



installation of the TWLTL median, and intersection modifications (Route 20 and side street widening, lane usage changes) at Cherry Street/Centech Boulevard

and South Street/Green Street intersections can take place at the same time as the construction of the shared-use path.

Introduction

MassDOT has requested traffic engineering services, including a safety analysis and traffic impact analysis, along a 5.1-mile stretch of Route 20 in the Towns of Shrewsbury and Northborough. HSH has prepared this Master Plan to investigate and summarize the existing conditions, study existing safety issues, and develop a preferred roadway improvement concept that will meet future traffic demand and improve the safety of the Route 20 corridor within the study area. The plan was born out of community concerns related to safety and congestion within the corridor and the potential increase in development projects in the area as it transitions into a more vibrant, mixed-use district. Built on a detailed evaluation of existing conditions and anticipated future travel demands, this Master Plan is designed to lay out a new roadway design along the study corridor that will allow for a better understanding of expected mitigation commitments and so that future development projects can provide

sufficient setbacks from the roadway. The Master Plan will be used by the Town and Commonwealth agencies to focus efforts on resolving some of the problems that face residents, businesses, and commuters.

HSH had previously presented several alternatives as part of a Conceptual Design Report (Appendix G). This Master Plan Report builds upon information in that memo and focus on analysis of a preferred alternative. The standards used for design and analysis conform to the Manual on Uniform Traffic Control Devices, 2009 Edition (MUTCD 2009) with Massachusetts Amendments; the 2000 and 2010 Highway Capacity Manuals (HCM 2000 and 2010); the American Association of State Highway and Transportation Officials' (AASHTO's) A Policy on Geometric Design of Highways and Streets, 6th Edition; and MassDOT's Project Development and Design Guide (2006).

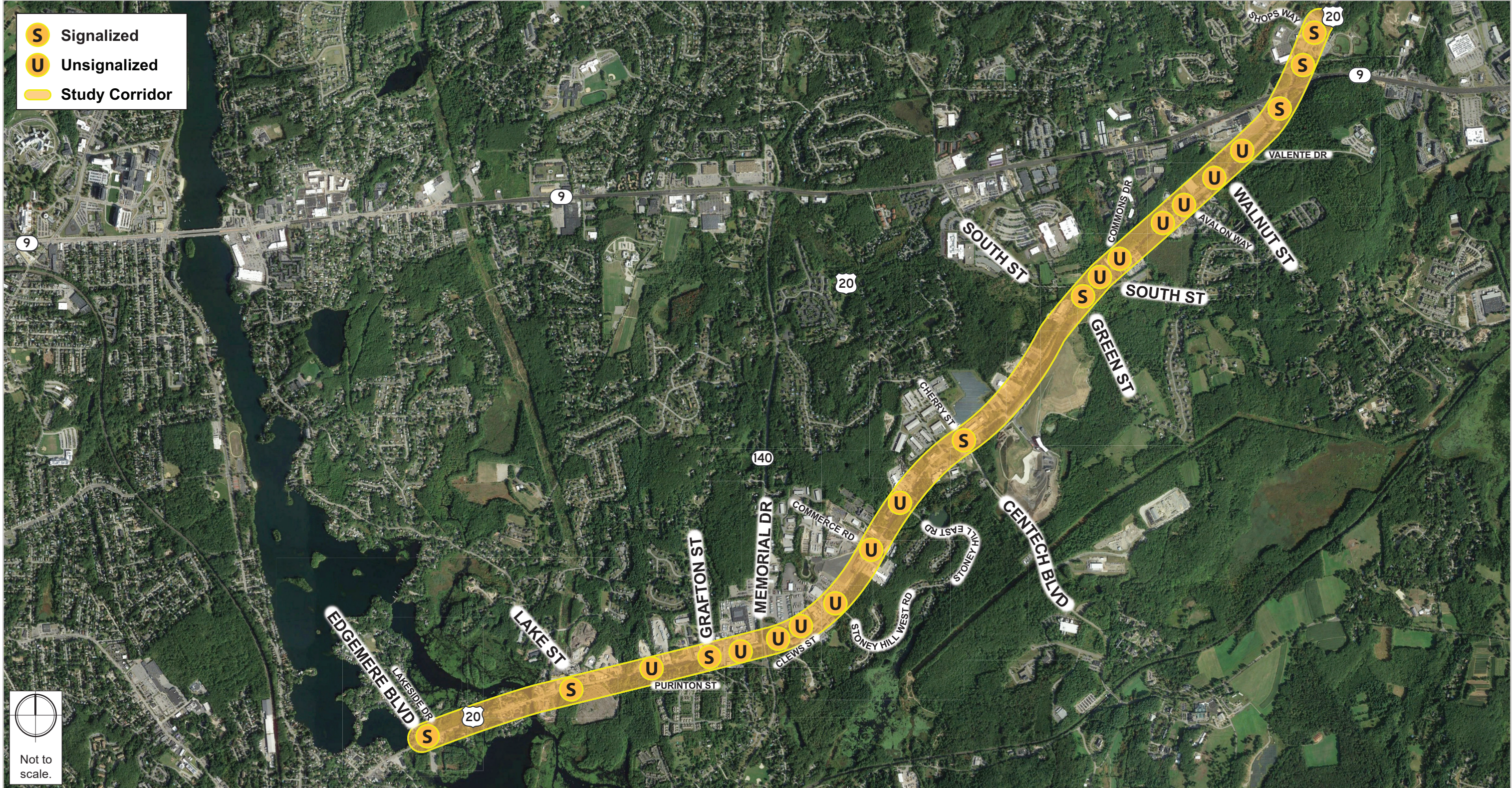


Study Area

The study area is comprised of a 5.1-mile stretch of Route 20 and includes the following 25 intersections, as shown on **Figure 5**:

- Route 20 at Pineland Avenue;
- Route 20 at Edgemere Boulevard;
- Route 20 at Lakeside Drive;
- Route 20 at Anglin Lane;
- Route 20 at Blackstone Street/Flagg Road;
- Route 20 at Lake Street;
- Route 20 at Purinton Street;
- Route 20 at Grafton Street;
- Route 20 at Route 140 (Memorial Drive) off-ramps (two intersections);
- Route 20 at Clews Street;
- Route 20 at Stoney Hill Road West;
- Route 20 at Commerce Road;
- Route 20 at Stoney Hill Road East;
- Route 20 at Cherry Street/Centech Boulevard;
- Route 20 at South Street (North)/Green Street;
- Route 20 at South Street (South);
- Route 20 at Commons Drive/Sunbelt Rentals Driveway;
- Route 20 at Dunkin Donuts Driveway (866 Hartford Turnpike);
- Route 20 at Avalon Way;
- Route 20 at Walnut Street North and South;
- Route 20 at Old Shrewsbury Village/Valente Drive;
- Route 20 at Route 9 eastbound on- and off-ramps (three intersections);
- Route 20 at Route 9 westbound on- and off-ramps (two intersections); and
- Route 20 at Shops Way/Baseball Complex Drive.

Figure 5. Locus Map





Previous Plans and Reports

Route 20 has been a part of several planning studies conducted at the regional and town levels that help set the stage for this document. Route 20 planning and design efforts presented in this plan build on the reports and studies that have been completed to date, so that this document can be translated into meaningful and strategic action.

Complete Streets Prioritization Plan (2019)

The MassDOT Complete Streets Funding Program was created by legislative authorization through the 2014 Transportation Bond Bill. The intent of this program was to reward municipalities that demonstrated a commitment to Complete Streets both in policy and in practice.

The reward to municipalities that choose to participate includes funding for technical assistance in the development of a Prioritization Plan and funding for construction of Complete Streets projects selected from

the Prioritization Plan. The eligibility requirements are designed to demonstrate a municipality's commitment to embedding Complete Streets in policy (Complete Streets Policy) and plan (Complete Streets Prioritization Plan). The Complete Streets Funding Program is structured with three Tiers:

- Tier 1 – Complete Streets Training and Policy Development
- Tier 2 – Complete Streets Prioritization Plan
- Tier 3 – Project Construction Funding

WHAT IS A COMPLETE STREET?

A Complete Street is one that provides safe and accessible options for all travel modes - walking, biking, transit, and vehicles - for people of all ages and abilities.





The Town of Shrewsbury submitted a Complete Streets Policy to MassDOT that was approved on September 2, 2016. Afterwards, the Town created their Prioritization Plan influenced by public and stakeholder engagement that was submitted and approved by MassDOT on April 2, 2019. Shrewsbury's Complete Streets projects in their Prioritization Plan include various locations throughout the Town. Projects, as shown on **Figure 6**, that are proposed along or adjacent to Route 20 include::

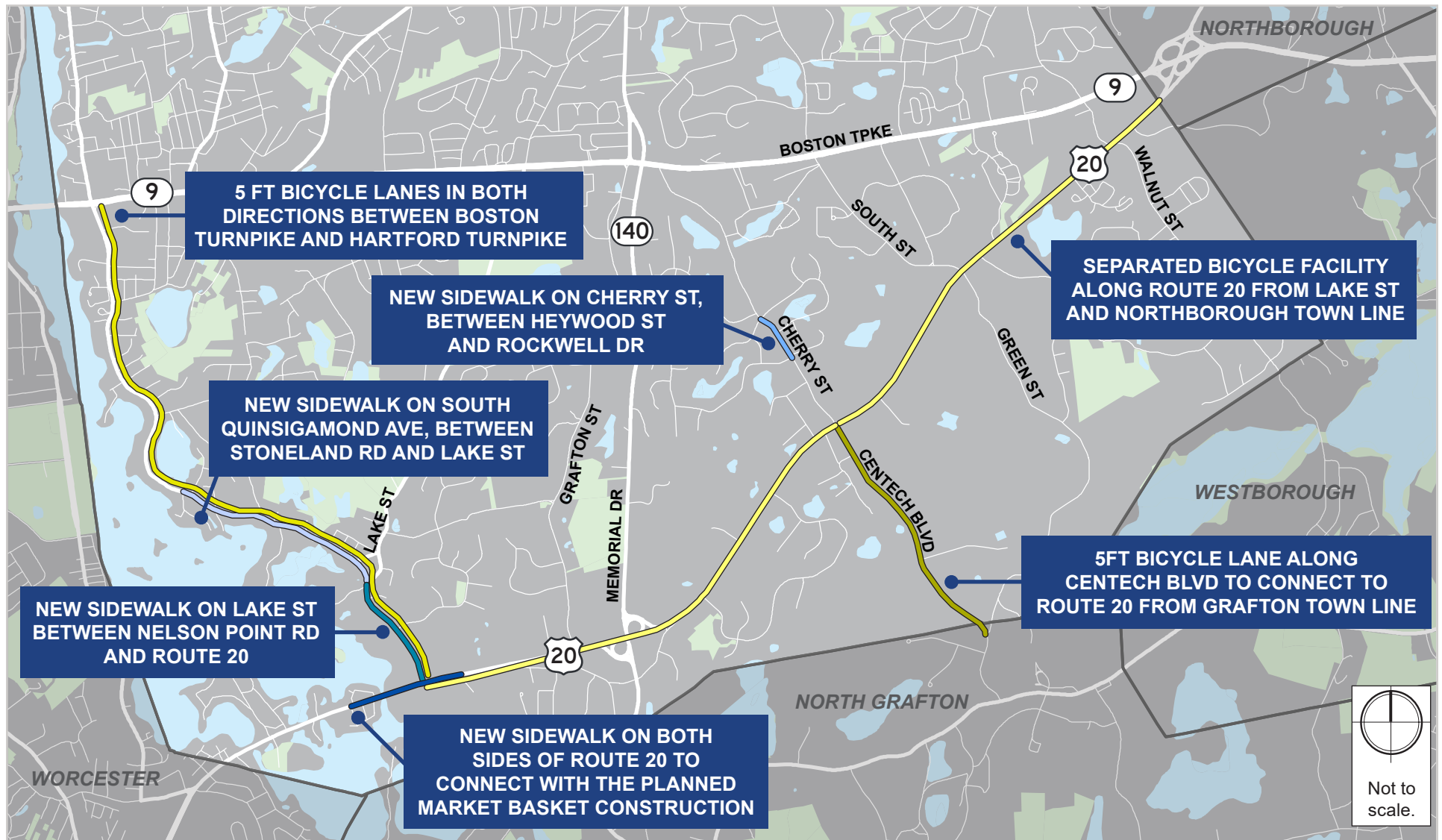
- A separated bicycle facility along Route 20, from Lake Street to Northborough Town Line (Ranks 32-34). This bicycle project is separated into three phases and will provide a regional connection envisioned in the 2018 Central Massachusetts Metropolitan Planning Organization (CMMPO) Regional Bicycle Plan.
- A five-foot bicycle lane along Centech Boulevard to connect to Route 20 from the Grafton Town Line (Rank 24) was completed in 2019. This bicycle lane project provides a regional connection to the Grafton MBTA station as envisioned in the 2018 CMMPO Regional Bicycle Plan.
- Five-feet bicycle lanes in both directions of South Quinsigamond Avenue/Lake Street, between Routes 9 and 20 (Rank 26). This project will provide connections between the White City commercial area and residential development to the south, as well as a regional connection envisioned in the 2018 CMMPO Regional Bicycle Plan.
- A new sidewalk on both sides of Route 20 to connect with planned Market Basket construction and other surrounding light industrial businesses (i.e., from 115-223 Hartford Turnpike (Route 20) to an “unnamed road”) (Rank 13).
- A new sidewalk on one side of Lake Street from Nelson Point Road to Route 20 (Rank 11). This project will connect with planned sidewalk construction along Lake Street (e.g., Lake Street Sidewalk Phase 1 and 2 in the Prioritization Plan).



Added pedestrian and bicycle accommodation along Route 20 will provide connectivity to destinations like the Shrewsbury Village Shopping Plaza.



Figure 6. Location of Shrewsbury's Complete Streets Projects along Route 20



Shrewsbury – Route 20 Corridor Improvements

CMMPO Regional Bicycle Plan (2018)

The CMMPO Regional Bicycle Plan was completed in 2018 and created with the intention of identifying opportunities for encouraging and enhancing bicycle travel within the CMMPO region. The recommendation contained in the Plan is intended to be used as a guide for local jurisdiction and identify potential opportunities. This Plan serves as the bicycle component of the CMMPO Long Range Transportation Plan (LRTP) so the goals of this Plan are consistent with the goals of Mobility 2040 and current LRTP. Implementation of the recommendations from this Plan will provide for a comprehensive bicycle transportation network that is focused on accessibility, mobility, and safety.

Although there were no existing bicycle facilities within Shrewsbury when the plan was published, two projects – four miles of bike lanes on Main Street from I-290 to town center and bike lanes on Centech Boulevard – were completed in Fall 2019. The CMMPO bicycle study recommends approximately 27 miles of additional high opportunity potential bicycle infrastructure projects. The CMMPO Plan created priority recommendations for Shrewsbury, including:

- Incorporating recommendations set forth in the Plan to the Town's planning process;
- Working with MassDOT to ensure that arterial and collector streets with excessive shoulder widths are examined to determine how quickly they can be converted into Complete Streets with bicycle facilities in place;
- Working with MassDOT and the Department of Conservation and Recreation (DCR) to ensure the Regional Multi-Use Trails and Pathways are advanced to meet the needs of subregional and regional travel via alternative modes;
- Working with advocacy groups and

stakeholders to expand public education campaigns that promote the rules of the road so that all transportation system users are aware of their responsibilities; and

- Working to incorporate Safe Routes to School (SRTS) materials and practices into local education systems in order to increase active transportation participation and safety.

Priority recommendations that were specific to Route 20 and identified in the CMMPO are shown in **Table 1**.



The 2018 CMMPO Regional Bicycle Plan included recommendations for on-road and off-road bicycle facilities in the Route 20 corridor.

**Table 1.** *CMMPO On-Road and Multi-Use Recommendations*

Facility Name and Location	Status	Priority
On-Road		
Centech Boulevard, between US Route 20 to Grafton Town Line	Complete	Major
US Route 20, MA Route 140 to Centech Boulevard	Potential	Regional
US Route 20, South Quinsigamond Avenue to MA Route 140	Potential	Regional
US Route 20, Centech Boulevard to Northborough Town Line	Potential	Regional
South Quinsigamond Avenue, MA Route 9 to US Route 20	Potential	Major
Multi-Use		
Boston Worcester Airline Trail, Quinsigamond Avenue to Oak Street	Potential	Regional Multi-Use
Boston Worcester Airline Trail, Oak Street to Lake Street	Potential	Regional Multi-Use
Boston Worcester Airline Trail, Lake Street to Fruit Street	Potential	Regional Multi-Use
Boston Worcester Airline Trail, Fruit Street to Northborough Town Line	Potential	Regional Multi-Use

Proposed Zoning Amendments in Route 20 Overlay District (2017)

At the Annual Town Meeting on May 18, 2017, the Town voted to adopt amended language to the Route 20 Overlay District to allow for mixed use housing with an affordable component. This will lend its way to a mixed-use project that is anticipated on the former Edgemere Drive-In property. This was Article 24 that would make certain modifications to the Route 20 Overlay District to permit by Special Permit and Site Plan Approval (both to be granted by the Planning Board) a new, specially permitted use referred to as a Mixed-use Development: Horizontal. The proposed new use allows a commercial mixed-use development that incorporate residential components such as apartment complexes and townhouse units. Mixed-use Development: Horizontal implies that development is specifically required to be on a lot containing no less

than 25 acres, which will limit applicability for specific portions of the Route 20 Overlay District.

Article 23 was another proposed zoning amendment that was presented at the Annual Town Meeting to amend the Zoning Map for the Town by changing the zoning designation of the Edgemere Drive-In parcel that is currently zoned as Rural B to be zoned as Commercial Business and in the Route 20 Overlay District. The entirety of the rest of the site is contained in the Commercial Business Zoning District and the Route 20 Overlay District. Article 23 sought to unify the zoning district applicable for the lot so that the entire lot is contained within the Commercial Business Zoning District and the Route 20 Overlay District.



Shrewsbury Master Plan (2016)

The Shrewsbury Master Plan was updated in 2016 (last written in 2001) and prepared by Horsley Witten Group, Inc., RKG Associates, Inc., and McMahon Associates, Inc. The Master Plan acts as the Town's road map that will guide its future growth and development. The Plan calls for building on the Town's assets and sets priorities for the short-term (within three years), mid-term (between three and ten years), and long-term (10 to 20 years).

The Plan recognizes that the historic development patterns of Shrewsbury over the past several decades centered on the reality that most people get around by car. The impact of this type of development is increased traffic and congestion, and the inability of older parts of the community, such as the Town Center, to meet modern accommodations for cars. Through public engagement, the consulting firms identified resident interest in having a more active, healthy lifestyle through streets tailored for walking and bicycling. Specific needs identified during the process were additional sidewalks throughout Town, particularly along Maple Avenue; the desire for Route 9 in the Lakeway District to be more pedestrian friendly; and bicycle safety through bicycle lanes (where appropriate).

There were various transportation goals, policies, and actions the Plan identified to help with the safety and efficiency of the Town's transportation network. Specific recommendations for Route 20 that were identified include initiating a corridor study for Route 20 to

identify problem areas and potential improvements, implement curb cut guidelines along Route 20 that promote regional road network access over local parcels, and provide adequate lighting and continuous sidewalks for pedestrians. These recommendations would require working with MassDOT since Route 20 falls under State jurisdiction. Another infrastructure recommendation that was mentioned in the Plan that would have an indirect effect on Route 20 and future development is the Plan's goal to complete sewer extensions along Route 20 that would provide more infrastructural support for economic development along the corridor, potentially bringing in more traffic through vehicles and other modes. Residents have also shared the desire to have better connection to the Grafton commuter train or possible shuttle service to businesses.

Public forums showed that residents want to strengthen the commercial development (not residential) along Route 20 potentially by attracting tech companies. Residents also envisioned Route 20 to accommodate more mixed-use development, the needs of commuters, and having more bicycle trails. Residents also identified the challenges along Route 20: lack of sewer (South Street to Lake Street), lack of infrastructure in east Shrewsbury, and lack of information on commercial development demand. People want to see more shared driveways/entrances and exits from businesses (e.g., Flynn's Truck Stop). People also see the lack of a full sidewalk network as a challenge and unsafe for pedestrians.



HSH assisted MassDOT in hosting three Public Information Meetings to gather input from the public on safety concerns with the current roadway conditions, and on the master plan that was presented. At the March 5, 2019 meeting, information was shared with the public on the progress of the project and review the preliminary concept plans to improve safety and traffic operations in the eastern section of the corridor. The second and third meetings were jointly held on June 24, 2019, one following the other. The second meeting shared the same information as the March 5, 2019 meeting and the third meeting focused on information related to the preferred design in the western sections of the Route 20 corridor and how the improvements in the whole study corridor would accommodate all users, anticipate growth, and to address existing safety issues

During the discussion, public attendees shared their thoughts on the various safety improvement measures highlighted in the presentation, and they provided information on other safety issues along the corridor and on adjacent roads. The following two concerns were the most common ones mentioned at both meetings:

- The high speeds on Route 20 within the study area; and
- How unsafe and difficult it is to exit any of the side streets and enter Route 20.

The speed limit within the study area varies from 40 mph to 50 mph. Participants pointed out that vehicles routinely ignore the speed limit and drive much faster, which was also evident in the crash reports studied for this project. Participants also mentioned the difficulty

of entering Route 20 from the unsignalized side streets and driveways, which is evidenced by the amount of angle and rear-end crashes that have occurred at these intersections. Of the participants greatest concern were the intersections at Walnut Street, South Street (South), and Stoney Hill Road.

At Walnut Street, the primary concern raised by the public is the increase in cut-through traffic, which many area residents believe is caused by vehicles from the Westborough MBTA Station using Walnut Street instead of Otis Street to connect to Route 20 and Route 9. Another concern at Walnut Street was the lack of good sight lines for oncoming traffic from Route 20 westbound, due to the roadway grade, coupled with the speeds on Route 20, which make it difficult for Walnut Street drivers to enter Route 20 safely. Safety was the primary issue raised at the South Street intersection. Vehicles turning left from South Street onto Route 20 westbound have been involved in crashes that resulted in injuries. One 2019 crash involved several young students from the Al-Hamra Academy, which is located on South Street just south of Route 20. Following that crash, many staff, students, and families associated with Al-Hamra Academy attended the second public meeting on June 24, 2019 for this study to express their concerns with these safety issues. At Stoney Hill Road, drivers attempting to access either direction of Route 20 experience long delays, and view left turns out of Stoney Hill Road as dangerous due to the high travel speeds of vehicles on Route 20. Many choose to turn right onto Route 20 and make a U-turn at the Cherry Street/Centech Boulevard intersection instead.

Master Plan Shared Goals

Based on this input, the following shared goals were established for the Route 20 Master Plan.

- Improve intersection and corridor safety
- Address existing congestion issues
- Provide capacity needed to support future traffic growth fueled by private development
- Address the lack of travel options

Existing Study Area Conditions

Demographics

Figure 7 shows the study corridor is contained within Census Tract 7391. Although block groups would have provided specific information of the population adjacent to Route 20, the most recent Census Data (2013-2017 American Community Survey (ACS) data) did not provide information in the block group level; thus, the census tract adjacent to Route 20 was evaluated instead. Additionally, to place local conditions and trends in the context of a larger geography, as well as help shed light on the study area's relationship to its surroundings, three geographic contexts were evaluated: Census Tract 7391, Shrewsbury, and Massachusetts.

POPULATION OVERVIEW

The current population of Shrewsbury is 36,716 and it is expected to grow further in the coming years as more people make Shrewsbury their home. As shown in **Table 2**, the Central Massachusetts Regional Planning Commission's (CMRPC) population projections estimate that the Town will add over 7,000 new residents by 2040, bringing the total population to 43,761.

Table 2. *Shrewsbury Population Information*

Year	Population	% Change
2000	31,640	-
2010	35,608	13%
2013-2017 ACS	36,716	3%
2020²	38,906	6%
2030	42,090	8%
2040	43,761	4%

² CMRPC Population Projections, www.cmrpc.org