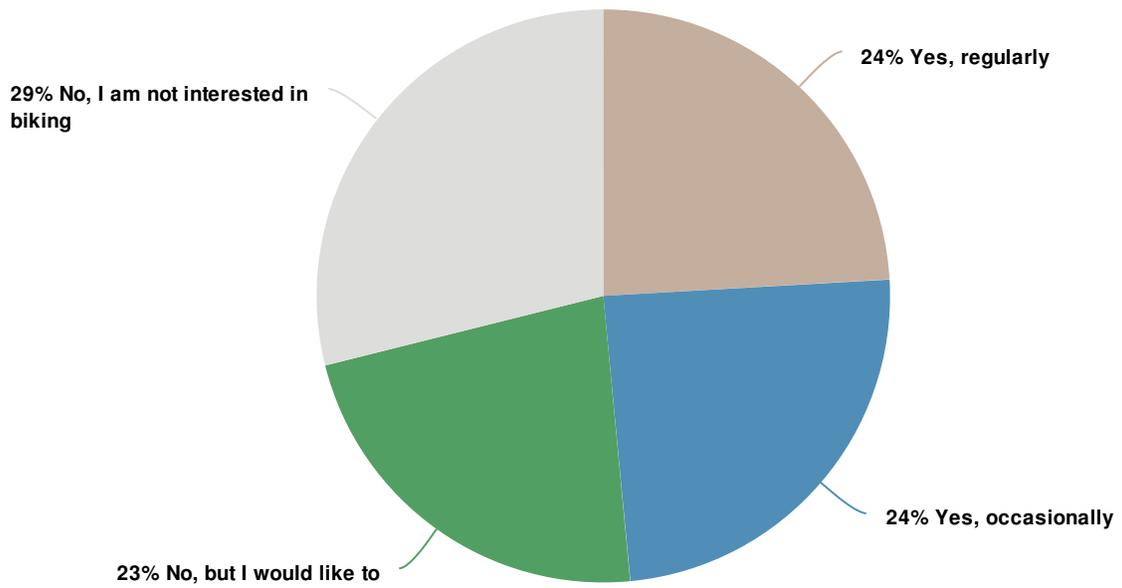


Value	Percent	Responses
Curb ramp with detectable warning panel	9.6%	53
Accessible Sidewalk	15.7%	87
Raised crosswalk	20.4%	113
Curb Extension	15.6%	86
Pedestrian Refuge Island	23.3%	129
Audible push button and signal	17.4%	96
Rapid Flashing Beacon	27.7%	153
Enhanced Street Lighting	29.8%	165
Other Pedestrian Facility - Please Specify	4.7%	26

10. What other type of pedestrian facility would you like to see considered in Watertown to improve walking conditions?



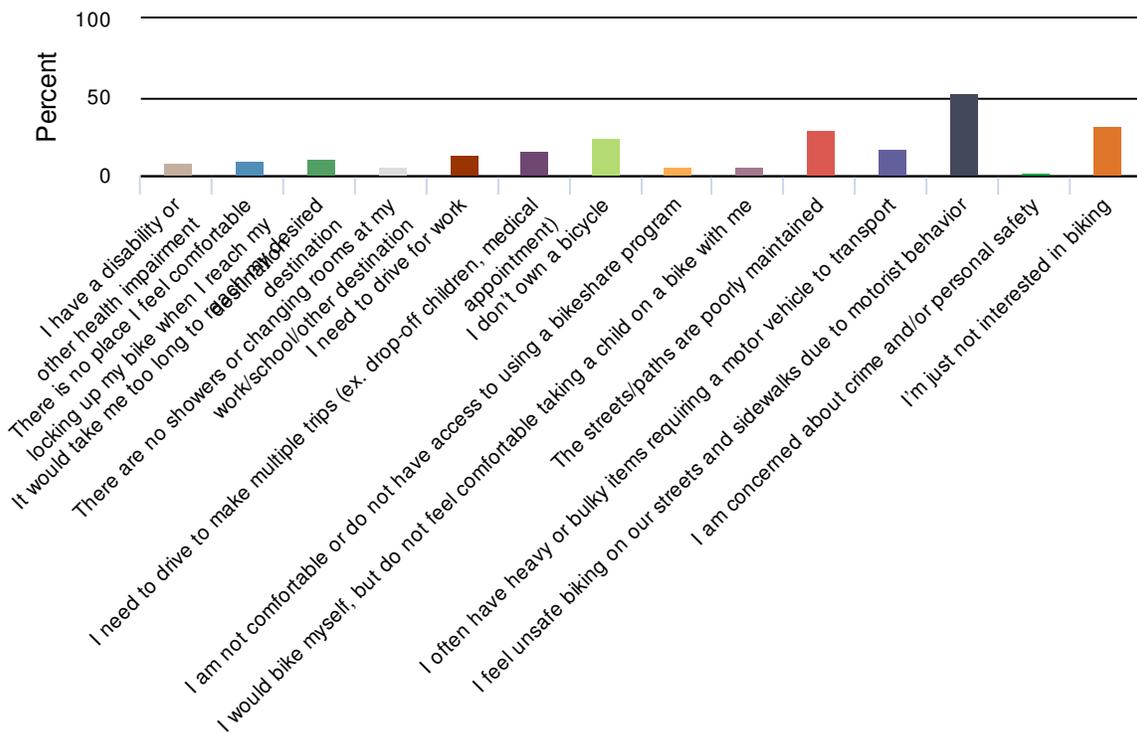
11. Do you bike in Watertown?



Value	Percent	Responses
Yes, regularly	24.1%	145
Yes, occasionally	24.4%	147
No, but I would like to	22.6%	136
No, I am not interested in biking	28.9%	174

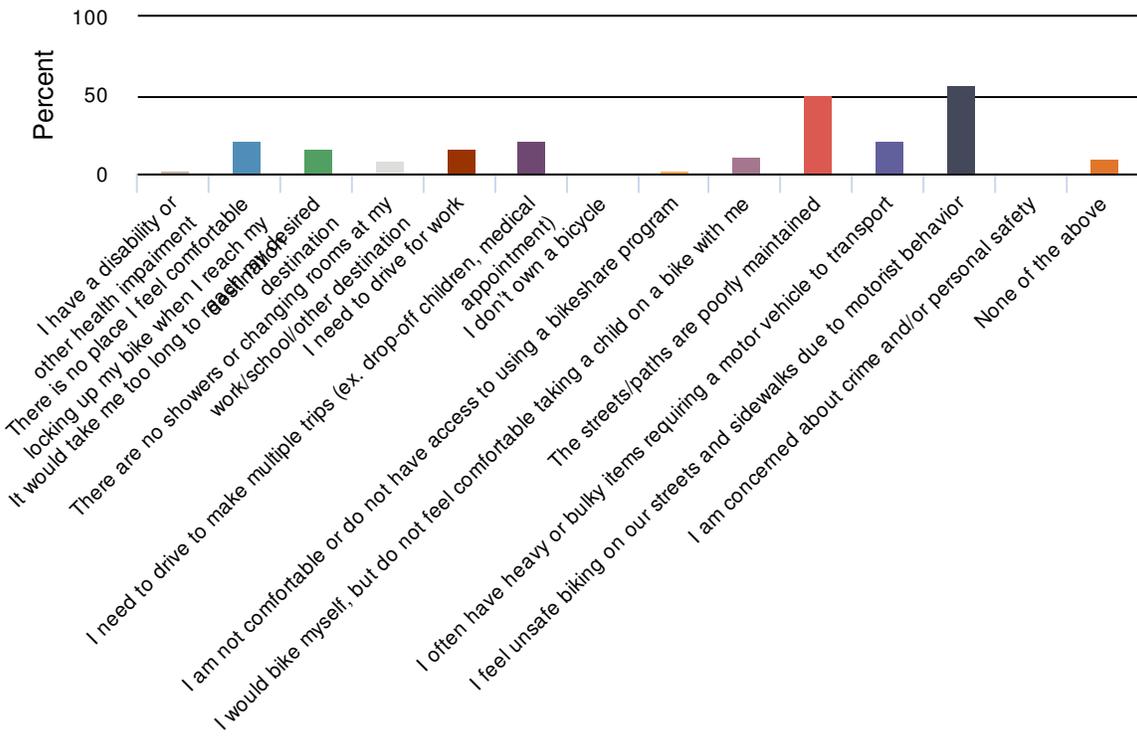
Totals: 602

12. Which of the following prevent you from biking in Watertown? Select all that apply:



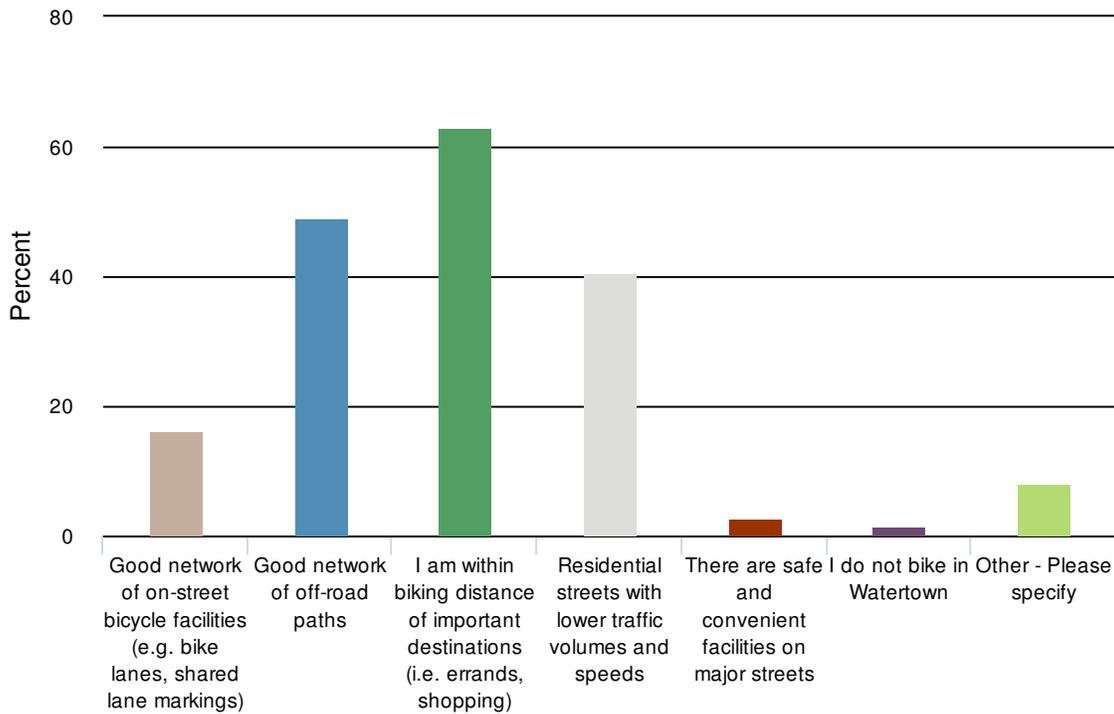
Value		Percent	Responses
I have a disability or other health impairment		8.5%	26
There is no place I feel comfortable locking up my bike when I reach my destination		9.4%	29
It would take me too long to reach my desired destination		11.7%	36
There are no showers or changing rooms at my work/school/other destination		6.5%	20
I need to drive for work		13.4%	41
I need to drive to make multiple trips (ex. drop-off children, medical appointment)		15.6%	48
I don't own a bicycle		24.4%	75
I am not comfortable or do not have access to using a bikeshare program		6.2%	19
I would bike myself, but do not feel comfortable taking a child on a bike with me		6.5%	20
The streets/paths are poorly maintained		29.6%	91
I often have heavy or bulky items requiring a motor vehicle to transport		17.6%	54
I feel unsafe biking on our streets and sidewalks due to motorist behavior		52.8%	162
I am concerned about crime and/or personal safety		2.9%	9
I'm just not interested in biking		31.6%	97

13. Copy of Which of the following prevent you from biking in Watertown more? Select all that apply:



Value		Percent	Responses
I have a disability or other health impairment		2.8%	8
There is no place I feel comfortable locking up my bike when I reach my destination		20.7%	59
It would take me too long to reach my desired destination		16.1%	46
There are no showers or changing rooms at my work/school/other destination		8.4%	24
I need to drive for work		16.5%	47
I need to drive to make multiple trips (ex. drop-off children, medical appointment)		20.7%	59
I don't own a bicycle		1.1%	3
I am not comfortable or do not have access to using a bikeshare program		2.5%	7
I would bike myself, but do not feel comfortable taking a child on a bike with me		11.2%	32
The streets/paths are poorly maintained		50.2%	143
I often have heavy or bulky items requiring a motor vehicle to transport		20.4%	58
I feel unsafe biking on our streets and sidewalks due to motorist behavior		57.2%	163
I am concerned about crime and/or personal safety		1.8%	5
None of the above		9.8%	28

14. What do you like most about biking in Watertown? Select up to three:



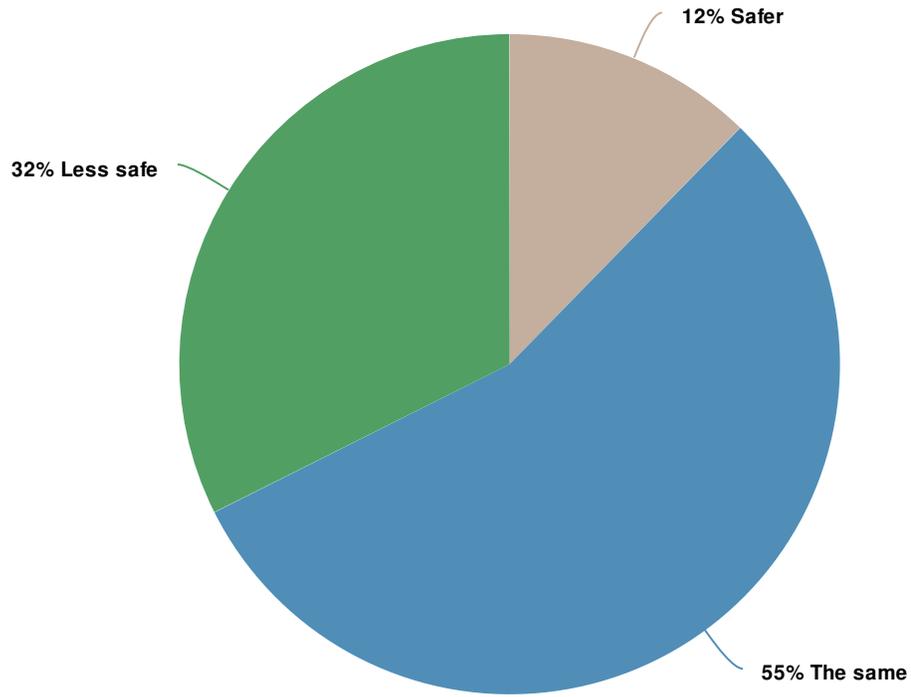
Value

Percent

Responses

Good network of on-street bicycle facilities (e.g. bike lanes, shared lane markings)		16.1%	44
Good network of off-road paths		49.1%	134
I am within biking distance of important destinations (i.e. errands, shopping)		63.0%	172
Residential streets with lower traffic volumes and speeds		40.7%	111
There are safe and convenient facilities on major streets		2.6%	7
I do not bike in Watertown		1.5%	4
Other - Please specify		8.1%	22

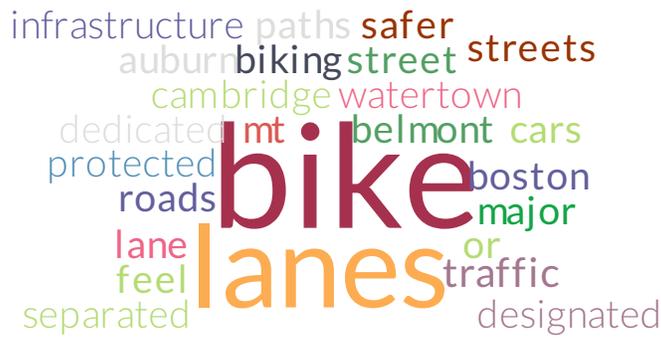
15. Is biking in Watertown safer, the same, or less safe than walking in neighboring towns?



Value	Percent	Responses
Safer	12.3%	35
The same	55.3%	157
Less safe	32.4%	92

Totals: 284

16. Please tell us which neighboring towns you think are safer for biking, and why:



17. How often do you bike on the streets of Watertown for each of the following trip types:

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Commuter to work/school						
Count	50	38	46	50	79	263
Row %	19.0%	14.4%	17.5%	19.0%	30.0%	
To get to a bus stop/transit station						
Count	7	4	22	27	180	240
Row %	2.9%	1.7%	9.2%	11.3%	75.0%	
Personal trips (shopping, visiting friends)						
Count	15	32	86	96	33	262
Row %	5.7%	12.2%	32.8%	36.6%	12.6%	
Recreation/fun						
Count	15	51	110	75	24	275
Row %	5.5%	18.5%	40.0%	27.3%	8.7%	
Exercise						
Count	21	53	92	72	33	271
Row %	7.7%	19.6%	33.9%	26.6%	12.2%	

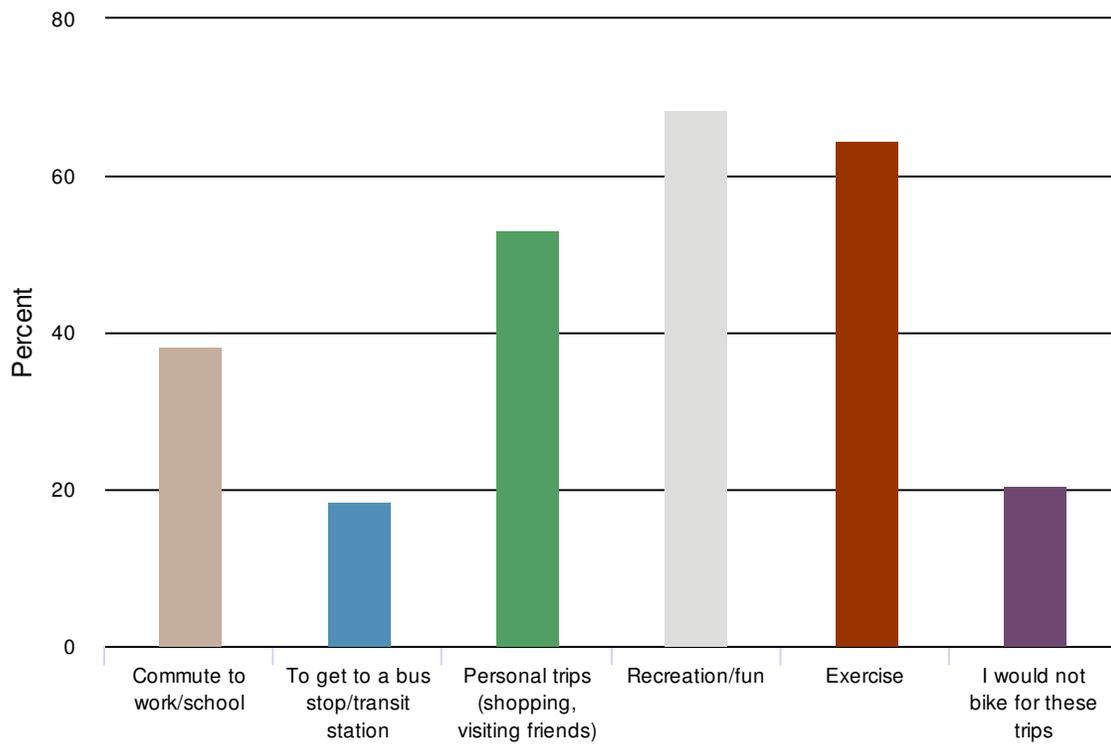
	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Commute:How often do you bike on the streets of Watertown for each of the following trip types: Count Row %	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	2
I always walk my bike on the sidewalk to get to the river. Too much fast driving on Galen.:How often do you bike on the streets of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	0 0.0%	0 0.0%	1 100.0%	1
I bike from watertown to other towns, so its a transient pass through:How often do you bike on the streets of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	0 0.0%	1 100.0%	0 0.0%	1
I do all of these much more regularly during the non-winter months!:How often do you bike on the streets of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	0 0.0%	1 100.0%	0 0.0%	1
To get coffee without losing car parking space at work:How often do you bike on the streets of Watertown for each of the following trip types: Count Row %	0 0.0%	0 0.0%	1 100.0%	0 0.0%	0 0.0%	1

	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
to get to the off road paths (in the warmer weather):How often do you bike on the streets of Watertown for each of the following trip types:	0	0	1	0	0	1
Count	0	0	1	0	0	
Row %	0.0%	0.0%	100.0%	0.0%	0.0%	
Totals						
Total Responses						275

18. How often do you bike on off-road paths (such as the Charles River Greenway or Community Path) in Watertown for each of the following trip types?

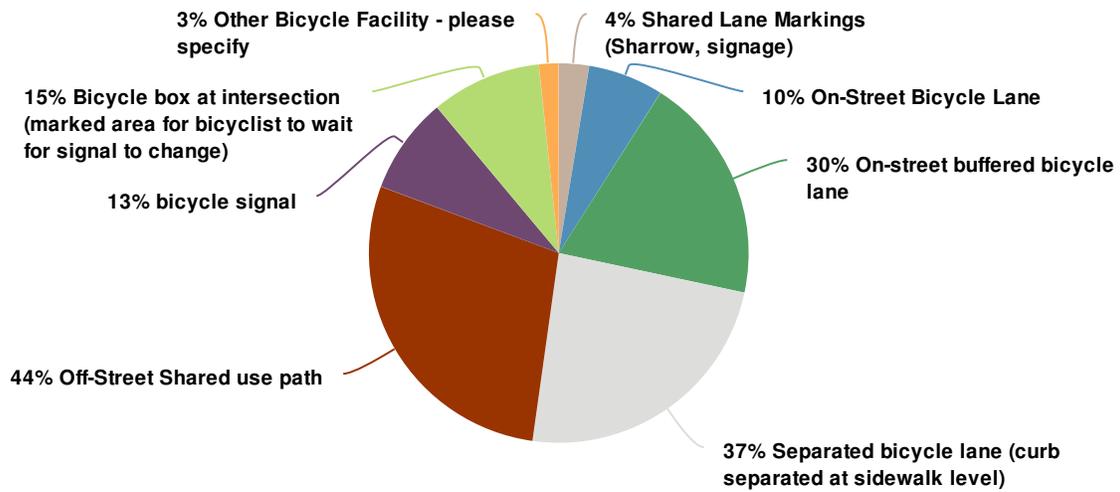
	Daily	A few times a week	A few times a month	A few times a year	Never	Responses
Commute to work/school Count Row %	31 11.9%	31 11.9%	48 18.4%	42 16.1%	109 41.8%	261
To get to a bus stop/transit station Count Row %	5 2.1%	2 0.8%	17 7.2%	25 10.5%	188 79.3%	237
Personal trips (shopping, visiting friends) Count Row %	8 3.1%	17 6.7%	74 29.0%	76 29.8%	80 31.4%	255
Recreation/fun Count Row %	10 3.7%	40 14.7%	113 41.4%	83 30.4%	27 9.9%	273
Exercise Count Row %	12 4.4%	41 15.2%	104 38.5%	80 29.6%	33 12.2%	270
Exercise :How often do you bike on off-road paths (such as the Charles River Greenway or Community Path) in Watertown for each of the following trip types? Count Row %	0 0.0%	1 100.0%	0 0.0%	0 0.0%	0 0.0%	1
Totals Total Responses						273

19. If conditions improved for biking in Watertown, what trip types would you like to take via bike (or continue/take more of if you already make these trips)? Select all that apply:



Value	Percent	Responses
Commute to work/school	38.3%	222
To get to a bus stop/transit station	18.6%	108
Personal trips (shopping, visiting friends)	53.1%	308
Recreation/fun	68.4%	397
Exercise	64.5%	374
I would not bike for these trips	20.5%	119

20. Please select the top three bicycle facilities you would like to see considered in Watertown to improve biking conditions. Select up to three:

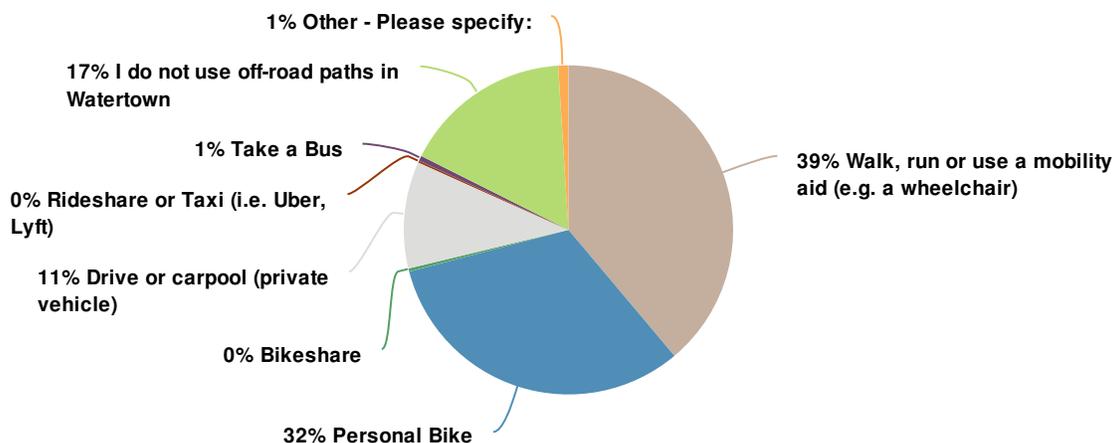


Value	Percent	Responses
Shared Lane Markings (Sharrow, signage)	4.0%	20
On-Street Bicycle Lane	10.0%	50
On-street buffered bicycle lane	30.1%	150
Separated bicycle lane (curb separated at sidewalk level)	37.1%	185
Off-Street Shared use path	44.3%	221
bicycle signal	12.8%	64
Bicycle box at intersection (marked area for bicyclist to wait for signal to change)	14.6%	73
Other Bicycle Facility - please specify	2.6%	13

21. What other type of bicycle facility would you like to see considered in Watertown to improve biking conditions?

No data: No responses found for this question.

22. How do you typically get to off-road paths in Watertown?



Value	Percent	Responses
Walk, run or use a mobility aid (e.g. a wheelchair)	38.9%	223
Personal Bike	32.1%	184
Bikeshare	0.3%	2
Drive or carpool (private vehicle)	10.5%	60
Rideshare or Taxi (i.e. Uber, Lyft)	0.2%	1
Take a Bus	0.5%	3
I do not use off-road paths in Watertown	16.6%	95
Other - Please specify:	1.0%	6

Totals: 574

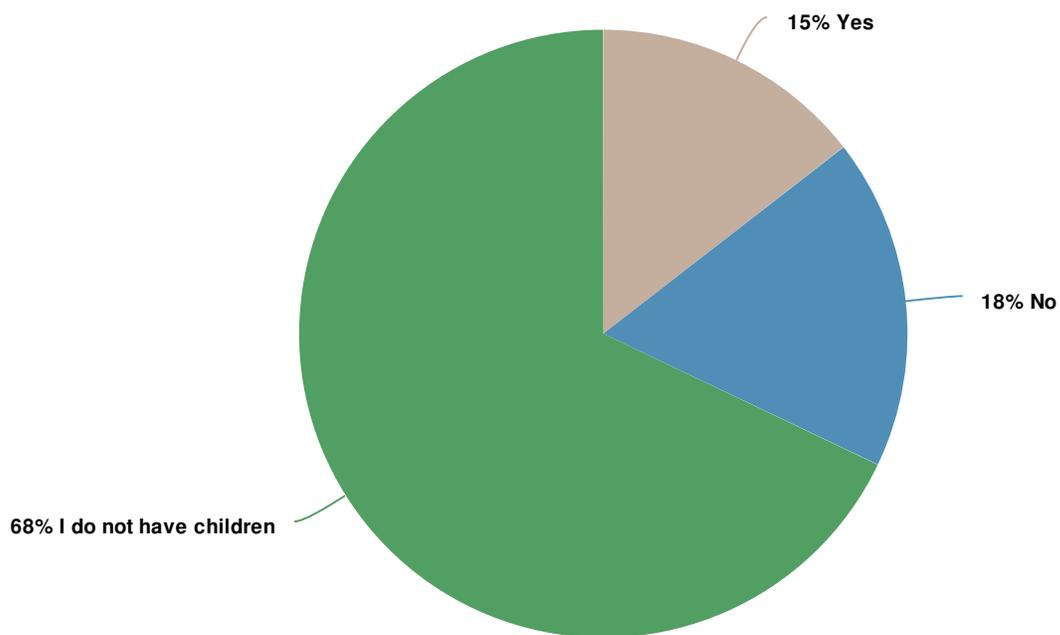
23. Please rate on a scale of 1 to 5 (1 = very important, 5 = not important) how important you think good walking and bicycling access is to each of the following destinations or groups of destinations:

	1 - very important	2 - somewhat important	3 - neutral	4 - somewhat not important	5 - not important	Responses
Schools Count Row %	426 74.5%	69 12.1%	44 7.7%	6 1.0%	27 4.7%	572
Senior housing Count Row %	239 42.2%	115 20.3%	117 20.6%	31 5.5%	65 11.5%	567
Residential neighborhoods Count Row %	351 61.7%	133 23.4%	48 8.4%	9 1.6%	28 4.9%	569
Watertown Library Count Row %	359 62.9%	114 20.0%	55 9.6%	12 2.1%	31 5.4%	571
Commercial centers (Watertown Square, Coolidge Square) Count Row %	371 64.9%	124 21.7%	41 7.2%	10 1.7%	26 4.5%	572
Commercial/industrial areas (Arsenal Street, Watertown Mall, Arsenal Yards) Count Row %	293 51.8%	159 28.1%	58 10.2%	20 3.5%	36 6.4%	566
Local Parks/recreational areas Count Row %	407 71.4%	112 19.6%	23 4.0%	5 0.9%	23 4.0%	570
Greenways/off-road paths Count Row %	413 72.5%	91 16.0%	41 7.2%	4 0.7%	21 3.7%	570
Bus stops and nearby commuter rail stations Count Row %	330 58.5%	115 20.4%	72 12.8%	16 2.8%	31 5.5%	564

1 - very important 2 - somewhat important 3 - neutral 4 - somewhat not important 5 - not important Responses

Totals					
Total Responses					572

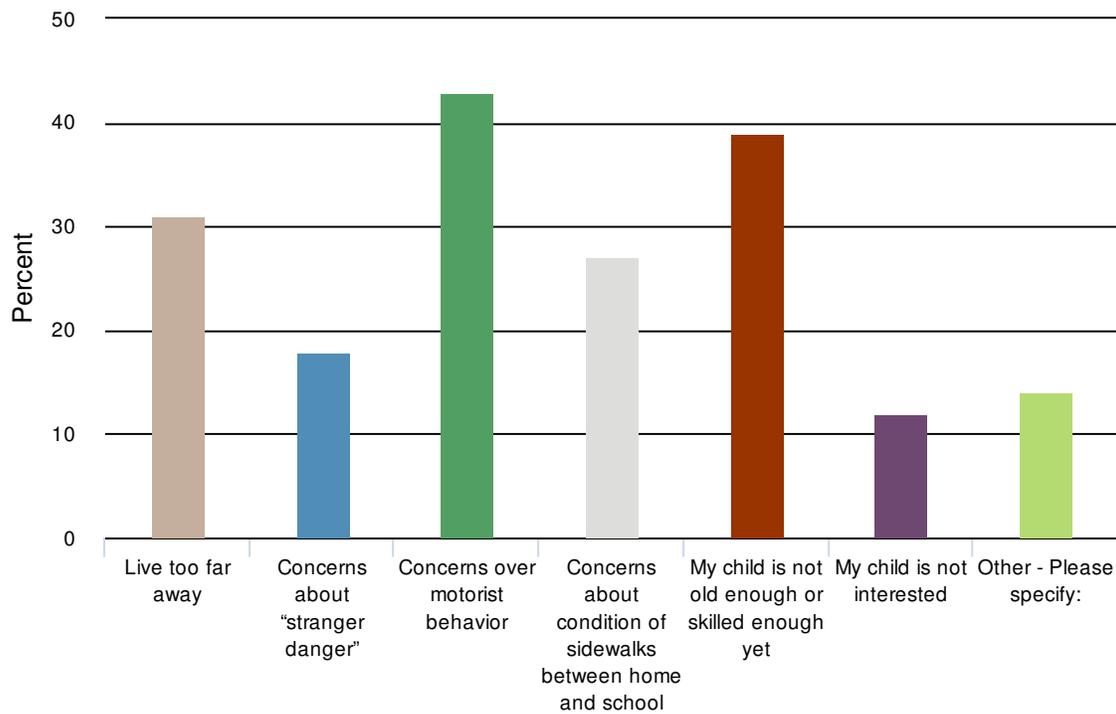
24. If you have children, do they walk or bike to school?



Value	Percent	Responses
Yes	14.5%	83
No	17.6%	101
I do not have children	67.9%	389

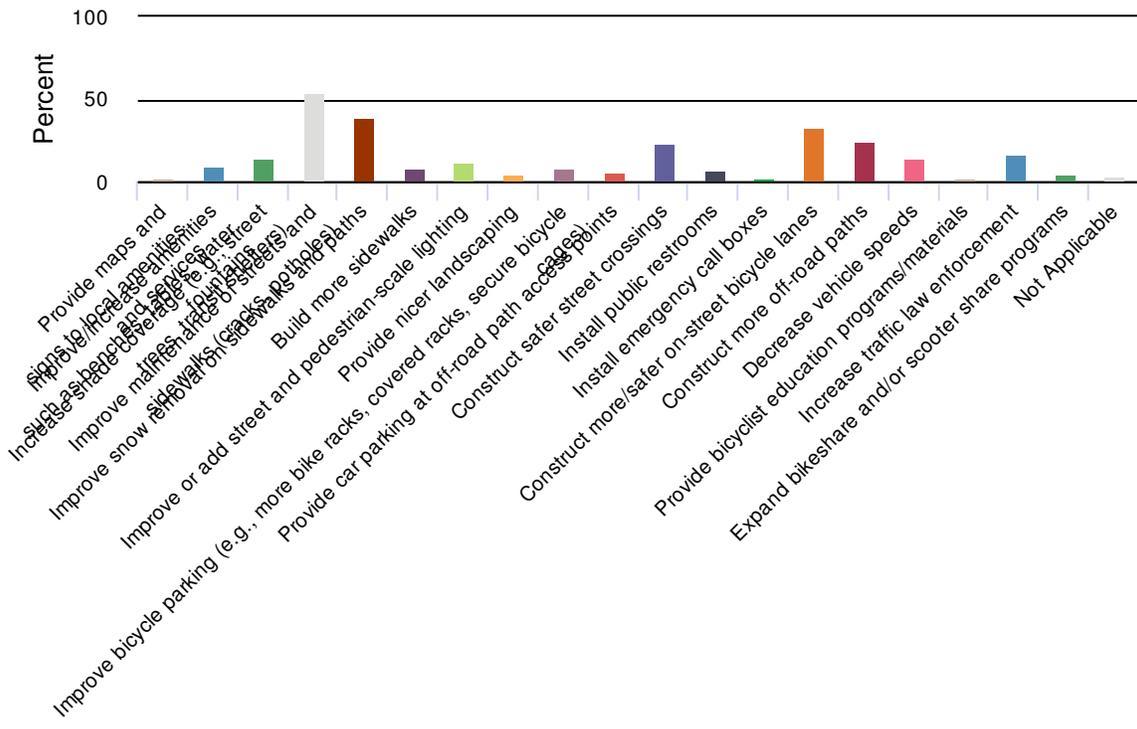
Totals: 573

25. What are the primary reasons they do not walk or bike to school?



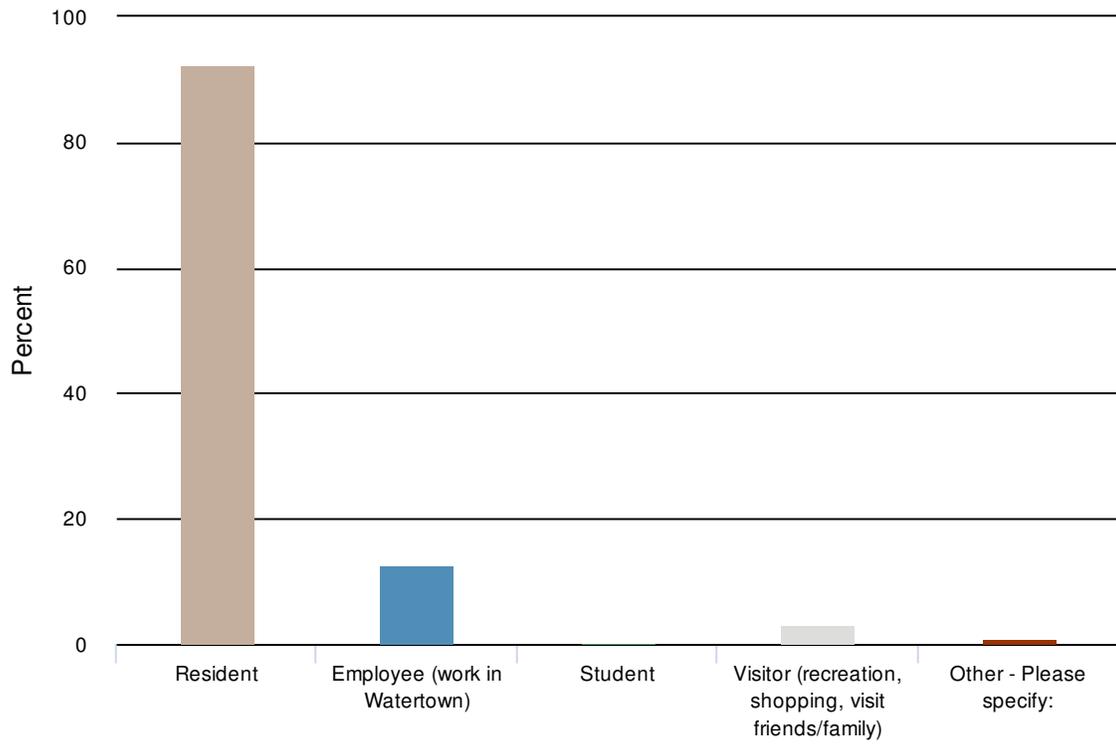
Value	Percent	Responses
Live too far away	31.0%	31
Concerns about "stranger danger"	18.0%	18
Concerns over motorist behavior	43.0%	43
Concerns about condition of sidewalks between home and school	27.0%	27
My child is not old enough or skilled enough yet	39.0%	39
My child is not interested	12.0%	12
Other - Please specify:	14.0%	14

26. If the Town could do THREE things to encourage you to walk and/or bike more in Watertown, what would you want the Town to do? Select Three



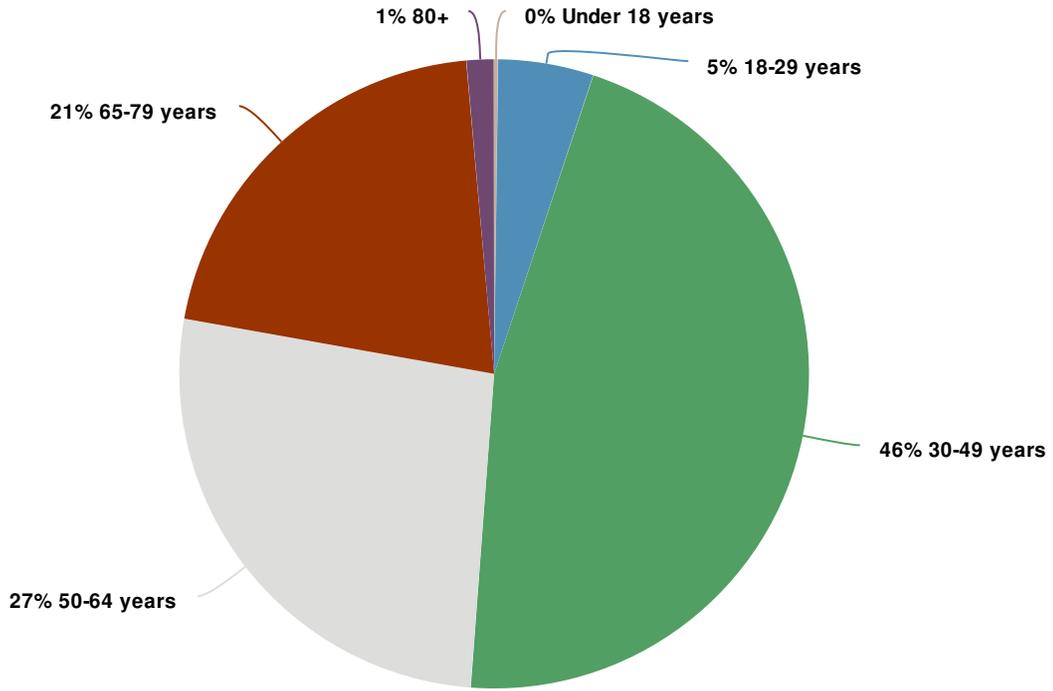
Value		Percent	Responses
Provide maps and signs to local amenities and services		2.1%	12
Improve/increase amenities such as benches, tables, water fountains		9.4%	54
Increase shade coverage (e.g., street trees, transit shelters)		14.1%	81
Improve maintenance of streets and sidewalks (cracks, potholes)		53.7%	309
Improve snow removal on sidewalks and paths		39.0%	224
Build more sidewalks		8.2%	47
Improve or add street and pedestrian-scale lighting		12.0%	69
Provide nicer landscaping		4.5%	26
Improve bicycle parking (e.g., more bike racks, covered racks, secure bicycle cages)		8.5%	49
Provide car parking at off-road path access points		6.1%	35
Construct safer street crossings		23.7%	136
Install public restrooms		7.0%	40
Install emergency call boxes		2.1%	12
Construct more/safer on-street bicycle lanes		33.0%	190
Construct more off-road paths		24.9%	143
Decrease vehicle speeds		13.6%	78
Provide bicyclist education programs/materials		2.1%	12
Increase traffic law enforcement		16.0%	92
Expand bikeshare and/or scooter share programs		4.3%	25
Not Applicable		3.0%	17

27. How are you associated with the Town?



Value	Percent	Responses
Resident	92.3%	528
Employee (work in Watertown)	12.6%	72
Student	0.3%	2
Visitor (recreation, shopping, visit friends/family)	3.1%	18
Other - Please specify:	1.0%	6

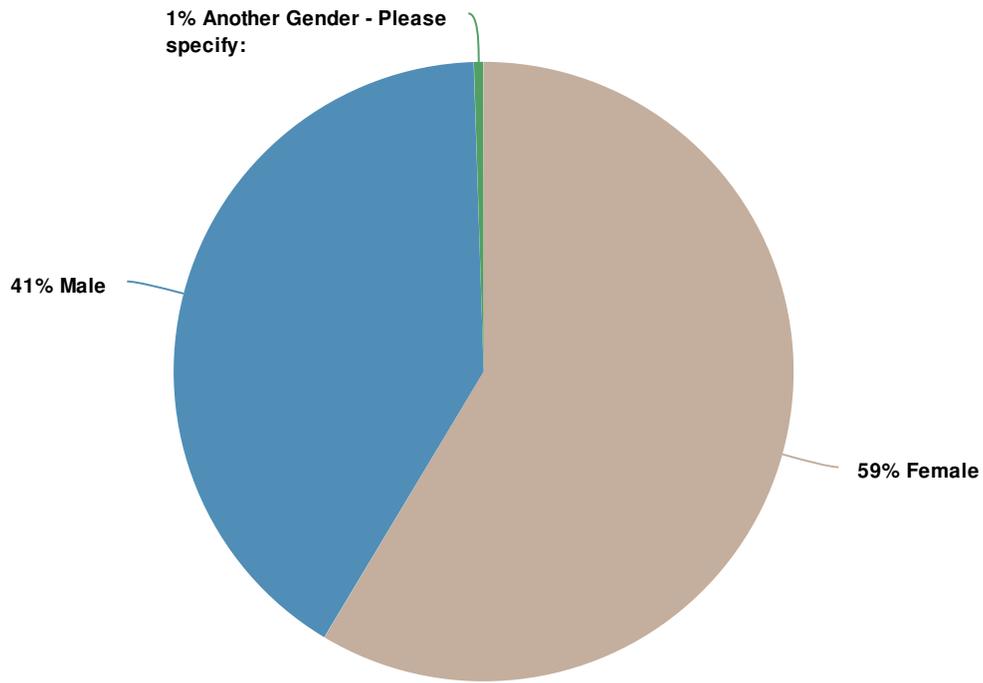
28. What is your age?



Value	Percent	Responses
Under 18 years	0.2%	1
18-29 years	4.9%	28
30-49 years	46.1%	262
50-64 years	26.6%	151
65-79 years	20.8%	118
80+	1.4%	8

Totals: 568

29. What is your gender identity?



Value		Percent	Responses
Female		58.6%	332
Male		40.9%	232
Another Gender - Please specify:		0.5%	3

Totals: 567

30. To receive project updates, please include your email address: This survey is confidential and email addresses will be used for notification purposes only.

31. Additional comments: Please let us know if there is something we have missed, and if there are any particular locations for walking or biking that concern you.

path arsenal paths river
streets sidewalks road
street auburn biking
lanes
mt cars watertown walking
walk st or
traffic bike
pedestrian
people dangerous square roads

Appendix C:

Existing Policies



Appendix C – Summary of Current Watertown Regulations, Policies, and Plans

The following appendix provides a summary of regulations, policies, and plans that effect bicycle and pedestrian planning in Watertown. These documents were reviewed to ensure a comprehensive understanding of the existing policies in place, what they recommend and require for bicycle and pedestrian facilities and access, and how they can support and integrate with the recommendations of the Bicycle and Pedestrian Plan. The reviewed documents also provide an understanding of how policies for parking, site design, and reducing vehicular trips support walking and biking, both in terms of infrastructure and culture. The full language of each document can be found online, with the summaries are provided for purpose of documenting key points as they relate to the Bicycle and Pedestrian Plan.

Watertown Business District Snow/Ice Removal Ordinance – Section 96.26

Requires business owners to clear sidewalks within 2 hours at the end of a storm, or by beginning of following business day. If not, subject to fine of \$100 first offence, \$200 second offense, \$300 third offense.¹

Example Snow Removal Ordinances – Neighboring Communities

City of Newton – City ordinance extends to “every owner or occupant of a building or lot of land abutting a paved sidewalk or any person having charge of such property shall use reasonable efforts to remove snow and ice from the sidewalk and handicap access ramps, and shall use reasonable efforts to treat said sidewalk ramps to allow for safe passageway of approximately thirty-six (36) inches in width...within 24 hours after such snow has ceased to fall or such ice has formed.”²

City of Somerville – Applies a fine for residents not removing snow: Single-, two-, or three-family dwellings, 1st offense: \$100.00, 2nd offense: \$200.00, 3rd and subsequent offense: \$300.00. Four or more dwelling units or commercial establishments: 1st offense: \$150.00, 2nd and subsequent offense: \$300.00.³

Cambridge – Requires residents and businesses to remove ice within 6 hours and snow within 12 hours. Failure to comply results in a \$50/day fine for each day of non-compliance.

¹

[http://library.amlegal.com/nxt/gateway.dll/Massachusetts/watertown_ma/cityofthetownofwatertownmassachusettscod?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:watertown_ma](http://library.amlegal.com/nxt/gateway.dll/Massachusetts/watertown_ma/cityofthetownofwatertownmassachusettscod?f=templates$fn=default.htm$3.0$vid=amlegal:watertown_ma)

² <http://www.newtonma.gov/civicax/filebank/documents/45835>

³

https://library.municode.com/ma/somerville/codes/code_of_ordinances?nodeId=PTIICOOR_CH12STSIOTPUPL_ARTIINGE_S12-8SNICSI



Watertown Massachusetts Design Guidelines (2015)⁴

- Provision for reduced parking requirements – investigate shared parking with adjacent property owners when multiple, abutting sites are being developed. Identify possible overlapping parking needs within site when calculating minimum requirements
- Design adequate space to allow for snow storage/removal
- Non-vehicular access should be given equal priority to cars and the site design/circulation should reflect this. Bicycle access includes a combination of bike lanes, cycle tracks, bike racks, and bike storage. Pedestrian access includes bulb outs, adequately wide sidewalks, street trees, lighting, seating, open space connections, and public spaces to encourage walking. Public transit access includes exploring additional bus stop locations, shared shuttle services, and car sharing programs to encourage alternate modes of transportation.

Town of Watertown Zoning Ordinance (2018)⁵

- Section 5.09 Watertown Square Design Overlay District
 - Purpose to regulate building signage and façade alternations
 - Encourage reinvestment, improve appearance of Watertown Square
 - Parking requirements same as central business district
- Section 5.12 Arsenal Overlay Development District (AODD)
 - By special permit, the planning board may reduce number of otherwise required number of off-street accessory parking spaces, based on availability of public transportation alternatives, TDM programs, ability of uses with peak user demands at different times to share parking spaces or other factors for which applicant provides parking study or analysis.
 - One bicycle parking space for every 20 automobile spaces.
 - Where more than 10 bicycle spaces are required, half shall be provided as long term (employee) parking, secure and protected from the elements. Other half as short term (customer or visitor) parking, visible and convenient to building entrance.
 - Bicycle lockers and showers, shall be negotiated during the developer marking and selection phases in order to meet provisions of TDM Plan.
 - A centralized bicycle facility which includes all of the above provisions is highly desirable.
- 5.16 Pleasant St Corridor District (PSCD)
 - Reductions in required parking granted by special permit in accordance with section 6.01, Shared Parking, and Section 5.16 Alternative Transportation Incentives, of which the total reduction shall not exceed 25% of the required amount.
 - High density quality development
 - Maintain streetscape continuity
 - Size and detail of buildings pedestrian oriented and incorporate features of visual interest

⁴ <https://www.watertown-ma.gov/DocumentCenter/View/17130/2015-Watertown-Design-Guidelines-Book-Adopted?bidId=>

⁵ <https://www.watertown-ma.gov/DocumentCenter/View/3364/ZONING-ORDINANCE--Amended-12112018?bidId=>



- Distinct “sidewalk” presence with incorporation of elements such as planters, traditional awnings, signage to enhance pedestrian scale and interest of street
- A development that provides significant contribution to improve, extend, and/or provide both visual and physical connections to the Charles River bike path may receive increases to maximum allowable building coverage, FAR, and/or height
- Developments providing required parking spaces underground or within structure may receive increases to max allowable building coverage, FAR and/or height.
- Developments that encourage use of alternative modes of transportation shall be eligible to receive reduction of required amount of automobile parking spaces. Credit may be achieved by demonstrating reduced demand for parking by encouragement of cycling, walking, car sharing, and use of public transit. Possible measures: showers for bike commuting employees, sheltered bicycle parking, providing connections to public transit, on-site car sharing, participation in TMA or shuttle/transit service, providing infrastructure for bus stops onsite. In no case shall parking reduction exceed 25%.
- 5.18 Regional Mixed Use District (RMUD) (eastern Arsenal Street)
 - Allows for greater density in terms of height and massing
 - Reduced parking space requirements to reduce traffic congestion and improve multi-use transit services in compliance with TDM policy
 - High quality public realm (via Watertown Design Guidelines), pedestrian environment, implement Complete Streets, promote frontages that create connections to surrounding neighborhoods and the Charles River
 - Promotes connecting to and integrating with adjacent state, municipal, and privately owned parcels
 - Development that accommodates and promotes multi-modal access, transit between Arsenal corridor and mass transit stops, and TDM measures to reduce automobile use
 - Development of housing options that support residents within walking or cycling distance to employment and leisure uses
 - Parking offered to residents as a fee based option distinct from rent charges. Smart parking technology required for projects with structured parking over 100 spaces
 - Master Plan special permit – the SPGA may reduce the number of required parking spaces, based on availability of public transportation alternatives, TDM projects implemented, compatibility with any transportation policy adopted by town, ability of uses with peak user demands at different times to share parking spaces or other factors
 - Special attention to infrastructure and design that will create direct public bicycle and pedestrian path connections with adjacent public bicycle or pedestrian paths, and that minimizes barriers separating such paths
 - When appropriate, conceptual wayfinding signage proposal for paths, access to parks, and transit
- Article VI: Automotive and Bicycle Parking Requirements
 - (b) Parking minimums outline by use



(e) The aggregate number of spaces required for each of several uses separately may be provided on a common parking lot serving all of these uses. Projects in close proximity to one another are encouraged to provide shared parking plans that meet the individual requirements per § 6.01(b) across multiple properties by special permit. Developers are also encouraged to “unbundle” parking by separating the cost of parking from the cost of ownership or rental.

(f) Where it can be demonstrated that the combined peak parking needs of all the uses sharing the lot will, because of differences in peak hours or days, be less than required by §6.01(b), the number of parking spaces to be provided may be reduced accordingly by Special Permit. Developments that encourage the use of alternate modes of transportation may be eligible to receive a reduction of the required amount of automobile parking spaces by Special Permit. This credit may be achieved by demonstrating a reduced demand for automobile parking by the encouragement of cycling, walking, car sharing, and use of public transit. The reduced parking requirement shall correspond to the reduced automobile parking demand, but in no case shall exceed 25%.

- 6.07 Bike Parking (a) Off-street bike parking shall be provided as follows:
 - One bicycle space for every 15 automobile parking spaces in commercial/office mixed use developments and one bicycle space for every 5 auto spaces in residential/mixed use developments, a minimum of 6.
 - Each space must accommodate a bicycle 7’ long by 2’ wide. Inverted U or Ring and Post style
 - Recommended that half be provided as long term parking, safe and secure. Other half has short term (customer or visitor) parking. Space be visible and convenient to building entrance.
 - Any property owner required to have bicycle parking may elect to establish a shared bicycle parking facility with any other property owner within the same block to meet the combined requirements.

- Section 9.03 Site Plan Review Submission Check List⁶

- Parking: Requires parking analysis for automobile, bicycle, car share, electric car.
- Circulation: Special attention shall be given to traffic circulation, parking areas and access points to public streets and community facilities in order to maximize convenience and safety of vehicular, bicycle and pedestrian movement within the site and in relation to adjacent streets. Special consideration shall be given to infrastructure and design that will enhance public transit, such as bus shelters, on-site transportation demand management measures, and participation in a Transit Management Association.”

⁶ <https://www.ci.watertown.ma.us/870/Planning-Zoning>



Watertown Parking Management Plan⁷

- Participants of survey for plan want to improve walking and biking environment, prefer to park off-street. Willing to park once and walk between destinations.
- Parking requirements are barrier to new businesses, zoning regulations require parking, many lots are vacant even in peak hour, zoning requirements for shared parking discourage its use, parking funds not reinvested in commercial areas.
- Consider changes to zoning to encourage new businesses to reduce or eliminate parking requirements, allow developers to pay fee in lieu of parking, create parking benefit district, establish mechanism to regularly review regulations and monitor parking changes.
- Need for pedestrian paths, bike facilities and lighting in municipal lots, and better circulation from lots to businesses
- Recommendations:
 - Improve wayfinding and signage
 - Work with private owners to promote shared parking
 - Reduce overall parking demand by enhancing access for non-vehicles.
 - Adjust parking and zoning standards to encourage investment in squares

Watertown TDM Regulations (2019)⁸

- The Town's goal is to aid town-wide reduction of the SOV mode by 20% over baseline data for residents and employees (US Census Bureau, American Community Survey, 2000-2010), which identifies that Watertown residents currently have a SOV mode share of 68% and that Watertown workers have a SOV mode share of 75%, The goal, therefore, is a residential SOV mode share of no more than 54% and a Worker SOV mode share of no more than 60%.
- TDM ordinance establishes legal authority to ensure compliance with the provisions of this set of regulations through permitting, inspections monitoring, and enforcement.
- Basic TDM Plan: maintain 3 TDM measures to support goals
 - Includes residential uses of 10-39 units and commercial/industrial uses of 10-30,000 SF, <30 FTE emp, >10,000 SF <6 FTE ~100 ADT
 - Site plan review with >150 ADT and/or 15 peak hour trips
 - May be audited by Town at discretion of director of DCDP
- Comprehensive TDM Plan: Establish program goals, targets and measures for trip reduction based on project's proposed use, new trips generated, baseline transportation impacts. Measure must add up to at least 14 points.
 - Includes retail uses 30,000 SF or > 30 FTE, residential uses 40+ units, mixed use uses that meets/exceed retail or res req., office uses 10,000 SF, >6 FTE or 100 ADT, industrial uses 30,000 SF or 30 FTE or more

⁷ <https://www.watertown-ma.gov/DocumentCenter/View/27911/Parking-Management-Plan-Executive-Summary-and-Strategies>

⁸ https://www.watertown-ma.gov/DocumentCenter/View/28504/TDM-Regulations_final-10-25-19



- Identify baseline numbers for trips, parking generation
- Sample measures:
 - Unbundle parking, parking cashout, carshare parking
 - Improve walking conditions – paths, streetscape improvements
 - Bike parking 1.5 times zoning requirement, showers/lockers, bike share membership, host bike share, bike repair station, fleet of bikes, bike equipment
 - Shuttle services, TMA, provide benches/shelters at stops, TOD
 - Wayfinding signage, real time displays
 - Marketing, flexible work schedule, employee incentive programs
- Identify targets to reduce SOV mode share
- Shall include monitoring program for life of site plan review or SPA. Additional measures may be needed if SOV use remains above Town’s mode share goal.

Appendix D:

Micromobility



Appendix D - Micromobility

SCOOTER 101

What is a scooter?

- Massachusetts law is currently undergoing changes to differentiate types of scooters and micro-mobility options. These can be private or shared and manual or motorized. Some terms to know include:
 - Motorized scooter/E-Scooter: Under current law these are defined as any 2-3 wheeled device with handlebars and either a seat or standing platform powered by an electric or gas motor with or without the assistance of human propulsion.
 - E-foot scooters: Language used in a bill that would allow for electric foot scooters to be parked on the sidewalk not impeding the normal flow of pedestrian traffic. Otherwise they follow the same definition and operating requirements as motorized/e-scooters.
 - Lightweight motorized scooters/personal micro-mobility device: Another bill proposes using these terms to limit the use of motorized/e-scooters with a weight of 50 pounds or less to speeds of 15 MPH or less and allow them on recreational bicycle paths and sidewalks outside of business districts. Otherwise they follow the same definition and operating requirements as motorized/e-scooters. Operators of lightweight motorized scooters on the sidewalk are to yield to pedestrians and give an audible signal before passing.

The development of these bills illustrates a need to differentiate the emerging types of motorized/e-scooters that have different operational needs than a more traditional, larger, scooters.



Smaller stand up e-scooters are increasingly popular with dockless share companies providing them in cities and towns throughout the country. This type of e-scooter is more likely to be ridden in a bike lane or on the sidewalk



Motorized scooters resembling vespas or motorcycles are larger and likely to be ridden on streets at speeds up to 30 MPH. They can be electric or gas fueled.



Who, Where, How, and When can motorized/e-scooters operate in Massachusetts?

- Who: Anyone with a valid driver’s license or learner’s permit
- Where: On all public ways with the exception of limited access or state highways. Operators of motorized/e- scooters must stay to the right at all times, including when passing a vehicle.
- How: A motorized/e-scooter must have operational stop and turn signals so that the operator can keep both hands on the handlebars at all times. They must be operated at no faster than 20 MPH. It is encouraged that operators wear protective headgear. Motorized/e-scooters are not registered with the RMV.
- When: Only between sunrise and sunset

Where can motorized/e-scooters operate in other locations?

Location	Area of Operation
Brookline	Streets Bike lanes Multi-use paths Prohibited on sidewalks Speed capped at 15 MPH
Washington DC	Streets Bicycle lanes Sidewalk, except for in the CBD
Providence	Streets Sidewalk (Note: Scooter share companies are required to move or retrieve poorly parked scooters within 24 hours)
Denver	Streets Bike lanes Sidewalk use restricted to under 6 MPH and for scooter parking only
California	Streets, with MPH restrictions (typically 25 MPH) Bike lanes Protected bike lane, operate under 15 MPH Banned on sidewalks and after dark

Current Topics for Consideration

- Area of usage: Where is the best place for motorized/e-scooters? Currently states and municipalities vary, allowing them on streets, bike lanes, and sidewalks depending on the location. Using speed restrictions is a common way to regulate usage in different types of facilities.
- Parking: Scooter parking on sidewalks has been problematic for municipalities that must maintain a clear path of travel on the sidewalk. E-scooter share companies are now being sued for violation of ADA compliance.
- Geofencing: A tool cities are using to regulate the speed and areas e-scooters are able to be operated.
- Helmets: Requirements vary by location.