

TOWN OF NORFOLK, MASSACHUSETTS

Complete Streets Prioritization Plan

Prepared for
Town of Norfolk, Massachusetts

Prepared by
Howard Stein Hudson

April 2019



HOWARD STEIN HUDSON

Engineers + Planners





Table of Contents

Table of Contents i

List of Figures i

List of Tables ii

Introduction 1

 MassDOT Complete Streets Funding Program 1

 The Town of Norfolk 2

Methodology 7

 Tools to Determine Deficient Conditions 7

 Tools to Assess Demand 17

 Tools to Assess Equity Concerns 21

 Project Selection 24

 Project Prioritization 24

The Prioritization Plan 27

 Prioritization Plan 27

 Project Descriptions 34

CD - Table of Contents 42

List of Figures

Figure 1. Bicycle and Pedestrian Crash Locations, 2012-2016 9

Figure 2. Four Types of Cyclists in Portland by Proportion of Population 12

Figure 3. Bicycle Level of Comfort 14



Figure 4.	Existing Sidewalk Condition.....	16
Figure 5.	Latent Demand Analysis	18
Figure 6.	Stakeholder Input Collected via WikiMap.....	20
Figure 7.	Persons with Disabilities.....	23

List of Tables

Table 1.	MassDOT Prioritization Plan.....	28
Table 2.	Complete Streets Eligible Project Worksheet.....	32
Table 3.	Complete Streets Needs Comparison Table: MassDOT vs. HSH	33



Introduction

Encouraging walking and biking is a priority for the Town of Norfolk. When residents can replace short driving trips with active transportation, it helps lower traffic congestion and improves public health and the livability of the Town. This Prioritization Plan enables the Town to access resources from the Commonwealth's Complete Streets Funding program that can help build sidewalks, bike paths, safer crossings, and many other opportunities to improve daily lives.

A Complete Street is one that provides safe and accessible travel alternatives for all modes – walking, biking, transit, and motorized vehicles. Complete Streets designs contribute towards safety, health, and economic vitality that can be enjoyed by people of all ages and ability. Having multi-modal options to travel between home, work, schools, recreation, and retail destinations are essential in promoting more livable communities.

Complete Streets improvements may be large-scale – such as a corridor-wide improvement – or focused on the needs of a single mode – such as a bus shelter for a highly used bus stop. Each improvement must meet current Americans with Disabilities Act (ADA) and the Massachusetts Architectural Access Board (AAB) guidelines.

The Massachusetts Department of Transportation (MassDOT) recognizes the importance of projects that provide thorough, context-sensitive, multi-modal transportation options. To promote these priorities, MassDOT issued the Healthy Transportation Policy Directive in 2013. This directive, while focused on state and federally funded roadways, can be applied to local roads at the municipal level. It was through the creation of the Complete Streets Funding Program that this goal was realized.

MassDOT Complete Streets Funding Program

The MassDOT Complete Streets Funding Program was initially conceived through legislative authorization as part of the 2014 Transportation Bond Bill. The Program was released in February 2016. The intent of this program was to reward municipalities that demonstrated a commitment to Complete Streets both in policy and in practice. This was also a great opportunity to continue to build on the relationship between the Baker-Polito Administration and municipalities which had started earlier through the Community Compact Cabinet. 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

The Town of Norfolk submitted a Letter of Intent (LOI) on February 20, 2018 to complete Tier 1 and Tier 2 simultaneously. The Town attended a series of Complete Streets trainings offered by MassDOT and submitted their Complete Streets Policy, which was approved on February 20, 2019. This document includes the Town's Tier 2 document – also known as the Complete Streets Prioritization Plan – and a discussion of the process that Howard Stein Hudson (HSH) followed to create the Complete Streets Prioritization Plan.

The Town of Norfolk



A view of Norfolk Town Hall from Liberty Lane. Photo: HSH

Norfolk has a long and rich history that is reflected in its cultural resources and contributes to the unique character of the Town. This suburban town is located within Norfolk County and is approximately 20 miles southwest of Boston. Before Norfolk became its own town in 1870, it was previously known as North Wrentham and had grown a considerable amount due to a rise of factories, job opportunities, and an increase in population. This growth provided a strong argument for the town to become

independent. The Town's incorporation was approved in February 1870 and North Wrentham and sections of Franklin, Walpole, and Medway were organized into what is currently Norfolk.¹ Norfolk's

¹ **A Brief History of Norfolk**, Town website. <http://www.virtualnorfolk.org/about/history-of-norfolk.htm>.



total population is approximately 11,671², of which 7,704 (66%) are residents that are 18-64 years old, 2,602 (22%) that are under 18 years old, and 1,365 (12%) that are 65 years old and older.³

The Town's land use and zoning are dominated by single-family homes, which occupy 80% of the land area. Approximately 13% of Norfolk's land area is controlled by the state or not-for-profit agencies, followed by business and commercial uses which occupy 7% of the Town's total land area⁴. Most of the land that is controlled by the State consists of the Massachusetts Correctional Institution, the largest medium security level facility in Massachusetts.⁵ There are three major commercial districts in the Town: Town Center (B-1 District), the intersection of Dedham Street and Pond/Pine Streets (C-1 District), and the intersection of Route 115/Rockwood Road and Holbrook Street (C-4 District).

Norfolk's Town Center is a traditional New England town center that provides opportunities for residents to take advantage of local services, as well as increase social interaction. It is located near the Town's Commuter Rail Station and various civic buildings such as Town Hall, the Police Department, and the Norfolk Public Library. The intersection of Dedham Street and Pond/Pine Streets (C-1 District) is home to ForeKicks Sports Complex and Golf Course, several restaurants, a plant nursery, a rehabilitation center, and several commercial and office buildings. The C-1 District is 1.7 miles from Patriot Place and Gillette Stadium. The intersection of Route 115/Rockwood Road and Holbrook Street (C-4



A view of Main Street and Route 115 (Rockwood Road), an intersection within Town Center. Photo: HSH

² 2013-2017 American Community Survey 5-Year Estimates, U.S. Census Bureau.

³ Ibid.

⁴ Norfolk Master Plan, Town of Norfolk. <https://norfolk.ma.us/assets/files/boards-and-committees/planning/master-plan.pdf>.

⁵ MCI-Norfolk, Massachusetts Department of Correction. <https://www.mass.gov/locations/mci-norfolk>.



District) comprises of the Town's mixed-used district and home to the Rivers Edge residential development and several commercial uses, such as the Organic Buzz Café and Juice Bar.

The Town has approximately 492 acres of open space that are predominantly managed by the Conservation Commission. Large open space properties within Town include: forest lands (approximately 230 acres of the open space total area), such as Campbell, Maple-Grove Street, Lind Farm, Kunde, and Weeber; open water areas (approximately 20 acres of the open space total area), such as Comey Pond, City Mills Pond, and Charles River; and state land (approximately 242 acres of the open space total area), such as Brook Nature Center and Bristol Blake Reservations. In addition to open space, Norfolk also has an abundant amount of recreational space that allow residents to access public play spaces. Recreational open space consists of approximately 142 acres of the Town's land area. Norfolk's recreational open space includes: Kids' Place on Boardman Street; public fields, such as the fields in Freeman Centennial School, H. Olive Day, King Philip North School, and Wrentham State School; and Pond Street Recreational Facility, which has 21 acres of playing fields, ball fields, two tennis courts, a basketball court, a picnic acre, and a walking/jogging trail.⁶

EXISTING ROADWAY NETWORK

The automobile provides access to and from Norfolk and is relied upon by many as a means of getting around the region. Many past efforts have tried to help facilitate the movement and accessibility of the automobile, such as the construction of freeways, widening of streets, and narrowing of sidewalks. While these undertakings have resulted in its unprecedented convenience and popularity, the operation of an automobile in the town remains constrained by traffic congestion and a street network that poses many challenges to through traffic movement for all road users.

The town has approximately 67 miles of roadway. The functional classification of the roadways show that the Town has a mix of streets that provide local and intermunicipal connections. Routes 1A and 115 are Urban Minor Arterials that link to the region and provide the fastest method of travel. Route 1A (also known as Dedham Street) is a MassDOT-owned and managed corridor that traverses the southeastern corner of the Town and provides convenient access to Wrentham and Walpole. Route 115 (also known as Rockwood Road, North Street, and Pond Street) is a Town-owned roadway that runs north to south and provides connections to Millis and Foxborough. The next level of roadways that provide moderate traffic capacity are the Town's collector roads which are used as connections between local roads and arterial roads. Some of the connector roads within Norfolk are Boardman

⁶ **Norfolk Master Plan**, Town of Norfolk. <https://norfolk.ma.us/assets/files/boards-and-committees/planning/master-plan.pdf>.



Street, Cleveland Street, Everett Street, and Medway Street. The remainder of Norfolk’s roadway



Boardman Street in Norfolk. Photo: HSH

consists of local roads that provide access to the Town’s many residential neighborhoods.

EXISTING TRANSIT NETWORK

As part of a balanced transportation network, mass transportation is available in the Town. It includes the MBTA’s Franklin Commuter Rail Line and the Greater Attleboro Taunton Regional Transit Authority’s (GATRA’s) Tri-Town Connector bus route, both providing residents

with regular passenger service to Boston, Foxborough, Wrentham, and regional communities to the North. The Franklin Commuter Rail Line runs seven days a week, between Boston’s South Station and Forge Park/495 in Franklin. Trains run inbound from 4:55 a.m. to 12:44 a.m. and outbound from 3:50 a.m. to 12:53 a.m. The Saturday inbound schedule is from 6:40 a.m. to 11:40 p.m. and outbound schedule is from 7:20 a.m. to 12:24 a.m. The Sunday inbound schedule is from 10:40 a.m. to 11:40 p.m. and outbound schedule is from 11:20 a.m. to 12:24 a.m. GATRA’s Tri-Town Connector was launched in 2014 as a way for the transit authority to expand its bus service to the communities of Norfolk, Wrentham, and Foxborough. Bus stops along the Tri-Town route include the Wrentham Downtown municipal parking lot and senior center, Foxborough’s Patriot Place marketplace and medical centers, MTBA commuter rail stations, and the Massachusetts Correctional Institution.⁷

EXISTING BICYCLE AND PEDESTRIAN NETWORK

Norfolk has many streets that are built within a narrow right-of-way that are not conducive to accommodating sidewalks without taking private land. The streets in Norfolk that have sidewalks are concentrated in Town Center, where sidewalks start at the center of the Main Street and Route 115 (Rockwood Road) intersection and radiate out towards Liberty Lane, both sides of Route 115 (Rockwood Road and North Street), and both sides of Main Street. Sidewalks are also present within some low-to-medium density residential developments. Although sidewalks are not currently present on most roadways, removing the physical barrier for residents to access destinations without

⁷ New GATRA bus route to service Wrentham, Norfolk & Foxborough, Wicked Local. <https://norfolk.wickedlocal.com/article/20140702/News/140709151>.



A typical street in Norfolk where there is a sidewalk on one side, but not the other. Photo: HSH

vehicles is important to the Town. There is currently no dedicated bicycle infrastructure in Norfolk. The lack of bicycle infrastructure restricts cycling within the Town to residents who do not mind bicycling adjacent to vehicles traveling at varied speeds. Fortunately, some of the Town's roadways that have wide shoulders can be used as an informal facility and provide a limited amount of accommodation for cyclists.

COMMUTERS

Employees in Norfolk have a longer than average commute time (40 minutes) than Norfolk County (34 minutes).⁸ The most common method of travel for workers in Norfolk was "Drove Alone" (74%), followed by those who took public transit (11%) and worked from home (9%). Approximately 1% of resident workers walk to work, and there is no record of residents who bike to work.

Employees in Norfolk have a longer than average commute time (40 minutes) than Norfolk County (34

⁸ **Economic Characteristics**, 2013-2017 American Community Survey 5-Year Estimates.



Methodology

At HSH, we believe that the Complete Streets Prioritization process is an opportunity for a comprehensive and holistic look at the unique needs of each community. We utilize several innovative tools to better understand existing conditions and the effect proposed projects will have. Together, these tools allow us to answer three key planning questions: Where are existing conditions deficient? What are the community's priorities? And where is the demand?

With a focus on pedestrians and bicyclists, our data collection and analysis develop a complex understanding of where conditions are unsafe, uncomfortable, or inaccessible, as well as where safe and comfortable routes can be best utilized to expand the pedestrian and bicycle networks. Community and municipal input contributes local expertise to the project identification and selection processes and informs an understanding of the community's values. Equity assessments hone in on the neighborhoods most in need of transportation network and facility improvements. Finally, measures of network latent demand provide an understanding of project opportunities and are another important factor for consideration within the prioritization process.

Each set of analysis used to select and prioritize the project list is data driven, transparent, and easily communicated through visual tools. These tools are designed to be living documents that can assist in the Complete Streets Prioritization process today and other planning initiatives moving forward. In this section, we describe each tool and the existing conditions found in Norfolk.

Tools to Determine Deficient Conditions

To determine the locations where Complete Streets improvements are desirable and necessary, HSH uses a series of data. The following tools show where there may be gaps in connectivity that deter people from walking and bicycling.

SAFETY

The safety of all road users is a top concern for the Complete Street Prioritization process. Bicycle and pedestrian crashes are taken from MassDOT crash reports from the five most recent complete years of data; at the time of this report, the most recent data available is from 2012-2016. Five years of data are used to get a larger set of data points and a better sense of patterns in crashes. Location of crashes indicate where intersection or corridor projects could best improve safety conditions. Identified projects that address crash locations hold a high level of priority within our project rankings. Improvements such as consistent shoulders, dedicated bicycle lanes, or clearly marked



wayfinding signage to direct cyclists to safer, residential streets, are projects that can help reduce crashes involving cyclists and can be funded through the Complete Streets Funding Program.

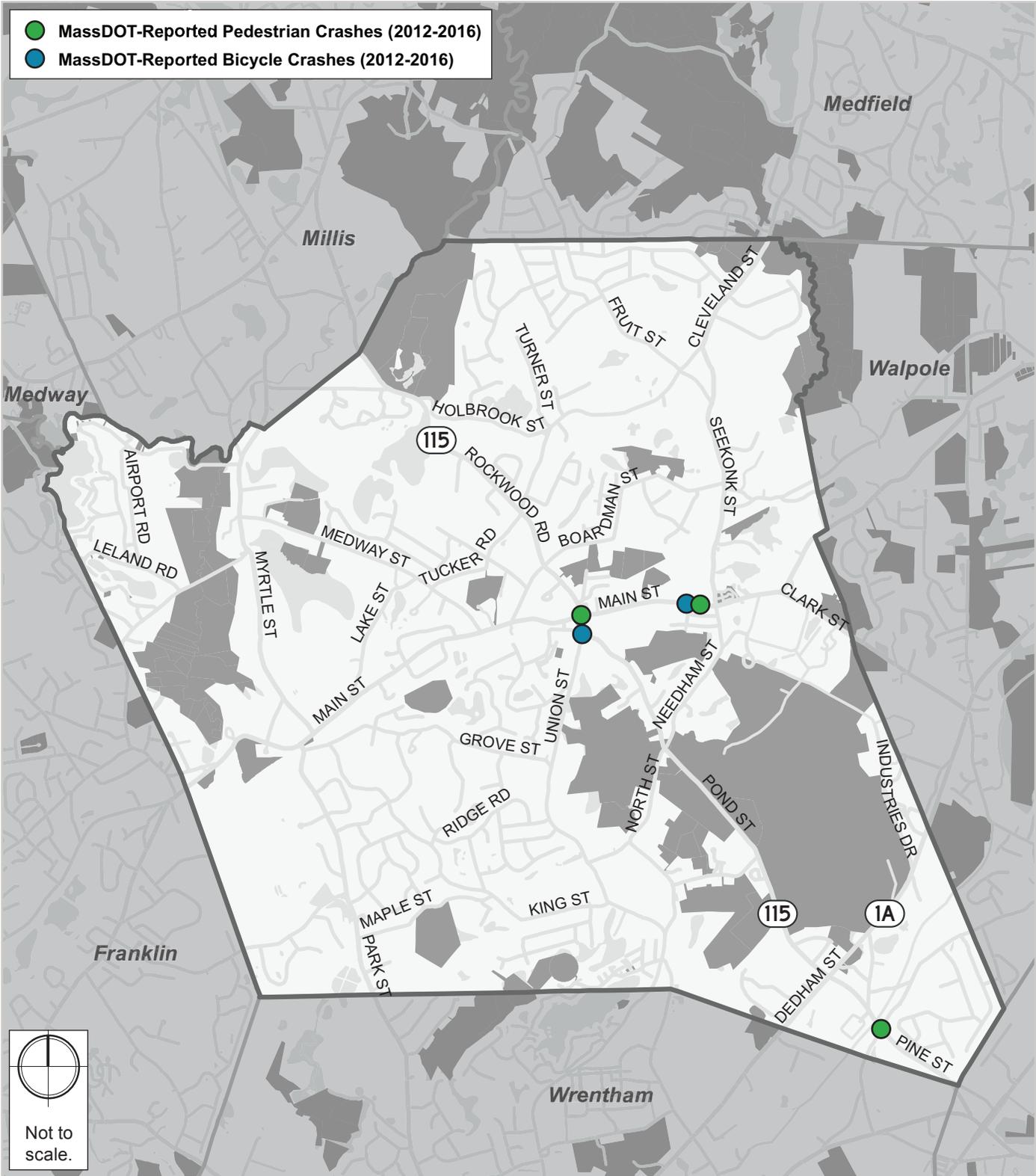
EXISTING CONDITIONS – BICYCLE AND PEDESTRIAN CRASHES

Figure 1 reflects locations of crashes involving bicyclists, pedestrians, and vehicles in Norfolk from 2012-2016. Within the span of five years, six nonfatal bicycle and pedestrian crashes were reported in Norfolk, two of which occurred in Town Center. The other four occurred on Main Street, Cleveland St, and the intersection of Pine Street and Everett Street.⁹ Out of the six crashes, two involved vehicle conflicts with bicyclists and four involved vehicle conflicts with pedestrians. Crashes involving bicyclists occurred during the day and in clear weather in August and September. The causes of these two crashes involved a vehicle slowing or stopping in traffic and traveling straight ahead before colliding with the bicyclist. Pedestrian crashes varied in occurrence; two crashes occurred during daylight and the remainder occurred in the evening. The weather conditions varied between clear, cloudy, and rain. Potential explanations as to why these pedestrian and bicycle crashes occurred at these specific locations are missing pedestrian or bicycle treatments, roadway characteristics that encourage high speeds and deter visibility for pedestrians or bicyclists, and lack of signage that would alert drivers to be more cautious of other roadway users.

⁹ The pedestrian crash on Cleveland Street is not shown on **Figure 1** because the location was not specified in the MassDOT crash report.



Figure 1. *Bicycle and Pedestrian Crashes, 2012-2016*



Source: MassDOT Crash Portal



LEVEL OF COMFORT

To improve and create excellent active transportation environments, we assess both bicycle and pedestrian level of comfort. Level of comfort addresses not only whether a sidewalk or bicycle accommodation is provided, but also other factors, such as the speed of traffic, proximity to green space, separation from the roadway, and the presence of an on-street parking lane. These factors contribute to the physical safety of vulnerable road users, as well as to the overall comfort of the roadway, which is a major factor of whether pedestrians and bicyclists will use it.

Areas with low comfort are targeted for project selection. During the prioritization process, projects with low bicycle or pedestrian comfort receive greater priority as well as projects that would increase the level of comfort most. Fixing a short, low-comfort segment can often bridge two neighborhoods' high-comfort streets, substantially expanding the bicycling network in both neighborhoods.

For both bicycle and pedestrian analyses, we use the road edge as the basis for Geographic Information Systems (GIS) analysis rather than the centerline. This allows us to have directionality for each segment and add subtleties such as one-sided, on-street parking, one-way routes, or intersection crossings for each direction.

MassGIS roadway data is used to assign road speed, average daily traffic (ADT), number of adjacent lanes, the presence and width of a median, and roadway surface width values to each segment, as well as the roadway characteristics for intersection crossings. Manual data entry for each segment recorded the type and width of sidewalks or bicycle facilities, the presence of a centerline, right-turn lane characteristics at signalized intersections, and the presence of on-street parking, including whether the parking is long-term (generally residential) or short-term (commercial zones), to determine the frequency of bike lane blockage. In certain cases, adjustments were made to reflect local knowledge of conditions not captured by the analysis, such as the impact of sharp curves.

BICYCLE LEVEL OF COMFORT (BLOC)

The Bicycle Level of Comfort (BLOC) methodology is based on analysis originally carried out by Professor Peter Furth of Northeastern University. His team developed a set of criteria to determine the level of traffic stress for road segments, which correspond to the type or ability of bicyclist who would be willing to ride on that segment. The types of riders relate to categorizations first presented by Roger Geller, Bicycle Coordinator at the Portland Bureau of Transportation in Oregon, which classified cyclists into four categories: "No Way No How," encompassing 33% of the population of Portland, Oregon who are not interested in bicycling at all; the "Interested but Concerned" group,



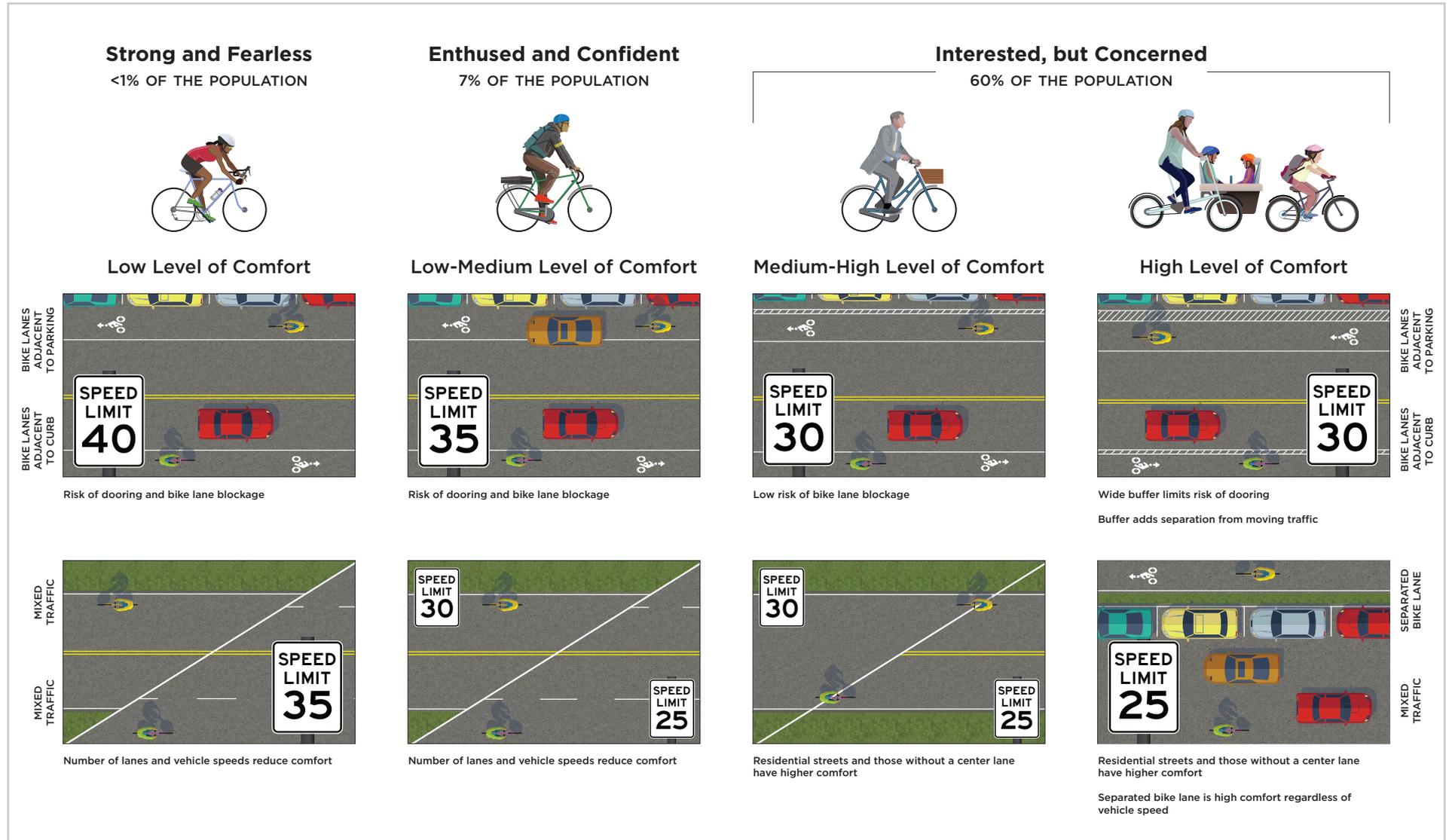
which makes up 60% of the population; “Enthusied and Confident” riders who make up about 7% of the population; and “Strong and Fearless” riders who make up less than 1% of the population.¹⁰

We have based our analysis for Norfolk on the same methodology with minor adjustments to produce a Town-wide map of Bicycle Level of Comfort, ranging from high to low. In general, those in the 60% population range who are interested but concerned would likely be willing to ride on the most comfortable routes, thus falling into the “High” and “Medium-High Comfort” categories in our analysis. These routes typically include low-speed residential roads that are often without centerlines, physically separated bicycle facilities, and off-street trails. Confident and enthused riders would likely be willing to ride on road segments that fall into the “Medium-Low” Comfort category, and strong and fearless bicyclists would fall into the “Low” Comfort category. A low-stress cycling network is one where most of the population would feel comfortable riding; as such, we consider high and medium-high comfort routes to dictate the usable cycling network. **Figure 2** shows an illustration of these categories.

¹⁰ **Four Types of Transportation Cyclists**, City of Portland website. www.portlandoregon.gov.



Figure 2. *Four Types of Cyclists in Portland by Proportion of Population*





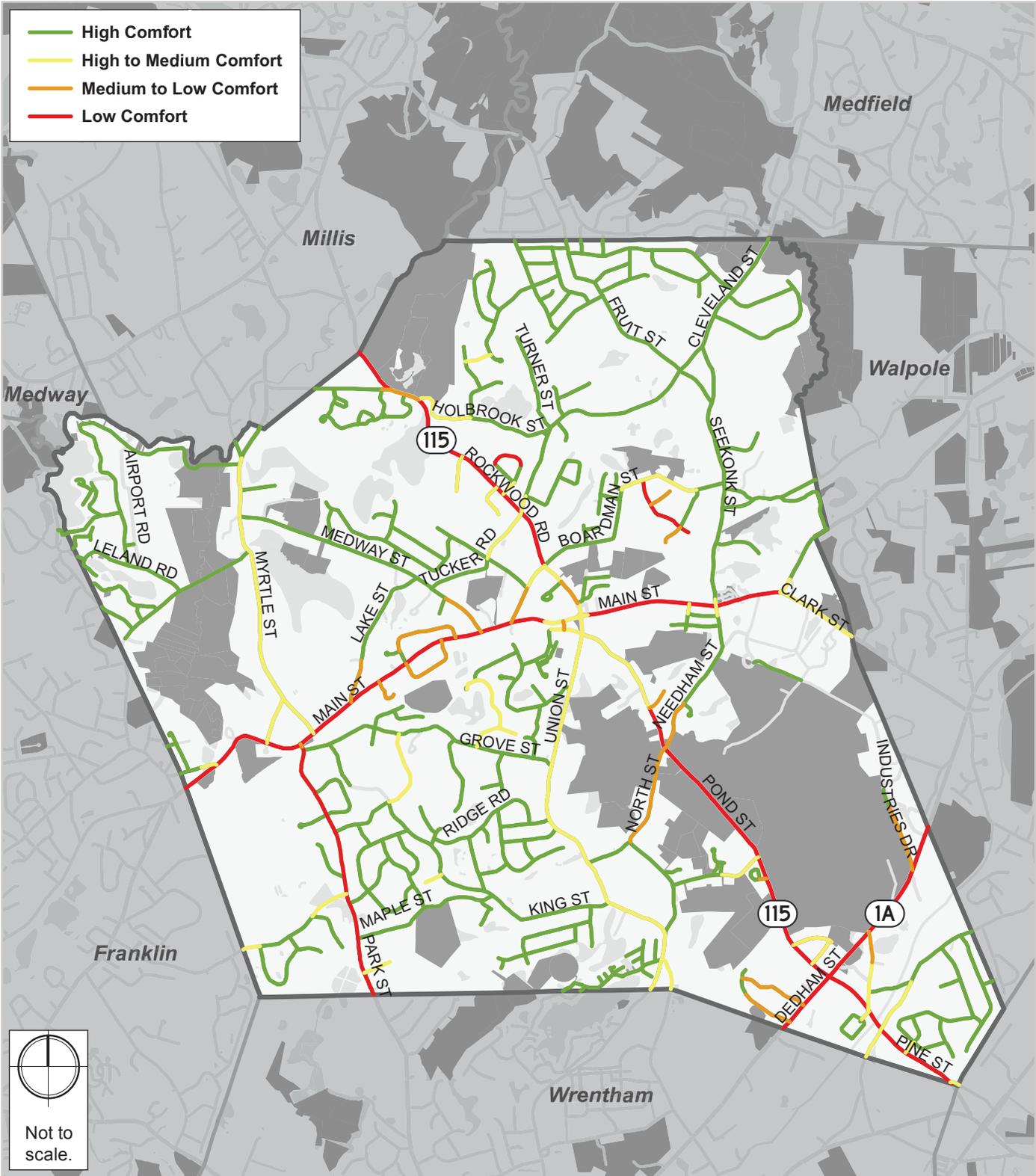
Existing Conditions – Bicycle Level of Comfort (BLOC)

The Bicycle Level of Comfort (BLOC) map (**Figure 3**) shows locations where people would and would not feel safe bicycling, as well as helps identify projects that would most benefit modal shift towards cycling. In general, roadways that see high vehicular volumes and speeds will have the lowest levels of comfort such as Dedham Street (Route 1A), Main Street, and Route 115. Since these streets serve as Norfolk's main corridors that provide the highest mobility to adjacent municipalities, roadway conditions will often be less accommodating to pedestrians and cyclists. Although projects proposed along Route 1A cannot be funded through this program because it falls under State jurisdiction, there is potential to still include interventions through other funding programs that could improve the safety and comfort of cyclists that use that corridor to get around. Main Street, a Town-owned roadway that includes a combination of residential and commercial uses, includes the Town Center, single-family homes, restaurants, and the H. Olive Day School. Providing safe bicycling accommodations along Main Street is important because of the various destinations that are visited by residents of all ages and abilities. A potential explanation for the low score along Main Street is its relatively high average daily traffic (ADT) and high posted speed limits that is as high as 45 miles per hour (mph). The portions of Main Street that resulted in a high-to-medium comfort score is along a segment that is adjacent to the portion of the roadway that has a posted speed limit of 25 mph.

Examples of roadways that scored in the high-to-medium comfort range include portions of Holbrook Street, Clark Street, Valley Street, and Everett Street. Although these corridors resulted in medium-to-high comfort segments implying that these roads may be comfortable enough to ride their bicycles along, MassDOT's crash data showed that a bicycle crash occurred at the intersection of Everett Street and Route 115. The remainder of the segments in the BLOC analysis, mostly located within residential developments and along local roads with low posted speed limits, scored high comfort values.



Figure 3. Existing Bicycle Level of Comfort



Source: HSH; MassDOT; Peter Furth



PEDESTRIAN NETWORK

HSH developed a similar measure of Pedestrian Level of Comfort (PLOC) to complement the Bicycle Level of Comfort analysis. Variables included are intended to reflect the pedestrian experience in terms of safety and amenity. HSH evaluated the Town’s pedestrian network, identifying corridors that have sidewalks and determining the condition of the identified sidewalks as excellent (very smooth/new with no obstructions), good (smooth with few bumps and depressions with no obstructions), fair (comfortable with intermittent bumps and depressions with few obstructions), and poor (uncomfortable with frequent bumps and depressions with several obstructions).

Existing Conditions- Pedestrian Network

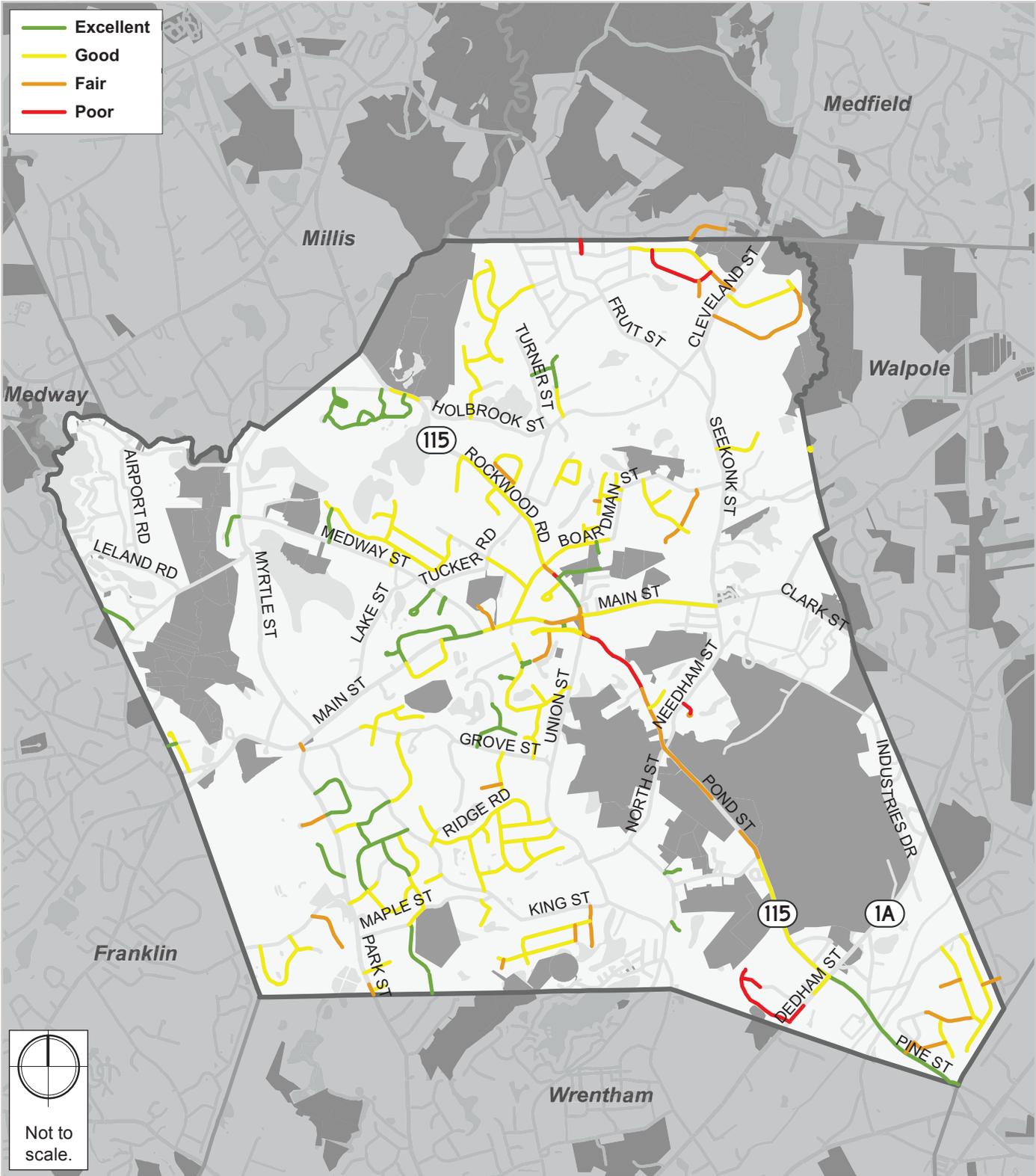
The Sidewalk Network map (Figure 4) shows locations where existing sidewalks are either excellent, good, fair, or poor. Although there are not many existing sidewalks that are in excellent condition, the majority that are present are either good or fair. Sidewalks that are shown in poor condition are mostly along Route 115/Pond Street, Day Street in the northern portion of the Town, and Shire Drive (adjacent to Dedham Street). Factors that may explain the low score are existing barriers, such as utility poles, that would prevent pedestrians from walking through the corridor in a safe and comfortable manner. Sidewalks with pavement that are in poor condition would also receive a low score. Possible interventions that would improve the condition of sidewalks that scored low include reconstruction to make sure they meet ADA compliance, such as adequate sidewalk widths and grade separation.



*Sidewalks in good condition within Town Center (Liberty Lane).
Photo: HSH*



Figure 4. Existing Sidewalk Network



Source: HSH; MassDOT; Peter Furth



Tools to Assess Demand

POINTS OF INTEREST

HSH considers the potential travel demand to points of interest such as commercial uses, restaurants, healthcare services, schools, parks, and public services, including town halls, libraries, and police stations (Figure 5). The area around Town Center, highlighted in bright red and orange, host a significant portion of Norfolk's destinations that would attract pedestrians and cyclists. The potential demand to destination points, also called latent demand, demonstrates which areas of the roadway network could best serve pedestrians and cyclists trying to reach a variety of destinations with the Town.



Country Crossing, a small shopping center located within Town Center (on Main Street). Photo: HSH

EXISTING CONDITIONS – BICYCLE LATENT DEMAND

A convenient cycling distance of one mile is used as the distance for the bicycle latent demand analysis. Figure 5 shows the corridors surrounding the Town Center hold the greatest number of destinations and would greatly benefit from having bicycle infrastructure that would separate cyclists from traffic, such as painted bicycle lanes. Creating safe bicycle infrastructure on streets near the Norfolk Commuter Rail Station would also improve multimodal connections from Town Center to adjacent residential neighborhoods that would provide bicycling connections for residents who work and travel to Boston and adjacent municipalities via public transit.

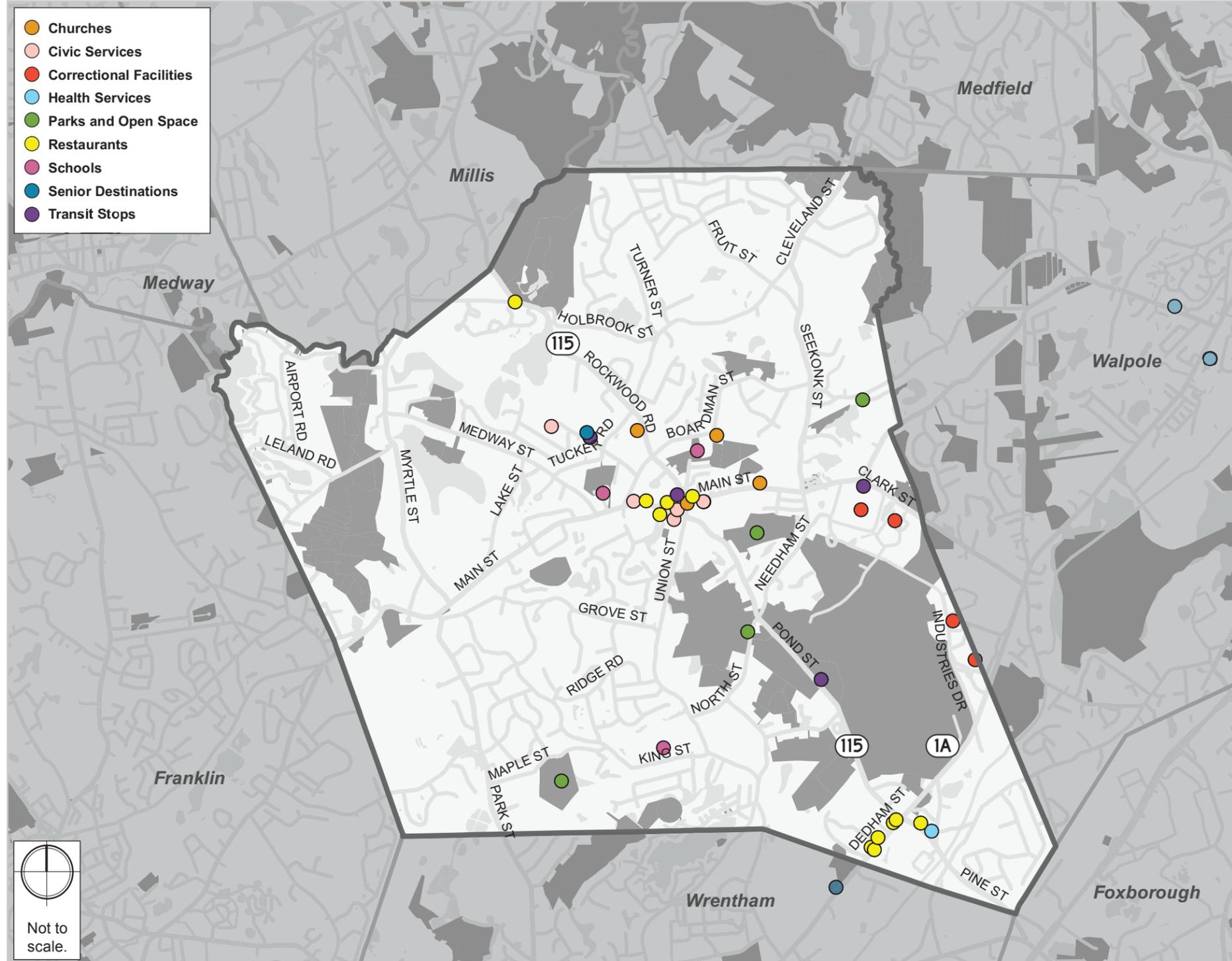
EXISTING CONDITIONS – PEDESTRIAN LATENT DEMAND

Using a reasonable walking distance, a half mile buffer around the points of interest is used for the pedestrian latent demand analysis. Like the Bicycle Latent Demand map, the Pedestrian Latent Demand map (Figure 5) shows high demand within the Town Center. Providing adequate pedestrian infrastructure around the Town Center to connect residential developments to the commercial area would provide tremendous benefits to the Town and residents living nearby.

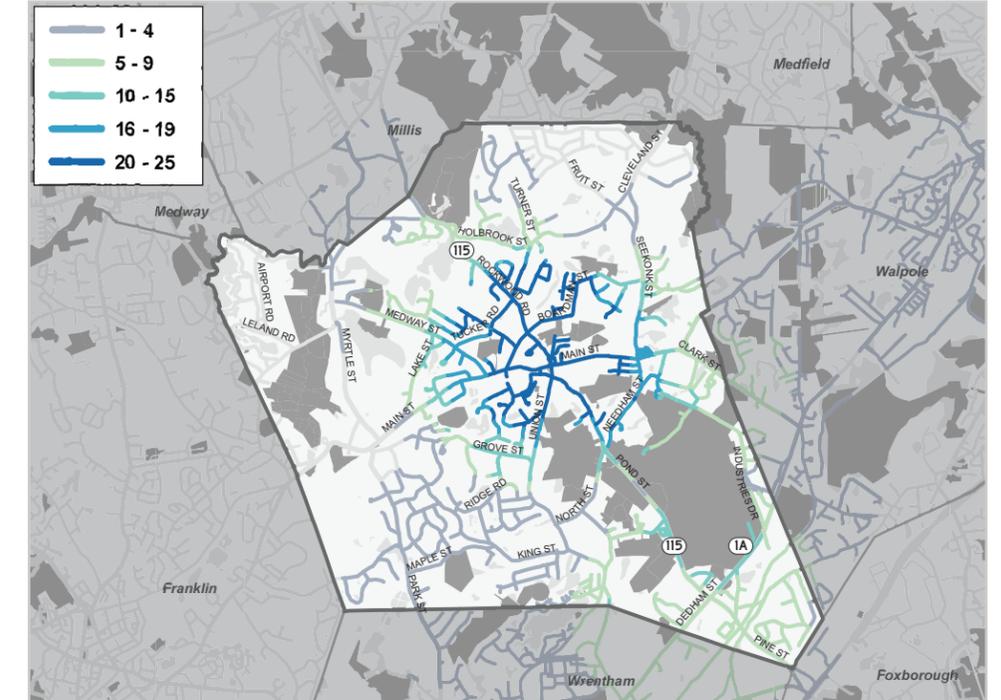


Figure 5. Latent Demand Analysis

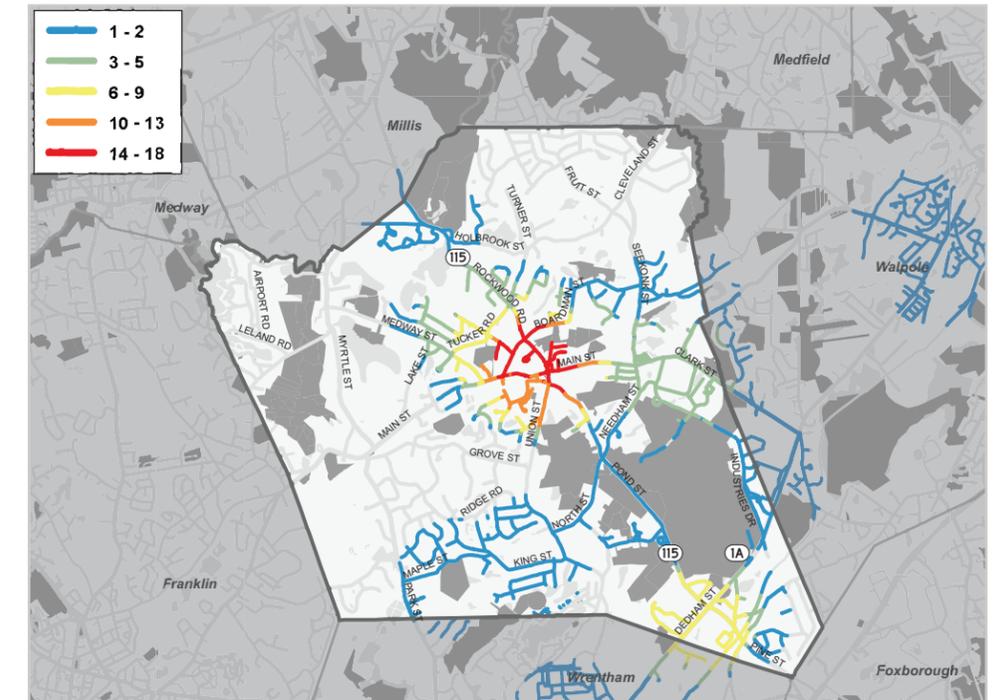
Points of Interest



Bicycle Latent Demand



Pedestrian Latent Demand



Source: HSH



STAKEHOLDER INPUT

The Prioritization Plan seeks to incorporate as many ideas from community members as possible. In the beginning of the project process, HSH staff met with the Town of Norfolk to initiate the project and discuss potential projects to be included in the Prioritization Project List. After the kick-off meeting, a community public meeting was held to inform the residents of the Complete Streets Funding Program and to solicit comments and project ideas on problematic areas for pedestrians, cyclists, and those with disabilities. To accommodate community members who were unable to attend the meetings in person or who preferred to leave comments following the meetings, a WikiMap was created that allowed community members to contribute to the process online. The WikiMap was posted on Norfolk's Town website with the purpose of gathering input from a broad range of residents.

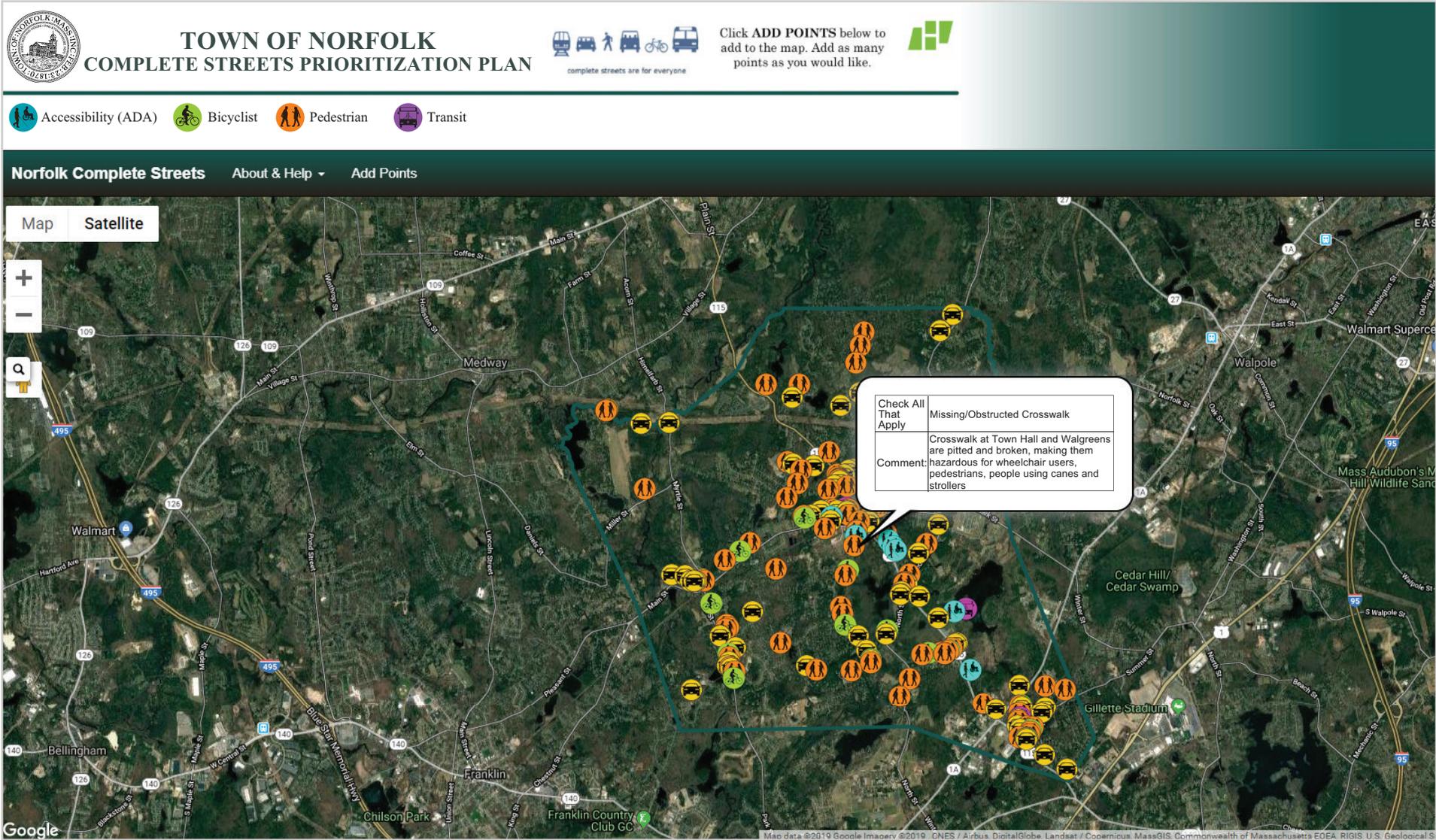
WIKIMAP

The WikiMap was created to allow community members to contribute their comments, concerns, and project ideas. It proved to be successful in capturing comments from residents. HSH collected a total of 191 points via the WikiMap. The website allowed users to provide comments by user type (e.g. Accessibility (ADA), Bicyclist, Pedestrian, and Driver). Of those 191 points collected, users of the interactive map identified concerns regarding high vehicular speeds along particular roadway segments (108 points), missing and/or obstructed sidewalks (44 points), and traffic safety issues (40 points); these totals include all 5 road user types used for this interactive map. **Figure 6** shows the Town's WikiMap with comments left by residents.

Comments relating to driving along Main Street highly expressed a concern over vehicles going over the 35-mph speed limit. Residents want cars to slow down (specifically from the Town of Franklin town line to Rockwood Road). In addition to the speeding, residents were concerned with the congestion of traffic and poor sightlines that prevent them from exiting from intersecting streets, such as Medway Street, Dunkin Donuts adjacent to Town Center, and the H. Olive Day School driveway. Most of the comments that were related to the pedestrian realm expressed the lack of pedestrian safety due to high vehicular speeds and not enough pedestrian facilities to separate vehicle traffic from pedestrians, as well as existing sidewalks that do not meet ADA compliance because they are too narrow. Comments relating to the bicycle realm expressed the lack of bicycling in the Town due to unsafe conditions such as high vehicular speeds and lack of visibility on the road. Lastly, residents want to see better pedestrian accommodations near the Norfolk Commuter Rail Station where the current conditions make it unsafe for transit users to walk from the station to the various destinations in Town Center.



Figure 6. Stakeholder Input Collected via WikiMap

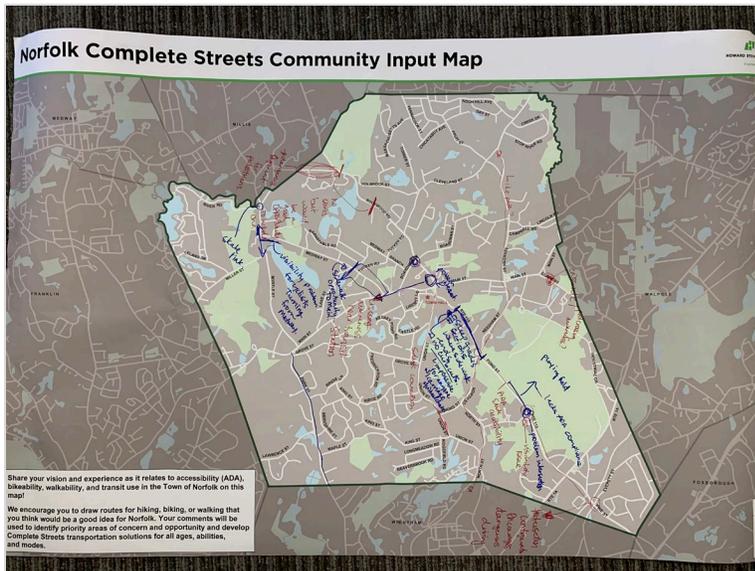


Source: HSH; WikiMap



FIRST PUBLIC INFORMATION MEETING

Norfolk's public information meeting was held in December 6, 2018. This public information meeting allowed residents and stakeholders in the community to share their concerns and project ideas, as well as hear about what the Complete Streets Funding Program is and the existing conditions that HSH gathered and analyzed from the start of the project. The public information meeting was held in the evening and attracted many residents and Town stakeholders. A presentation was given by HSH staff, speaking about the Complete Streets Funding Program, Norfolk's existing conditions, and the next steps of the project. Afterwards, attendees broke out into two groups and took part in a table activity in which people shared their concerns about the lack of pedestrian, bicycle, and transit accommodations, as well as the lack of safety on the roadway due to roadway conditions (e.g. high vehicular speeds).



One of the community feedback maps that was written on during the First Public Information Meeting. Photo: HSH

Residents who attended the meeting focused on pedestrian and bicycle accommodations along Route 115 and within Town Center. The southern portion of Route 115 (i.e., south of Main Street) feels unsafe for residents because of the lack of ADA-compliance along the roadway's existing sidewalk network and high vehicular speeds coupled with narrow roadway widths. Additionally, there was interest in designating Seekonk Street, Needham Street, and North Street as bicycle routes because the high number of bicyclists that ride through those corridors during warmer months. Overall, residents want to see better bicycle and pedestrian facilities (in areas where they are feasible and appropriate) that promote a safe walking and biking environment.

Tools to Assess Equity Concerns

To ensure an equitable distribution of resources for those who may greatly benefit from improved street conditions, we consider environmental justice neighborhoods and populations with disabilities. Data from the 2010 U.S. Census and the American Community Survey (ACS) 5-Year Estimates were used to determine Census 2010 block groups that exceed environmental justice thresholds for limited



English households, low income households, and/or high minority populations.¹¹ Using the ACS 5-Year estimates, the percentage of persons with disabilities was calculated for each census tract. ACS is a continuous data collection effort led by the U.S. Census Bureau to measure the dynamic social and economic characteristics of the U.S. population. Since ACS replaced the decennial Census long-form, there is no disability data in the 2010 Census. Unlike the U.S. Census, ACS only provides self-reported information and so represents a sample of the total population.

ENVIRONMENTAL JUSTICE COMMUNITIES

According to the 2010 U.S. Census data, Norfolk has no census block groups that exceed environmental justice thresholds for high minority populations, low-income households, and limited English households. Norfolk's population is primarily residents who identify themselves as White (87%). Approximately 7% of the population identify themselves as Black or African American, 1% as Asian, 3% as Some other race, and 2% as Two or more races. To exceed the environmental justice threshold, the total population must include 25% minority. The Town does not meet Massachusetts's environmental justice threshold for the "low-income household" variable; the Town's estimated median household income is \$139,137 whereas the estimated County-wide median income is \$95,668 and \$74,167 for the State-wide median income.¹²

PERSONS WITH DISABILITIES

ACS respondents that self-report any of the following six disability types are considered to have a disability and are counted in the estimates: hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and independent living difficulty.¹³ Each census block within Norfolk has 4% to 12% of the population living with some form of disability. As shown on **Figure 7**, the census blocks with the highest percentage of disabled persons are located at the southeastern tip of the Town. The census blocks that have lower to medium percentages of disabled persons encompasses most of the Town's land area.

¹¹ 2010 U.S. Census Environmental Justice Populations, MassGIS.

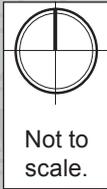
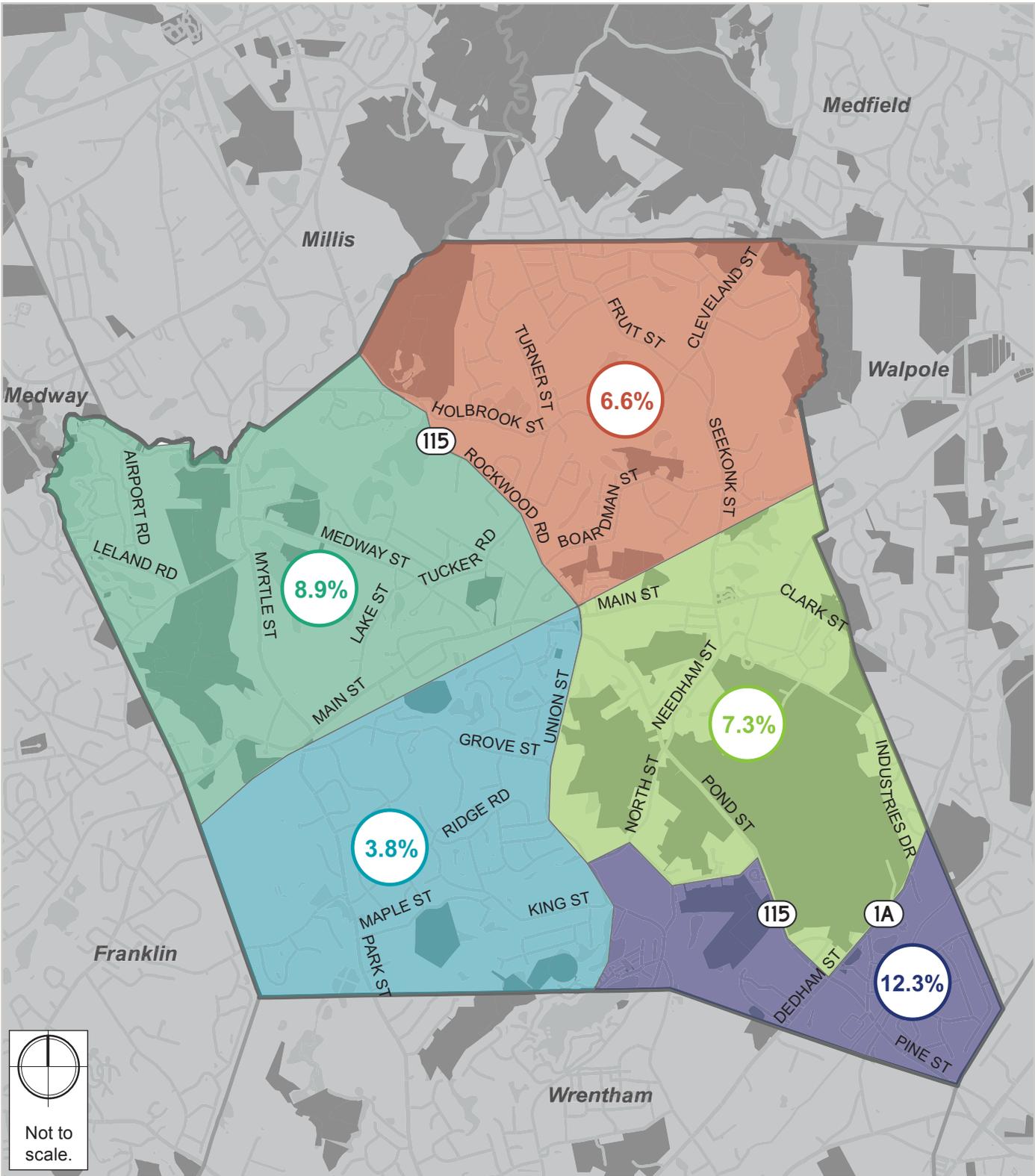
<https://docs.digital.mass.gov/dataset/massgis-data-2010-us-census-environmental-justice-populations>

¹² 2013-2017 American Community Survey 5-Year Estimates, U.S. Census. [Census.gov](https://www.census.gov).

¹³ How Disability Data are Collected from the American Community Survey, U.S. Census. [Census.gov](https://www.census.gov).



Figure 7. *Persons with Disabilities*



Source: ACS 5-Year Estimates



Project Selection

HSH looked at Norfolk comprehensively to propose projects that reflect the needs and priorities of the Town, as well as the results of our analyses. Each tool for measuring existing conditions and pedestrian and bicycle demand contributes to an understanding of the existing conditions in Norfolk. Using these tools to determine potential project locations, we use aerial imagery, field observations, and discussions with Town officials to create a list of potential projects for consideration. Projects range from low-cost, low-design projects like installing ADA-compliant curb ramps on existing crosswalks to projects that may require more design, such as construction of new sidewalks and roundabouts. These projects were discussed with the Town and refined.

Project Prioritization

The prioritization process was completed by assessing each project based on the extent to which it addresses a range of concerns to help with the ranking of projects found in Norfolk's Prioritization Plan. HSH's analysis mirrors MassDOT's prioritization requirements while adding an additional layer of nuance to the prioritization of projects. The remainder of the projects will remain as options for future Complete Streets funding cycles.

For each proposed project site, values reflecting existing and, where appropriate, proposed conditions are recorded to generate a ranked list of projects. To normalize the values, each variable is scaled between zero and ten such that a higher scaled score relates to higher priority. Weights are used to reflect the desired influence of each variable in the prioritization process. Notes explaining the methodology for assigning values to each category are listed below.

NETWORK CONNECTION

Each project is assessed on whether it creates a new connection within the existing pedestrian or bicycle networks, categorized as "Full," "Partial," or "None." A full connection either connects existing acceptable pedestrian or bicycle conditions or extends to usable network. A partial network connection is one that does not connect to existing acceptable pedestrian or bicycle conditions or only closes a network gap in conjunction with other proposed projects. Projects that require phasing over multiple years are considered to provide partial network connections. A categorization of "None" would be used for a project that does not create a new facility, such as sidewalk reconstruction, or one that creates a new link unconnected to the existing sidewalk.



POINTS OF INTEREST

Points of interest including healthcare services, schools, libraries and public services within a convenient walking distance (half mile) and bicycling distance (one mile) were considered and weighted for each project. For example, projects around Norfolk’s Town Center that proposed to increase safety through crosswalk improvements were weighted higher than bicycle route signage along Seekonk Street since Town Center is an area of Norfolk that has the largest number of destinations relative to other areas of Norfolk.

NUMBER OF PEDESTRIAN AND BICYCLE CRASHES ADJACENT TO PROJECT

Crash locations were considered and analyzed with an upmost priority in influencing recommendations for projects to increase safety at key crash locations around Norfolk. Improving the area around Main Street, Route 115, and Union Street – an intersection where a pedestrian accident occurred– was weighted as a priority in increasing pedestrian safety through improvements, such as sidewalk construction along Union Street that starts from Town Center to provide a designated space for pedestrians to walk along and ADA-compliant curb ramps at existing crosswalk landings in Town Center.

EXISTING BICYCLE LEVEL OF COMFORT AND EXISTING PEDESTRIAN NETWORK/LEVEL OF COMFORT

Using HSH’s Bicycle Level of Comfort and Pedestrian Network/Level of Comfort maps, the different projects were assigned either a typical bicycle and pedestrian level of comfort value for corridors to account for corridor length, or, in the case of projects at intersections, the worst condition present is chosen.

PROPOSED CHANGE IN BICYCLE LEVEL OF COMFORT AND PROPOSED CHANGE IN PEDESTRIAN NETWORK/LEVEL OF COMFORT

Projects are assigned a proposed amount of change in level of comfort, ranging from no improvement to high. If the project improvements are minor or the existing level of comfort is already high, the project is considered to have a “low” impact. If project improvements for bicycle and pedestrian comfort are anticipated to be significant, they are considered to have “medium” or “high” impact. For example, a sidewalk construction project where none existed before would generally have a high impact on pedestrian comfort than a sidewalk reconstruction project.

CROSSING IMPROVEMENT

Projects that improved the safety or accessibility of a crossing for pedestrians or cyclists were weighted higher than projects that did not. Examples of crossing improvement projects that can be found in Norfolk’s Prioritization Plan are ADA-compliant curb ramps in Town Center, crosswalks at



the intersection of King Street and Eric/Bridie Lane, curb extensions near the Norfolk Commuter Rail Station, and Rectangular Rapid Flashing Beacons at the midblock crosswalk on Clark Street.

PERCENT OF PERSONS WITH A DISABILITY

Using ACS's 5-Year Estimates, the percentages of persons with a disability within one-quarter mile of a project site were calculated and used to prioritize projects. Areas of the Town that had high proportions of disabled residents were weighted higher than areas of the Town that had fewer disabled residents.

NUMBER OF ACTIVE ADULT NEIGHBORHOODS OR ASSISTED LIVING FACILITIES

The number of active adult neighborhoods or assisted living facilities within a quarter mile of each project corridor or intersection were counted in the prioritization of each project in the Prioritization Plan.

SCHOOL WALK ZONE

The number of schools within a half mile of a project was considered in the prioritization process. A one-half mile buffer was used to capture areas where residents could potentially walk to school if appropriate facilities were available. The following schools were identified and considered in the prioritization: Freeman-Kennedy School, King Phillip Middle School, and H. Olive Day Elementary School.

STAKEHOLDER INPUT

Input from the public meeting, WikiMap, and any email communications with community members were incorporated into the list of proposed projects. To prioritize projects with the most support, projects that received the most attention from the Town (i.e. residents and Town government) and that were located within WikiMap pinpoint clusters were weighted higher compared to areas with less attention or WikiMap activity.



The Prioritization Plan

The prioritization process resulted in a list of project proposals that aim to both improve the Town's existing infrastructure and further the Town's goal of achieving a comprehensive active transportation network that would fully support Complete Streets principles in the future.

Prioritization Plan

The final project list is outlined in the MassDOT Tier 2 document, which will be used by the Town to schedule the construction of Complete Streets for the coming years (**Table 1**). Project types are defined in **Table 2**, the Eligible Project Worksheet, provided by MassDOT. HSH's analysis mirrors MassDOT's prioritization criteria of Environmental Justice, Safety, ADA Accessibility, Pedestrian Mobility, Bicycle Mobility, Transit Operations and Access, Vehicular Operations, and Freight Operations, while adding an additional layer of nuance to the prioritization of projects, as outlined in **Table 3**. Additionally, estimates that are completed for the top 18 projects are completed to the best of the firm's ability at the concept level. While some projects may require low levels of design and can be pursued at the Town's discretion, HSH recommends revisiting all estimates as detailed design is available. HSH also strongly suggests that full design for intersection reconstruction projects be completed before applying for Tier 3 funding to ensure the correct level to MassDOT and additional funding sources are identified and granted.



Table 1. *MassDOT Prioritization Plan*



MassDOT Complete Streets Funding Program Project Prioritization Plan

Municipality: Norfolk
MassDOT District: 5
Date: 3/29/2019
Name/Title: Richard J. McCarthy, Jr./Town Planner

Rank	Project Name	Project Description	EJ Environmental Justice Population	Complete Streets Location		Project Origin and Type Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Complete Streets Needs						Complete Streets Funding Request			Construction Schedule			
				Project Limits	Project Start Location: X,Y Coordinates (MA State Plane meter)			Project End Location: X,Y Coordinates (MA State Plane meter)	Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicular Operations	Freight Operations	Will this project be in Coordination with other Communities? (list, if applicable)	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)
1	Town Center Pedestrian Improvements: ADA-Compliant Curb Ramps	To improve walking conditions around Town Center and allow safe movement for all users, including those with wheelchairs, canes, and strollers, pedestrian improvements will be implemented near Town Hall and Walgreens. Existing crosswalks will be supplemented with ADA-compliant curb ramps at the following locations: Main Street and Independence Drive intersection (3 crosswalks), Independence Drive and Liberty Lane (2 crosswalks), Town Hall driveways (2 crosswalks), Norfolk Public Library driveway off Liberty Lane (1 crosswalk), Liberty Street and Union Street intersection (2 crosswalks), and Main Street and Rockwood Road (Route 115) intersection (4 crosswalks).	No	1 Liberty Lane	214387, 874292	CS Needs Assessment	P2, P3		x							\$ 123,000	\$ 123,000	N/A	6 months	September 2019
11	Speed Feedback Signs at 41 Boardman Street and 67 Boardman Street	The existing flashing beacons and 20 MPH posted limit signs will be supplemented with new radar speed feedback signs at 41 Boardman Street and 67 Boardman Street to reduce and provide awareness to driver speed in the Freeman-Kennedy School zone. (https://www.radarsign.com/traffic-calming-applications/school-zones/)	No	41 Boardman Street, 67 Boardman Street	214401, 874992	214763, 875135	CS Needs Assessment	S5	x					x		\$ 33,600	\$ 33,600	N/A	3 months	September 2019
32	King Street and Eric Road/Bridle Lane Intersection Improvements	There are stop signs on Eric Road/Bridle Lane, but not on King Street. To improve this 3-way intersection, a STOP sign and line will be installed and painted on King Street. Two crosswalks with ADA-compliant curb ramps will be constructed across King Street and Bridle Lane.	No	King Street and Eric Road/Bridle Lane Intersection	212773, 872740		CS Needs Assessment	P2, P3, P9	x	x	x				x	\$ 19,000	\$ 19,000	N/A	3 months	September 2019
8	Designate Seekonk Street, Needham Street, and North Street as Bicycle Routes	To provide bicycling connections from North Norfolk to South Norfolk, Seekonk Street, Needham Street, and North Street will be designated as bicycle routes. To indicate that these corridors are bicycle routes, D11-1 signs at key points along Seekonk Street, Needham Street, and North Street corridors will be installed (approximately 4.5 miles)	No	Seekonk Street, Needham Street, North Street Corridors	216097, 877656	216099, 871130	CS Needs Assessment	B9				x				\$ 2,700	\$ 2,700	N/A	3 months	September 2019
35	Transform Miller Street to a Yield Roadway corridor, from Franklin Town Line to Myrtle Street	Share the Road (W16-1P) signage on Miller Street, adjacent to Silver Fox Road, Leland Road, and 7 Miller Street will be installed. The W16-1P signs will be supplemented with speed feedback signs at key points along the corridor to increase the visibility of pedestrians and cyclists using Miller Street and awareness of driving speeds.	No	Miller Street, from Myrtle Street to Franklin Town Line	210425, 874079	211538, 874947	CS Needs Assessment	S5, S7	x	x				x		\$ 21,100	\$ 21,100	N/A	3 months	September 2019
31	Medway Street and Myrtle Street Intersection Improvements	The STOP sign on Medway Street (adjacent to 105 Medway Street) will be moved 40 feet forward and a STOP line will be painted. Tree removal will be done at this intersection to improve pedestrian and bicyclist sight distances.	No	Medway Street and Myrtle Street Intersection	211462, 875251		CS Needs Assessment	S2	x					x		\$ 300	\$ 300	N/A	3 months	September 2020
6	Sidewalk Construction along Medway Branch, from Tucker Road to Transfer Station entrance	To complete the sidewalk network along Medway Branch, a new sidewalk on the even side from Tucker Road to the Transfer Station entrance (approximately 1,500 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Tucker Road and the Council On Aging driveway entrance.	No	Medway Branch, from Tucker Road to Transfer Station entrance	213638, 874882	213203, 875150	CS Needs Assessment	P2, P3, P5, P9		x	x					\$ 486,000	\$ 400,000	\$86,000; Funding Source: TBD	9 months	September 2020
16	Needham Street, North Street, and Pond Street (Route 115) Roundabout	A roundabout where Needham Street, North Street, and Pond Street (Route 115) meet will be constructed to improve circulation and safety for all road users at this intersection. The roundabout will be supplemented with Circular Intersection (W2-6, W16-12p) and Yield (R1-2) warning signage.	No	Needham Street, North Street, and Pond Street (Route 115) Intersection	215193, 873213		CS Needs Assessment	S18	x						x	\$ 930,000	\$ 400,000	\$530,000; Funding Source: TBD	9 months	September 2021
21	Sidewalk Construction along Lawrence Street, from Bretts Farm Road to Bush Pond Bridge (Western End)	A new sidewalk on the eastbound side of Lawrence Street, from Bretts Farm Road to the Bush Pond Bridge (western end) (approximately 0.5 mile) will be constructed. Current roadway conditions for Lawrence Street include 24 ft of existing roadway width and no shoulders. Crosswalks with ADA-compliant curb ramps will be installed across Eagle Drive and Cranberry Meadow Road.	No	Lawrence Street, from Bretts Farm Road to Bush Pond Bridge	211640, 871470	212163, 871816	CS Needs Assessment	P2, P3, P5, P9		x	x					\$ 727,000	\$ 400,000	\$327,000; Funding Source: TBD	9 months	September 2022
20	Sidewalk Construction along Holbrook Street, between Route 115 and the Millis Town Line	A new sidewalk on the eastbound side of Holbrook Street, from Route 115 to the Millis Town Line will be constructed (approximately 0.4 mile). New crosswalks with ADA-compliant curb ramps will be installed across the following locations: Margaux Way, Grey Birch Road, and the 5 residential development driveway entrances between 99-71 Holbrook Street. Existing ROW constraints. Existing roadway conditions include 16-18 ft roadway width, 2 ft shoulder width, and 40 ft ROW.	No	Holbrook Street, between Route 115 and the Millis Town Line	212122, 876376	212768, 876373	CS Needs Assessment	P2, P3, P5, P9		x	x					\$ 924,000	\$ 400,000	\$524,000; Funding Source: TBD	12 months	September 2023
10	Sidewalk Construction along Route 115, from Holbrook Street Extension to 96 Rockwood Road (Route 115)	To connect to the existing sidewalk that starts at 96 Rockwood Road, a new sidewalk on the northbound side of Route 115 will be constructed, from Holbrook Street Extension (adjacent to Nichols Way) to 96 Rockwood Road (approximately 0.5 mile). Since there are no roadway intersection breaks, new crosswalks with ADA-compliant curb ramps are not necessary for this segment. Current roadway conditions for this portion of Route 115: 4 ft (total) of shoulders on both sides and 24 ft of existing roadway width.	No	Rockwood Road (Route 115), from Holbrook Street Extension to 96 Rockwood Road (Route 115)	213030, 876283	213450, 876762	CS Needs Assessment	P5				x				\$ 797,000	\$ 400,000	\$397,000; Funding Source: TBD	9 months	September 2024



Table 1. *MassDOT Prioritization Plan Continued...*



MassDOT Complete Streets Funding Program Project Prioritization Plan

Municipality: Norfolk
MassDOT District: 5
Date: 3/29/2019
Name/Title: Richard J. McCarthy, Jr./Town Planner

Rank	Project Name	Project Description	EJ Environmental Justice Population	Complete Streets Location		Project Origin and Type Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Complete Streets Needs						Will this project be in Coordination with other Communities? (list, if applicable)	Complete Streets Funding Request			Construction Schedule				
				Project Start Location: X,Y Coordinates (MA State Plane meter)	Project End Location: X,Y Coordinates (MA State Plane meter)			Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicular Operations		Freight Operations	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)	Desired Construction Start Date (month/year)		
7	Sidewalk Reconstruction along Route 115, from 96 Rockwood Road to Boardman Street	The existing sidewalk on the northbound side of Route 115, from 96 Rockwood Road to Boardman Street (approximately 0.7 mile) will be reconstructed. Crosswalks with ADA-compliant curb ramps will be installed across: Fleetwood Drive, Cleveland Street, and Boardman Street.	No	Route 115, from 96 Rockwood Road to Boardman Street	213450, 876762	214141, 874816	CS Needs Assessment	P1, P2, P3, P9			x	x					No	\$ 1,375,000	\$ 400,000	\$975,000; Funding Source: TBD	6 months	September 2025
2	Sidewalk Construction along Union Street, from Liberty Lane/North Street to Castle Road	To connect to the existing sidewalk network in Town Center to South Norfolk, a new sidewalk on one side of Union Street, from Liberty Lane/North Street to Castle Road (potentially southbound side) (approximately 1,500 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Castle Road. Existing ROW constraints. Current roadway conditions for Union Street include 20 ft of existing roadway width, 2-ft shoulder (right side), and 30 ft of available ROW width.	No	Union Street, from Liberty Lane/North Street to Castle Road	214474, 874216	214363, 8738742	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 518,000	\$ 400,000	\$118,000; Funding Source: TBD	12 months	September 2026
3	Sidewalk Construction along Union Street, from Castle Road to Grove Street	To connect to the existing sidewalk network in Town Center to South Norfolk, a new sidewalk on one side of Union Street, from Castle Road to Grove Street (potentially southbound side) (approximately 2,300 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Grove Street. Existing ROW constraints. Current roadway conditions for Union Street include 20 ft of existing roadway width, 2-ft shoulder (right side), and 30 ft of available ROW width.	No	Union Street, from Castle Road to Grove Street	214363, 8738742	214198, 873053	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 1,001,000	\$ 400,000	\$601,000; Funding Source: TBD	12 months	September 2027
12	Sidewalk Construction along Union Street, from Grove Street to Pheasant Hill Road	To connect to the existing sidewalk network in Town Center to South Norfolk, a new sidewalk on one side of Union Street, from Grove Street to Pheasant Hill Road (potentially southbound side) (approximately 1,600 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across: Pheasant Hill Road and Quail Run Road. Existing ROW constraints. Current roadway conditions for Union Street include 20 ft of existing roadway width, 2-ft shoulder (right side), and 30 ft of available ROW width.	No	Union Street, from Grove Street to Pheasant Hill Road	214198, 873053	214179, 872588	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 549,000	\$ 400,000	\$149,000; Funding Source: TBD	12 months	September 2028
27	Sidewalk Construction along Union Street, from Pheasant Hill Road to Diamond Street	To connect to the existing sidewalk network in Town Center to South Norfolk, a new sidewalk on one side of Union Street, from Pheasant Hill Road to Diamond Street (potentially southbound side) (approximately 1,700 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Diamond Street. Existing ROW constraints. Current roadway conditions for Union Street include 20 ft of existing roadway width, 2-ft shoulder (right side), and 30 ft of available ROW width.	No	Union Street, from Pheasant Hill Road to Diamond Street	214179, 872588	214524, 872206	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 548,000	\$ 400,000	\$148,000; Funding Source: TBD	9 months	September 2029
28	Sidewalk Construction along Union Street, from Diamond Street to King Street	To connect to the existing sidewalk network in Town Center to South Norfolk, a new sidewalk on one side of Union Street, from Diamond Street to King Street (potentially southbound side) (approximately 1,200 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across King Street. Existing ROW constraints. Current roadway conditions for Union Street include 20 ft of existing roadway width, 2-ft shoulder (right side), and 30 ft of available ROW width.	No	Union Street, from Diamond Street to King Street	214524, 872206	214702, 871858	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 423,000	\$ 400,000	\$23,000; Funding Source: TBD	12 months	September 2030
9	Sidewalk Construction along Main Street, from Sweetland Farm Road (Eastern End) to Hanover Street	To connect to the existing sidewalk network that leads to Town Center along Main Street, a new sidewalk on the eastbound side, from Sweetland Farm Road (eastern end) to Hanover Street (approximately 1.2 miles) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across George Street and Park Street. Existing ROW constraints. Current roadway conditions include: 24 ft. of roadway width and 3 ft. shoulders.	No	Main Street, from Sweetland Farm Road to Hanover Street	213235, 874160	211697, 873260	CS Needs Assessment	P2, P3, P5, P9			x	x					No	\$ 2,527,000	\$ 400,000	\$2,127,000; Funding Source: TBD	9 months	September 2031
13	Sidewalk Construction along Park Street, from Main Street to Eric Road (A)	A sidewalk on the northbound side of Park Street between Main Street and Eric Road (approximately 2,778 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Park Street (adjacent to Main Street), Grove Street, Analore Circle (2), Park Street (adjacent to Timberline Drive), and Eric Road. Existing roadway conditions for Park Street include: 26-ft existing roadway and 3-ft right shoulder widths.	No	Park Street, from Main Street to Eric Road	212001, 873240	212301, 872470	CS Needs Assessment	P2, P3, P5, P9			x	x					No					
14	Sidewalk Construction along Park Street, from Hampton Road to Maple Street (C)	A new sidewalk the northbound side of Park Street between Hampton Road to Maple Street (approximately 1,021 ft) will be constructed. A crosswalk with ADA-compliant curb ramps will be installed across Maple St. Existing roadway conditions for Park Street include: 26-ft existing roadway and 3-ft right shoulder widths.	No	Park Street, from Hampton Road to Maple Street	212424, 871847	212497, 871544	CS Needs Assessment	P2, P3, P5, P9			x	x					No					
15	Sidewalk Construction along Park Street, from Maple Street to Berry Lane (D)	A new sidewalk on the northbound side of Park Street between Maple Street to Berry Lane (approximately 993 ft) will be constructed. A crosswalk with ADA-compliant curb ramps will be installed across Berry Lane. Existing roadway conditions for Park Street include: 26-ft existing roadway and 3-ft right shoulder widths.	No	Park Street, from Maple Street to Berry Lane	212497, 871544	212552, 871236	CS Needs Assessment	P2, P3, P5, P9			x	x					No					



Table 1. *MassDOT Prioritization Plan Continued...*



MassDOT Complete Streets Funding Program Project Prioritization Plan

Municipality: Norfolk
MassDOT District: 5
Date: 3/29/2019
Name/Title: Richard J. McCarthy, Jr./Town Planner

Rank	Project Name	Project Description	EJ Environmental Justice Population	Complete Streets Location		Project Origin and Type Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Complete Streets Needs						Will this project be in Coordination with other Communities? (list, if applicable)	Complete Streets Funding Request			Construction Schedule	
				Project Limits	Project Start Location: X,Y Coordinates (MA State Plane meter)			Project End Location: X,Y Coordinates (MA State Plane meter)	Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access		Vehicle Operations	Freight Operations	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)
26	Sidewalk Construction along Park Street, from Eric Road to Hampton Road (B)	A new sidewalk on the northbound side of Park Street between Eric Road and Hampton Road (approximately 2,054 ft) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Park Street (adjacent to Bush Pond Road), Park Street (adjacent to Lawrence Street), and Hampton Road. Existing roadway conditions for Park Street include: 26-ft existing roadway and 3-ft right shoulder widths.	No	Park Street, from Eric Road to Hampton Road	212301, 872471	212424, 871846	CS Needs Assessment	P2, P3, P5, P9		x	x								
34	Sidewalk Construction along Maple Street, from Warren Drive to Park Street	To complete the existing sidewalk network along Maple Street, a new sidewalk on the eastbound side (odd side), between Warren Drive to Park Street (approximately 1,519 ft) will be constructed. A crosswalk with ADA-compliant curb ramps will be installed across Warren Street. Existing ROW constraints. Current roadway conditions for Maple Street include 16 ft of existing roadway width and 30 ft of available ROW width.	No	Maple Street, from Warren Drive to Park Street	212946, 871671	212498, 871539	CS Needs Assessment	P2, P3, P5, P9		x	x								
18	Pine Street (Route 115) and Everett Street Roundabout	A roundabout where Everett Street and Route 115 (Pine Street) meet will be constructed to improve circulation and safety for all road users at this intersection. The roundabout will be supplemented with Circular Intersection (W2-6, W16-12p) and Yield (R1-2) warning signage. Since this intersection is heavily used by bicyclists and pedestrians moving between Wrentham and Walpole, special attention will be paid to the accessibility, visibility, and overall safety of crossings at this intersection.	No	Pine Street (Route 115) and Everett Street Intersection	217103, 870742		CS Needs Assessment	S18		x			x						
24	Pine Street (Route 115) and Everett Street Speed Feedback Signage	New radar speed feedback signs will be implemented along Pine Street (Route 115) entering the intersection of Pine Street (Route 115) and Everett Street to reduce and provide awareness to driver speed.	No	Pine Street (Route 115) and Everett Street Intersection	217103, 870742		CS Needs Assessment	S6		x				x					
4	Curb Extension, Flashing Pedestrian Crossing Sign, and ADA-Compliant Curb Ramps near the Norfolk Commuter Rail Station	Many residents identified issues around the Commuter Rail Station, near the Town Center. To improve conditions, such as visibility, for pedestrians traveling to and from the Commuter Rail Station, the curb that is adjacent to KMK Cleaners will be bumped out to bring pedestrians closer to driver-view and an ADA-compliant curb ramp will supplement it. The bump out will be supplemented with a set of flashing pedestrian crossing signs. ADA-compliant curb ramps on 4 adjacent existing crosswalk landings in this area will be constructed.	No	12 Rockwood Road	214449, 874459		CS Needs Assessment	P2, P3, P8, P12		x	x	x		x					
5	Medway Branch Shared Use Path	A shared use path will be constructed along the former Medway Branch Rail Line, that starts from Dean Street and ends right before Carlson Circle (approximately 1,989 ft).	No	Former Medway Branch Rail Line, from Dean Street to Carlson Circle	211686, 876029	214198, 874419	CS Needs Assessment	B10			x	x							
17	Sidewalk Construction along Boardman Street, from 76 Boardman Street to Seekonk Street	To connect to the existing sidewalk network that leads to the Freeman-Kennedy School, a new sidewalk on the north eastbound side of Boardman Street, from 76 Boardman Street to Seekonk Street (approximately 0.9 mile) will be constructed. Crosswalks with ADA-compliant curb ramps will be installed across Old Mill Road and Standish Road. Existing ROW constraints. Current roadway conditions for Boardman Street include 16 ft of existing roadway width, 2 ft shoulder width, and 35 ft ROW.	No	Boardman Street, from 76 Boardman Street to Seekonk Street	214732, 875053	215716, 875548	CS Needs Assessment	P2, P3, P5, P9		x	x								
19	Sidewalk Reconstruction along North Street (Route 115), from Kilpatrick Way to Union Street	To make this segment of North Street (Route 115) ADA-accessible, it will be widened from 4-ft to 6-ft (approximately 2,900 ft). This sidewalk reconstruction will include reducing curb cut height at specific locations and fixing "rough spots" on the pavement that make it dangerous for residents with disabilities to walk through. Current roadway conditions include 26-ft roadway and 4-ft sidewalk widths.	No	North Street (Route 115), from Kilpatrick Way to Union Street	215062, 873570	214486, 874217	CS Needs Assessment	P1, P10		x	x								
22	Sidewalk Construction along Main Street, from Needham/Seekonk Street to Walpole Town Line	To connect to the existing sidewalk network that leads to Town Center along Main Street, a new sidewalk on the westbound side, from Needham/Seekonk Street to Walpole Town Line (approximately 4,324 ft) will be constructed. ADA-compliant curb ramps on the following 2 existing crosswalk landings will be installed: 1. across Seekonk Street, 2. across Clark Street (adjacent to MCI facility). Current roadway conditions include: 24 ft. of roadway width and 2-3 ft. shoulders.	No	Main Street, from Needham/Seekonk Street to Walpole Town Line	215648, 874463	216839, 874201	CS Needs Assessment	P2, P3, P5, P9		x	x								
23	Bicycle Lanes along Main Street, from Olive Day School Entrance to Rockwood Road (Route 115)	To accommodate bicycling to and from Town Center and the Olive Day School, 6-ft bicycle lanes will be installed on both sides of Main Street from 231 Main Street to the Rockwood Road/Main Street intersection (approximately 1,992 ft).	No	Main Street, from Olive Day School Entrance to Rockwood Road (Route 115)	213698, 874275	214435, 874374	CS Needs Assessment	B2				x							
25	Pondville Shared Use Path	A shared use path will be constructed along the former Pondville Railway, that starts northeast from the Wrentham Town Border to the Walpole Town Border (approximately 765 ft).	No	Former Pondville Railway, from Wrentham Town Border to Walpole Town Border	216837, 870583	217744, 871906	CS Needs Assessment	B10			x	x							



Table 2. *Complete Streets Eligible Project Worksheet*

If a project or element does not appear in this list it may still be eligible for funding. The applicant should provide justification for the decision based upon the classification of comparable projects.

S - Traffic & Safety	B - Bicycle Facilities	P - Pedestrian Facilities	T - Transit Facilities
<p>S1. Pavement markings or signage that provides a new separate accommodation for bicycle, pedestrian or transit modes</p> <p>S2. Removal of protruding objects (pedestrian path of travel, bicycle, vehicular or transit facility)</p> <p>S3. Pedestrian signal & timing (minor updates)</p> <p>S4. Changing pedestrian signal timing (i.e., lead pedestrian interval)</p> <p>S5. Radar speed feedback ("Your Speed") signs</p> <p>S6. Reducing corner radii to lower vehicle speeds and/or decrease pedestrian crossing distances</p> <p>S7. Additional regulatory signing (for existing regulations)</p> <p>S8. Speed humps/speed tables</p> <p>S9. Street lighting</p> <p>S10. Road diets</p> <p>S11. Speed attenuation devices</p> <p>S12. Roadway resurfacing or micro surfacing if restriping for new bicycle lanes</p> <p>S13. Intersection reconstruction – reducing complexity and crossing distance</p> <p>S14. New curbing or edging on uncurbed streets.</p> <p>S15. Addition of or widening of shoulders</p> <p>S16. Intersection signalization (major updates/upgrades & new Installation)</p> <p>S17. Traffic calming measures</p> <p>S18. Roundabouts</p> <p>S0. Traffic & Safety - Other</p>	<p>B1. Improvement of shared use paths (non-safety related)</p> <p>B2. Designated bicycle lanes</p> <p>B3. Bicycle parking fixtures and/or shelters at transit and other locations</p> <p>B4. On-street bicycle parking</p> <p>B5. Provide bicycle-safe drain grates and other hardware</p> <p>B6. Bicycle boulevards</p> <p>B7. Bicycle wayfinding signs</p> <p>B8. Shared lane markings (sharrows)</p> <p>B9. Bike route signs</p> <p>B10. New shared use paths</p> <p>B11. Designated Separated Bicycle Lane</p> <p>B12. Elimination of hazardous conditions on shared use paths</p> <p>B13. Intersection treatments (bicycle signals, bicycle detection, bike lane extensions, turn boxes)</p> <p>B0. Bicycle Facilities - Other</p>	<p>P1. Sidewalk repairs (tree roots, uplifted panels, etc.)</p> <p>P2. Providing ADA/AAB compliant curb ramps</p> <p>P3. Detectable warning surfaces</p> <p>P4. Pedestrian wayfinding signs</p> <p>P5. Providing new sidewalks</p> <p>P6. Providing pedestrian buffer zones</p> <p>P7. Pedestrian Refuge Islands</p> <p>P8. Curb extensions at pedestrian crossings</p> <p>P9. Crosswalks</p> <p>P10. Widening existing sidewalks</p> <p>P11. Accessible pedestrian signals</p> <p>P12. New or improved crossing treatments at intersections, midblock, etc. including RRFB's and HAWK signals</p> <p>P13. New pedestrian accommodations at existing traffic signals</p> <p>P14. Interim public plazas</p> <p>P15. Traffic re-routing to create pedestrian zones</p> <p>P16. Providing medians with ADA/AAB-compliant design</p> <p>P0. Pedestrian Facilities - Other</p>	<p>T1. Improving transit connections for pedestrians, including: ramps, providing and/or moving crosswalks, signing</p> <p>T2. Improving transit connections for bicyclists, including: providing secure bicycle parking, signing</p> <p>T3. Transit shelter</p> <p>T4. Transit signal prioritization</p> <p>T5. Bus pull-out areas</p> <p>T6. Railroad grade crossings improvements (signs, flange way fill, etc.)</p> <p>T7. Transit contra-flow lanes</p> <p>T8. Park-n-ride facilities</p> <p>T9. Transit-only lanes</p> <p>T0. Transit Facilities - Other</p>

Source: Accommodating Bicycle and Pedestrian Travel: A Recommended Approach; United States Department of Transportation Federal Highway Administration, May 7, 2012.



Table 3. Complete Streets Needs Comparison Table: MassDOT vs. HSH

MassDOT	Howard Stein Hudson
Environmental Justice Populations	Environmental Justice Factors
	Persons with Disabilities
Safety	Pedestrian and Bicycle Crashes
ADA Accessibility	ADA Accessibility
Pedestrian Mobility	Pedestrian Latent Demand
	Pedestrian Level of Comfort
	Proposed Change in Pedestrian Level of Comfort
Bicycle Mobility	Bicycle Latent Demand
	Bicycle Level of Comfort
	Proposed Change in Bicycle Level of Comfort
Transit Mobility	Bus Ridership

The prioritization criteria outlined by MassDOT are expanded upon by Howard Stein Hudson to provide a more nuanced analysis of proposed projects. Table 3 outlines the criteria assessed by Howard Stein Hudson as compared to MassDOT.



Project Descriptions

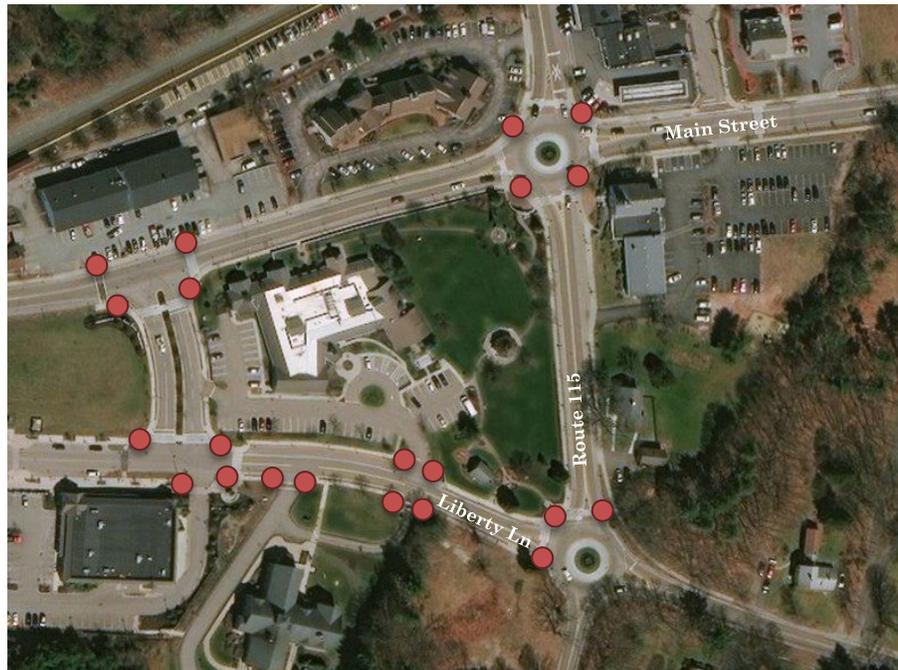
The following describes the major project types that are included in the Prioritization Plan, including details on specific projects that are scheduled for the first year of the plan.

FIRST-YEAR PROJECT TYPES

Norfolk's Prioritization Plan is comprehensive in terms of the types of installations that are recommended under the Complete Streets Funding Program. All project types that are recommended were carefully considered and evaluated for feasibility, adjacency to vulnerable populations it would serve, deficient conditions in the locations that the project would serve, and resident and Town stakeholder needs. The projects that are described in the next section are improvements that have been planned for submission in the upcoming May 2019 Tier 3 deadline.

TOWN CENTER PEDESTRIAN IMPROVEMENTS: ADA-COMPLIANT CURB RAMPS

This Complete Streets project in Town Center is an improvement that will benefit pedestrians because of its improvement to ADA-accessibility on crosswalk landings. Infrastructure that will be improved through this project include existing crosswalk landings at the following locations: Main Street and Independence Drive intersection, Independence Drive and Liberty Lane intersection, Town Hall driveways, Norfolk Public Library



A view of Main Street and Route 115 in Town Center. Project locations are highlighted in red circles above. Photo: Bing Maps

driveway off Liberty Lane, Liberty Street and Union Street intersection, and Main Street and Route 115 (Rockwood Road) intersection. Bringing these crosswalk landings into ADA-compliance will include installing detectable warning surfaces, a critical component to curb ramps because they alert people with vision impairments of their approach to street crossings and hazardous drop-offs. Without ADA-compliant curb ramps that accommodate disabled users, many disabled persons would



be prevented from getting around time safely and comfortably. This retrofit project, intended to make walking safer and accessible, in Norfolk’s Town Center will apply for Tier 3 funding in 2019 and is estimated to cost \$123,000.

Norfolk’s Town Center is located at the center of the Town and is the headquarters of Norfolk’s public administration and government departments. It is an important landmark because it is where residents can go to take care of local issues and share concerns regarding public services provided by the Town government. Norfolk Town Center is also at the center of many of the Town’s restaurants, businesses and a MBTA Commuter Rail Station that sees over 3,000 people per day using it for their commute to and from Boston. Restaurants are located along Main Street, the Federated Church of Norfolk is located at the intersection of Main Street and Route 115 (Rockwood Road), the MBTA commuter rail station is located on Route 115/Rockwood Road (approximately 250 feet from the Main Street and Route 115 (Rockwood Road) intersection, while Walgreens and the Norfolk Public Library are located directly adjacent to Town Hall. Considering there are elders and people with disabilities town-wide¹⁴ that use many of the services in Town Center, providing ADA-compliant access to and within Town Center is a priority for Norfolk.

SPEED FEEDBACK SIGNS IN THE FREEMAN-KENNEDY SCHOOL ZONE



This speed feedback signage project in the Freeman-Kennedy School Zone is an improvement that will benefit all users of the road. Speed feedback signage systems are traffic control devices that are programmed to provide a message to drivers exceeding a certain speed threshold. They are intended to provide awareness and counteract undesirable behaviors, such as speeding, so that pedestrians and bicyclists can feel safe using the road with vehicles. These speed feedback signs, likely to be located at 41 Boardman

A view of Boardman Street and the Freeman-Kennedy School. Project locations are highlighted in red circles above. Photo: Bing Maps

¹⁴ Refer to **Figure 7**

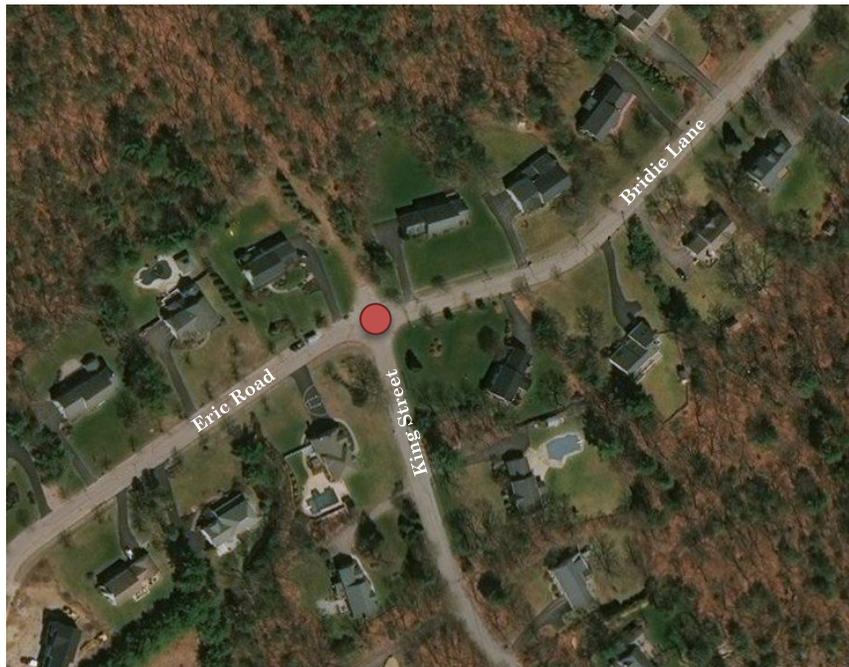


Street and 67 Boardman Street, will apply for Tier 3 funding in 2019 and is estimated to cost \$33,600.

The Freeman-Kennedy School is located north of Main Street and along Boardman Street. The area is surrounded by residential single-family homes and the Providence Baptiste Church directly adjacent to it. Although the normal posted speed limit for Boardman Street is 25 mph (and 20 mph during school hours), the road's straight configuration gives drivers an easier time to accelerate at higher speeds, making it unsafe for parents and children walking to and from the Freeman-Kennedy School and the Providence Baptist Church. Additionally, Boardman Street has incomplete sidewalks that force pedestrians to also use the roadway. When vehicles are not aware of how fast they are going and speed up to relatively dangerous speeds, the probability of fatal collision accidents between drivers and pedestrians using the roadway increases significantly. Speed feedback signs were chosen to mitigate this problem because they are a moderately effective intervention that help to address driver speeding and are low-cost and low-scale, making it feasible for the Town to pursue in their first year.

KING STREET AND ERIC ROAD/BRIDIE LANE INTERSECTION IMPROVEMENTS

The intersection improvement project at King Street and Eric Road/Bridie Lane will benefit all users of the road by decreasing vehicle, pedestrian, and bicycle conflicts. Specific improvements that are included in this project are STOP sign and line relocation and two new crosswalks with ADA-compliant curb ramps. Intersections are important elements in a road network; however, many potential conflicts can result when different road users are coming from different locations and moving at



A view of King Street and Eric Road/Bridie Lane. Project locations are highlighted in red circles above. Photo: Bing Maps

different speeds. Although most of the intersections in Norfolk are satisfactory, there are a few that require reconfiguration due to lack of visibility, such as King Street and Eric Road/Bridie Lane. This



retrofit project, intended to make biking, driving, and walking safer and accessible, will apply for Tier 3 funding in 2019 and is estimated to cost \$19,000.

King Street and Eric Road/Bridie Lane is an unsignalized intersection that is in a residential neighborhood. The intersection has a three-way stop with no existing crosswalks. Residents have said that this area is relatively difficult to maneuver because of poor sight distances. The STOP sign and line relocation and two crosswalks with ADA-compliant curb ramps would essentially help slow turning vehicles and improve pedestrian and bicyclist sight distances. Since this intersection is adjacent to single-family homes, children, and communities with a high percentage of disabled persons, improving the conditions of it to be safer is critical.

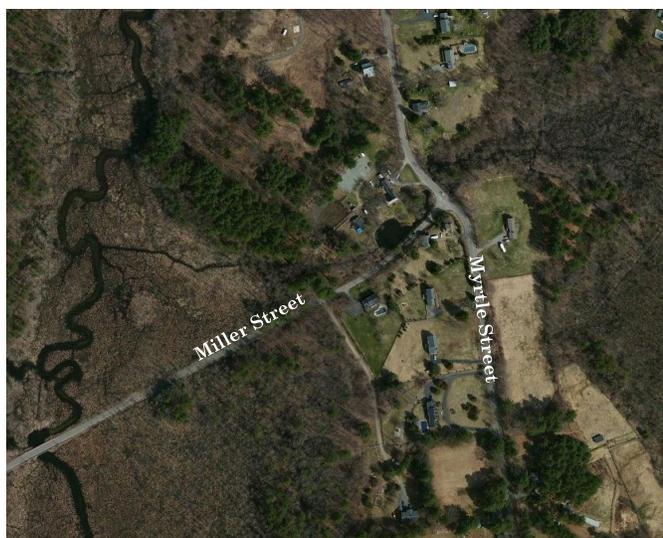
DESIGNATE SEEKONK STREET, NEEDHAM STREET, AND NORTH STREET AS BICYCLE ROUTES

Bicycle route designation along Seekonk Street, Needham Street, and North Street will benefit all bicyclists traveling along all three corridors. Bicycle route designation is a part of the bicycle wayfinding system that consists of comprehensive signing to guide bicyclists to their destinations along preferred bicycle routes. The purpose of route designations is to indicate that bicyclists are on a designated bikeway and to also make motorists aware of the bicycle route. This low-cost, low-scale project will apply for Tier 3 funding in 2019 and is estimated to cost \$2,700.

During the public information meeting, residents expressed the need to designate Seekonk Street, Needham Street, and North Street as bicycle routes because they are heavily used by experienced cyclists during warm months. Norfolk does not have any bicycle facilities within the Town so the cyclists that do ride within Town, to get to adjacent municipalities, like to use these three corridors for bicycle travel. Although bicycle route designation along these three corridors will not provide a designated, exclusive space for people to ride their bicycles on, they will provide a small level of awareness for drivers by letting them know to share the road.

TRANSFORMING MILLER STREET TO A YIELD ROADWAY CORRIDOR

Designating Miller Street as a Yield roadway corridor will benefit all users of the road. It allows vehicles, bicyclists, and pedestrians to share the same narrow space



A view of Miller Street. Photo: Bing Maps



on a low-volume and low-speed street.¹⁵ Miller Street's Yield roadway designation consists of low-cost and low-scale improvements, such as "Share the Road" and speed feedback signs. These two types of installations will help pedestrian, bicyclists, and vehicles to travel simultaneously on the same slow-speed corridor. Miller Street's "Share the Road" and speed feedback signs will apply for Tier 3 funding and is estimated to cost \$21,100.

Miller Street is a local residential street in the northwest portion of Norfolk that is adjacent to single-family homes and Kingsbury Pond. Because the roadway width along Miller Street is only 18 feet in width, sidewalks are not feasible without having to take some right-of-way from adjacent residential homes. The next best alternative that would be feasible for the Town is to provide "Share the Road" and speed feedback signs to provide awareness to drivers of residents walking and bicycling along the same space.

SECOND YEAR PROJECTS AND BEYOND

SIDEWALK CONSTRUCTION AND RECONSTRUCTION

Sidewalk construction projects are proposed in specific areas of the Town that have been prioritized by residents and Town officials and have shown high pedestrian latent demand¹⁶. Sections of the Town where sidewalks are absent and would significantly benefit from the added infrastructure due to important destinations (e.g. schools, public service buildings, and high commercial uses) are also considered. Having safe and accessible sidewalk facilities will increase pedestrian safety, while increasing routing options to a variety of destinations. Since ADA-compliant curb ramps and crosswalks are also important elements of an accessible and continuous pedestrian network, they are included to supplement new sidewalk construction in Norfolk. Norfolk's Prioritization Plan includes sidewalk improvement projects along specific corridors, such as Medway Branch, Main Street, Lawrence Street, Holbrook Street, Route 115, Union Street, Park Street, North Street, and Everett Street.

INTERSECTION IMPROVEMENTS

Intersections can be particularly dangerous for pedestrians, persons with disabilities, and bicyclists as they must enter the roadway and are exposed to turning vehicles. Intersections often allow vehicles to make turns at undesirably high speeds, making it less likely for motorists to yield to pedestrians waiting to cross an intersection. Intersection improvements such as roundabouts and wayfinding signage can improve intersection safety for all users, particularly pedestrians, persons

¹⁵ **Yield Roadway**, FHWA Rural Design Guide. <http://ruraldesignguide.com/mixed-traffic/yield-roadway>

¹⁶ Refer to **Figure 5**



with disabilities, and bicyclists. Intersection improvement work typically includes reconstructing the intersection with new asphalt pavement, new curbs, new curb ramps and crosswalk markings, utility pole relocations, and new signage. Norfolk's Prioritization Plan includes intersection projects that range in scale and cost. The Town's list of Complete Streets intersection projects include a roundabout at the intersection of Needham Street/North Street/Pond Street (Route 115), where safety for drivers, pedestrians, and bicyclists is a concern, as well as stop sign relocation with new crosswalks and ADA-compliant curb ramps for the intersections of Needham Street/Seekonk Street/Main Street and Medway Street/Myrtle Street.

SHARED USE PATHS



Ashwilticook Rail Trail, a shared use path in Lanesborough, Massachusetts. Photo: HSH

Shared use paths are separated facilities that can be used by both pedestrians and bicyclists. Because these facilities are separated from roadway traffic, they are considered to have a high level of comfort and would provide an attractive and safe option for all users. Shared use paths can be used for recreation; however, they can be most effective in reducing automobile dependence if connections are made between points of interest. Unpaved

crush stone share-use paths typically cost roughly \$120,000 per mile. Other costs can include clearing and grubbing the path and tree removal, if necessary. Some drainage elements such as drainage ditches or bioswales, may be needed depending on topography. Path construction costs about \$450,000 per mile if paved with asphalt, depending on path width and pavement depth.

Shared use path connections are proposed at two locations within Norfolk: 1) former Pondville Railway and 2) former Medway Branch Rail Line. The former Pondville Railway is within the southeast portion of the Town and would connect Norfolk residents to Wrentham and Walpole. The former Medway Branch Line is located at the northwest portion of the Town and would connect residents to Millis and Norfolk's Main Street. The intent of both shared use paths is to provide all Norfolk residents with a safe, four-season access to bicycle and walk to different parts of the Town.



TRAFFIC CALMING

Traffic calming is intended to slow vehicle traffic to make roadway conditions safer for pedestrians and cyclists. Although many traffic calming interventions include high-design projects such as roundabouts, neighborhood traffic circles, and chicanes, strategies can also range from a few minor, comprehensive projects such as speed radar and warning signage. Due to right-of-way constraints along many of Norfolk's roadways, minor improvements, such as "Share the Road" signs, pedestrian crossing signs, speed radars, and curb extensions are explored. Specific locations in the Town that will see some traffic calming improvements are Everett Street and Pine Street intersection and Route 115/Rockwood Road (adjacent to the MBTA commuter rail station).



An example of a speed feedback sign. Photo: OkSolar.com

BICYCLE LANES

Conventional bicycle lanes are designated for cyclists traveling adjacent to motor vehicle travel and



An example of a bicycle lane in Brookline. Photo: HSH

flows in the same direction as motor vehicles. Bicycle lanes are traditionally located on the right side of the street, between adjacent travel lanes and curb, road edge, or parking lane. Bicycle lanes allow cyclists to ride at their preferred speed without interference from vehicular traffic. They are most helpful on roadways with posted speed limits that do not exceed 35 miles per hour. Bicycle lanes are recommended along Main Street, from the Olive Day School entrance to Rockwood Road (Route 115). This application will hopefully gain some momentum, create

some interest in commute cycling around town, and be the start to the Town's bicycle network.



RECTANGULAR RAPID FLASHING BEACONS (RRFBs)



An example of an RRFB in Boston's Longwood Medical Area neighborhood. Photo: HSH

RRFBs are user-actuated LEDs that supplement warning signs at unsignalized intersections or mid-block crosswalks. They can be activated by pedestrians manually by a push button or passively by a pedestrian detection system. They can also be installed on either two-lane or multi-lane roadways. When the system is activated, the RRFB emits rapid alternating amber LED bursts of light to warn motorists that pedestrians are at the crossing. RRFBs have proven to have a positive effect on motorist awareness.

A study completed by the Virginia Department of Transportation showed that yielding rates and speed reduction increase when the RRFB system is activated.¹⁷ RRFBs are recommended on Clark Street (adjacent to MCI-Norfolk). In addition to RRFBs, Clark Street will also see pedestrian crossing warning signs and markings and ADA-compliant curb ramps on the existing crosswalk landings.

¹⁷ Evaluation of a Rectangular Rapid Flashing Beacon System at the Belmont Ridge Road and W&OD Trail Mid-Block Crosswalk, Virginia Center for Transportation Innovations and Research. http://www.virginiadot.org/vtrc/main/online_reports/pdf/15-r22.pdf.



CD - Table of Contents

- 1) Norfolk Complete Streets Prioritization Plan Report (pdf)
- 2) Norfolk Complete Streets Prioritization Plan Tier 2 Document (pdf)
- 3) Prioritization GIS Data and Dictionaries
 - a) Level of Comfort CSP Data Dictionary (excel)
 - b) Low Stress Bicycle Network Connectivity MTI Report (pdf)
 - c) Norfolk CSPP Data Package (gdb) and Map Package (mkp):
 - Bicycle Crashes (2011-2015)
 - Pedestrian Crashes (2011-2015)
 - Bicycle Level of Comfort (BLOC)
 - Pedestrian Sidewalk Condition
 - Points of Interest
 - Bicycle Latent Demand
 - Pedestrian Latent Demand
 - Percentage of Persons with Disabilities
 - Structures
 - Roads
 - Open Space
 - Hydrology
- 4) Norfolk WikiMap Data (Microsoft excel)