Town of Littleton Bicycle and Pedestrian Master Plan

August 2023

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Acknowledgements

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Chapter 1
Introduction

The Metropolitan Area Planning Council (MAPC), in partnership with the Town of Littleton, developed this Bicycle and Pedestrian Master Plan to advance safe, convenient, and enjoyable biking, walking, and rolling in Littleton. The plan focuses on short-term and low-cost strategies to improve conditions for active transportation in Littleton, as well as connections to neighboring communities and rail trails.

The purpose of this plan is to develop solutions that can be implemented in the near term with available state and local funding. The primary goals of this effort are to:

1. Develop safer ways for residents and visitors to get around Littleton, as well as connect to neighboring towns for transportation or recreation
2. Create accessible routes to allow more people to walk, bike or roll, including people of all ages and abilities
3. Develop a bicycle and pedestrian network plan connecting key destinations and surrounding communities
4. Create a culture of walking, biking, and rolling by developing more opportunities that are safe, convenient, and enjoyable

This planning effort evaluated existing conditions, survey results, input from two public forums, as well as interviews with Town staff and committee members. This planning effort also identified potential opportunities to improve walking and biking conditions for major roads and off-street routes within Littleton. It recommends a network of on- and off-road connections and routes, including proposed bicycle and pedestrian accommodations, and how those accommodations may fit within the existing roadway width.

This report is organized into several sections. First, it provides an overview of Littleton's status today. Second, it discusses possible pedestrian and bicycle facility designs on key routes within Littleton. Third, it presents key components and recommendations to improve walking, biking, and rolling in Littleton.

Overview of Related Planning Efforts

Many previous, current, and future planning efforts affect biking, walking, and rolling in the Town of Littleton. This plan builds upon those efforts to enhance existing projects and work in parallel with in-progress planning efforts.

Littleton's **Master Plan**, developed in 2017, highlights numerous ways the town can and should consider improvements for people walking, biking, and rolling. The key recommendations from the plan include expanding the sidewalk network and crosswalks, increasing on- and off-street bicycle accommodations, monitoring and addressing street safety challenges, and creating connections to key destinations in town.

Littleton's **Complete Streets** policy received national recognition in 2013 from Smart Growth America. The Complete Streets Prioritization Plan is currently being updated and is expected to be completed in the summer of 2023. (Expand on this when we receive the draft list from DPW)

The **Local Rapid Recovery Plan (LLRP)**, completed in 2021, was developed as part of a state initiative established to help communities stabilize and grow the Massachusetts economy as a result of the economic impacts caused by the COVID-19 pandemic. The LLRP included a few high priority recommendations related to the bike and pedestrian plan, including implementing a wayfinding signage program around Littleton Town Common and the Great Road commercial and retail areas, multiple streetscape improvements, complete construction of the Couper-Wellington Trail, and redesign of the intersection of Goldsmith Street and Stevens Street.

Multiple other planning efforts influenced this plan, including new development plans around Littleton Common, the MBTA Communities legislation and planning work, and new zoning adopted in Littleton Common. These collective planning efforts highlight diverse opportunities to improve walking, biking, and rolling infrastructure in Littleton.

MAPC's MetroCommon 2050

MetroCommon 2050 is Greater Boston's regional land use and policy plan. It's about ways the Boston region can become more equitable, more prosperous, and more sustainable. MetroCommon is built on goals – that is, what people have told us they want. It defines action areas that give today's issues context, and that reveal systems that require intervention. It goes deeply into key topics, finding insight in the trends, patterns, and idiosyncrasies of the region: research. And it makes specific recommendations for policy changes that can get us to our goals.

The Metrocommon 2030 principals which guide this plan are:

- Create a culture where residents and visitors choose to walk, bike, and roll to schools, retail, places of employment, and other points of interest.
- Establish a bicycle and pedestrian network plan connecting local destinations and surrounding communities through safe, comfortable, and convenient routes.
- Reinforce the value of walking and bicycling with initiatives and the installation of supportive infrastructure.
- Institutionalizing bike and pedestrian improvements in all roadway and related projects throughout the town
- Confront and prioritize improvements in areas where people of color, low-income individuals, households with no vehicle, seniors, children, and other disproportionately affected groups have felt the burden of an obstructive or lacking bike and pedestrian infrastructure.

Chapter 2

Walking and Cycling in Littleton Today

Community Character

The Town of Littleton is situated in Middlesex County, approximately 30 miles northwest of Boston. Littleton is a rural community in the northwest region of MAPC's Minuteman Advisory Group on Interlocal Coordination (MAGIC) subregion encompassing about 17 square miles. The Town has approximately 10,000 residents and over 2,000 acres of conservation land for active and passive recreation. The median household income in Littleton is just over $140k.

Littleton's land use is a mix of residential, commercial, and industrial areas, with an emphasis on preserving open space and natural landscapes. The town values its extensive network of parks, conservations areas, and recreation facilities. Notable points of interest include Long Lake, the historic Littleton Common, and the town center that includes a variety of local shops and restaurants.

Most residents in Littleton commute to work by car. The town has a high rate of car ownership, with a significant portion of households owning multiple vehicles. However, many Littleton residents also utilize the town's MBTA commuter rail stop located in the southern portion of the town. The commuter rail has parking for vehicles and bikes, however there is no safe biking infrastructure to get to and from the station, limiting how many people may take advantage of the available bike parking.

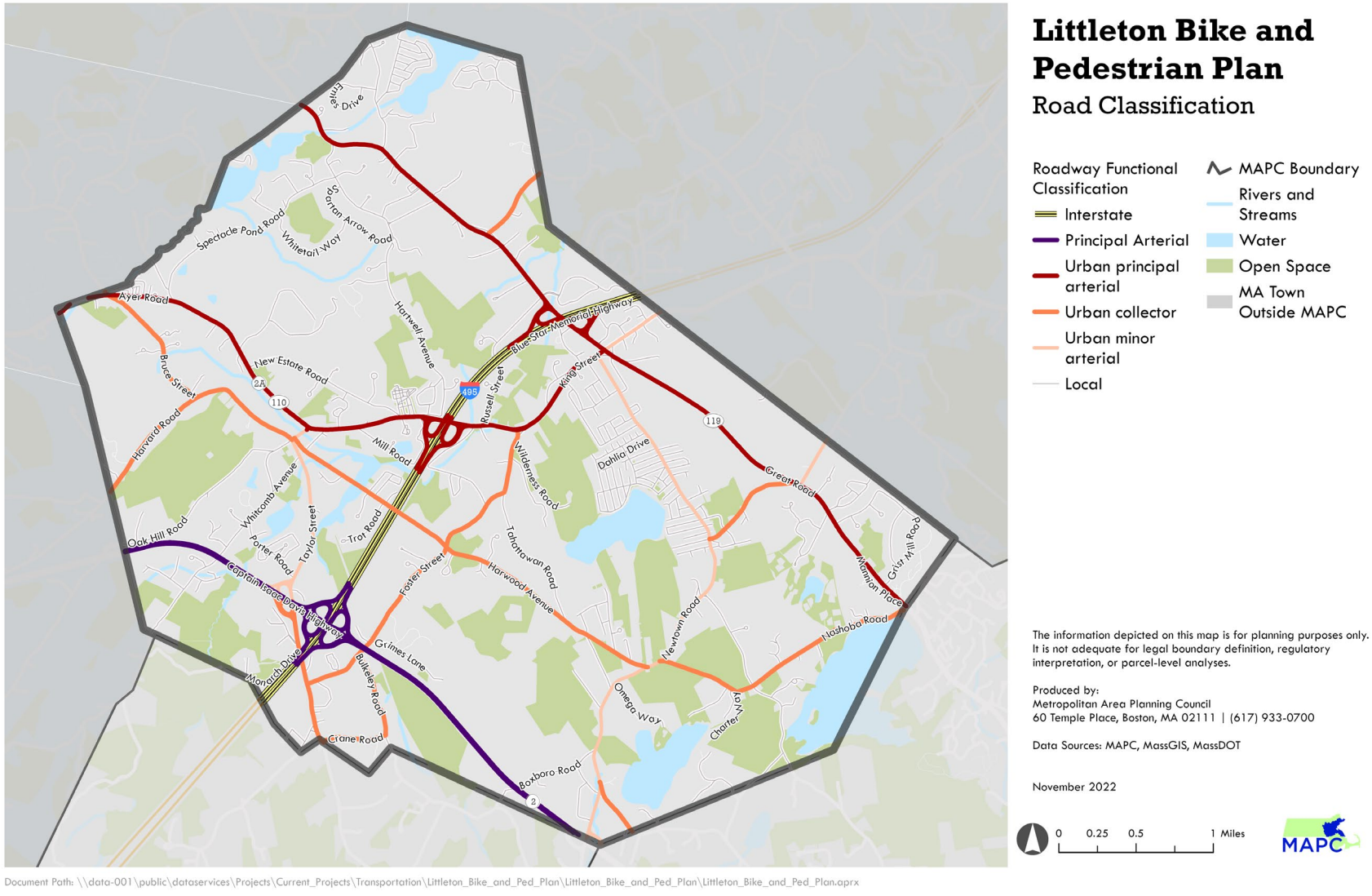

Figure XX: Littleton Road Classification

Committees

There are multiple committees in Littleton that contribute to programs, policies, and projects that advance the Town's values. Representatives from both the Bicycle and Pedestrian Advisory Committee and the Transportation Advisory Council played active roles in developing this plan and contributing to its recommendations. Littleton's Planning Board also contributed to the plan and will be instrumental in its implementation. Other committees will play a supporting role in implementing the plan recommendations, including committees focused on open space and recreation, housing, land use, and more.

Walking Infrastructure

The walking infrastructure in Littleton spans considerable reach in the town, but isn't always connected, accessible, and safe for residents. Sidewalks line a few of the major connector roads in town, including King Street, Goldsmith Street, and a portion of Great Road and Taylor Street.

Figure XX shows the existing sidewalk network in Littleton. The sidewalk network connects key destinations, such as the schools, Town Common, library, and some recreation facilities. Many of the existing sidewalks only line one side of the street, and at times aren't wide enough for the way people want and need to use them. The top request of residents in both the public survey (discussed later in this plan) and the public meetings, was the expansion of the town's sidewalk network.

In addition to existing sidewalks, there is a network of off-street trails that connect to recreation areas and open spaces throughout town. These trails are highly used by residents for various activities such as walking, running, biking, and walking dogs. However, many of these trails are disconnected from each other and are difficult to access by a mode other than driving. Additional connections between existing trails could greatly expand the ability of residents to walk to key places of interest.

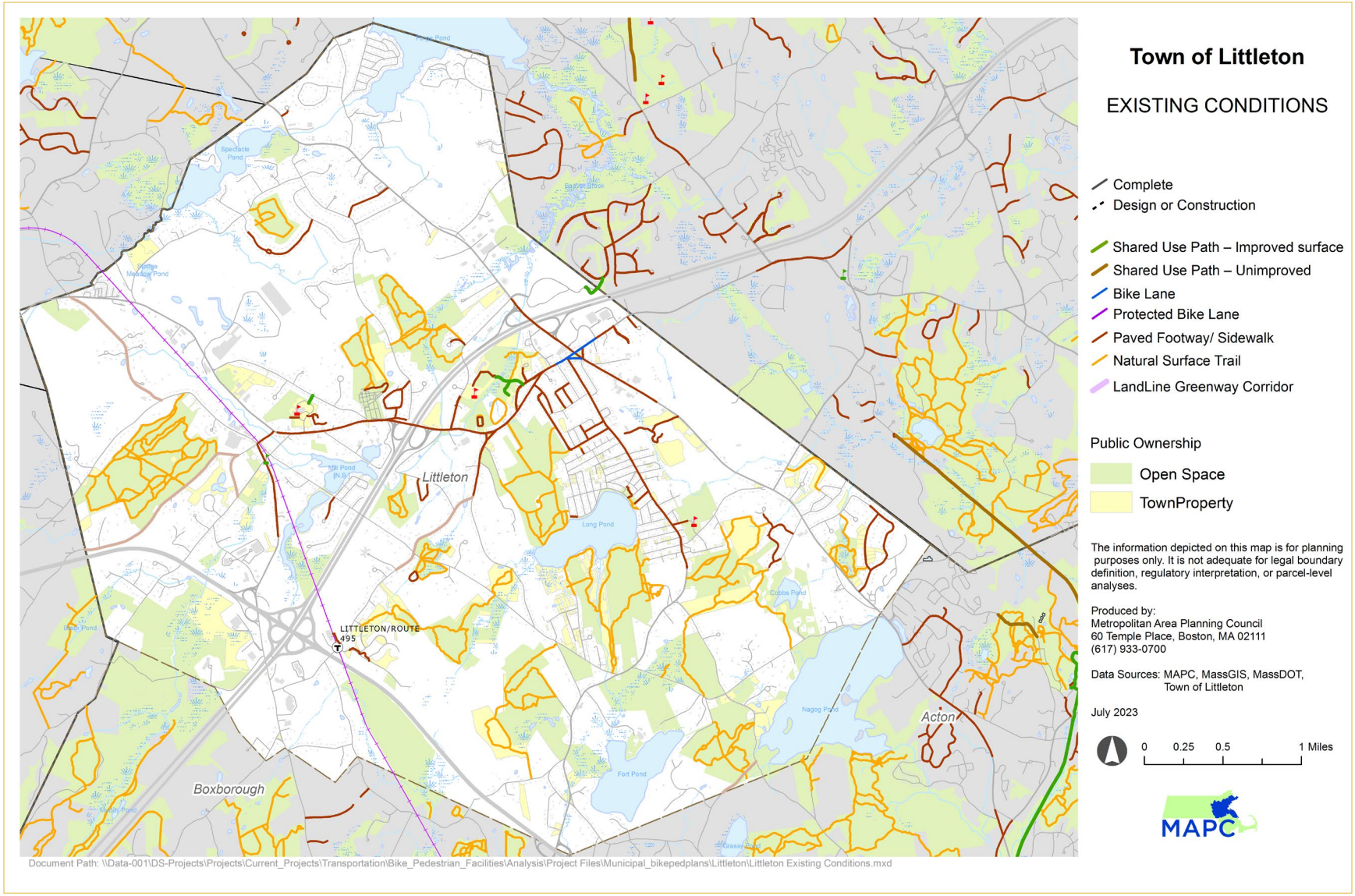

Figure XX: Current trail and sidewalk network

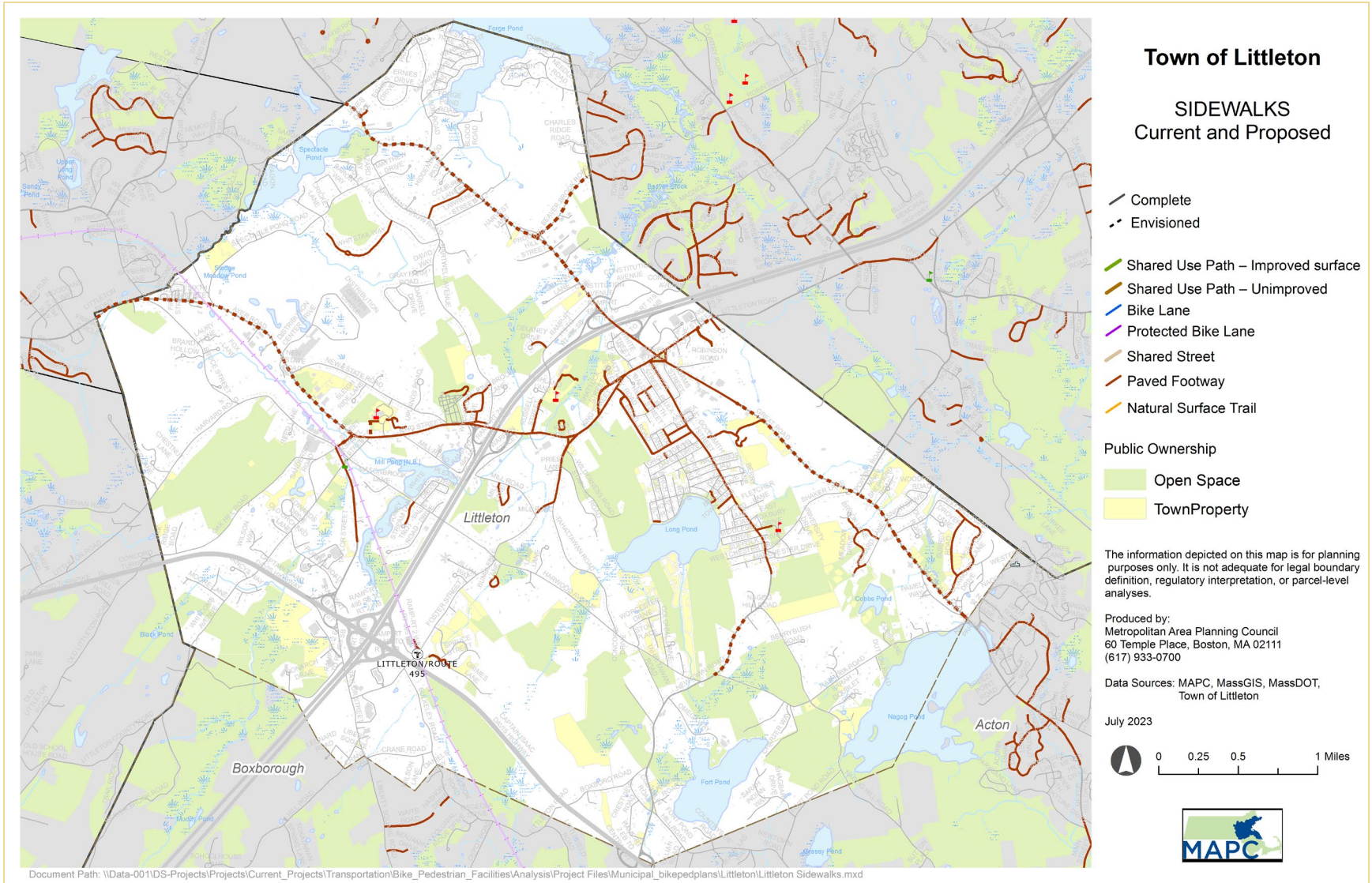

Figure XX: Littleton trail and sidewalk network

Bicycle Infrastructure

Littleton currently has limited bike infrastructure, but efforts are underway to expand and improve it. The existing infrastructure consists of a painted bike lane around Littleton Common, a few shared roads with no designated bike lanes or paths, and a few off-street routes. This lack of dedicated cycling infrastructure creates challenges for cyclists, especially when it comes to safety and connectivity. However, there are promising plans in place to address these gaps and enhance the bike network within the town.

One of the key areas of focus for improving bike infrastructure in Littleton is connecting important destinations. The commuter rail station is a vital transportation hub, and efforts are being made to create safe and convenient routes for cyclists to access it. Additionally, connecting the high school, town center, commuter rail station, and recreation areas is a priority. These areas attract a significant number of residents and visitors, and providing better cycling options would not only promote active transportation but also reduce traffic congestion and improve overall livability.

The COVID-19 pandemic has highlighted the importance of walking and biking as viable modes of transportation and recreation. Many people turned to these activities during the pandemic as a means to stay active and maintain social distancing. Littleton has continued to see an increase in the number of people walking and biking, emphasizing the need for improved infrastructure to accommodate this growing demand. This increase in active transportation presents an opportunity for the town to prioritize the development of safe, accessible, and connected bike paths and lanes, fostering a more sustainable and healthy community for all residents.

Complete Streets Policy

Complete streets are an approach to transportation planning that aims to create roadways that are safe, accessible, and convenient for all users, including pedestrians, cyclists, motorists, public transit users, children, seniors, people with disabilities, and more. The concept recognizes that streets are not just meant for vehicles but should also prioritize the needs of other modes of transportation. Complete streets can include features such as sidewalks, bike lanes, crosswalks, accessible public transportation stops, and traffic calming measures. Deciding what elements of complete streets to include in a project is context-specific and will be determined project-by-project. By implementing complete streets, communities strive to improve safety, promote active transportation, enhance mobility, and create more vibrant and livable spaces for residents and visitors.

The Massachusetts Department of Transportation (MassDOT) has developed a comprehensive Complete Streets Program to encourage municipalities throughout the state to adopt and implement complete streets policies. The program's primary goal is to ensure that all future transportation projects, including road construction and maintenance, consider the needs of all users. MassDOT provides technical assistance, grants, and training to assist municipalities in developing and adopting complete streets policies. The program aims to improve safety and accessibility for pedestrians and cyclists, increase public transportation usage, promote healthy and active lifestyles, reduce traffic congestion, and enhance the overall quality of transportation infrastructure in Massachusetts communities.

Littleton approved their Complete Streets Policy in early 2016 and completed their prioritization plan later that same year. In November 2016, Littleton was awarded a $394,970 grant from MassDOT to implement Complete Streets improvements on Russell Street and Shattuck Street, bicycle storage across town, and flashing school zone signs along Shaker Lane. Currently, Littleton's Department of Public Works (DPW) is working to update their Complete Streets Prioritization Plan.

Safe Routes to School

The Safe Routes to School (SRTS) initiative is a nationwide effort aimed at creating safer and more accessible routes for students to walk, bike, or roll to school. The program promotes active transportation, improves safety, and encourages healthy habits among children and adolescents. SRTS initiatives typically involve a combination of infrastructure improvements, educational programs, and community engagement to address barriers to active transportation and create a safer environment for students to commute to school.

The Massachusetts Department of Transportation (MassDOT) implements the Safe Routes to School Program, which aims to support local communities in enhancing the safety and accessibility of routes to schools across the state. The program's primary goals include reducing traffic congestion and improving air quality around schools, promoting physical activity and healthier lifestyles among students, and increasing safety for pedestrians and cyclists. MassDOT provides technical assistance, grants, and resources to help schools and communities develop and implement comprehensive SRTS plans. By encouraging active transportation, educating students on pedestrian and cycling safety, and implementing infrastructure improvements such as crosswalks, sidewalks, and bike lanes, the program strives to create safer and more sustainable routes to school in Massachusetts.

Littleton has two schools listed as partners with the SRTS program, including Shaker Lane Elementary School and Littleton Middle School. Although these schools are listed as partners, there haven't been active programs or partnerships with the SRTS program recently. This is an opportunity for the town to improve active transportation modes around schools, as well as work with students on roadway safety.

Americans With Disabilities (ADA) Infrastructure

Americans with Disabilities Act (ADA) requirements and guidelines provide a framework for enhancing accessibility for people with disabilities on public streets, sidewalks, and off-street paths. ADA-compliant infrastructure includes features such as curb ramps, accessible pedestrian signals, wide sidewalks for wheelchairs and other assistance devices, crosswalks with detectable warnings, and properly designed and maintained sidewalks. These provisions ensure that individuals with disabilities can navigate streets safely and independently, promoting equal access to active transportation and recreation infrastructure.

Littleton has limited ADA infrastructure currently, but efforts are underway to enhance the accessibility of the town's streets and paths. The Conservation Commission was recently awarded a grant to provide an ADA-accessible path from the parking lot at Cloverdale Conservation Land to the extensive boardwalk. In addition, one of the recommendations of this plan includes a paved off-street path that would connect the MBTA Commuter Rail stop to the High School and other to Littleton Common, greatly increasing accessible infrastructure in town.

Vehicle Crashes

Over the last three years, vehicle crashes throughout Massachusetts have continued to rise. According to MassDOT's Crash Data Portal, there were just over 100,000 total crashes statewide in 2020. Total crashes rose to nearly 125,000 in 2021 and 133,000 in 2022. As of June 2023, total crashes exceeded 50,000 statewide. The severity of vehicle crashes has also increased dramatically. From 2020 to 2022, fatal crashes increased by 30% and serious injuries increased by 25%.

These statewide trends are similar, yet less extreme in Littleton. Vehicle crashes rose from 313 in 2020 to 350 in 2022 but the severity of crashes remained similar year over year. Figure XX shows crashes by severity in Littleton from 2019-2021. As can be seen on the map, many of these crashes are happening on state-owned roadways including Interstate 495, 2A, Route 2, and 119. These roads serve as major connector roads both within Littleton and outside of the town to neighboring communities. Street safety on these roads for all users should be considered for future plans in partnership with MassDOT.

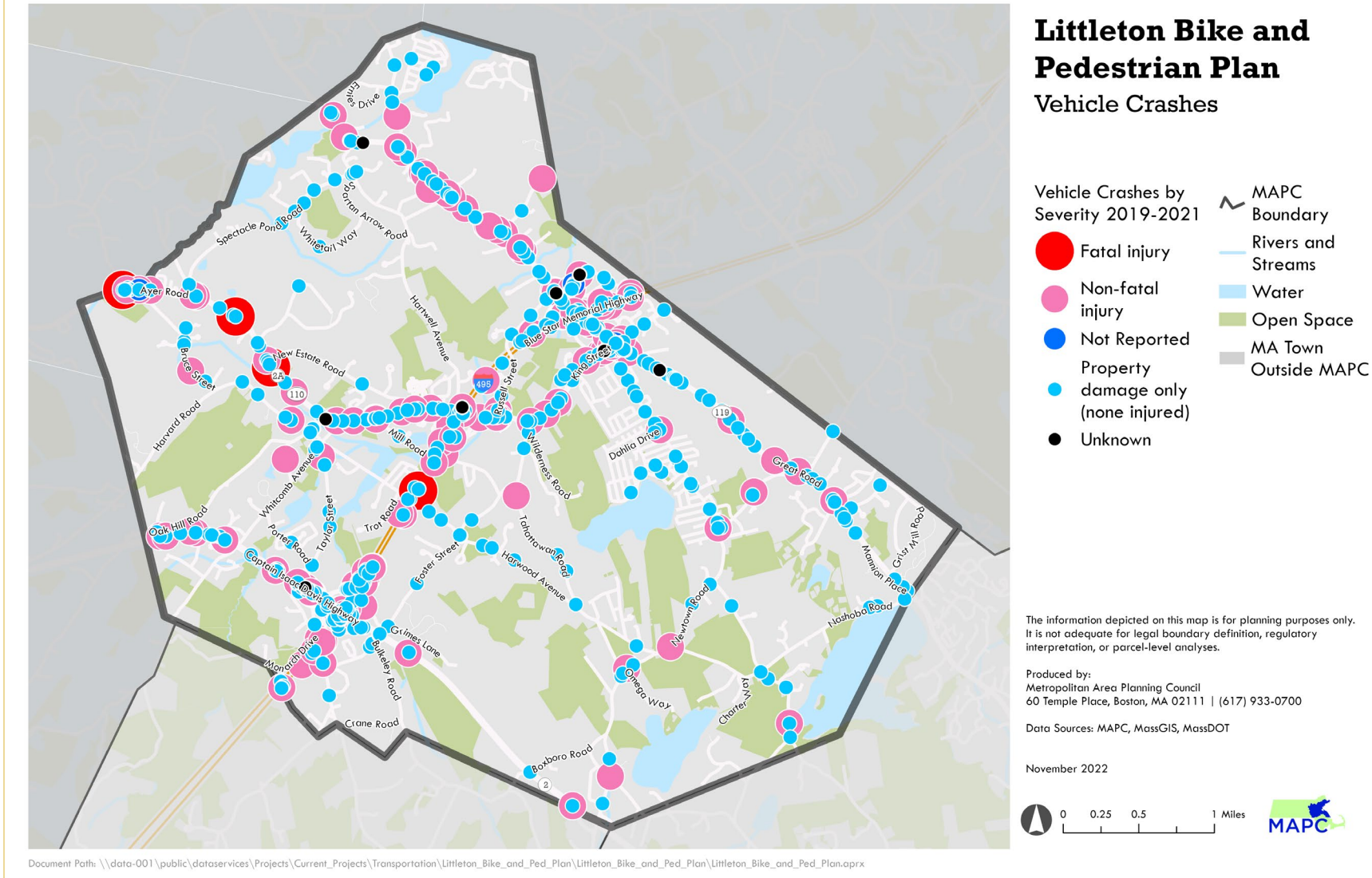

Figure XX: Littleton Vehicle Crashes

Bicycle and Pedestrian Crashes

Statewide, crashes involving pedestrians and bicyclists have risen dramatically over the last few years. In 2020, pedestrian and bicyclist-related crashes totaled 2.8 thousand in Massachusetts. Two years later, this number rose to 3.7 thousand crashes, a more than 30% increase.

In contrast, crashes involving bicyclists and pedestrians have been relatively low in Littleton over the last few years. However, this could be due in part to the lack of safe streets and infrastructure causing less people to use these modes in the town. The crashes that have occurred have been on state-owned roadways, including 119 and 2A. One crash occurred on a town-controlled road, Russell Street, that leads to Littleton Middle School as well as a few recreation areas.

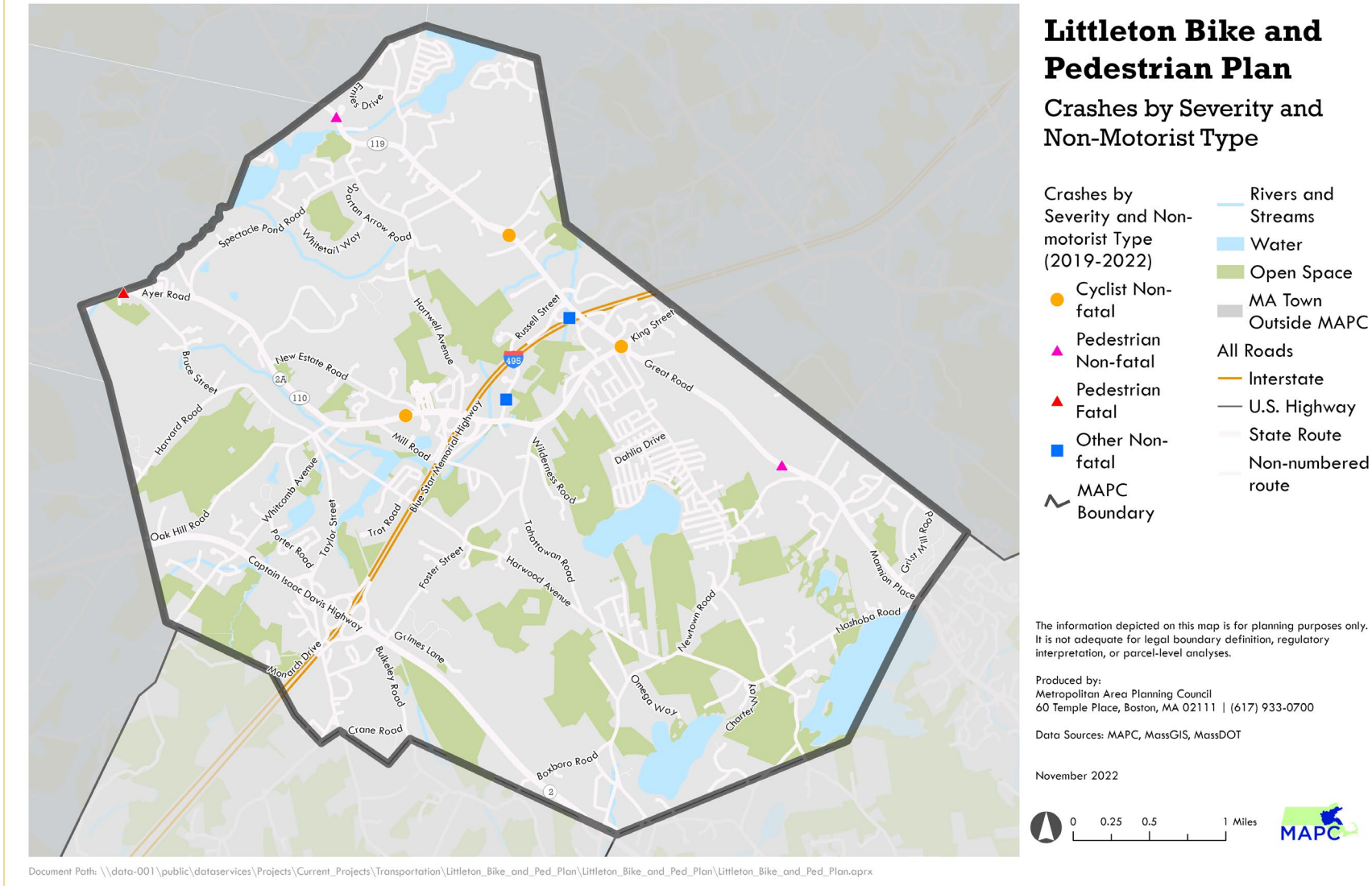

Figure XX: Littleton Crashes by Severity and Non-Motorist Type

Connections to Transit

Bicycle and pedestrian connections to transit play an important role in expanding transportation options for suburban and rural communities. These connections serve as critical links for residents who do not drive or don't own a personal vehicle. They're also crucial for those who choose to live a car-free or car-light lifestyle. Combining active transportation infrastructure with transit not only reduces reliance on private vehicles but also promotes physical activity, reduces congestion, lowers carbon emissions, and improves overall community health and well-being.

Commuter Rail

Littleton is located at the intersection of I-495 and Rt 2. This provides those living and working in Littleton access to Wachusett, Boston, and the greater Boston region. In 2021 the Littleton MBTA commuter rail station, a part of the Fitchburg Line, which operates from Fitchburg to Porter Square in Cambridge and North Station in Boston, was expanded. This expansion created better connections for the town allowing for greater access to the Boston area. The Commuter Rail station has a bike rack for bike parking, but no bike infrastructure connecting the station to the Town center or residential areas.

Bus Service

In conjunction with the Montachusett Regional Transit Authority, the Town is considering plans to re-instate a fixed-route shuttle to serve the Littleton MBTA commuter rail station on a pilot basis as proposed by the Crosstown Connect Transportation Management Association.
The Lowell Regional Transit Authority Bus Route 15 services the town of Littleton.

E-bikes and other micromobility

E-bikes have seen a surge in popularity over the past few years, both nationally and within Massachusetts. This trend reflects a growing interest in alternative modes of transportation that are efficient, environmentally friendly, and provide an accessible option for a diverse range of individuals.

Massachusetts has also experienced a surge in e-bike usage, mirroring the national trend. In response to this increasing demand, Massachusetts updated its laws and regulations pertaining to e-bikes to allow regulation at the local level. The recent change in the law defined class 1 and 2 e-bikes (but failed to define class 3 e-bikes), aligning Massachusetts with federal standards, which define e-bikes into three classes based on speed and motor assistance levels. These revisions allow municipalities to promote and regulate e-bikes.

There are numerous opportunities to support and promote e-bike usage in Littleton through a combination of policies, programs, and infrastructure enhancements. Littleton can collaborate with local businesses to encourage e-bike commuting and provide incentives, such as preferred parking or discounts, to e-bike riders. Public awareness campaigns and educational programs can also play a crucial role in promoting e-bike safety, etiquette, and the benefits of e-bike usage.

To continue to see greater adoption of e-bikes, Littleton should implement a policy allowing people to ride e-bikes everywhere that pedal bikes are permitted. This policy is in line with national standards and ensures that anyone riding an e-bike due to a disability or other physical challenge can have equal access to recreation and transportation areas. If necessary, the town can incorporate signage about speed restrictions in certain areas, as well as restrictions during certain times or when trail conditions don’t support safe riding.

Community Engagement

Developing an impactful bike and pedestrian plan requires an effective community engagement strategy to ensure that the plan reflects the needs and wants of residents. This plan included various community engagement methods, including site visits, public meetings, and a public survey.

Town staff and committee members joined MAPC for a site visit in August 2022 to visit different areas within the town and observe existing bike and pedestrian infrastructure. The group engaged with residents, local businesses, and community organizations during the visit to gain firsthand insights into the challenges and opportunities for improvement.

Two public meetings were organized to gather input and feedback from community members. These meetings provided opportunities for residents to share their concerns, propose suggestions, and contribute to the decision-making process. MAPC staff and town officials presented the proposed bike and pedestrian plan during these meetings and heard helpful feedback from town residents and staff about updates and changes that would be useful.

A public survey was launched on November 3, 2022 as an online form through the platform Qualtrics. It was live for five weeks, closing on December 12, 2022. The survey asked residents and visitors to provide input on existing bike and pedestrian infrastructure, desired improvements, and their overall vision for the town's active transportation network. The Town of Littleton conducted all outreach for the survey including posting the link with information on their website, social media, direct email, and newsletters. The survey received over 700 responses, of which 97% were from Littleton residents.

The top concern heard from residents was the lack of sidewalk coverage throughout town. Residents expressed strong support for more access to sidewalks, especially ones that fill gaps,

connect to key destinations, and increase safer ways to get to schools. Many residents identified specific streets or intersections they want to see improvements on, including state numbered roadways and key connector streets. Other priorities identified through the community engagement process included connections to neighboring communities (especially rail trails), filling gaps in the network of trails, improving ADA accessibility and safety for more vulnerable residents such as children, seniors and people with disabilities, as well as improving safety at intersections and adding amenities such as signage, lighting, flashing beacons at crosswalks, and trash cans at trail heads.

The feedback received through site visits, public meetings, and the public survey played a critical role in shaping this bike and pedestrian plan. Feedback was incorporated into the plan, influencing decisions regarding infrastructure enhancements, safety measures, connectivity, and design elements to ensure the plan aligned with the community's desires to create a bike and pedestrian network that is safe, accessible, and meets the needs of all residents, encouraging active transportation and fostering a healthy and vibrant community.

Chapter 3:

Pedestrian and Bicycle Facility Design Discussion

This section of the Bicycle and Pedestrian Plan focuses on the design aspects of pedestrian and bicycle facilities. As more and more people begin using active transportation modes, the effective design and development of pedestrian and bicycle infrastructure are crucial to ensuring safe, accessible, and enjoyable environments for individuals who walk, bike, and roll. This section aims to explore the key principles, design considerations, and innovative strategies that guide the creation of functional, attractive, and inclusive facilities, promoting sustainable mobility options and enhancing the overall quality of life in our communities. This section provides context for the recommendations listed in the following chapter.

Pedestrian Facilities

Pedestrian facilities play a crucial role in creating safe and accessible environments for people walking and rolling, and contribute to local economic, social, and public health goals. Several types of pedestrian facilities are commonly found in urban and suburban areas, including sidewalks, crosswalks, and shared-use paths. Each of these facilities has distinct design aspects and considerations, with a focus on promoting pedestrian safety and ensuring compliance with Americans with Disabilities Act (ADA) accessibility and Architectural Access Board (AAB) guidelines.

Sidewalks are built along roads and streets when width allows, providing a designated space for people to walk and roll safely separated from vehicular traffic. Sidewalk design considerations include width, surface materials, and maintenance. A sufficiently wide sidewalk allows for comfortable passage, accommodating individuals walking alone or in groups, as well as wheelchair users, strollers, and other mobility devices. To ensure ADA accessibility, sidewalks must adhere to guidelines that include proper slope gradients, detectable warnings at curb ramps, and adequate clearances for people with disabilities.

Crosswalks facilitate safe crossings at intersections and mid-block locations. They are typically marked with parallel painted lines and can have additional safety features such as signals, lighting, or center refuge islands. The design of crosswalks should prioritize visibility, with clear sightlines for both pedestrians and motorists. Creative, artistic, and high-visibility markings, such as zebra stripes or ladder crosswalks, can help to slow drivers and therefore enhance safety for people crossing. ADA compliance for crosswalks involves ensuring appropriate curb cuts and detectable warnings, as well as accessible pedestrian signals for individuals with visual impairments.

Shared-use paths are multi-purpose facilities that can be used by people walking, biking, and rolling. These paths are often separate from roadways, providing a dedicated space for non-motorized transportation. Shared-use path design involves considerations such as width, surface materials, signage, and wayfinding. The path width should be at least eight feet to allow for comfortable passage for pedestrians and cyclists, with sufficient room for passing. The path surface should be smooth and suitable for various users, including wheelchair users and those with mobility aids. Signage and wayfinding elements are essential for communicating how to use the path and where to go. ADA accessibility is crucial for shared-use paths, and compliance involves meeting guidelines for slope gradients, curb cuts, and detectable warnings.

Combining these infrastructure pieces to create a comprehensive, safe network that allows people to travel to their desired destinations is essential to ensure a more walkable community. Key destinations to connect to can include transit stops, town centers, schools, recreation spaces, and regional path networks. Enhancing safe, enjoyable, and accessible infrastructure that takes people where they want to go will produce economic, social, and public health benefits for the community.

Bicycle Facilities

Bicycle facilities play a crucial role in building a comprehensive transportation network. Different types of bike facilities can be implemented to create safer bicycle connections in urban, suburban, and rural areas. Key examples include on-street bike lanes, shared streets, and off-street shared-use paths. Including supportive features such as bike parking and bike repair stations also further encourage bicycle recreation and transportation. The NACTO Urban Bikeway Design Guide provides best practices for design guidelines.

Bicycle lanes are dedicated spaces along roadways that provide designated travel lanes for cyclists. They can be marked with a white painted line, delineated with a barrier such as flex posts, or parking-protected, which are typically built in economic centers. Bicycle lane design focuses on factors such as width, visibility, and connectivity. A sufficiently wide bike lane (at least 6 feet) allows for passing and can accommodate cyclists of various skills and abilities. Enhancements like buffer zones or physical barriers between the bike lane and vehicle traffic can create a greater level of comfort and therefore encourage a wider range of people to travel by bicycle. Adequate visibility through signage, pavement markings, and lighting create a safer and more enjoyable space to ride. ADA accessibility in bicycle lanes involves ensuring smooth surfaces, proper curb cuts, and detectable warnings at intersections.

Key attributes of bike lanes:

- Conventional bike lanes are separated from traffic by a stripe, and may be adjacent to a curb or parking
    - Width is typically 5 feet wide. However, 4 feet wide may be accommodated next to a curb.
- Protected bicycle lanes have physical separation from motor vehicle traffic. The separation may be via a curb (preferred), flex posts, concrete barriers or parked vehicles. Protected bicycle lanes are preferred over conventional where space allows.
    - Preferred width is 6-7 feet wide to allow for cyclists to pass each other and allow for plowing or sweeping by some types of such vehicles.

Shared streets, also known as neighborhood greenways, prioritize the needs of cyclists while allowing shared access with motor vehicles. Shared streets feature traffic calming measures, reduced speed limits, and enhanced signage to create a safer environment for all users. This type of facility can be useful with the right roadway characteristics and volumes, focusing bike lane and sidewalk improvements on arterial streets. Design aspects of shared streets include traffic calming features such as speed humps, raised crosswalks, and roundabouts that promote slower vehicle speeds and prioritize bicycle and pedestrian safety. Signage and wayfinding elements are important for indicating the presence of shared streets and guiding both motorists and cyclists. ADA accessibility considerations involve ensuring accessible curb ramps, accessible surface types, and detectable warnings at intersections along shared streets. The NACTO Urban Street Design Guide provides good examples of treatments for a variety of street contexts including commercial and residential shared streets.

Some key attributes of potential shared streets in Littleton:

- Most suitable on local residential streets
- Generally, less than ~5000 vehicles per day
- No center line, and preferably a dashed shoulder (also known as an advisory bike lane)
- Traffic calming elements are welcome particularly on through streets that receive excess cut through traffic.

Shared-use paths, as described in the previous Pedestrian Facilities section, are multi-purpose facilities that can be used by people walking, biking, and rolling. These paths are typically shared with people walking dogs, pushing strollers, parents with children, and people using mobility assistance devices, such as wheelchairs. These separated facilities are typically built through natural areas in suburban communities and are used for both recreation and transportation. These paths typically have a minimum width of eight feet where there is limited space. However, a wider path, ideally 10–12 feet, allows users (especially cyclists) to pass comfortably. The path surface should be accessible, either hard packed or smooth and can be asphalt, concrete, stone dust, or stabilized soil. ADA accessibility in shared-use paths involves meeting guidelines for slope gradients, curb cuts, and detectable warnings at intersections.

Figure XX Shared use path example in Wakefield, Massachusetts. *Photo credit: MAPC*

Figure XX Example of protected bike lanes (left) and striped lanes (right). *Photo credit: MAPC*

Figure XX Dashed shoulder shared street in Lincoln, MA. *Photo credit: MAPC*

Regional Greenway Corridors

Greenway corridors are continuous, high quality, safe corridors for walking, biking, and rolling that traverse a town or region. The greenways are planned with the potential to buildout facilities that meet some basic criteria.

- Pedestrians and bicycles are separated from motor vehicles via shared use paths or sidewalks and protected bike lanes.
- Sharing space with motor vehicles is accepted where speeds are low (approximately 30 miles per hours or less) and traffic volumes less than 4000 vehicles per day. In these circumstances, traffic calming elements and priority treatments for pedestrians and cyclists are encouraged.
- When largely complete, the greenway route includes signage with wayfinding and other delineations to allow users to easily find and follow the route.

In 2022, MassDOT released their Bike Wayfinding Design Guide, produced for the MassTrails Initiative. The Guide provides prescriptive signage standards for marking and wayfinding Greenways. Building on this Guide, MAPC has a goal to add signage to the entire LandLine Network, which parallels our complete state highway signage. The installation of signage to direct users is important for encouraging the use of amenities and discovery through walking, cycling, and rolling. Accurate and visible wayfinding can also be used to avoid multi-modal conflict points by clearly communicating the use of a space and dedicating space for specific modes.

Bicycle Parking

Bicycle parking is a critical element to accommodating and encouraging cycling as transportation and a viable way to replace driving trips. Bicycle parking should be secure, and in convenient locations where people will park their bikes.

All bicycle parking installed should meet general standards for bicycle parking design. The APBP Essentials of Bicycle Parking is recommended for use in selecting racks, general design guidance, and placement. In general, racks should be designed to support a bicycle at two points of contact, allow for a variety of bicycle sizes, and able to use a strong U-Lock to attach to the rack. FIGURE demonstrates good bicycle parking including adequately spaced racks and a shelter.

Inverted U or Post and Ring design bike parking can be installed along streets, parallel sidewalks, or in a row parallel to each other (spaced as noted on p. 12 of APBP's Essentials for Bicycle Parking). Preferably in-ground mounted bicycle racks should be utilized over surface mounted racks for enhanced security and tamper resistant qualities. All short-term bicycle parking should include one of the variations shown in FIGURE. Locations such as in business districts, libraries, Town hall, and other civic buildings are great places to consider installing suitable bicycle parking.

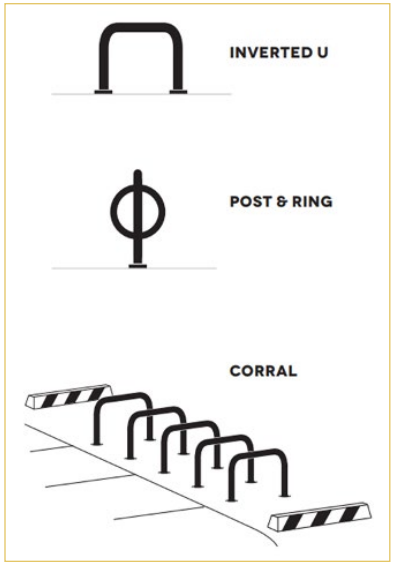

Figure XX – Most popular bike parking designs. *Source: APBP*

Bicycle parking is generally categorized by short and long-term parking. Short-term parking is for short trips such as to patronize businesses or parks. Long term parking is categorized by trips to work, transit facilities, or parking at residential buildings. Short-term parking is easily visible and accessible. Long-term parking should be sheltered from the elements and in a secure area such as a locked room or a card-accessed facility.

The following are best practices for bicycle parking facilities. Note that each inverted U rack holds 2 bicycles if installed correctly. If racks are consistently close to full, then plan on increasing parking to meet demand.

The City of Cambridge has a robust bicycle parking ordinance that is good to model from and can provide details on specifications.

Figure XX Bicycle parking example in Cambridge MA

Chapter 4:
Key Components and Recommendations

The following recommendations were developed through analysis of existing conditions research, findings from the public survey, resident feedback from the first public meeting, and consultation with Town staff and committees. These recommendations were guided by public comments, ideas, and concerns about mobility in Littleton and connections to nearby communities. The prioritization of projects mirrors Littleton's 2017 Master Plan.

There are three types of recommendations in this plan: programmatic, policy, and infrastructure. Programmatic recommendations focus on ways to improve safety for children walking to and from school. Policy recommendations focus on short and long-term ways Littleton can support biking, walking and rolling in the town, especially as new development and new trails are created. Infrastructure recommendations include both on-street and off-street changes to create safe, accessible, and enjoyable routes for more people to walk, bike, and roll within and around Littleton.

Littleton Bicycle and Pedestrian Master Plan Recommendations

Type of Recommendation	Recommendation	Local Government Leadership *	Local and Government Partners	Timeframe	Level of Effort	Estimated Cost	Priority
Policy	Develop an internal process where BPAC and TAC review repaving plans in advance of implementation to provide comments on walking and biking infrastructure improvements	DPW, Planning	BPAC, TAC	Prior to all paving contracts	Low	Low	
Policy	Ensure all new development includes onsite implemention of Plan recommendations, and possible off site mitigation.	Planning	Planning Board, Select Board, Town Meeting		Medium	Low	
Policy	Require all multi-family development and commercial development to include secure bike parking, as well as e-bike charging readiness in both indoor and outdoor bike parking areas	Planning	Planning Board, Select Board, Town Meeting		Low	Low	
Policy	Develop a Town-wide policy that states e-bikes are allowed on all routes (on-street and off-street) where pedal bikes are allowed. Speed limits can be added to areas, especially off-street paths, where high speeds would be dangerous or destructive to the natural environment.	Select Board, Planning	DPW, Committees	Fall 2023	Low	Low	
Policy	Increase secure bike parking at key destinations including Littleton Common, schools, parks, and the MBTA commuter rail.	Select Board, Schools	business partners		Low	Medium	
Program	Work with MassDOT Safe Routes to School Program to conduct a walking/biking audit of Town schools, develop arrival/dismissal plans, and facilitate annual bike rodeos for students	DPW, Schools	SRTS, BPAC, TAC	Fall 2023	Low	Low	
Program	Work with school staff and PTOs to develop and pilot walking/biking school buses for groups of students	Schools	BPAC, PTOs, SRTS	Fall 2023	Medium	Low	
Infrastructure	Develop an off-street trail network connecting the MBTA commuter rail, Littleton High School, and Littleton Common that is ADA accessible	DPW, Conservation, Park & Rec., Planning	Land owners, utility companies	3-5 years	High	High	
Infrastructure	Institute traffic calming measures at key locations in Littleton, especially near schools and shared streets	DPW, Schools		0-2 years	Low	Medium	
Infrastructure	Install new crosswalks, rectangular rapid flash beacons, and signals (where appropriate) at high foot traffic locations	DPW	MassDOT	0-2 years	Medium	Medium	
Infrastructure	On new and existing trails, increase trash cans, benches, signage, bike repair stations, dog poop bags, landscaping and other amenities to improve the experience for users	Conservation, Parks and Recreation	DPW	0-2 years	Medium	Low	
Infrastructure	Implement an advisory (dashed) bike lane pilot on a roadway in the Town	DPW		0-2 years	Medium	Medium	
Infrastructure	Apply for funding to incrementally connect existing trails in Littleton to eventually develop a fully connected trail network	Conservation, Planning, Parks and Recreation		Annually	Medium	Medium	
Infrastructure	Work with neighboring communities to build connections to regional paths including the Bruce Freeman Rail Trail and the Nashoba River Rail Trail	Select Board		2-4 years	High	High	
Infrastructure	Expand the current sidewalk network incrementally around Town, especially on highly desired routes leading to schools and other key destinations	Select Board, DPW	BPAC, TAC	Annually	Medium	Medium	
Infrastructure	Stripe bike lanes on all arterial streets where space allows. Consider travel lane width reductions to accommodate this goal	DPW		3-5 years	Medium	Medium	
Infrastructure	Remove center and fog lines on many arterial roads, especially those on NRG network	DPW	BPAC, TAC, NRG	3-5 years	Medium	Medium	
Infrastructure	Improve connections from Common to Library/Fay Park/Castle in Trees by re-striping King Street from Foster St to Jennifer St. to add a bike lane on east bound lane (south side), and lanes along Shattuck St for west bound	Select Board, DPW, Planning		3-5 years	High	Medium	

Figure XX Draft Recommendations Table, found here

Proposed Projects

The infrastructure project recommendations are summarized in a spreadsheet titled Littleton Proposed Projects, found in Appendix XX. This is a list of most of the significant streets and other potential projects in the Town that are identified with specific improvements to benefit pedestrian and bicycling safety. The projects are listed by street segment with relative priorities assigned.

Regardless of listed priorities, any active roadway projects should incorporate these recommendations to the best extent possible. Repaving plans and utility projects should be reviewed to consider incorporating these recommendations during construction. Many of the projects are a part of the local and regional greenway corridors as defined below.

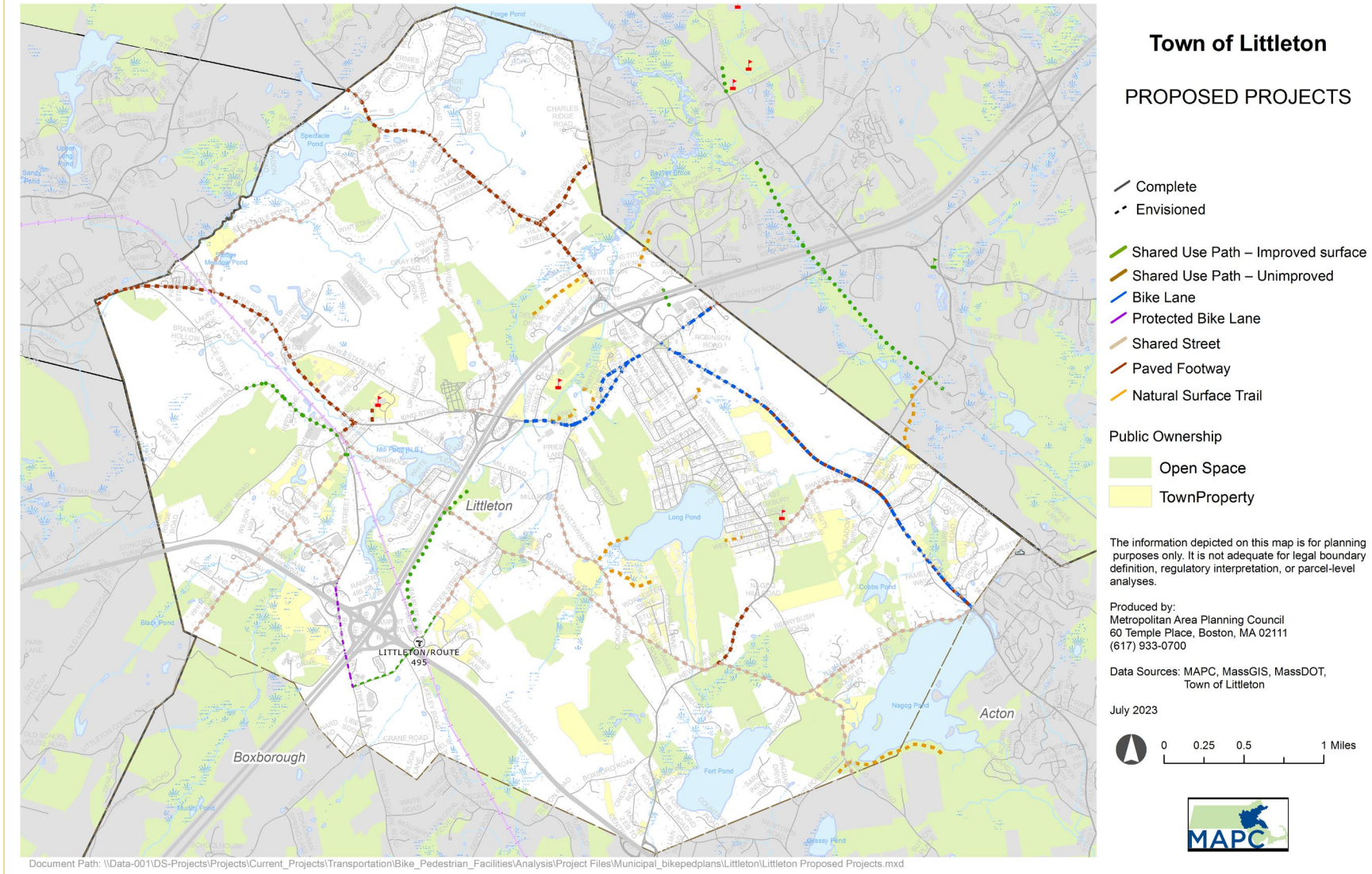

Figure XX Map of proposed projects

Road segment	From/To	Project Description	Jurisdiction	Greenway Corridor	Speed Limit (mph)	Priority	Status or comments
Ayer Rd, RT 110	King St to Ayer town line	sidewalks	MassDOT			High	
Beaver Brook Rd	Great Rd to Westford town line	sidewalks	Town			Moderate	
Bruce Street	Harvard Rd to Ayer Rd	dashed shoulder or no markings	Town	Landline/NRG		NA	
Fort Pond Rd	Nagog Hill Rd to Acton line	shared street, no change	Town	Landline/NRG	25?	NA	
Foster St	MBTA station to Harwood Ave	remove center line	Town	Landline/NRG		High	Poor pavement condition
Foster St	Harwood Ave to Tahattawan	remove center line where present	Town	Landline/NRG		Low	sidewalk just added on one side
Foster St	Tahattawan St to King St	remove center line	Town	Landline/NRG		Moderate	
Great Rd RT 119	Constitution Ave to Groton Line	sidewalks	MassDOT		35	High	
Great Rd RT 119	King St to Acton Line	bike lane and sidewalks where missing	MassDOT			High	
Hartwell Ave	Ayer Rd to King St	remove center line, dashed/advisory shoulder	Town	Loop (part)		Low	
Harvard Rd	Harvard line to Bruce St	No change, limited options	Town	NRG	35	NA	
Harvard Rd	Bruce St to King St	shared use path one side	Town	Landline/NRG	25	Moderate	
Harwood Ave	King St to Mill Pond	remove center lines, add sidewalk	Town	Landline/NRG	35	High	design for sidewalk completed 2023 and shovel-ready
Harwood Ave	Mill Pond to Foster St	remove center lines, add sidewalk	Town	Landline/NRG	35	High	design for sidewalk completed 2023 and shovel-ready
Harwood Ave	Foster St to Tahattawan	remove center line, dashed/advisory shoulder	Town	Landline/NRG	35/25	High	Scheduled for paving Summer 2023. Lines to be removed.
Harwood Ave	Tahattawan to Newtown	remove center line, dashed/advisory shoulder	Town	Landline/NRG	35	Moderate	
I495 Bridge	550 King St to The Point shopping area	construct a ped/bike bridge over I495	MassDOT/pri	Loop		High	
King St	Foster St to Goldsmith St	bike lane	MassDOT	Landline/NRG, Loop		High	
King St	Farmstead Way to Westford Line	bike lane and sidewalk	MassDOT	Landline/NRG		Moderate	
King St	Harvard/Taylor to Ayer Rd	sidewalk	Town			high	
Littleton Common	All roadways surrouding the common	new sidewalks, bike lanes, remove excess pavement	Town/MassDO	Landline/NRG		High	
Nagog Hill Rd	Nashoba Rd to Fort Pond Rd	remove center line	Town	Landline/NRG		Low	paved recently
Nashoba Rd	Nagog Hill Rd to Great Rd	remove center line	Town	Landline/NRG	35/25	Moderate	
Nashoba Rd	Newtown Rd to Nagog Hill Rd	remove center line	Town	Landline/NRG	35	Low	paved in 2022
Newtown Rd	Tahattawan to Newtown	no change	Town	Landline/NRG		Low	small stretch of road
Newtown Rd	Nashoba Rd to Long Lake	sidewalks repair and add	Town			Low	
Porter Rd	Taylor St to Whitcomb Ave	remove center line?	Town	Loop			
Powers Rd	Great Rd to Westford Town Line	sidewalks repair and add	MassDOT			Moderate	
Russell St	King St to 495 bridge	sidewalk repair and restripe	Town			High	due for repaving
Shaker Lane	Goldsmith Rd to Great Rd	remove center line, dashed/advisory shoulder	Town			Low	
Shattuck St	King St to King St	bike lane westbound	Town	Landline/NRG		High	poor pavement condition

Figure XX List of proposed projects

Regional Greenway Corridors

Four Greenway corridors are being recommended for implementation as part of this plan and are shown on the Townwide Trails and Greenways Map. The LandLine Network and Nashoba Regional Greenways are regional efforts that include Littleton. The Littleton Loop and Pond to Pond Trail are corridors connecting key locations within Littleton. These corridors do overlap at some locations.

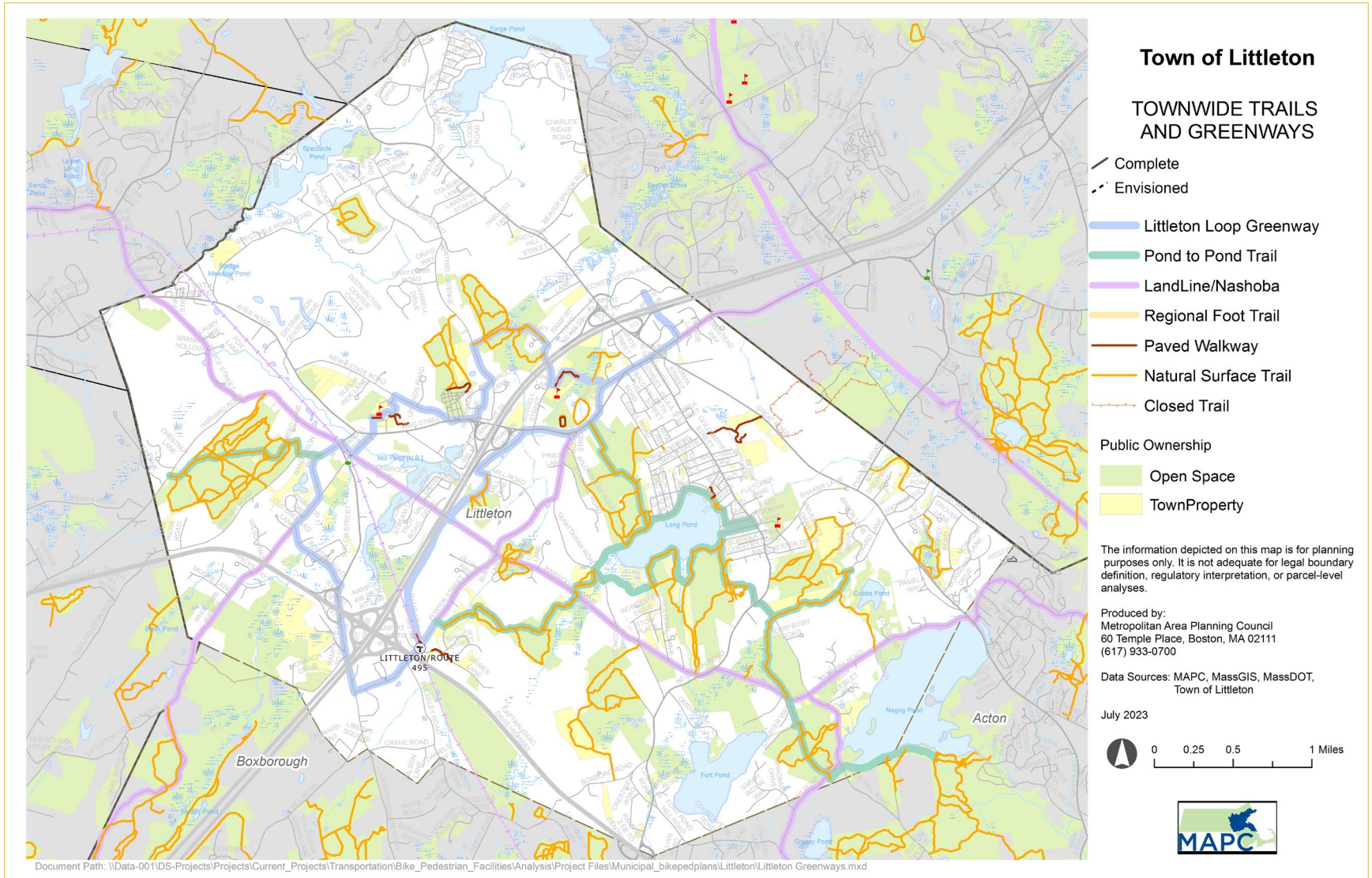

Figure XX: Proposed Townwide Greenways

LandLine Greenway Network

LandLine is MAPC's vision to connect the region's greenways and trails into a seamless network. The plan has been developed in coordination with the Landline Coalition, a group of transportation planners, engineers, municipal officials, as well as local trail and greenway advocates.

In May 2018, MAPC unveiled the Landline Trail and Greenway Plan connecting 1,400 miles of trails and greenways throughout the Boston Region. In 2021, MAPC released the first Trail and Greenways Rankings report. These rankings compared Metro Boston municipalities based on their trail, bicycle way, and greenway inventories.

Nashoba Greenways

The Nashoba Regional Greenways (NRG) coalition is a group of town officials and volunteers who are working together to safely connect the existing road and trail network for cyclists and pedestrians in a roughly fifteen town region between Ayer and Weston and including Littleton.

The group envisions a network of quiet and safe routes, designated by signage, suitable for bicycles, pedestrians, strollers alike and is focused on implementing the MAPC LandLine Network.

Goals of the NRG coalition

- Improving multi-modal network connectivity within the Nashoba Region.
- Advocating for a safe, practical, convenient alternative transportation network.
- Promoting connections to places where people live, work, and play to enhance quality of life, health, and well-being within the Nashoba region.

- Encouraging increased access to local agriculture, waterbodies, parks, playgrounds, and conservation and recreation open spaces.
- Providing public education and outreach to increase knowledge and awareness of alternate modes of transportation and promote bicycle and pedestrian safety and equity.
- Work with local Town Officials and Departments, MassDOT, and Mass DCR to implement bike and pedestrian improvements and connections.

Littleton Loop

The goal of the Littleton Loop is to connect the key destinations in the town with a connected trail network. The specific destinations are Littleton Common, MBTA Commuter Rail, Town Hall and the library, high school, and middle school complex. There is also a goal to connect the 550 King St development and The Point shopping center.

Specific recommendations of the Littleton Loop are as follows, in a north to south and clockwise direction.

- Pedestrian bridge over I-495 between the 550 King St development and The Point shopping center. The Great Road crossing of I-495 is not particularly safe for bicycle or pedestrian travel due to on/off ramps of the highway, narrow sidewalks and lack of bicycle accommodation. The bridge width limits additional accommodations for people walking or biking.
- Littleton Common upgrade (description further below)
- Bike lanes on King St southwesterly to Warren St
- Shared street on Warren St

- New shared use path between Warren St and the MBTA station. There are a couple of challenges with this option, namely private property challenges and topography around/ below Harwood St. An easement would need to be obtained from the Lifecare Center, and inclusion of the path through a potential new development adjacent to the station.
- Shared use path along Foster St. This is already programmed for construction in 2024.
- Taylor St side path. There is ample space along Taylor St where it travels over I-495 and Route 2 to provide a 2-way side path. This could be demarcated in the shoulder area on the east side of the roadway. Roadway control in this section is split between MassDOT and the Town.
- Porter, Whitcomb, and Sanderson Road shared streets. It is recommended to remove the center line on these roadways and stripe a dashed shoulder for people biking and walking. Traffic volumes and general operating characteristics should be obtained to help assist in a specific design.
- High School — the Loop travels along the access road through the High School to the back entrance at New Estate Rd.
- Hartwell Ave — recommendation to remove the center line and stripe dashed shoulders.
- Hartwell Preserve — The route passes through this conservation land, on existing trails. The trails are generally wide but don't have a smooth surface. Opportunities for an improved trail surface should be considered.
- Middle School Complex — the route enters the school complex and passes through to the Town Hall and library. Improved channelization with wider paths through the school complex should be considered.

Pond to Pond Trail

The Pond to Pond Trail is a network of hiking trails through conservation lands that connects several ponds and enables traveling through a good portion of the town mostly on trails. However there are several gaps in the proposed network, particularly on the west end of Long Pond, due to both private property and wetland challenges. It is recommended that the Town work through these issues to try to obtain a trail or conservation easement in this location.

State Number Roadways

Routes 2A and 119 are the state numbered routes through Littleton that have potential for bicycle and pedestrian travel. Sidewalk coverage is limited or non-existent on these roads, and there are no bicycle facilities.

West of I-495, 2A in particular, is a heavy truck route, so on-street bicycle lanes are not recommended. Bike routes are generally diverted from these roads where possible. However, sidewalks are recommended for the full length of the state routes. Where possible, a shared-use side path should be considered to also accommodate bicycles.

Highest priority sections to implement are along King St between Littleton Common and Warren St. Specifically striping bike lanes in both directions on this entire section. Narrow travel lanes as appropriate. Striping a bike lane on Shuttuck St is also recommended.

Reconstruction of Great Rd between the Acton line and Littleton Common is also high priority, with the goal to provide bike lanes and sidewalks throughout where missing.

Pedestrian Network

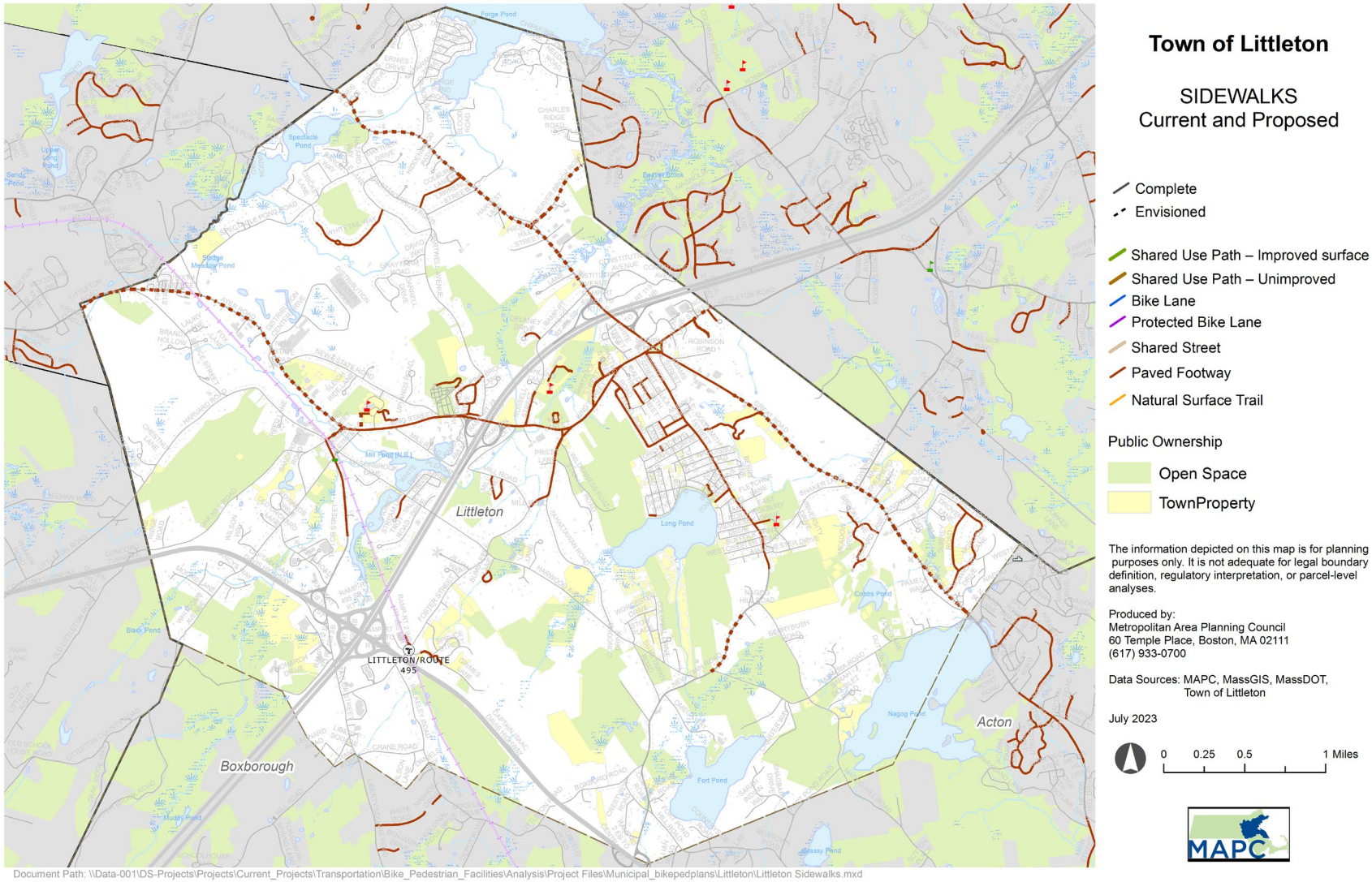

Figure XX: Current and proposed sidewalks

The focus on pedestrian facility recommendations will be on constructing sidewalks or side paths (shared use paths wider than 8 feet) along identified roadways where space allows. Highest priority roads are state numbered roads as well as access to schools.

In particular, crossing both Great Road and King Street is especially challenging for pedestrians. Both of these state numbered roadways have significant traffic, a high number of crashes, and limited pedestrian facilities. It is recommended to add crosswalks, flashing beacons, and other traffic calming measures along these two roadways to increase safety and access for those traveling on these routes.

In addition to providing appropriate enhancements, the following recommendations should be considered:

- An assessment of key destinations with high pedestrian and rolling traffic should be considered when evaluating accommodations
- A review of signal timings and pedestrian intervals
- Install proper walk signage including accurate walk signal timings
- Maintain regular maintenance to crosswalks and other pedestrian striping to improve pavement marking visibility
- Consider rapid flashing beacons at midblock crosswalks
- Reduce crossing distances by installing curb extensions where parallel and angled parking exists.

Shared Streets

Shared streets are roadways that generally have low traffic, and bicycles and pedestrians share the roadway with motor vehicles. Though this planning process, a number of shared streets have been identified as noted on the Proposed Projects map.

The proposed share streets are recommended to have the following characteristics after conversion.

- Narrow street less than 25 feet wide
- Traffic volumes below ~4000 vehicles per day
- No center line (center line would be removed on some streets, except perhaps at sharp curves)
- Dashed shoulder or advisory lane on streets that follow the LandLine and NRG corridors. First priority on Harwood Ave or a street set for repaving in the next year
- Speed humps at strategic locations where cut through traffic or speed is prevalent

Shared streets should be implemented during the next paving cycle for the identified streets.

Littleton Common

The center of Town is located at Littleton Common. This park is bisected by Route 2A, and surrounded by several other busy roadways. Sidewalk coverage is inconsistent with missing gaps in key locations. A modification of the roadways around the Common is recommended.

- Roadways are narrowed to minimum lane widths, 11 feet or less
- Curb radii are reduced to minimums to allow for safer and shorter pedestrian crossings particularly at Goldsmith/2A and Stevens/2A

- Curb extensions are provided at all crosswalks where there is parallel parking
- Driveway widths and openings are reduced to minimums
- Protected bike lanes on 2A, King St and Great Rd within the Common area
- Reconstructed sidewalks throughout and new sidewalks on 2A in front of the pizza shop and book store

Policy and Program Recommendations

Policy and program recommendations play a crucial role in supporting walking, biking, and rolling in a community. These recommendations provide a framework for decision-making and guide the town's efforts to enhance and prioritize biking, walking, and rolling for both transportation and recreation. Policies can address issues such as safe routes, traffic calming measures, and parking regulations, while programs can focus on promoting active transportation, education, awareness campaigns and community engagement initiatives. By integrating policy and program recommendations alongside infrastructure changes, the town can foster a more sustainable, healthy, and inclusive transportation system that encourages active modes of travel and improves quality of life for residents and visitors.

Along with the above-described infrastructure recommendations, the policy and program recommendations were developed through the robust community engagement process during the writing of this plan. Residents, town staff, advocates, and consultants for the town contributed their ideas, thoughts, and suggestions.

This plan recommends five policies that would support and enhance walking, biking, and rolling in Littleton. The first policy focuses on internal processes for repaving projects to be reviewed for bike and pedestrian improvements. When streets are going to be repaved, it's an effective time to consider a change in striping or road space distribution to support safer walking, biking,

and rolling conditions. The second and third policy relate to future development in Littleton. Similar to the repaving plan, new development is an opportunity to improve conditions immediately surrounding the area, as well as plan for adequate and secure on-site bike parking, a crucial element to promoting biking in a community. The fourth policy defines where e-bikes are allowed to go and is aligned with national best practices for supporting e-bike ridership on a variety of areas and terrains. Lastly, the final recommended policy relates to increasing bike parking in town, especially at key locations. This is an important supporting policy that builds on infrastructure changes, allowing people who bike to have a secure and designated location to leave their bike while they go to work, school, run errands, or attend events.

The two programmatic recommendations included in this plan center around safe ways for students to get to elementary, middle and high schools within Littleton. MassDOT's Safe Routes to Schools (SRTS) program is a free service for Massachusetts schools and provides valuable resources for school staff, parents, and students to safely get to and from school via walking, biking, and rolling. Littleton schools can work with the area coordinator to determine which resources and programs would best suit the schools, and how to engage the school community. In addition, the SRTS staff can help plan walking/biking/rolling school buses for students to get from their neighborhoods to schools safely.

The policy and program recommendations included in this plan are important compliments to the infrastructure recommendations listed earlier in this chapter. All of these recommendations should be considered pieces of the puzzle that will work together to create a robust walking, biking, and rolling culture in Littleton.

Appendix 1: Pedestrian and Bicycle Facility Design Guidelines and References

- MA Municipal Resource Guide for Walkability
- MA Municipal Resource Guide for Bikeability
- MassDOT Bicycle and Pedestrian Update 2021
- MassDOT Capital Investment Plan
- NACTO

Appendix 2: Complete Streets Policy

- Town of Littleton Complete Streets policy/prioritization plan
- More information about the MassDOT Complete Streets Status and Program

Appendix 3: Community Survey Summary

- Brief overview of survey including period of time it was open, number of responses, etc.
- Include all graphs from survey
- Include summary of qualitative feedback

Appendix 4: Littleton Proposed Projects

Littleton Proposed Projects

Road segment	From/To	Project Description	Jurisdiction	Greenway Corridor	Speed Limit (mph)	Priority	Status or comments
Ayer Rd, RT 110	King St to Ayer town line	sidewalks	MassDOT			Moderate	
Beaver Brook Rd	Great Rd to Westford town line	sidewalks	Town			Moderate	
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Fort Pond Rd	Nagog Hill Rd to Acton line	shared street, no change	Town	Landline/NRG	25?	NA	
Foster St	MBTA station to Harwood Ave	remove center line	Town	Landline/NRG		High	Poor pavement condition
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I495 Bridge	550 King St to The Point shopping area	construct a ped/bike bridge over I495	MassDOT/pri	Loop	NA	High	
King St	Foster St to Goldsmith St	bike lane	MassDOT	Landline/NRG, Loop		High	
King St	Farmstead Way to Westford Line	bike lane and sidewalk	MassDOT	Landline/NRG		Moderate	
King St	Harvard/Taylor to Ayer Rd	sidewalk	Town			high	
Littleton Common	All roadways surrouding the common	new sidewalks, bike lanes, remove excess pavement	Town/MassDO	Landline/NRG		High	
Nagog Hill Rd	Nashoba Rd to Fort Pond Rd	remove center line	Town	Landline/NRG		Low	paved recently
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Newtown Rd	Nashoba Rd to Long Lake	sidewalks repair and add	Town			Low	
Porter Rd	Taylor St to Whitcomb Ave	remove center line?	Town	Loop			
Powers Rd	Great Rd to Westford Town Line	sidewalks repair and add	MassDOT			Moderate	
Russell St	King St to 495 bridge	sidewalk repair and restripe	Town			High	due for repaving
Shaker Lane	Goldsmith Rd to Great Rd	remove center line, dashed/advisory shoulder	Town			Low	
Shattuck St	King St to King St	bike lane westbound	Town	Landline/NRG		High	poor pavement condition
Spectacle Pond Rd	Ayer Rd to Hartwell Ave	remove center line, shared street	Town			Low	paved in 2022
Station Connector Path	MBTA station to Mill Hill Conservation	new shared use path	Town/MassDO	Loop		High	land easement or acquisition required
Tahattawan	Harwood Ave to Foster St	remove center line	Town			High	2023 paving will remove lines
Taylor St	Foster St to Porter Rd	On the east shoulder, create a two way protected shared pat	Town/MassDO	Loop		High	
Whitcomb Ave	Sanderson Rd to Harvard Line	remove lines, dashed shoulder	Town	Landline /Loop (part)	25/35	Moderate	