



MONTACHUSETT REGIONAL BIKE & PEDESTRIAN PLAN

October 2021

Prepared in cooperation with the Massachusetts Department of Transportation and the U.S. Department of Transportation. The views and opinions of the Montachusett Regional Planning Commission expressed herein do not necessarily state or reflect those of the Massachusetts Department of Transportation or the U.S. Department of Transportation.

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Montachusett Region Bike & Pedestrian Plan



North Central Pathway, Gardner, Ma.

Prepared for the Montachusett Region

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Executive Summary

This Regional Bicycle & Pedestrian Plan incorporates existing as well as potential sidewalk, bike routes, and other related infrastructure within the Montachusett Region and beyond. The plan will highlight the areas where bicycle and pedestrian accommodations could be implemented as well as addressing the safety concerns of the already existing infrastructure.

There are 4 main goals throughout this report –

1. Have bicycle and pedestrian accommodations be more abundant and safer by creating more functional regional networks within the region as well as connecting to surrounding areas.
2. Encourage more people to utilize walking and bicycles as a mode of transportation (mode shift).
3. Plan bicycle and pedestrian accommodations that are accessible for people of all ages and abilities.
4. Facilitate support of future bicycle and pedestrian projects by gathering data and potential funding options.

The Montachusett Regional Bicycle & Pedestrian Plan will follow the general concepts of the Massachusetts Bicycle & Pedestrian Transportation Plans where the following sections will be used:

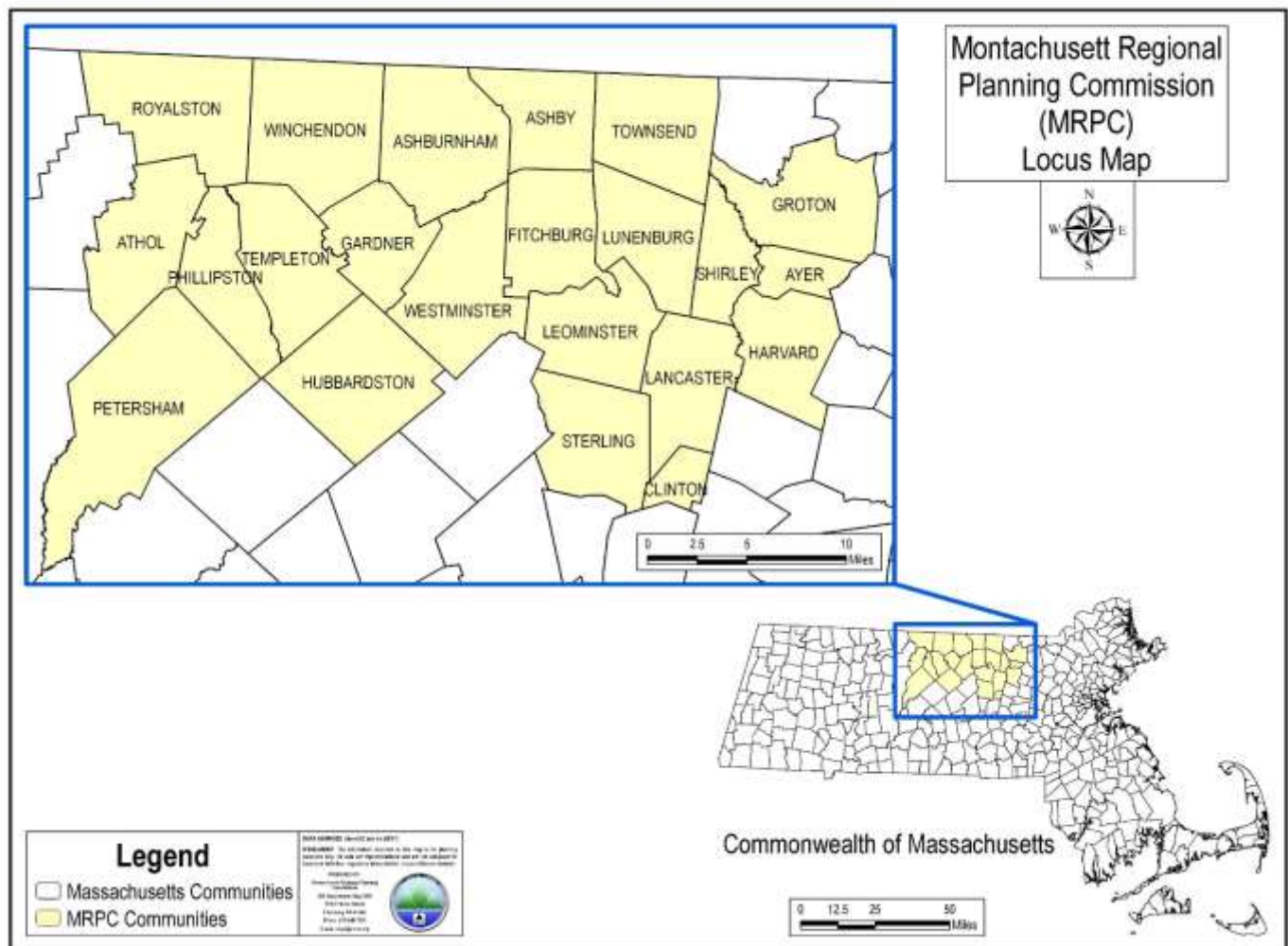
- Introduction – Plan overview
- Roadmap – Vision, Goals, Principles
- The State of Biking and Walking Today – Biking and walking related needs across the region, programs, funding opportunities
- Action Plan – Includes actions and performance measures

These concepts will help mold the future of biking and walking throughout the Montachusett Region.

Introduction

Increasing concern for air quality, energy conservation, rising fuel costs, and the health benefits of getting outdoors is generating continued interest in multi-modal transportation in the Montachusett Region and throughout the state. In fact, as part of the public outreach that was done for the 2020 Regional Transportation Plan, pedestrian and bicycle accessibility came up within the top four of most important categories for the region to address. The communities within the Montachusett Region are unique in their own way but they all share vibrant town centers, local shops and destinations.

Montachusett Region



The MRPC has been working toward a more sustainable transportation system by educating and promoting transportation mode choice throughout the region. Barriers such as disconnected bike networks, high traffic volumes and speeds, and roadway conditions all play a role in deterring people from biking and walking. This document will incorporate public input and review existing and proposed bicycle and pedestrian transportation alternatives while focusing on the importance of mode shift.

Outreach

The Covid-19 pandemic has made outreach more challenging during the development of this plan but the MRPC was able to successfully engage all 22 communities and Devens in gathering necessary data. Each community assisted MRPC staff by reviewing maps and providing edits and input regarding existing and future sidewalks and bike lanes. This information was critical in providing an inventory of existing and future bicycle and pedestrian infrastructure as well as determining the network gaps. Maps can be found in Figures 1-46.

Bicycling

Bikeways are special routes and/or facilities established to facilitate the movement of bicycles as an energy efficient transportation and/or recreational mode of travel. Bikeability is a measure of how well an area encourages biking for everyday trip purposes. As part of this report development, the MRPC conducted a regionwide bike lane inventory. See Map Figures 24-46.

In 2019 MassDOT updated the “[Massachusetts Bicycle Transportation Plan](#)”. This plan consists of an overview, a roadmap which includes the vision, goals and principles, as well as initiatives and an action plan. As a part of this update development, MassDOT also developed the “Municipal Resource Guide for Bikeability” to go along with the updated Bike Plan. This plan is meant to assist communities in enhancing community bikeability and includes additional resources.

The Montachusett Region decided to adopt the state of Massachusetts vision, goals and principles for bicycling:

Vision – Biking in the Montachusett Region will be safe, comfortable, and convenient option for everyday travel.

The following goals were established to assist with achieving this vision –

- Goal 1 – Create high-comfort connected bike networks for people of all ages and abilities.
- Goal 2 – Increase the convenience and attractiveness of everyday biking.
 - Principle 1 – Treat all people the same regardless of travel mode
 - Principle 2 – Address gaps and barriers known to discourage everyday biking
 - Principle 3 – Lead by example and partner with municipalities to advance everyday biking

MassDOT developed a Capital Investment Plan (CIP) to manage funding that works towards this vision. This plan includes projects such as small-scale maintenance projects to large-scale multimodal modernization projects. All projects are scored based on their anticipated benefits in order to determine investment priorities. Additional programs include Complete Streets Funding Program, the Chapter 90 Program, the Multi-Use Pathways Program and the MassTrails Funding Program.

The State of Biking Today

According to the US ACS census data, the percentage of people that walk to work is decreasing slightly from 2010 to 2019. The communities that have the highest percentage of people walking to work in 2010 are Fitchburg (4.4%), Gardner (4.3%) and Winchendon (4.1%) in 2018 Winchendon (3.9%), Gardner (3.7%), and Petersham (3.3%) and in 2019 Petersham (4.7%), and Ashburnham/Groton (0.3%). See table 1 below.

Table 1 - Percent of population that Bike to Work

| | 2010 | | 2018 | | 2019 | |
|--------------|---------------------------|------------------------|---------------------------|------------------------|---------------------------|------------------------|
| Community | Workers 16 years and over | Percent biking to work | Workers 16 years and over | Percent biking to work | Workers 16 years and over | Percent biking to work |
| Ashburnham | 3104 | 0.0% | 3447 | 0.4% | 3430 | 0.3% |
| Ashby | 1603 | 0.0% | 1704 | 0.0% | 1785 | 0.0% |
| Athol | 5141 | 0.0% | 5364 | 0.2% | 5284 | 0.2% |
| Ayer | 3687 | 0.8% | 4907 | 0.4% | 4842 | 0.0% |
| Clinton | 6999 | 0.5% | 7752 | 0.0% | 7761 | 0.0% |
| Fitchburg | 18188 | 0.0% | 18748 | 0.7% | 19081 | 0.7% |
| Gardner | 9245 | 0.3% | 9653 | 0.0% | 9767 | 0.1% |
| Groton | 5005 | 0.3% | 5686 | 0.5% | 5783 | 0.3% |
| Harvard | 2577 | 0.3% | 2654 | 0.0% | 2709 | 0.0% |
| Hubbardston | 2175 | 0.0% | 2637 | 0.0% | 2590 | 0.0% |
| Lancaster | 3382 | 0.0% | 3654 | 0.0% | 3535 | 0.0% |
| Leominster | 19713 | 0.4% | 20961 | 0.3% | 21125 | 0.7% |
| Lunenburg | 5199 | 0.0% | 5788 | 0.1% | 5982 | 0.0% |
| Petersham | 559 | 0.0% | 645 | 0.0% | 601 | 0.0% |
| Phillipston | 947 | 0.0% | 813 | 0.0% | 870 | 0.0% |
| Royalston | 599 | 0.0% | 599 | 0.0% | 708 | 0.0% |
| Shirley | 2923 | 1.5% | 3120 | 0.0% | 3390 | 0.0% |
| Sterling | 3976 | 0.0% | 4153 | 0.0% | 4144 | 0.0% |
| Templeton | 3708 | 0.0% | 4376 | 0.0% | 4485 | 0.0% |
| Townsend | 4499 | 0.0% | 4947 | 0.0% | 5038 | 0.0% |
| Westminster | 3826 | 0.0% | 4101 | 0.0% | 3968 | 0.0% |
| Winchendon | 4546 | 0.0% | 5657 | 0.0% | 5735 | 0.0% |
| Total | 111601 | 0.21% | 121366 | 0.22% | 122613 | 0.27% |

Source: ACS 5-Year Estimates Subject Tables (S0801 - Commuting Characteristics by Sex)

Although there is an abundance of biking routes throughout the Montachusett Region, they only seem to be known by the people who use them. Applications such as Strava and Ride with GPS are useful tools to those who ride their bike but might not be common knowledge to others. Due to COVID-19, the public outreach component for this project was a challenge. The MRPC reached out to all member Communities, members of the Montachusett Regional Trails Coalition and local cycle groups. A bike route collection application was also created for people to document their bike routes as well as problem areas. This app was shared via email, MRPC website and other social media platforms. Much of the routes and data mentioned in this report was a result of this outreach.

A. Bicycle Crash Data

According to the Massachusetts Strategic Highway Safety Plan (SHSP), bicycling as a mode of transportation is becoming more popular in Massachusetts. Bicycle lanes / paths / networks and bike share programs have increased the number of people using bicycles. This is also occurring nationally with the result of an increase in bicyclist (and pedestrian) fatalities by 50.7% in the ten-year period of 2009 to 2018 (source: [Pedestrian & Bicycle Information Center](#) (supported by the FHWA & NHTSA)). It is not difficult to imagine the results of a crash that involves a bicycle. Bicyclists are considered vulnerable road users as they are unprotected because they do not have an enclosed vehicle compartment. This leaves bicyclists highly vulnerable to death or serious injury when a bike crash occurs.

Often, bike crashes are unpredictable, unavoidable events. Most bike crashes are the result of driver error, either by the bicyclist or the larger motor vehicle driver. However, driver error can be magnified by a lack of adequate bike facilities and streetlights, poor roadway or intersection design, or by inadequate traffic control measures. When bike crashes occur in high numbers at a particular location, there is probably a common reason for them related to the design and/or signage of the road. These bike crashes can be predictable and the conditions that increase the chances for them to occur are often correctable.

Bike Crash Analysis Methodology

Bike Crash Severity Statistics

The purpose of this analysis is to develop bike crash statistics beyond bike crash totals, locations, and corridors. MRPC staff analyzed the crash severity of the bike crashes. Crash severity states the types of harm, or the most serious outcome, of a bike crash (data source: MassDOT). There are essentially three possible outcomes:

1. Fatal Injury Crash (hereinafter called Fatal Crash): Is the worst type of harm that involves at least one fatality or death of a person;
2. Nonfatal Injury Crash (hereinafter called Nonfatal Crash): Is the second worst type of harm that involves at least one injury to a person;
3. Property Damage Only Crash (hereinafter called PDO Crash): Is the third worst type of harm that involves damage to property of any type.

Bike Crashes Assigned to a Corridor Analysis

Each bike crash was assigned a location name, after which it was mapped to a corridor. The purpose of assigning the bike crashes to a corridor is explained in the **Bike Crash Analysis** section below. To create a name for each corridor, the road name/names and the community's name were utilized.

Bike Crashes and Region High Crash Locations

The purpose of this analysis is to discover if, and where, bike crashes occurred in relation to the MRPC region (hereinafter referred to as Region) high crash locations (hereinafter referred to as HCLs). Basically, HCLs are the top 5% of the total crash clusters that occurred in the Region.

Bike Crash Analysis

The purpose of the Bike Crash Analysis is to develop a prioritized list of the bike crash experience of roadways (hereinafter referred to as Bike Crash Corridors) in the Region. If the Bike Crash Corridors rank high within the Bike Crash Corridors list, the corridors may require additional and more detailed analysis of all crash data and trends with the goal of improving safety.

Bike Crashes Regionwide

A total of 266 bike crashes occurred in the Region from 2008 - 2017 which represents 0.5% of the Region's 49,451 total crashes for the 10-year period (see **Table 2** below).

Table 2: Total Region Bike Crashes & Total Region Crashes 2008 - 2017

| | All Years Total |
|---|--------------------|
| Fatal Crashes | |
| Region Total Fatal Crashes | 144 |
| Percent of All Years Region TOTAL Crashes | 0.29% |
| Bike Share of Region Total Fatal Crashes | 1 |
| Percent Bike Share of Region Total Fatal Crashes | 0.7% |
| Percent of Bike <i>All Years TOTAL Crashes</i> | 0.4% |
| Percent of All Years Region TOTAL Crashes | 0.002% |
| Nonfatal Crashes | |
| Region Total Nonfatal Crashes | 10,756 |
| Percent of All Years Region TOTAL Crashes | 21.75% |
| Bike Share of Region Total Nonfatal Crashes | 196 |
| Percent Bike Share of Region Total Nonfatal Crashes | 1.8% |
| Percent of Bike <i>All Years TOTAL Crashes</i> | 73.7% |
| Percent of All Years Region TOTAL Crashes | 0.40% |
| Property Damage Only (PDO) Crashes | |
| Region Total PDO Crashes | 38,551 |
| Percent of All Years Region TOTAL Crashes | 77.96% |
| Bike Share of Region Total PDO Crashes | 69 |
| Percent Bike Share of Region Total PDO Crashes | 0.2% |
| Percent of Bike <i>All Years TOTAL Crashes</i> | 25.9% |
| Percent of All Years Region TOTAL Crashes | 0.14% |
| <i>Bike All Years TOTAL Crashes</i> | 266 |
| Percent of All Years Region TOTAL Crashes | 0.5% |
| All Years Region TOTAL Crashes | 49,451 |

Of the Region total crashes:

- 144 (0.29%) were Fatal Crashes of which;
 - 1 (0.7%) was a bike crash that represented 0.002% of the Region total crashes;
- 10,756 (21.75%) were Nonfatal Crashes of which;
 - 196 (1.8%) were bike crashes that represented 0.4% of the Region total crashes;
- 38,551 (77.96.3%) were PDO Crashes of which;
 - 69 (0.2%) were bike crashes that represented 0.14% of the Region total crashes.

Of the bike total crashes:

- 0.4% (1) were Fatal Crashes;
- **73.7% (196) were Nonfatal Crashes;**
- 25.9% (69) were PDO Crashes.

The well documented vulnerability of a bicyclists receiving a Nonfatal Injury as the crash severity result of a bike crash has been affirmed in the Region with the extremely high percentage (73.7%) of bike crashes resulting in Nonfatal Crashes. It is good news that only one (1) Fatal Crash occurred.

Bike Crashes and Bike Crashes on Corridors

Key results from the **Bike Crashes Assigned to a Corridor Analysis** are presented in **Table 3 and Table 4 below**. **Table 3** provides for each Region member community the total number and percentage share of Bike Crash Corridors (BCCs) (two columns under **BCCs: # of BCCs Per Com** and **% of BCC Total**); the total number and percentage share of bike crashes per BCC (two columns under **Crash Total: R2: BCC Crash Total** and **% of Region Total**); the Crash Severity total numbers and percentage share per BCC (six (6) columns under **Bike Crash Severity: 1. # of Fatal Crashes, 2. # of Nonfatal (Injury) Crashes, R*1: 1. & 2. Total, 1. & 2. % of Region Total, R3: % of BCC Crash Total, # of PDO** Crashes** (PDO percentage share not provided)). The communities are then ranked first by column **R*1: 1. & 2. Total**, then by column **R2: BCC Crash Total**, then by column **R3: % of BCC Crash Total**.

The top four (4) ranked communities accounted for 83 (59.3%) of the 140 BCCs that occurred in the communities which included 184 of the total number of bike crashes (69.2%) of which one was a Fatal Crash and 133 were Nonfatal Crashes (68%) and 50 were PDO Crashes. The top four ranked communities with a minimum of 14 BCCs each are:

1. Fitchburg:

Accounted for 32 (22.9%) BCCs which accounted for 68 of the total number of bike crashes (25.6%) of which one (1) was a Fatal Crash and 42 were Nonfatal Crashes (21.8% combined); 25 were PDO Crashes; Fatal / Nonfatal Crashes accounted for 63.2% of the total bike crashes within Fitchburg's BCCs;

2. Leominster:

Accounted for 20 (14.3%) BCCs which accounted for 51 of the total number of bike crashes (19.2%) of which 41 (20.8%) were Nonfatal Crashes (no Fatal Crashes occurred); 10 were PDO Crashes; Nonfatal Crashes accounted for 80.4% of the total bike crashes within Leominster's BCCs;

3. Gardner:

Accounted for 17 (12.1%) BCCs which accounted for 36 of the total number of bike crashes (13.5%) of which 26 (13.2%) were Nonfatal Crashes (no Fatal Crashes occurred); 10 were PDO Crashes; Nonfatal Crashes accounted for 72.2% of the total bike crashes within Gardner's BCCs;

4. Athol:

Accounted for 14 (10%) BCCs which accounted for 29 of the total number of bike crashes (10.9%) of which 24 (12.2%) were Nonfatal Crashes (no Fatal Crashes occurred); five (5) were PDO Crashes; Nonfatal Crashes accounted for 82.8% of the total bike crashes within Athol's BCCs.

Table 3: Bike Crash Corridors per Community

| # | Rank | Community (Com) | BCCs | | Bike Crash Severity | | | | | | Crash Total | |
|----|------|-----------------|-------------------|----------------|-----------------------|-----------------------------------|--------------------|---------------------------|--------------------------|--------------------|---------------------|-------------------|
| | | | # of BCCs Per Com | % of BCC Total | 1. # of Fatal Crashes | 2. # of Nonfatal (Injury) Crashes | R*1: 1. & 2. Total | 1. & 2. % of Region Total | R3: % of BCC Crash Total | # of PDO** Crashes | R2: BCC Crash Total | % of Region Total |
| 1 | 1 | FITCHBURG | 32 | 22.9% | 1 | 42 | 43 | 21.8% | 63.2% | 25 | 68 | 25.6% |
| 2 | 2 | LEOMINSTER | 20 | 14.3% | 0 | 41 | 41 | 20.8% | 80.4% | 10 | 51 | 19.2% |
| 3 | 3 | GARDNER | 17 | 12.1% | 0 | 26 | 26 | 13.2% | 72.2% | 10 | 36 | 13.5% |
| 4 | 4 | ATHOL | 14 | 10.0% | 0 | 24 | 24 | 12.2% | 82.8% | 5 | 29 | 10.9% |
| | | #1 - #4 Totals | 83 | 59.3% | 1 | 133 | 134 | 68.0% | 72.8% | 50 | 184 | 69.2% |
| 5 | 5 | WINCHENDON | 6 | 4.3% | 0 | 10 | 10 | 5.1% | 90.9% | 1 | 11 | 4.1% |
| 6 | 6 | AYER | 6 | 4.3% | 0 | 8 | 8 | 4.1% | 72.7% | 3 | 11 | 4.1% |
| 7 | | TOWNSEND | 7 | 5.0% | 0 | 8 | 8 | 4.1% | 72.7% | 3 | 11 | 4.1% |
| 8 | 8 | HARVARD | 6 | 4.3% | 0 | 6 | 6 | 3.0% | 100% | 0 | 6 | 2.3% |
| 9 | 9 | LUNENBURG | 3 | 2.1% | 0 | 5 | 5 | 2.5% | 62.5% | 3 | 8 | 3.0% |
| 10 | 10 | CLINTON | 4 | 2.9% | 0 | 5 | 5 | 2.5% | 83.3% | 1 | 6 | 2.3% |
| 11 | 11 | GROTON | 5 | 3.6% | 0 | 4 | 4 | 2.0% | 80.0% | 1 | 5 | 1.9% |
| 12 | | STERLING | 5 | 3.6% | 0 | 4 | 4 | 2.0% | 80.0% | 1 | 5 | 1.9% |
| 13 | | WESTMINSTER | 2 | 1.4% | 0 | 4 | 4 | 2.0% | 80.0% | 1 | 5 | 1.9% |
| 14 | 14 | LANCASTER | 4 | 2.9% | 0 | 3 | 3 | 1.5% | 60.0% | 2 | 5 | 1.9% |
| 15 | 15 | ASHBY | 3 | 2.1% | 0 | 1 | 1 | 0.5% | 33.3% | 2 | 3 | 1.1% |
| 16 | 16 | HUBBARDSTON | 2 | 1.4% | 0 | 1 | 1 | 0.5% | 50.0% | 1 | 2 | 0.8% |
| 17 | 17 | ASHBURNHAM | 1 | 0.7% | 0 | 1 | 1 | 0.5% | 100% | 0 | 1 | 0.4% |
| 18 | | PHILLIPSTON | 1 | 0.7% | 0 | 1 | 1 | 0.5% | 100% | 0 | 1 | 0.4% |
| 19 | | SHIRLEY | 1 | 0.7% | 0 | 1 | 1 | 0.5% | 100% | 0 | 1 | 0.4% |
| 20 | | TEMPLETON | 1 | 0.7% | 0 | 1 | 1 | 0.5% | 100% | 0 | 1 | 0.4% |
| 21 | 21 | PETERSHAM | 0 | 0.0% | 0 | 0 | 0 | 0.0% | N/A | 0 | 0 | 0.0% |
| 22 | | ROYALSTON | 0 | 0.0% | 0 | 0 | 0 | 0.0% | N/A | 0 | 0 | 0.0% |
| | | #5 - #22 Totals | 57 | 40.7% | 0 | 63 | 63 | 32.0% | | 19 | 82 | 30.8% |
| | | TOTALS | 140 | | 1 | 196 | 197 | | | 69 | 266 | |

* R# = Rank order when applicable: 1st- R1, 2nd- R2, 3rd- R3

**includes Not Reported and Unknown

The remaining 57 (40.7%) BCCs accounted for 82 of the total number of bike crashes (30.8%) of which 63 (32.1%) were Nonfatal Crashes (no Fatal Crashes occurred) and 19 were PDO Crashes. The BCCs were distributed among 16 communities (#5 - #20). Only Petersham and Royalston (#21 - 22) did not experience bike crashes.

Table 4 presents the top 33 BCCs in the Region. A BCC was required to experience a minimum of two (2) Nonfatal Crashes to be ranked in **Table 4**. These are the BCCs that may require additional and more detailed analysis of all crash data and trends for the goal of improving safety. The BCCs in **Table 4** are comprised of 148 bike crashes which represents 55.6% of the

Region total of 266. The remaining 118 (44.4%) bike crashes are distributed on 107 other BCCs in the Region. The Crash Severity totals include one (of 1) Fatal Crash; 118 (of 196) Nonfatal Crashes and 29 (of 69) PDO Crashes, or 100%, 60.2% and 42.0% respectively, of the Region total for each of the three (3) possible crash severity outcomes. The BCCs are then ranked first by column **R*1: 1. & 2. Total**, then by column **R2: BCC Crash Total**, then by column **R3: % of BCC Crash Total**.

Table 4: Top Bike Crash Corridors & Crash Severity

| | | | | Bike Crash Severity | | | | | | Crash Total | | |
|---|------|-------------------------------|----------------------|---------------------|--|--------------------------|------------------------------------|-----------------------------------|--------------------------|------------------------------|-------------------------|--|
| # | Rank | BCC Name | Community | 1. # of Crashes | 2. # of Nonfatal (Injury) Crashes | R*1: 1. & 2. Total | 1. & 2. % of Region Total | R3: % of BCC Crash Total | # of PDO** Crashes | R2: BCC Crash Total | % of Region Total | |
| 1 | 1 | SR 2A, ATHOL | ATHOL | | 11 | 11 | 4.1% | 91.7% | 1 | 12 | 4.5% | |
| 2 | | SR 13, LEOMINSTER | LEOMINSTER | | 11 | 11 | 4.1% | 91.7% | 1 | 12 | 4.5% | |
| 3 | 3 | SR 2A, FITCHBURG | FITCHBURG | | 7 | 7 | 2.6% | 63.6% | 4 | 11 | 4.1% | |
| 4 | 4 | SR 12, LEOMINSTER | LEOMINSTER | | 7 | 7 | 2.6% | 70.0% | 3 | 10 | 3.8% | |
| 5 | 5 | MAIN STREET, FITCHBURG | FITCHBURG | | 5 | 5 | 1.9% | 62.5% | 3 | 8 | 3.0% | |
| 6 | 6 | SR 2A, AYER | AYER | | 5 | 5 | 1.9% | 83.3% | 1 | 6 | 2.3% | |
| 7 | | SR 101, GARDNER | GARDNER | | 5 | 5 | 1.9% | 83.3% | 1 | 6 | 2.3% | |
| 8 | 8 | WEST STREET, LEOMINSTER | LEOMINSTER | | 5 | 5 | 1.9% | 100.0% | | 5 | 1.9% | |
| 9 | 9 | SR 2A, LUNENBURG | LUNENBURG | | 4 | 4 | 1.5% | 66.7% | 2 | 6 | 2.3% | |
| 10 | 10 | BOUTELLE STREET, FITCHBURG | FITCHBURG | 1 | 3 | 4 | 1.5% | 80.0% | 1 | 5 | 1.9% | |
| 11 | 11 | JOHN FITCH HIGHWAY, FITCHBURG | FITCHBURG | | 4 | 4 | 1.5% | 100.0% | | 4 | 1.5% | |
| 12 | | SR 2A, WESTMINSTER | WESTMINSTER | | 4 | 4 | 1.5% | 100.0% | | 4 | 1.5% | |
| 13 | 13 | MECHANIC STREET, LEOMINSTER | LEOMINSTER | | 3 | 3 | 1.1% | 75.0% | 1 | 4 | 1.5% | |
| 14 | | SR 12, WINCHENDON | WINCHENDON | | 3 | 3 | 1.1% | 75.0% | 1 | 4 | 1.5% | |
| 15 | 15 | CHESTNUT STREET, ATHOL | ATHOL | | 3 | 3 | 1.1% | 100.0% | | 3 | 1.1% | |
| 16 | | SUMMER STREET, FITCHBURG | FITCHBURG | | 3 | 3 | 1.1% | 100.0% | | 3 | 1.1% | |
| 17 | | US 202, WINCHENDON | WINCHENDON | | 3 | 3 | 1.1% | 100.0% | | 3 | 1.1% | |
| 18 | 18 | ELM STREET, GARDNER | GARDNER | | 2 | 2 | 0.8% | 40.0% | 3 | 5 | 1.9% | |
| 19 | | SR 68, GARDNER | GARDNER | | 2 | 2 | 0.8% | 40.0% | 3 | 5 | 1.9% | |
| 20 | 20 | TIMPANY BOULEVARD, GARDNER | GARDNER | | 2 | 2 | 0.8% | 50.0% | 2 | 4 | 1.5% | |
| 21 | 13 | ACADEMY STREET, FITCHBURG | FITCHBURG | | 2 | 2 | 0.8% | 66.7% | 1 | 3 | 1.1% | |
| 22 | | SR 119, TOWNSEND | TOWNSEND | | 2 | 2 | 0.8% | 66.7% | 1 | 3 | 1.1% | |
| 23 | 23 | CHESTNUT HILL AVENUE, ATHOL | ATHOL | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 24 | | DANIEL SHAYS HIGHWAY, ATHOL | ATHOL | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 25 | | SR 110, CLINTON | CLINTON | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 26 | | SR 62, CLINTON | CLINTON | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 27 | | BOULDER DRIVE, FITCHBURG | FITCHBURG | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 28 | | ELECTRIC AVENUE, FITCHBURG | FITCHBURG | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 29 | | CHESTNUT STREET, GARDNER | GARDNER | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 30 | | MAIN STREET, GARDNER | GARDNER | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 31 | | WILLOW STREET, GARDNER | GARDNER | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 32 | | STERLING ROAD, LANCASTER | LANCASTER | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| 33 | | ASH STREET, TOWNSEND | TOWNSEND | | 2 | 2 | 0.8% | 100.0% | | 2 | 0.8% | |
| *R# = Rank order when applicable: 1st- R1, 2nd- R2, 3rd- R3 | | | TOTALS | 1 | 118 | 119 | | | 29 | 148 | | |
| | | | % of Region Total | 100% | 60.2% | 60.4% | | | 42.0% | 55.6% | | |

Recommendations for the Top Five Bike Crash Corridors

The BCCs listed below are the top five (5) in **Table 4** that should receive additional and more detailed study with the goal of improving bike crash safety conditions. Contact the MRPC for the further information on all remaining BCCs.

SR 2A (Main Street), Athol:

- The bike crash total of 12 crashes includes 11 Nonfatal Crashes and one (1) PDO Crash. One (1) Bike HCL exist on Main Street (SR 2A) between Dunbar Place and Exchange Street. One (1) Pedestrian HCL exist on Main Street between Island Street and Exchange Street.

SR 13, Leominster:

- The bike crash total of 12 crashes includes 11 Nonfatal Crashes and one (1) PDO Crash. One (1) Bike HCL exist on Main Street (SR 13) between River Street and Nashua Street. Three (3) All Mode HCLs exist on this corridor between Haws Street and Prospect Street.

SR 2A (section of Main Street), Fitchburg:

- The bike crash total of 11 crashes includes seven (7) Nonfatal Crashes and four (4) PDO Crashes. One (1) Pedestrian HCL exist on Main Street (SR 2A) between Blossom Street and Summer Street. Three (3) All Mode HCLs exist on this corridor between the Water Street bridge and North Street.

SR 12, Leominster:

- The bike crash total of 10 crashes includes seven (7) Nonfatal Crashes and three (3) PDO Crashes. Four (4) All Mode HCLs exist on this corridor between Hamilton Street and Mechanic Street.

Main Street (non SR 2A section of Main Street), Fitchburg:

- The bike crash total of eight (8) crashes includes five (5) Nonfatal Crashes and three (3) PDO Crashes. No HCLs exist on this corridor.

Walking

Like the roadway projects in the region, pedestrian facilities in the Montachusett Region are also limited due to a lack of funding. During these tough economic times, communities tend to

focus their monies elsewhere. Local communities have expressed interest and support of improved pedestrian ways, often in connection with potential bikeways, but they lack adequate funding for the design and construction of these facilities.

As mentioned in the bicycle section above, in addition to the Massachusetts Bicycle Transportation Plan, the state of Massachusetts also created the [Massachusetts Pedestrian Transportation Plan](#) in 2019.

The Vision, Goals and Principles identified in the updated Pedestrian Plan include:

Vision – All people in Massachusetts will have a safe, comfortable, and convenient option to walk for short trips.

- Goal 1 – Eliminate pedestrian fatalities and serious injuries
- Goal 2 – Increase the percentage of short trips made by walking

Principles

1. Value people walking and their travel needs, especially the most vulnerable – children, elderly, people with disabilities – to ensure they can walk safely.
2. Prioritize improvements for people walking by proactively addressing gaps and barriers that discourage walking and are known to increase the likelihood of crashes.
3. Lead the Commonwealth in meeting the pedestrian plan goals by supporting local municipalities and other agencies to increase everyday walking.

The State of Walking Today

According to the US ACS census data, the percentage of people that bike to work is increasing slightly from 2010 to 2019. The communities that have the highest percentage of people biking to work in 2010 are Shirley (1.5%), Ayer (0.8%) and Leominster (0.4%) in 2018 Fitchburg (0.7%), Groton (0.5%), and Ayer/Ashburnham (0.4%) and in 2019 Fitchburg/Leominster (0.7%), and Ashburnham/Groton (0.3%). See table 5 below.

Table 5 - Percent of population that Walk to Work

| | 2010 | | 2018 | | 2019 | |
|--------------|---------------------------|-------------------------|---------------------------|-------------------------|---------------------------|-------------------------|
| Community | Workers 16 years and over | Percent walking to work | Workers 16 years and over | Percent walking to work | Workers 16 years and over | Percent walking to work |
| Ashburnham | 3104 | 1.4% | 3447 | 3.0% | 3430 | 2.2% |
| Ashby | 1603 | 1.2% | 1704 | 0.9% | 1785 | 0.6% |
| Athol | 5141 | 2.5% | 5364 | 3.0% | 5284 | 3.3% |
| Ayer | 3687 | 3.8% | 4907 | 1.2% | 4842 | 0.2% |
| Clinton | 6999 | 0.8% | 7752 | 2.7% | 7761 | 2.7% |
| Fitchburg | 18188 | 4.4% | 18748 | 3.4% | 19081 | 3.3% |
| Gardner | 9245 | 4.3% | 9653 | 3.7% | 9767 | 3.5% |
| Groton | 5005 | 1.6% | 5686 | 1.5% | 5783 | 1.3% |
| Harvard | 2577 | 1.7% | 2654 | 1.9% | 2709 | 2.2% |
| Hubbardston | 2175 | 0.0% | 2637 | 0.7% | 2590 | 2.6% |
| Lancaster | 3382 | 2.9% | 3654 | 1.8% | 3535 | 1.1% |
| Leominster | 19713 | 1.7% | 20961 | 2.2% | 21125 | 1.7% |
| Lunenburg | 5199 | 1.7% | 5788 | 0.3% | 5982 | 0.2% |
| Petersham | 559 | 2.3% | 645 | 3.3% | 601 | 4.7% |
| Phillipston | 947 | 0.6% | 813 | 0.7% | 870 | 0.7% |
| Royalston | 599 | 1.0% | 599 | 2.2% | 708 | 2.1% |
| Shirley | 2923 | 1.0% | 3120 | 1.7% | 3390 | 1.7% |
| Sterling | 3976 | 0.0% | 4153 | 0.0% | 4144 | 0.0% |
| Templeton | 3708 | 0.4% | 4376 | 0.5% | 4485 | 1.9% |
| Townsend | 4499 | 0.9% | 4947 | 1.0% | 5038 | 0.9% |
| Westminster | 3826 | 0.5% | 4101 | 0.5% | 3968 | 0.0% |
| Winchendon | 4546 | 4.1% | 5657 | 3.9% | 5735 | 2.6% |
| Total | 111601 | 2.3% | 121366 | 2.2% | 122613 | 2.0% |

Source: ACS 5-Year Estimates Subject Tables (S0801 - Commuting Characteristics by Sex)

Pedestrian Crash Data

Similar to a bike crash, it is not difficult to imagine the results of a crash that involves a pedestrian. Pedestrians are considered vulnerable road users as they are unprotected because they do not have an enclosed vehicle compartment. This leaves pedestrians highly vulnerable to death or serious injury when a pedestrian crash occurs. Often, pedestrian crashes are unpredictable, unavoidable events. Most pedestrian crashes are the result of pedestrian or motor vehicle driver error. However, errors can be magnified by a lack of adequate pedestrian facilities and streetlights, poor roadway or intersection design, and inadequate traffic control measures. When pedestrian crashes occur in high numbers at a particular location, there is probably a common reason for them related to the design of the road. Pedestrian crashes can be predictable and the conditions that increase the chances for them to occur are often correctable.

Pedestrian Crash Analysis Methodology

Pedestrian Crash Severity Statistics

The purpose of this analysis is to develop pedestrian crash statistics beyond bike crash totals, locations, and corridors. MRPC staff analyzed the crash severity of the pedestrian crashes. Crash severity states the types of harm, or the most serious outcome, of a pedestrian crash (data source: MassDOT). There are essentially three possible outcomes:

1. Fatal Injury Crash (hereinafter called Fatal Crash): Is the worst type of harm that involves at least one fatality or death of a person;
2. Nonfatal Injury Crash (hereinafter called Nonfatal Crash): Is the second worst type of harm that involves at least one injury to a person;
3. Property Damage Only Crash (hereinafter called PDO Crash): Is the third worst type of harm that involves damage to property of any type.

Pedestrian Crashes Assigned to a Corridor Analysis

Each pedestrian crash was assigned a location name, after which it was mapped to a corridor. The purpose of assigning the pedestrian crashes to a corridor is explained in the **Pedestrian Crash Analysis** section below. To create a name for each corridor, road name/names and the community's name were utilized.

Pedestrian Crashes and Region High Crash Locations

The purpose of this analysis is to discover if, and then where, bike crashes occurred in relation to the MRPC region (hereinafter referred to as Region) high crash locations (hereinafter referred to as HCLs). Basically, HCLs are the top 5% of the total crash clusters that occurred in the Region.

Pedestrian Crash Analysis

The purpose of the Pedestrian Crash Analysis is to develop a prioritized list of the pedestrian crash experience of roadways (hereinafter referred to as Pedestrian Crash Corridors) in the

Region. If the Pedestrian Crash Corridors rank high within the Pedestrian Crash Corridors list, the corridors may require additional and more detailed analysis of all crash data and trends with the goal of improving safety.

Pedestrian Crashes Regionwide

A total of 595 pedestrian crashes occurred in the Region from 2008 - 2017 which represents 1.2% of the Regions 49,451 total crashes for the 10-year period (see **Table 6** below).

Table 6: Total Region Pedestrian Crashes & Total Region Crashes 2008 – 2017

| | All Years Total |
|--|--------------------|
| Fatal Crashes | |
| Region Total Fatal Crashes | 144 |
| Percent of All Years Region TOTAL Crashes | 0.29% |
| Ped Share of Region Total Fatal Crashes | 20 |
| Percent Ped Share of Region Total Fatal Crashes | 13.9% |
| Percent of Ped All Years TOTAL Crashes | 3.4% |
| Percent of All Years Region TOTAL Crashes | 0.040% |
| Nonfatal Crashes | |
| Region Total Nonfatal Crashes | 10,756 |
| Percent of All Years Region TOTAL Crashes | 21.75% |
| Ped Share of Region Total Nonfatal Crashes | 430 |
| Percent Ped Share of Region Total Nonfatal Crashes | 4.0% |
| Percent of Ped All Years TOTAL Crashes | 72.3% |
| Percent of All Years Region TOTAL Crashes | 0.87% |
| Property Damage Only (PDO) Crashes | |
| Region Total PDO Crashes | 38,551 |
| Percent of All Years Region TOTAL Crashes | 77.96% |
| Ped Share of Region Total PDO Crashes | 145 |
| Percent Ped Share of Region Total PDO Crashes | 0.4% |
| Percent of Ped All Years TOTAL Crashes | 24.4% |
| Percent of All Years Region TOTAL Crashes | 0.29% |
| <i>Ped All Years TOTAL Crashes</i> | 595 |
| Percent of All Years Region TOTAL Crashes | 1.2% |
| All Years Region TOTAL Crashes | 49,451 |

Of the Region total crashes:

- 144 (0.29%) were Fatal Crashes of which;
 - 20 (13.9%) were pedestrian crashes that represented 0.04% of the Region total crashes;
- 10,756 (21.75%) were Nonfatal Crashes of which;
 - 430 (4.0%) were pedestrian crashes that represented 0.87% of the Region total crashes;
- 38,551 (77.96.3%) were PDO Crashes of which;
 - 145 (0.4%) were pedestrian crashes that represented 0.29% of the Region total crashes.

Of the pedestrian total crashes:

- 3.4% (20) were Fatal Crashes;
- **72.3% (430) were Nonfatal Crashes;**
- 24.4% (145) were PDO Crashes.

The well documented vulnerability of a pedestrian being involved in either a Fatal or Nonfatal Crash as the crash severity result of a pedestrian crash has been affirmed in the Region with the extremely high percentage (72.3%) of bike crashes resulting in Nonfatal Crashes and 3.4% resulting in Fatal Crashes. Combined, Fatal and Nonfatal Crashes accounted for 75.7% of the pedestrian total crashes.

Pedestrian Crashes on Corridors

Key results from the **Pedestrian Crashes Assigned to a Corridor Analysis** are presented in **Table 7** and **Table 8** below. **Table 7** provides for each Region member community the total number and percentage share of Pedestrian Crash Corridors (PCCs) (two columns under **PCCs: # of PCCs Per Com** and **% of PCC Total**); the total number and percentage share of bike crashes per PCC (two columns under **Crash Total: R2: PCC Crash Total** and **% of Region Total**); the Crash Severity total numbers and percentage share per PCC (six (6) columns under **Pedestrian Crash Severity: 1. # of Fatal Crashes, 2. # of Nonfatal (Injury) Crashes, R*1: 1. & 2. Total, 1. & 2. % of Region Total, R3: % of PCC Crash Total, # of PDO** Crashes** (PDO percentage share not provided)). The communities are then ranked first by column **R*1: 1. & 2. Total**, then by column **R2: PCC Crash Total**, then by column **R3: % of PCC Crash Total**.

The top five (5) ranked communities accounted for 152 (64.7%) of the 235 PCCs that occurred in the Region communities which included 482 of the total number of pedestrian crashes (81.0%). Of that total, 13 were Fatal Crashes and 352 were Nonfatal Crashes for a combined 81.1% of the Fatal and Nonfatal Crashes. The top five (5) ranked communities with at least a combined total of 19 Fatal and Nonfatal Crashes are:

1. Fitchburg:

Accounted for 66 (28.1%) PCCs which accounted for 201 of the total number pedestrian crashes (33.8%) of which four (4) were Fatal Crashes and 136 were Nonfatal Crashes (31.1% combined); 61 were PDO Crashes; Fatal / Nonfatal Crashes accounted for 69.7% of the total pedestrian crashes within Fitchburg's PCCs;

2. Leominster:

Accounted for 32 (13.6%) PCCs which accounted for 107 of the total number pedestrian crashes (18.0%) of which six (6) were Fatal Crashes and 83 were Nonfatal Crashes (19.8% combined); 18 were PDO crashes; Fatal / Nonfatal Crashes accounted for 83.2% of the total pedestrian crashes within Leominster's PCCs;

3. Gardner:

Accounted for 29 (12.3%) PCCs which accounted for 101 of the total number pedestrian crashes (17.0%) of which one (1) was a Fatal Crash and 75 were Nonfatal Crashes (16.9% combined); 25 were PDO crashes; Fatal / Nonfatal Crashes accounted for 75.2% of the total pedestrian crashes within Gardner's PCCs;

4. Athol:

Accounted for 15 (6.4%) PCCs which accounted for 50 of the total number pedestrian crashes (8.4%) of which 41 were Nonfatal Crashes (9.1%); 9 were PDO crashes; Nonfatal Crashes accounted for 82.0% of the total pedestrian crashes within Athol's PCCs;

5. Ayer:

Accounted for 10 (4.3%) PCCs which accounted for 23 of the total number pedestrian crashes (3.9%) of which two (2) were Fatal Crashes and 17 were Nonfatal Crashes (4.2% combined); 4 were PDO crashes; Fatal / Nonfatal Crashes accounted for 82.6% of the total pedestrian crashes within Ayer's PCCs;

Table 7: Pedestrian Crash Corridors per Communities

| # | Rank | Community (Com) | PCCs | | Pedestrian Crash Severity | | | | | | Crash Total | |
|----|------|-----------------|-------------------|----------------|---------------------------|-----------------------------------|--------------------|---------------------------|--------------------------|--------------------|---------------------|-------------------|
| | | | # of PCCs Per Com | % of PCC Total | 1. # of Fatal Crashes | 2. # of Nonfatal (Injury) Crashes | R*1: 1. & 2. Total | 1. & 2. % of Region Total | R3: % of PCC Crash Total | # of PDO** Crashes | R2: PCC Crash Total | % of Region Total |
| 1 | 1 | FITCHBURG | 66 | 28.1% | 4 | 136 | 140 | 31.1% | 69.7% | 61 | 201 | 33.8% |
| 2 | 2 | LEOMINSTER | 32 | 13.6% | 6 | 83 | 89 | 19.8% | 83.2% | 18 | 107 | 18.0% |
| 3 | 3 | GARDNER | 29 | 12.3% | 1 | 75 | 76 | 16.9% | 75.2% | 25 | 101 | 17.0% |
| 4 | 4 | ATHOL | 15 | 6.4% | 0 | 41 | 41 | 9.1% | 82.0% | 9 | 50 | 8.4% |
| 5 | 5 | AYER | 10 | 4.3% | 2 | 17 | 19 | 4.2% | 82.6% | 4 | 23 | 3.9% |
| | | #1 - #5 Totals | 152 | 64.7% | 13 | 352 | 365 | 81.1% | 4 | 117 | 482 | 81.0% |
| 6 | 6 | CLINTON | 7 | 3.0% | 1 | 9 | 10 | 2.2% | 58.8% | 7 | 17 | 2.9% |
| 7 | 7 | WINCHENDON | 12 | 5.1% | 0 | 10 | 10 | 2.2% | 66.7% | 5 | 15 | 2.5% |
| 8 | 8 | LUNENBURG | 10 | 4.3% | 1 | 9 | 10 | 2.2% | 83.3% | 2 | 12 | 2.0% |
| 9 | 9 | TOWNSEND | 9 | 3.8% | 2 | 7 | 9 | 2.0% | 69.2% | 4 | 13 | 2.2% |
| 10 | 10 | TEMPLETON | 9 | 3.8% | 0 | 9 | 9 | 2.0% | 81.8% | 2 | 11 | 1.8% |
| 11 | 11 | LANCASTER | 5 | 2.1% | 1 | 6 | 7 | 1.6% | 87.5% | 1 | 8 | 1.3% |
| 12 | 12 | GROTON | 4 | 1.7% | 1 | 6 | 7 | 1.6% | 100.0% | 0 | 7 | 1.2% |
| 13 | 13 | SHIRLEY | 8 | 3.4% | 0 | 6 | 6 | 1.3% | 75.0% | 2 | 8 | 1.3% |
| 14 | 14 | STERLING | 5 | 2.1% | 0 | 5 | 5 | 1.1% | 83.3% | 1 | 6 | 1.0% |
| 15 | 15 | HARVARD | 4 | 1.7% | 0 | 4 | 4 | 0.9% | 80.0% | 1 | 5 | 0.8% |
| 16 | 16 | ASHBURNHAM | 4 | 1.7% | 1 | 2 | 3 | 0.7% | 75.0% | 1 | 4 | 0.7% |
| 17 | 17 | ASHBY | 3 | 1.3% | 0 | 2 | 2 | 0.4% | 66.7% | 1 | 3 | 0.5% |
| 18 | 18 | HUBBARDSTON | 1 | 0.4% | 0 | 2 | 2 | 0.4% | 100.0% | 0 | 2 | 0.3% |
| 19 | 19 | WESTMINSTER | 1 | 0.4% | 0 | 1 | 1 | 0.2% | 100.0% | 0 | 1 | 0.2% |
| 20 | 20 | PETERSHAM | 1 | 0.4% | 0 | 0 | 0 | 0.0% | 0.0% | 1 | 1 | 0.2% |
| 21 | 21 | PHILLIPSTON | 0 | 0.0% | 0 | 0 | 0 | 0.0% | N/A | 0 | 0 | 0.0% |
| 22 | | ROYALSTON | 0 | 0.0% | 0 | 0 | 0 | 0.0% | N/A | 0 | 0 | 0.0% |
| | | #6 - #22 Totals | 83 | 35.3% | 7 | 78 | 85 | 18.9% | | 28 | 113 | 19.0% |
| | | TOTALS | 235 | | 20 | 430 | 450 | | | 145 | 595 | |

* R# = Rank order when applicable: 1st- R1, 2nd- R2, 3rd- R3

**includes Not Reported and Unknown

The remaining 83 (35.3%) PCCs accounted for 113 of the total number of pedestrian crashes (19.0%) of which seven (7) were Fatal Crashes and 78 were Nonfatal Crashes for a combined 18.9% of the Fatal and Nonfatal Crashes. PDO Crashes accounted for 28 crashes. The PCCs were distributed among 15 communities (#6 - #20). Phillipston and Royalston (#21 - 22) did not experience bike crashes.

Table 8 presents the top 39 PCCs in the Region. A PCC was required to experience a minimum of three (3) Nonfatal Crashes to be ranked in **Table 8**. These are the PCCs that may require additional and more detailed analysis of all crash data and trends for the goal of improving safety. The PCCs in **Table 8** are comprised of 347 pedestrian crashes which represents 58.3% of

the Region total of 595. The remaining 248 (41.7%) pedestrian crashes are distributed on 199 other PCCs in the Region. The Crash Severity totals include eight (of 20) Fatal Crash; 253 (of 430) Nonfatal Crashes and 86 (of 145) PDO Crashes, or 40.0%, 58.8% and 59.3% respectively, of the Region total for each of the three (3) possible crash severity outcomes. The BCCs are then ranked first by column **R*1: 1. & 2. Total**, then by column **R2: PCC Crash Total**, then by column **R3: % of PCC Crash Total**.

Table 8: Top Pedestrian Crash Corridors & Crash Severity

| | | | | Pedestrian Crash Severity | | | | | | Crash Total | |
|---|------|---------------------------------|------------|---------------------------|-----------------------------------|--------------------|---------------------------|--------------------------|--------------------|---------------------|-------------------|
| # | Rank | PCC Name | Community | 1. # of Fatal Crashes | 2. # of Nonfatal (Injury) Crashes | R*1: 1. & 2. Total | 1. & 2. % of Region Total | R3: % of PCC Crash Total | # of PDO** Crashes | R2: PCC Crash Total | % of Region Total |
| 1 | 1 | MAIN STREET, FITCHBURG | FITCHBURG | 0 | 37 | 37 | 8.2% | 63.8% | 21 | 58 | 9.7% |
| 2 | 2 | MAIN STREET, ATHOL | ATHOL | 0 | 21 | 21 | 4.7% | 80.8% | 5 | 26 | 4.4% |
| 3 | 3 | MAIN STREET, GARDNER | GARDNER | 0 | 18 | 18 | 4.0% | 69.2% | 8 | 26 | 4.4% |
| 4 | 4 | MAIN STREET, LEOMINSTER | LEOMINSTER | 1 | 15 | 16 | 3.6% | 76.2% | 5 | 21 | 3.5% |
| 5 | 5 | WATER STREET, FITCHBURG | FITCHBURG | 0 | 14 | 14 | 3.1% | 73.7% | 5 | 19 | 3.2% |
| 6 | 6 | NORTH MAIN STREET, LEOMINSTER | LEOMINSTER | 0 | 13 | 13 | 2.9% | 86.7% | 2 | 15 | 2.5% |
| 7 | 7 | CENTRAL STREET, LEOMINSTER | LEOMINSTER | 2 | 7 | 9 | 2.0% | 75.0% | 3 | 12 | 2.0% |
| 8 | 8 | TIMPANY BOULEVARD, GARDNER | GARDNER | 0 | 9 | 9 | 2.0% | 90.0% | 1 | 10 | 1.7% |
| 9 | 9 | WEST STREET, LEOMINSTER | LEOMINSTER | 0 | 8 | 8 | 1.8% | 88.9% | 1 | 9 | 1.5% |
| 10 | 10 | PLEASANT STREET, GARDNER | GARDNER | 0 | 8 | 8 | 1.8% | 100.0% | 0 | 8 | 1.3% |
| 11 | 11 | PARKER STREET, GARDNER | GARDNER | 0 | 6 | 6 | 1.3% | 75.0% | 2 | 8 | 1.3% |
| 12 | | MECHANIC STREET, LEOMINSTER | LEOMINSTER | 1 | 5 | 6 | 1.3% | 75.0% | 2 | 8 | 1.3% |
| 13 | 13 | SUMMER STREET, FITCHBURG | FITCHBURG | 0 | 6 | 6 | 1.3% | 85.7% | 1 | 7 | 1.2% |
| 14 | 14 | MAIN STREET, AYER | AYER | 1 | 4 | 5 | 1.1% | 83.3% | 1 | 6 | 1.0% |
| 15 | | WESTMINSTER STREET, FITCHBURG | FITCHBURG | 2 | 3 | 5 | 1.1% | 83.3% | 1 | 6 | 1.0% |
| 16 | 16 | SOUTH MAIN STREET, ATHOL | ATHOL | 0 | 5 | 5 | 1.1% | 100.0% | 0 | 5 | 0.8% |
| 17 | 17 | LUNENBURG STREET, FITCHBURG | FITCHBURG | 0 | 4 | 4 | 0.9% | 50.0% | 4 | 8 | 1.3% |
| 18 | 18 | PEARSON BOULEVARD, GARDNER | GARDNER | 0 | 4 | 4 | 0.9% | 57.1% | 3 | 7 | 1.2% |
| 19 | 19 | WEST STREET, GARDNER | GARDNER | 0 | 4 | 4 | 0.9% | 80.0% | 1 | 5 | 0.8% |
| 20 | 20 | PARK STREET, AYER | AYER | 0 | 4 | 4 | 0.9% | 100.0% | 0 | 4 | 0.7% |
| 21 | | BOUTELLE STREET, FITCHBURG | FITCHBURG | 0 | 4 | 4 | 0.9% | 100.0% | 0 | 4 | 0.7% |
| 22 | | SOUTH STREET, FITCHBURG | FITCHBURG | 0 | 4 | 4 | 0.9% | 100.0% | 0 | 4 | 0.7% |
| 23 | 23 | MAIN STREET, CLINTON | CLINTON | 1 | 2 | 3 | 0.7% | 37.5% | 5 | 8 | 1.3% |
| 24 | 24 | BLOSSOM STREET, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 25 | | JOHN FITCH HIGHWAY, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 26 | | WILLOW STREET, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 27 | | PINE STREET, GARDNER | GARDNER | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 28 | | PLEASANT STREET, LEOMINSTER | LEOMINSTER | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 29 | | MAIN STREET, TOWNSEND | TOWNSEND | 0 | 3 | 3 | 0.7% | 60.0% | 2 | 5 | 0.8% |
| 30 | 30 | ELECTRIC AVENUE, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 75.0% | 1 | 4 | 0.7% |
| 31 | | CENTRAL STREET, GARDNER | GARDNER | 0 | 3 | 3 | 0.7% | 75.0% | 1 | 4 | 0.7% |
| 32 | | PEARL STREET, GARDNER | GARDNER | 0 | 3 | 3 | 0.7% | 75.0% | 1 | 4 | 0.7% |
| 33 | 33 | EAST MAIN STREET, AYER | AYER | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 34 | | GROTON HARVARD ROAD, AYER | AYER | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 35 | | PLEASANT STREET, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 36 | | ROLLSTONE STREET, FITCHBURG | FITCHBURG | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 37 | | MAIN STREET, GROTON | GROTON | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 38 | | MERRIAM AVENUE, LEOMINSTER | LEOMINSTER | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| 39 | | MASSACHUSETTS AVENUE, LUNENBURG | LUNENBURG | 0 | 3 | 3 | 0.7% | 100.0% | 0 | 3 | 0.5% |
| *R# = Rank order when applicable: 1st- R1, 2nd- R2, 3rd- R3 | | | | TOTALS | 8 | 253 | 261 | | 86 | 347 | |
| | | | | % of Region Total | 40.0% | 58.8% | 58.0% | | 59.3% | 58.3% | |

Recommendations for the Top Five Pedestrian Crash Corridors

The PCCs listed below are the top five (5) in **Table 6** that should receive additional and more detailed study with the goal of improving pedestrian crash safety conditions. Contact the MRPC for the further information on all remaining PCCs.

Main Street (SR 2A section & non SR 2A section), **Fitchburg**:

- The pedestrian crash total of 58 crashes includes 37 Nonfatal Crashes and 21 PDO Crashes. One (1) Pedestrian HCL exist on Main Street (SR 2A) between Blossom Street and Summer Street and three (3) All Mode HCLs exist on this corridor in the same area as the Pedestrian HCL.

Main Street (SR 2A), **Athol**:

- The pedestrian crash total of 26 crashes includes 21 Nonfatal Crashes and five (5) PDO Crashes. One (1) Bike HCL exist on Main Street (Rt 2A) between Dunbar Place and Exchange Street. One (1) Pedestrian HCL exist on Main Street between Island Street and Exchange Street.

Main Street (SR 68), **Gardner**:

- The pedestrian crash total of 26 crashes includes 18 Nonfatal Crashes and eight (8) PDO Crashes. One (1) Pedestrian HCL exist on Main Street (SR 68) between Rear Main Street and Donlan Street. One (1) All Mode HCL exist in the same area as the Pedestrian HCL.

Main Street (SRs 12 & 13), **Leominster**:

- The pedestrian crash total of 21 crashes includes one (1) Fatal Crash, 15 Nonfatal Crashes, and five (5) PDO Crashes. One (1) Bike HCL exist on Main Street between River Street and Prospect Street. Five (5) All Mode HCLs exist at various locations along the PCC from Monument Square to the Lunenburg Town Line.

Water Street, **Fitchburg**:

- The pedestrian crash total of 19 crashes includes 14 Nonfatal Crashes and five (5) PDO Crashes. One (1) Pedestrian HCL exist near the Water Street bridge and four (4) All Mode HCLs exist at various locations along the PCC from the Water Street bridge to Nichols / Battles Street.

Sidewalks

Most of the communities in the Montachusett Region are rural in nature with small downtown areas. The areas typically contain sidewalks within the major activity centers. The urban communities have a more extensive infrastructure within the central business districts that facilitates pedestrian circulation. Efforts have been made to improve pedestrian access by means of sidewalk improvements, crosswalk delineation, and construction of handicapped ramps, improved lighting, and connections to municipal parking lots. Designated fixed route bus stops are also common along the sidewalks providing a connection between different modes of travel.

Detailed sidewalk locations for each community can be found in **Map Figures 1-23**.

Trails

Using Unified Planning Work Program (UPWP) funds, the MRPC was able to conduct a region wide trail inventory starting in 2005 and finishing in 2011. Through public outreach, local meetings and data collection, the MRPC was able to gather trail data for each of their 22 communities plus Devens. This data was broken down into three categories:

- Existing Formal – Trails that are open to the public.
- Existing Informal – Trails that exist but are not open to the public. These trails are likely on private or environmentally sensitive land.
- Potential – These are trails that are not currently in existence but that have potential for development in the future.

In 2012, the trail inventory data was updated through community outreach and field investigation. A Montachusett Regional Trail Guide was then created with the updated trail data in 2014. This guide includes all of the Existing Formal Trails along with local cultural and historical points of interest. The first guide consisted of 10,000 printed copies that were distributed throughout the region. These guides were so popular that they were all dispersed in just over a few years.

In 2019, the MRPC, with the help of the Montachusett Regional Trails Coalition (MRTC), updated existing trail data once again and published an updated Montachusett Regional Trail Guide. At the time of this document, the MRPC currently has approximately 750 miles of existing formal trails throughout the region. See **Map Figures 47-69** for more detailed trail data for each community.

Trends

The desire for more multi modal transportation options within the Montachusett Region has increase significantly over the past few years. More people are seeing the value in having these types of transportation options and are also advocating for the development of new, safer, bicycle and pedestrian facilities throughout the region. Programs such as Complete Streets and Safe Routes to School are gaining support from our communities -

- Complete Streets – 17 out of 22 communities have approved policies, and 8 have received funding for multi modal projects
- Safe Routes to School – 16 out of 22 communities are partners with the program

| Community | Safe Routes to School | | Complete Streets | | |
|-------------|-----------------------|----------------------|------------------|----------------------------|---------------------------|
| | Participant | Infrastructure Funds | Tier 1 Policy | Tier 2 Prioritization Plan | Tier 3 Construction Funds |
| Ashburnham | X | | 2019 | 2019 | 2020 |
| Ashby | X | | | | |
| Athol | X | | 2019 | 2019 | 2020 |
| Ayer | X | | 2016 | 2017 | 2019 |
| Clinton | X | | 2016 | 2017 | 2017 & 2020 |
| Fitchburg | X | 2016-2017 | 2016 | 2017 | 2018 & 2020 |
| Gardner | X | 2022 | 2016 | + | 2018 |
| Groton | | | 2016 | 2017 | 2017 |
| Harvard | X | | 2017 | 2018 | 2019 |
| Hubbardston | X | | 2017 | 2017 | 2018 |
| Lancaster | | | 2016 | 2017 | 2017 & 2021 |
| Leominster | X | 2022 | 2016 | 2017 | 2017 |
| Lunenburg | X | | 2017 | 2018 | 2020 |
| Petersham | X | | | | |
| Phillipston | | | 2018 | | |
| Royalston | | | | | |
| Shirley | X | | 2016 | 2018 | 2019 |
| Sterling | | | 2020 | 2021 | |
| Templeton | | | 2017 | | |
| Townsend | X | | 2017 | 2018 | |
| Westminster | X | | | | |
| Winchendon | X | | 2016 | 2017 | 2021 |

The State is also contributing financially to trail projects through the MassTrails Grant program. This program provides grants to support recreational trail and shared use pathway projects across the Commonwealth. These grants are reviewed and recommended by the Massachusetts Recreational Trails Advisory Board and the Commonwealth's Inter-Agency Trails Team. There are two funding sources for the grant –

1. Recreational Trails Program (RTP) – these grants are federally funded through the Federal Highway Administration (FHWA), administered at the State level, and provide funding for the development and maintenance of recreational trail projects, both motorized and non-motorized.
2. Commonwealth Trails Grants – “These grants are supported by the State’s annual Capital Investment Plan (CIP) and aim to help communities design, create and maintain off-road shared-use pathway connections between where Massachusetts residents live, learn, work, shop and recreate, especially by building out the longer distance regional networks of multi-use pathways across the state and filling in critical gaps in existing networks, or overcoming current barriers to connectivity.” (www.mass.gov/guides/masstrails-grants)

In 2019, five communities within the Montachusett Region received MassTrails funding – Athol, Fitchburg, Groton, Lunenburg, and Townsend.

Another notable funding source is the Congestion Mitigation and Air Quality Improvement Program (CMAQ) which provides federal funding for states to support projects and programs intended to improve air quality and reduce traffic congestion. Example projects include – traffic flow improvements, public transit services and facilities, bicycle and pedestrian facilities and programs, rideshare activities, etc. The Twin Cities Rail Trail project that is currently scheduled in the FY 2020 & FY 2021 Transportation Improvement Plan was funded through this funding source.

Action Plan

As these multi modal trail and bikeway projects continue to be studied and developed, funding is always a major component. Increasing the existing funding programs and available dollar amounts are always critical to further these regionally significant projects. Additionally, continuing the study and planning of trail related developments in order to identify priority trails and trail connections are also key for alternate modes of transportation.

A. Project Development

Project Development is the process that takes a transportation improvement from concept through construction. Every year the Montachusett region receives federal and state funds for projects to improve the transportation network in local communities. These funds and projects are prioritized through the MMPO, a regional advisory group that annually develops the Montachusett Transportation Improvement Program (TIP). For a community to receive funds, the project must follow a multi-step review and approval process required by the MassDOT Highway Division. This process is summarized in Standard Operating Procedure (SOP) No. HED-08-02-1-00 Project Initiation Process for Highway Division Projects. A copy of this SOP is

Project proponents are required to follow this process whenever MassDOT Highway Division is involved in the decision-making process. The project development procedures are, therefore, applicable to any of the following situations:

- When MassDOT is the proponent; or

- When MassDOT is responsible for project funding (state or federal-aid projects); or
- When MassDOT controls the infrastructure (projects on state highways).

Projects with local jurisdiction and local funding sources are not required to go through this review process unless the project is located on the National Highway or Federal-Aid Systems.

The project development process is designed to progressively narrow the projects focus in order to develop a project that addresses identified needs at that location. There should be opportunities for public participation throughout.

The steps described in the SOP are also available online at: <https://www.mass.gov/doc/standard-operating-procedure-project-initiation-process-for-highway-division-projects/download>

B. Montachusett Metropolitan Planning Organization (MMPO)

All urbanized areas with a population greater than 50,000 are required by the U.S. Department of Transportation (USDOT) Federal regulations to designate an MPO for the area. The establishment of an MPO is necessary for the State to receive Federal transportation funds. In the Montachusett Region, the Montachusett Regional Planning Commission (MRPC) serves as staff for the MPO. The MRPC staff annually produces a Transportation Improvement Program (TIP) and Unified Planning Work Program (UPWP). In addition, a Regional Transportation Plan is updated periodically to reflect the changing transportation needs of the area. A 2020 Regional Transportation Plan was prepared and endorsed by the MPO on July 17, 2019.

The MPO in the Montachusett Region (after reorganization in October 2001) is currently comprised of the following signatories:

- Secretary and CEO of the Massachusetts Department of Transportation (MassDOT);
- Administrator of MassDOT Highway Division;
- Chairman of the MRPC;
- Chairman of Montachusett Regional Transit Authority (MART)*;
- Mayor of the City of Fitchburg
- Mayor of the City of Gardner
- Mayor of the City of Leominster
- Four Representatives from the four identified Subregions of towns in the MRPC region

*This member will be represented by one of the Mayors from Fitchburg, Gardner or Leominster.

The MMPO Subregions are composed as such:

Subregion 1 - Athol, Hubbardston, Petersham, Phillipston, Royalston, Templeton, Winchendon;
Subregion 2 - Ashburnham, Ashby, Groton, Townsend, Westminster;
Subregion 3 - Ayer, Harvard, Lunenburg and Shirley;
Subregion 4 - Clinton, Lancaster, Sterling.

These 10 members serve as the MPO Policy Board for the regional "3C" (comprehensive, cooperative, and continuing) transportation planning process.

C. The Transportation Improvement Program (TIP) – Development and Process

The TIP is a prioritized listing of transportation projects proposed for implementation during the future four federal fiscal years and is updated every year by the MMPO. TIP projects are identified by funding category so that where necessary priorities may be established for projects within each funding program. Unless otherwise noted, the agency responsible for implementing highway projects is the Massachusetts Department of Transportation Highway Division and, for transit projects, the Montachusett Regional Transit Authority.

MRPC staff annually develops the TIP project listing from sources that include the MassDOT's Project Information System, MassDOT Highway Division Districts 2 and 3, local officials, the Montachusett Joint Transportation Committee (MJTC), the Long and Short Range Elements of the Regional Transportation Plan (RTP), and the Montachusett Metropolitan Planning Organization (MPO).

Prioritization of projects is based upon input from MassDOT regarding project design and implementation status, local prioritization from chief elected officials, scoring of the project based upon the Transportation Evaluation Criteria (TEC), fiscal constraints for the Montachusett Region, consensus vote by the MJTC and formal adoption by the MPO. Throughout this procedure, input from local citizens are reviewed and considered where appropriate in the prioritization process.

An initial project listing is obtained from MassDOT and the local communities. These projects are then reviewed one by one to ascertain their current status as to design and potential advertising dates. Projects are then scored and evaluated utilizing the Transportation Evaluation Criteria (TEC) developed by the MRPC. The TEC is a series of criteria to "be applied by the appropriate implementing agency during the project development stage to ensure that our limited budgetary and staff resources are committed to the best proposals; to assist the MPO process of programming federal funding through the regional Transportation Improvement Programs; and to examine existing projects in the pipeline to determine which should ultimately proceed to design and construction." Final scores based upon the TEC then become part of the decision and prioritization process.

From this information, a project listing by fiscal year is developed. This fiscal listing is then compared to the Federal funding target allocation for the region. The listing is then reviewed by state and local officials, as well as the MJTC and the MMPO, to determine fiscal constraint by funding year. Any problems are then identified. Through the MMPO, projects are adjusted and prioritized in order to resolve the identified problems.

In conformance established procedures with the MMPO Public Participation Program (PPP), developed to ensure a "proactive public involvement process ... in developing plans and TIPs, the draft TIP is distributed for a mandated 21-day public review and comment period. Following completion of the 21-day review period, any comments or issues received are addressed and reflected in the final TIP. This document is then reviewed by the MJTC, MRPC and MMPO and is recommended for endorsement by the MMPO at a subsequent MMPO meeting.

The fully endorsed TIP is then distributed to Federal, State and local agencies and groups, including FTA, FHWA, the Environmental Protection Agency (EPA) and the Department of Environmental Protection (DEP) again in conformance with the PPP.

At any time during the Federal Fiscal Year, an amendment to the TIP can be developed and endorsed by the MMPO following similar procedures established for the TIP, i.e. a draft amendment is prepared and released for a 21 day public review and comment period, reviewed by the MJTC, MRPC and the MMPO and endorsed if deemed appropriate.

D. Funding Programs

Several funding sources exist on the federal and state level that may be applicable to the preferred projects identified by the communities within this report. As the municipality begins the project development process, the following funding sources/options may come into play during the design, implementation and construction phases. The community should note that a funding program need not be identified as part of the PNF or PIF process but can be determined as the project limits and scope become defined.

The following is a brief listing of Federal, State and Local funding programs that may be potential sources for road, bridge, trail and sidewalk projects. Information is based upon the recent federal surface transportation funding legislation known as Fixing America's Surface Transportation (FAST) Act. This legislation has created a more streamlined, performance-based and multimodal program to address the challenges facing the country's transportation system. For further information on some of these programs please contact the MRPC or MassDOT

Highway Division. Additional information on the FAST Act can be found at the Federal Highway Administration (FHWA) website, www.fhwa.dot.gov/fastact/

The FAST Act

On December 4, 2015, President Obama signed the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) into law—the first federal law in over a decade to provide long-term funding certainty for surface transportation infrastructure planning and investment. The FAST Act authorizes \$305 billion over fiscal years 2016 through 2020 for highway, highway and motor vehicle safety, public transportation, motor carrier safety, hazardous materials safety, rail, and research, technology, and statistics programs. The FAST Act maintains our focus on safety, keeps intact the established structure of the various highway-related programs we manage, continues efforts to streamline project delivery and, for the first time, provides a dedicated source of federal dollars for freight projects. With the enactment of the FAST Act, states and local governments are now moving forward with critical transportation projects with the confidence that they will have a federal partner over the long term. The following FAST Act programs may be applicable to securing funding for improvements.

Federal Programs:

- *National Highway Performance Program (NHPP)* - The enhanced National Highway System (NHS) is composed of approximately 220,000 miles of rural and urban roads serving major population centers, international border crossings, intermodal transportation facilities, and major travel destinations. It includes the Interstate System, all principal arterials (including some not previously designated as part of the NHS) and border crossings on those routes, highways that provide motor vehicle access between the NHS and major intermodal transportation facilities, and the network of highways important to U.S. strategic defense (STRAHNET) and its connectors to major military installations.
- *Surface Transportation Block Grant Program (STBG)* - The FAST Act converts the long-standing Surface Transportation Program into the Surface Transportation Block Grant Program, acknowledging that this program has the most flexible eligibilities among all Federal-aid highway programs and aligning the program's name with how FHWA has historically administered it. The FAST Act provides an estimated annual average of \$11.7 billion for STBG, which States and localities may use for projects to preserve or improve conditions and performance on any Federal-aid highway, bridge projects on any public

road, facilities for nonmotorized transportation, transit capital projects, and public bus terminals and facilities.

- *Railway-Highway Crossings Program* - The FAST Act continues the Railway-Highway Crossings Program, providing funds for safety improvements to reduce the number of fatalities, injuries, and crashes at public railway-highway grade crossings.
- *Congestion Mitigation and Air Quality (CMAQ)* - The CMAQ program provides a flexible funding source to State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. Funding is available to reduce congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) as well as former nonattainment areas that are now in compliance (maintenance areas). States with no nonattainment or maintenance areas may use their CMAQ funds for any CMAQ- or STP-eligible project.
- *Highway Safety Improvement Program (HSIP)* - The HSIP emphasizes a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. The foundation for this approach is a safety data system, which each State is required to have to identify key safety problems, establish their relative severity, and then adopt strategic and performance-based goals to maximize safety. Every State is required to develop a Strategic Highway Safety Plan (SHSP) that lays out strategies to address these key safety problems.
- *Transportation Alternatives (TA)* - The FAST Act eliminates the MAP-21 Transportation Alternatives Program (TAP) and replaces it with a set-aside of STBG funding for transportation alternatives. These set-aside funds include all projects and activities that were previously eligible under TAP, encompassing a variety of smaller-scale transportation projects such as pedestrian and bicycle facilities, recreational trails, safe routes to school projects, community improvements such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity. Eligible activities include:
 - Transportation alternatives (new definition incorporates many transportation enhancement activities and several new activities)
 - Recreational trails program (program remains unchanged)
 - Safe routes to schools program
 - Planning, designing, or constructing roadways within the right-of way of former Interstate routes or other divided highways.

State Programs:

- *MassWorks Infrastructure Grants* - The MassWorks Infrastructure Program is a competitive grant program that provides the largest and most flexible source of capital funds to municipalities and other eligible public entities for public infrastructure projects that support and accelerate housing production, spur private development, and create jobs throughout the Commonwealth.
- *Municipal Bridge Program* - MassDOT manages and funds rehabilitation and replacement of municipally-owned bridges, and as of 2016 has allocated \$50 million in general obligation bonds for municipal structures over the next five years.
- *Complete Streets Program* - MassDOT provides funding to cities and towns for the completion of "Complete Streets" plans and infrastructure projects.
- *Safe Routes to School Program* - This program is sponsored by the Massachusetts Department of Transportation and works to increase safe biking and walking among elementary and middle school students by using a collaborative, community-focused approach that bridges the gap between health and transportation.
- *Shared Streets & Spaces Program*- This program was established to support municipalities and transit authorities to improve plazas, sidewalks, curbs, streets, bus stops, parking areas, and other public spaces in support of public health, safe mobility, and renewed commerce. The newest phase of this program will have an additional emphasis on safety and is looking to fund projects that improve safety for all road users through interventions that achieve safer conditions and safer speeds.

Local Sources:

- *Chapter 90 Transportation Funds* -The Chapter 90 Program entitles municipalities to reimbursement of documented expenditures for Capital Improvement Projects for Highway Construction, Preservation and Improvement Projects that create or extend the life of Capital Facilities under the provisions of General Laws Chapter 90, Section 34, Clause 2(a) on approved Projects. Eligible Highway Construction projects include resurfacing, microsurfacing, pug mill mix (cold mix), drainage, intersections, sidewalks, footbridges, berms and curbs, traffic controls and related facilities, right-of-way acquisition, street lighting (excluding operating costs and decorative enhancements), bridges, and tree planting/landscaping in association with a project.

Figure 1:
Ashburnham, MA
Pedestrian Infrastructure

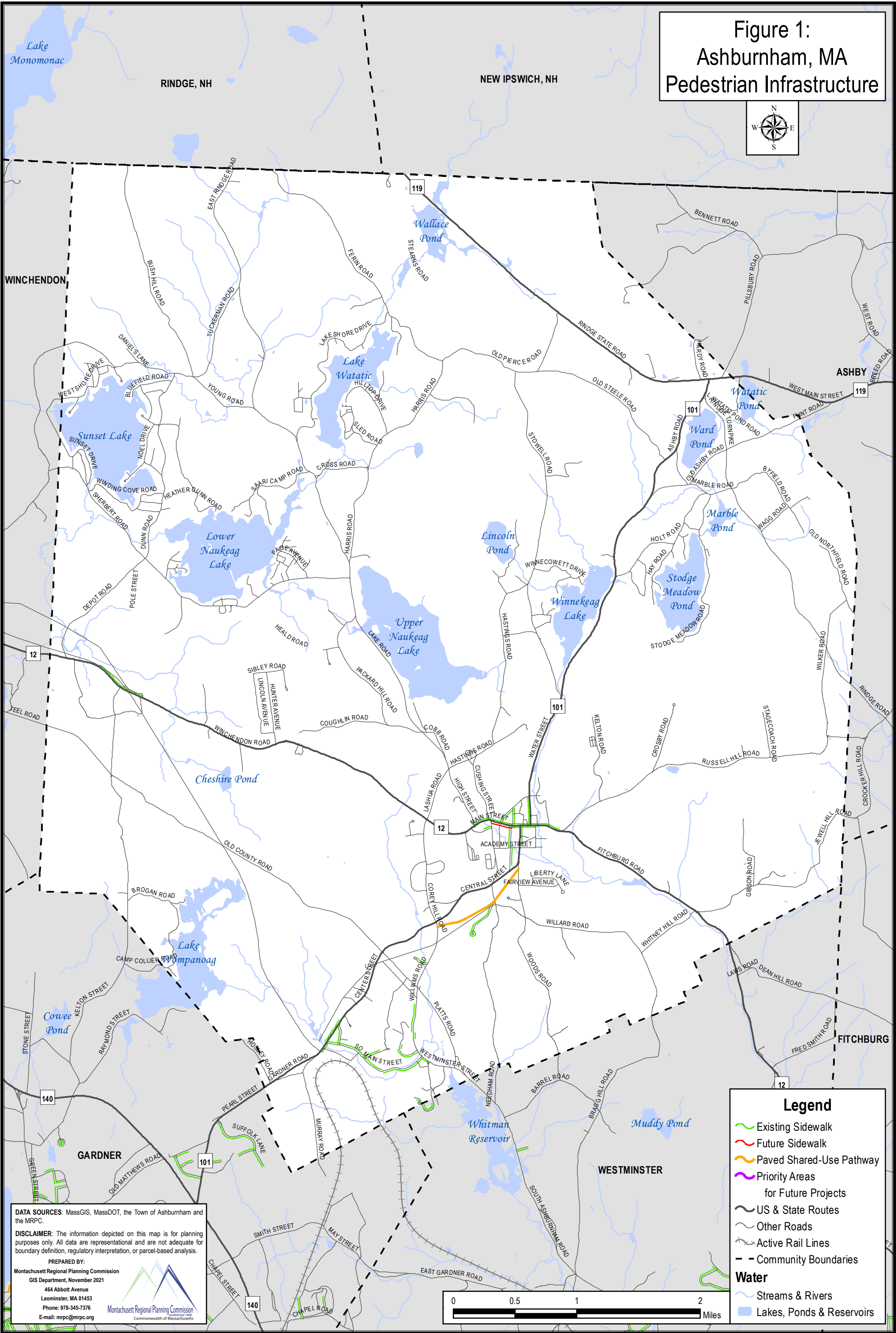


Figure 2:
Ashby, MA
Pedestrian
Infrastructure

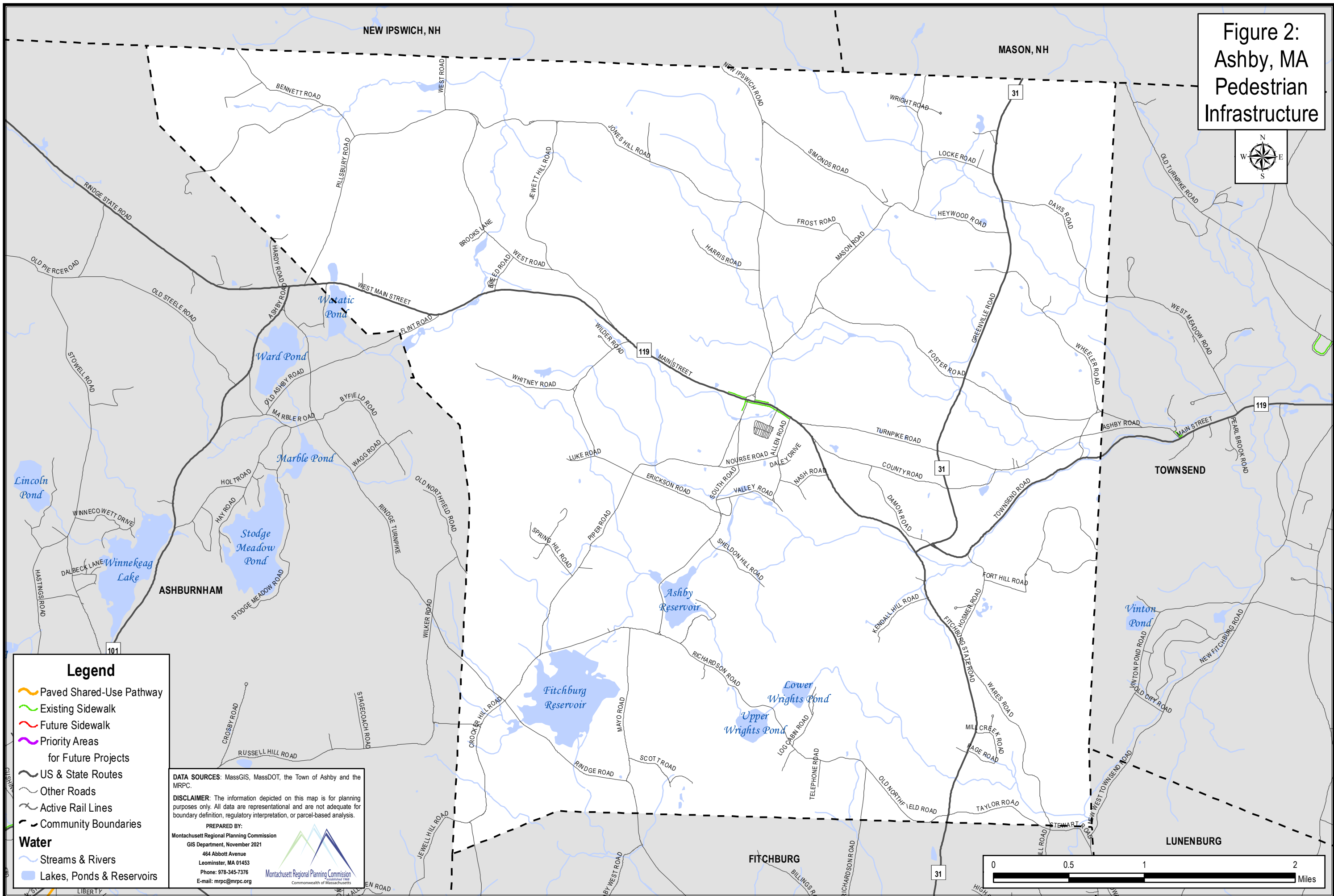
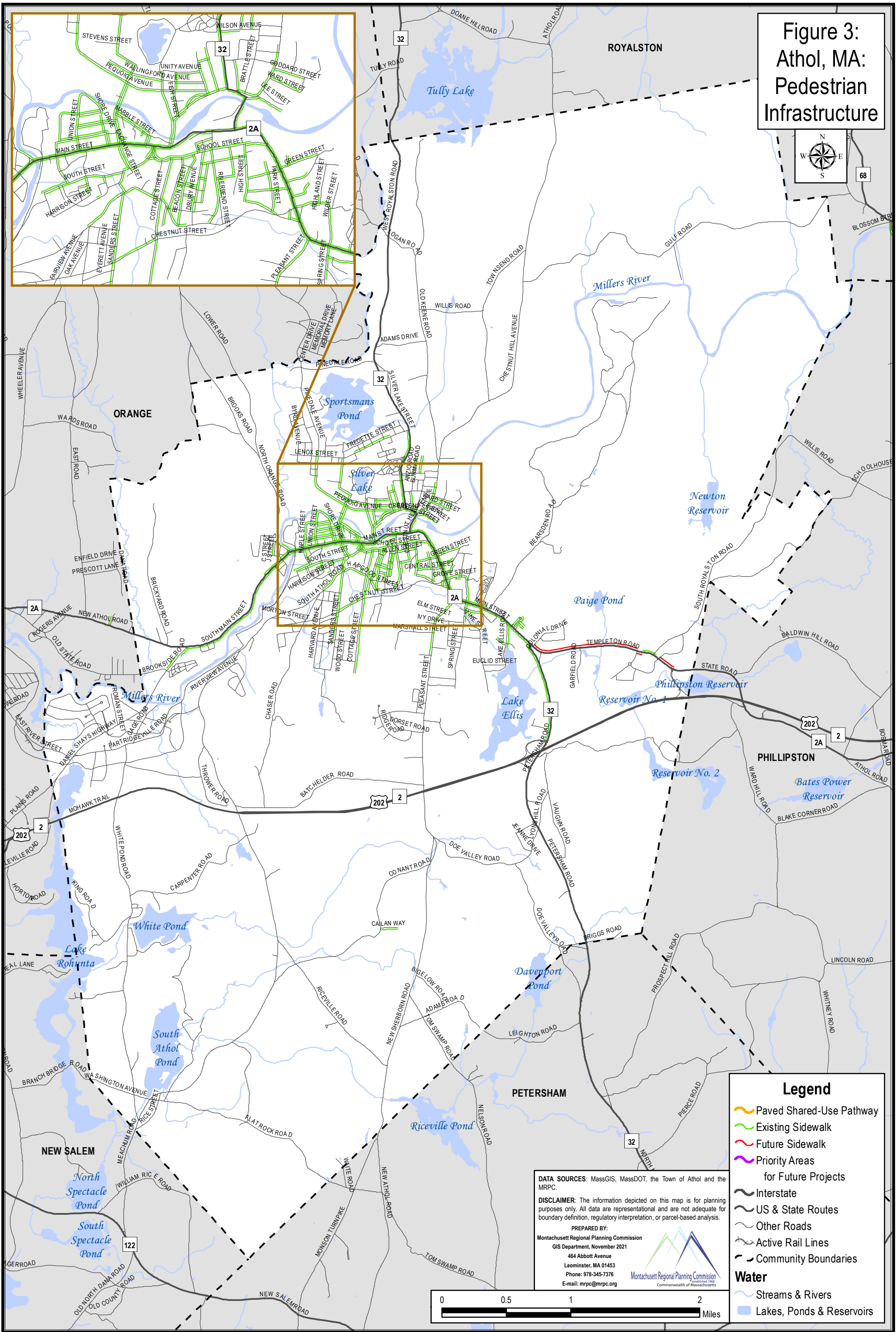
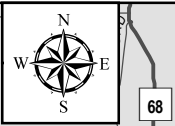


Figure 3:
Athol, MA:
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas

for Future Projects

- Interstate
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Athol and the MRPC.

DISCLAIMER: The information depicted on this map is for planning purposes only. All data are representational and are not adequate for boundary definition, regulatory interpretation, or parcel-based analysis.

PREPARED BY:

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GIS Department, November 2021
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Figure 4: Ayer, MA
Pedestrian Infrastructure

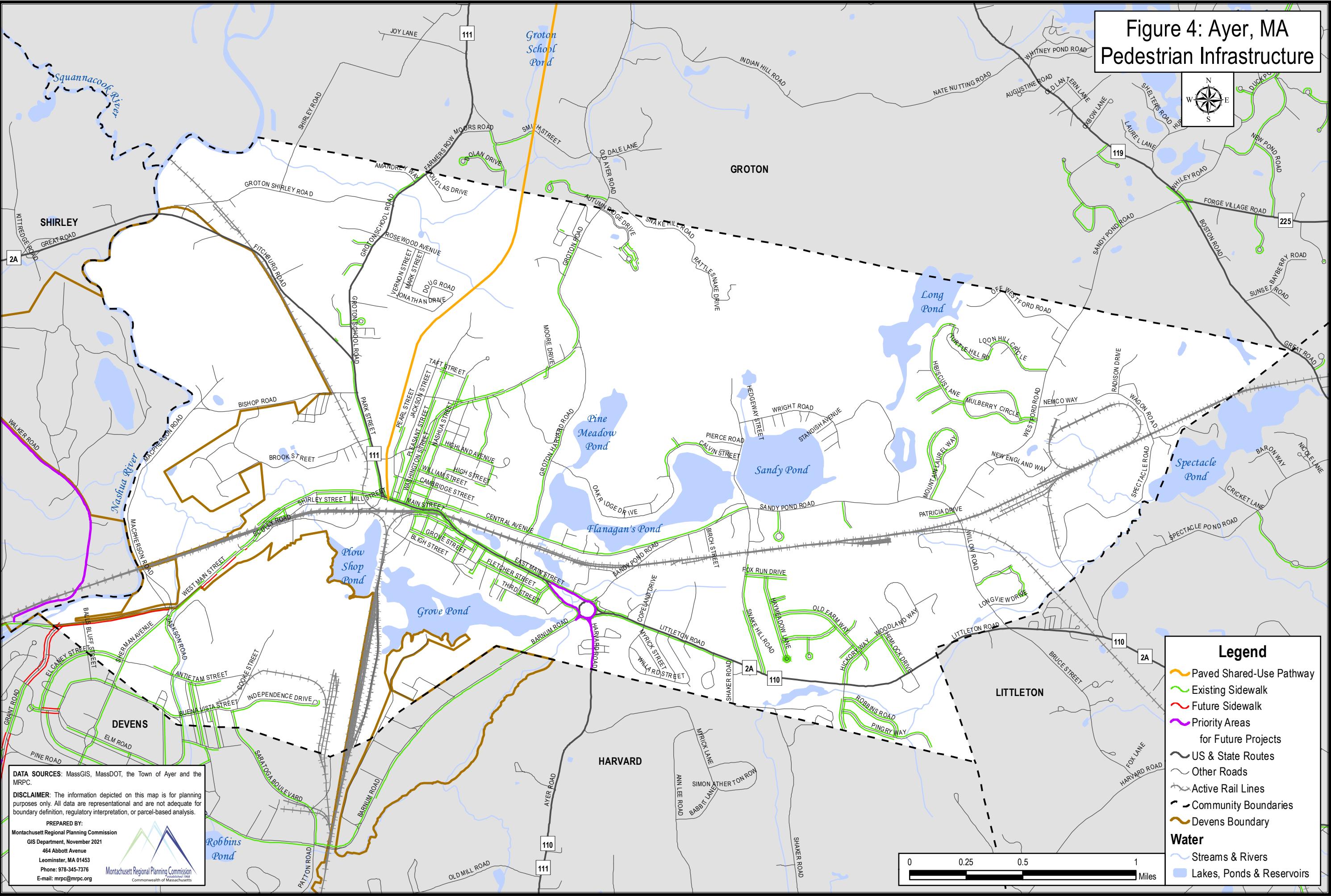
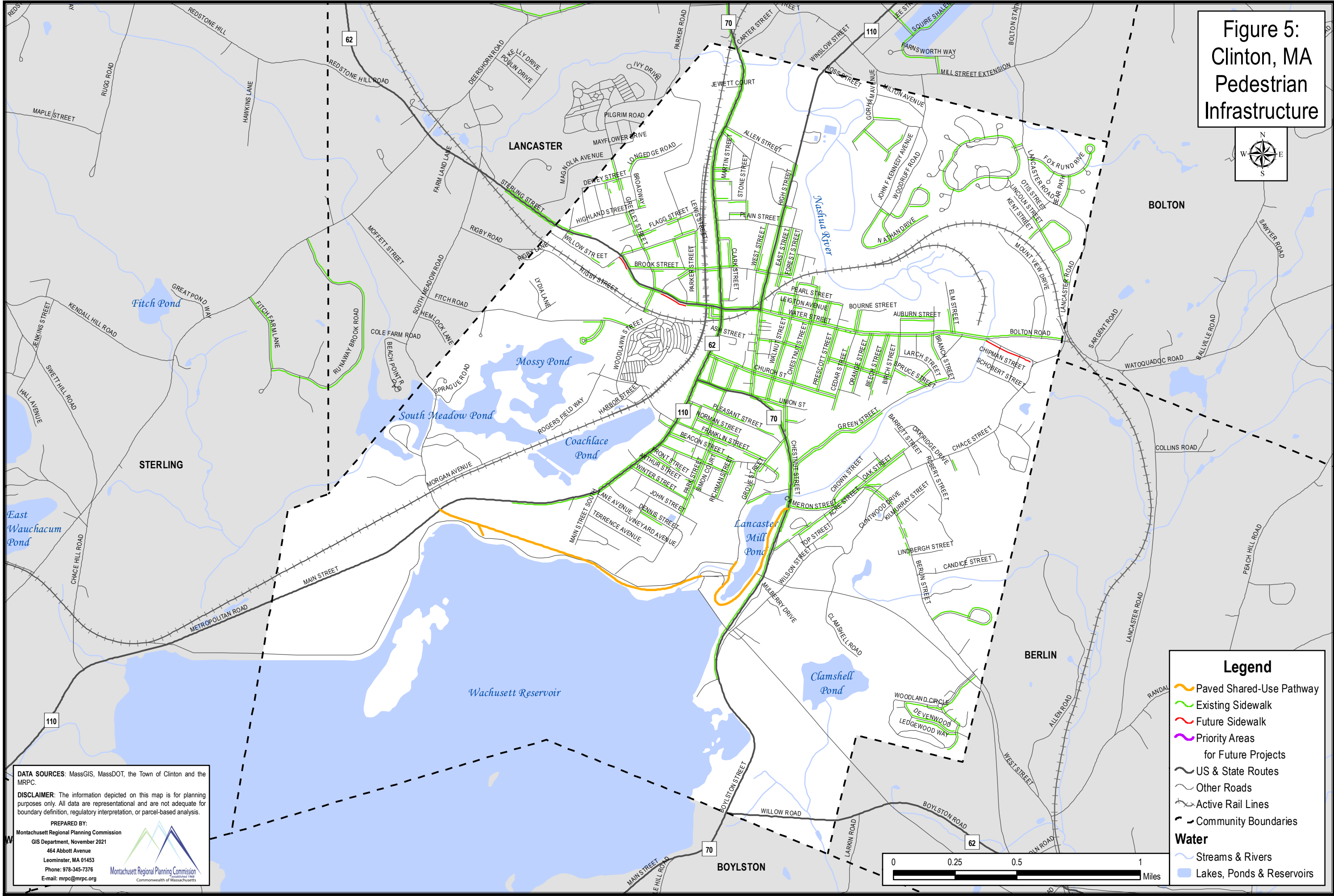
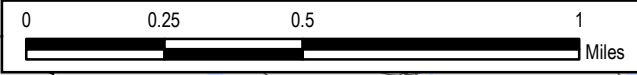


Figure 5:
Clinton, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries
- Water**
- Streams & Rivers
- Lakes, Ponds & Reservoirs

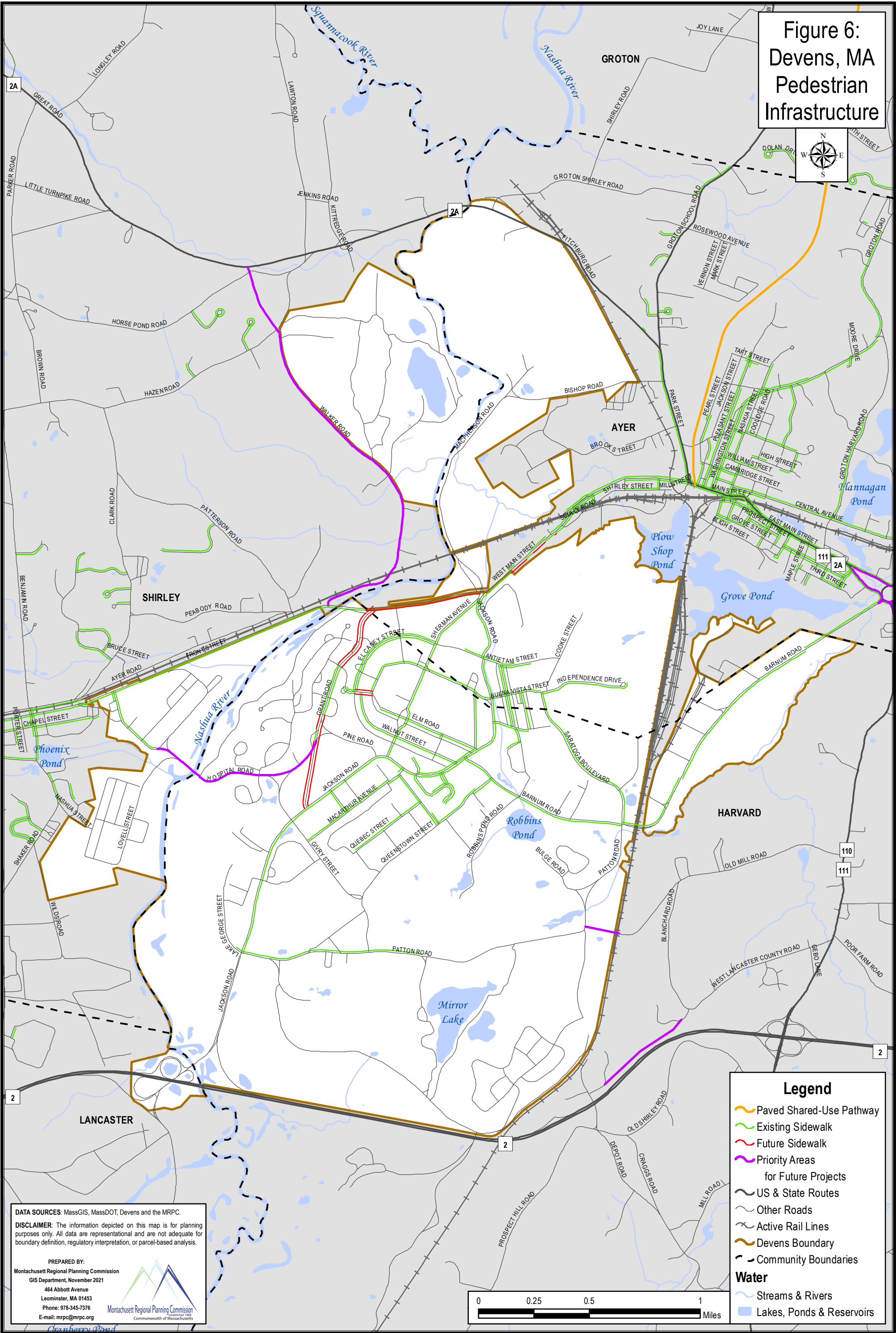


DATA SOURCES: MassGIS, MassDOT, the Town of Clinton and the MRPC.

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Figure 6:
Devens, MA
Pedestrian
Infrastructure



DATA SOURCES: MassGIS, MassDOT, Devens and the MRPC.

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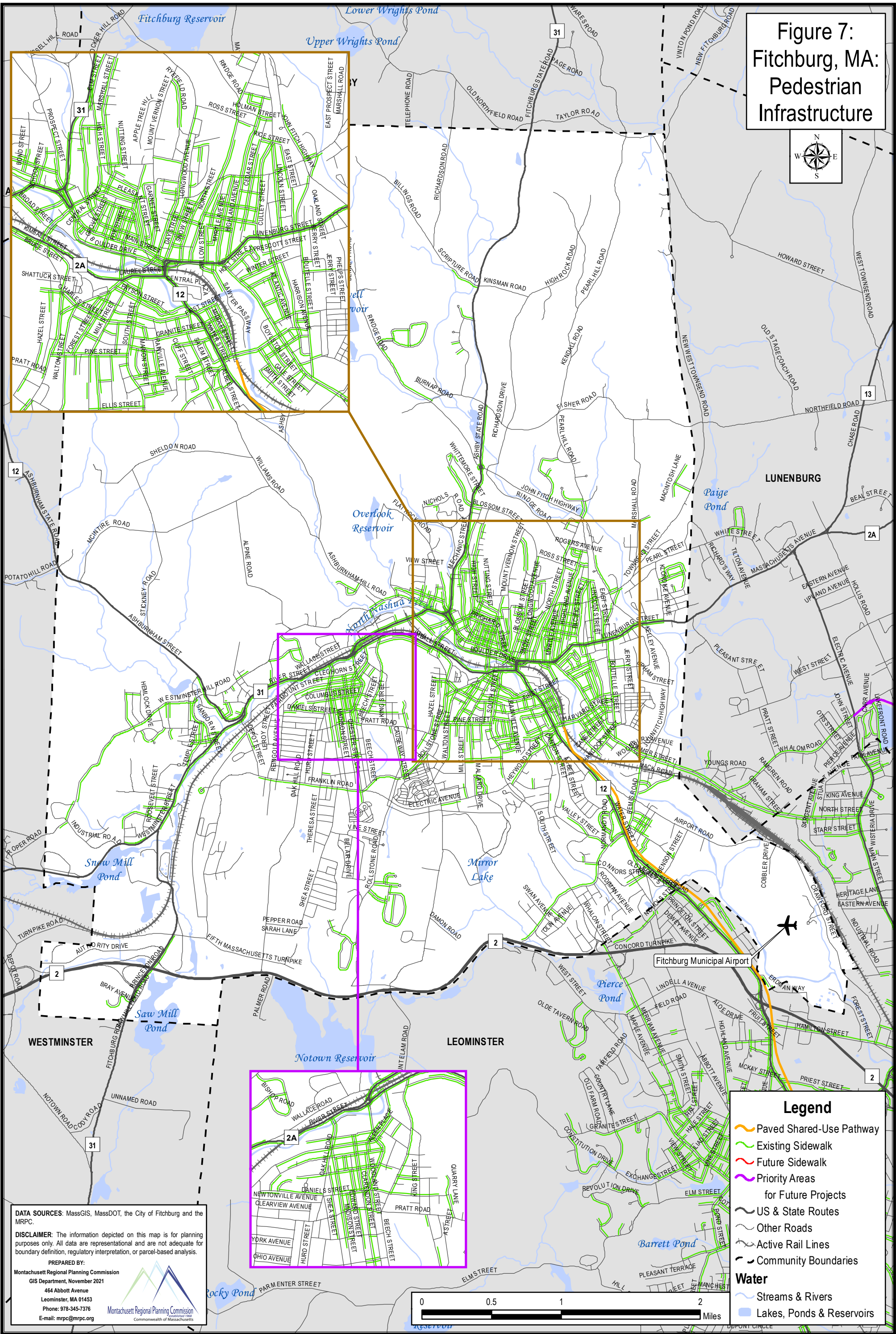

Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas
- for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Devens Boundary
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs


Figure 7:
Fitchburg, MA:
Pedestrian
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the City of Fitchburg and the MRPC.

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Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

Figure 8:
Gardner, MA
Pedestrian
Infrastructure

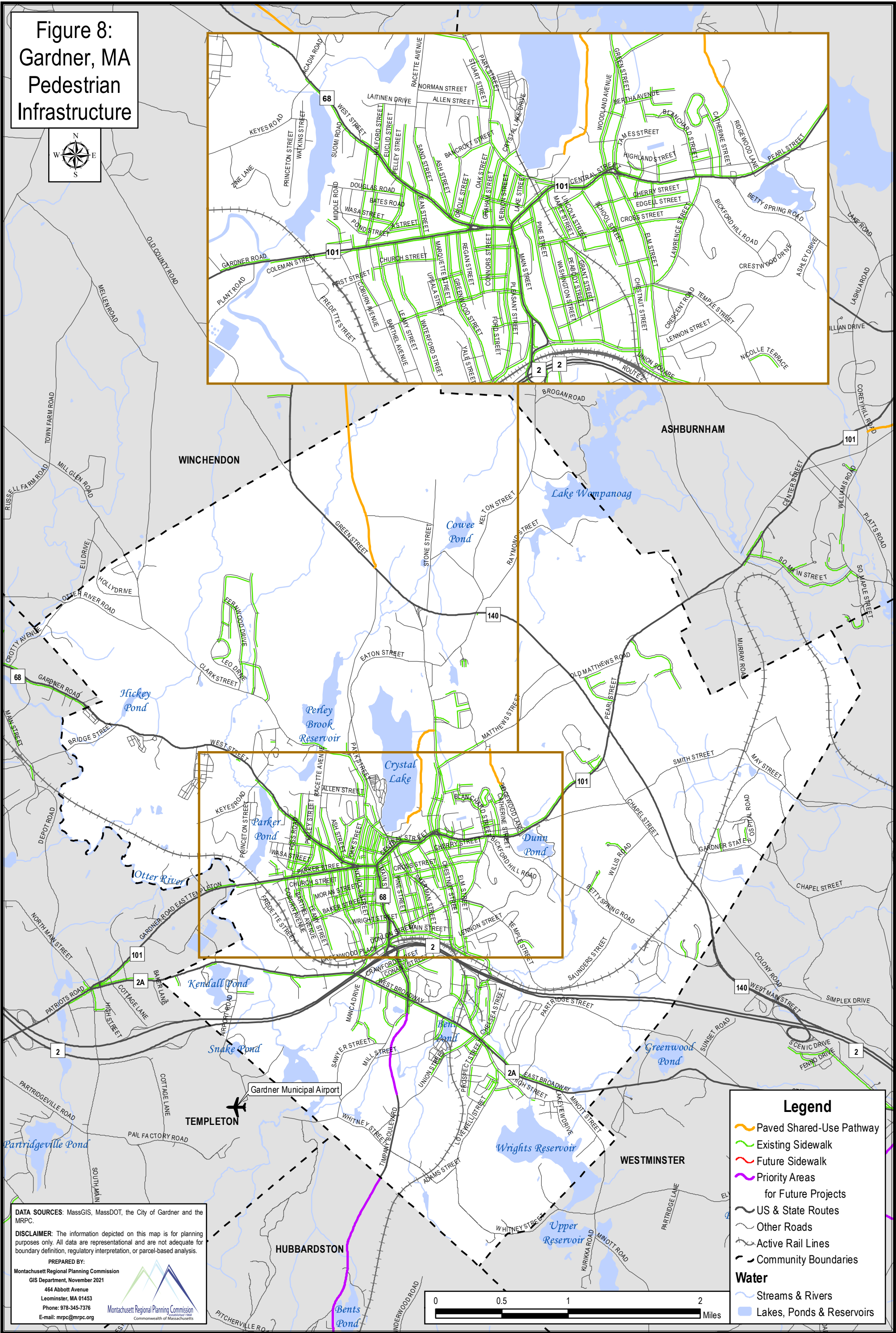
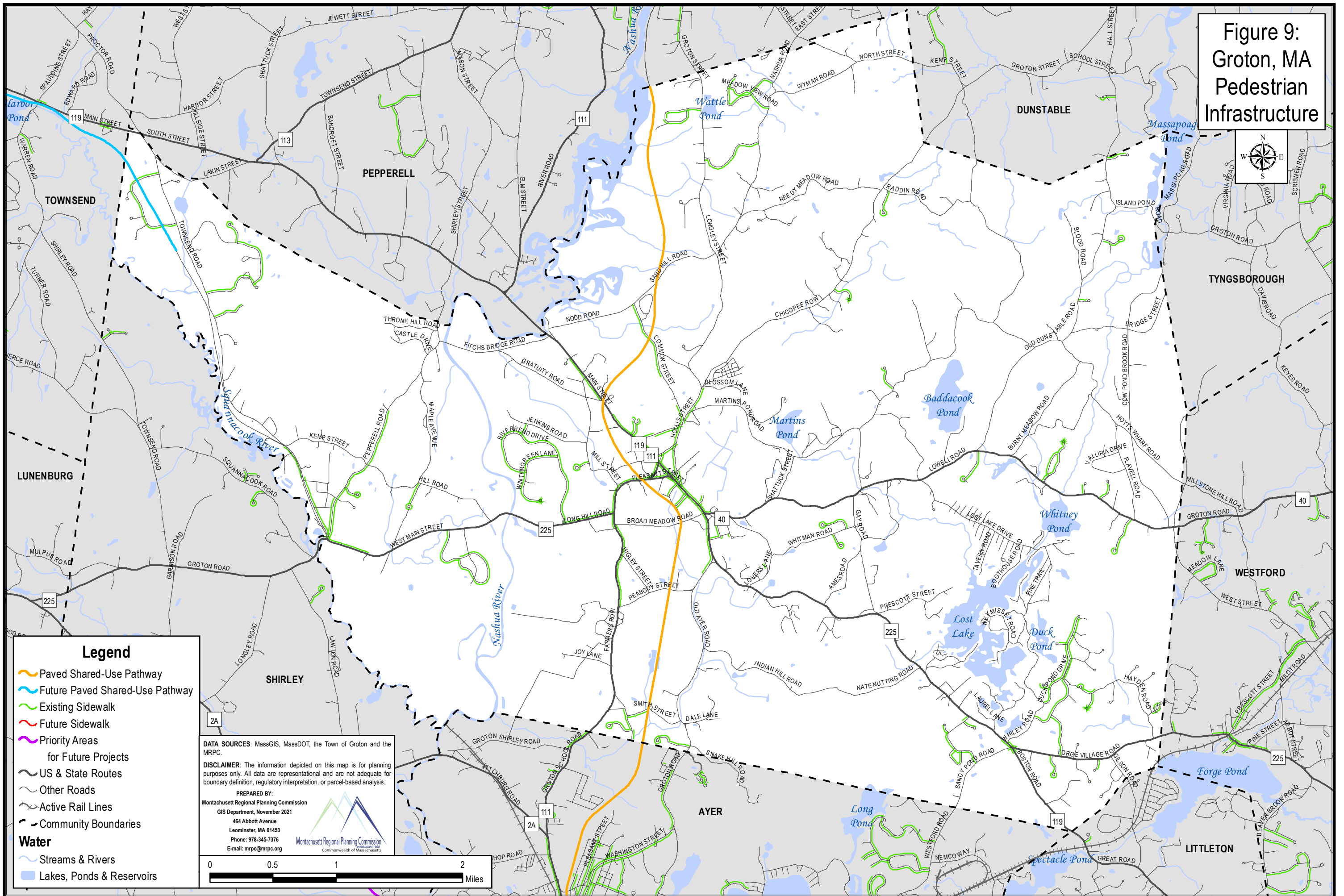
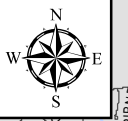


Figure 9:
Groton, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Future Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Groton and the MRPC.

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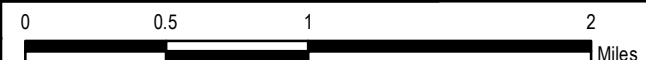
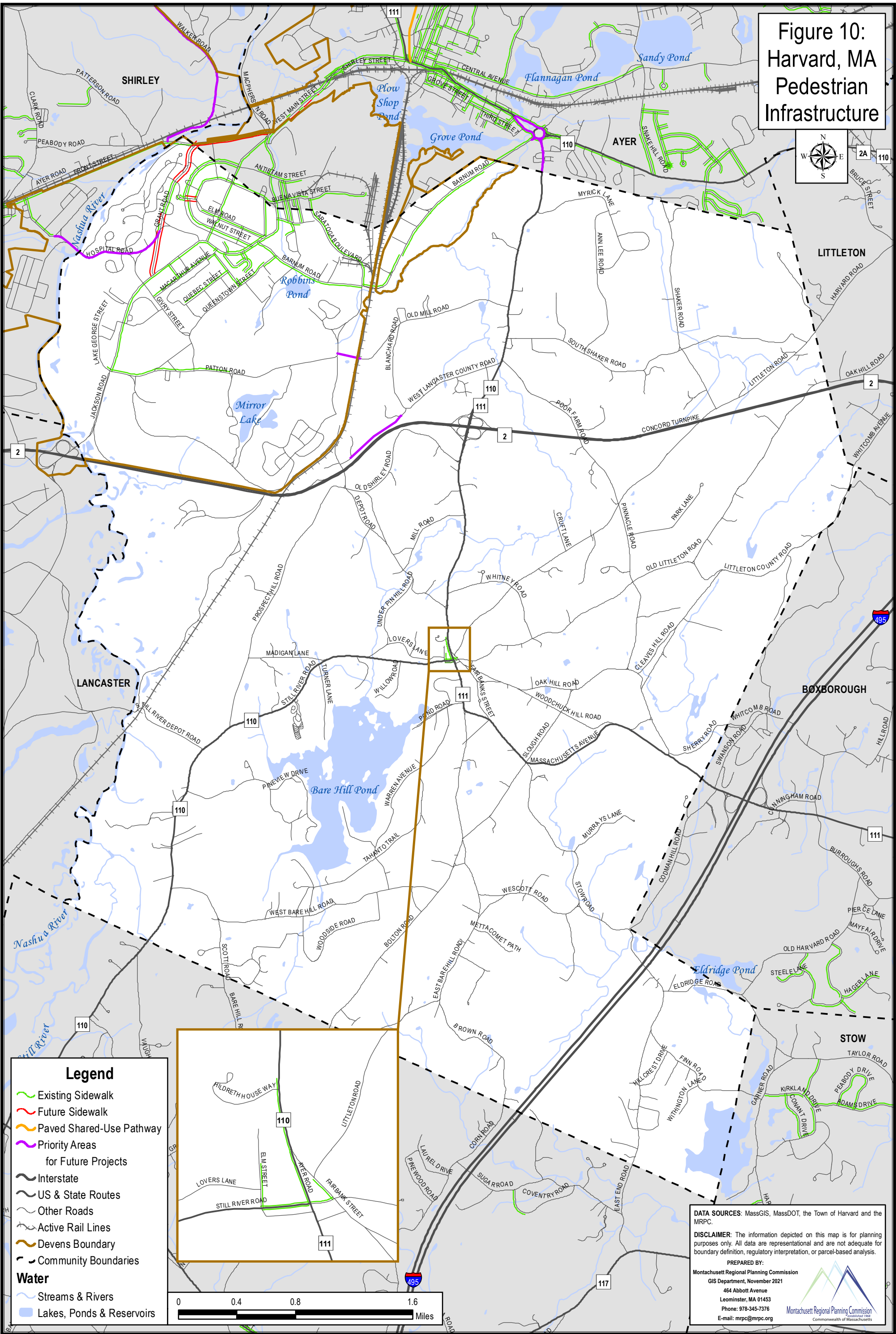
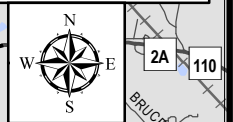
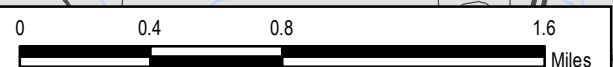
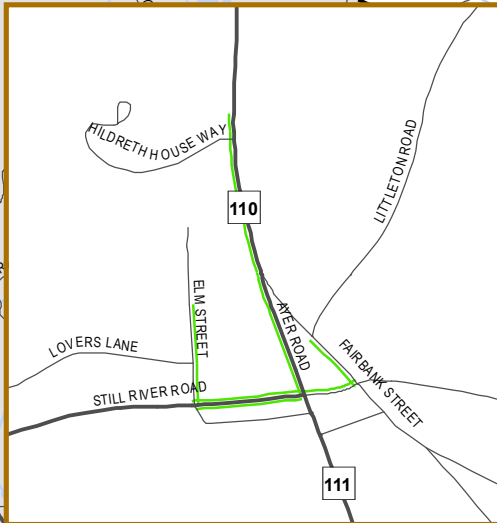


Figure 10:
Harvard, MA
Pedestrian
Infrastructure



Legend

- Existing Sidewalk
- Future Sidewalk
- Paved Shared-Use Pathway
- Priority Areas for Future Projects
- Interstate
- US & State Routes
- Other Roads
- Active Rail Lines
- Devens Boundary
- Community Boundaries
- Water**
- Streams & Rivers
- Lakes, Ponds & Reservoirs



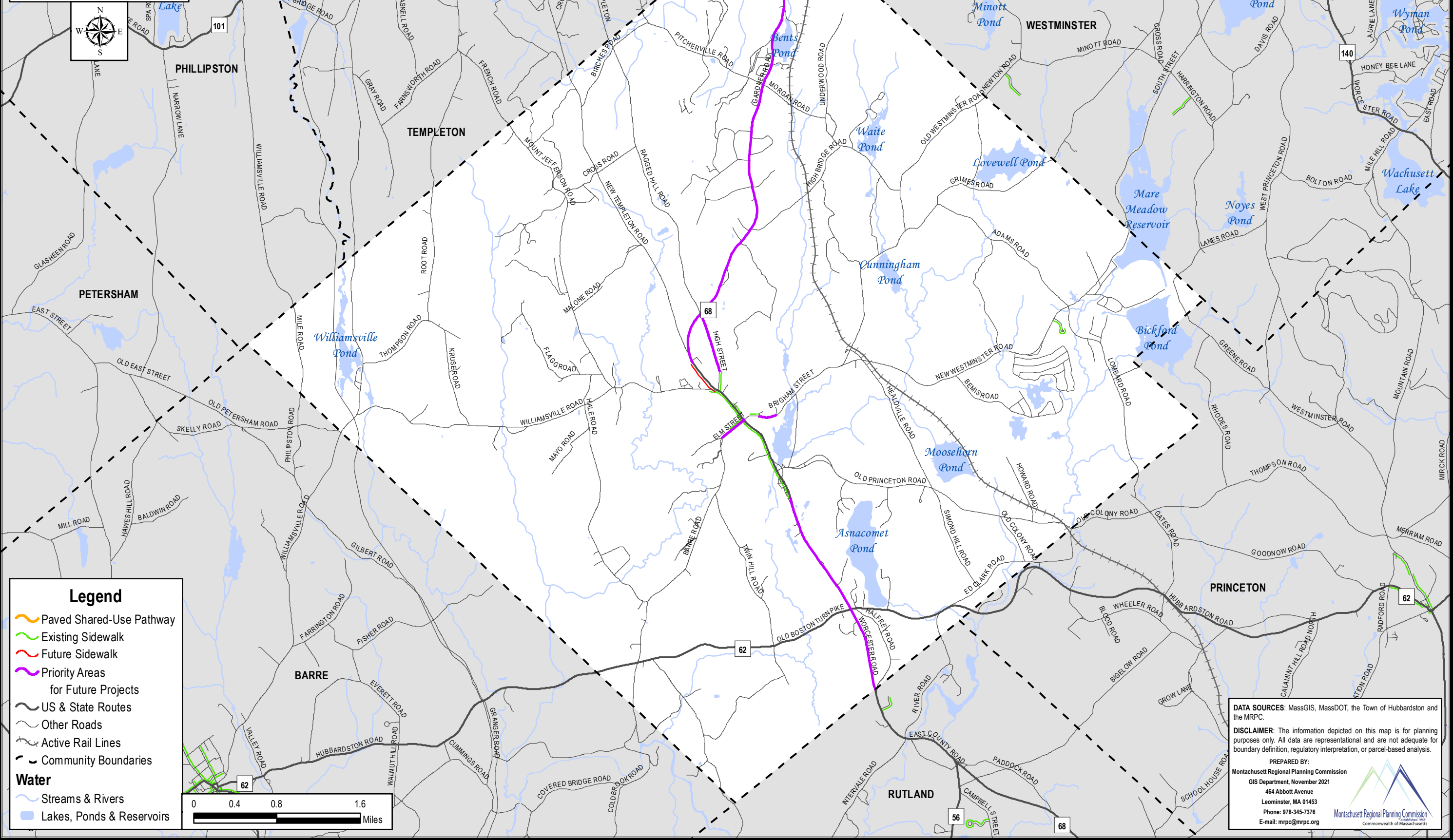
DATA SOURCES: MassGIS, MassDOT, the Town of Harvard and the MRPC.

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Figure 11:
Hubbardston, MA
Pedestrian
Infrastructure



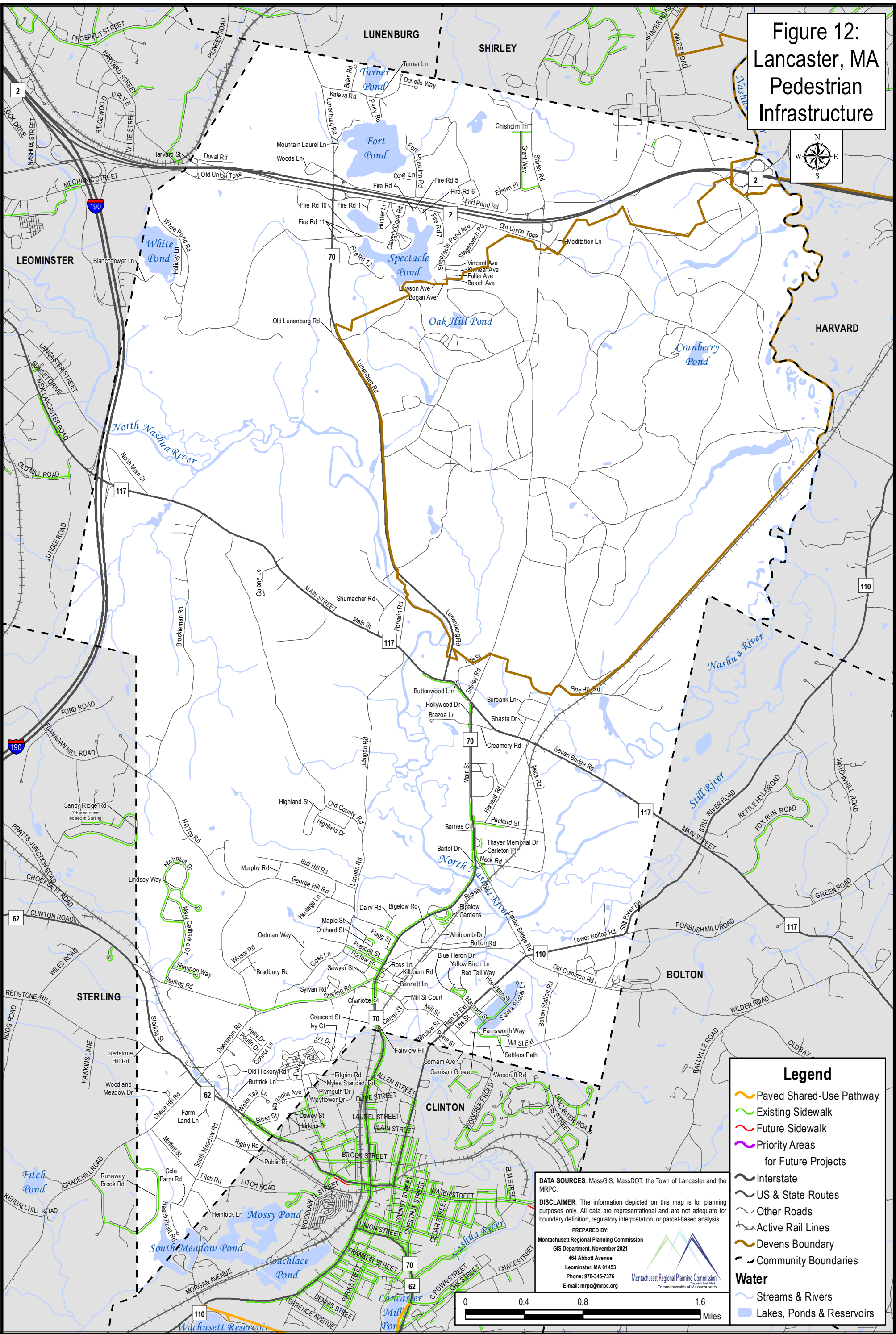
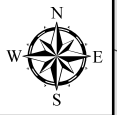
DATA SOURCES: MassGIS, MassDOT, the Town of Hubbardston and the MRPC.

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Figure 12:
Lancaster, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- Interstate
- US & State Routes
- Other Roads
- Active Rail Lines
- Devens Boundary
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Lancaster and the MRPC.

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**Figure 13:
Leominster, MA
Pedestrian
Infrastructure**

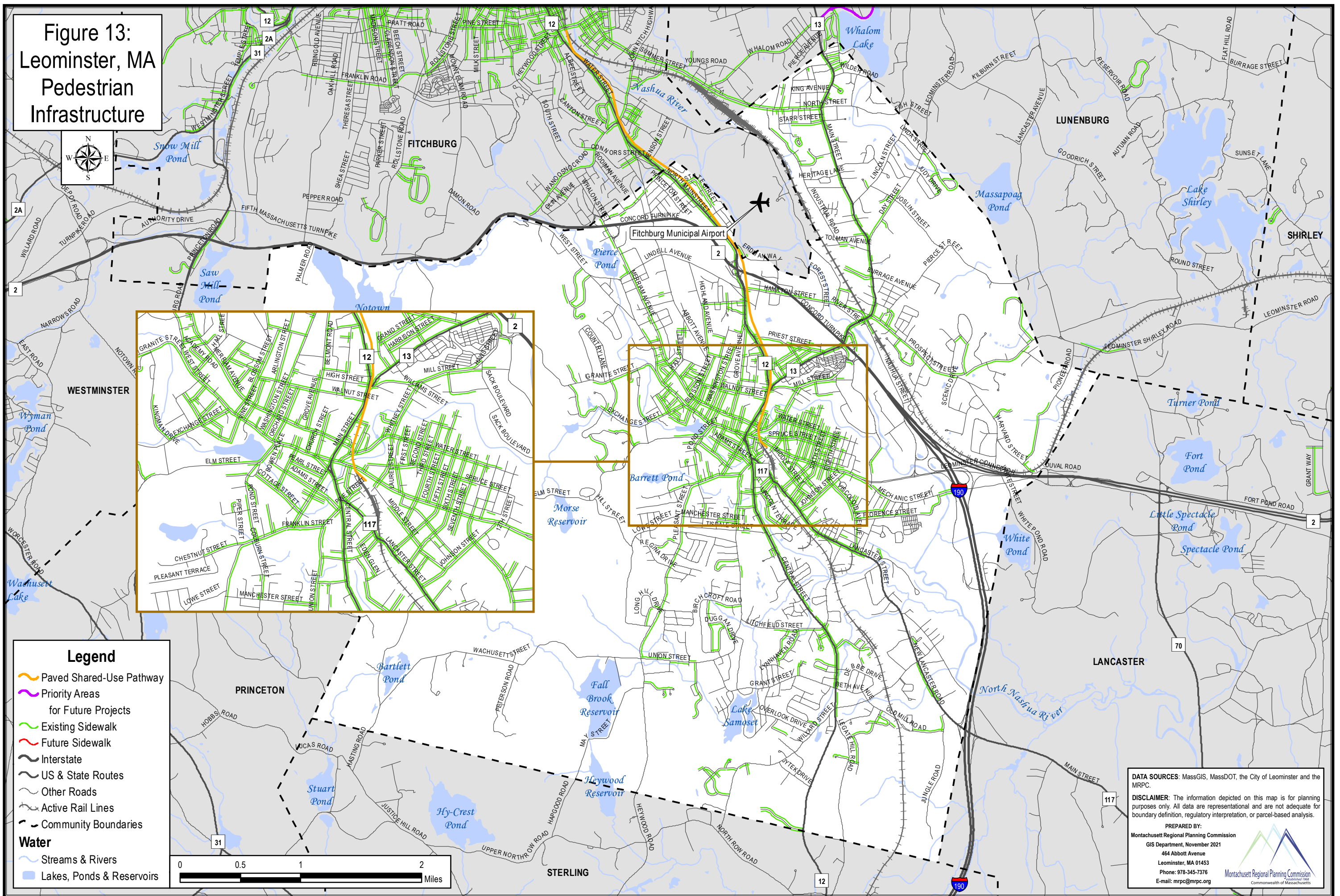


Figure 14:
Lunenburg, MA
Pedestrian
Infrastructure

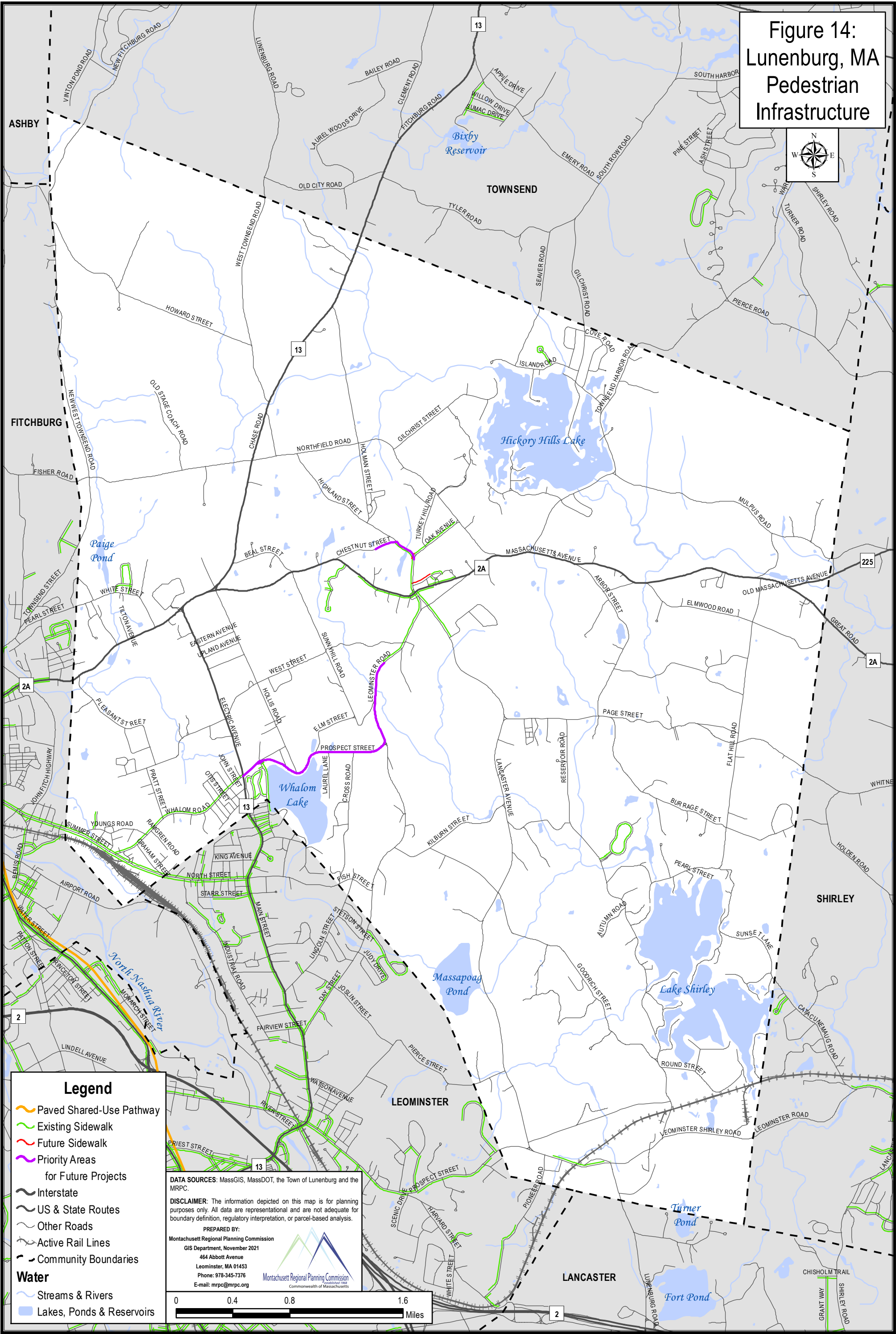
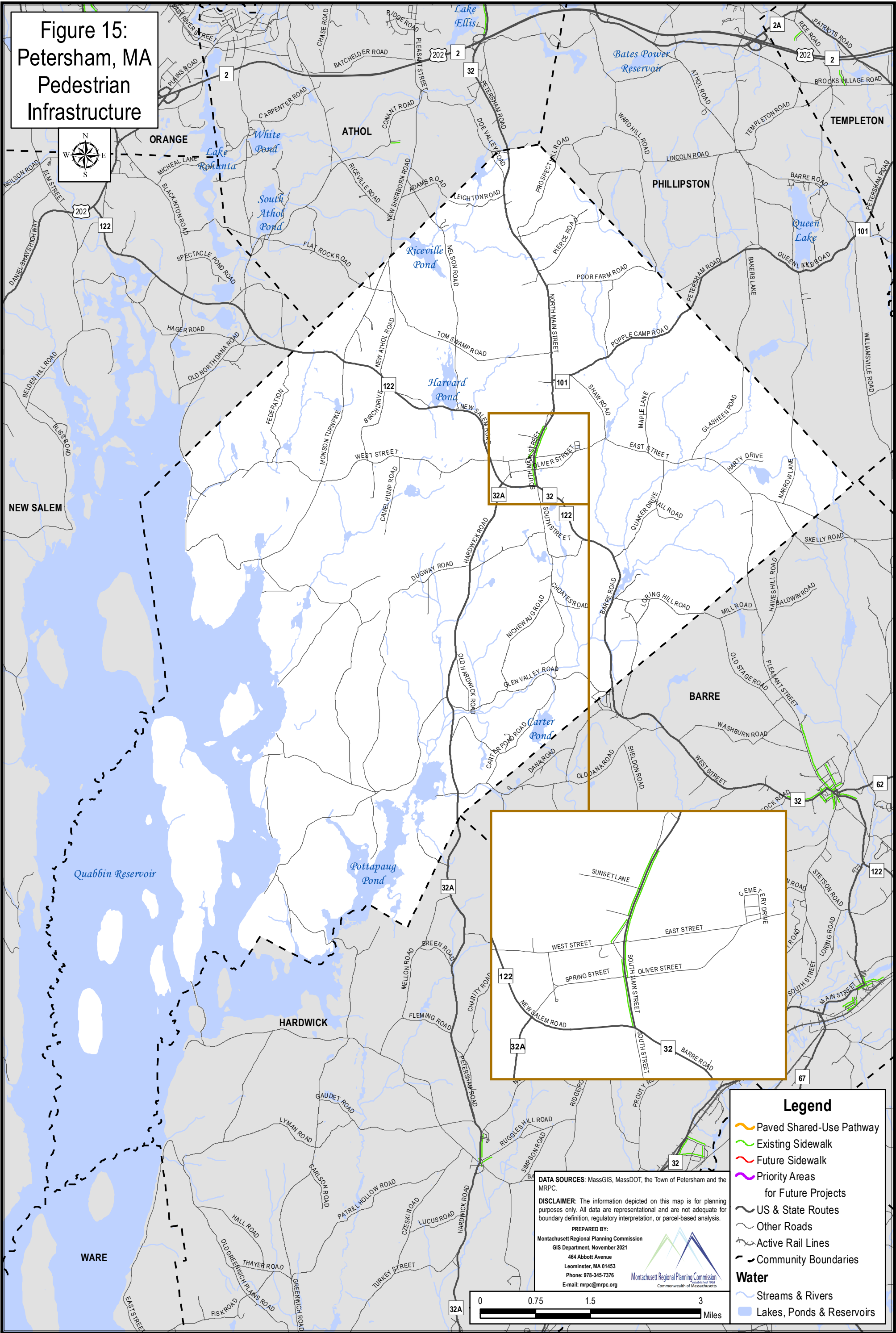


Figure 15:
Petersham, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries
- Water**
- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Petersham and the MRPC.

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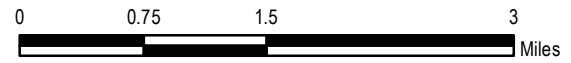


Figure 16:
Phillipston, MA
Pedestrian
Infrastructure

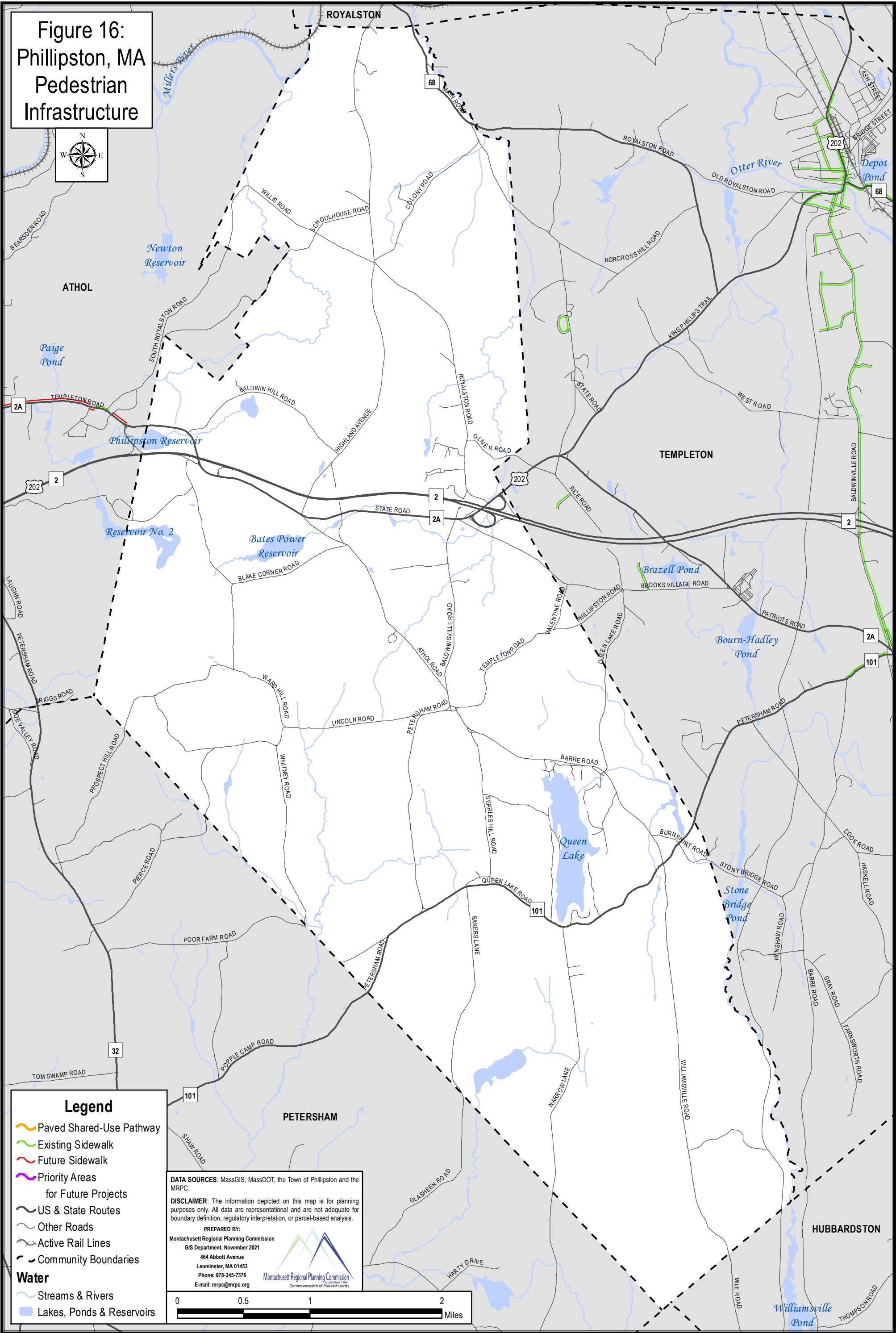


Figure 17:
Royalston, MA
Pedestrian
Infrastructure

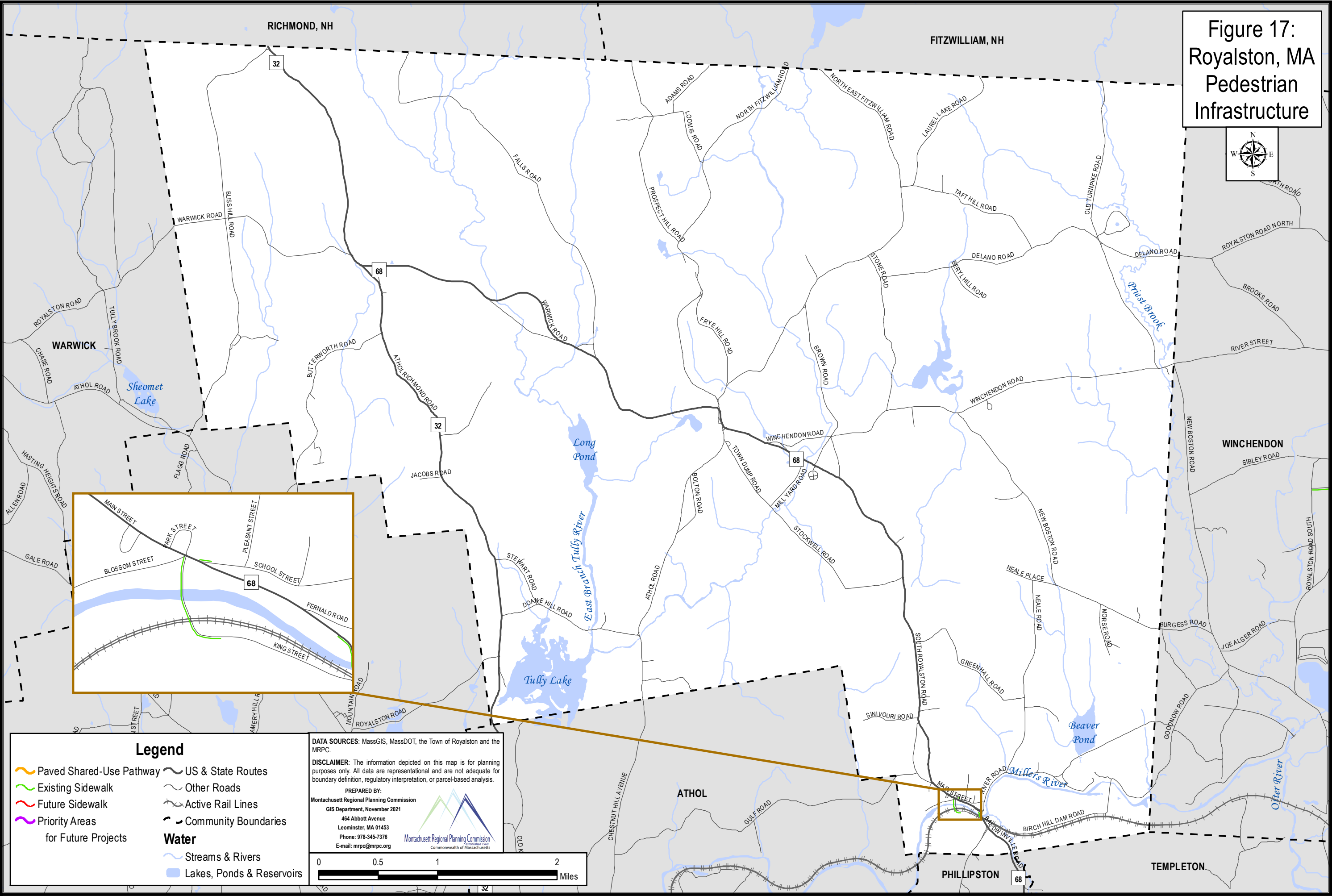
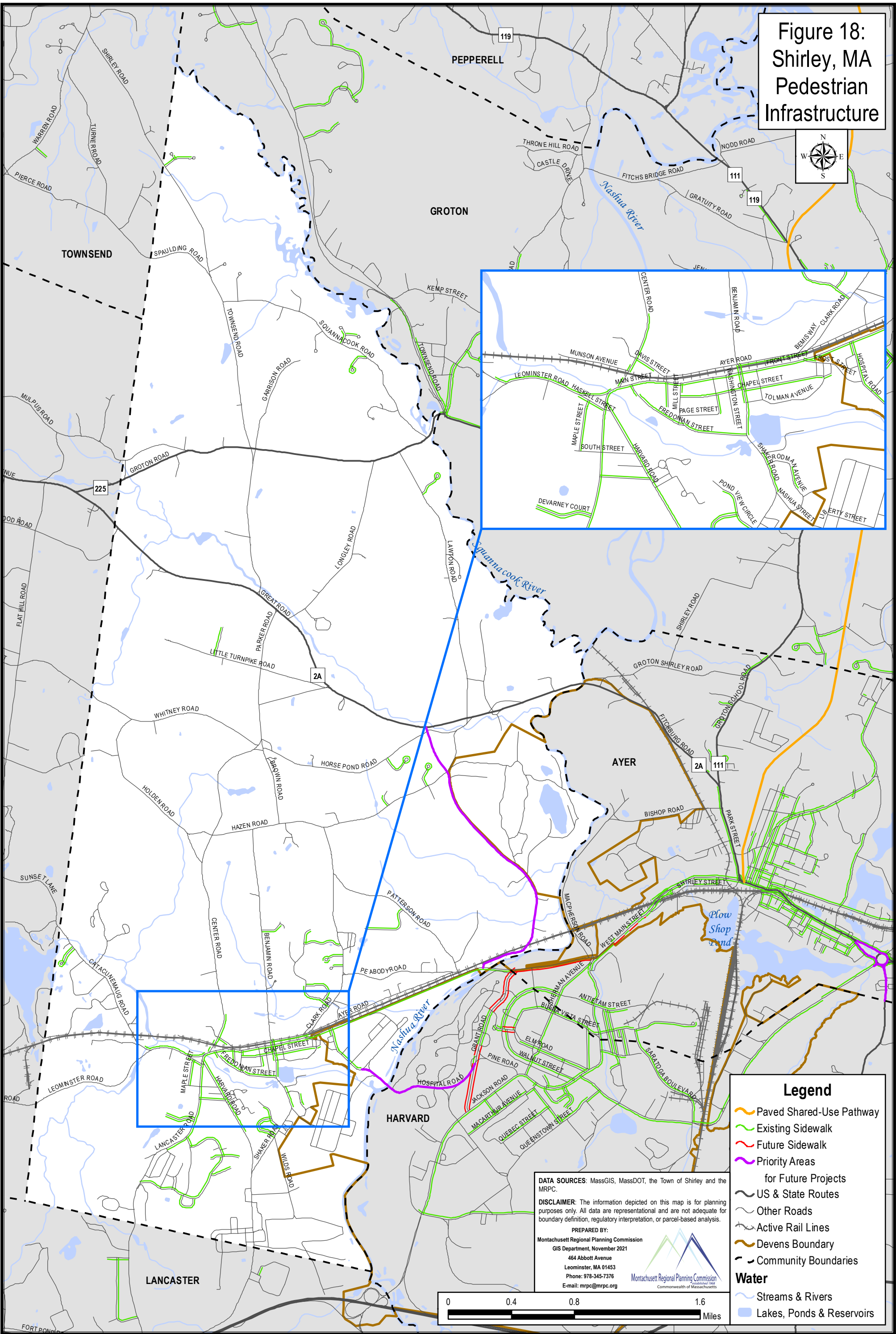


Figure 18:
Shirley, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas
- for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Devens Boundary
- Community Boundaries
- Water**
- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Shirley and the MRPC.

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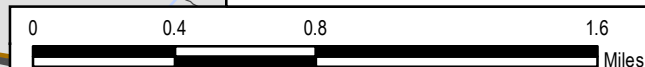


Figure 19:
Sterling, MA
Pedestrian
Infrastructure

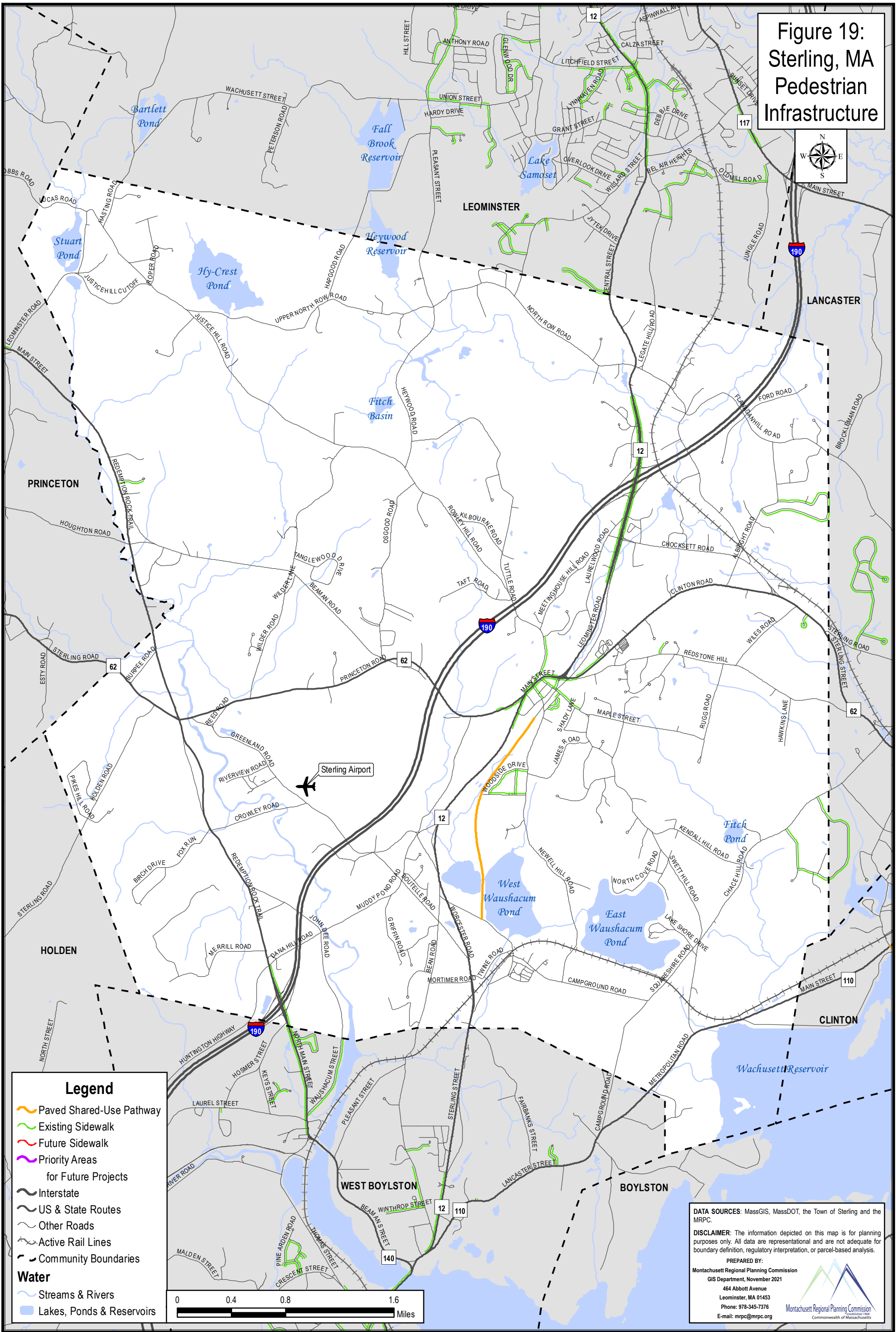
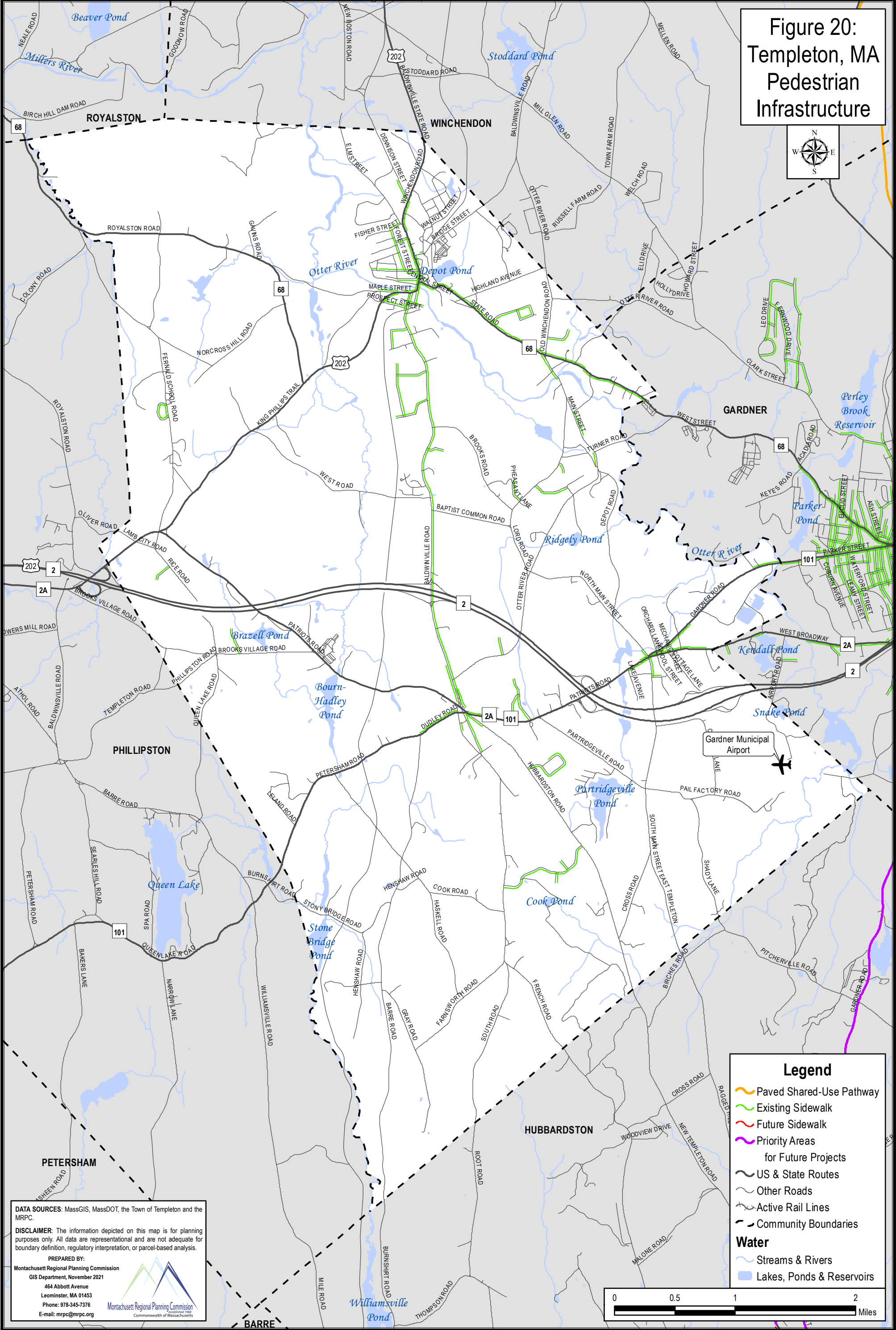



Figure 20:
Templeton, MA
Pedestrian
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Templeton and the MRPC.

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Legend

- Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries
- Water**
 - Streams & Rivers
 - Lakes, Ponds & Reservoirs

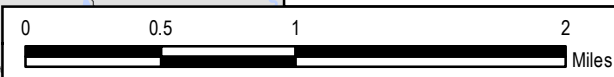
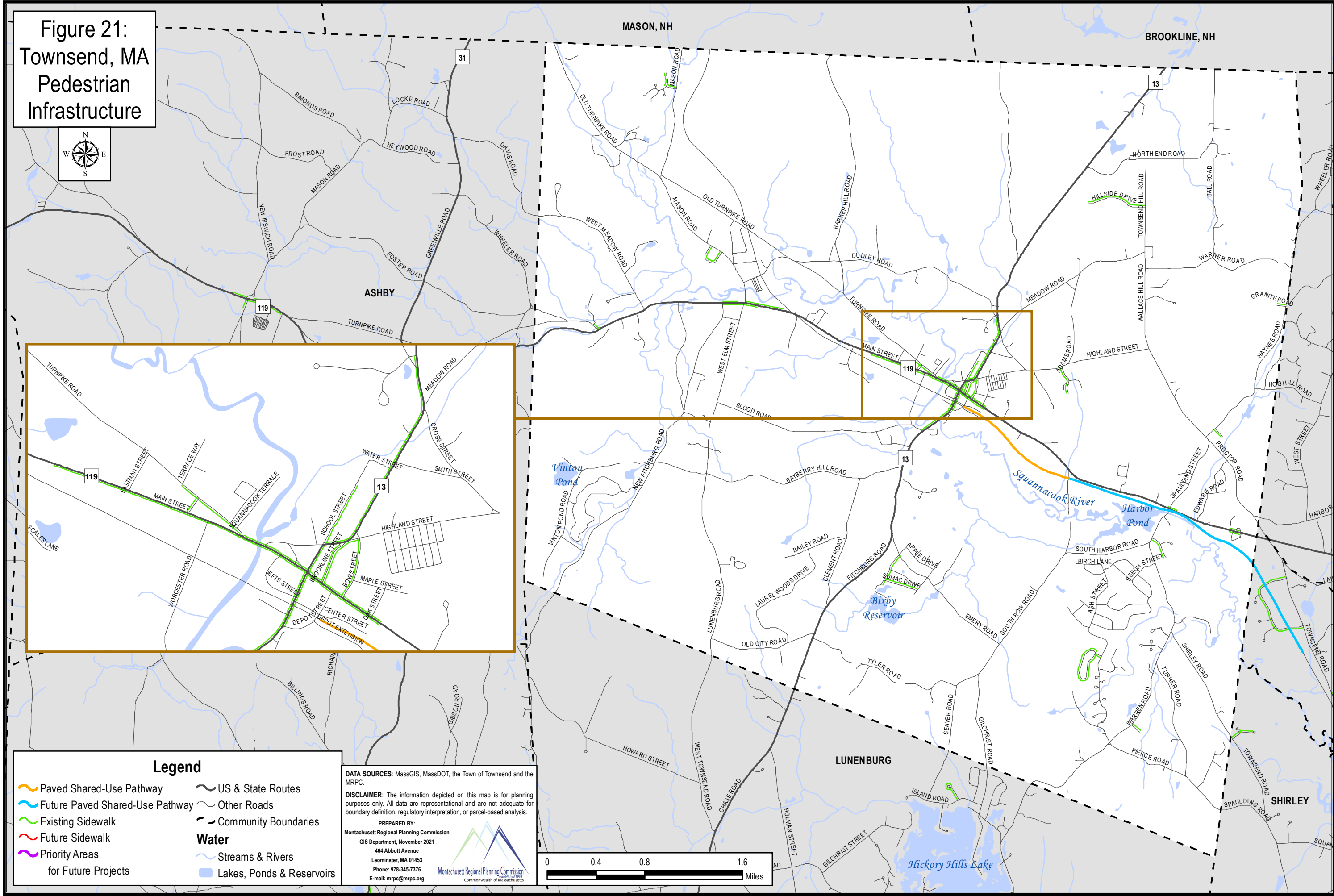
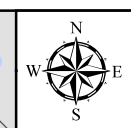


Figure 21:
Townsend, MA
Pedestrian
Infrastructure



Legend

- Paved Shared-Use Pathway
- Future Paved Shared-Use Pathway
- Existing Sidewalk
- Future Sidewalk
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Community Boundaries
- Water**
- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Townsend and the MRPC.

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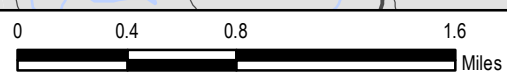
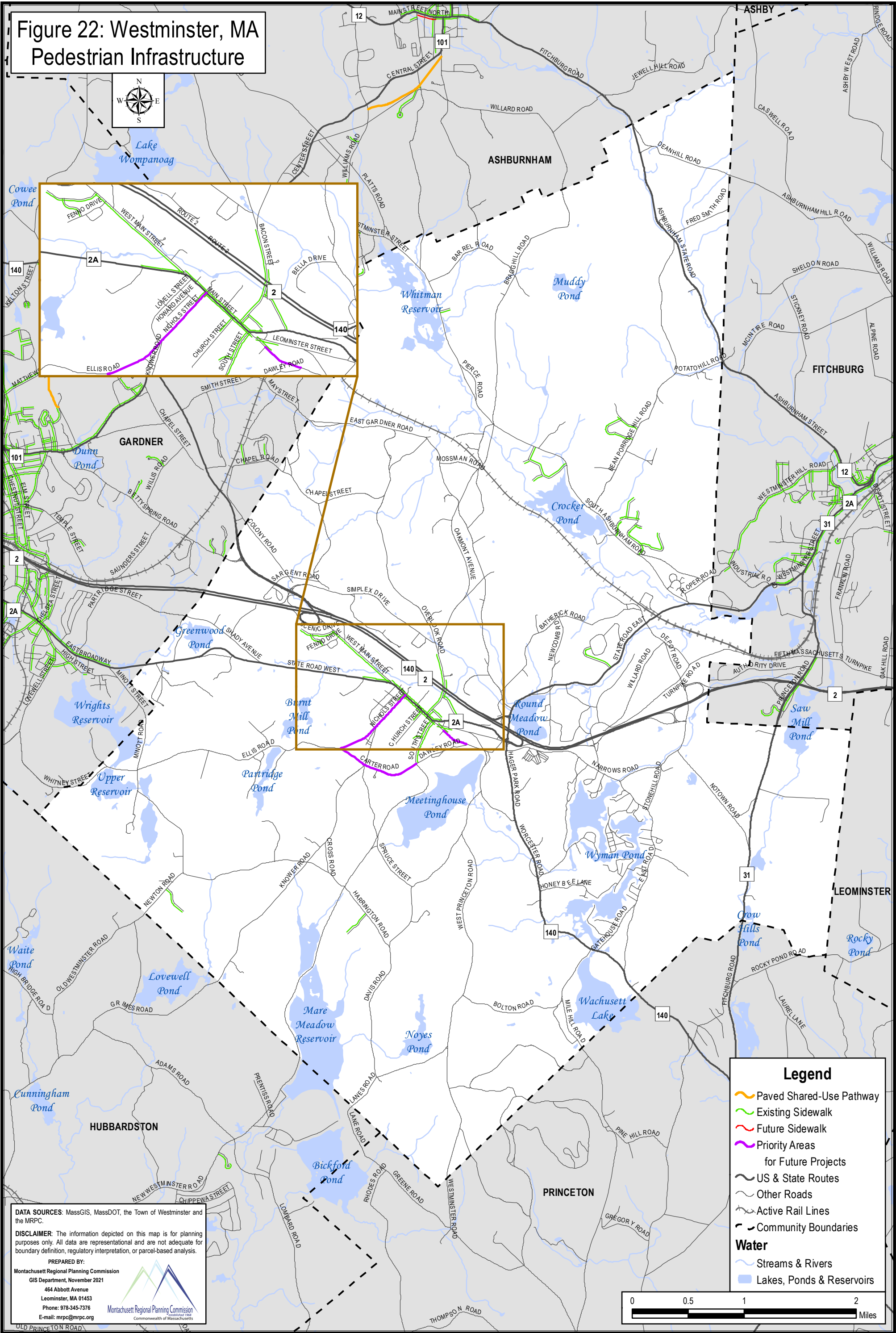


Figure 22: Westminster, MA
Pedestrian Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Westminster and the MRPC.

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Figure 23:
Winchendon, MA
Pedestrian
Infrastructure

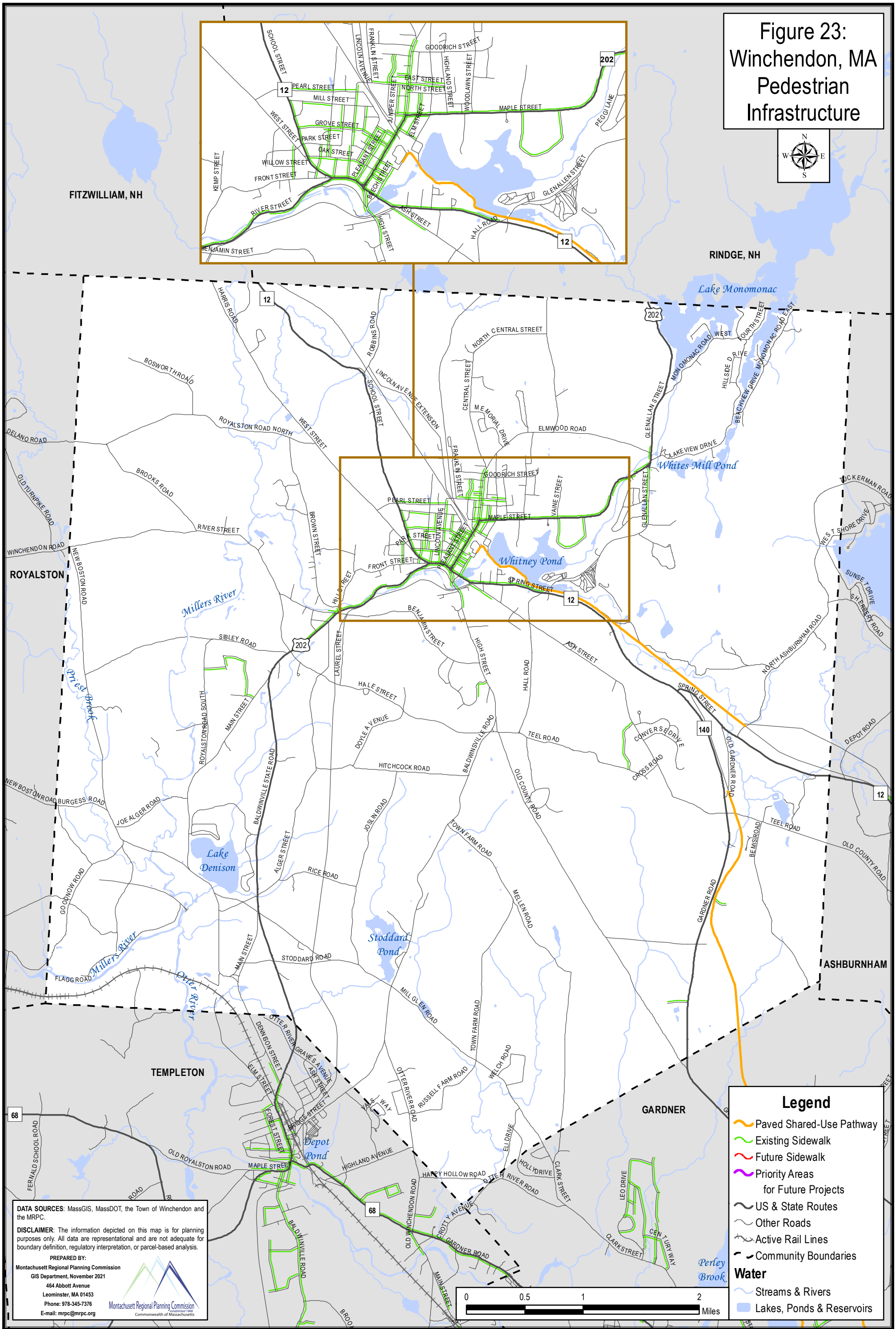
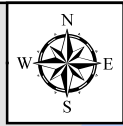
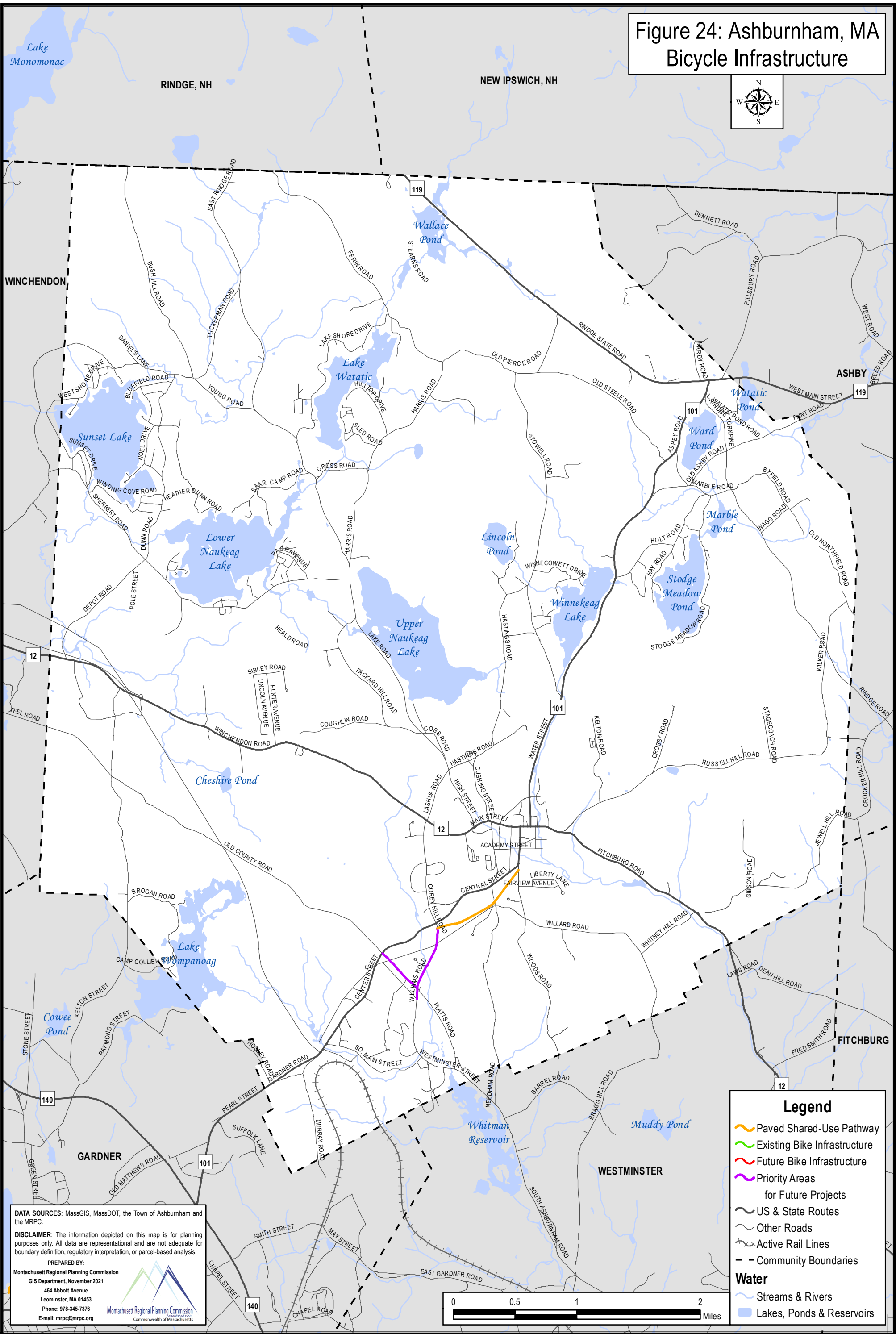


Figure 24: Ashburnham, MA
Bicycle Infrastructure



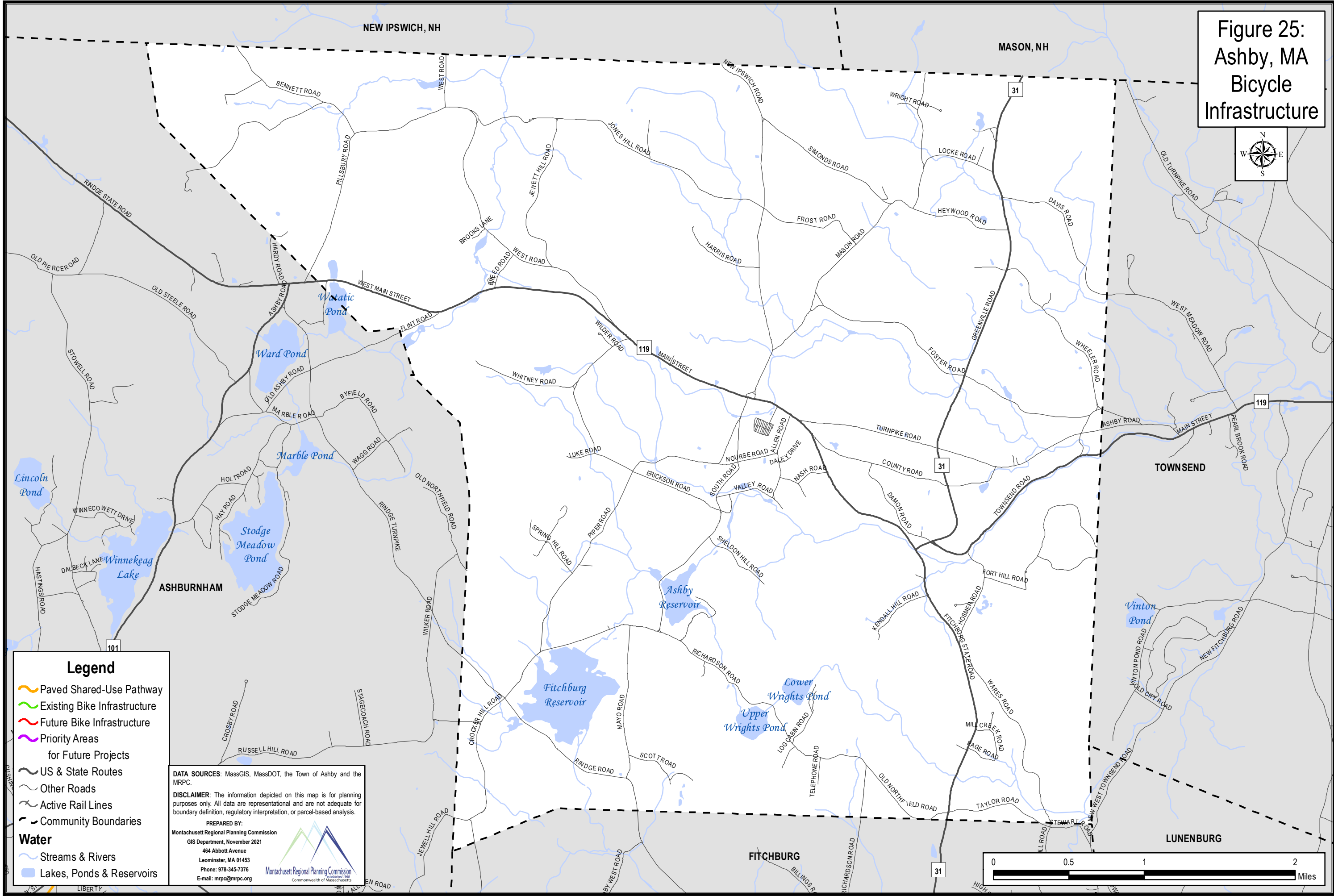
DATA SOURCES: MassGIS, MassDOT, the Town of Ashburnham and the MRPC.

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Figure 25:
Ashby, MA
Bicycle
Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Bike Infrastructure
- Future Bike Infrastructure
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Ashby and the MRPC.

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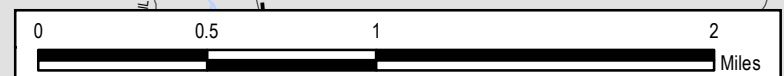



Figure 26:
Athol, MA
Bicycle
Infrastructure

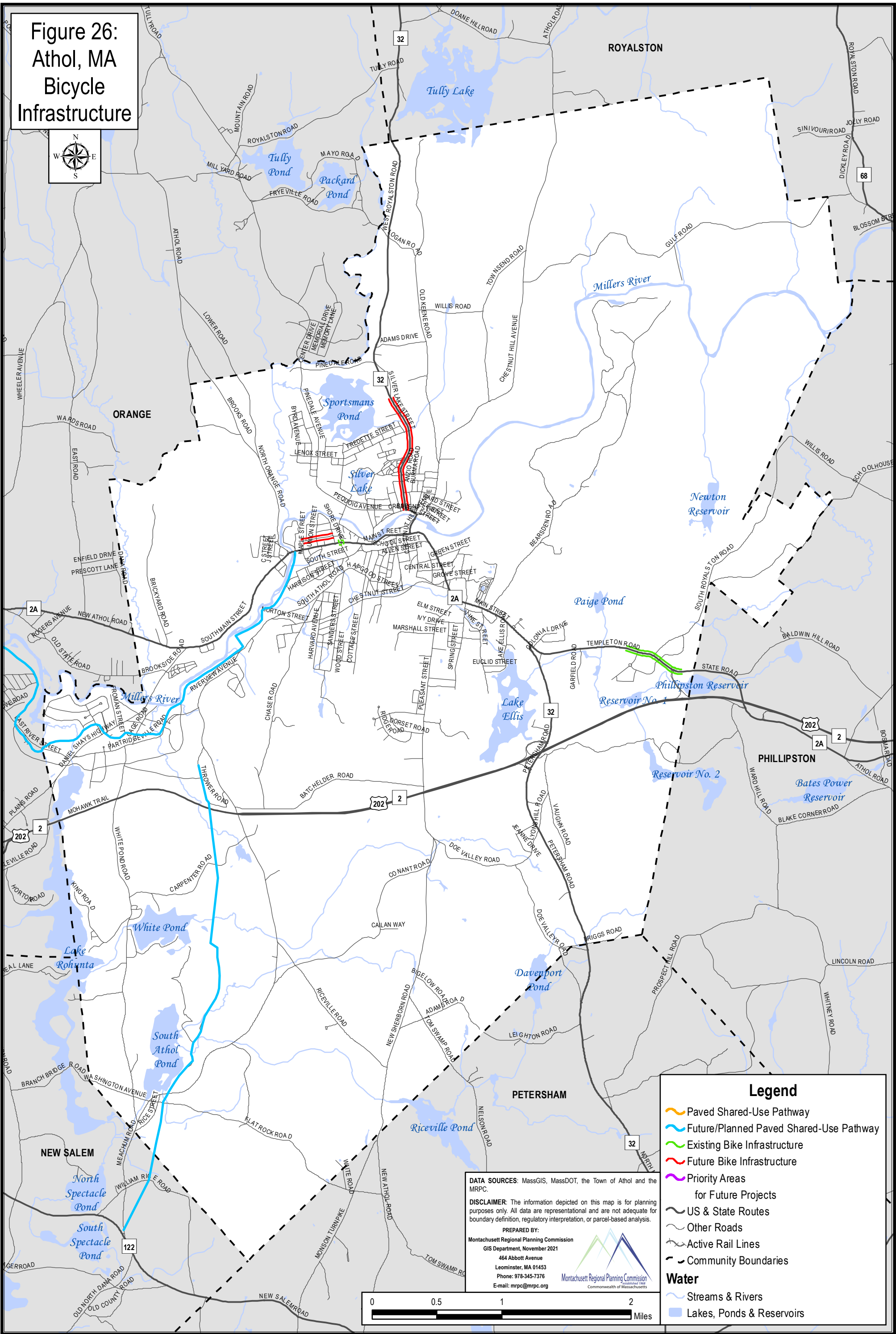


Figure 27: Ayer, MA
Bicycle Infrastructure

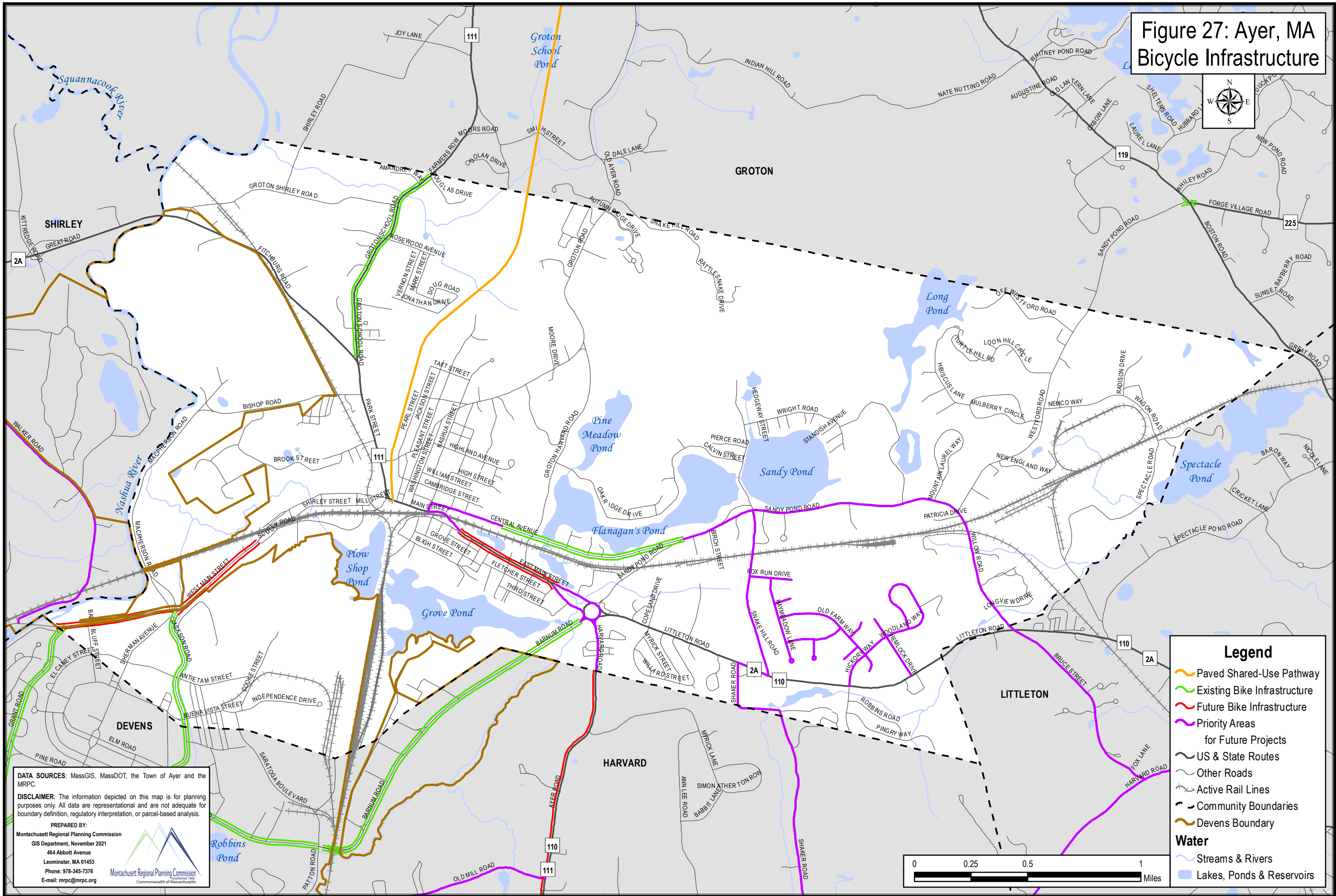


Figure 28: Clinton, MA
Bicycle Infrastructure

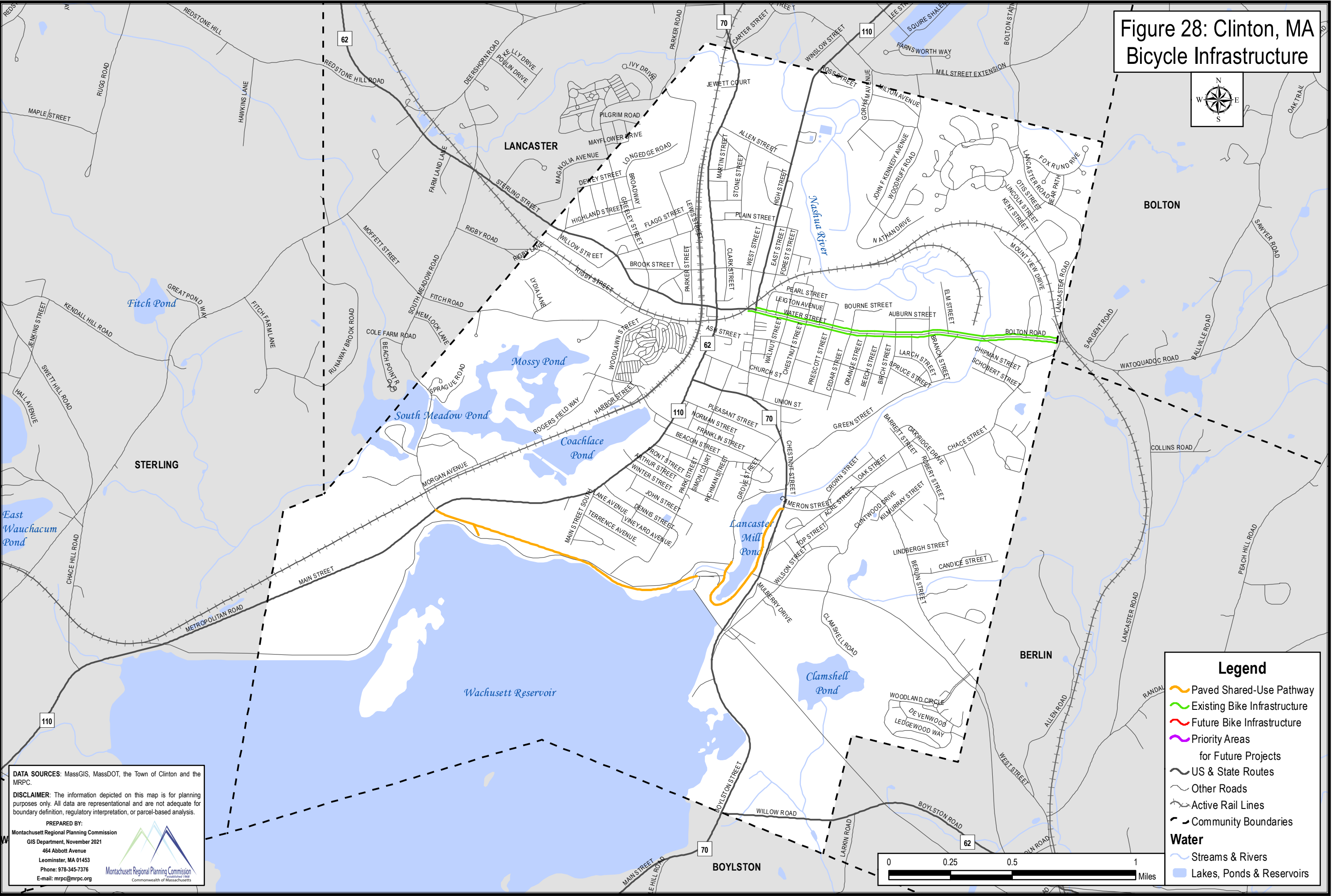
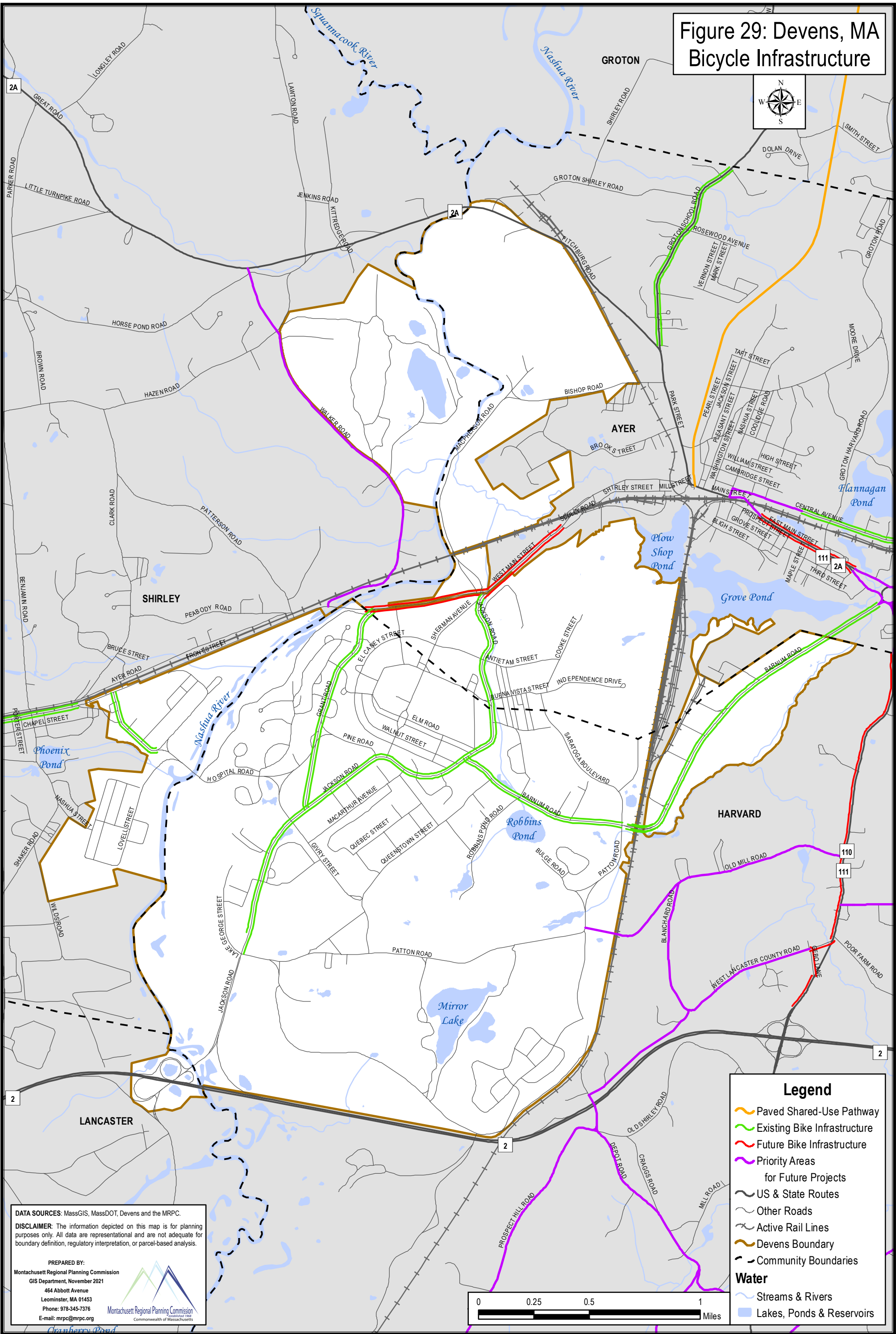


Figure 29: Devens, MA
Bicycle Infrastructure



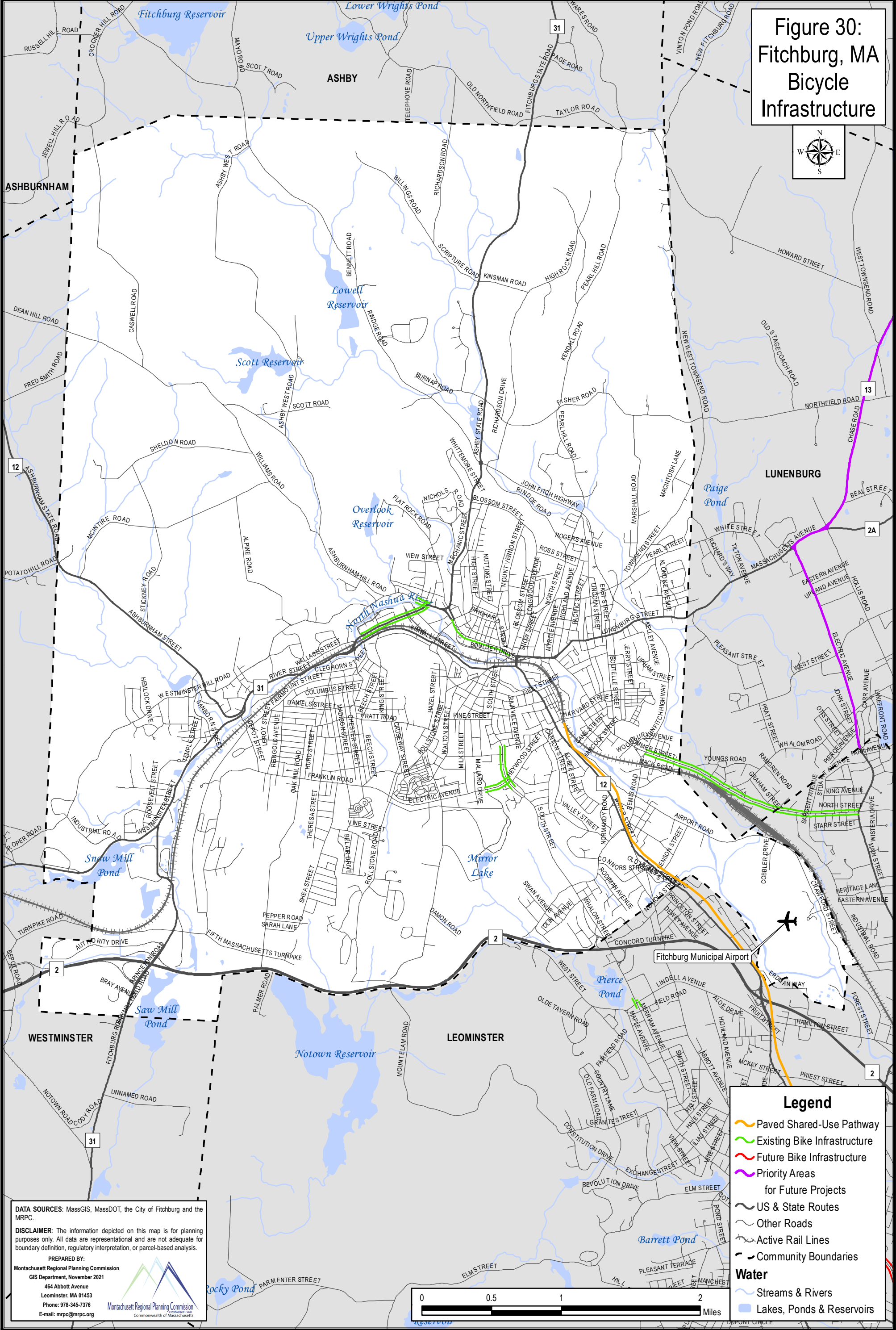
DATA SOURCES: MassGIS, MassDOT, Devens and the MRPC.

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Figure 30:
Fitchburg, MA
Bicycle
Infrastructure

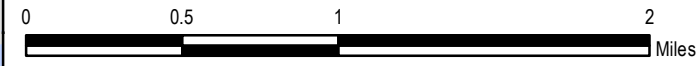


DATA SOURCES: MassGIS, MassDOT, the City of Fitchburg and the MRPC.

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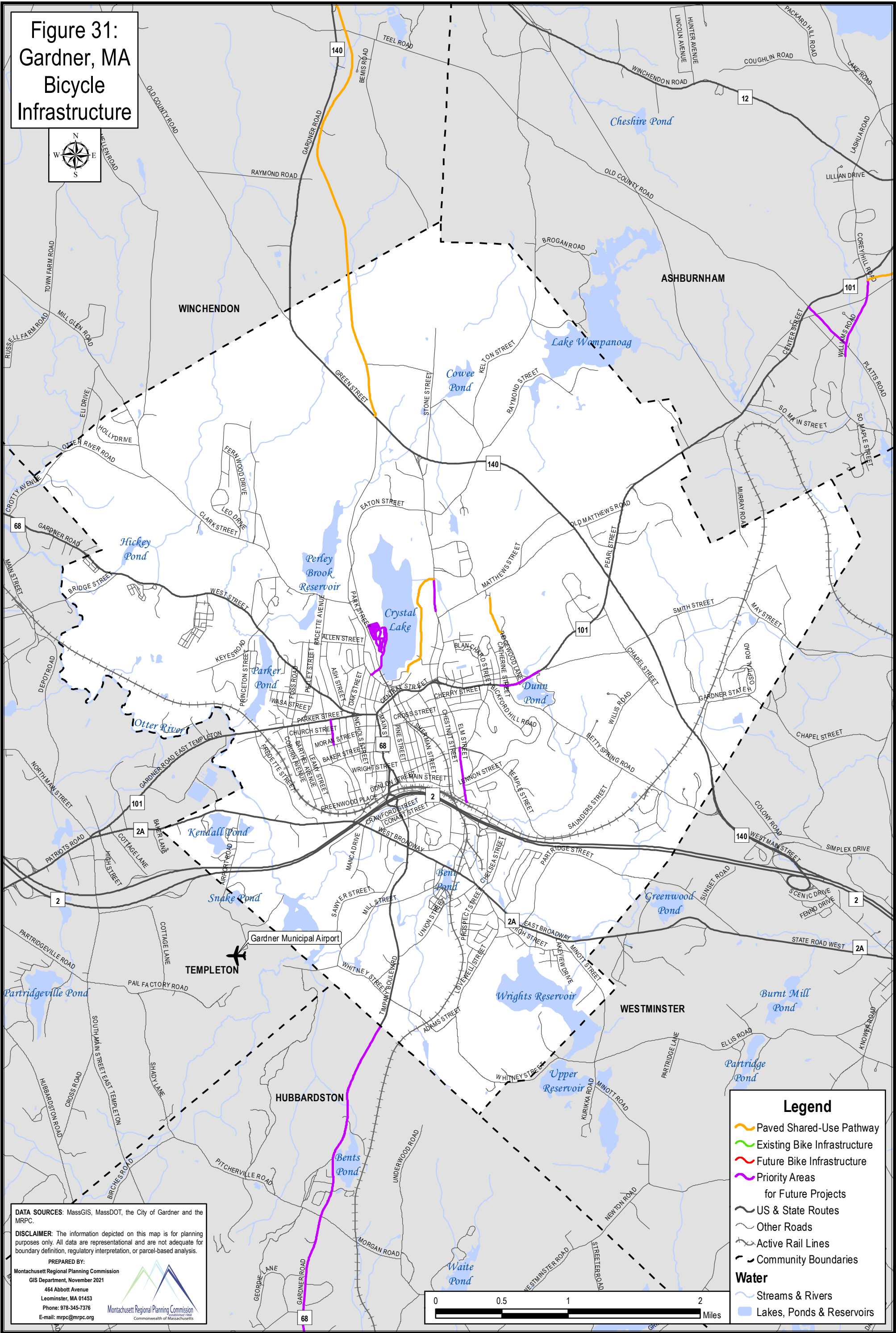
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- Legend**
- Paved Shared-Use Pathway
 - Existing Bike Infrastructure
 - Future Bike Infrastructure
 - Priority Areas for Future Projects
 - US & State Routes
 - Other Roads
 - Active Rail Lines
 - Community Boundaries
 - Water**
 - Streams & Rivers
 - Lakes, Ponds & Reservoirs

Figure 31:
Gardner, MA
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the City of Gardner and the MRPC.

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Legend

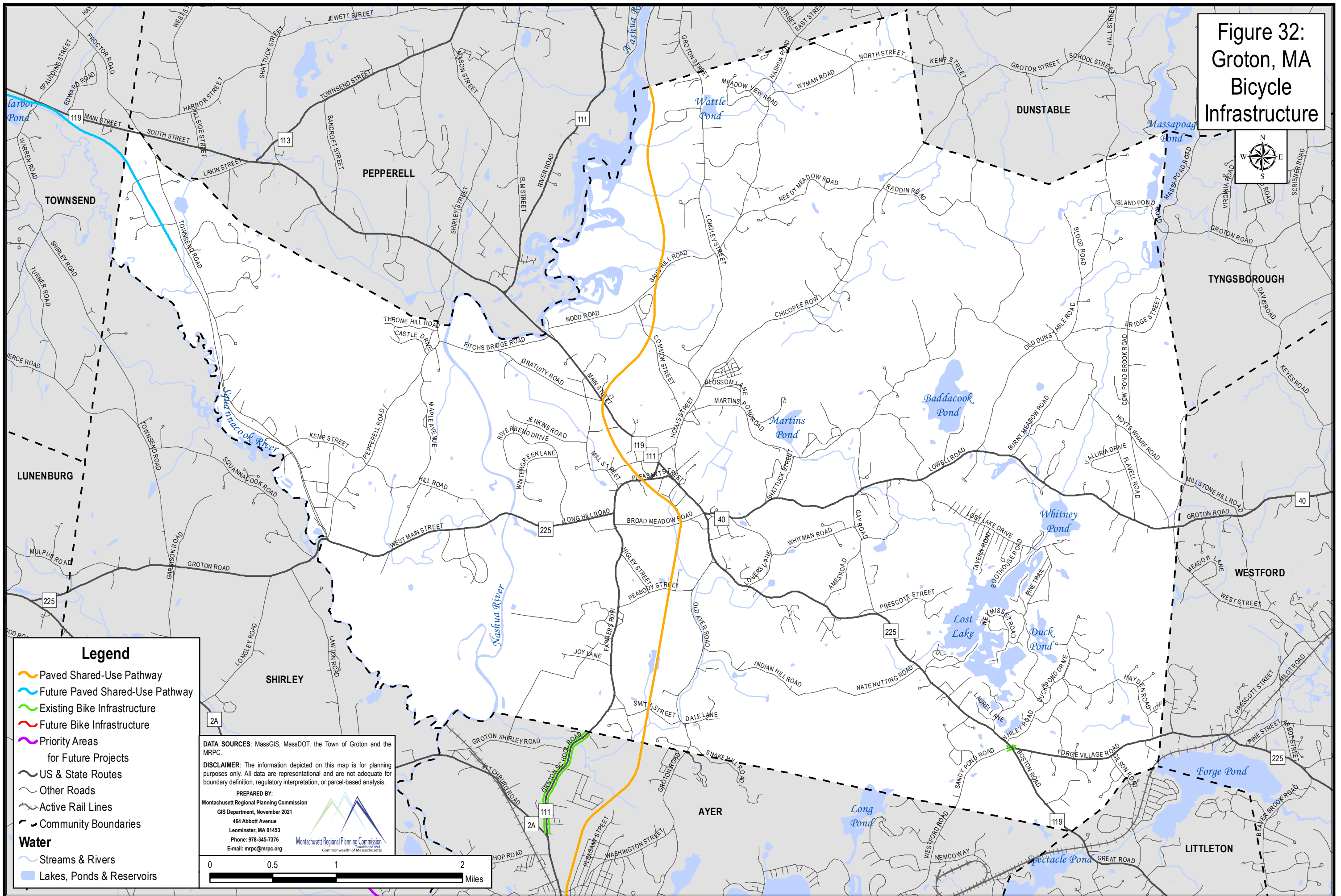
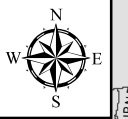
- Paved Shared-Use Pathway
- Existing Bike Infrastructure
- Future Bike Infrastructure
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs



Figure 32:
Groton, MA
Bicycle
Infrastructure



Legend

- Paved Shared-Use Pathway
- Future Paved Shared-Use Pathway
- Existing Bike Infrastructure
- Future Bike Infrastructure
- Priority Areas for Future Projects
- US & State Routes
- Other Roads
- Active Rail Lines
- Community Boundaries
- Water**
 - Streams & Rivers
 - Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Groton and the MRPC.

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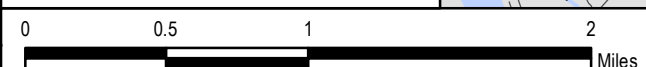


Figure 33: Harvard, MA
Bicycle Infrastructure

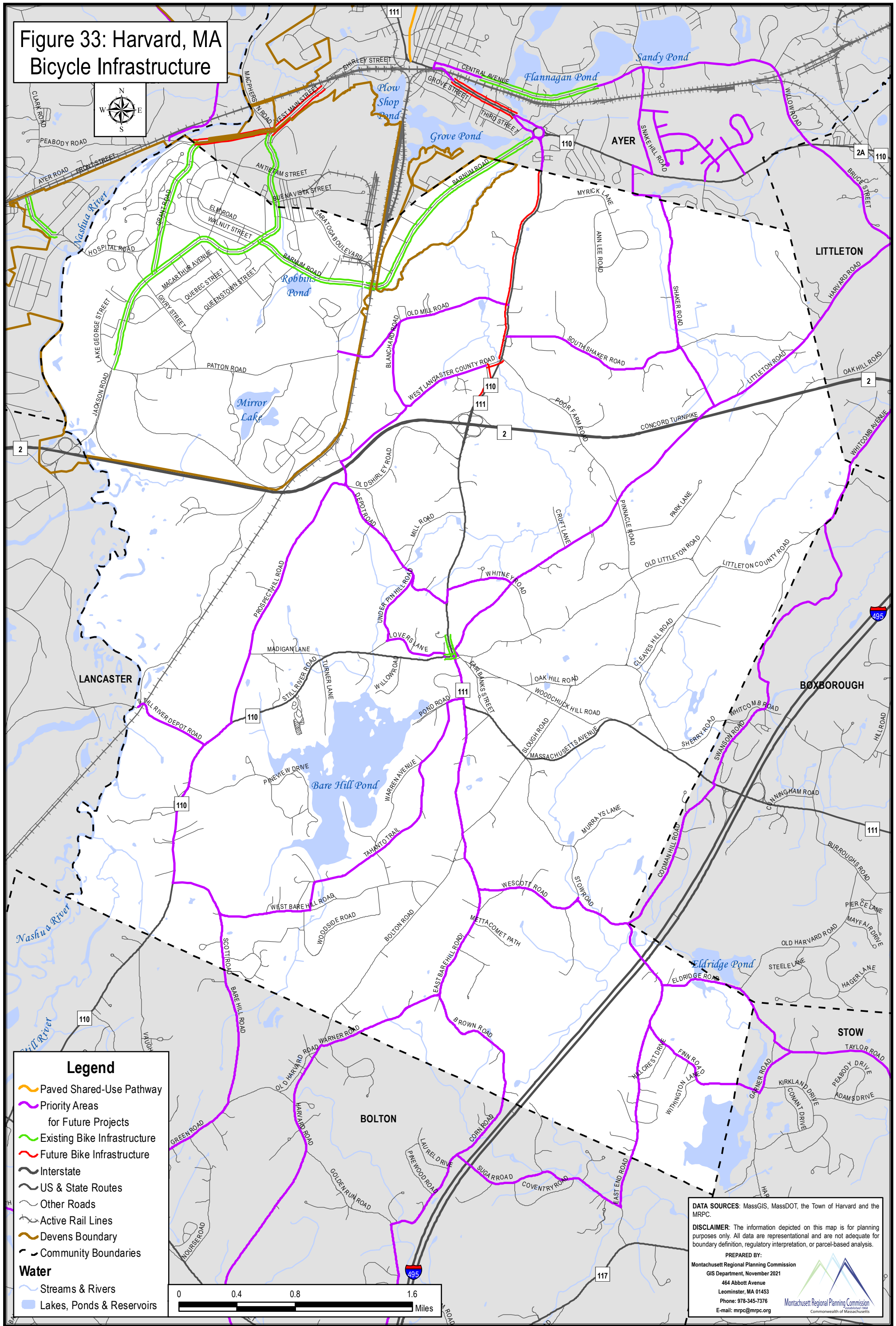


Figure 34:
Hubbardston, MA
Bicycle Infrastructure

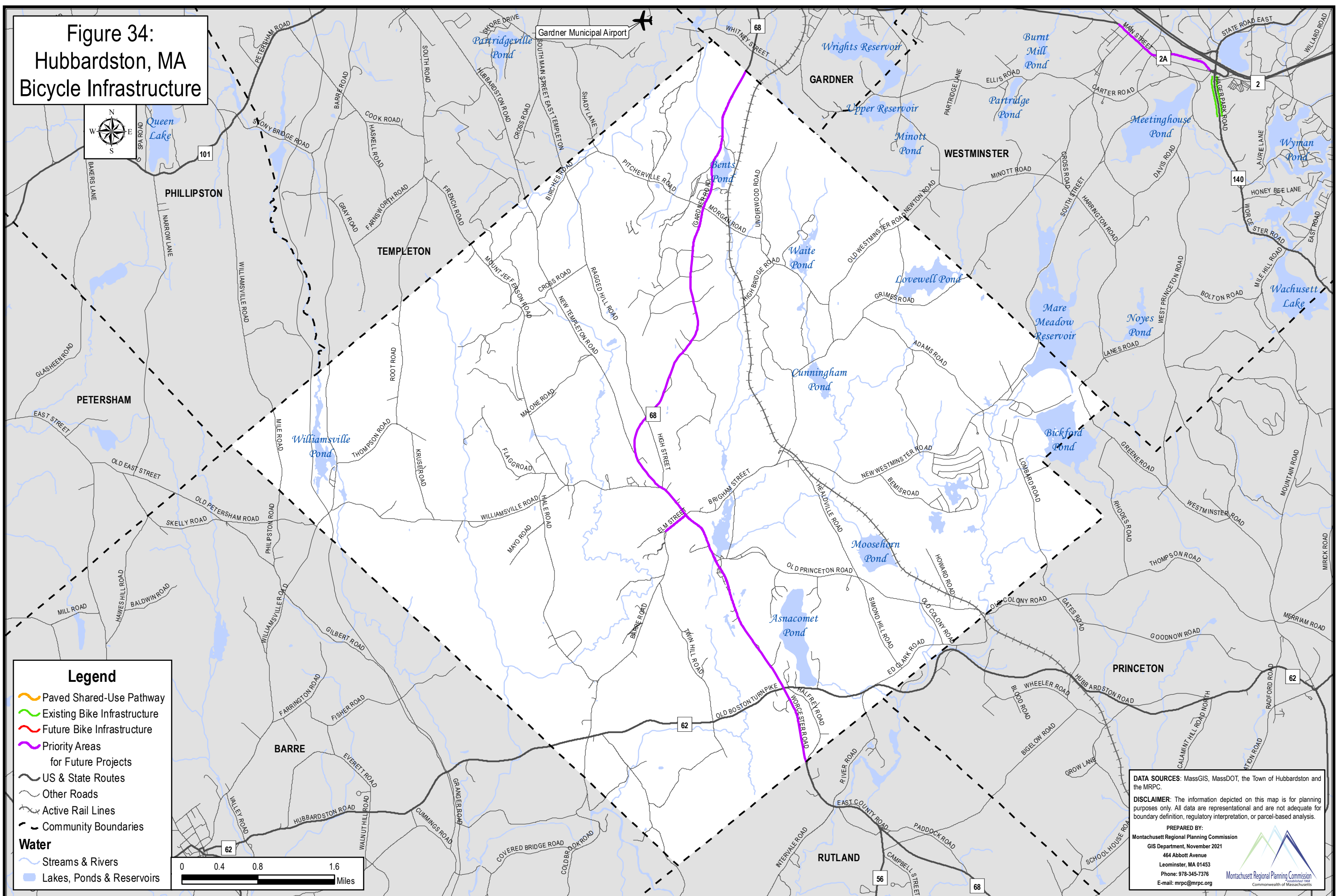


Figure 35: Lancaster, MA
Bicycle Infrastructure

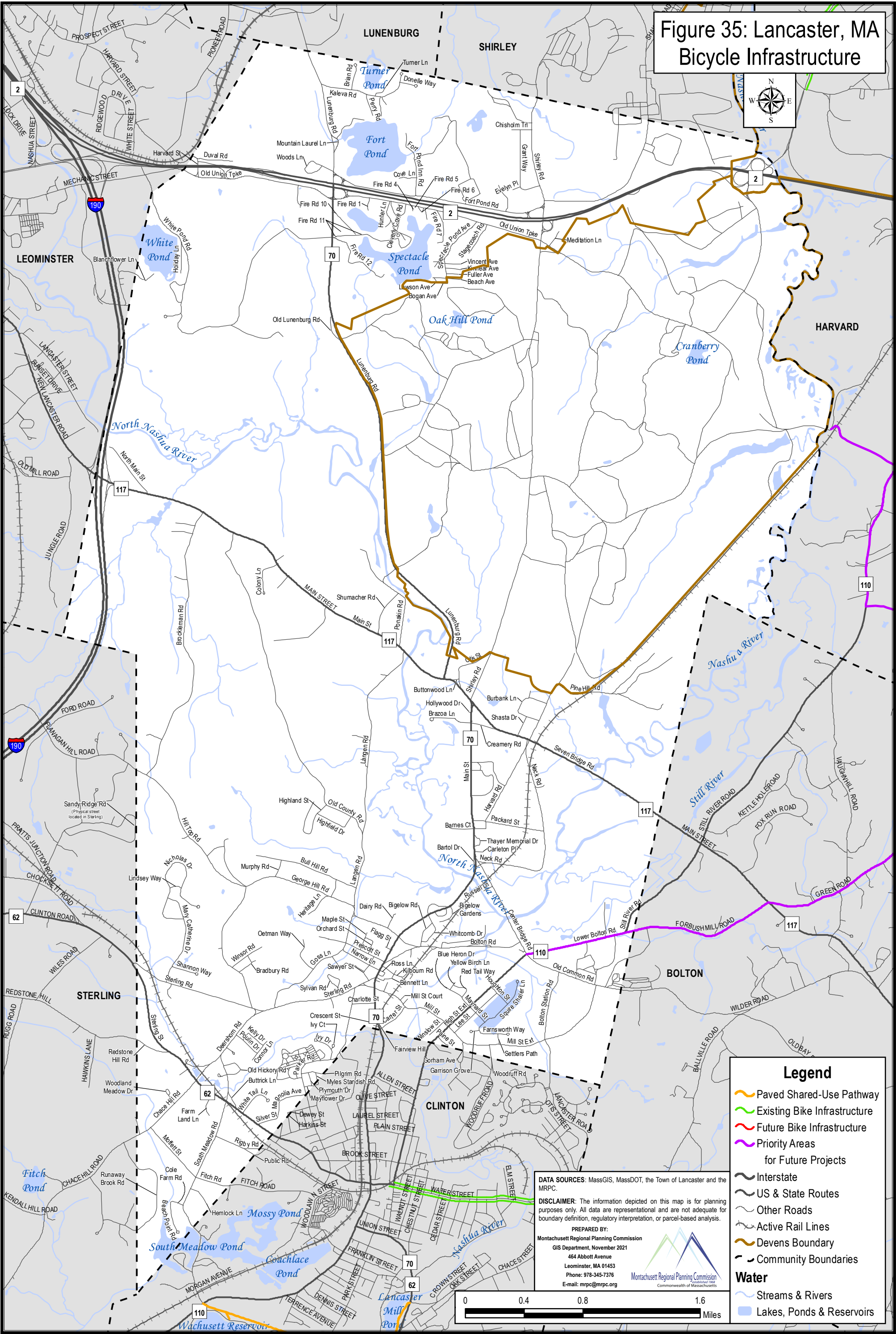
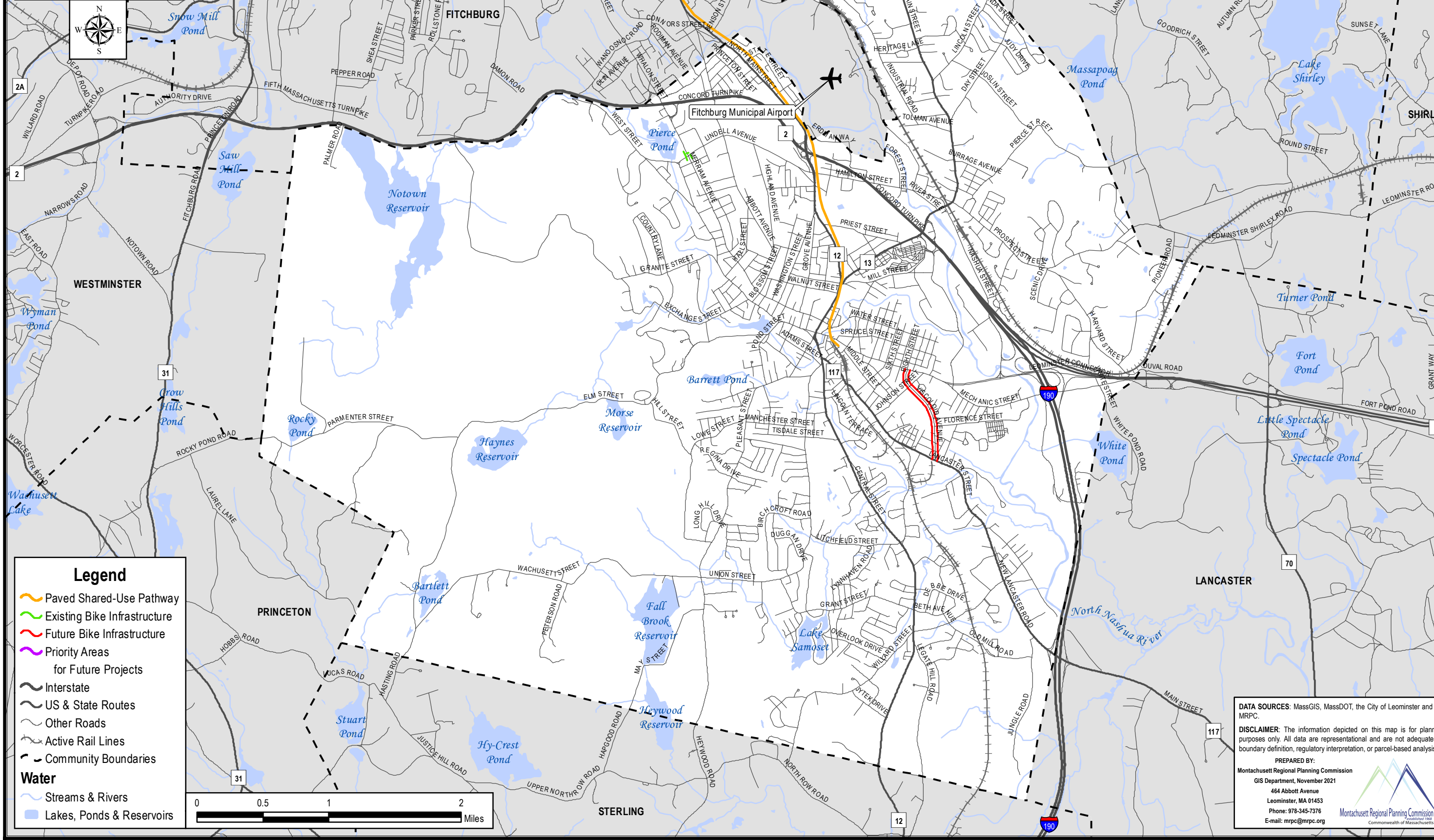


Figure 36:
Leominster, MA:
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the City of Leominster and the MRPC.

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 E-mail: mrpc@mrpc.org

Montachusett Regional Planning Commission
 Established 1984
 Commonwealth of Massachusetts

Figure 37:
Lunenburg, MA:
Bicycle
Infrastructure

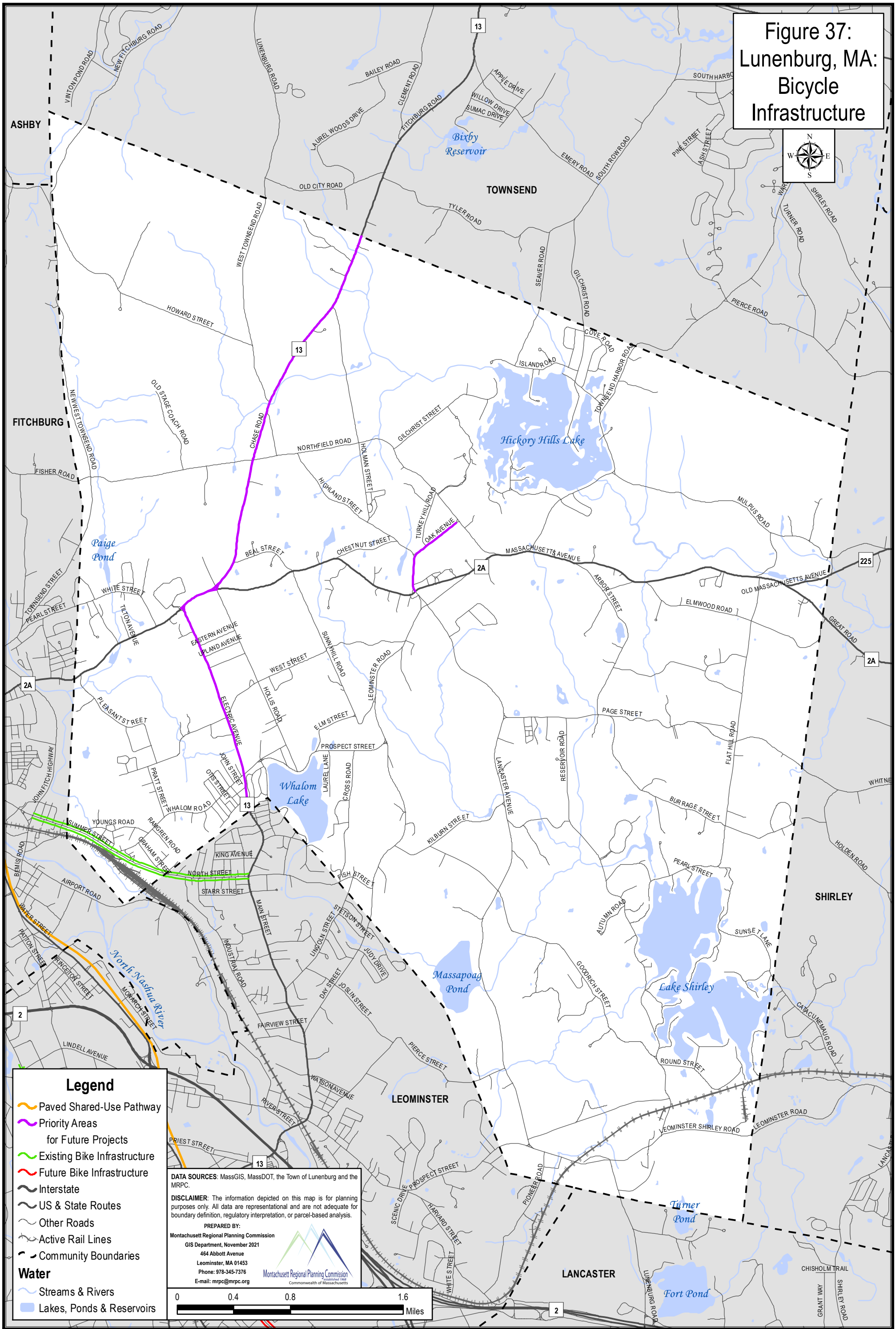
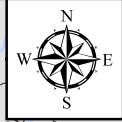


Figure 38:
Petersham, MA
Bicycle
Infrastructure

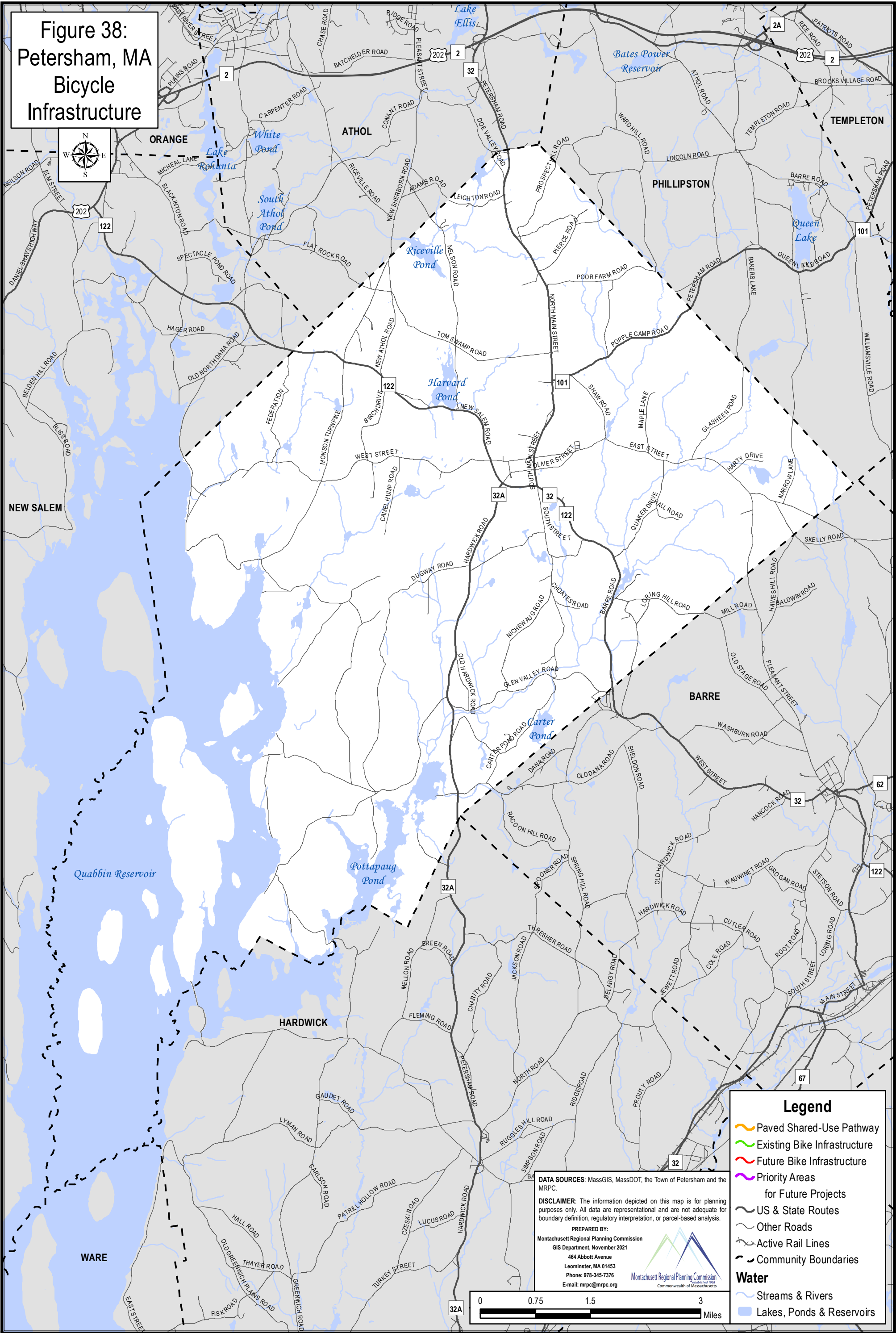
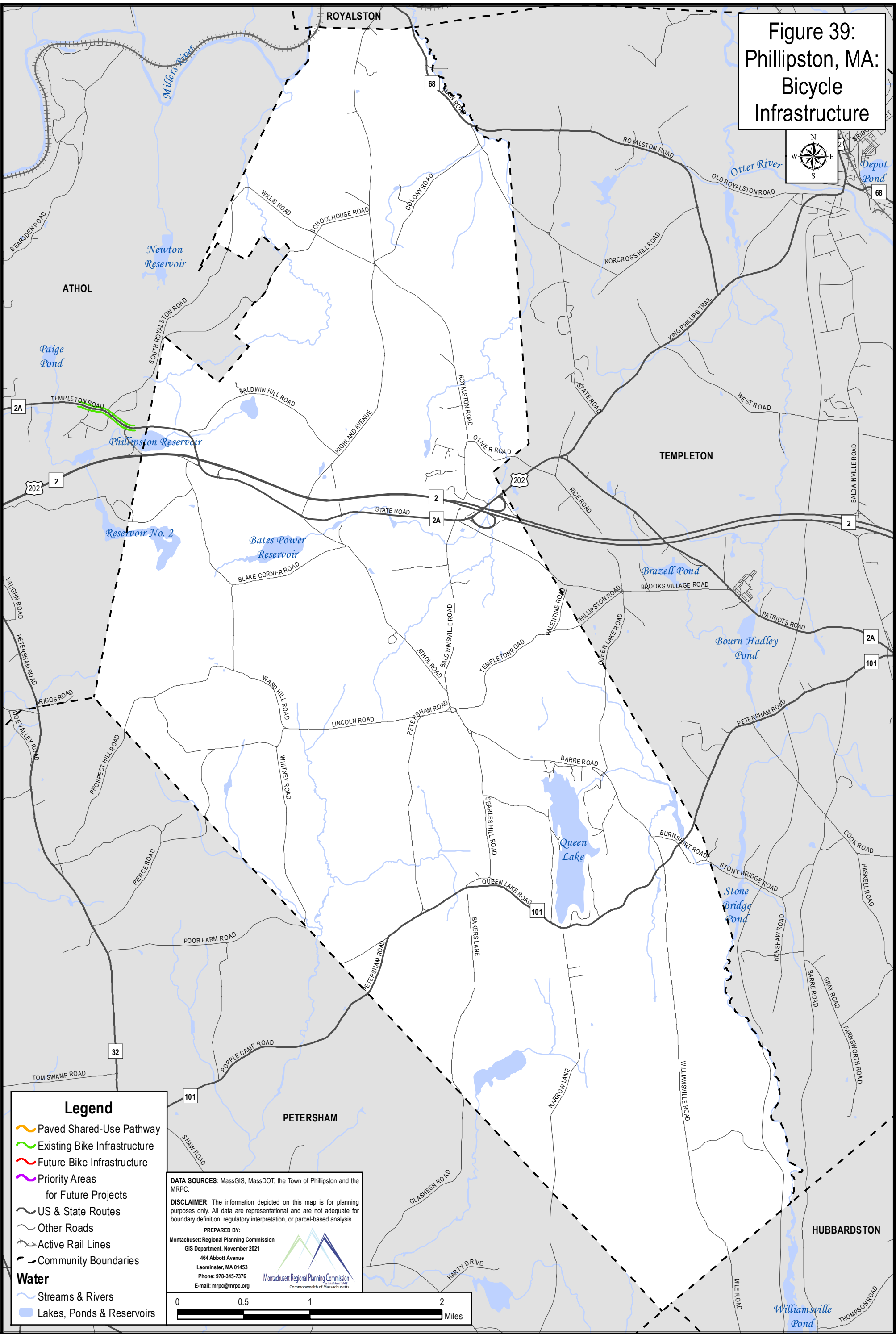


Figure 39:
Phillipston, MA:
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Phillipston and the MRPC.

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Established 1982
Commonwealth of Massachusetts



Figure 40:
Royalston, MA
Bicycle
Infrastructure

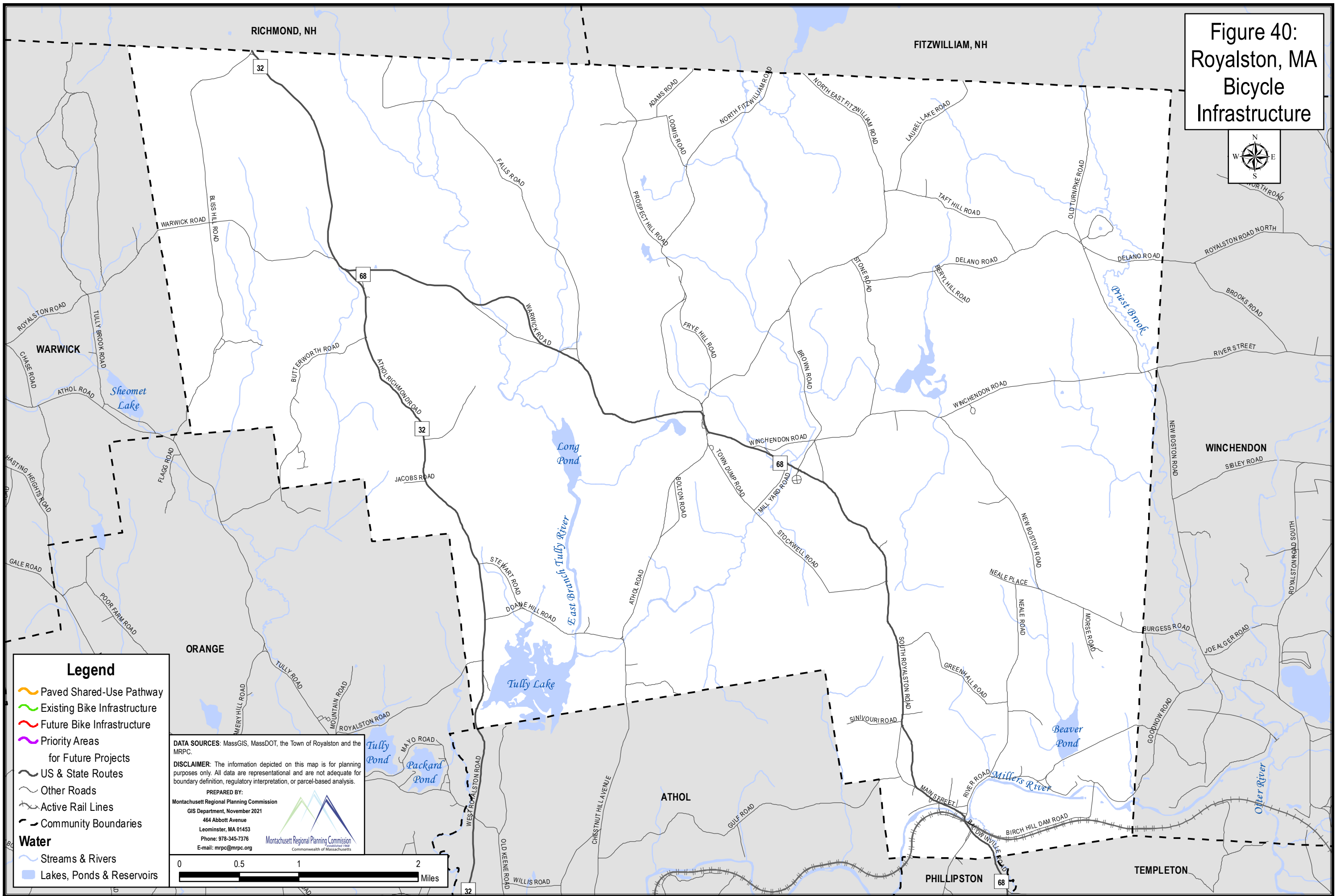
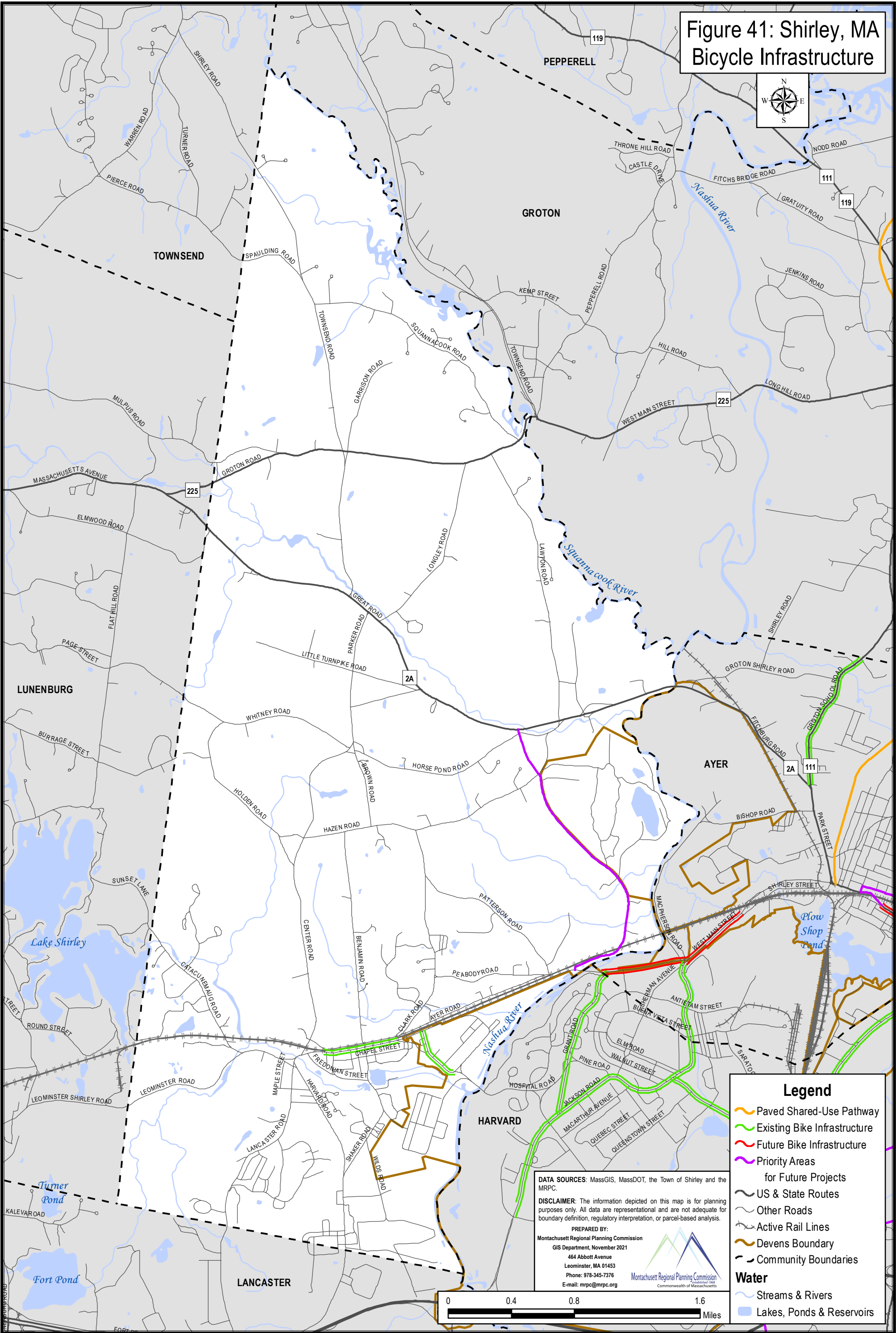


Figure 41: Shirley, MA
Bicycle Infrastructure



Legend

- Paved Shared-Use Pathway
- Existing Bike Infrastructure
- Future Bike Infrastructure
- Priority Areas

for Future Projects

- US & State Routes
- Other Roads
- Active Rail Lines
- Devens Boundary
- Community Boundaries

Water

- Streams & Rivers
- Lakes, Ponds & Reservoirs

DATA SOURCES: MassGIS, MassDOT, the Town of Shirley and the MRPC.

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Figure 42: Sterling, MA
Bicycle Infrastructure

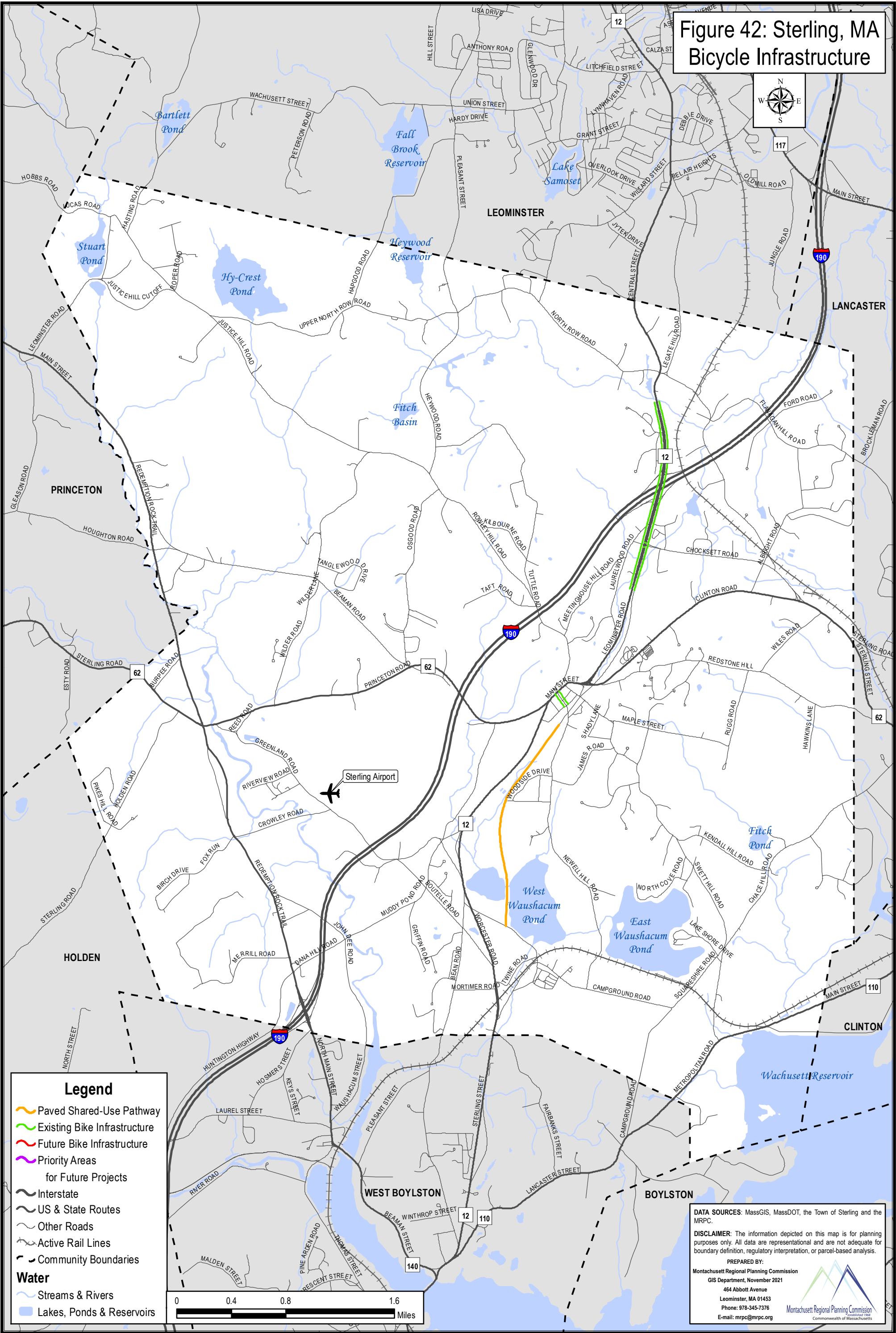
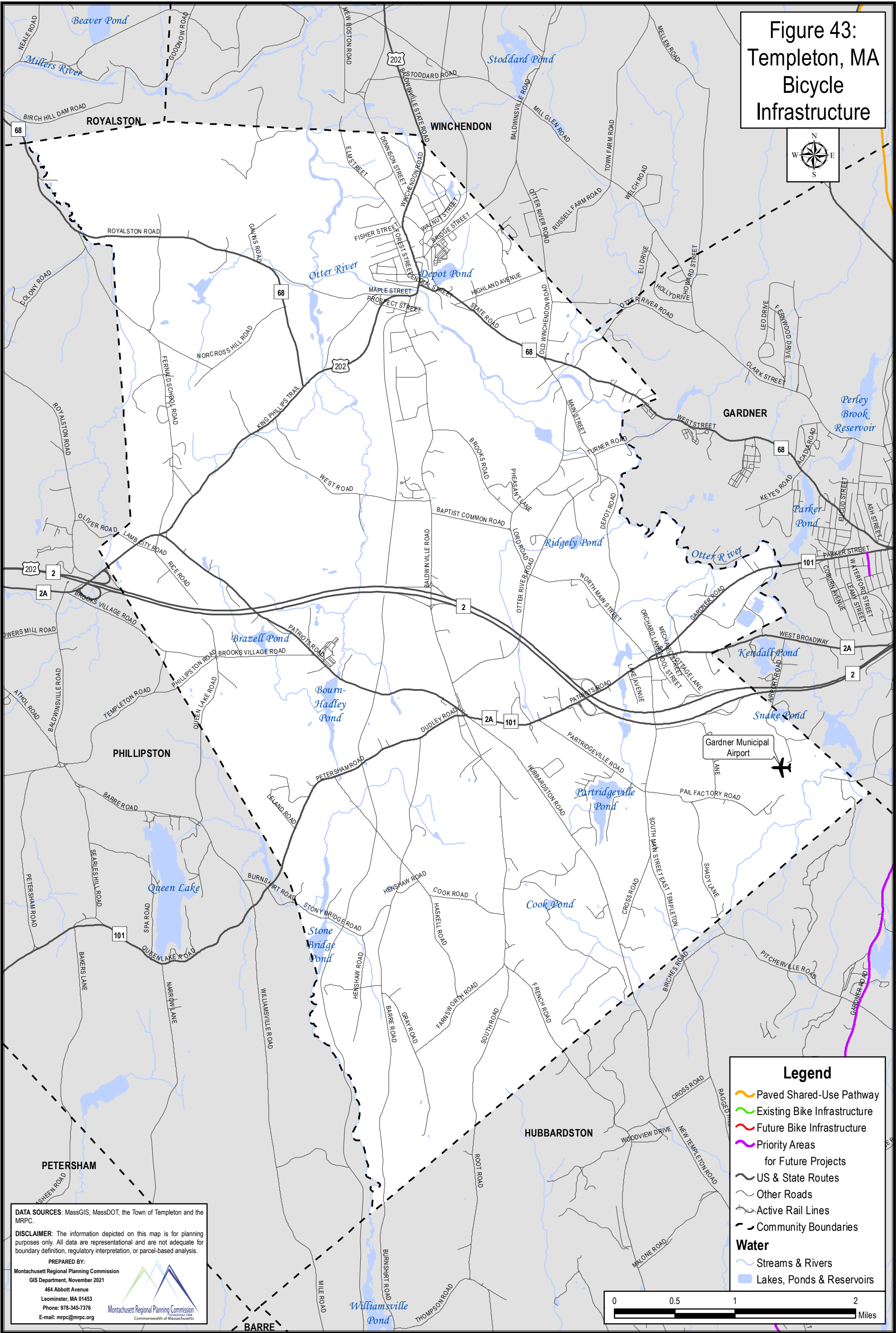


Figure 43:
Templeton, MA
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Templeton and the MRPC.

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Commonwealth of Massachusetts

- Legend**
- Paved Shared-Use Pathway
 - Existing Bike Infrastructure
 - Future Bike Infrastructure
 - Priority Areas for Future Projects
 - US & State Routes
 - Other Roads
 - Active Rail Lines
 - Community Boundaries
 - Water**
 - Streams & Rivers
 - Lakes, Ponds & Reservoirs

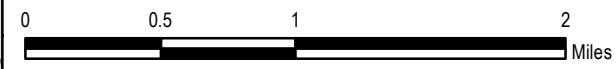


Figure 44:
Townsend, MA
Bicycle
Infrastructure

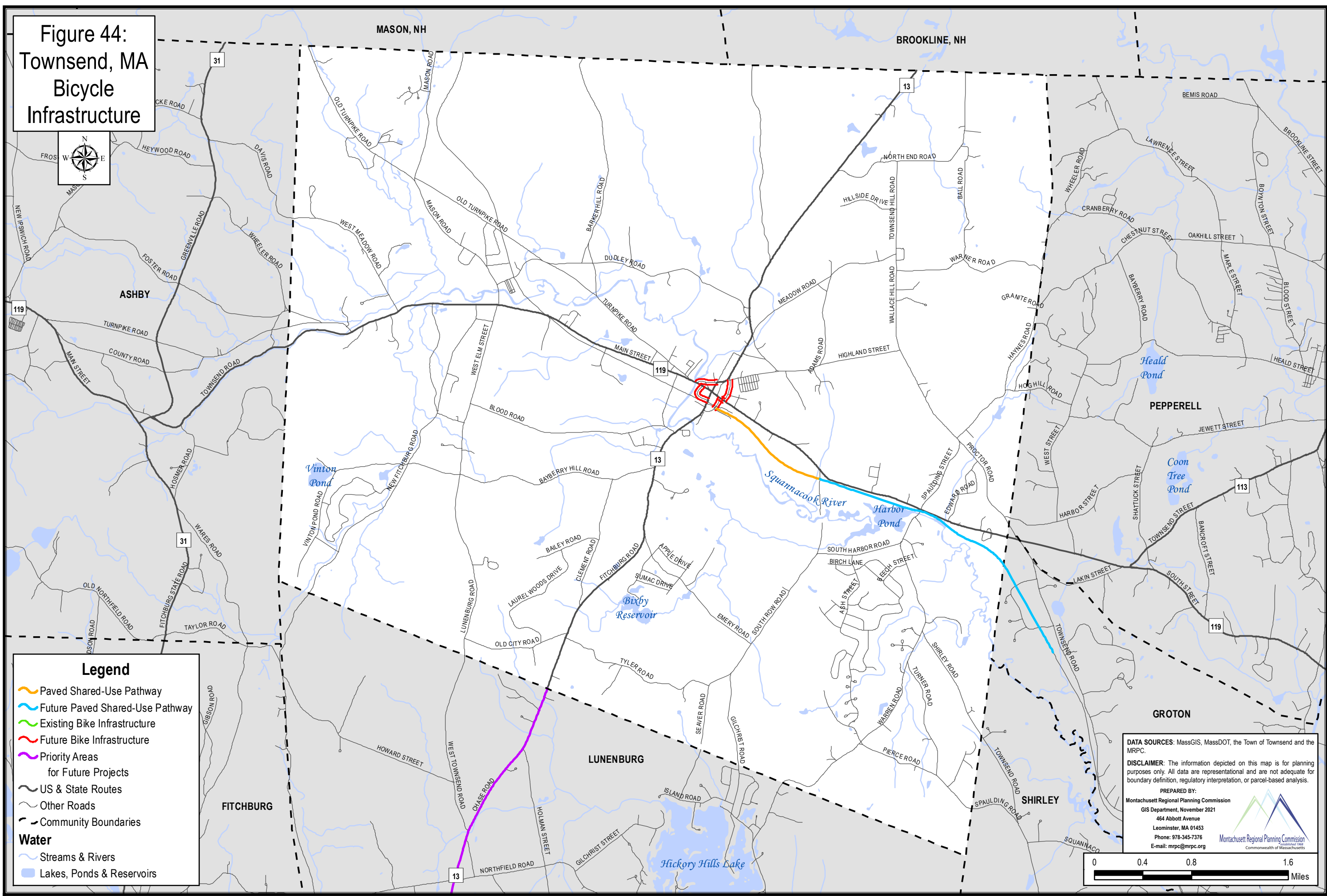
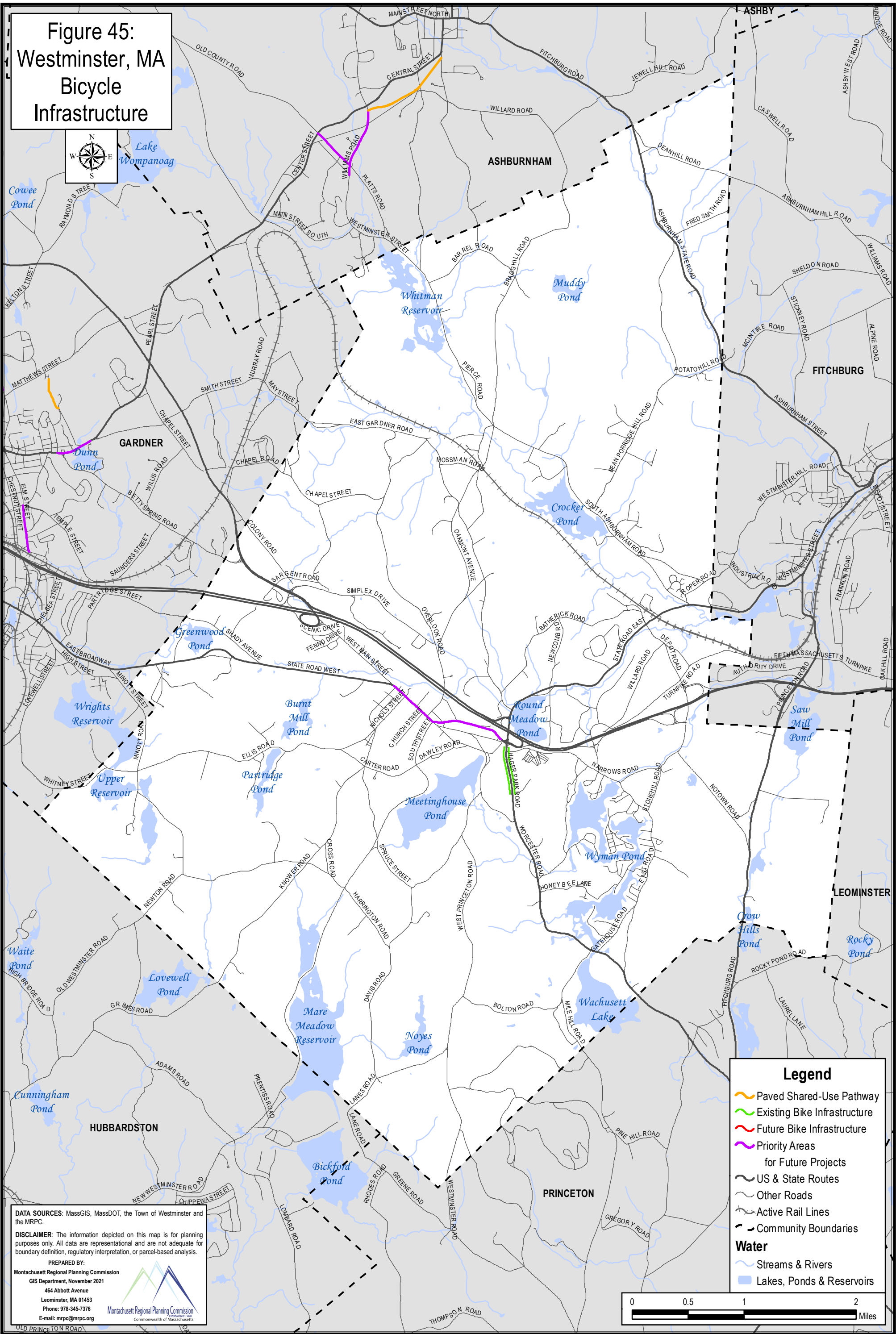


Figure 45:
Westminster, MA
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Westminster and the MRPC.

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Commonwealth of Massachusetts

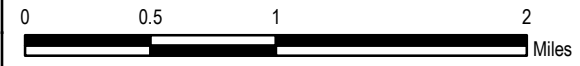
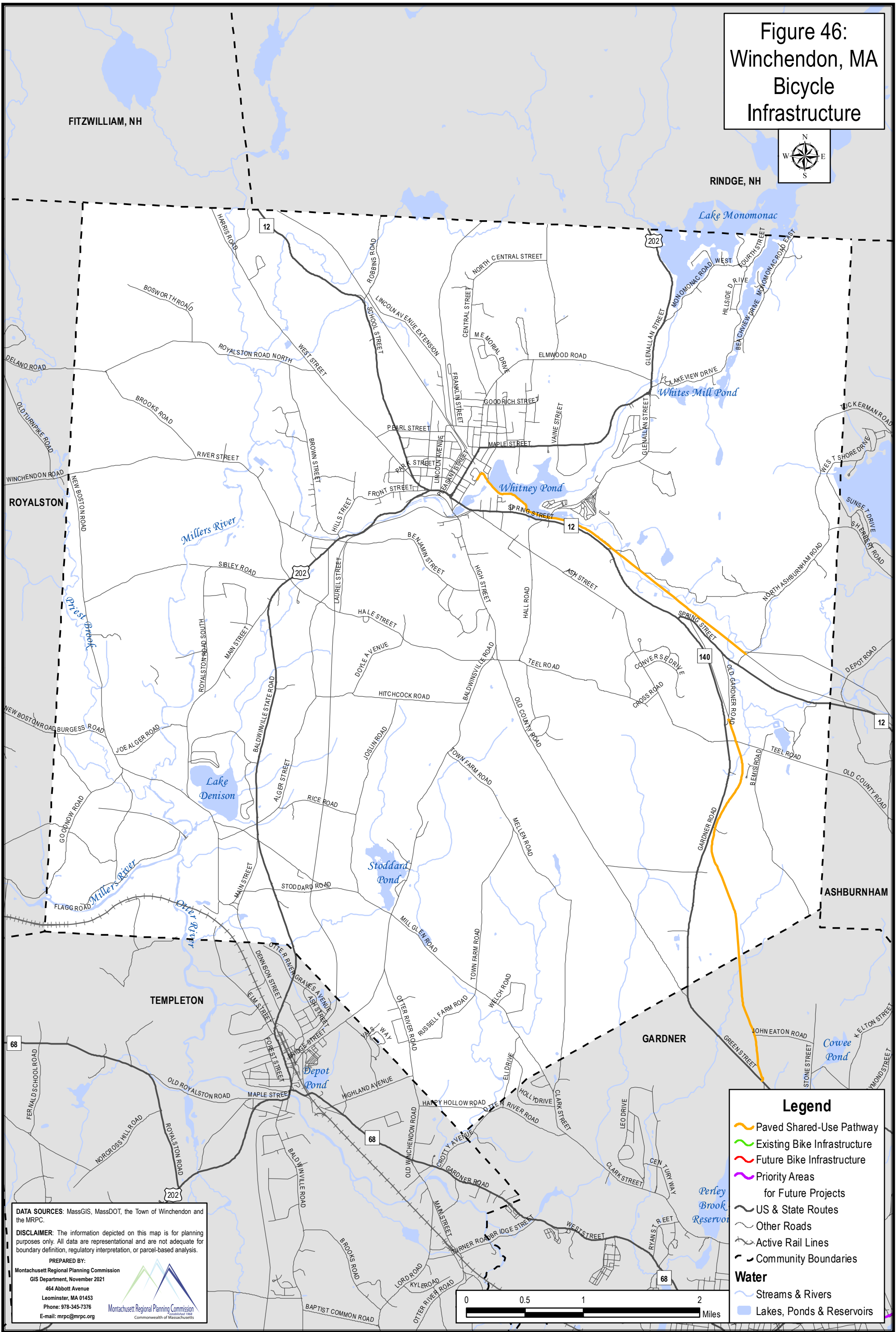


Figure 46:
Winchendon, MA
Bicycle
Infrastructure



DATA SOURCES: MassGIS, MassDOT, the Town of Winchendon and the MRPC.

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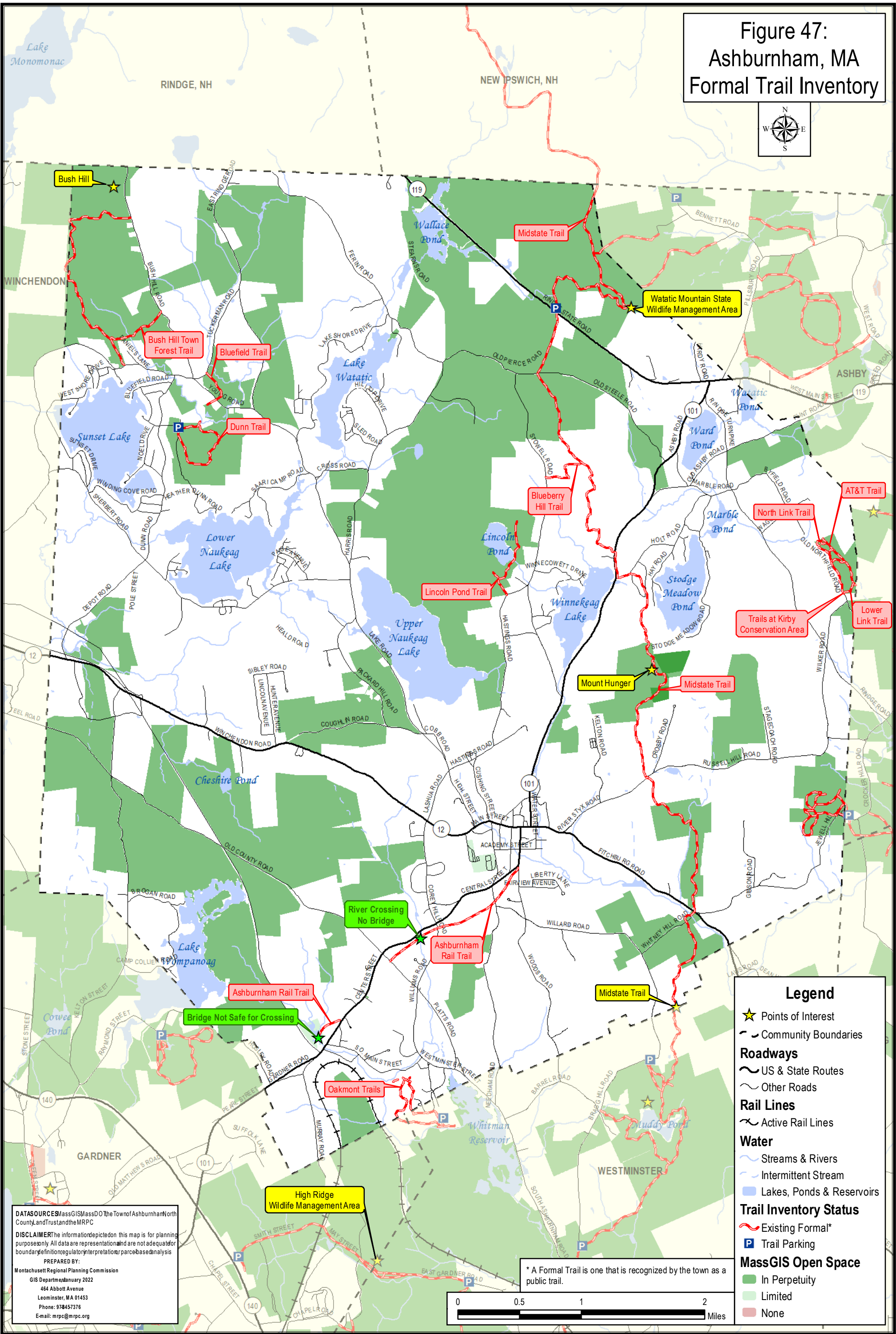
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Montachusett Regional Planning Commission
Commonwealth of Massachusetts

- Legend**
- Paved Shared-Use Pathway
 - Existing Bike Infrastructure
 - Future Bike Infrastructure
 - Priority Areas for Future Projects
 - US & State Routes
 - Other Roads
 - Active Rail Lines
 - Community Boundaries
 - Water**
 - Streams & Rivers
 - Lakes, Ponds & Reservoirs

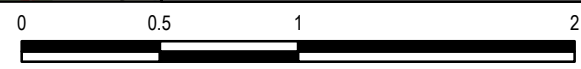


Figure 47:
Ashburnham, MA
Formal Trail Inventory



DATASOURCESMassGISMassDOTThe Town of AshburnhamNorth County Land Trust and the MRPC
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* A Formal Trail is one that is recognized by the town as a public trail.



Legend

- ★ Points of Interest
- - - Community Boundaries
- Roadways**
 - ~ US & State Routes
 - ~ Other Roads
- Rail Lines**
 - ~ Active Rail Lines
- Water**
 - ~ Streams & Rivers
 - ~ Intermittent Stream
 - ~ Lakes, Ponds & Reservoirs
- Trail Inventory Status**
 - ~ Existing Formal*
 - P Trail Parking
- MassGIS Open Space**
 - ~ In Perpetuity
 - ~ Limited
 - ~ None

Figure 48: Ashby, MA
Formal Trail Inventory

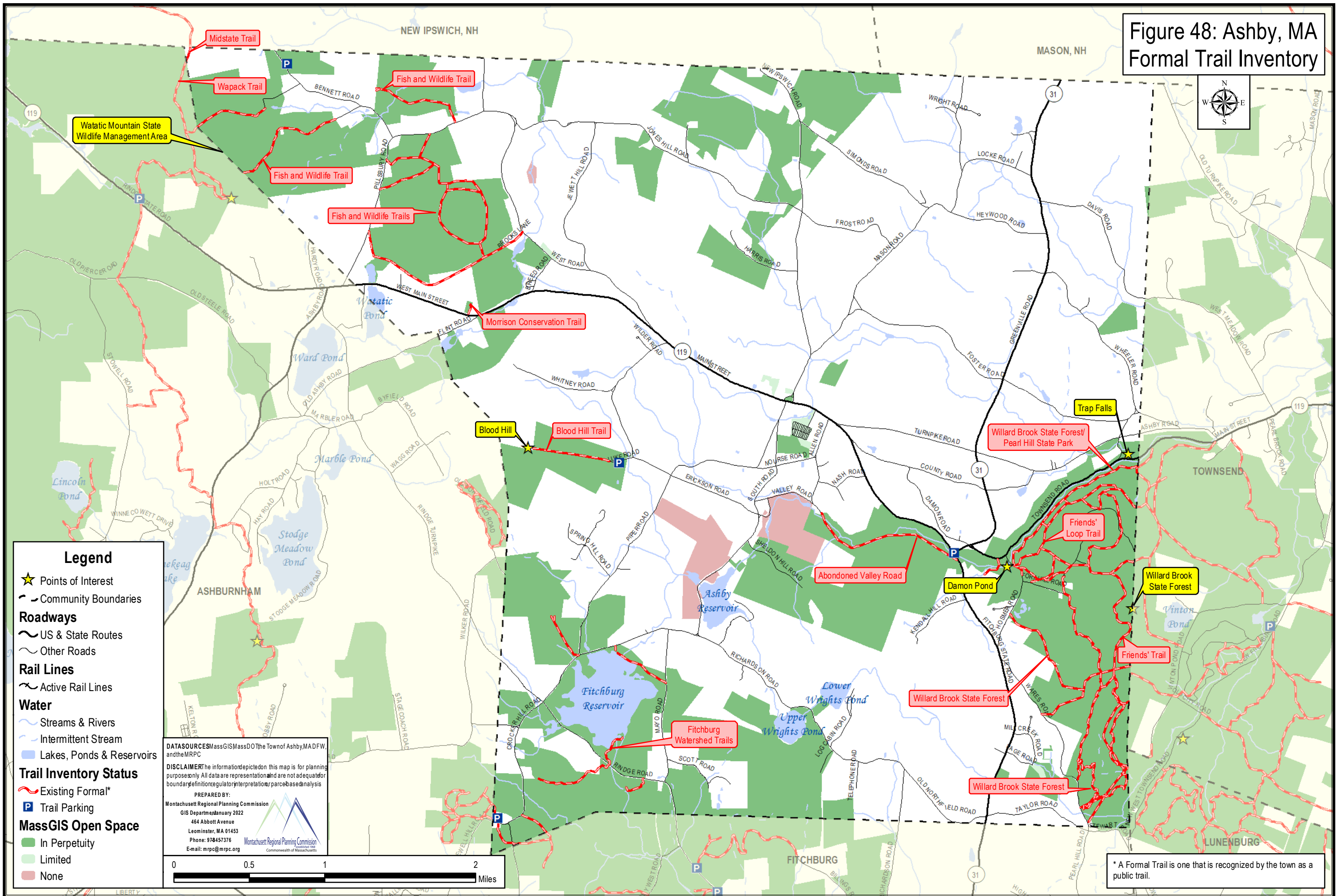


Figure 49: Athol, MA
Formal Trail Inventory

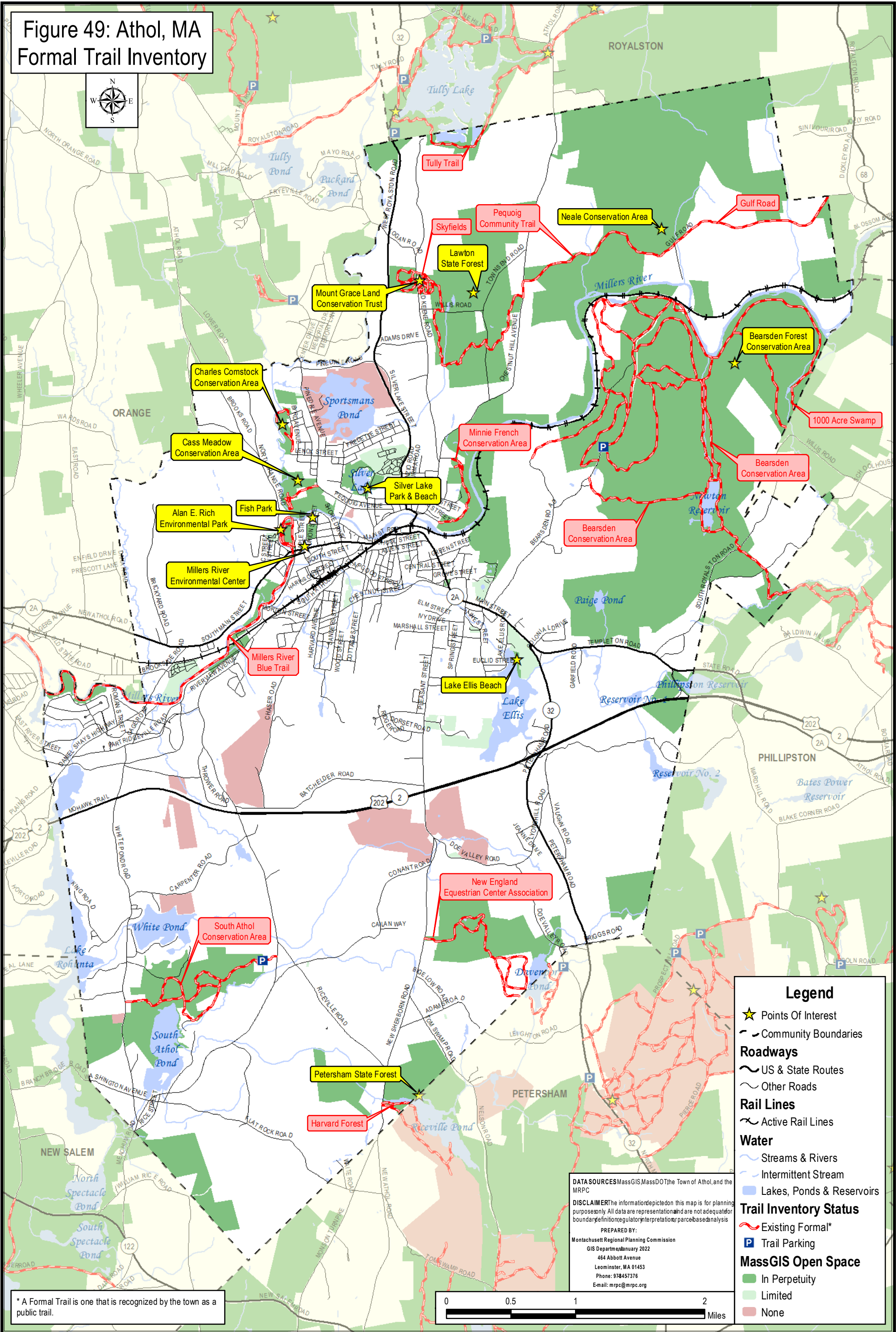


Figure 50: Ayer, MA
Formal Trail Inventory

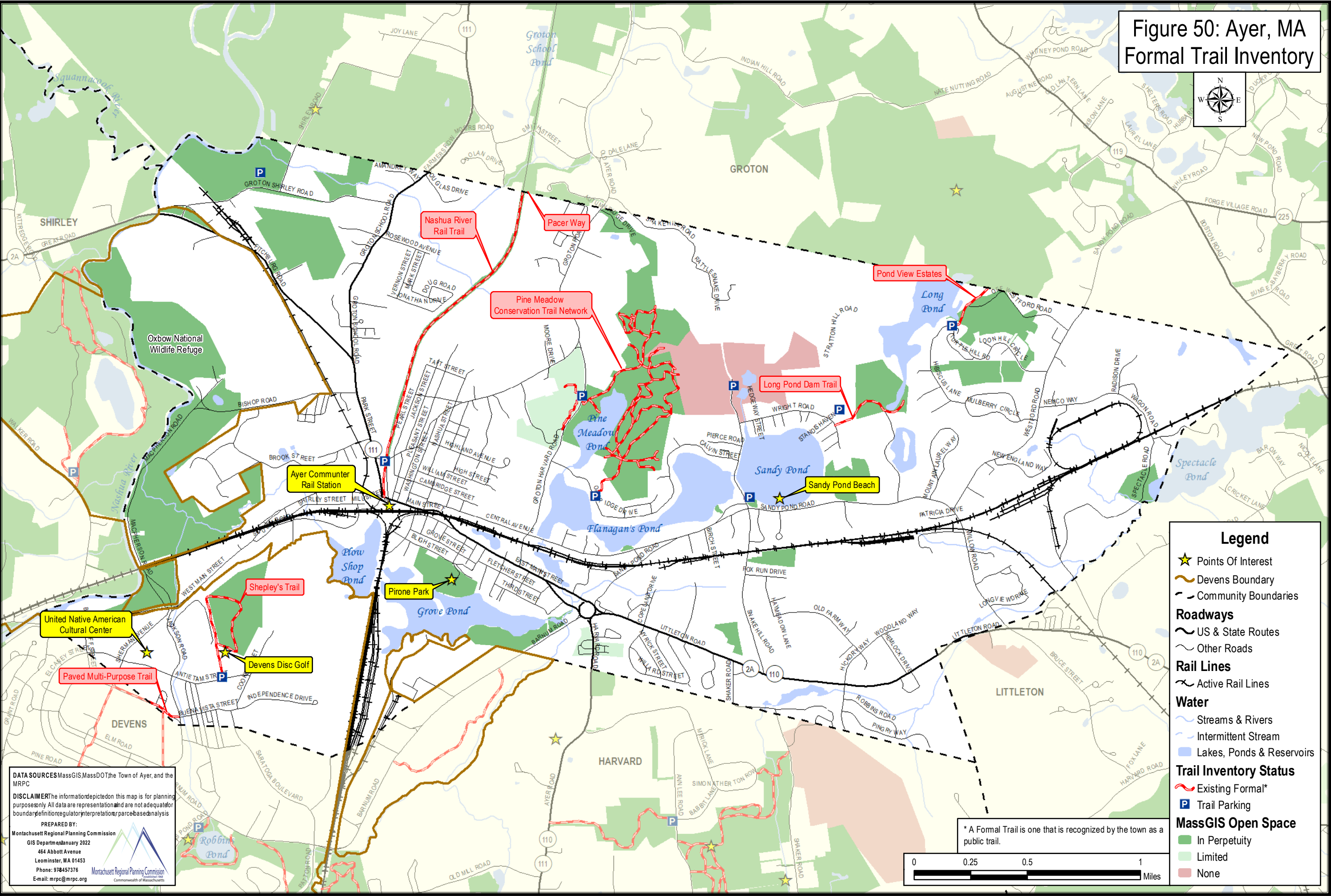
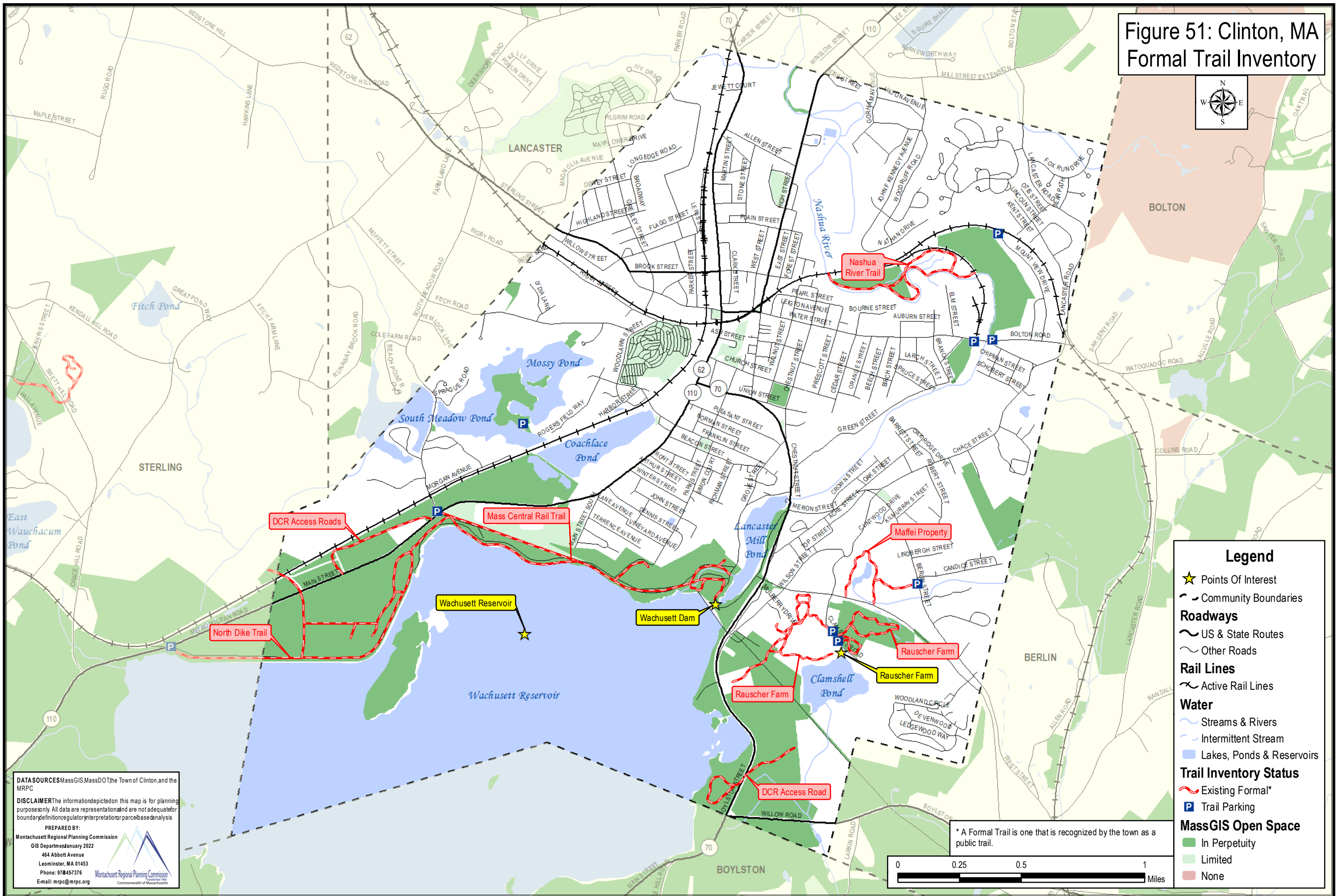


Figure 51: Clinton, MA
Formal Trail Inventory



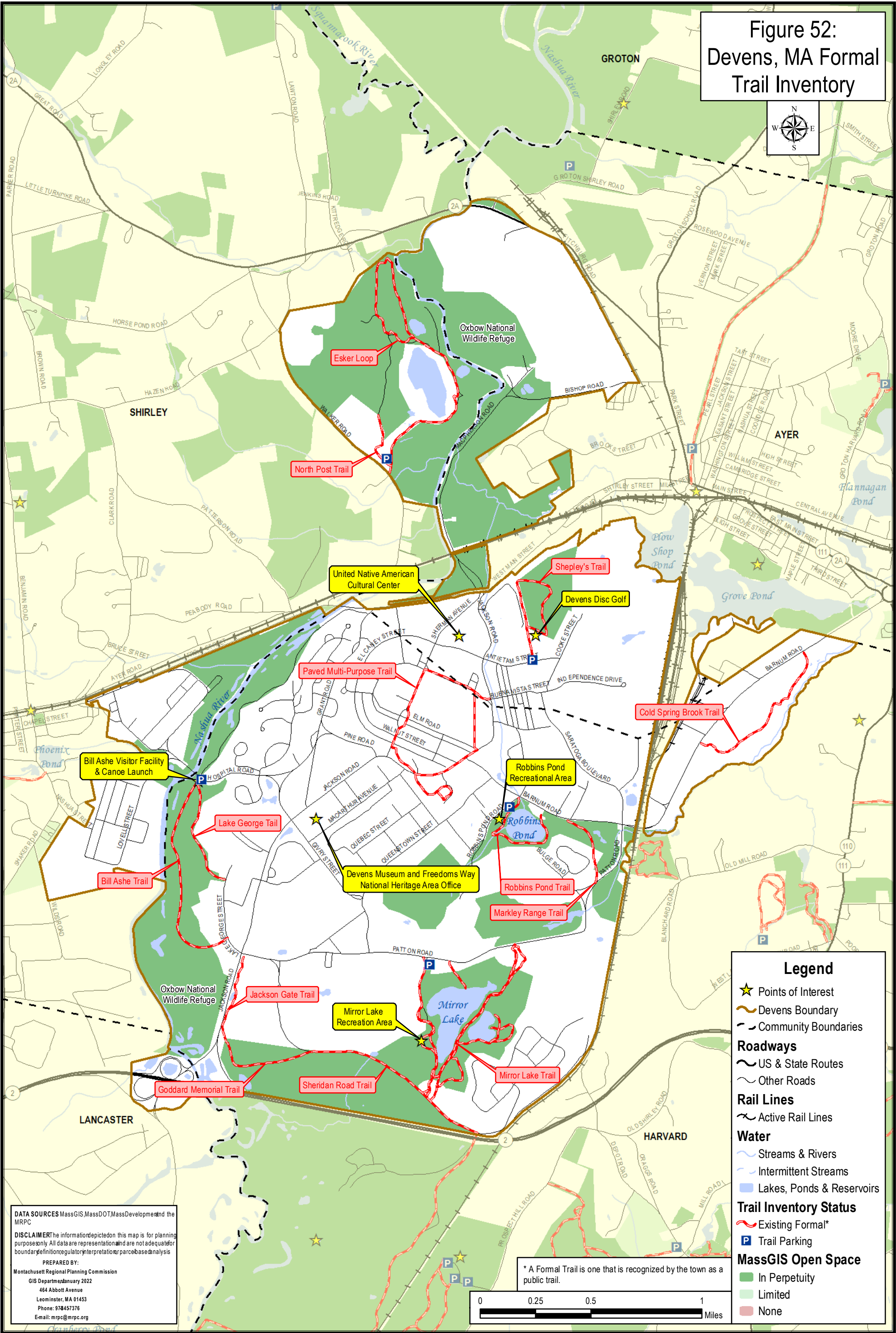
DATASOURCES MassGIS, MassDOT, the Town of Clinton, and the MRPC

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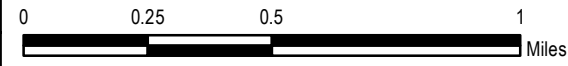
Montachusett Regional Planning Commission
Commonwealth of Massachusetts

Figure 52:
Devens, MA Formal
Trail Inventory



DATA SOURCES MassGIS, MassDOT, Mass Development and the MRPC
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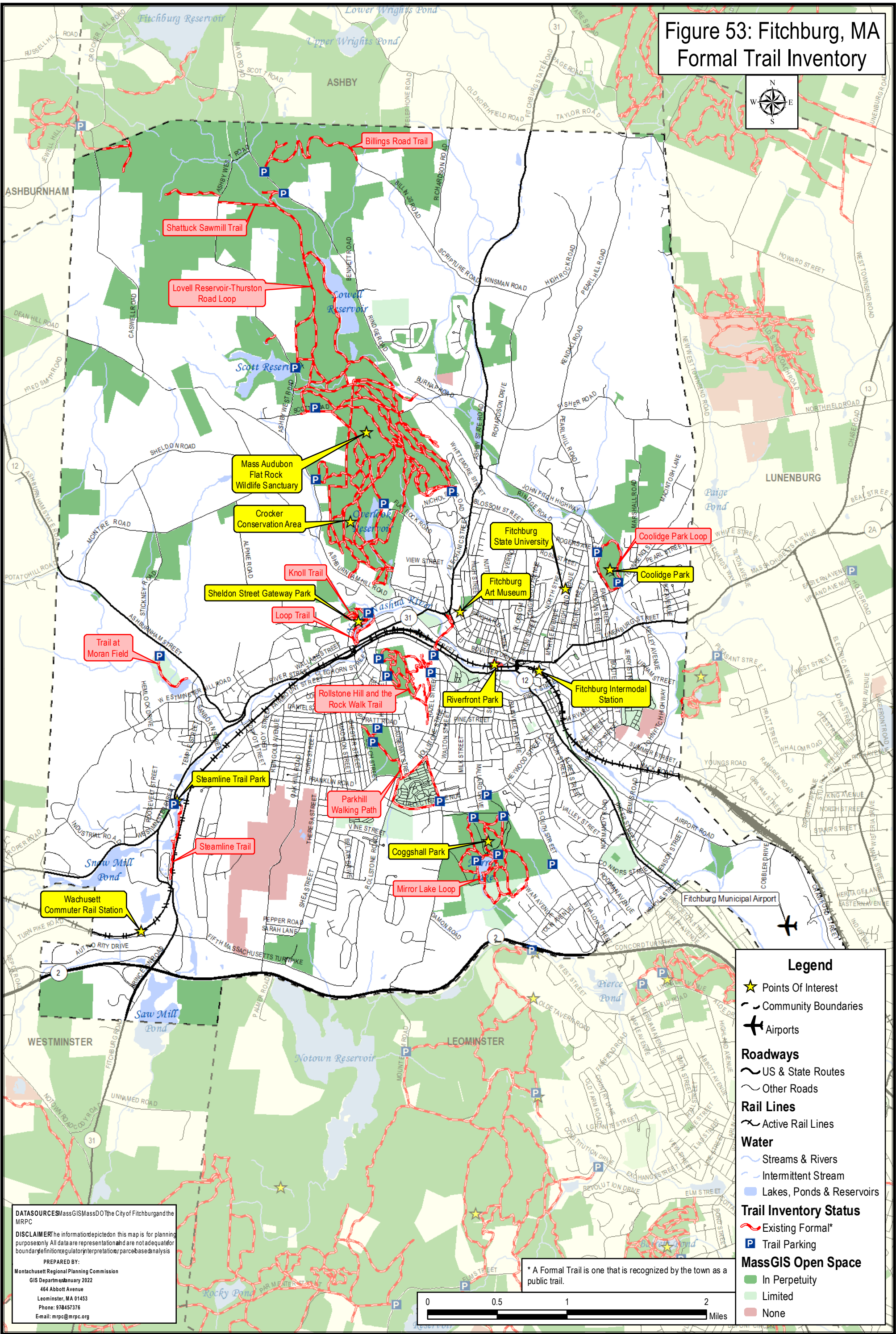
* A Formal Trail is one that is recognized by the town as a public trail.



Legend

- ★ Points of Interest
- Devens Boundary
- Community Boundaries
- Roadways**
 - US & State Routes
 - Other Roads
- Rail Lines**
 - Active Rail Lines
- Water**
 - Streams & Rivers
 - Intermittent Streams
 - Lakes, Ponds & Reservoirs
- Trail Inventory Status**
 - Existing Formal*
 - Trail Parking
- MassGIS Open Space**
 - In Perpetuity
 - Limited
 - None

Figure 53: Fitchburg, MA
Formal Trail Inventory



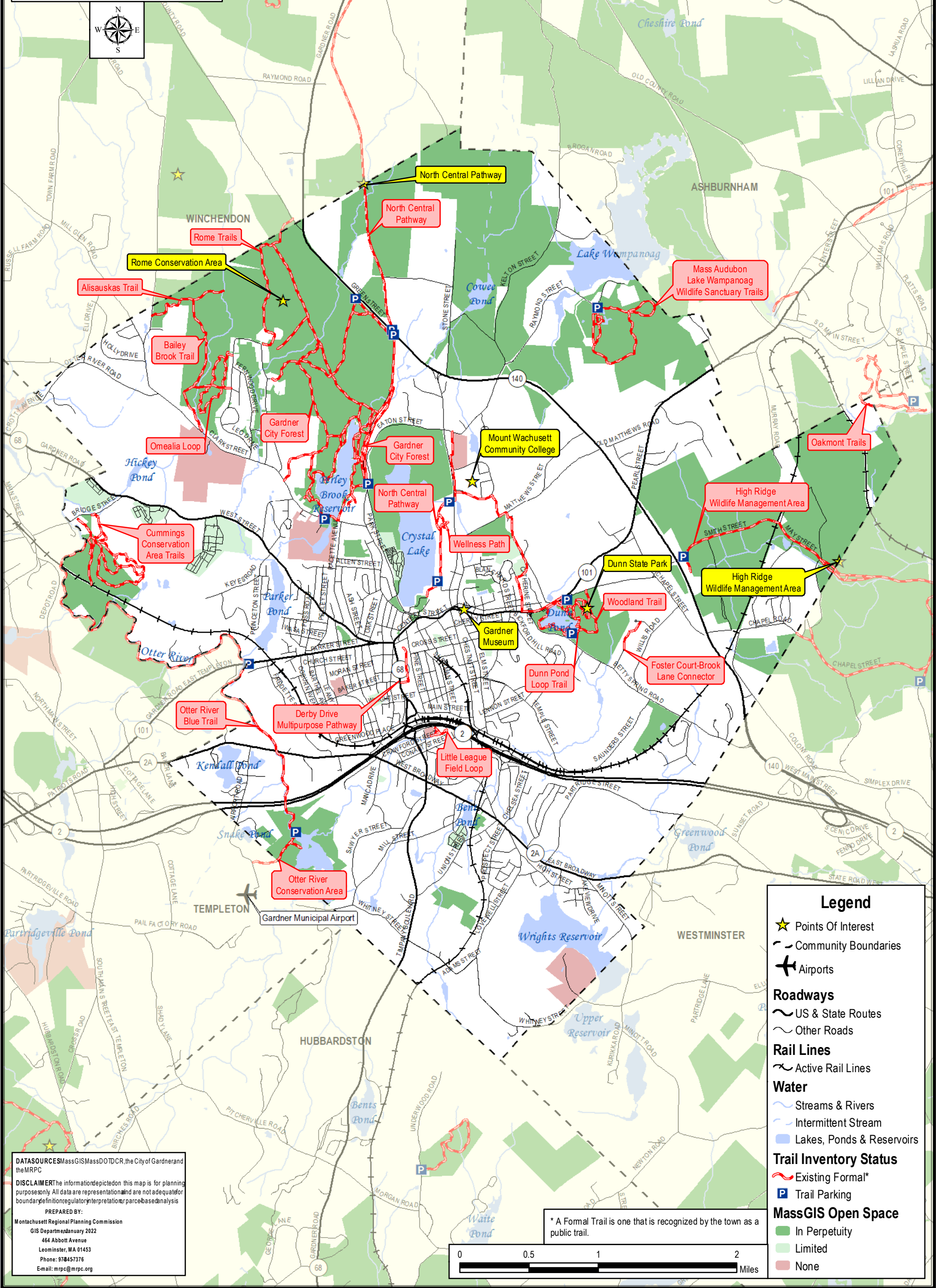
DATASOURCES MassGIS, MassDOT, The City of Fitchburg and the MRPC

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* A Formal Trail is one that is recognized by the town as a public trail.

Figure 54:
Gardner, MA
Formal Trail Inventory



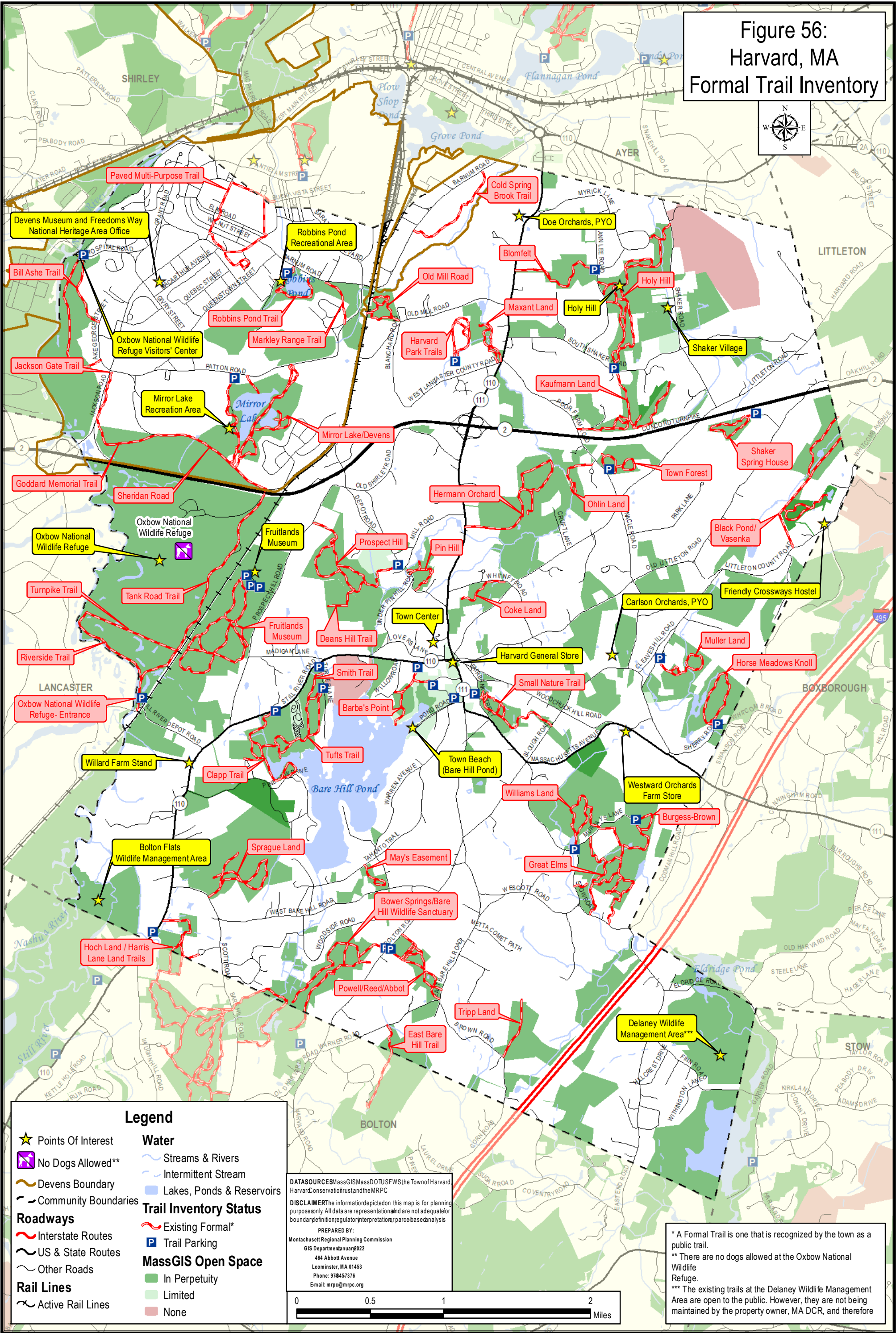
DATASOURCESMassGISMassDOTDCR, the City of Gardner and the MRPC

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Figure 56:
Harvard, MA
Formal Trail Inventory



[illegible]

Figure 57:
Hubbardston, MA
Formal Trail Inventory

This map displays the town of Hubbardston, Massachusetts, and its surrounding areas, including Templeton, Phillipston, Westminister, Princeton, Barre, and Rutland. The primary focus is the inventory of formal trails, which are shown as red dashed lines. Key features include:

- Conservation Areas:** Several areas are highlighted in yellow boxes, such as Hubbardston State Forest, Mt. Jefferson Conservation Area, Hubbardston Wildlife Management Area, Cushman Pond Recreation Area, Moosehorn Pond Canoe Launch, Town Beach, Barre Falls Recreation Area, and Hale Fire Road.
- Water Bodies:** Numerous ponds and reservoirs are labeled, including Wright's Reservoir, Upper Reservoir, Minott Pond, Partridge Pond, Burnt Mill Pond, Meetinghouse Pond, Wyman Pond, Wachusett Lake, Noyes Pond, Mare Meadow Reservoir, Bickford Pond, Cummings Pond, Asnacomet Pond, and others.
- Roadways:** A network of roads is shown, with major routes like US-68 and MA-62 clearly marked.
- Rail Lines:** Active rail lines are indicated by black lines with cross-ticks.
- Trail Inventory Status:** Trails are categorized as 'Existing Formal' (red dashed line) or 'MassGIS Open Space' (green shaded area).
- Points Of Interest:** Yellow stars mark specific locations of interest throughout the town.
- Community Boundaries:** Dashed black lines delineate the boundaries between different municipalities.

A legend in the bottom-left corner provides detailed information about the symbols used on the map. A scale bar at the bottom indicates distances up to 2 miles. A disclaimer and contact information for the Montachusett Regional Planning Commission are located in the bottom-right corner.

DATASOURCES MassGIS, MassDOT, the Town of Hubbardston, and the MRPC
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* A Formal Trail is one that is recognized by the town as a public trail.

[illegible]

Figure 58: Lancaster, MA
Formal Trail Inventory

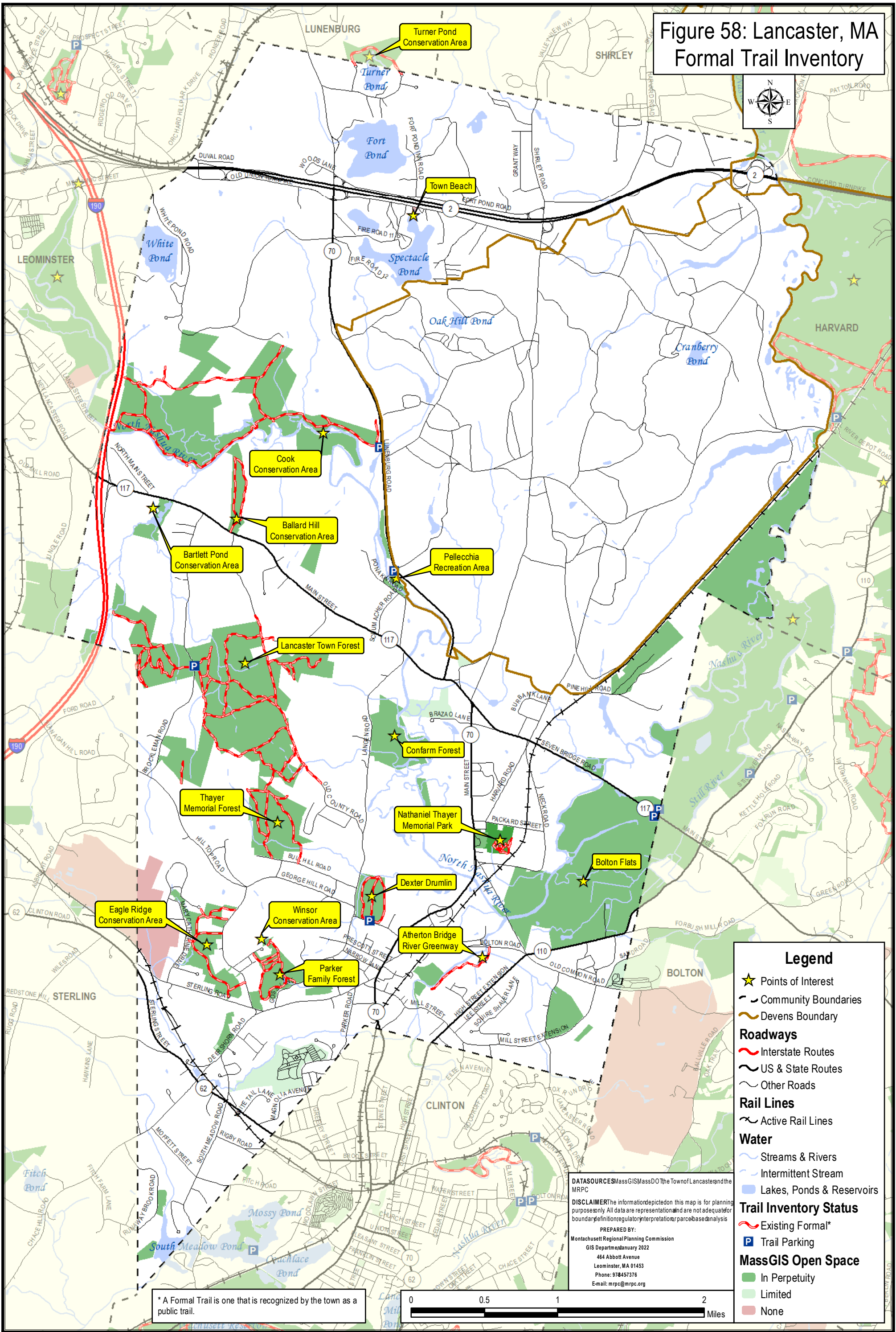


Figure 59:
Leominster, MA
Formal Trail Inventory



Legend

- ★ Points of Interest
- Community Boundaries
- ✈ Airports

Roadways

- Interstate Routes
- US & State Routes
- Other Roads

Rail Lines

- Active Rail Lines

Water

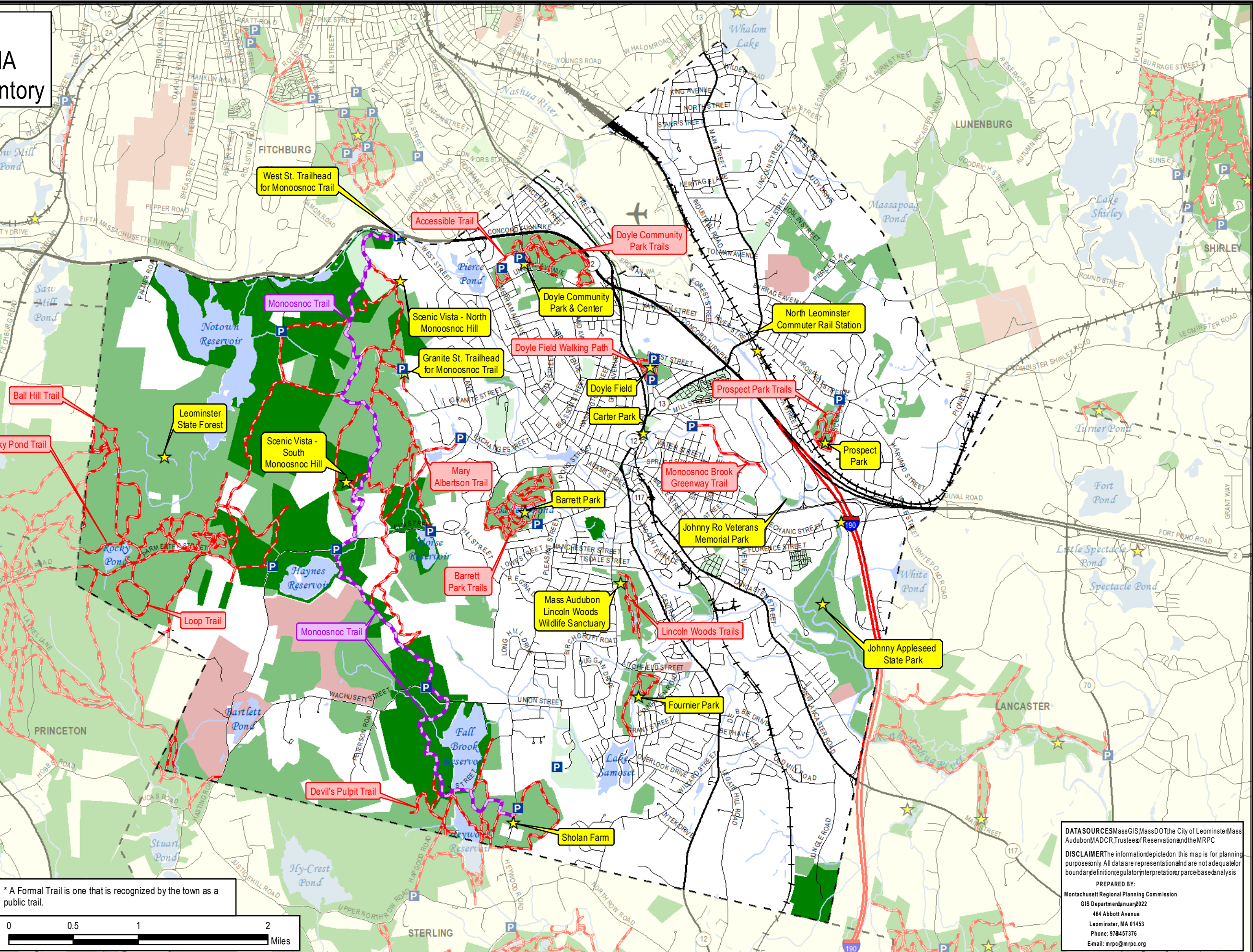
- Streams & Rivers
- Intermittent Streams
- Lakes, Ponds & Reservoirs

Trail Inventory Status

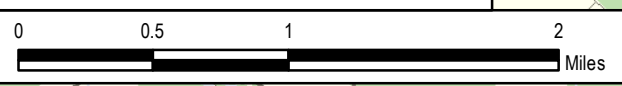
- Existing Formal*
- Monoosnoc Trail
- P Trail Parking

MassGIS Open Space

- In Perpetuity
- Limited
- None
- Leominster Water Department Lands



* A Formal Trail is one that is recognized by the town as a public trail.



DATASOURCES MassGIS, MassDOT, The City of Leominster, Mass Audubon, MADCR, Trustees of Reservations, and the MRPC

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Figure 60:
Lunenburg, MA
Formal Trail Inventory

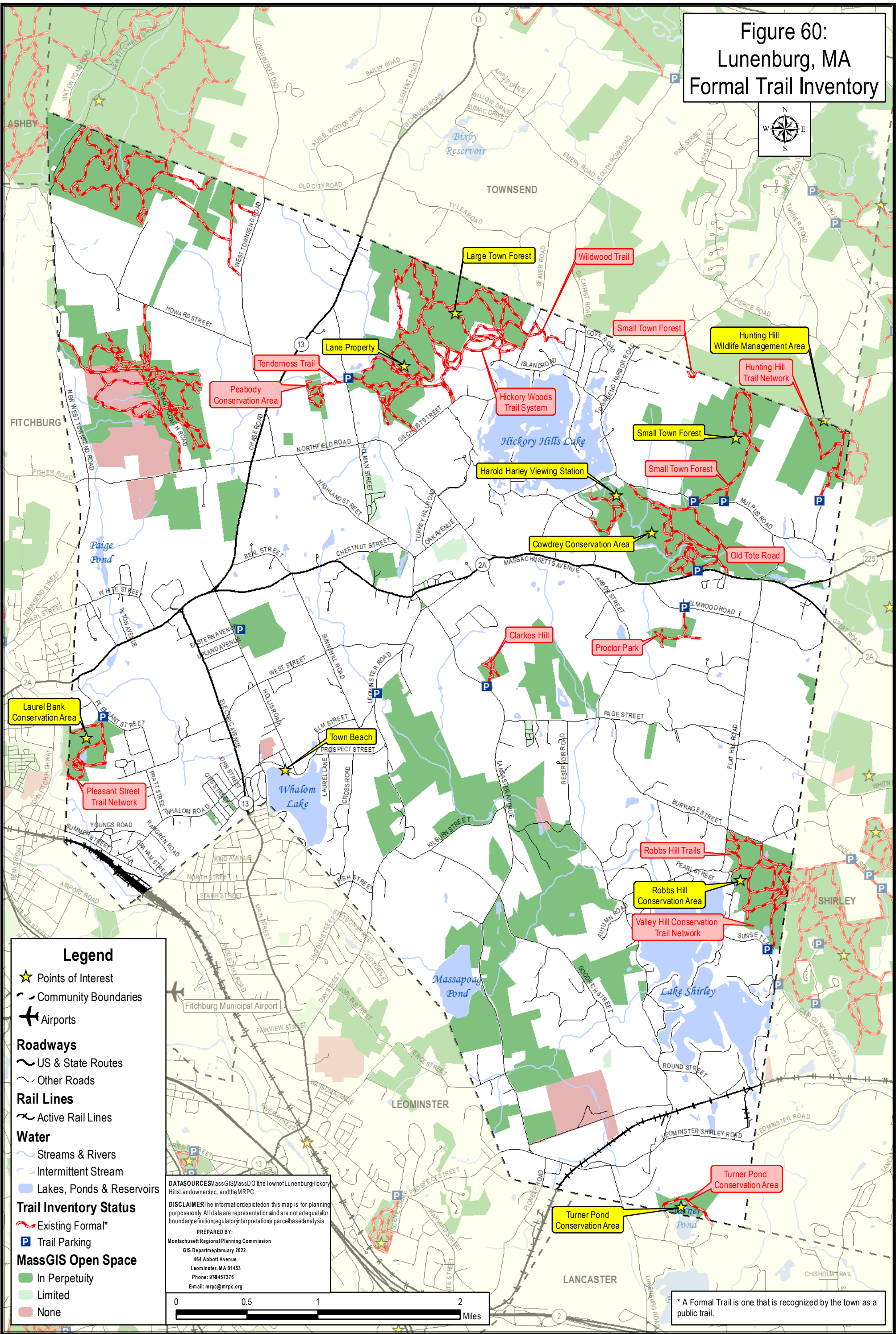


Figure 61:
Petersham, MA
Formal Trail Inventory

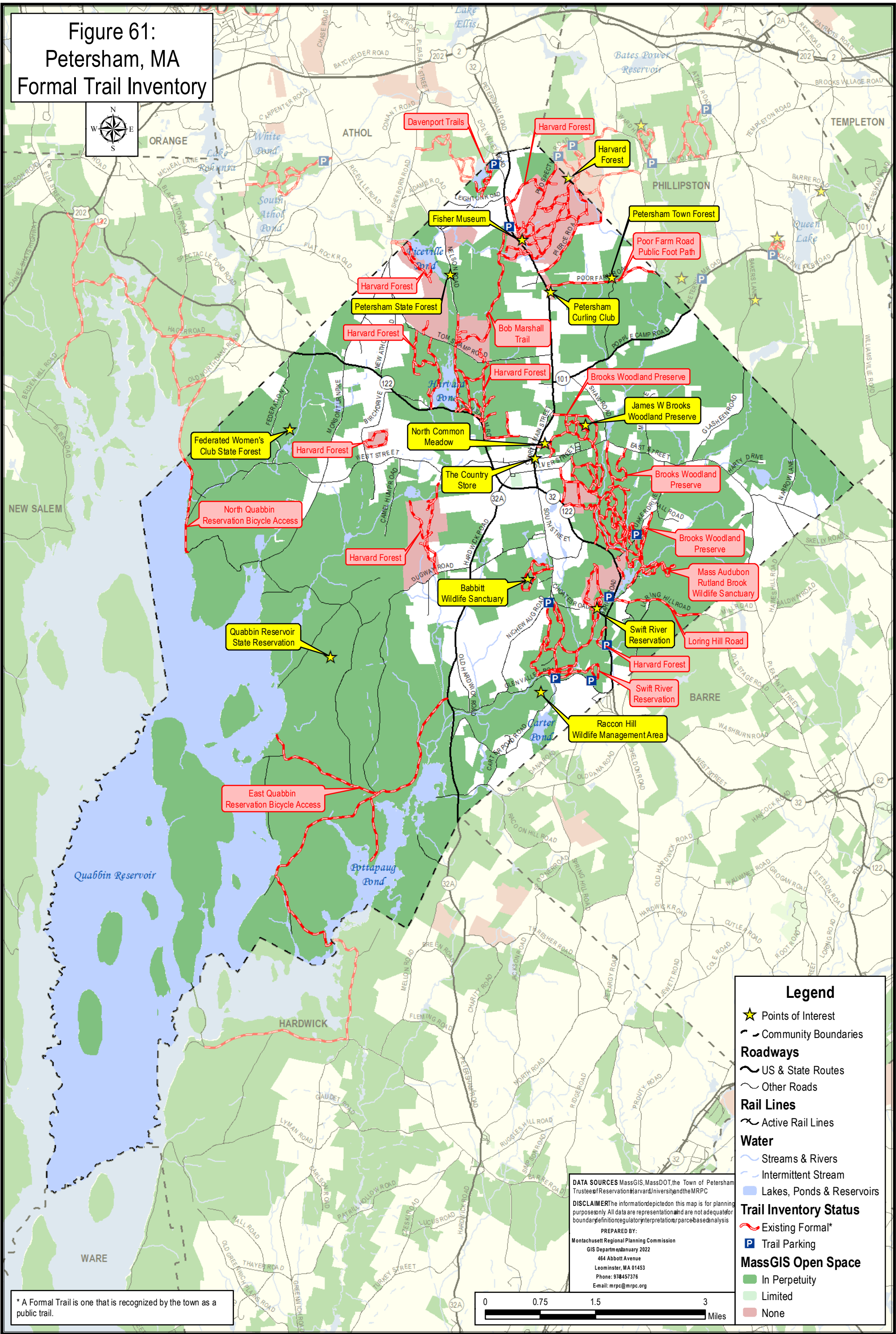


Figure 62:
Phillipston, MA
Formal Trail Inventory

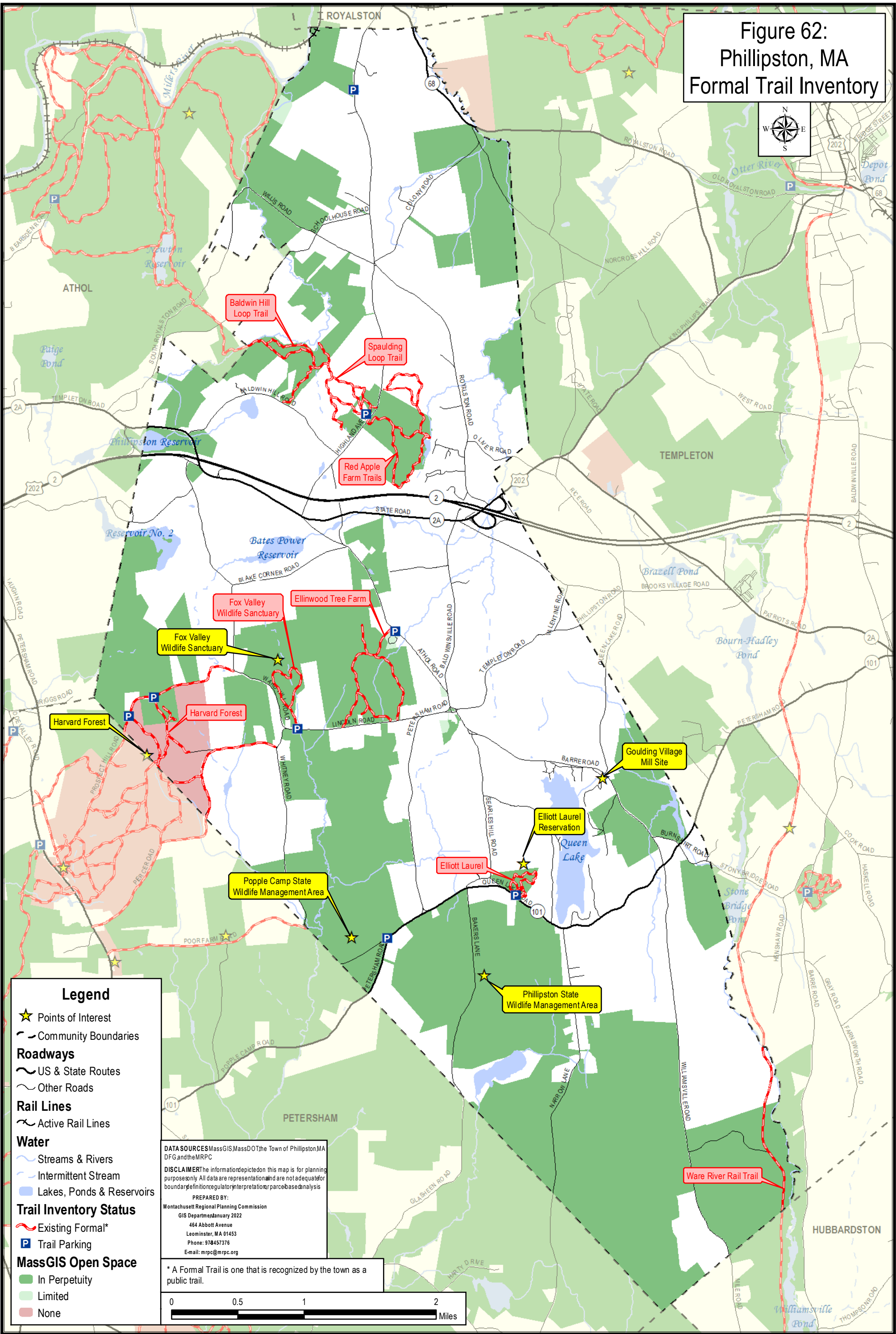




Figure 64: Shirley, MA
Formal Trail Inventory

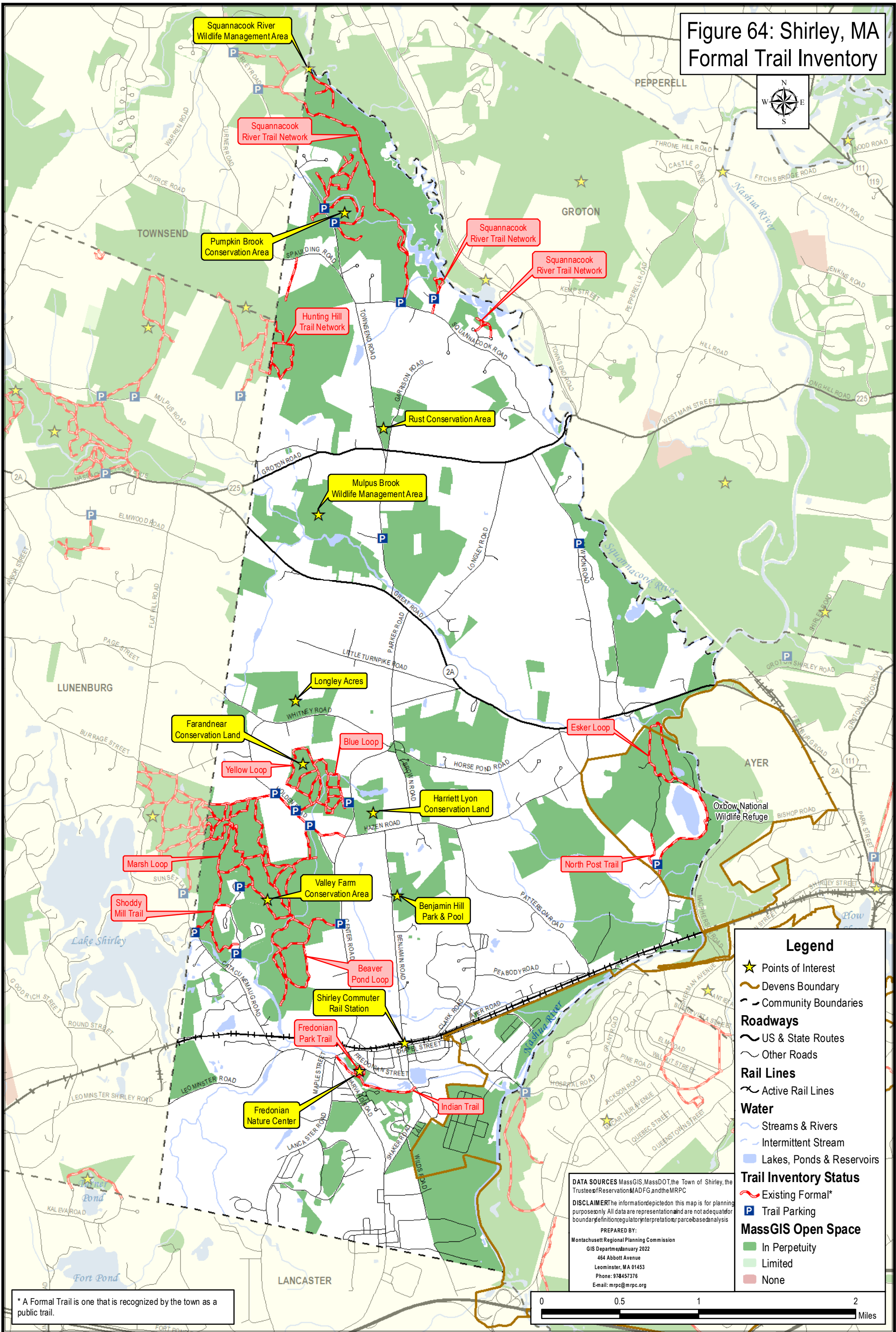


Figure 65: Sterling, MA
Formal Trail Inventory

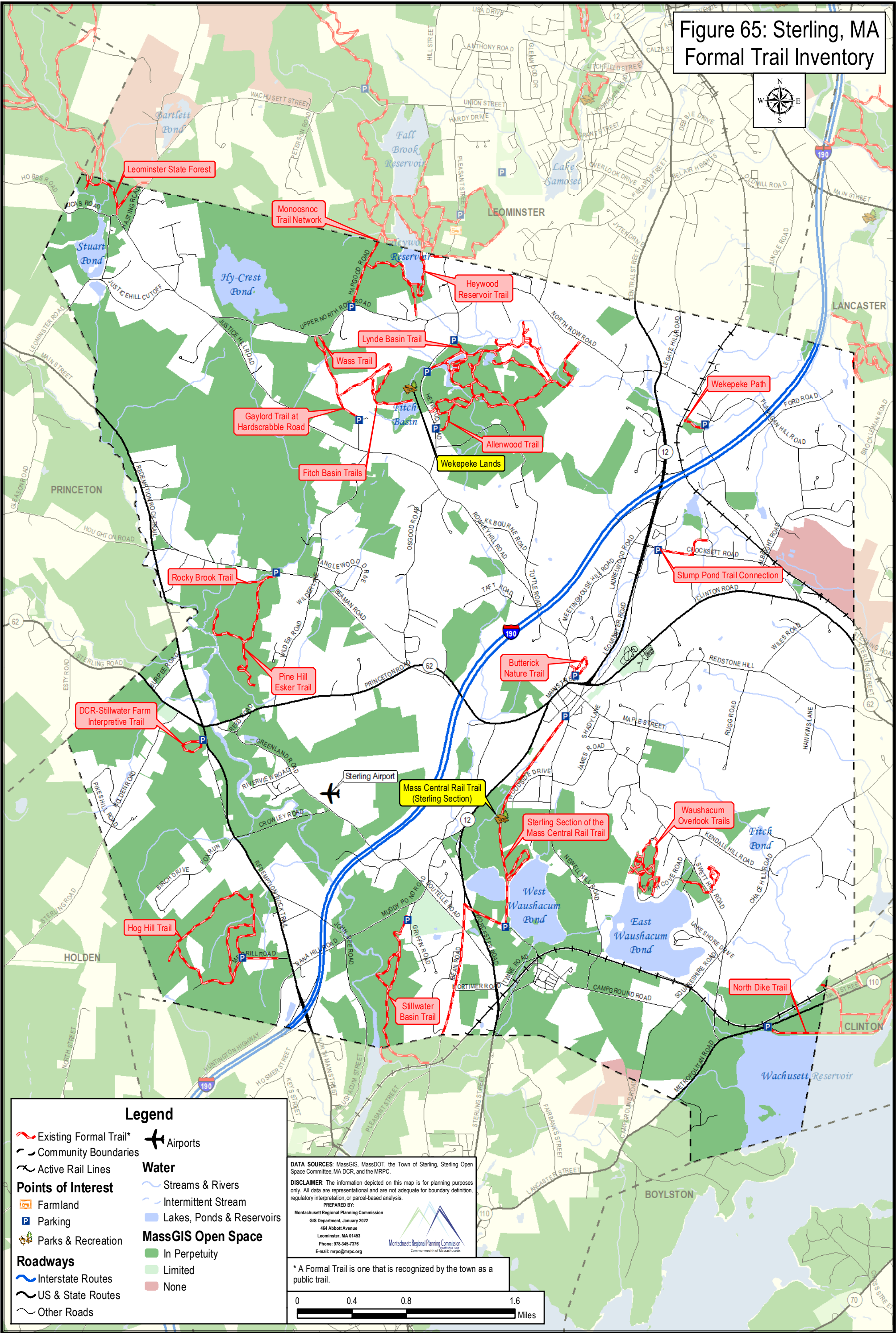


Figure 66:
Templeton, MA
Formal Trail Inventory

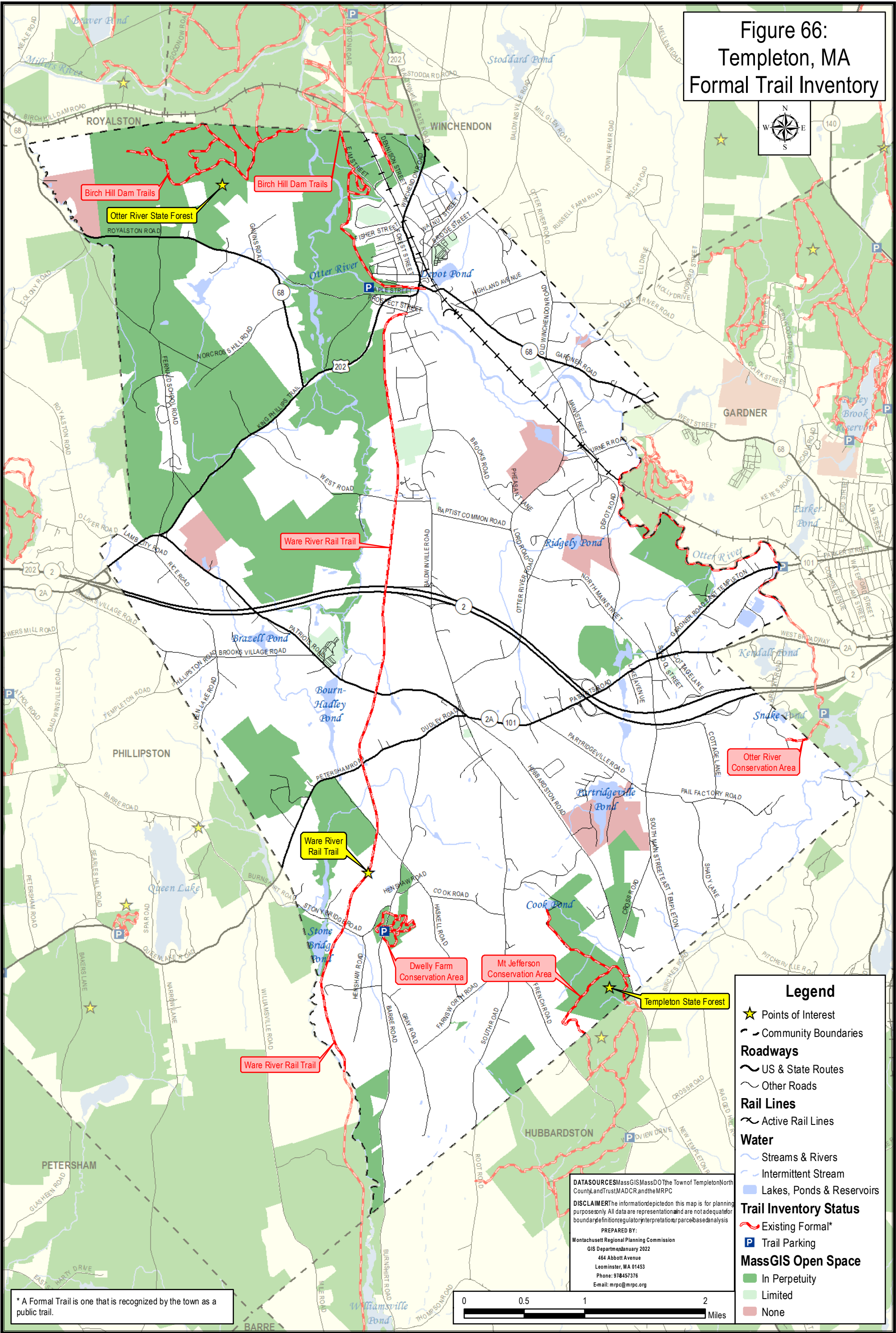
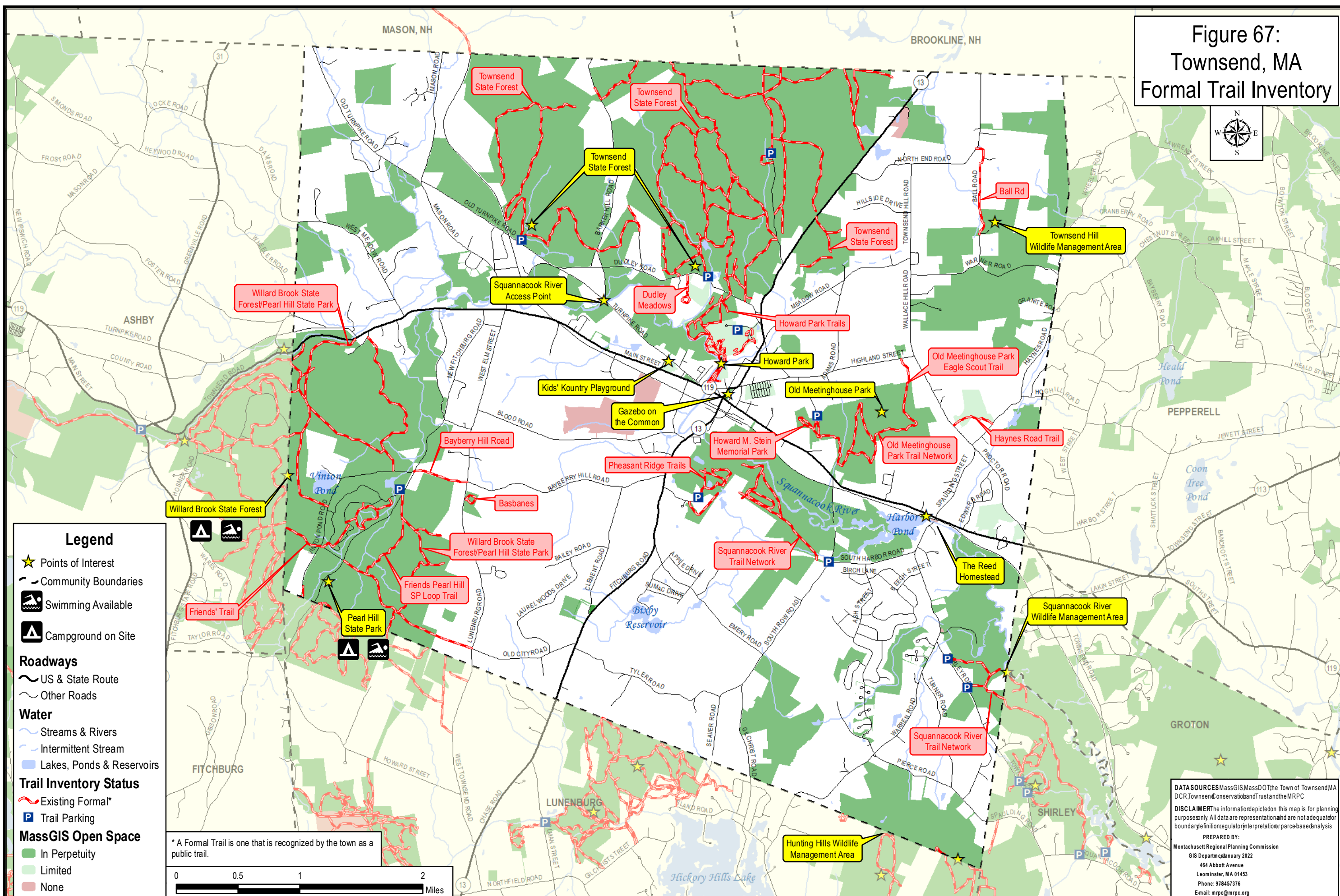
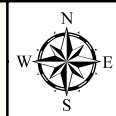


Figure 67:
Townsend, MA
Formal Trail Inventory

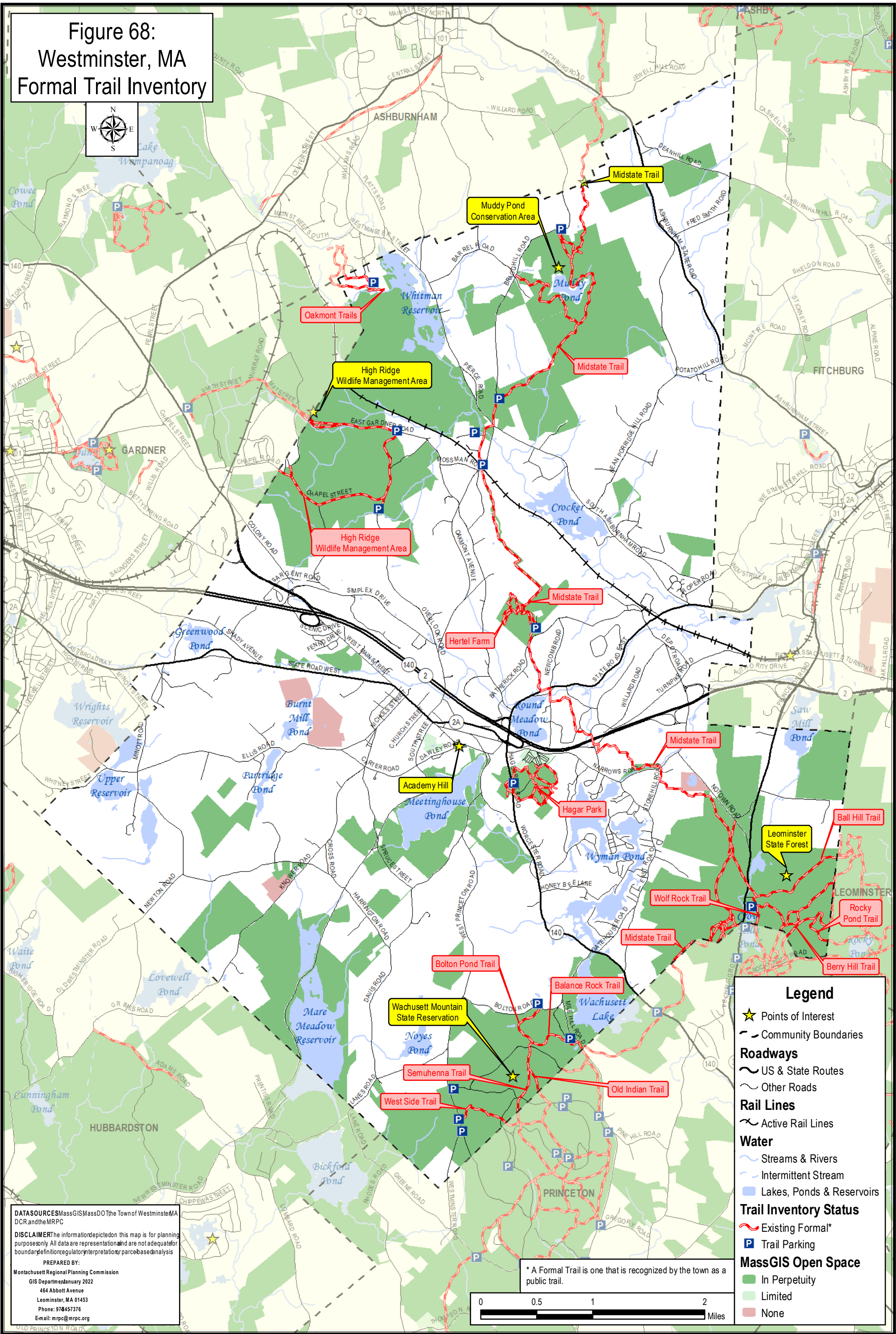


DATA SOURCES: MassGIS, MassDOT, The Town of Townsend, MA, DCR, Townsend Conservation and Trust, and the MRPC.

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Figure 68:
Westminster, MA
Formal Trail Inventory



DATASOURCE: MassGIS, MassDOT, The Town of Westminster, MA, DCR, and the MRPC

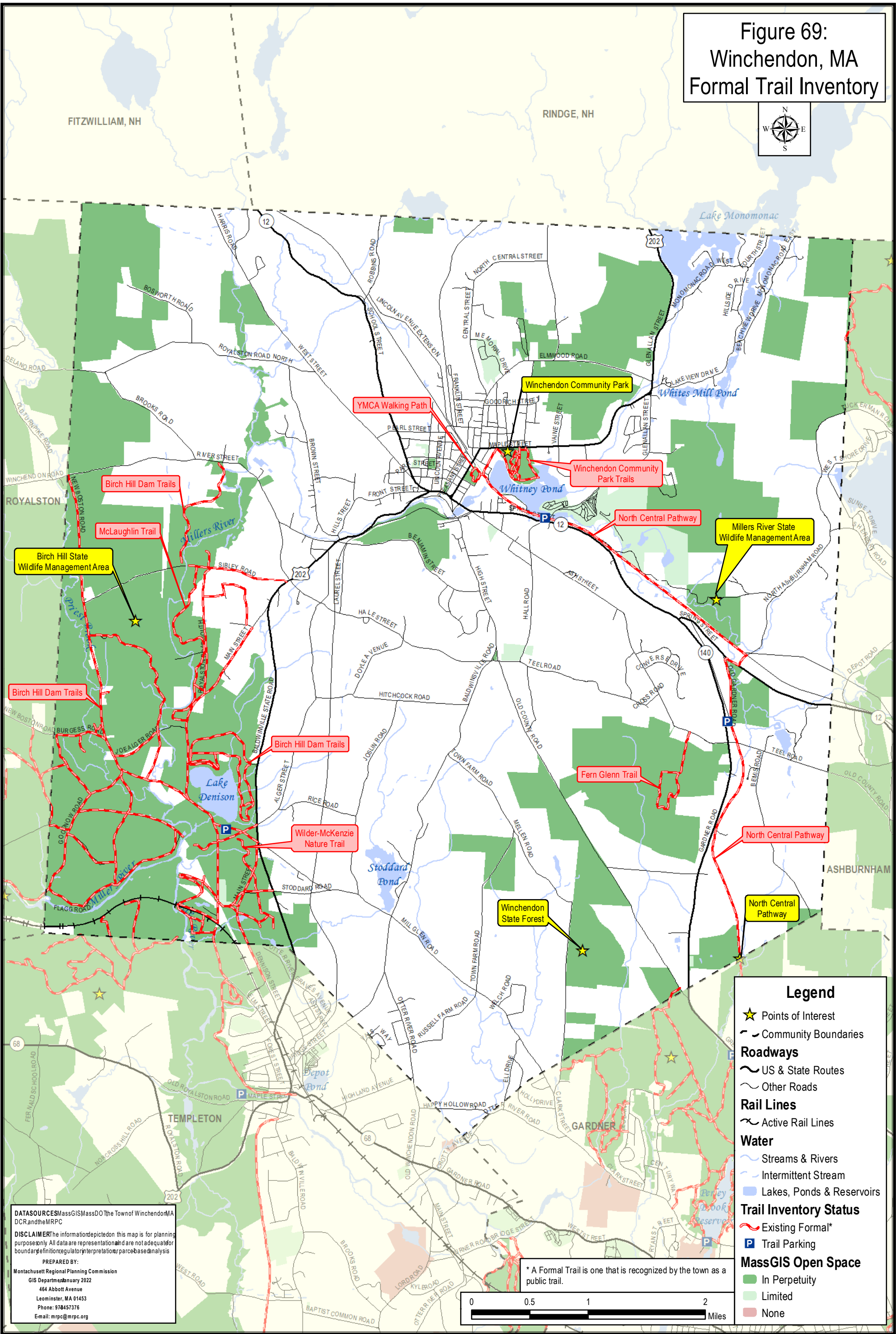
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* A Formal Trail is one that is recognized by the town as a public trail.

- Legend**
- ★ Points of Interest
 - Community Boundaries
 - Roadways**
 - ~ US & State Routes
 - ~ Other Roads
 - Rail Lines**
 - ~ Active Rail Lines
 - Water**
 - ~ Streams & Rivers
 - ~ Intermittent Stream
 - ~ Lakes, Ponds & Reservoirs
 - Trail Inventory Status**
 - ~ Existing Formal*
 - P Trail Parking
 - MassGIS Open Space**
 - In Perpetuity
 - Limited
 - None

Figure 69:
Winchendon, MA
Formal Trail Inventory



Legend

★ Points of Interest

--- Community Boundaries

Roadways

~ US & State Routes

~ Other Roads

Rail Lines

~ Active Rail Lines

Water

~ Streams & Rivers

~ Intermittent Stream

~ Lakes, Ponds & Reservoirs

Trail Inventory Status

~ Existing Formal*

P Trail Parking

MassGIS Open Space

~ In Perpetuity

~ Limited

~ None

DATASOURCESMassGISMassDOTThe Town of WinchendonMA DCRand theMRPC

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* A Formal Trail is one that is recognized by the town as a public trail.

