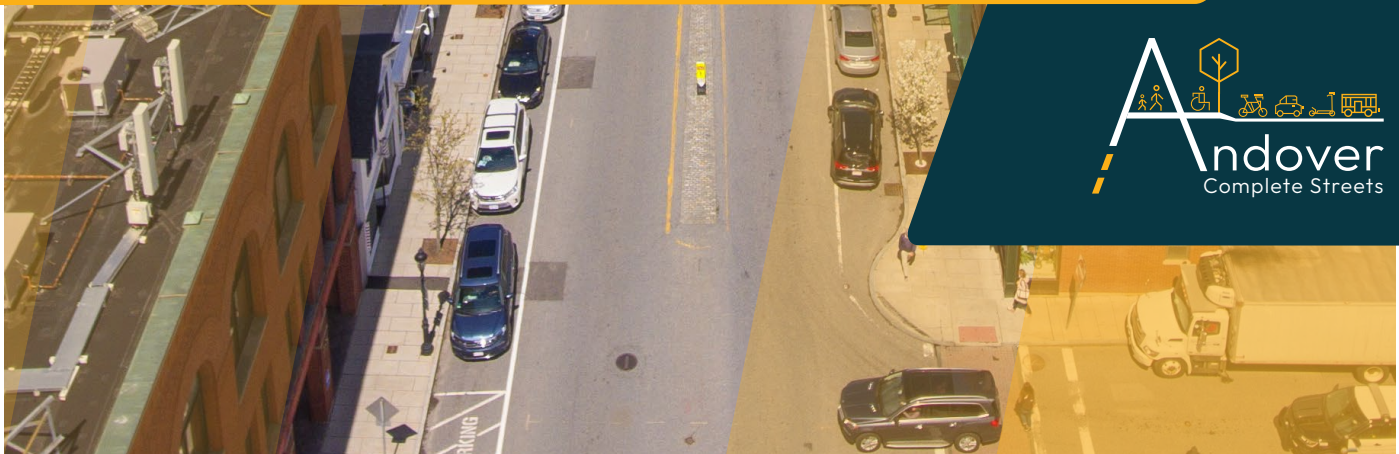




# Active Transportation Plan

Andover, MA | FALL 2025





Town of Andover, MA

# Acknowledgements

## Town Administration

**Michael Lindstrom**  
Deputy Town Manager

## Planning Department

**Paul Materazzo**  
Director of Planning & Land Use

**Monica Gregoire**  
Associate Planner

## Police Department

**Glen Ota**  
Safety Officer

## Public Works Department

**Carlos Jaquez**  
Director of Public Works

**Arthur Martineau**  
Town Engineer

**Joseph Assenza**  
Assistant Town Engineer

## Active Transportation Steering Committee

**Andrew Lewine**  
Walk Bike Andover

**Gail Bloom**  
Council on Aging

**Jing Lu**  
Commission on DEI

**Steve Surette**  
Commission on Disability

**Keith Taverna**  
School Department  
Representative

**Harry Vorhees**  
Andover Green Advisory  
Committee

**Sean Bibeau**  
Andover Business Owner

**Elizabeth George**  
Sidney's Rainbows

## Consultant Team

**Margot Spiller**  
Apex Companies, LLC

**Cassandra Thompson**  
Apex Companies, LLC

**Mia Scholes**  
Apex Companies, LLC

**Stephanie Gaudette**  
Apex Companies, LLC



# Contents

Pg. 6

**Section 1**  
Introduction

Pg. 10

**Section 2**  
Vision + Goals

Pg. 12

**Section 3**  
Public + Stakeholder  
Engagement

Pg. 16

**Section 4**  
Existing Conditions

Pg. 18

**Section 5**  
Active Transportation  
Facility Types

Pg. 22

**Section 6**  
Preferred Typologies

Pg. 26

**Section 7**  
Active Transportation  
Network

Pg. 30

**Section 8**  
Intersection +  
Amenity Toolbox

Pg. 34

**Section 9**  
Measuring Success

Pg. 36

Appendix A  
Online Survey Results

Pg. 42

Appendix B  
Additional Mapping of Pedestrian  
Network Development

Pg. 46

Appendix C  
Additional Mapping of  
Bicycle Network Development

Pg. 50

Appendix D  
Glossary



# 1. Introduction



We envision Andover as a healthy, sustainable community that embraces alternative modes of travel and provides safe, comfortable, and convenient ways for residents and visitors of every age and ability to walk, roll, and bike.

## What is Active Transportation?

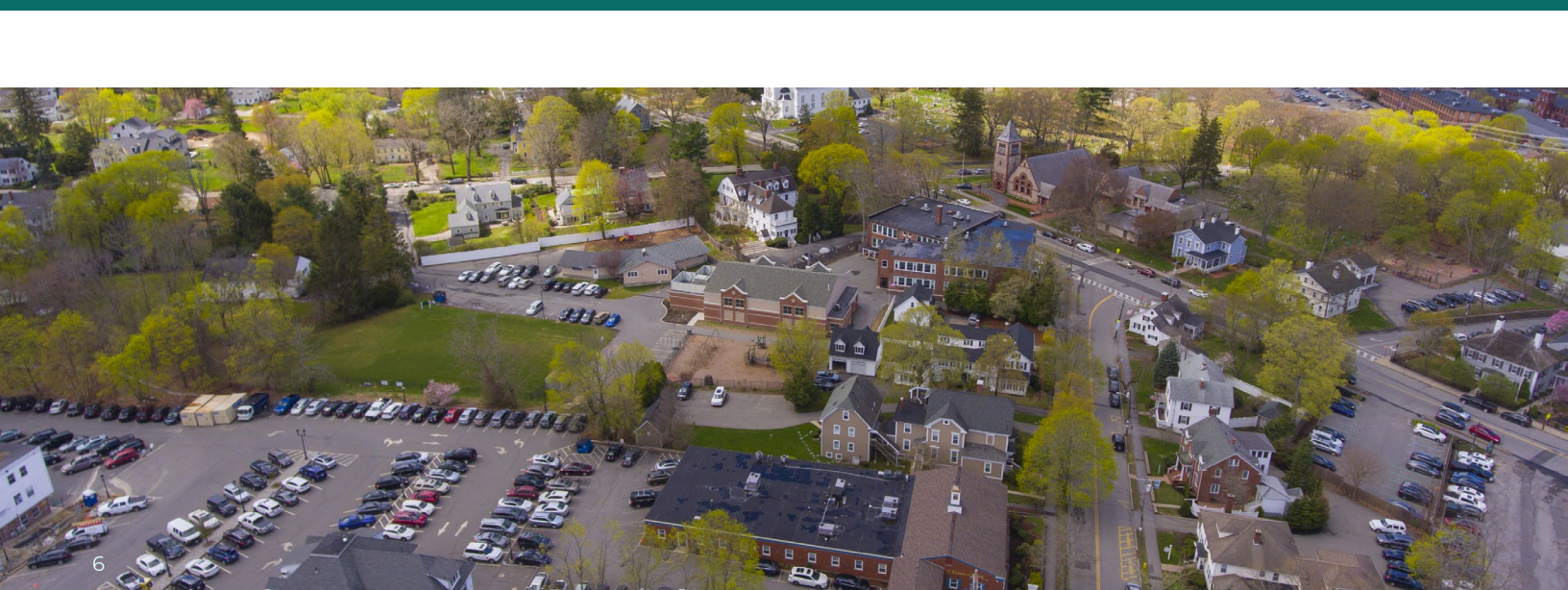
Active Transportation refers to using active modes of travel to get to everyday destinations.

Active modes include walking, biking, using micromobility devices, such as scooters, using a wheelchair, connecting to transit, and otherwise using transportation means that are primarily human-powered and low-speed.

These human-powered modes of transportation allow:

- Families to access schools, parks, shopping and other community resources;
- Improved physical and mental health;
- Reduced greenhouse gas emissions;
- An economical mode of transportation.

Currently, many areas lack infrastructure like sidewalks and bike lanes that support human-powered transportation, making it challenging to access resources without using a motor vehicle.



## The Future of Andover

In October 2022, Andover embarked on a journey to expand mobility options for the community through the adoption of the Town's Complete Streets Policy, in which the Town committed to considering every transportation project and program as a possible opportunity to improve streets and the transportation network for all users by following a Complete Streets approach.

The Town has laid a solid foundation for identifying key infrastructure improvements needed to support active transportation through the development of an ADA Transition Plan & Pedestrian Master Plan.

This Plan, finalized in January 2023, provides an inventory of the pedestrian network within the Town's right-of-way and identifies priority locations where infrastructure improvements are needed to support walking.

The Andover Active Transportation Plan (ATP) builds off the Town's previous planning efforts and identifies opportunities to support multi-modal travel through infrastructure projects geared toward providing safe, convenient, and accessible facilities for all non-motorists.

The ATP provides a framework to guide future investments in active transportation and make Andover a healthier and more sustainable community.

## Why Invest in Active Transportation?

Active transportation has multiple benefits at not only the individual level but also the community level.

Creating a more walkable and bikeable community aligns with many goals and metrics of traditional transportation planning, such as reducing traffic congestion and air and noise pollution, while providing health, economic and mobility benefits to the town and its residents.



## Investing in active transportation can yield significant public benefits for a community in several ways:



### Health

First, being physically active is one of the most important steps people can take to improve their health. Promoting walking and cycling as viable modes of transportation encourages regular physical activity, which is associated with numerous health benefits, including reduced risk of obesity, heart disease, and diabetes. Active transportation initiatives make it easier for individuals to incorporate physical activity into their daily routines, improving overall fitness levels and reducing sedentary behavior.



### Environment

Active transportation options often result in cleaner air and reduced exposure to harmful pollutants, as they decrease reliance on vehicles and contribute to lower levels of air pollution and greenhouse gas emissions. This cleaner environment can lead to improved respiratory health for community members, particularly vulnerable populations.



### Safety

Redesigning roadway corridors to better accommodate all users, including those walking, biking, and rolling, inherently enhances safety by creating environments that encourage slower vehicle speeds and increased awareness.

Features like wider sidewalks, dedicated bike lanes, and pedestrian crossings with adequate sight lines contribute to better visibility and predictability for all road users, reducing the likelihood of crashes and conflicts.

Moreover, active transportation investments promote a sense of inclusivity, making roads accessible for people of all ages and abilities, thus fostering a safer and more welcoming community environment where individuals can navigate without fear or barriers.



## Economic Vitality

Our streets define the Andover experience. Residents, visitors, and businesses all benefit when they are well-designed, inviting, and vibrant.

Investments in active transportation infrastructure can result in positive economic outcomes for the community by attracting tourists and residents who prefer walkable neighborhoods with amenities within easy reach.

Furthermore, reducing reliance on cars can lower transportation costs for individuals, and encouraging walking also stimulates local economic activity as people walking are more likely to stop into a store and spend money than someone driving by in a car.



## Quality of Life

The aforementioned benefits to safety, public health, and economic vitality provided by investments in active transportation all contribute to a higher quality of life by creating a more livable, sustainable, and inclusive community where people can enjoy healthier lifestyles and greater mobility.

# 2. Vision + Goals

## Vision

We envision Andover as a **healthy, sustainable community** that embraces alternative modes of travel and **provides safe, comfortable, and convenient** ways for residents and visitors of every age and ability to **walk, roll, and bike**.

## Goals

From this Vision Statement, the following four goals were used to guide subsequent planning efforts:

1. Increase **safety** for those who walk, roll, and bike in Andover
  - Separate people walking, biking, and driving, with increasing levels of protection with increasing vehicular speed & volume
  - Keep people walking and biking safe through designs that prioritize slow speeds
  - Provide safe and convenient crossings for non-motorists

2. Form comprehensive, connected **pedestrian & bicycle networks** that can be used by residents & visitors of all ages & abilities

- Close gaps in the existing sidewalk network, prioritizing high-stress gaps
- Create comfortable biking connections to schools, senior housing, transit stops, recreational facilities, & other key destinations
- Reconstruct existing sidewalks in poor condition to be compliant with the Americans with Disabilities Act

3. Support **healthy lifestyles** & provide quality-of-life benefits

- Encourage a reduction in vehicle miles traveled within Andover, especially for trips to destinations within 15 minutes
- Create active transportation connections to local recreational areas & other community resources

4. Boost our **business districts** by reducing our dependence on parking spaces & increasing foot traffic

- Increase walking and biking trips to business districts to reduce the need for on-street parking
- Provide secure bicycle parking facilities and other amenities for non-motorists within business districts and at other destinations to make walking, rolling, and biking more convenient



# 3. Public + Stakeholder Engagement

Public and stakeholder engagement is an important component of any planning process. Understanding the **desires, goals, and concerns of the community is critical** for creating a plan that responds to those needs.

During the development of the ATP, public feedback was solicited through various formats, including an Active Transportation Steering Committee, four public meetings, an online comment map, and online surveys.





## Active Transportation Steering Committee

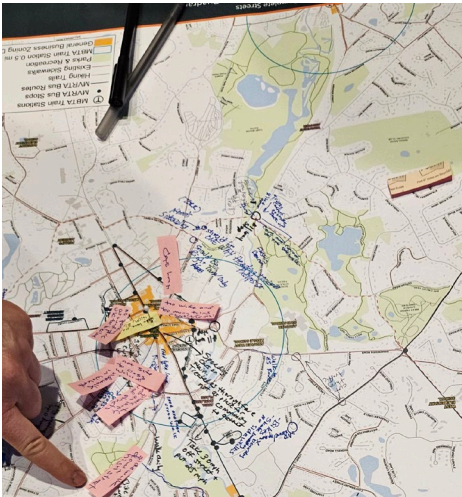
An Active Transportation Steering Committee, composed of various stakeholders representing different interests within Andover, was convened to provide direction on the ATP. Specifically, the Steering Committee provided input on the project prioritization process, engagement strategy, and proposed pedestrian and bicycle networks.

## Public Meetings

The Town conducted a series of four public input meetings to receive input from the public regarding current conditions and proposed active transportation improvements. The first public input meeting was conducted in an open house format, and the subsequent three meetings were conducted as a presentation followed by a Q&A session.

The public input meetings were held on the following dates & locations:

- June 29th, 2023  
Cormier Youth Center
- November 8th, 2023  
The Robb Center
- January 24th, 2024  
The Robb Center
- March 19th, 2024  
The Robb Center



# Public + Stakeholder Engagement Cont'd

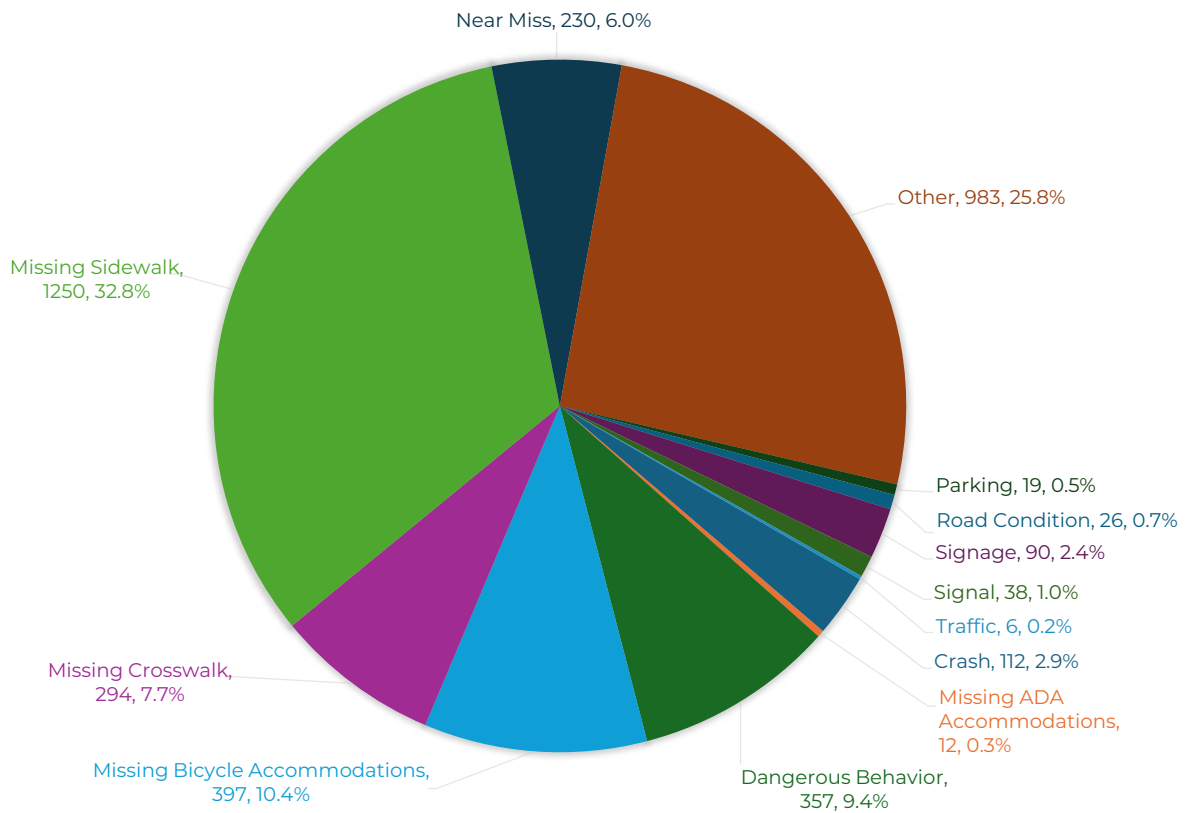


Figure 1 Comments Received through the Online Comment Map by Category

## Online Comment Map

An online comment map was created to supplement feedback received from in-person input sessions and online surveys. The map was designed to allow respondents to provide location-specific information of where active transportation investments, as well as safety improvements, are most needed.

Respondents were able to select a category that described the nature of the input being provided, with categories including Safety Concerns, Missing Pedestrian Accommodations, and Missing Bike Accommodations.

Inputs collected on physical maps during the public input sessions were added to the online comment map, with categories were assigned as appropriate by the project team,

such that all location-specific information could contribute to the development of the proposed networks and project recommendations.

A total of 2,834 comments were received as part of the ATP process, and these comments were combined with 980 comments received as part of the Pedestrian Master Plan process regarding locations where sidewalk and/or crossing improvements are needed.

## Online Survey

An online survey was created to better understand the needs and preferences of the Andover community. A total of 3000 comments were received between November 14th, 2023, and January 11th, 2024, on questions about how people prefer to travel and their priorities for reimagined streets, including their preferred types of active transportation facilities. Online survey responses were used in conjunction with input collected from public input sessions and the online comment map to guide project selection and treatment type.

The survey results indicated that Andover residents want to prioritize adding sidewalks to the Town's network and improving safety in busy areas and schools and other community resources.

Residents also indicated a preference for shared use paths instead of on-road bicycle facilities.

The full set of survey responses is provided in Appendix A.

## Existing Planning Efforts

Incorporating and building upon other recent planning efforts is a key component of the Andover Active Transportation Plan.

**Town of Andover Community Health Improvement Plan (2023)**, strategic plan outlining priority health issues for a community. The CHIP details how issues will be addressed to improve the health of the community and contain goals, objectives, and strategies to be achieved.

**Climate Action & Sustainability Plan (2023)**, Andover's first Climate Action and Sustainability Plan is informed by our residents and businesses, our shared values, and science. This plan builds upon significant climate work in town and shares how the community can equitably reduce our greenhouse gas emissions and live in a more sustainable community.

By addressing sustainable building practices, reducing energy consumption, reducing the impact of transportation on the environment, protecting natural resources such as forests, water, and wetlands, reducing and diverting waste, Andover will achieve net-zero emissions by 2050.

# 4. Existing Conditions

## Sidewalk Network

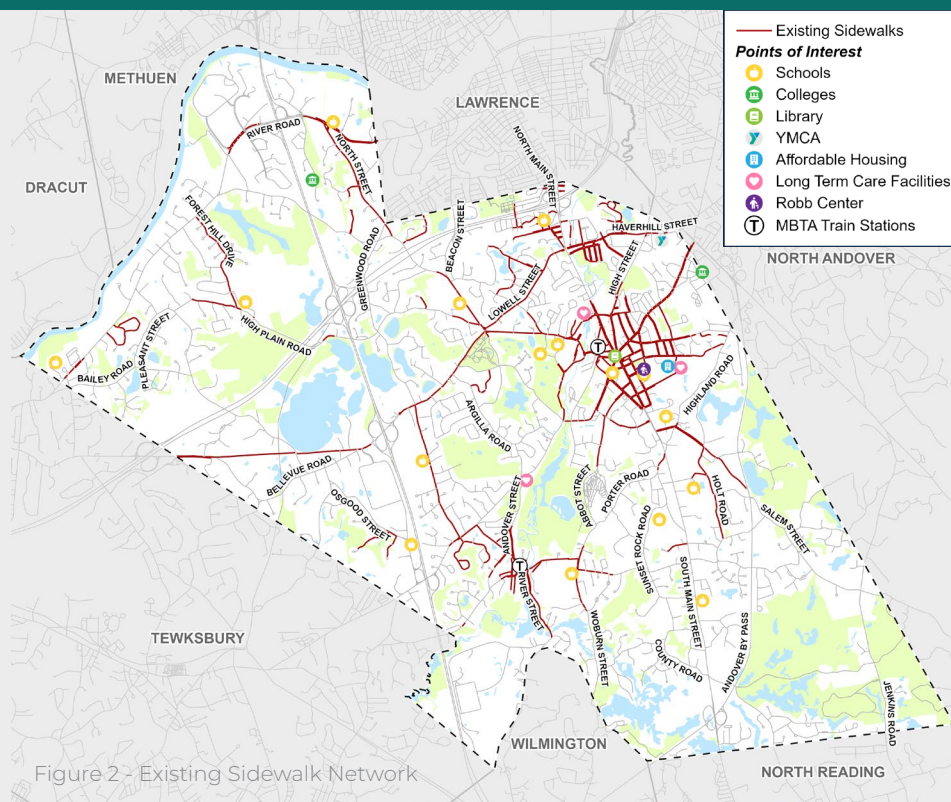
Sidewalks are the backbone of any active transportation network. Andover's existing sidewalk network, as indicated by maps as well as public survey results, is incomplete. The 2023 ADA Transition Plan & Pedestrian Master Plan shows that the Town of Andover maintains 59.90 miles of sidewalk infrastructure and 1,002 curb ramps.

Areas in town with the most extensive sidewalk coverage include the downtown area and streets surrounding the Ballardvale MBTA station.

Outside of those areas, much of the community lacks sidewalks, and existing sidewalks lack connectivity to a larger network.

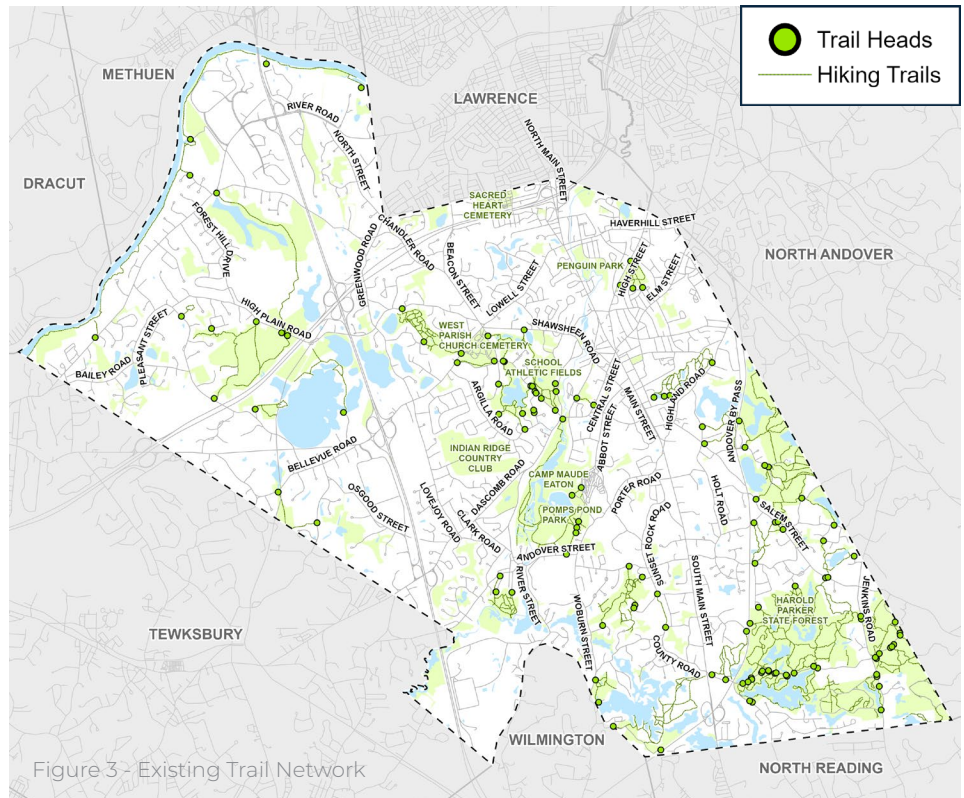
A portion of the existing sidewalks have also been identified as not being ADA compliant and are thus not accessible by residents of all ages and abilities.

By filling gaps in the existing sidewalk network and reconstructing existing facilities to be accessible for all, the usefulness of the entire system can be improved.



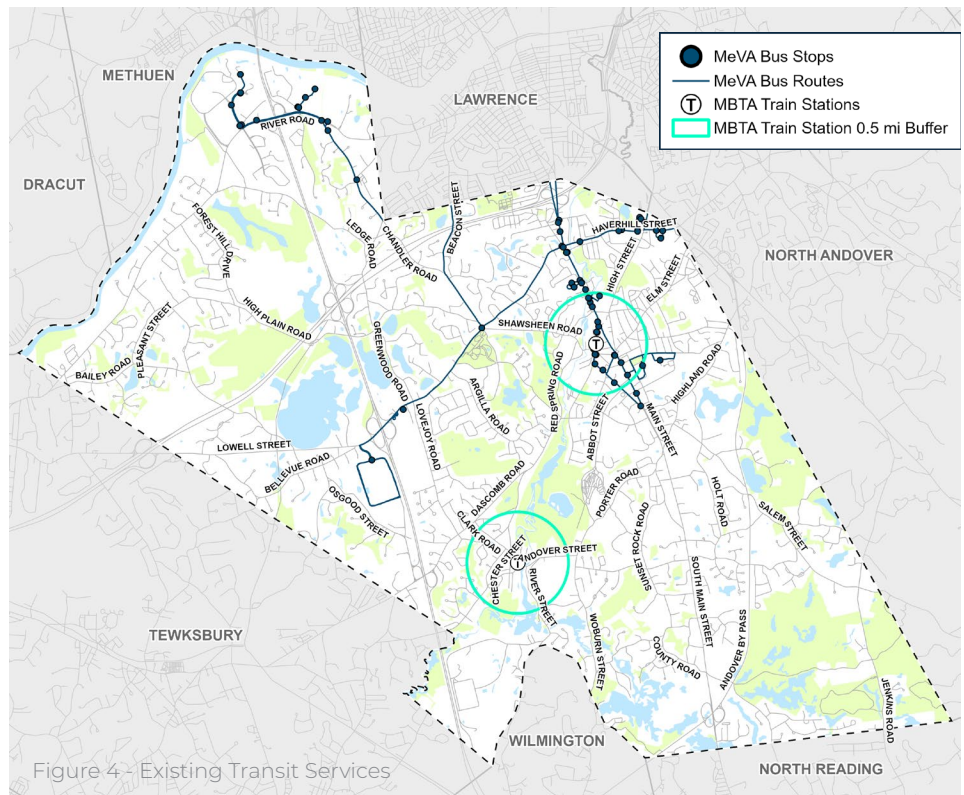
## Trails Network

Andover has a robust and beloved network of trails and recreational facilities. In many cases, these trails are not connected to the sidewalk or bike networks, making them only accessible by car. Online public surveys indicate that improving access to these trails via active transportation modes is a high priority for the community.



## Transit Services

Transit services within Andover include fixed bus routes provided by the Merrimack Valley Transit Authority (MeVa) as well as two Massachusetts Bay Transit Authority (MBTA) stations on the Haverhill Commuter Rail Line. In April 2024, Andover residents voted to approve the creation of a new multifamily housing district within a ½ mile radius of the Downtown Station and Ballardvale Station, in accordance with the MBTA Communities Law. Active transportation facilities within these ½ mile buffers will support this anticipated increase in housing density and the feasibility of “car-light” households around transit services.



# 5. Active Transportation Facility Types

## Safe & Comfortable

The wide range of roadway types and contexts within Andover warrants a wide range of active transportation facilities – each having different advantages and disadvantages. Some facilities are exclusively for those walking or biking, whereas other types of facilities can serve multiple modes.

Selecting an appropriate facility type for a given roadway based on the roadway characteristics – including travel speeds, volumes, and number of travel lanes – is critical to creating active transportation facilities that are safe and comfortable for a variety of users.

**The following facility types should be considered when expanding the Town’s network for non-motorists:**



## Sidewalks

Sidewalks are pedestrian-only facilities that are separated from roadways through horizontal buffers, such as grass, and/or vertical elements, such as curbing. Sidewalks can be located on one or both sides of a roadway, depending on the roadway characteristics, pedestrian volume, and constraints.



## Shared Use Paths

Shared use paths are bi-directional paved paths that run parallel to roadways and can be used by those walking and biking. Given the vertical and horizontal separation of shared use paths from roadways, they represent a comfortable facility option for users of all ages and abilities and can be an appropriate accommodation for arterial and collector roadways.



## Separated Bike Lanes

Separated bike paths or “cycle tracks” bring one- or two-way bike facilities to the sidewalk level, providing both vertical and horizontal separation from vehicles and dedicated facilities for all travel modes. The added space and construction requirements make them a space- and resource-intensive type of facility, but separated lanes provide a high level of comfort for users of all ages and abiliti



## Buffered Bike Lanes

Buffered bike lanes add a painted buffer (with or without flexible delineators) between vehicle and bike lanes, adding moderately to the width of the street. Given the separation from both vehicles and pedestrians, buffered bike lanes make for a comfortable facility that minimizes conflicts for all modes.

# Active Transportation Facility Types Cont'd



## Bike Lanes

Bike lanes are on-pavement markings delineating dedicated bicycle space in both travel directions. They remove conflicts between cyclists and pedestrians and are relatively easy to implement, but do not provide a buffer or vertical separation between vehicles and bicycles.



## Paved Shoulders

A paved shoulder extends the width of the paved roadway beyond the travel lanes to accommodate stopped vehicles, emergency uses, and bicyclists. Paved shoulders are most common on rural roads and provide paint-only separation from motorists when facilities with more separation are infeasible.



## Bicycle Boulevards

Bicycle Boulevards consist of shared lane markings, or “sharrows”, to the presence and priority of bicyclists on the road with pavement marking in combination with appropriate traffic calming treatments. Bicycle boulevards add no separation from vehicle traffic and are a desirable option only on low-speed, low-traffic roads.



# 6. Preferred Typologies

## Cyclists Comfort

Different bicycle users have different levels of stress tolerance, with much of the population being uncomfortable bicycling near vehicles, particularly if those vehicles are not travelling at low speeds.

In its Bikeway Selection Guide, FHWA estimated that all but highly confident bike riders would be uncomfortable riding with traffic, and more than 50% of the population uncomfortable with conventional bicycle lanes.

In line with the goal of creating pedestrian and bicycle networks that can be used by residents and visitors of all ages and abilities, this plan recommends bicycle facilities with increasing horizontal or vertical separation from vehicles with increasing traffic volumes and speeds. Figure 6 provides guidance on the speeds and volumes for which various types of bicycle facilities are appropriate.

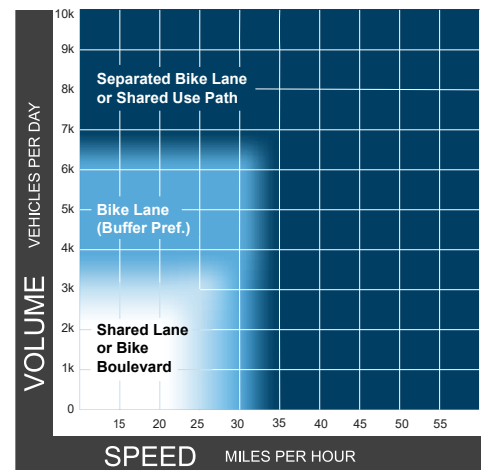
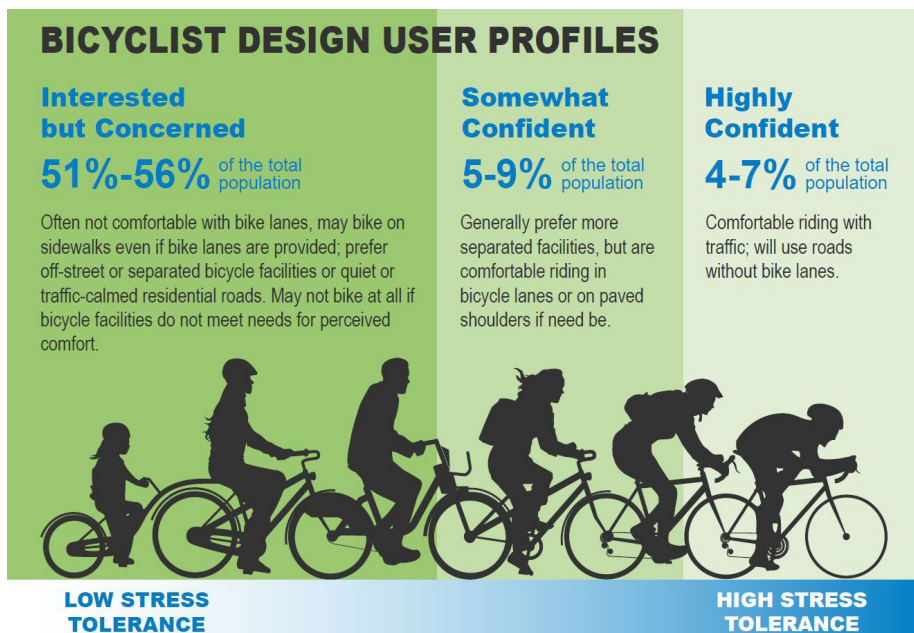


Figure 6 – FHWA Bikeway Facility Matrix: Preferred Bikeway Type for Urban, Core, Suburban, and Rural Town Contexts [https://safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/docs/fhwasa18077.pdf](https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf)

Figure 5 - Bicycle User Profiles [https://safety.fhwa.dot.gov/ped\\_bike/tools\\_solve/docs/fhwasa18077.pdf](https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf)

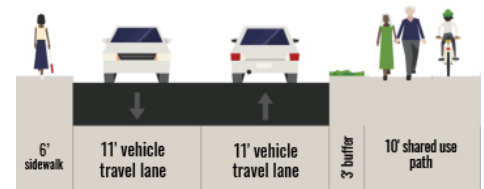
## Arterial Roads

Arterial roads – or those with the highest traffic volumes, speeds, and number of travel lanes – require accommodations that provide the highest level of protection from vehicles in order for users to feel safe enough to walk or bike on a road. This plan recommends incorporating facilities that are both horizontally and vertically separated from travel lanes to minimize potential conflicts between fast-moving vehicles and non-motorists.

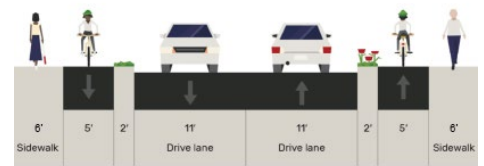
In line with feedback from the community and Town officials, the preferred facility type for high-speed, high-volume arterial roads is a buffered shared use path, where pedestrians and cyclists have a wide, shared space that is protected from car lanes.

Because those walking and biking can share the same facility, shared use paths require less width than other facility types and are ideal for corridors with limited right-of-way. However, because shared use paths only provide accommodations on one side of the roadway, they may be less appropriate for corridors where frequent access to both sides of the roadway is necessary.

Sidewalk-level bike lanes are another appropriate facility type for arterial roadways. Such facilities, which bikes, cars, and pedestrians each with designated space and minimize conflict points, may be considered for corridors with less constrained right-of-way or where accommodations on both sides of the roadway are necessary.



SHARED USE PATH



SIDEWALK-LEVEL SEPARATED BIKE LANES

# Preferred Typologies Cont'd

## Collector Roads

Collector roads – or those with the medium traffic volumes and speeds – do not warrant the same level of protection as arterial roads but are also not adequately low-speed and low-volume for non-motorists to travel alongside vehicles. For these roadways, dedicated facilities that provide at least horizontal separation from vehicles are recommended.

For these roadways, shared use paths are the community's preferred facility type to provide a buffer between active transportation users and vehicles. Non-buffered, on-street bike lanes with a sidewalk on at least one side of the roadway are another appropriate treatment for collector roadways, providing dedicated space for those traveling by car, bike, and foot.

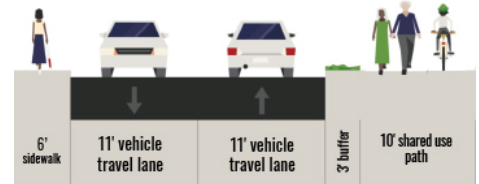
Existing conditions, including available roadway width, utility and right-of-way constraints, and other contextual factors should be considered to determine the most suitable option for a given roadway.

## Local Roads

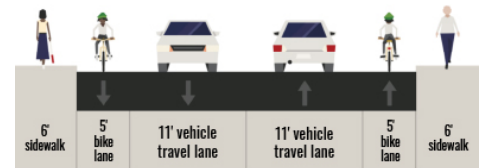
Local, neighborhood roads with low speeds and low volumes require the least degree of intervention to be safe and comfortable for active transportation users. ADA-compliant sidewalks connect homes to destinations and recreation, while bicycle boulevards, or shared lanes, can accommodate both cars and bicycles.

For roads selected to be bicycle boulevards, traffic calming features should be considered on a case-by-case basis to promote slow speeds and increase awareness of non-motorists.

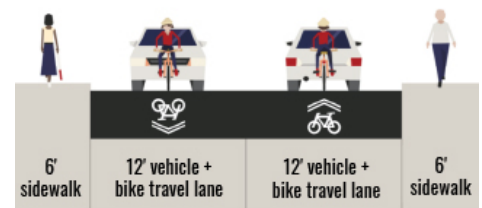
In areas with higher housing density to proximity to schools or other recreational or care facilities, a shared use path can be considered to accommodate and protect pedestrians and bicyclists.



SHARED USE PATH



NON-BUFFERED BIKE LANES



SHARED LANES



# 7. Active Transportation Network

The culmination of the ATP is proposed networks of sidewalks and bicycle accommodations strategically located to make it easier to walk, bike, and roll around Andover. As the proposed treatments are adopted, downtown destinations, recreational facilities, and everyday errands will become more accessible to users of many different modes.

## Sidewalk Network

Andover's sidewalk network was developed to provide facilities for pedestrians along corridors where travel speeds and volumes do not safely allow pedestrians to walk or roll within or alongside the roadway, as well as in locations where the potential for walkable trips is highest.

A 10-minute walk—equivalent to approximately ½ mile for an able-bodied person—is the average distance most people are willing to walk to reach a destination; as such, ½ mile buffers were considered from various destinations in town when developing the sidewalk network.\*

Following this approach, the proposed sidewalk network includes sidewalks in the following locations:

- Along arterial & collector roadways
- Along MeVa bus routes
- Within ½ mile walksheds of the following destination types:
  - Community resources
  - MeVa bus stops & MBTA train stations
  - Schools & colleges
  - Recreation areas
- Where public comments indicated the demand for sidewalks exist

The resulting network is shown on the right in Figure 7 and compared to the existing sidewalk network in Figure 8.

Additional mapping documenting the step-by-step process taken to develop the sidewalk network is provided in Appendix B.

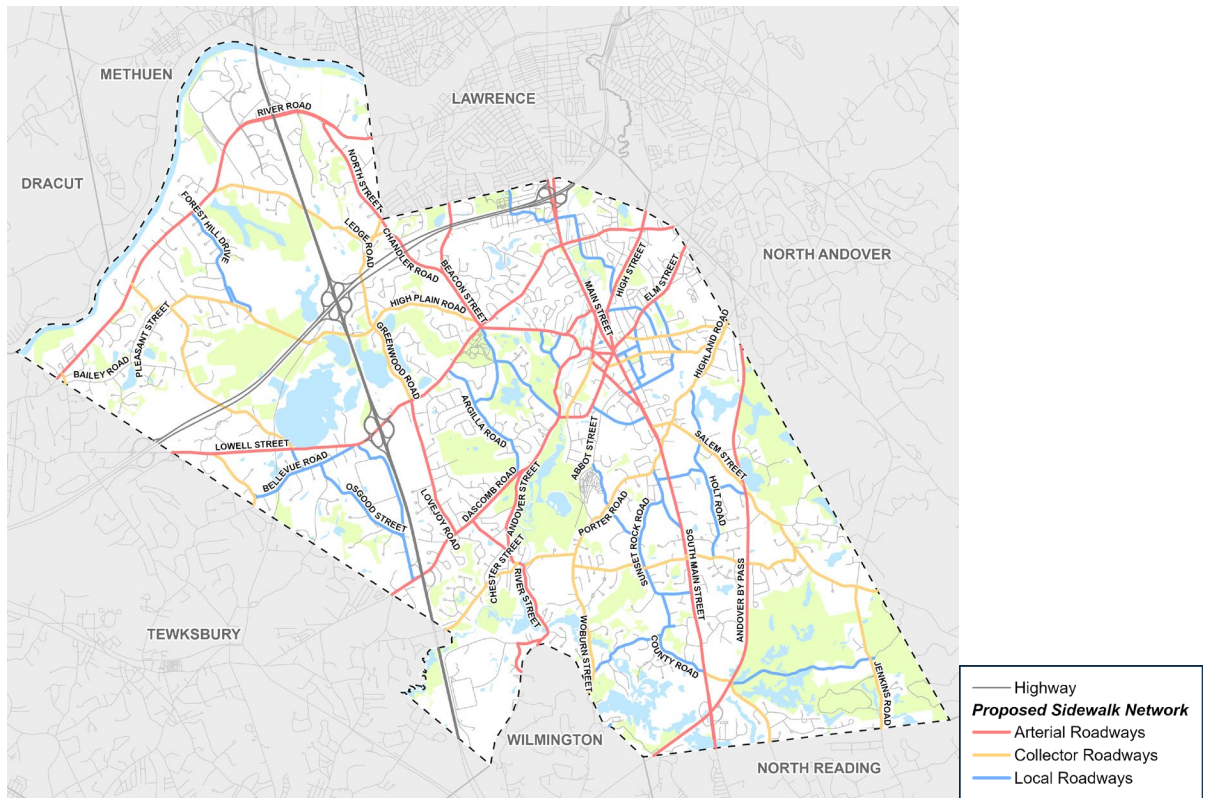


Figure 7 - Proposed Sidewalk Network by Roadway Type

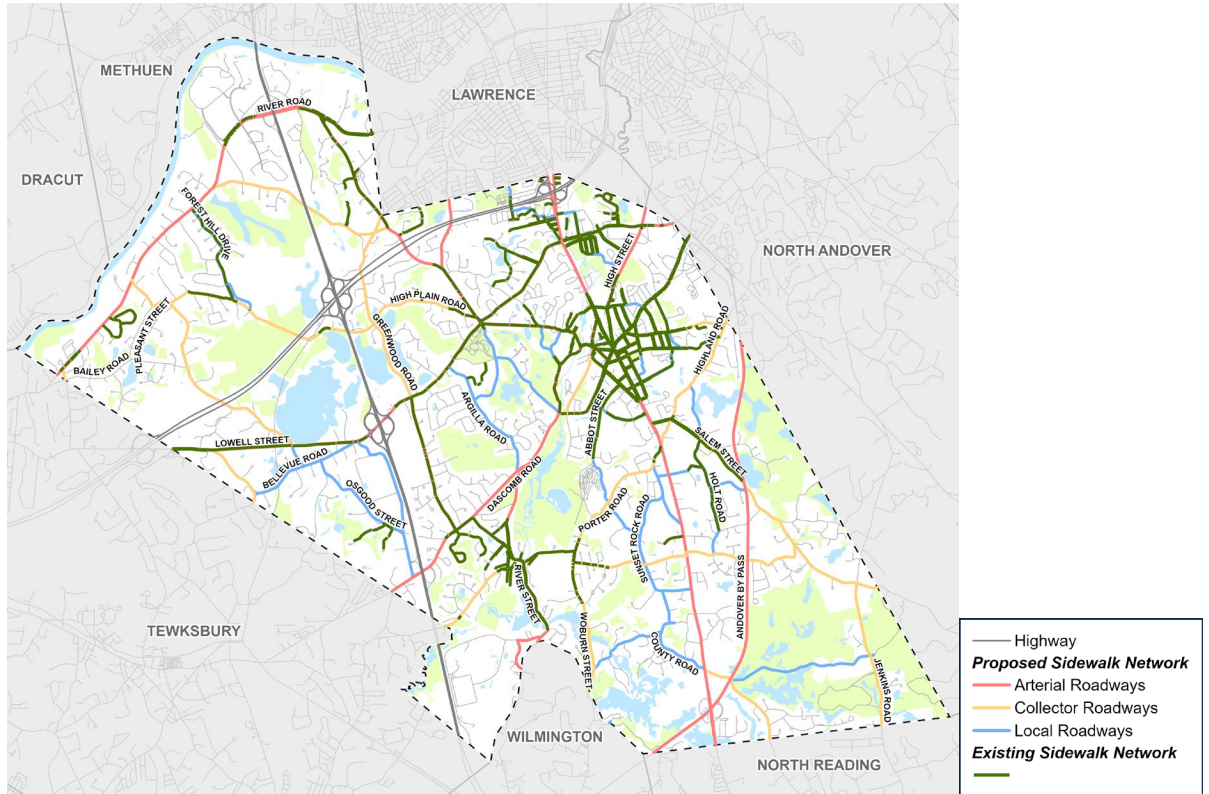


Figure 8 – Comparison of Proposed and Existing Sidewalk Networks

# Active Transportation Network Cont'd

## Bicycle Network

Andover's bicycle network was developed to include bicycle facilities with increasing horizontal or vertical separation from vehicles with increasing traffic volumes and speeds.

Protected bicycle facilities are proposed for arterial roadways, the highest-speed, highest-volume roadways within town. Arterial roadways are often the most direct routes to destinations, but safety concerns deter non-motorists from travelling along those routes unless comfortable facilities are present.

Dedicated bicycle facilities are proposed on collector roadways that serve as important connections between different neighborhoods and destinations. Providing facilities along these roadways is necessary to make cycling a safe travel option to get people where they need to go.

Bike facilities are also proposed within a one-mile radius of various destinations in town – the estimated distance of a 10-minute bike ride.

Following this approach, the proposed bicycle network includes bicycle facilities in the following locations:

- Along arterial & collector roadways
- Within 1-mile bikesheds of the following destination types:
  - Community resources
  - MBTA train stations
  - Schools & colleges
  - Recreation areas
- Where public comments indicated the demand for bike facilities exist

Note that bicycle facilities are not proposed along dead-end local roadways due to their inherently low traffic volumes and speeds.

Additional mapping documenting the step-by-step process taken to develop the bicycle network is provided in Appendix C.

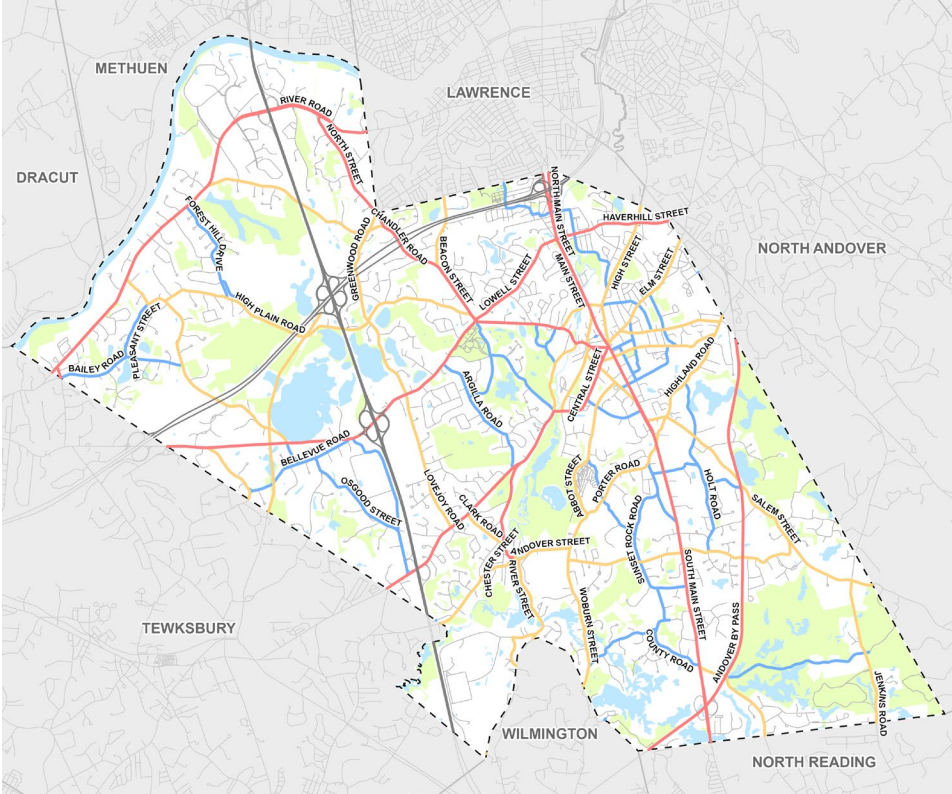
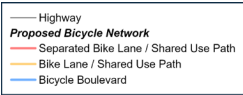


Figure 9 - Proposed Bicycle Network by Bike Facility Type



# 8. Intersection + Amenities Toolbox

In addition to providing appropriate facilities along corridors, there are various tools that can be used to make active transportation **more comfortable, safe, and convenient** for all users.

The following are some intersection treatments and amenities that can be incorporated into active transportation projects to better promote their use by the community.



## Curb Ramps

Curb ramps make active transportation facilities accessible to users of all abilities by sloping the sidewalk/curb to meet the roadway at crosswalks and intersections. Eliminating the need to step up and down onto the curb makes sidewalk facilities easier to use for those with mobility restrictions.



## Curb Extensions/Bumpouts

Curb extensions, or “bumpouts”, reduce the crossing distance for pedestrian crossings and slow vehicles entering the intersection. By reducing pedestrian time in potential conflict areas, increasing their visibility, and slowing oncoming cars, curb extensions improve the safety of crossing a street.



## Reductions in Curb Radii

Reducing curb radii refers to extending curb at intersections into the road in order to create a sharper curve for right-turning vehicles. Sharper turns slow down right-turning vehicles, improving the safety of this potentially dangerous vehicle-pedestrian conflict.



## Refuge Islands

Refuge islands provide a protected space in the middle of a road for crossing pedestrians. Particularly in cases of wide or busy roads, refuge islands improve safety by allowing pedestrians to cross shorter distances and only one vehicle direction at a time.



## Daylighting

Daylighting is the practice of removing parking spaces immediately before intersections to improve visibility. Parked cars at intersections force waiting vehicles to encroach into crosswalks in order to see opposing traffic, undermining pedestrian safety.

Image Source: <https://nacto.org/publication/urban-street-design-guide/intersection-design-elements/visibility-sight-distance/>



## Rectangular Rapid Flashing Beacons (RRFBs)

RRFBs are a tool to increase pedestrian safety by adding an additional layer of visibility by drawing motorist attention to crosswalks via pedestrian-activated flashing lights. RRFBs significantly increase the likelihood of drivers yielding to pedestrians and are a useful tool at midblock crosswalks or crosswalks with a higher percentage of vulnerable users, such as near schools.



## Pedestrian Signal Improvements

Pedestrian signal improvements involve improving the consistency of pedestrian facility type and location. When crosswalk push buttons are in a reliable location and can provide visual, tactile, and audio information, they become easier to use for everyone.

# Intersection + Amenities Toolbox Cont'd



## High-Visibility Crosswalks

Clear pavement markings and signage ensure there is no ambiguity about the presence of a pedestrian crossing. Improving visibility increases the likelihood of motorists yielding to pedestrians at crosswalks.



## Protected Intersections

Protected Intersections combine multiple safety features such as refuge islands, buffered bike lanes, and curb bump outs to improve safety for all modes. Crashes often occur at intersections, and the potential for crashes can be lowered by reducing speeds and eliminating conflict points between motorists and active transportation users.



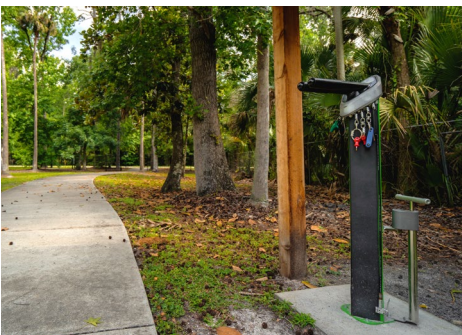
## Two-Stage Turn Boxes

Two-stage turn boxes create a paint-delineated space for cyclists who are riding in a right-side bike lane and want to turn left without merging into traffic. The box turns the left turn into a two-stage crossing, prioritizing visibility to achieve cyclist safety.



## Bike Parking

Bike parking is essential for enhancing the convenience of bike trips by providing secure and accessible locations for those biking to store their bikes safely. Installing bike parking at key destinations, such as the downtown, schools, and parks can further promote active transportation within town.



## Bike Repair Stations

Bike repair stations are a great way to enhance bike convenience by providing those biking with access to tools and equipment needed for basic repairs and maintenance on the go. Strategically located repair stations can empower cyclists to address minor issues quickly, promoting confidence in bike commuting and ensuring smoother, more reliable journeys.



## Wayfinding

Wayfinding is an important feature to help those walking, biking, or rolling navigate efficiently and safely through urban environments, reducing the risk of getting lost or encountering hazards.

Clear signage and intuitive design empower individuals to make informed decisions about routes, promoting active transportation and enhancing overall mobility.

Image Source: <https://nacto.org/publication/urban-bikeway-design-guide/bikeway-signing-marking/bike-route-wayfinding-signage-and-markings-system/>

# 9. Measuring Success

## Why are Evaluation Metrics Important?

Attaching performance metrics to the goals outlined in this Plan is essential for measuring progress.

These metrics help justify funding, refine strategies, and align projects with broader sustainability, health, and equity goals. Without clear evaluation criteria, it's difficult to gauge the success of an ATP or make data-driven decisions for future improvements.

Conventional transportation measures, focused on automobile movement, have resulted in projects that expand roadway capacity and speed. The adoption of an ATP requires a shift in evaluation metrics toward measures that reflect multimodal needs to the level of the individual. Shifting to a more comprehensive evaluation framework enables agencies to track the actual impact of investments and refine future planning efforts.

### Andover's Evaluation Metrics

Andover's ATP incorporates evaluation metrics in two key categories:

- Complete Streets Policy Metrics, to assess infrastructure improvements and safety outcomes
- Climate Action Plan Metrics, to measure progress in reducing vehicle dependency and promoting sustainable mobility.

The tables on the following page outline the specific metrics used in each category.

By systematically tracking these metrics, Andover can ensure that transportation investments lead to tangible outcomes in improving multimodal infrastructure access and advancing broader sustainability goals.

## Complete Streets Policy Metrics

Metric	Description
Linear Feet of Sidewalks	New or reconstructed sidewalks
Miles of Bicycle Facilities	New or restriped on-street bike lanes
Curb Ramp Improvements	Number of new or reconstructed curb ramps
Crosswalk Enhancements	Number of new or repainted crosswalks
Street Canopy Coverage	Number of new street trees & percentage of streets with canopy
Intersection Safety Upgrades	Number of intersection improvements of each type, including marked crosswalks, pedestrian islands, curb extensions, countdown signals, accessible curb ramps, or accessible pedestrian signals
Crash Reduction	Rates of crashes, injuries, and fatalities by mode
Public Satisfaction	Customer preference survey results on safety and accessibility
Speed Reduction	Percent of drivers exceeding the speed limit on identified corridors

## Climate Action Plan Metrics

Metric	Description
Active Transportation Mode Share	Percentage of trips taken on foot or by bike
Vehicle Miles Traveled (VMT) Reduction	Reduction in vehicle miles traveled by household
Residential EV Charging Access	Number of apartment/condo complexes with EV chargers
Workplace EV Charging Access	Number of workplaces with EV charging stations
Municipal Fleet Electrification	Percentage of light- and medium-duty EVs in municipal fleet



# Appendix A

## Public Comments + Survey Results

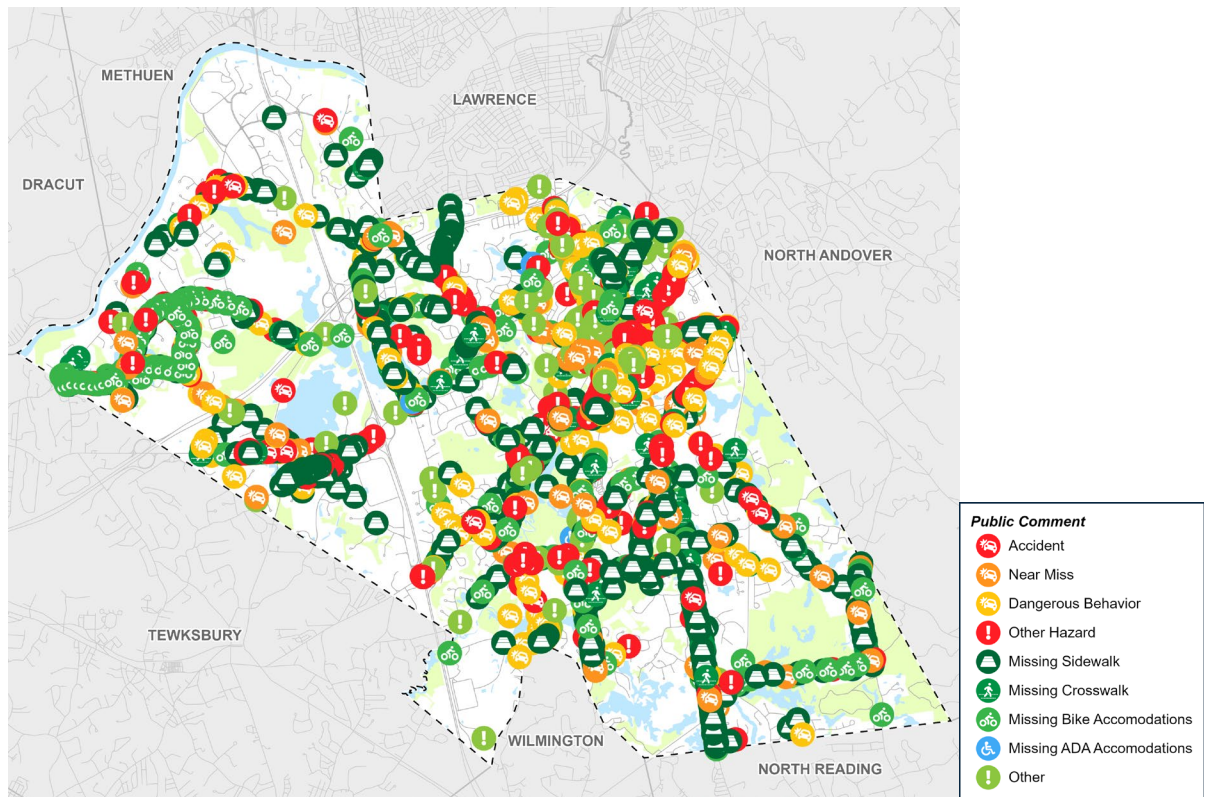


Figure 10 - Online Comment Map Results

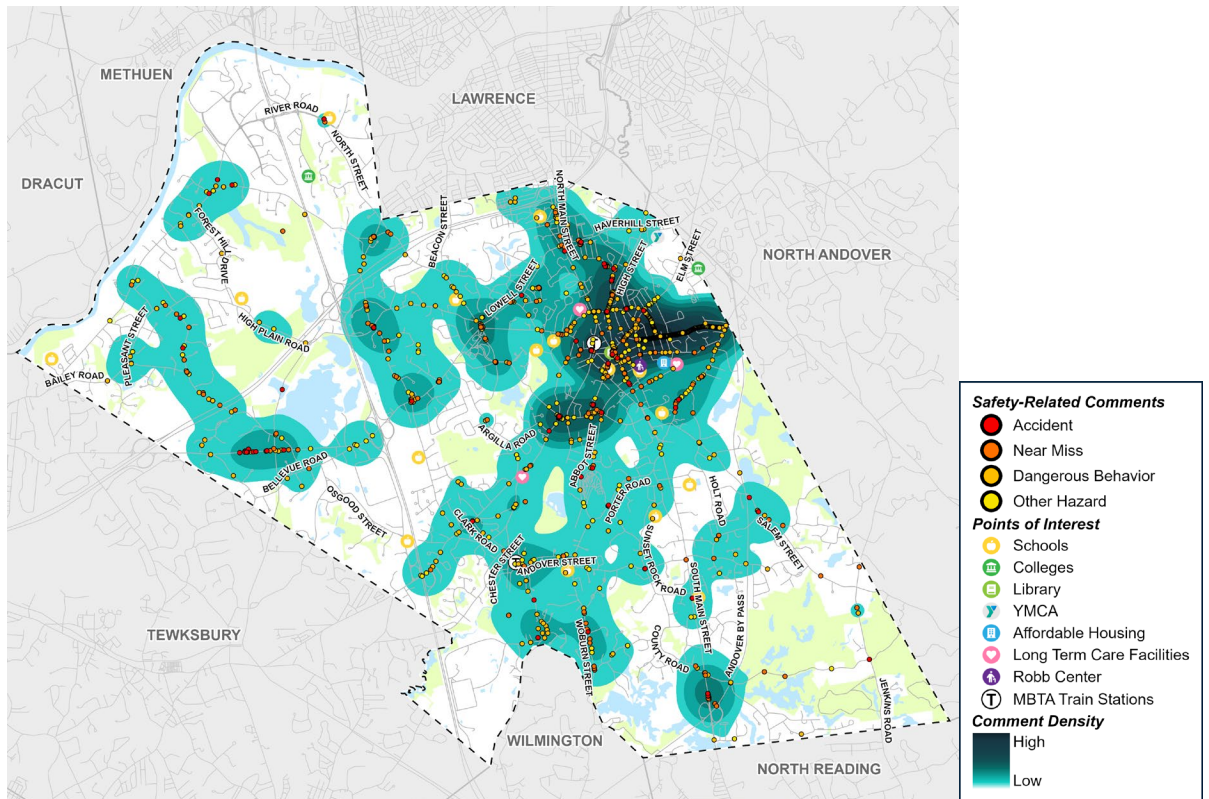


Figure 11 - Heat Map of Safety-Related Comments

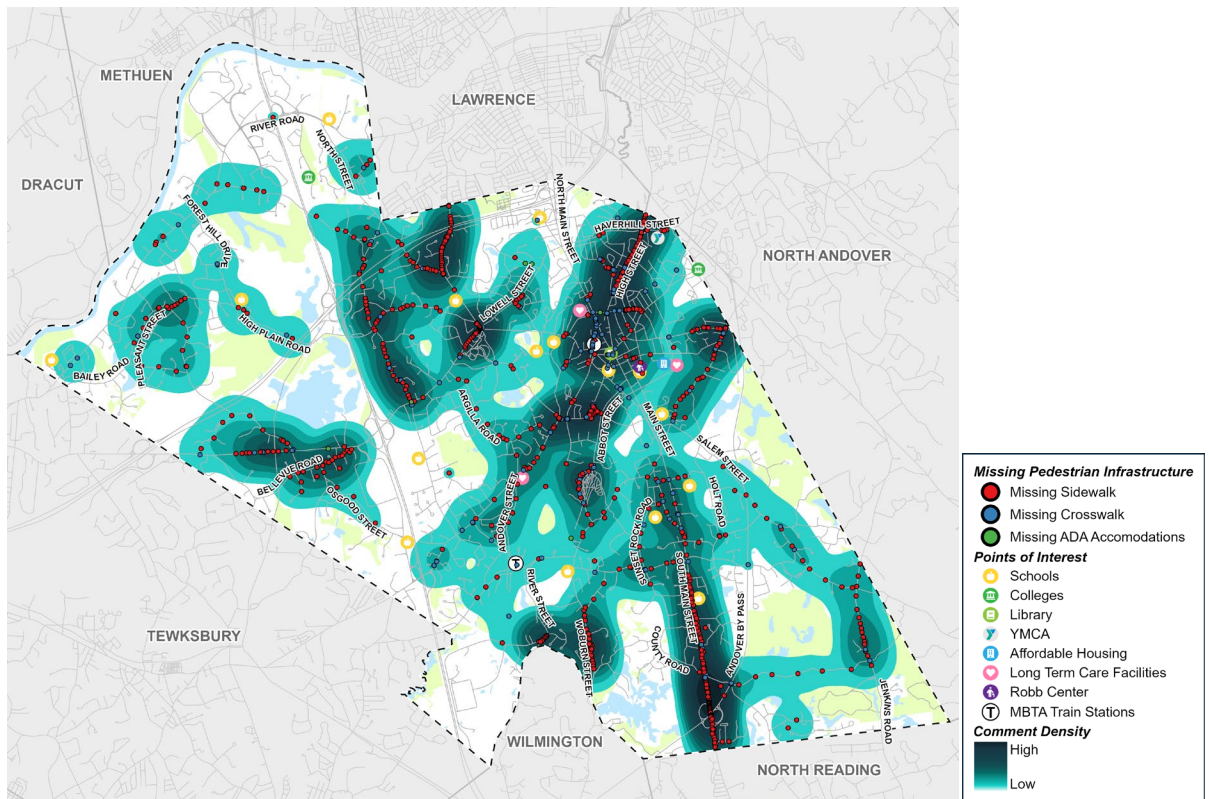


Figure 12 - Heat Map of Comments related to Missing Pedestrian Accommodations

# Appendix A - Public Comments + Survey Results

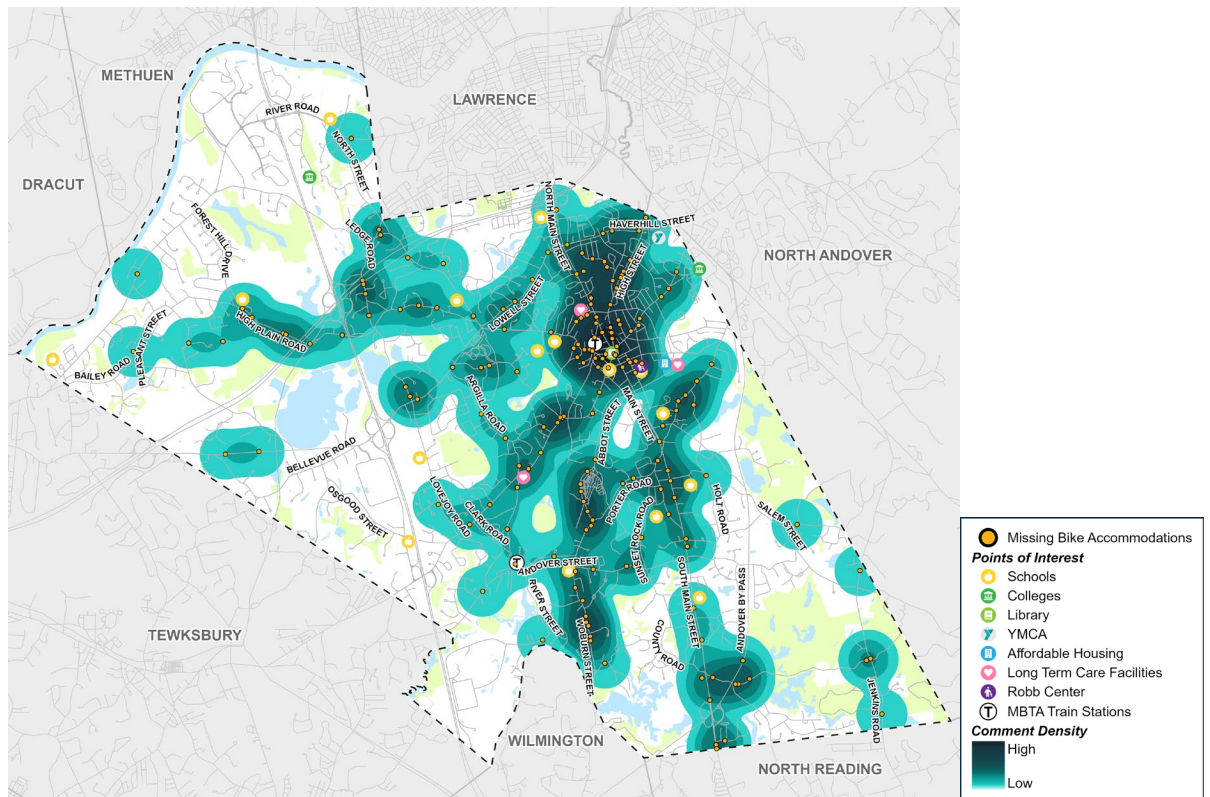


Figure 13 - Heat Map of Comments related to Missing Bike Accommodations

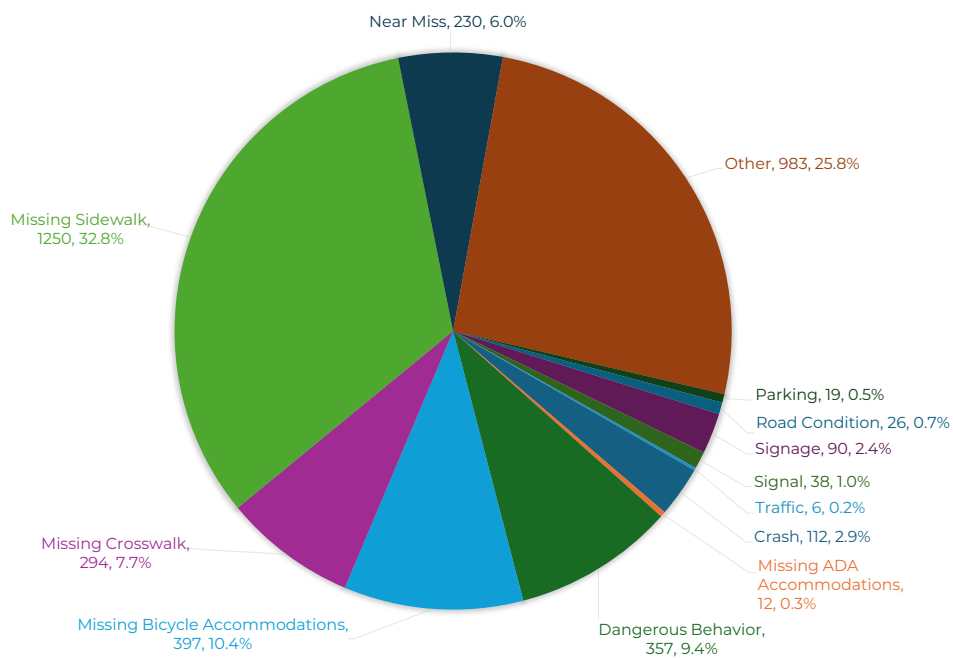


Figure 14 Comments Received through the Online Comment Map by Category

## SURVEY RESULTS

HOW OFTEN DO YOU TRAVEL...

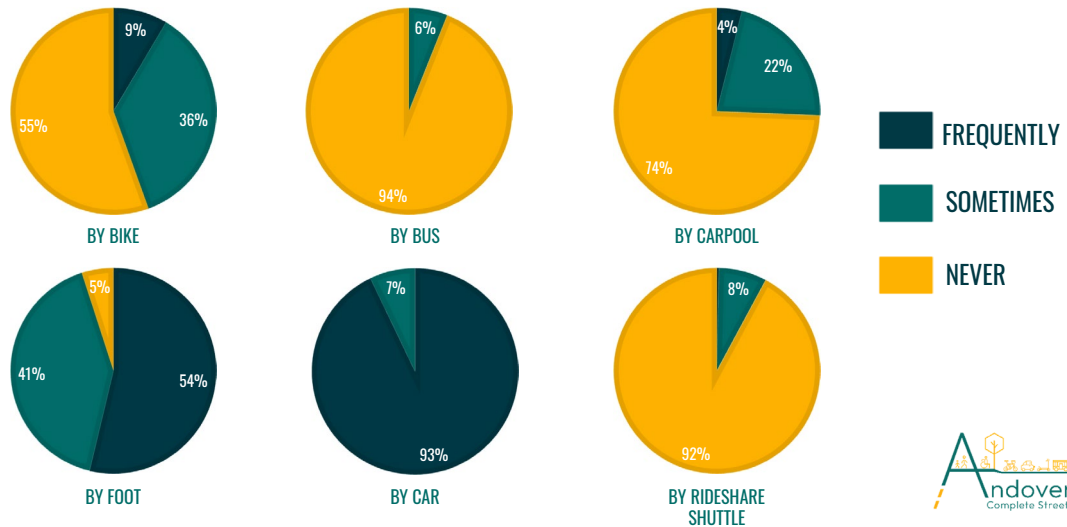


Figure 15 – Survey Results: Existing Travel Modes

## SURVEY RESULTS

SCHOOL TRAVEL

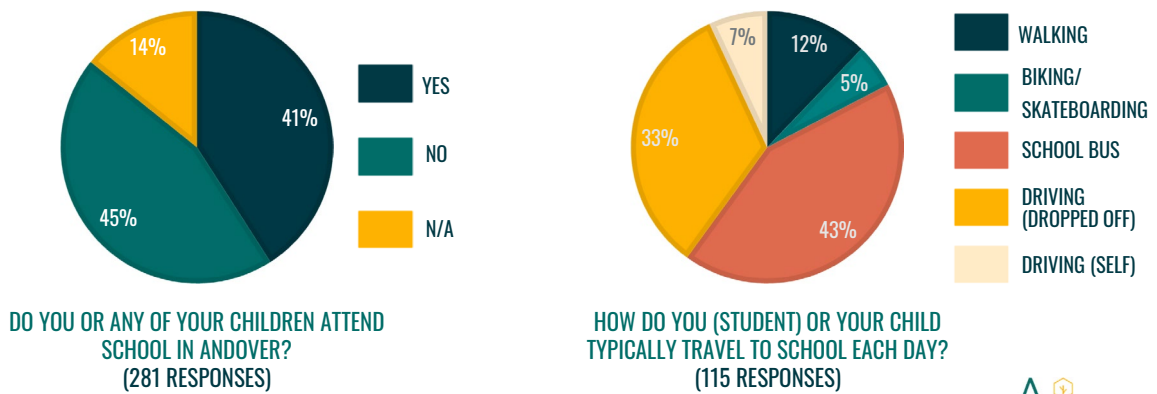


Figure 16 – Survey Results: Existing Travel Modes for School Trips

281 RESPONSES

## SURVEY RESULTS

HOW LIKELY WOULD YOU BE TO USE A BICYCLE FOR THE FOLLOWING TYPES OF TRIPS IF APPROPRIATE FACILITIES WERE PRESENT?

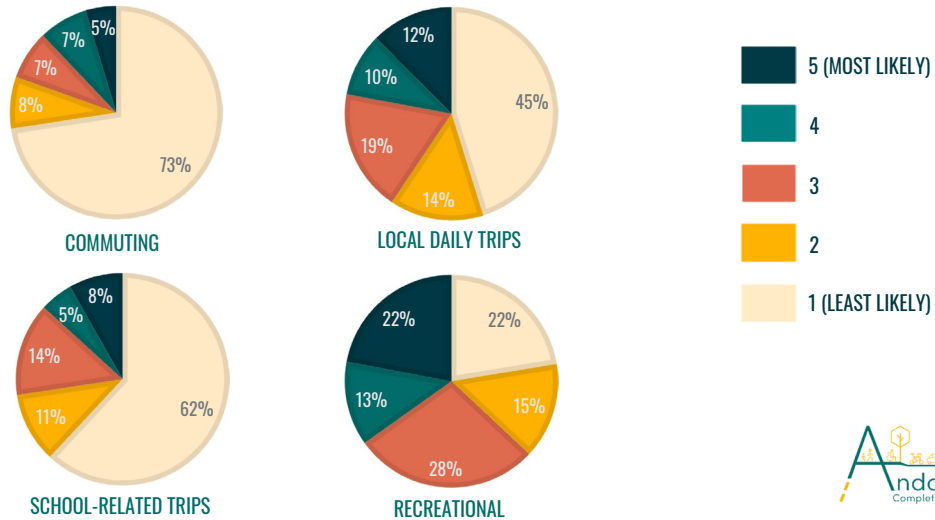


Figure 17 - Survey Results: Likelihood of using a Bicycle by Trip Type



## SURVEY RESULTS

RANK THE FOLLOWING TYPES OF BICYCLE FACILITIES FOR ARTERIAL ROADWAYS

281 RESPONSES

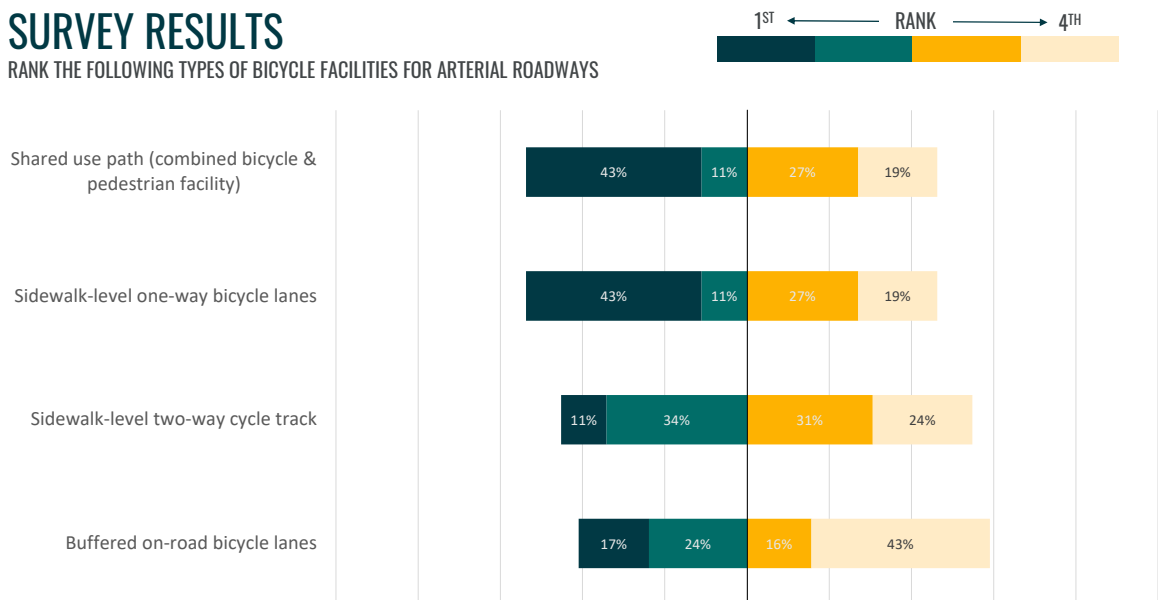


Figure 18 - Survey Results: Bike Facility Preferences for Arterial Roadways

281 RESPONSES

## SURVEY RESULTS

RANK THE FOLLOWING TYPES OF BICYCLE FACILITIES FOR COLLECTOR ROADWAYS

1<sup>ST</sup> ← RANK → 2<sup>ND</sup>

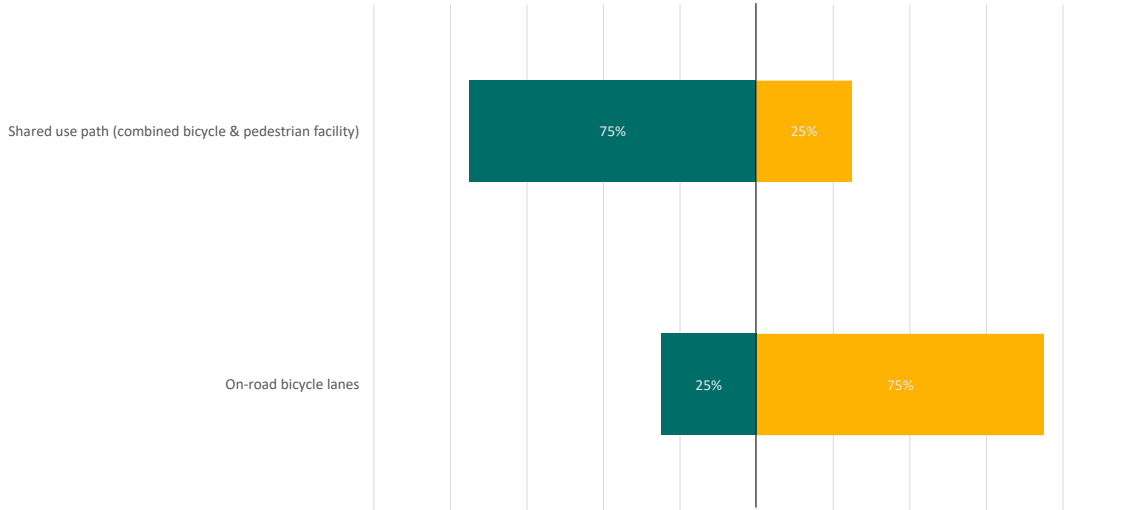


Figure 19 - Survey Results: Bike Facility Preferences for Collector Roadways

281 RESPONSES

## SURVEY RESULTS

THE TOWN SHOULD PRIORITIZE COMPLETE STREETS PROJECTS THAT...

1<sup>ST</sup> ← RANK → 10<sup>TH</sup>

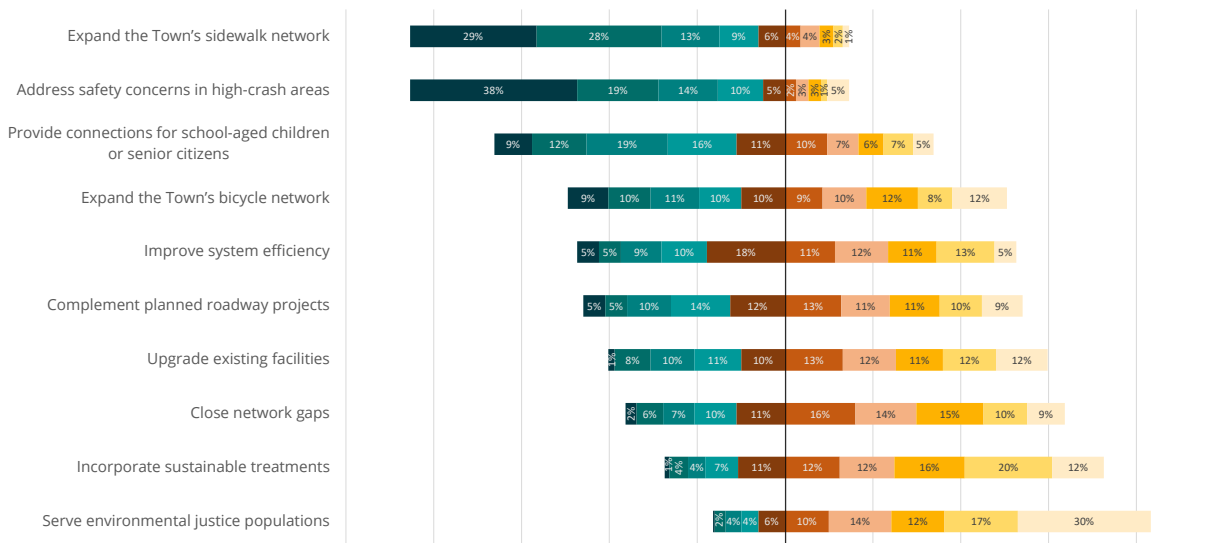


Figure 20 - Survey Results: Preferences for Project Prioritization

# Appendix B

## Additional Mapping of Pedestrian Network Development

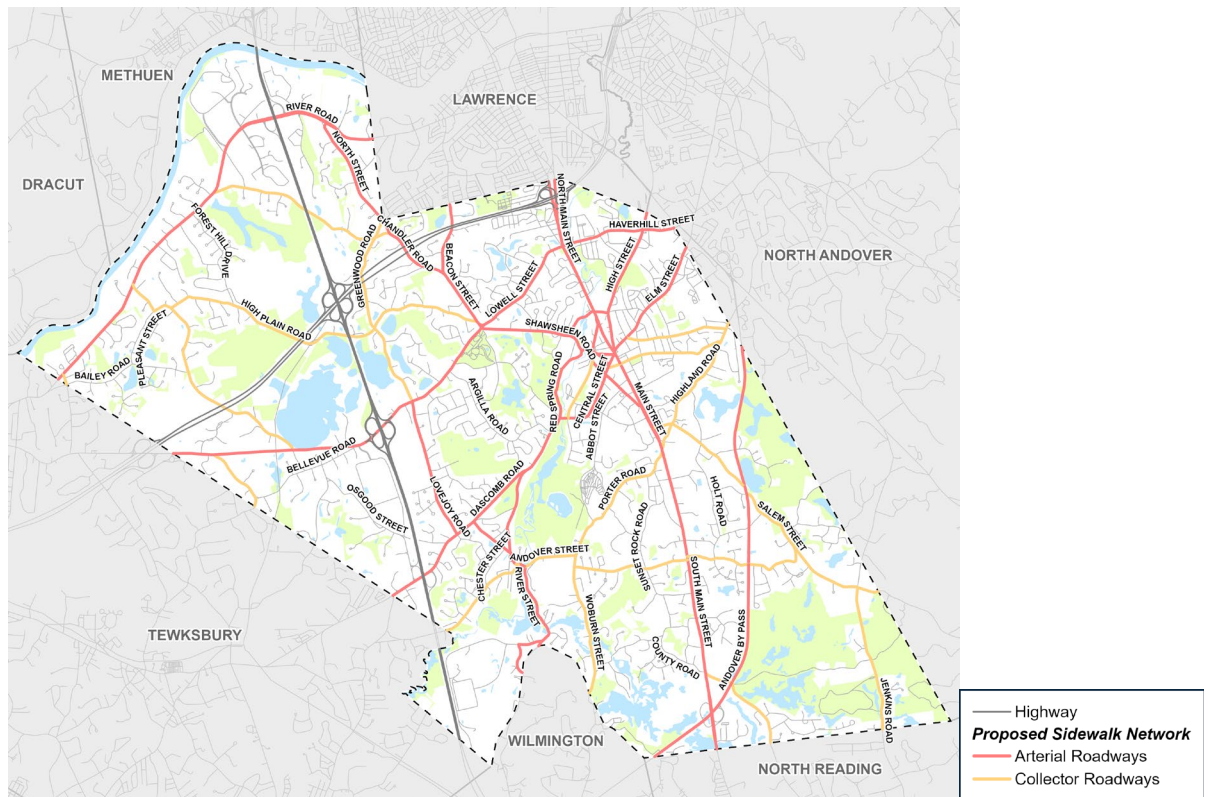


Figure 21 - Proposed Sidewalk Network along Arterial and Collector Roadways

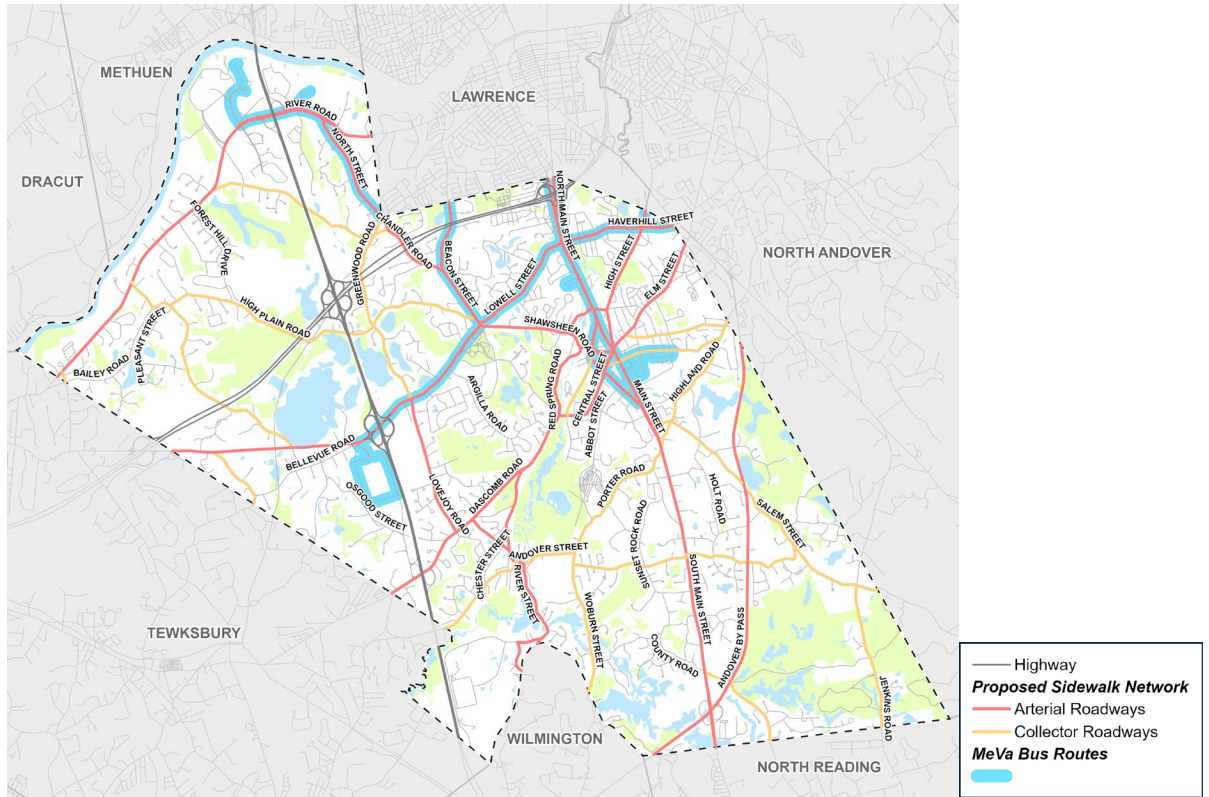


Figure 22 - Proposed Sidewalk Network along Bus Routes

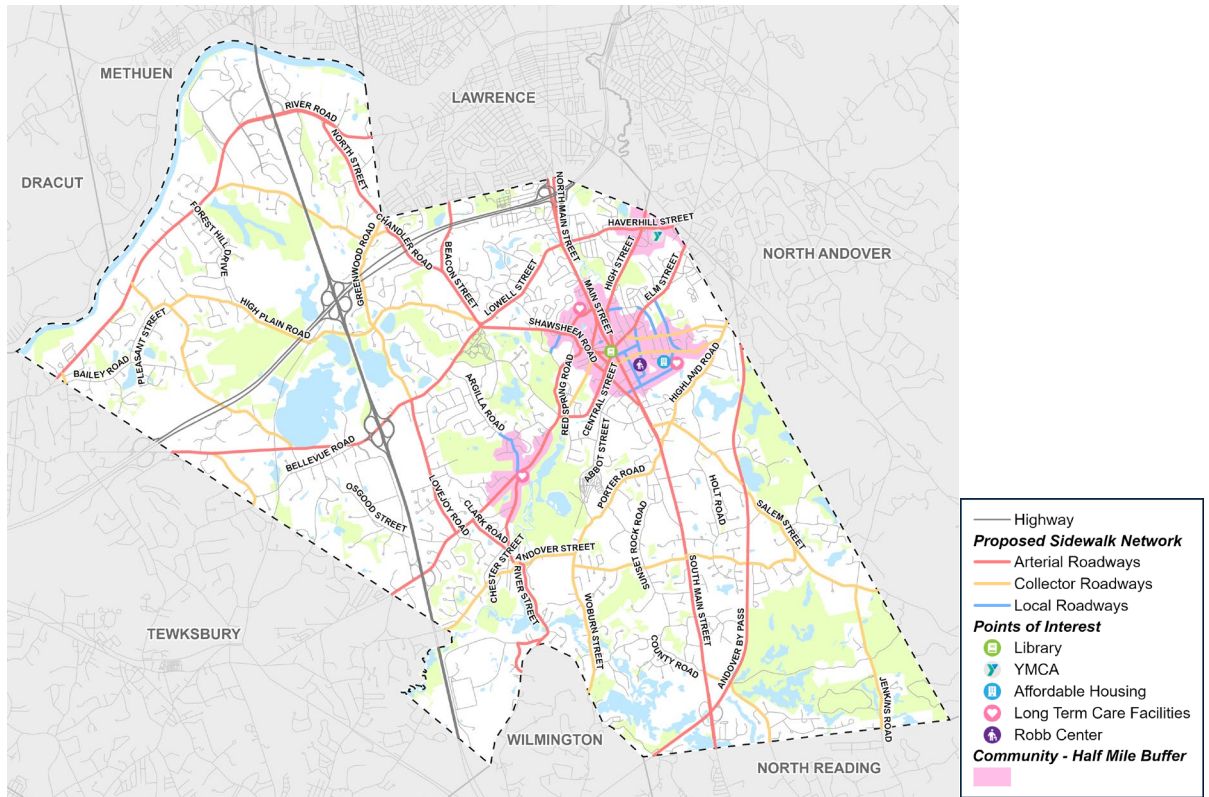


Figure 23 - Proposed Sidewalk Network within 1/2 Mile of Community Resources

# Appendix B - Additional Mapping of Pedestrian Network Development

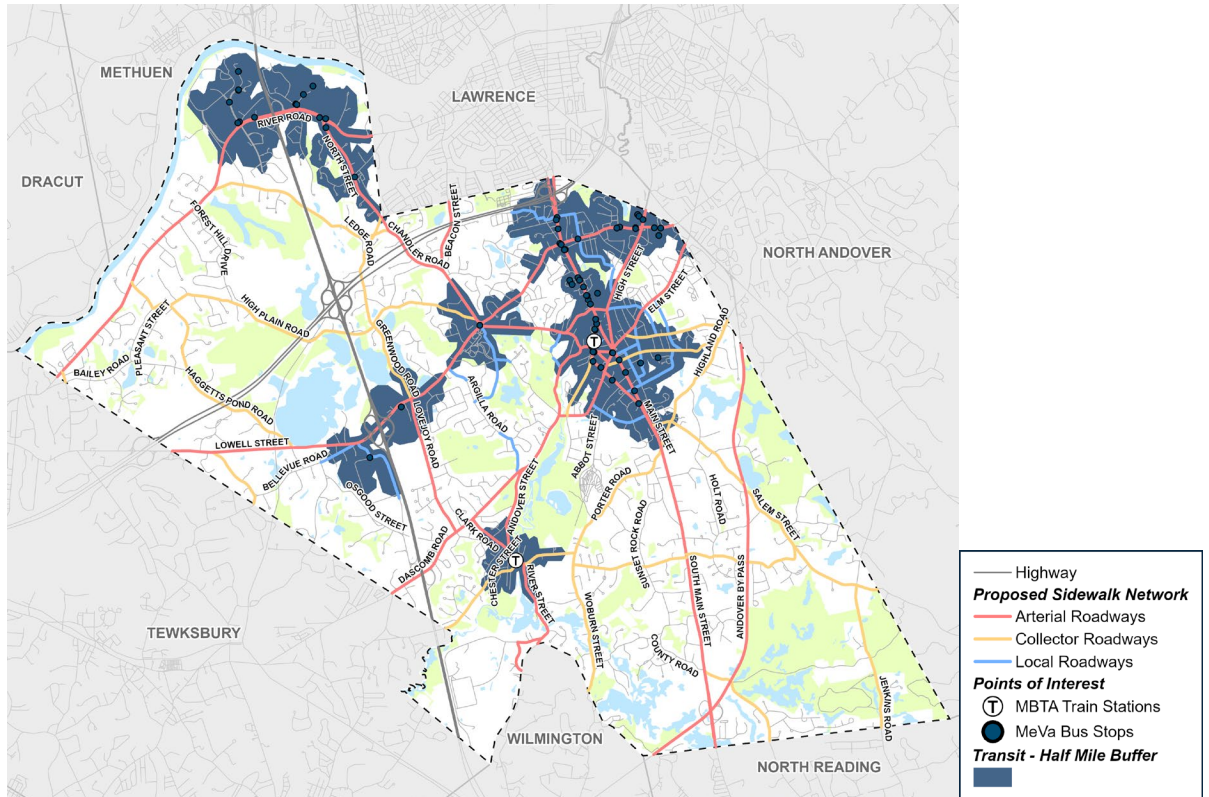


Figure 24 - Proposed Sidewalk Network within 1/2 Mile of Transit Stops & Stations

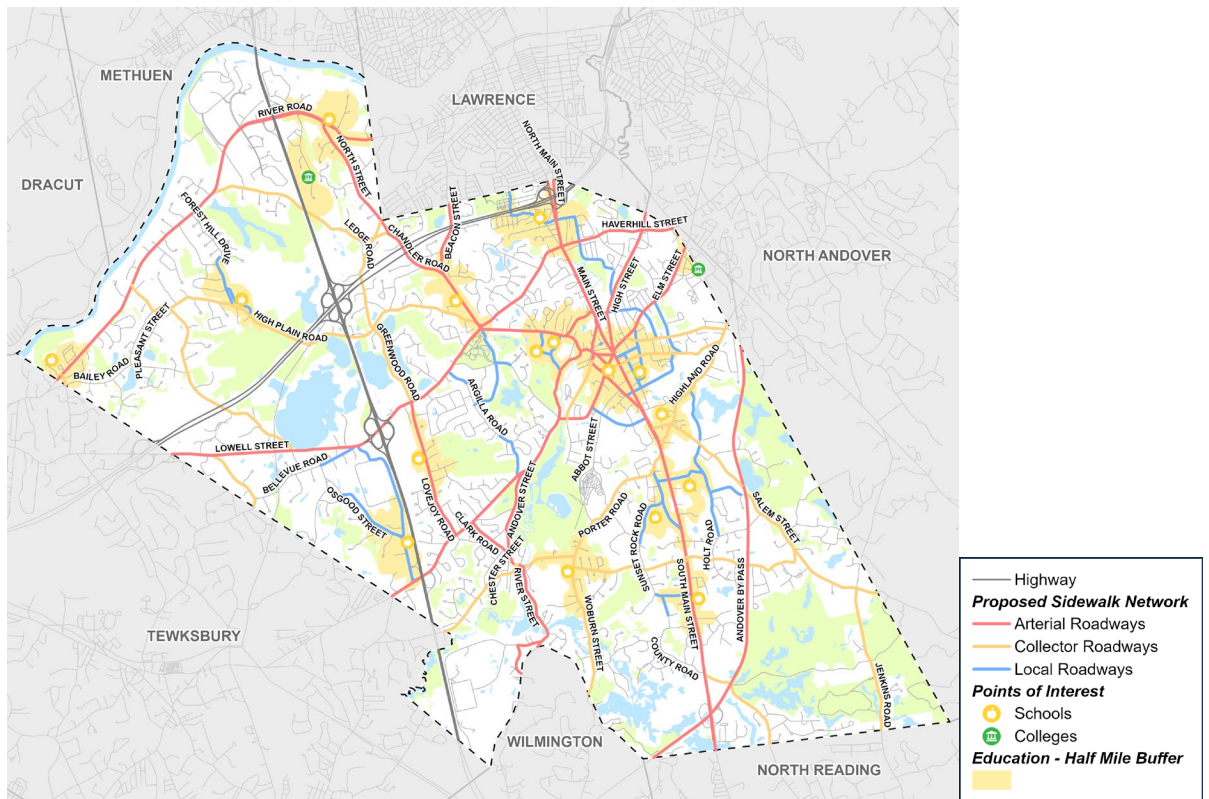


Figure 25 - Proposed Sidewalk Network within 1/2 Mile of Schools & Colleges

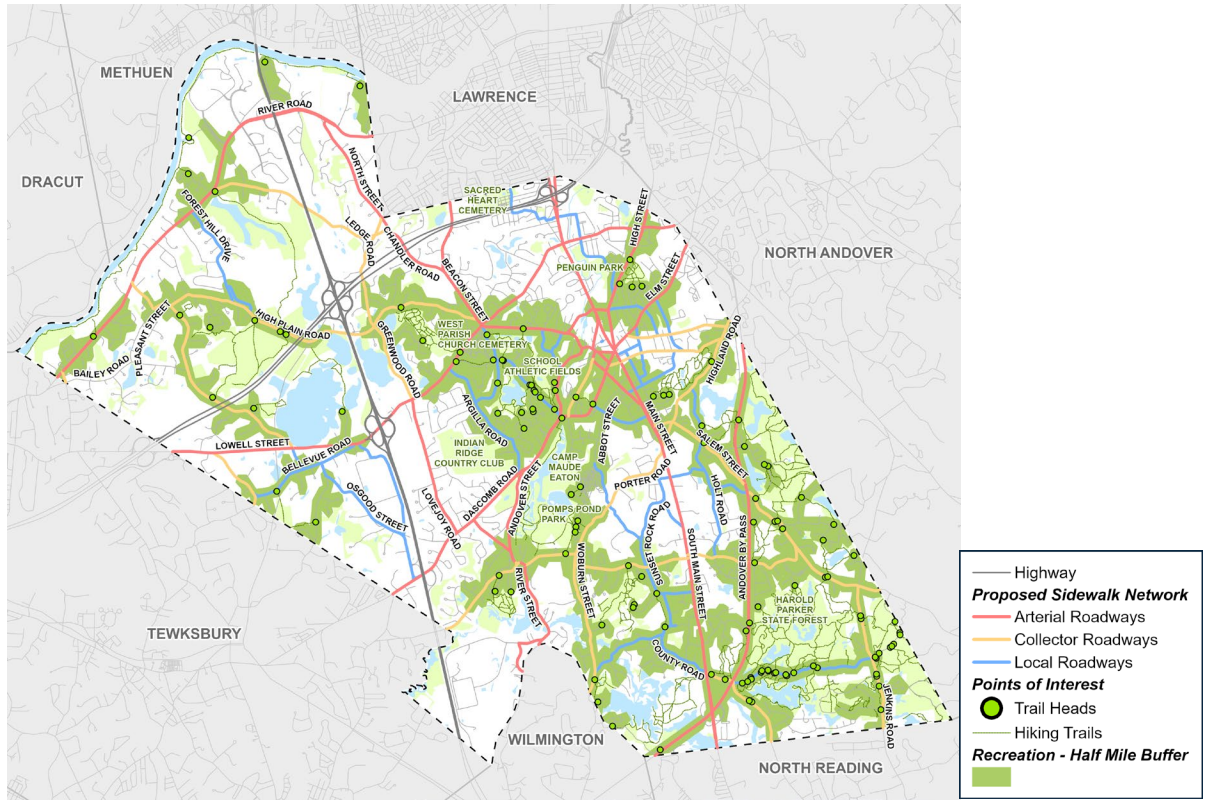


Figure 26 - Proposed Sidewalk Network within 1/2 Mile of Recreation Areas

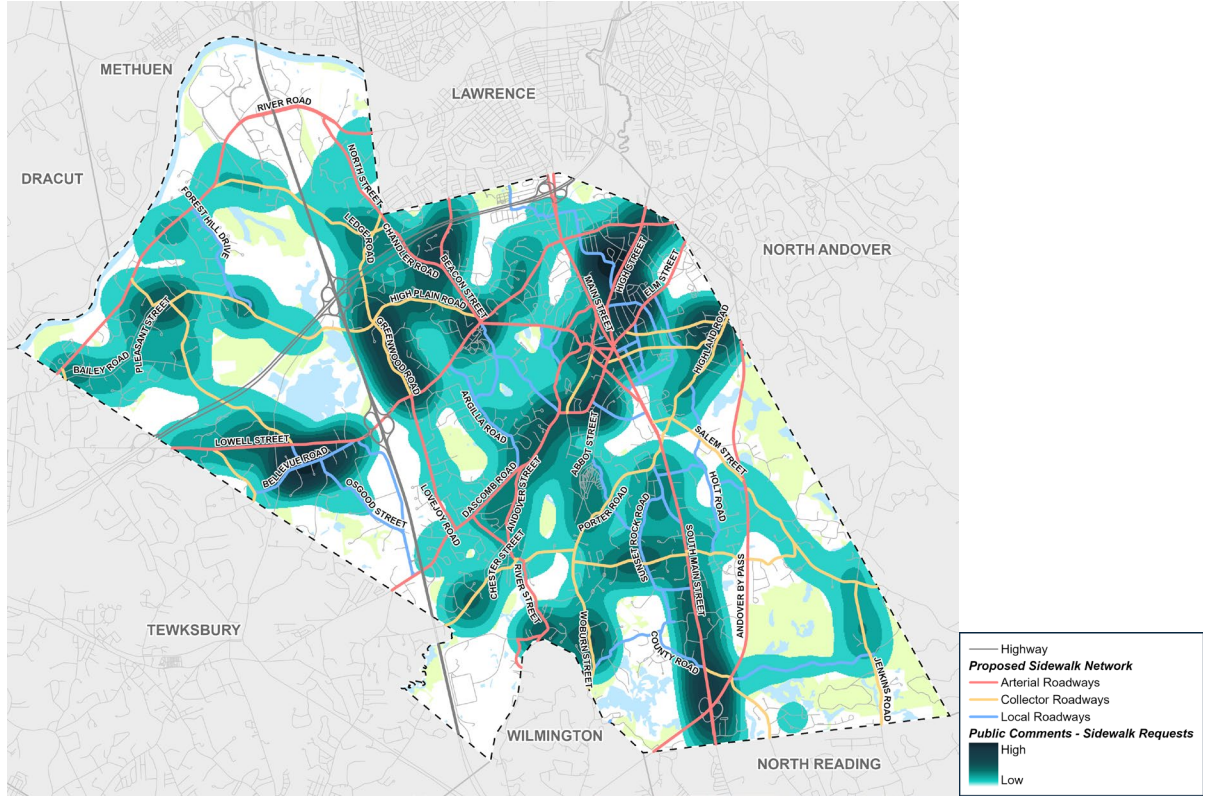


Figure 27 - Proposed Sidewalk Network Compared to Community Requests for Sidewalks

# Appendix C

## Additional Mapping of Bicycle Network Development

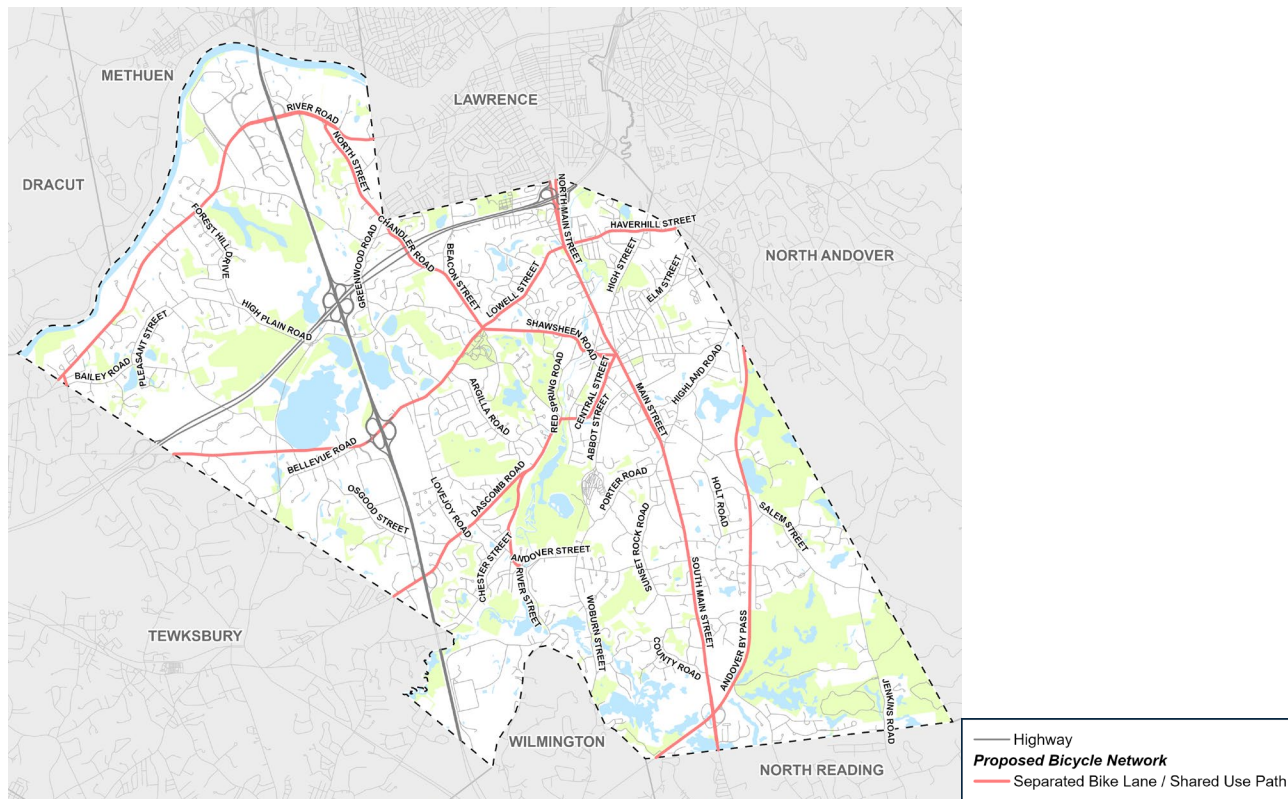


Figure 28 - Proposed Protected Bicycle Facilities along Arterial Roadways

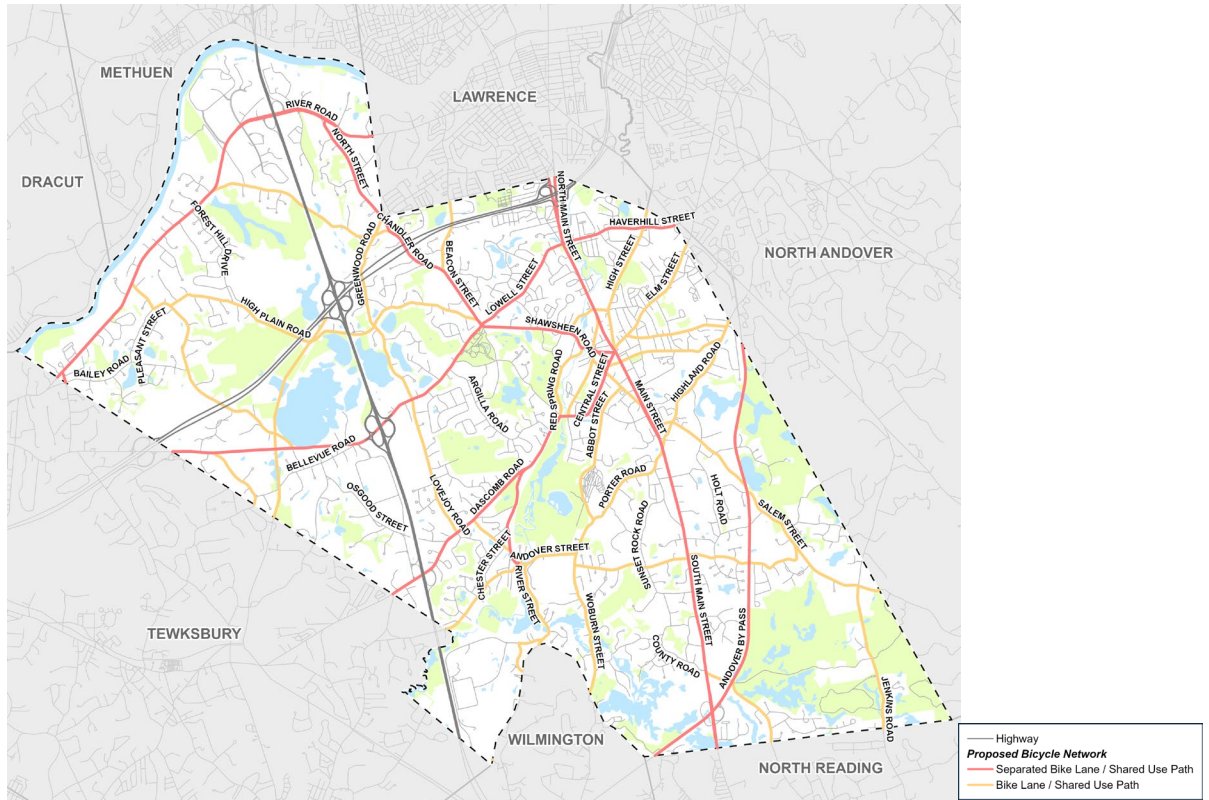


Figure 29 - Proposed Dedicated Bicycle Facilities along Collector Roadways

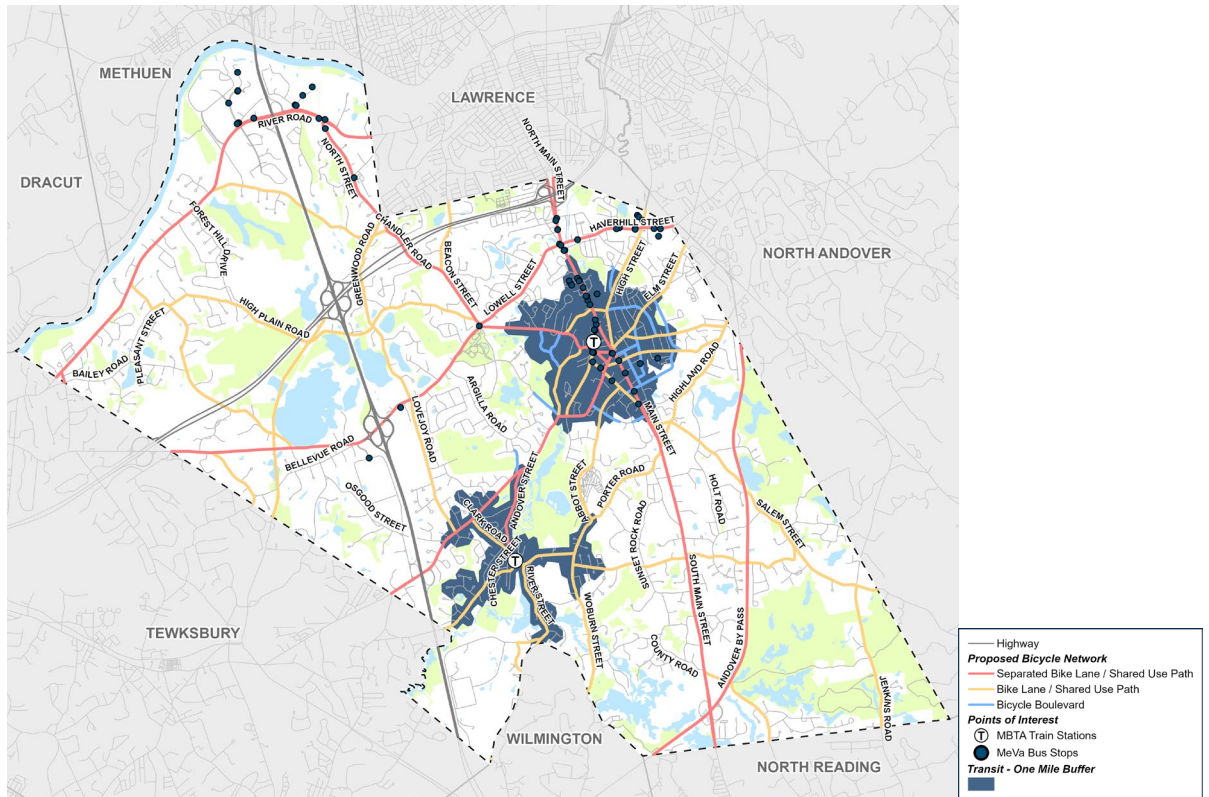


Figure 30 - Proposed Bike Boulevards within 1 Mile of MBTA Train Stations

# Appendix C - Additional Mapping of Bicycle Network Development

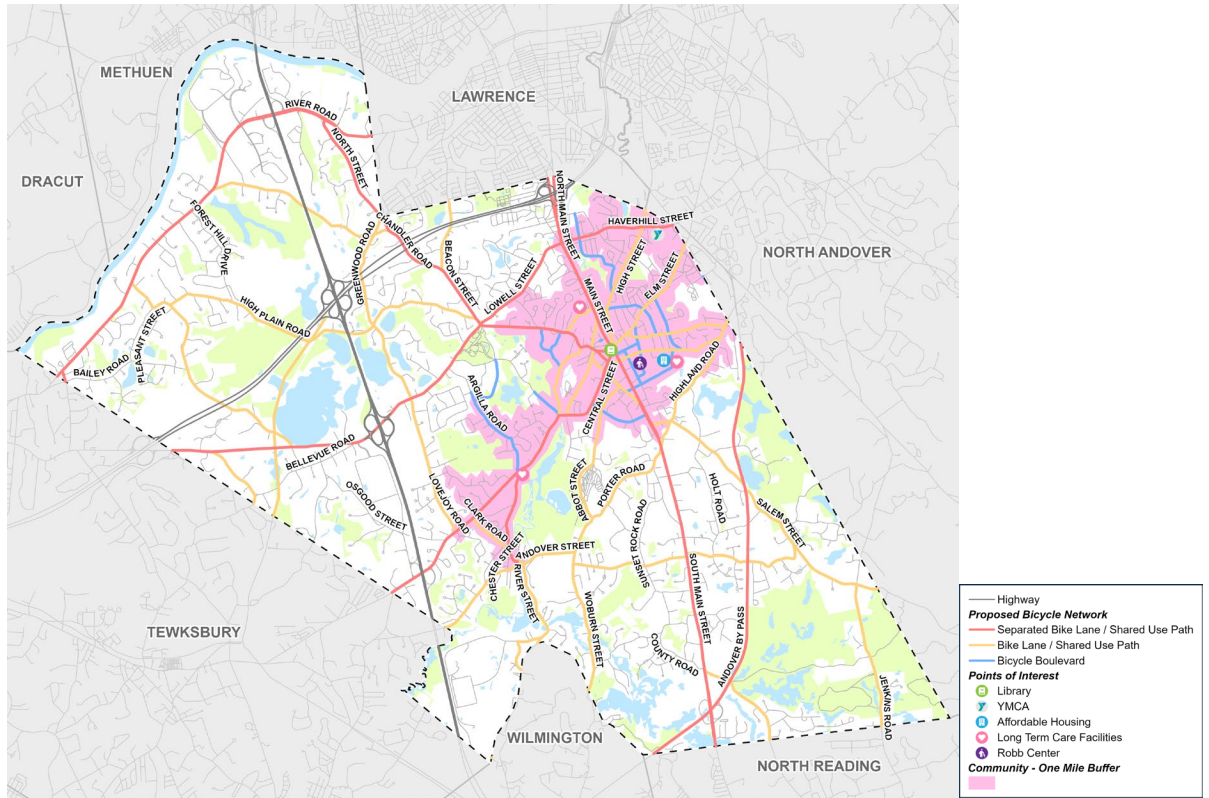


Figure 31 - Proposed Bike Boulevards within 1 Mile of Community Resources

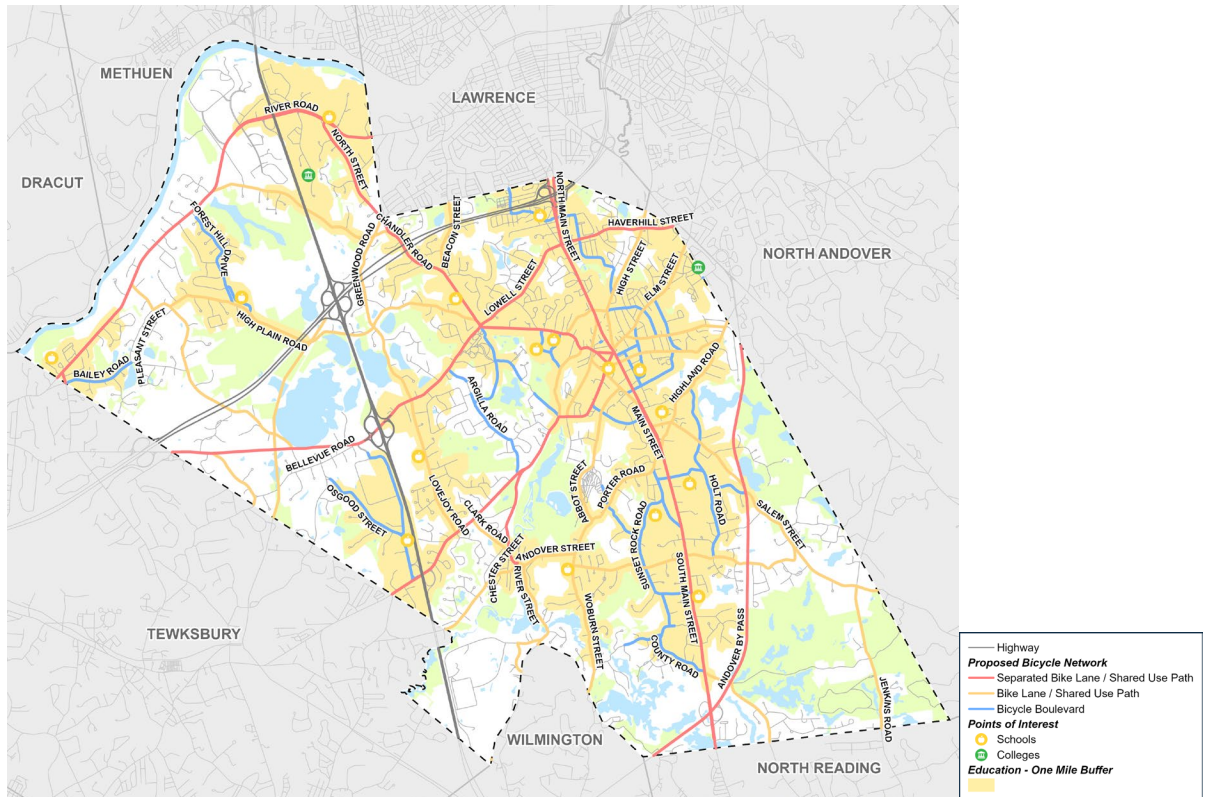


Figure 32 - Proposed Bike Boulevards within 1 Mile of Schools & Colleges

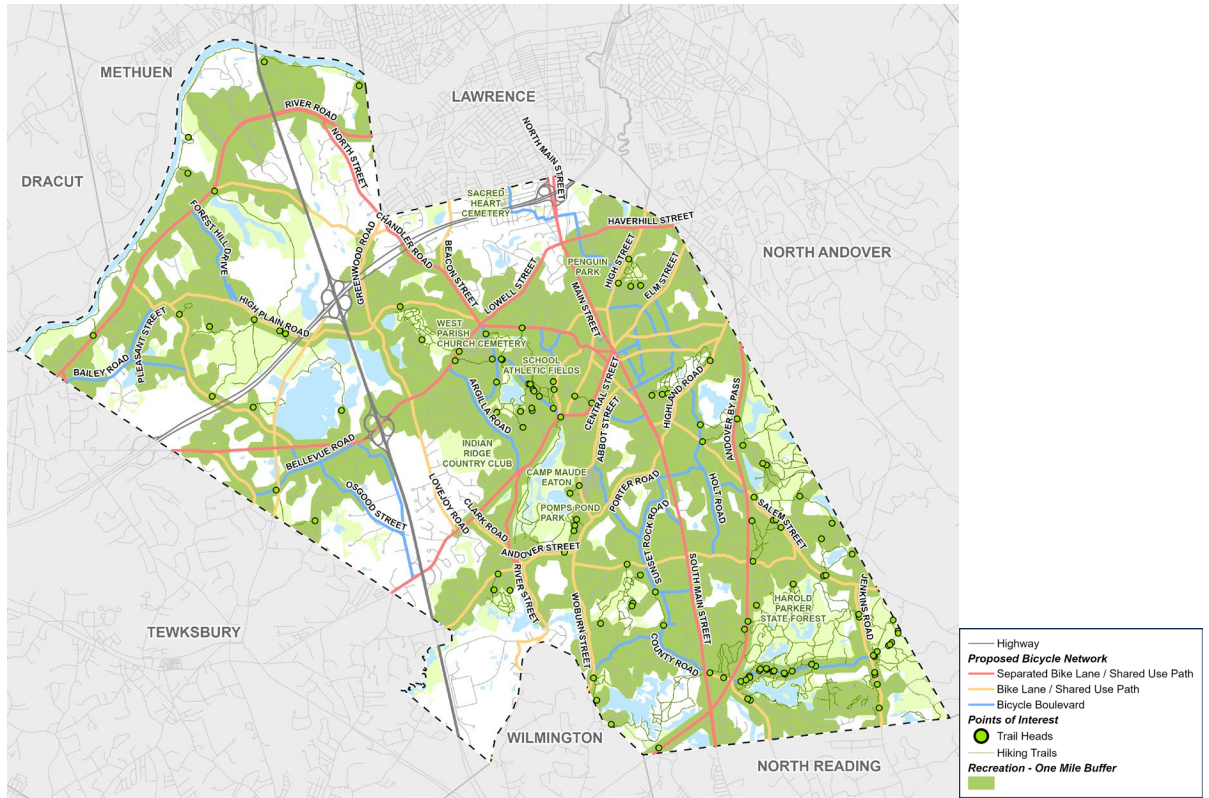


Figure 33 - Proposed Bike Boulevards within 1 Mile of Recreation Areas

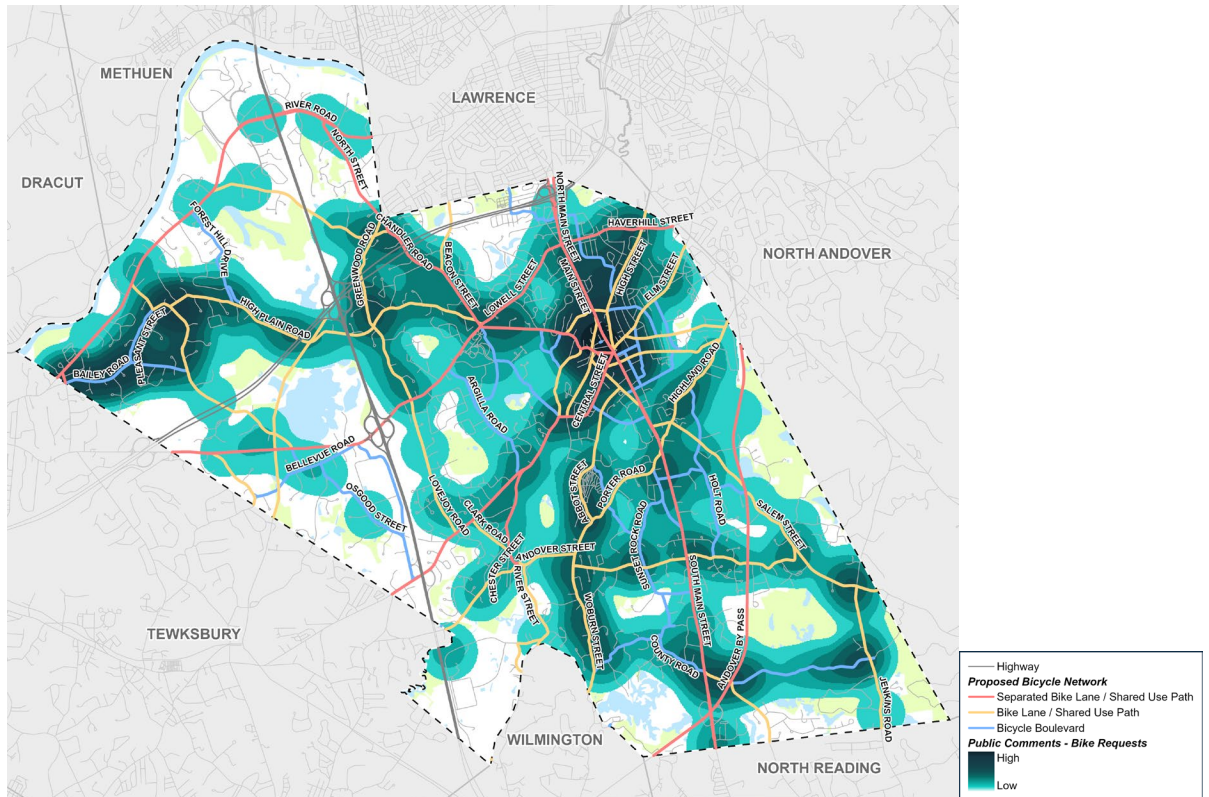


Figure 34 - Proposed Bike Network Compared to Community Requests for Bike Accommodations

# Appendix D

## Glossary

### **Active Transportation**

The transport of people or goods through non-motorized means, such as biking or walking.

### **Annual Average Daily Traffic (AADT)**

A measure of traffic volume, Average Annual Daily Traffic (AADT) is the total number of vehicles on a roadway for a year, divided by 365 days.

### **Arterial**

A class of roads serving major traffic movements (high-speed, high volume) for travel between major points.

### **Bikeshed**

The land area within a defined bikeable range of a specified location.

### **Flexible Delineator**

Plastic posts with reflective tape that mark bike lanes and other traffic lanes

### **Goals**

General statements of desired outcomes for the community related to active transportation

### **Level of Service**

A measure of the quality of vehicle traffic flow and congestion based on performance measures like vehicle speed, density, and congestion.

### **Micromobility**

A range of small, lightweight vehicles operating at speeds typically below 15 mph and driven by users personally, such as bicycles, scooters, shared bicycles, or e-bicycles.

### **Mobility**

The ability to move or be moved from place to place effectively and efficiently.

### **Modes of Transportation**

The different means of transportation or transporting people or goods. The different modes include, but are not limited to, car, transit, air, bicycle, truck, rail, and pipelines.

### **Mode Share**

The portion of each type of transportation taken by all users of a transportation network. Typically presented as a percentage.

### **Protected Facility**

Exclusive bike facilities where bicyclists are separated from sidewalks and motor vehicle traffic by physical features.

**Public Meeting**

A meeting held with the purpose of hosting informal discussions with local public officials, agency representatives, interested citizens, or the public and local, neighborhood or special interest groups for the purpose of exchanging ideas and collecting input on a project.

**Shared Use Path**

A multi-use path designed for both transportation and recreation purposes, typically separated from motorized vehicular traffic by an open space or barrier and located either within a highway right-of-way or within an independent right-of-way.

**Stakeholder**

A group or individual who is interested or wants to be involved in a study or project. Stakeholders can include representatives of businesses, community organizations, municipalities, and government agencies.

**Vision**

An end state that will be created through the implementation of the plan

**Vulnerable Road User**

Anyone on a roadway who isn't inside a motor vehicle. It captures in a single phrase a wide range of people: pedestrians, construction workers in a work zone, cyclists (whatever the frame design or number of wheels), people using wheelchairs, children in strollers or trailers, people on e-bikes, people in buggies, wagons, or on horseback, motorcyclists, police or first responders on the scene, people on mopeds, people on skateboards or scooters, etc.

**Walkshed**

The land area within a defined walking range of a specified location.



**Thank You.**



# Active Transportation Plan

Andover, MA | FALL 2025

