[T]
Transportation

Route 20 at Hudson Street

Photo Credit: Landwise

8 Transportation

Transportation infrastructure serves as the backbone of a community, connecting its residents to businesses, cultural resources, and neighboring areas. The Transportation and Circulation Element provides an overview of the existing transportation network as well as identifying strategies on how to enhance the transportation infrastructure and network for a more cohesive community where people enjoy moving within and in/out of the Town via different modes of transportation.

Key Findings

- The highways traversing or proximate to Northborough offer good regional transportation access and mobility.
- A relatively significant share of persons both live and work in Northborough, providing an opportunity to shift mode share of daily commutes from automobiles to more environmentally desirable modes such as bicycling.
- Major corridors lack adequate pedestrian and bicycle accommodations such as consistent, well maintained sidewalks and on- and off-road bike paths.
- Connectivity could be improved between Downtown and adjacent residential areas and other Town assets through a more consistent sidewalk network.
- Several intersections in Northborough experience higher crash rates than others including, but not limited to, Main Street and Church Street/Pierce Street.
- There is no direct passenger rail service to Northborough or convenient connections to such services in neighboring communities, or fixed bus service.
- Though the Town has a contract with WRTA to provide transportation services for seniors and persons with disabilities, this service currently operates only on weekdays during limited hours.

Baseline Conditions Analysis

Existing Transportation System

The transportation system within the Town of Northborough varies dramatically from tight-knit residential streets that are typical of many suburban communities to the higher volume corridors that provide regional connections to other communities and regions. These roadways can be referred to as interstates, arterials, collectors, and local roadways. Each contributes toward creating a street "hierarchy," whereby each type of street should promote a combination of access and/or mobility. **Figure 8-1** (located at the end of this chapter) provides a graphical view of the Town's roadway network and how it interacts with the various zoning districts within the Town.

Northborough is within driving distance of the City of Boston (40 miles), City of Worcester (12 miles), and City of Providence in Rhode Island (50 miles). The Town also has central access to many of the regional highways, with I-290, Route 20, and Route 9 all traversing the Town, and I-495 located to the east. The highways in the community offer good regional transportation access and mobility including:

- **Interstate 290:** a limited access highway that provides east-west regional access between Interstate 495 and the City of Marlborough to the east and Worcester to the west. Interchanges 24 and 25 are located within Northborough, providing access to Church Street and Hudson Street, respectively.
- **Route 20:** a principal arterial that bisects the Town and provides east-west mobility within the Town and the region. This roadway serves as the principal access to the Town's retail and commercial areas.
- **Church Street:** a minor arterial located on the north side of Town that provides north-south mobility and access to many residential neighborhoods, as well as serving as the main access from I-290 to Route 20.
- **South Street:** a minor arterial roadway on the southerly side of Town that provides north-south mobility between Main Street (Route 20) to the north and Route 9 to the south.
- **Hudson Street:** a minor arterial roadway that provides north-south mobility between Marlborough to the east and the Downtown to the west.

Overall, there are approximately 130 miles of roadway within the Town, of which 76 miles are maintained by the Town and 21 miles are maintained by MassDOT, with the remaining mileage consisting of private ways.

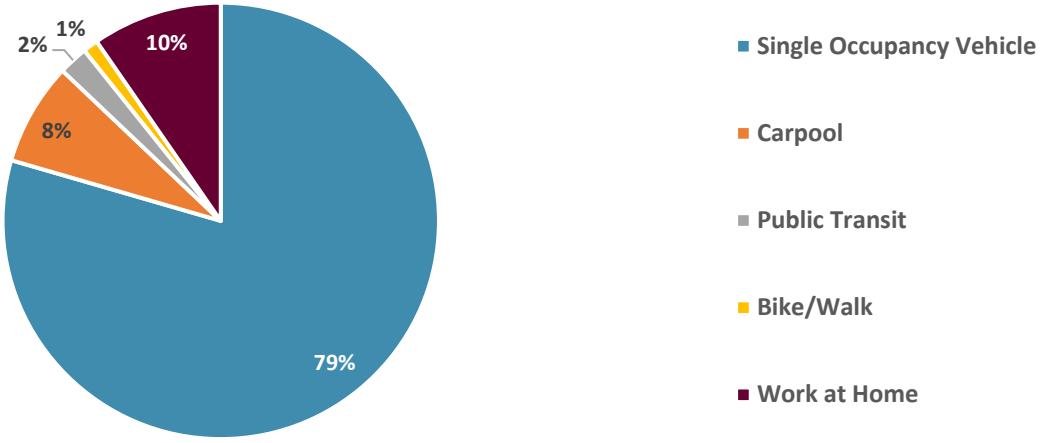
Modes of Travel

To gain a better understanding of how people move within and through Northborough, the mode share for commuters (or workers) was reviewed. **Figure 8-2** provides a breakdown of the mode split data provided by the U.S. Census Bureau.[13] Based on the

[13] Mode share data based on U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates (http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml)

available information, the overwhelming majority of Northborough's working age population (87 percent) relies predominantly on the automobile, be it driving alone or carpooling, to get to and from work. Public transit makes up the next most popular means of commuting (2 percent combined). Commuters that walk or bike to work make up a combined 1 percent of the working population. Approximately 10 percent of Northborough residents work from home.

Figure 8-2 Means of Transportation



Source: U.S. Census Bureau, 2012-2016 American Community Survey 5-Year Estimates

Since the mode share heavily favors the automobile, it is important to also get an understanding of the commuting patterns for both residents of Northborough and for workers of Northborough-based employers (see **Table 8-1**).

Table 8-1 Census Journey-to-Work Data for Northborough Residents and Employees

Location of Employment[1]	Percent of Residents	Percent of Workers	Location of Residence
Worcester	10.5%	16.4%	Worcester
Northborough	9.3%	7.9%	Northborough
Marlborough	9.0%	6.1%	Shrewsbury
Boston	6.2%	3.2%	Marlborough
Westborough	6.0%	2.5%	Westborough
Framingham	5.7%	2.0%	Grafton
All Other Locations	53.3%	61.9%	All Other Locations

Source: U.S. Census Bureau, OnTheMap Application 2015 Journey-to-Work Data

Approximately 9 percent of Northborough residents surveyed work in Northborough, while 8 percent of Northborough-based employees surveyed live within the Town. Given the substantial portion of individuals that both live and work in the Town of Northborough, the potential exists to substantially reduce the number of commuting trips made via automobile. While the existing mode share within the Town leans heavily towards the

automobile, targeted transportation improvements could be made that would promote travel by other modes.

Pedestrian and Bicycle Accommodations

Pedestrian and bicycle mobility are an important part of any transportation plan, as providing better access for non-motorized alternatives and encouraging these modes will help reduce congestion and the overall number of vehicle miles traveled (i.e., the total number of miles traveled in a vehicle in an area over a certain period of time), and resultantly improve local and regional air quality.

Pedestrian Access

The Town has approximately 37 miles of sidewalks. As illustrated in **Figure 8-3** (located at the end of this chapter), most of these sidewalks are located in the Downtown area and along Route 20, with others scattered through the Town's various residential roadways. The ability of Northborough residents to commute and accomplish other errands via walking is limited once they leave the Downtown area. It should also be noted, that while sidewalks may be present, they are not necessarily in walkable condition as many are extremely narrow and show signs of significant wear.

It was previously stated that approximately 1 percent of residents in Northborough walk or bike to work; therefore, it is important to maintain and provide new sidewalks so that this number can increase. Maintaining sidewalks is also important to provide increased independence for populations less likely to have access to personal vehicles including the elderly and at-risk populations (e.g., low-income, persons with disabilities). Just as important as sidewalks, pedestrian crosswalks and handicap accessible ramps need to be reviewed.

According to a 2010 study prepared by the Metropolitan Area Planning Council (MAPC), the average household in the Commonwealth drive more than 75 miles per day; which is based on data from over 149 cities and towns. This study identified Northborough as a town where residents travel at a slightly higher rate than the average community surveyed. The average daily vehicles miles traveled for residents of Northborough was between 75 and 100 miles per day. Per the same study, residents of Northborough have a round-trip commute of between 20 and 25 miles, on average. Non-commuting trips (i.e., errands, pleasure trips, etc.) made by Northborough residents, of which there could be several per day, typically range from 1 to 8 miles per trip on average.

Bicycling

Bicycle facilities can generally be classified as on-road (i.e., bicycle accommodating shoulders, bike lanes, etc.) or off-road (i.e., bike and/or mixed-use paths). Northborough does not have any dedicated off-road bike paths. The on-road bicycle facilities are primarily limited to main roadways where wide shoulders are provided, such as Main Street.

Roadway Safety

Providing a safe transportation network is critical for multiple reasons beyond limiting injuries and damage to personal property. Unsafe roadways and intersections can result in

dividing lines within a community as well as keeping outside travelers from using Town roadways and thus limiting potential tourism and business growth.

Why Do Crashes Happen?

Rear-end collisions are often a result of congestion or vehicles stopping to allow vehicles to enter the mainline of traffic from a street or a driveway; also called "courtesy crashes."

Angle type collisions typically occur when there are high side-street volumes trying to enter the mainline traffic stream.

Sideswipe collisions are often a result of on-street parking or vehicles attempting to pass vehicles attempting to turn into side streets or driveways

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Numerous studies, conducted by both public and private entities, have looked at existing safety concerns at various locations within Northborough. Most recently, MassDOT identified areas in the Town that are high crash cluster locations using data from 2013 through 2015.[14] These clusters have been identified as part of MassDOT's Highway Safety Improvement Program (HSIP) [15] in conjunction with the Federal Highway Administration (FHWA). The following four locations were identified; which are illustrated in **Figure 8-4** (located at the end of this chapter):

- Interstate 290 and Solomon Pond Road (Interchange 25);
- Belmont Street (Route 9) and Southwest Cutoff (Route 20);
- Main Street (Route 20) and Bartlett Street; and
- Main Street (Route 20) and Church Street/Pierce Street.

In addition to providing a summary of the high crash locations in Town identified by MassDOT, Town-wide crash data from the MassDOT database for the most recent five years (2011 through 2015) available were reviewed. This review focused on crashes along major corridors. Per the MassDOT database, approximately 1,720 crashes occurred on roads within the Town of Northborough between the years of 2011 and 2015 (an average of approximately 350 crashes per year). Approximately 70 percent of these crashes occurred on Interstate 290, Route 9, Route 20, or Route 135. Some highlights from these data include:

- There were 3 fatal crashes during the five years reviewed, two of which occurred on Interstate 290. The third was a single-vehicle crash that occurred on South Street.
- Approximately 20 percent of the total crashes resulted in injury.
- There were 21 crashes involving pedestrians and bicycles Town-wide during the period reviewed.

[14] MassDOT Top Crash Locations map application www.services.massdot.state.ma.us/maptemplate/TopCrashLocations/
[15] Massachusetts Strategic Highway Safety Plan (http://www.mhd.state.ma.us/default.asp?pgid=content/traffic/shsp&sid=level2)

Public Transportation

Passenger Rail Service

There is no direct passenger rail service to Northborough. The closest Massachusetts Bay Transportation Authority (MBTA) Commuter Rail station is located on Smith Parkway in Westborough, which is an approximately 10-minute drive from the Downtown area of Northborough. The Westborough Station is located on the MBTA's Worcester Line, which provides service between South Station in Boston and Union Station in Worcester, with stops in Newton and Framingham along the way. MassDOT and the MBTA are currently considering the feasibility of installing a second commuter rail platform at Worcester's Union Station, which would allow for increased service along the Worcester line.

Bus and Para Transit Service

There is no fixed route bus service in Northborough, though the Town has a contract with WRTA to provide transportation services for seniors and persons with disabilities. This van service currently operates only on weekdays during limited hours, though there is interest in expanding it to run during evening hours and on weekends. In addition to this service, the WRTA provides door-to-door para transit service for eligible residents of its member communities, which includes Northborough.

Transportation Goals

G1 **Become a bicycle and pedestrian-friendly community by expanding existing bicycle and pedestrian facilities and improving connectivity.**

G2 **Improve Town-wide traffic flow and safety.**

G3 **Work with the Worcester Regional Transit Authority, neighboring communities, and the Senior Center to explore ways to enhance public transit within Town.**

G4 **Plan for the future of transportation and how potential changes may impact Northborough's transportation network.**

Transportation Recommendations

Goal 1: Become a bicycle and pedestrian-friendly community by expanding existing bicycle and pedestrian facilities and improving connectivity.

T1-1 Develop signed bike routes throughout Town.

T1-2 Participate in the State's Complete Street Program to improve the bikeability and walkability of local streets.

T1-3 Examine and identify key locations in Town for additional sidewalk improvements, focusing on pedestrian-oriented destinations (i.e., schools, parks, trails, etc.).

T1-4 Replace existing pedestrian crosswalks with high visibility crossings to help facilitate pedestrian connectivity.

T1-5 Develop a plan to upgrade all existing pedestrian facilities as appropriate to meet current accessibility standards.

Goal 2: Improve Town-wide traffic flow and safety.

T2-1 Work with the Massachusetts Department of Transportation to conduct Road Safety Audits (RSAs) at problematic intersections in Town.

T2-2 Identify the need for and implement traffic calming measures in compliance with federal and state laws and regulations.

T2-3 Evaluate opportunities for routes alternate to Main Street to help reduce congestion in the Downtown and foster development opportunities.

T2-4 Where feasible, when improving roadways, work with the Massachusetts Department of Transportation or Massachusetts Division of Fisheries and Wildlife to improve culverts to allow for wildlife passage and reduce wildlife-related traffic incidents.

Goal 3: Work with the Worcester Regional Transit Authority, neighboring communities, and the Senior Center to explore ways to enhance public transit within Town.

T3-1 Investigate/evaluate the potential for the senior and special needs van service to run on a regular schedule, including during evening hours and weekends.

T3-2 Investigate/evaluate the feasibility of providing a shuttle between the town center and/or Northborough Crossing and the Westborough Commuter Rail Station.

Goal 4: Plan for the future of transportation and how potential changes may impact Northborough's transportation network.

T4-1 Evaluate the feasibility of implementing an adaptive signal system on Main Street to minimize congestion.

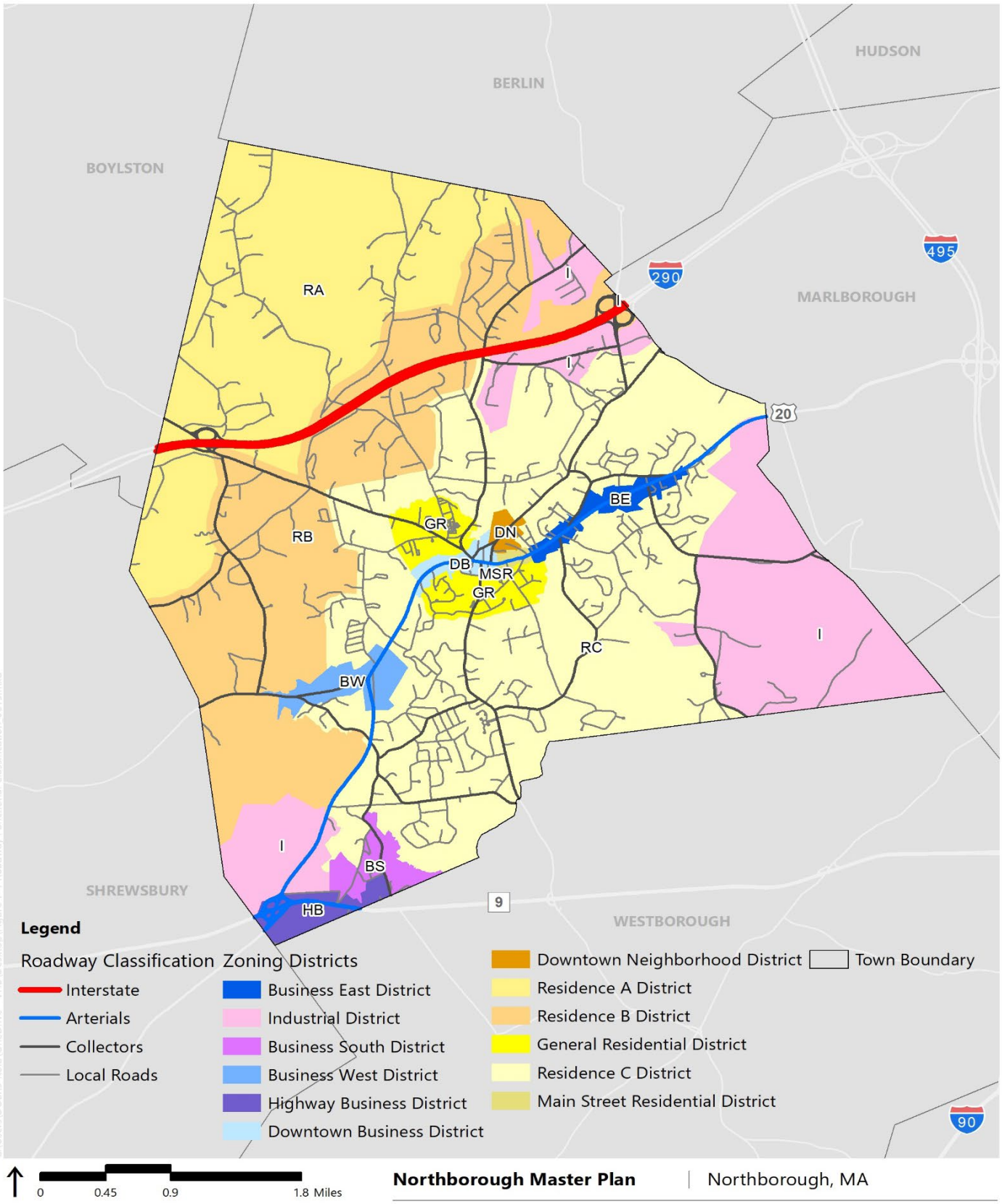
T4-2 Provide electric charging stations in public parking areas.

T4-3 Evaluate the feasibility of implementing a private/public partnership to develop a community-driven rideshare program.

T4-4 Look for opportunities to coordinate with neighboring communities to provide a commuting shuttle to Metro-Boston employment destinations.

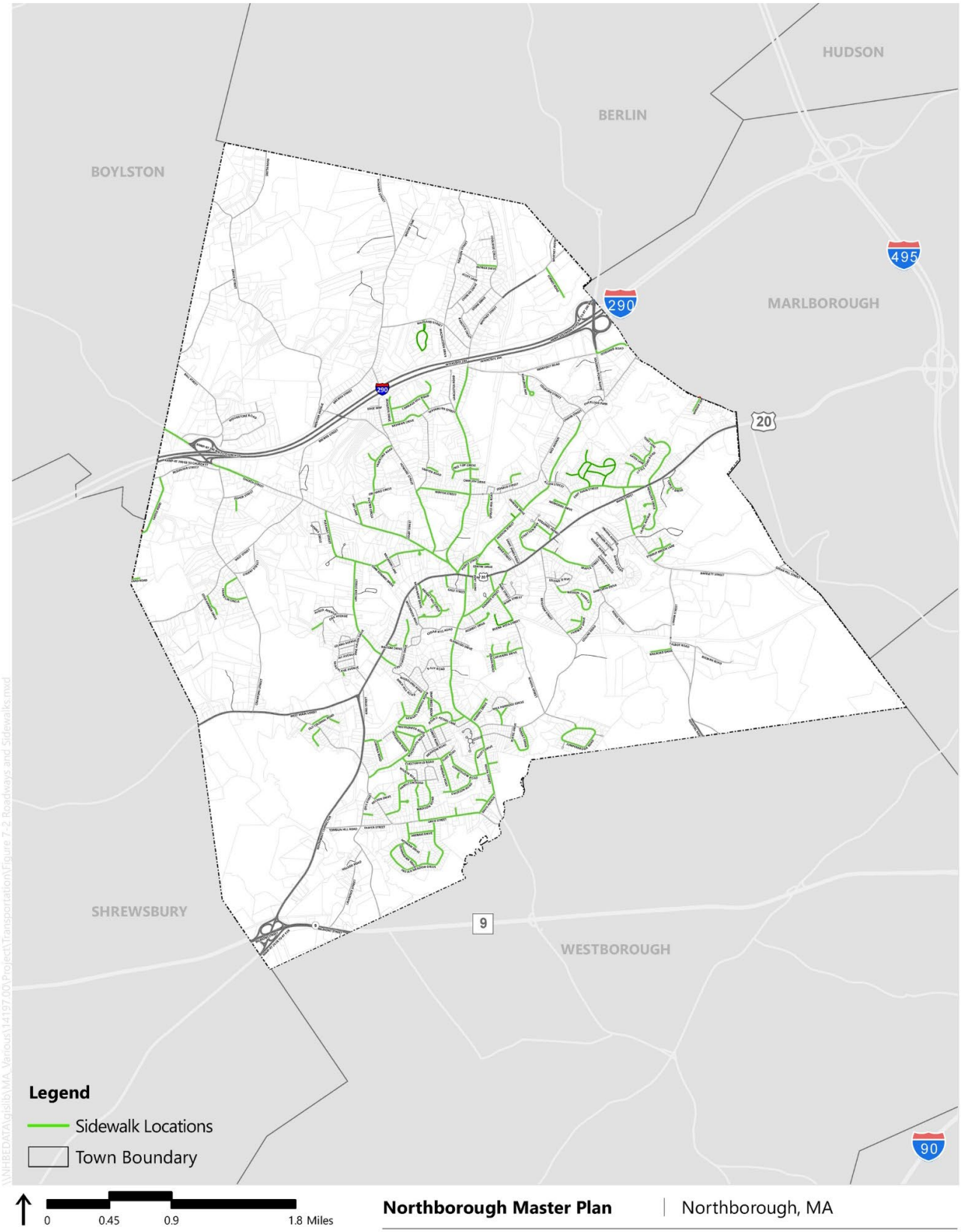
T4-5 Support training for Town staff and the Department of Public Works to understand how to plan for autonomous vehicles and advancements in traffic systems.

Figure 8-1 Roadway Functional Classification



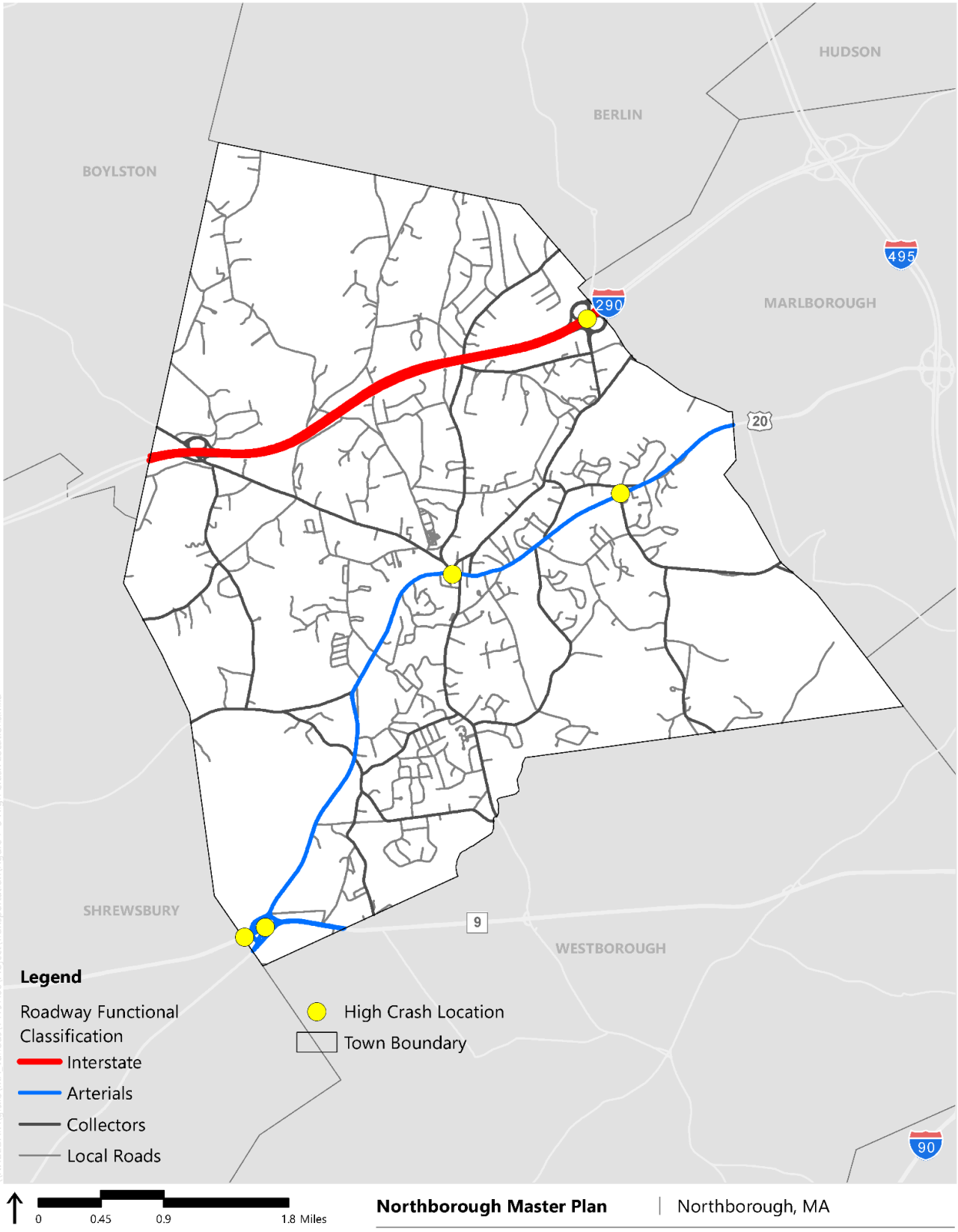
Source: MassGIS, VHB

Figure 8-3 Roadways and Sidewalks



Source: MassGIS, VHB

Figure 8-4 High Crash Locations



Source: MassGIS, VHB