DUXBURY, MASSACHUSETTS

Complete Streets Prioritization Plan

Prepared for
Duxbury, Massachusetts

Prepared by
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Introduction

Duxbury Town Hall. Photo: HSH

The Town of Duxbury is committed to encouraging walking and biking; when residents can replace short driving trips with active transportation, it helps lower traffic congestion and improves public health and the livability of the community. This Prioritization Plan enables Duxbury to access resources from the Commonwealth's Complete Streets Funding program that can help build sidewalks, bicycle facilities, 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 abilities. Having multimodal options to travel between home, work, schools, recreation, and retail destinations is 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, multimodal 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.

The Town of Duxbury has worked with ***Howard Stein Hudson (HSH)*** to engage its residents throughout the prioritization plan process, with public meetings, stakeholder engagement, and a public comment period that has now ended. As of fall 2021, the Prioritzation Plan has been accepted by the Town of Duxbury's Planning Board and will be reviewed for approval by the Board of Selectmen.

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 Duxbury completed Tier 1 by having their Complete Streets Policy approved on January 20, 2021. This document serves as Duxbury's Tier 2 – Complete Streets Prioritization Plan.

The Town of Duxbury

The Town of Duxbury is a historic farming and fishing town located in the South Shore region of Massachusetts and home to a population of 15,812 residents.[1] Today, the Town has transitioned to the role of a primarily residential small town with a village atmosphere, offering recreation, arts, beaches, and other scenic views to the community.

Duxbury is influenced by its coastal location; residents and visitors can view and experience the Town's cranberry bogs and freshwater ponds. Open space and recreation resources attract residents

[1] US 2019 American Community Survey 5-Year Estimates

and visitors from Duxbury Beach to Duxbury Bay. Sections of the Bay Circuit Trail and the Landline Greenway Network can also be experienced throughout the Town.

The Town landscape is bountiful with conservation areas, open space, and trail networks. Duxbury Bay serves as a recreational space, fishing and shellfishing resource, and an important habitat for wintering and migrating birds. The North Hill Marsh area is an actively used recreational space that affords users birding, biking, horseback riding, cross-country skiing, and walking opportunities. The Duxbury Conservation Commission has permanently protected over 3,700 acres of land with restrictions to maintain a balance of open space, farming, scenic views, and development.[2]

In business for 200 years, O'Neil Farm is the last dairy in operation in the state; it is located off Route 53. O'Neil farm also has over 120 acres of permanently protected land on its property. Bay Farm is located near Kingston Bay and provides over 80 acres of open space available for recreation.

EXISTING ROADWAY NETWORK

State Route 3 is a principal arterial highway that runs north to south through the Town, connecting from Bourne to Tyngsborough and then across state lines into New Hampshire. State Route 3A parallels Route 3 and operates as a minor arterial. Both routes provide a connection from Duxbury to Boston, starting in Plymouth and ending in New Hampshire. Route 53 is a minor arterial that runs north to south through Duxbury, connecting Kingston to Quincy.

EXISTING TRANSIT NETWORK

Duxbury is serviced by the Greater Attleboro and Taunton Regional Transit Authority (GATRA). GATRA operates between Kingston and Marshfield. In Duxbury, it operates Monday through Saturday, making stops at Island Creek, Hall's Corner, the Town Library, and the school complex along Alden Street. Riders can utilize GATRA to connect in Kingston to other GATRA routes serving Plymouth. Riders can also utilize GATRA to connect to the Plymouth and Brockton commuter bus at Kingsbury Plaza, Kingston.

GATRA provides transit services in Duxbury through the Seaside Area Inter-Link (SAIL) route. The SAIL route, connecting Duxbury to Marshfield and Kingston, serves local routes for residents of Duxbury, Marshfield, and Kingston. In Duxbury, bus stops are located at Island Creek Village, Halls Corner Foodie's, and Millbrook Motors.[3] GATRA Routes and Stops are shown in **Figure 1.**

[2] Duxbury Open Space and Recreation Plan, 2017
[3] https://www.gatra.org/

Figure 1. ***GATRA SAIL Shuttle Route and Stops***

Data Source: HSH, MassDOT

COMMUTE TO WORK

The most common transportation mode choice for workers in Duxbury is driving alone at approximately 56%, followed by those who work from home (approximately 19%), carpooled (approximately 13%), and public transportation (approximately 9%). Less than 2% of residents walk or utilize other means to work (**Table 1**).

Table 1. Transportation Mode of Choice

Transportation Mode[1]	Percent of Population (%)
Drove Alone	56%
Carpooled	13%
Public Transportation (excluding taxicab)	9%
Walked	1.5%
Taxicab, Motorcycle, or other means	2%
Worked at home	19%

Source: American Community Survey's (ACS) 5-Year Estimates

Duxbury residents that are 16 years and older and employed have a mean travel time of approximately 31 minutes to Plymouth County (approximately 34 minutes), see **Table 2**. Most Duxbury residents work within Plymouth County (approximately 67%).[4]

Table 2. Travel Time to Work

Travel Time to Work*	Percent of Population (%)	Travel Time to Work*	Percent of Population (%)
Less than 10 minutes	27%	30 - 34 minutes	9.5%
10 - 14 minutes	6.0%	35 - 44 minutes	3.5%
15 - 19 minutes	11.9%	45 - 59 minutes	2.5%
20 - 24 minutes	10.0%	60 or more minutes	27%
25 - 29 minutes	2.5%	Mean travel time to work	31 minutes

Source: American Community Survey's (ACS) 5-Year Estimates
**US 2019 American Community Survey 5-Year Estimates*

[4] Ibid, 1

EXISTING BICYCLE AND PEDESTRIAN NETWORK

The Town of Duxbury has a limited pedestrian and bicycle facility network that requires walking or biking on the roadway in most areas. The existing sidewalk network is predominantly located near Halls Corner and Duxbury Bay/Blue Fish River Reservoir. There are no existing bicycle facilities in Duxbury. The Town has envisioned areas for future pedestrian and bicycle facilities in its most recent master plan. The *Envision Duxbury Master Plan* noted that the Sidewalk and Bike Path Committee is pursuing a multi-use path through Town-owned land that would connect the Chandler School with the Saint George Street School complex and Town Hall.[5]

TRAILS

The existing trails, recognized by the Town as public trails, are located among Lansing Bennett Forest, the Bay Circuit Trail, and the Landline Greenway Network.

NORTH HILL MARSH AREA

The North Hill Marsh is used for various recreational activities that include birding, biking, horseback riding, cross country skiing, and walking. Due to its status as an Estimated Habitat of Rare Wildlife and Priority Habitat of Rare Species, only small portions of the land are available for public use.[6]

LANSING BENNETT FOREST

Comprised of over 340 acres, the Lansing Bennett Forest is another conservation area located in Duxbury.[7] It is a walking trail that is a connection to the greater Bay Circuit Trails, which are located near Union Bridge Road, Franklin Street, Cross Street, and Summer Street/Route 53.[8]

BAY CIRCUIT TRAIL

The Bay Circuit Trail is a 230-mile trail that passes through Duxbury and ends at the southern border of Kingston, starting in Plum Island in Newburyport and ending at Bay Farm in Duxbury.[9]

LANDLINE GREENWAY NETWORK

The Landline Greenway Network is a regional network that has three corridors located within Duxbury. The coastal route connects from the border of Kingston to the border of Marshfield along the coastline. The inland route provides a connection from West and Temple Street to Hanover. The

[5] Envision Duxbury Master Plan, 2019
[6] Ibid, 2
[7] Ibid, 2
[8] Town of Duxbury. n.d. Review of Lansing Bennett Forest Trails. Duxbury Conservation Commission.https://www.town.duxbury.ma.us/sites/g/files/vyhlif3056/f/uploads/lansing_bennett_forest_trail_map.pdf.
[9] Ibid, 2

third corridor is the Marshfield Rail Trail connection. This section provides a quick connection to the rail trail in Marshfield.[10]

CAMP WING CONSERVATION AREA

The Camp Wing Conservation area protects a two-mile stretch of stream habitat along the South River. Located along Route 3 near the intersections of River Street and Franklin Street, users of the area can entertain themselves with walking, jogging, bicycling, and cross-country skiing.[11]

ROUND POND TRAILS

With 170 acres of conservation land, Round Pond is located off Route 3, near Elm Street and East Street. The Pond composes of woodlands, ponds, and functioning cranberry bogs.[12]

BAY FARM TRAILS

Located between Landing Road/Bay Road and Kingston Bay, Bay Farm is a popular open space destination for dog walkers, cross-country skiers, hikers, joggers, birders, and fishermen. This conservation area was formerly a farm until purchased by the Duxbury Conservation Commission.[13]

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 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 finally, 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 contribute local expertise to the project identification and selection processes and informs an understanding of the community's values. Equity assessments focus on the neighborhoods most in need of transportation networks and facility improvements. Finally,

[10] Ibid, 2
[11] Town of Duxbury. "Camp Wing Conservation Area." Duxbury Conservation Commission, n.d. https://www.town.duxbury.ma.us/sites/g/files/vyhlif3056/f/uploads/camp_wing_conservation_area_trail_map.pdf.
[12] Town of Duxbury. "Round Pond Trails." Duxbury Conservation Commission, n.d. https://www.town.duxbury.ma.us/sites/g/files/vyhlif3056/f/uploads/round_pond_walking_trails.pdf.
[13] Town of Duxbury. "Bay Farm Trails." Duxbury Conservation Commission, n.d. https://www.town.duxbury.ma.us/sites/g/files/vyhlif3056/f/uploads/bay_farm_walking_trails_map.pdf

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 analyses 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 Duxbury.

Recent Plans and Reports

The Town has already developed several useful plans and reports relevant to promoting Complete Streets. These documents were reviewed, and the key findings are described below.

ENVISION DUXBURY MASTER PLAN (2019)

The Envision Duxbury Master Plan sets the goals and focus for the future of Duxbury. Conservation and preserving the Town's character were important aspects of the Master Plan. Improved walking and biking conditions were a major theme of the master plan, as it was highlighted in previous studies conducted by the Town and its residents.

The improvement and creation of pedestrian and bicyclist networks is a popular idea highlighted by residents of the Duxbury community. A community survey was conducted and received over 1,200 responses, about 8% of the total Duxbury population. One question asked about good ideas that residents had for the Town, and sidewalks were one of the most popular ideas that respondents suggested; biking accommodations were also popular among suggested ideas. Another question asked for the agreement levels of potential solutions for issues within the Town; improving sidewalks and creating multi-use path systems between residential areas and popular destinations garnered over 80% of support from respondents. Recommendations from the plan include:

- Developing a Town-wide multimodal network and traffic safety prioritization plan;
- Creating walkable economic centers;
- Expanding transit options and transit-supportive infrastructure; and
- Including climate resiliency and safety in developing changes to future transportation infrastructure.

DUXBURY HOUSING PRODUCTION PLAN (2019)

The Duxbury Housing Production Plan provides an overview of the Town's accomplishments regarding its affordable housing trust and identifies further steps to reach their affordable housing goals. Outcomes of the study include:

- **Education and Capacity Building Strategies** – Continuously educating the Town's committee members and the public regarding affordable housing efforts, strategies, and resources.
- **Zoning and Planning Strategies** – Reviewing and amending the current zoning process and by-laws to encourage inclusionary housing.
- **Preservation Strategies** – Ensuring affordable housing opportunities are utilized by the Town's administration.
- **Housing Production Strategies** – Creating a toolkit of options to encourage affordable housing production.

TRAFFIC STUDY FOR SAINT GEORGE STREET, ALDEN STREET, RAILROAD AVENUE (2018)

The Traffic Study for Saint George Street, Alden Street, and Railroad Avenue identifies options for improving overall access, mobility, and safety for pedestrians and bicyclists while operating within the corridor. Potential improvements to the area include:

- Improvements to the intersection of Saint George Street at Railroad Avenue;
- The addition of sidewalks on Saint George Street, Alden Street, and Railroad Avenue;
- The addition of crosswalks on Saint George Street at Railroad Avenue and Alden Street at Railroad Avenue;
- Maintaining a Safe Routes to School partnership;
- Installing traffic calming measures and utilizing the Complete Streets program; and
- Improving lighting along on Saint George Street, Alden Street, and Railroad Avenue.

ROUTE 53 CORRIDOR STUDY (2018)

The Route 53 Corridor Study identifies potential improvements to traffic flow, safety, bicycle and pedestrian accommodations, and gaps to essential services along the corridor. The study recommends adding sidewalks and bicycle lanes or multi-use paths. Specific intersections that are mentioned include Church Street/Enterprise Street (Route 139), West Street (Route 14)/Saint George Street, and Chestnut Street/Tobey Garden Street.

DUXBURY OPEN SPACE RECREATION PLAN (2017)

The Duxbury Open Space and Recreation Plan reviews the goals previously made in the 2008 plan. Goals that were identified in this plan include:

- Protection of Duxbury's Aquifer and Water Resources;
- Preservation of Duxbury's Natural Areas and Environment;
- Preservation of the Unique Character of Duxbury;

- Management of the Town's Recreational Opportunities with Minimum Impact to the Environment; and
- Planning for Climate Change.

DUXBURY ROUTE 3A CORRIDOR STUDY (2017)

The Route 3A Corridor Study identifies areas along the corridor that could benefit from sidewalk and bicycle lane additions or parallel multi-use pathways. Key intersections that were recommended for specific modifications include Church Street/Enterprise Street (Route 139), West Street (Route 14)/Saint George Street, and Chestnut Street/Tobey Garden Street.

HALLS CORNER ECONOMIC DEVELOPMENT AND TRANSPORTATION STUDY (2014)

The Halls Corner Economic Development and Transportation Study identifies points of interest for improvements to Halls Corner to improve aesthetics for visitors and economic outcomes. Goals related to the corridor are listed below.

- Removal of diagonal parking in select locations;
- Improving crosswalks and sidewalks;
- Installing bicycle shared-lane markings and upgrading traffic signage; and
- Creation of a modern roundabout to improve safety for vehicle traffic.

DUXBURY COMMUNITY DEVELOPMENT PLAN (2004)

The Duxbury Community Development Plan recommends improvements to neighborhood district areas to improve the streetscape and safety for all users. There is strong support for bike and pedestrian travel in Duxbury, but connected bike and pedestrian facilities do not exist, creating safety concerns for users. Road improvements include reducing curb cut conflicts, redesigning on- and off-street parking, and correcting traffic safety issues at key intersections. Improvements for pedestrians and bicyclists include extending and repairing sidewalks and adding bicycle racks in select locations.

DUXBURY AD HOC SIDEWALK COMMITTEE REPORT (2001)

The Downtown Revitalization Plan was published to identify locations for pedestrian infrastructure throughout Duxbury. Recommendations included Route 3A, Washington Street, Route 14, Route 53, and Keene Street.

DUXBURY COMPREHENSIVE PLAN (1999)

The 1999 Duxbury Comprehensive Plan was published to identify the broad goals for the Town and control its future development. Within the transportation section of the plan, key areas for

pedestrian and bicycle connections, as well as other vehicular traffic flow and non-motorized changes at locations in Duxbury were identified. Below is a summary of conclusions from the document.

- Create more pedestrian-friendly environments in business areas.
- Recommendations included safety modifications at Island Creek, Cox Corner, Snug Harbor, and Halls Corner, as well as the construction of pedestrian and bicycle infrastructure.

Tools to Determine Deficient Conditions

To determine 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 2015– 2019. Five years of data are used for analysis as a larger data set will present 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.

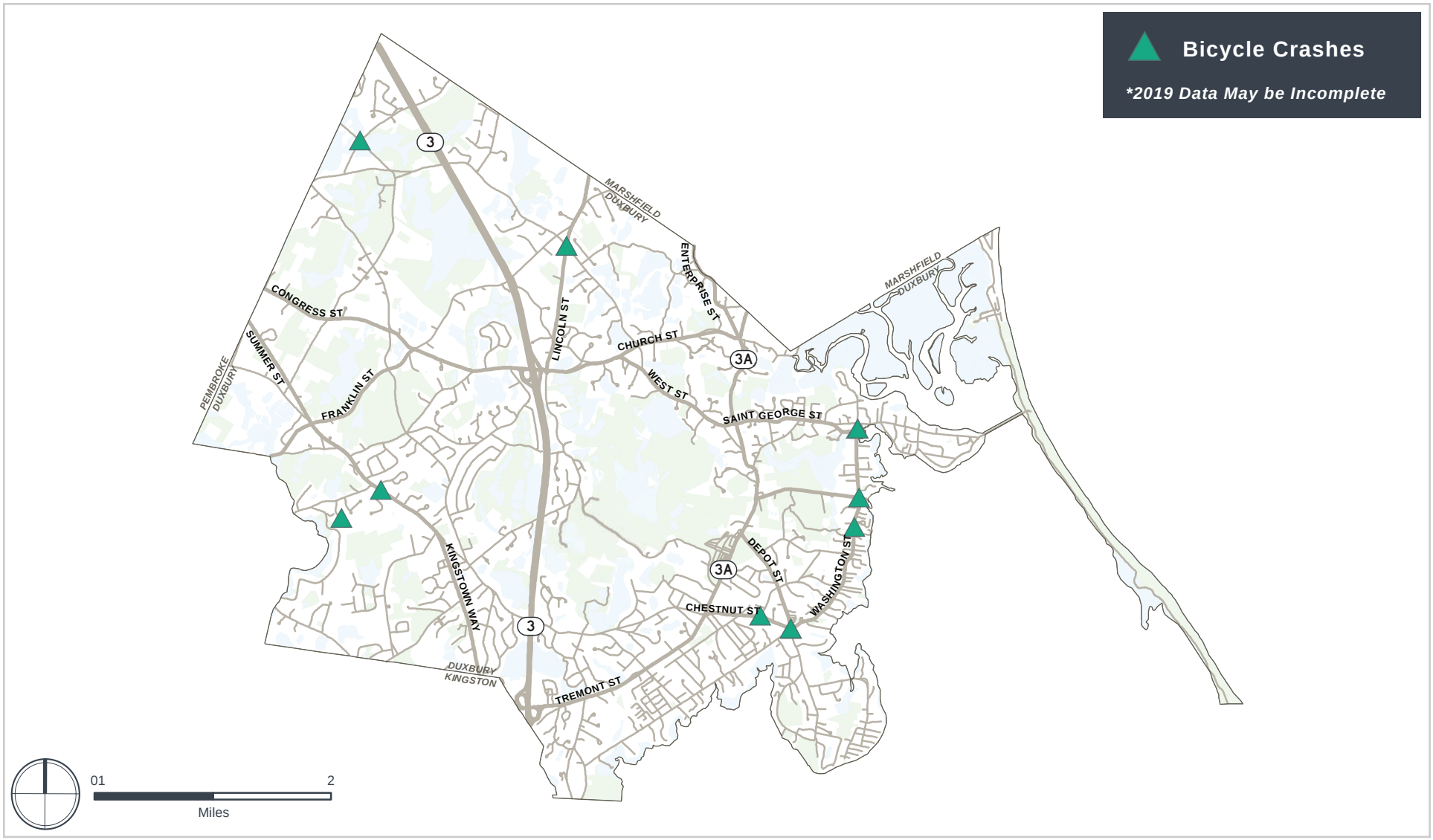
EXISTING CONDITIONS-BICYCLE CRASHES

The bicycle crash map (**Figure 2**) reflects locations of crashes that involved a cyclist from 2015-2019. Over these five years, 12 crashes were reported. Three crashes each were reported along Washington Street and Chestnut Street. Two crashes each were reported along Powder Point Avenue/Cove Street and Birch Street. The remaining crashes were on residential roads. None of the reported crashes resulted in a fatality. Eleven crashes resulted in a non-fatal injury, and one crash resulted in suspected minor injury. All crashes occurred in daylight and during clear conditions.

EXISTING CONDITIONS-PEDESTRIAN CRASHES

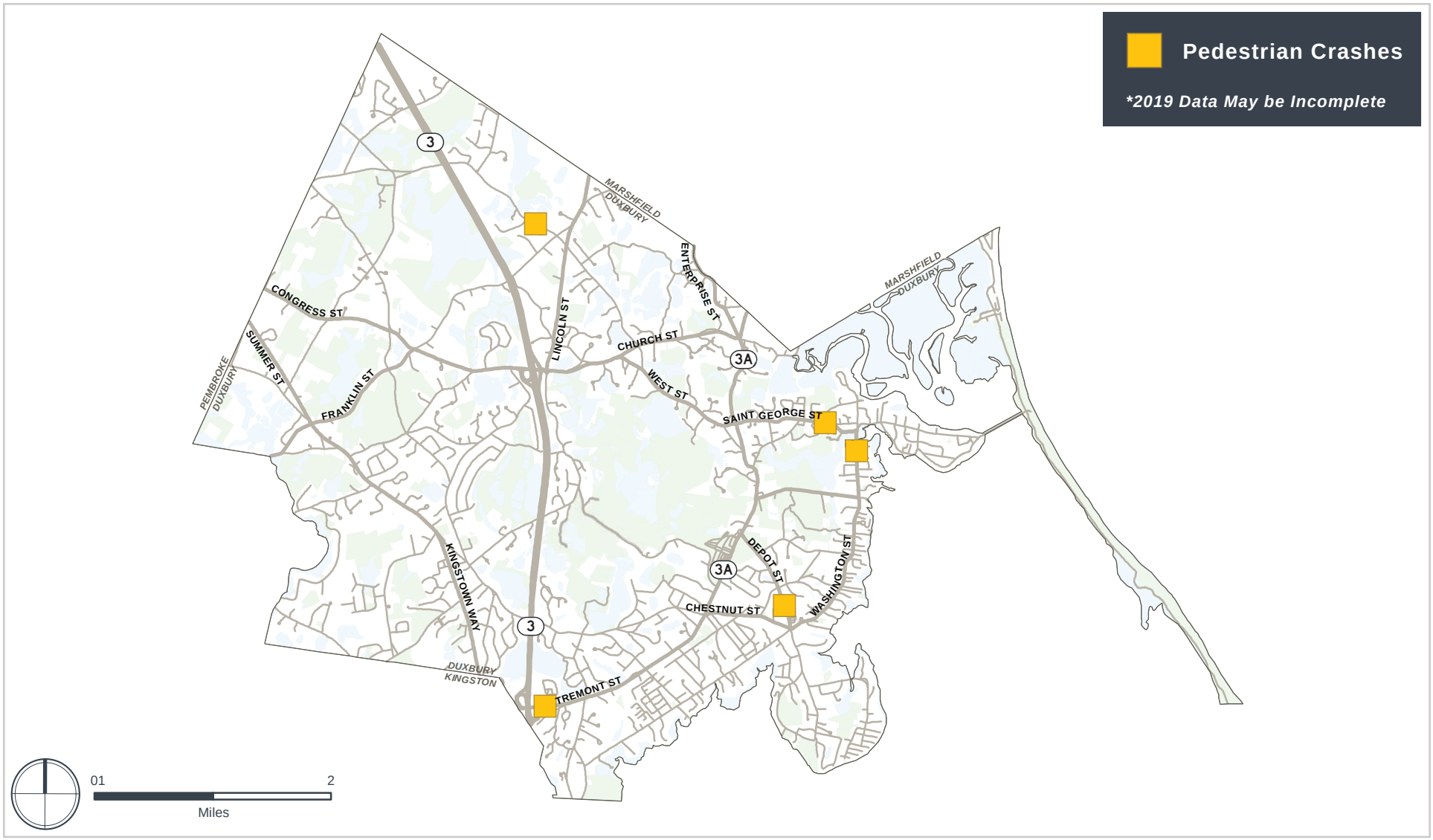
The pedestrian crash map (**Figure 3**) reflects locations of crashes that involved pedestrians from 2015-2019. Over these five years, five crashes were reported. One crash reported was located along Saint George Street near the school complex. One crash reported was located along Route 3A near the Route 3 exit. One crash reported was located on Depot Street near Halls Corner. The remainder of the crashes occurred on residential roads. One of the reported crashes resulted in a fatality. Two crashes resulted in a non-fatal injury, and the remainder of the crashes resulted in a possible injury and suspected minor injury. Four crashes occurred during daylight, and one occurred during the dark on a roadway that was not lighted.

Figure 2. ***Bicyclist - Related Crashes in Duxbury***



Data Source: MassDOT Crash Portal

Figure 3. ***Pedestrian - Related Crashes in Duxbury***



Data Source: MassDOT Crash Portal

LEVEL OF COMFORT

To create and improve 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 volume of traffic, proximity to green space, and separation from the roadway. These factors contribute not only to the physical safety of vulnerable road users but also 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 analysis, MassGIS roadway data is used to assign average daily traffic (ADT), the presence and width of a centerline, and roadway surface width values to each segment. Pavement quality, sidewalk width, and the presence of obstructions are also considered. Manual data entry for each segment recorded the type and width of sidewalks or the presence of bicycle facilities. In certain cases, adjustments were made to reflect local knowledge of conditions not captured by the data.

BICYCLE LEVEL OF COMFORT

The road section evaluation for bicycle level of comfort is based on the methodology from the Wisconsin Rural Bicycle Planning Guidelines. These guidelines recommend that plans consider the needs of the broad range of bicyclists. Bicyclists vary in age, cycling experience, attitude toward traffic, fitness level, and typical destinations that determine their level of comfort when cycling on the roadway. Major determining factors in road section evaluation are roadway pavement width, traffic volume, and presence of a centerline to determine the suitability or “level of service” of a roadway. Providing the Town with condition information can help the community prioritize projects on roadways that are determined as uncomfortable for cyclists.

Bicyclists in Duxbury. Photo: HSH

We have based our analysis for Duxbury on the same methodology with minor adjustments to produce a Duxbury Bicycle Level of Comfort (BLOC) map (**Figure 4**). Road categorization ranges from high to low, with a special designation for roads that have high traffic volume but are wide enough that cyclists would feel comfortable using it. Roads that fall into the "High" category are those roads that will have light volumes of traffic and may have many other favorable factors such as good sight distance and minimal truck traffic. Roads that fall into the "Moderate" category are those that have moderate traffic volumes for the amount of pavement width. Roads that fall into the "Low" Category are roadways that have moderately high traffic volumes with no paved shoulders, or high-traffic volumes with narrow paved shoulders, and many have moderate to high truck traffic. A fourth category, "Higher Volume, Wider Paved Shoulders" are those roadways that have moderately high car and/or truck volumes but have wider paved shoulders. These different levels of comfort relate back to Roger Geller's four types of bicyclists (**Figure 5**).[14] His classification of the four types of bicyclists include:

- "No Way No How," encompassing 33% of the population of Portland, Oregon who are not interested in bicycling at all;
- "Interested but Concerned," which makes up 60% of the population;
- "Enthused and Confident," makes up about 7% of the population; and
- "Strong and Fearless," makes up less than 1% of the population.

A low-stress, high comfort 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 bicycling network.

Existing Conditions – Bicycle Level of Comfort

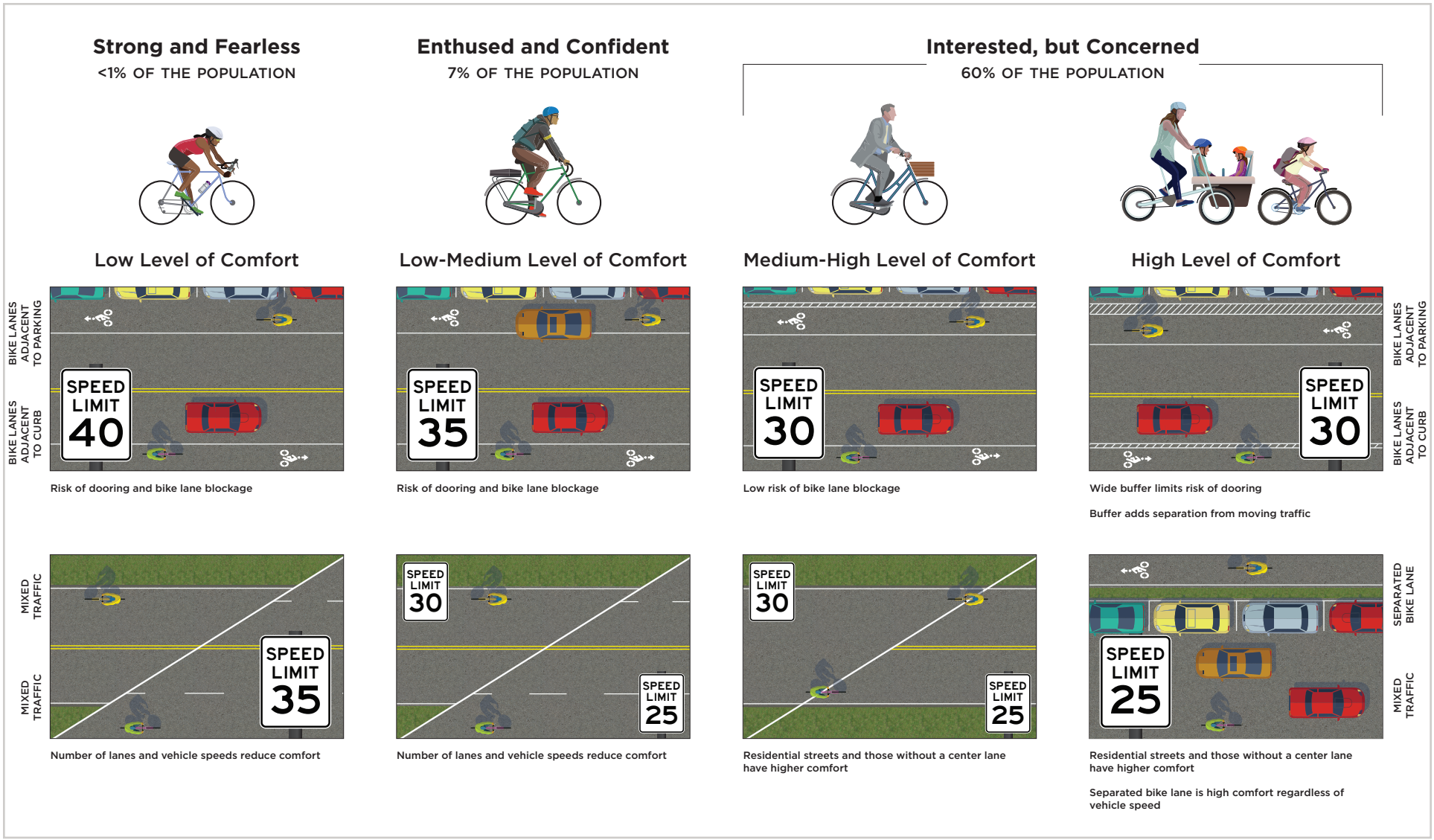
The BLOC map (**Figure 4**) shows locations where people would and would not feel safe riding and helps identify projects that would most benefit modal shift towards cycling. Roads that scored a low level of comfort like Washington Street, Tremont Street/Route 3A, and Route 53 have traffic volumes high enough that cyclists may interact with cars more frequently, which results in more discomfort while riding a bicycle. Roads that scored a high level of comfort, like many of the residential roads, are those roadways where the volume of traffic is so low that they are likely only occasionally interrupted by vehicles. Roads that are designated blue are those that have a high ADT but are wide enough that the road would still be considered comfortable for cycling.

[14] Roger Geller is the Bicycle Coordinator at the Portland Bureau of Transportation in Oregon.

Figure 4. ***Bicycle Level of Comfort***

Data Source: HSH, MassDOT, Wisconsin DOT

Figure 5. *Four Types of Cyclists in Portland by Proportion of Population*



Data Source: Portland Office of Transportation

PEDESTRIAN LEVEL OF COMFORT

A pedestrian network assessment was completed, which identifies corridors that have sidewalks and then determines the condition of the identified sidewalks as excellent (pavement is smooth/new and there are no obstructions), good (pavement is smooth with few bumps and depressions and there are very little to no obstructions), fair (pavement is comfortable with intermittent bumps and depressions and there are several to many obstructions), and poor (pavement is uncomfortable with frequent bumps and depressions and there are many obstructions). The assessment shows gaps and deficiencies in the pedestrian network, whether due to a lack of infrastructure or obstructions to ADA compliance, such as uneven pavement, roots, or pinch points caused by utility poles or mailboxes.

Existing Conditions – Pedestrian Network

The Pedestrian Network map in **Figure 6** shows locations where sidewalks are present and the extent to which they are in excellent, good, fair, or poor condition. Duxbury's sidewalk network is in the Bluefish River Reservoir/Duxbury Bay area and Halls Corner area. Most of Main Street has sidewalks in good condition that appear to have few or no obstructions. Some criteria that would give a sidewalk a high score would be good pavement quality, grade separation, or no presence of barriers. Many of the adjacent residential streets are in poor condition. Some criteria that would give a sidewalk a poor rating would be disrepair, narrow widths, or barriers such as utility poles because they can limit the ADA accessibility of a route. These segments are important to acknowledge because there is potential to reconstruct these sidewalks.

Compliant curb ramps should point users directly across the street to the receiving curb ramp and include tactile warning panels, as shown here across Tremont Place in Island Creek Village. Photo: HSH

Figure 6. ***Pedestrian Level of Comfort – Sidewalk Condition***

Data Source: HSH, Peter Furth

Tools to Assess Demand

POINTS OF INTEREST (POI)

HSH considers the proximity of points of interest, shown in **Figure 7**, such as health care services and schools (including public schools and pre-schools), as well as public services, such as a town hall, library, or police station. Island Creek and Halls Corner host many destinations, attracting pedestrians and cyclists. The school complex and library also serve as an area of high demand for residents, not only for its public uses but for the businesses located nearby. Duxbury also is home to several open spaces and conservation areas that are destinations throughout Downtown Duxbury. The proximity to points of interest analysis demonstrates which areas of the roadway network could best serve pedestrians and cyclists trying to reach these important destinations.

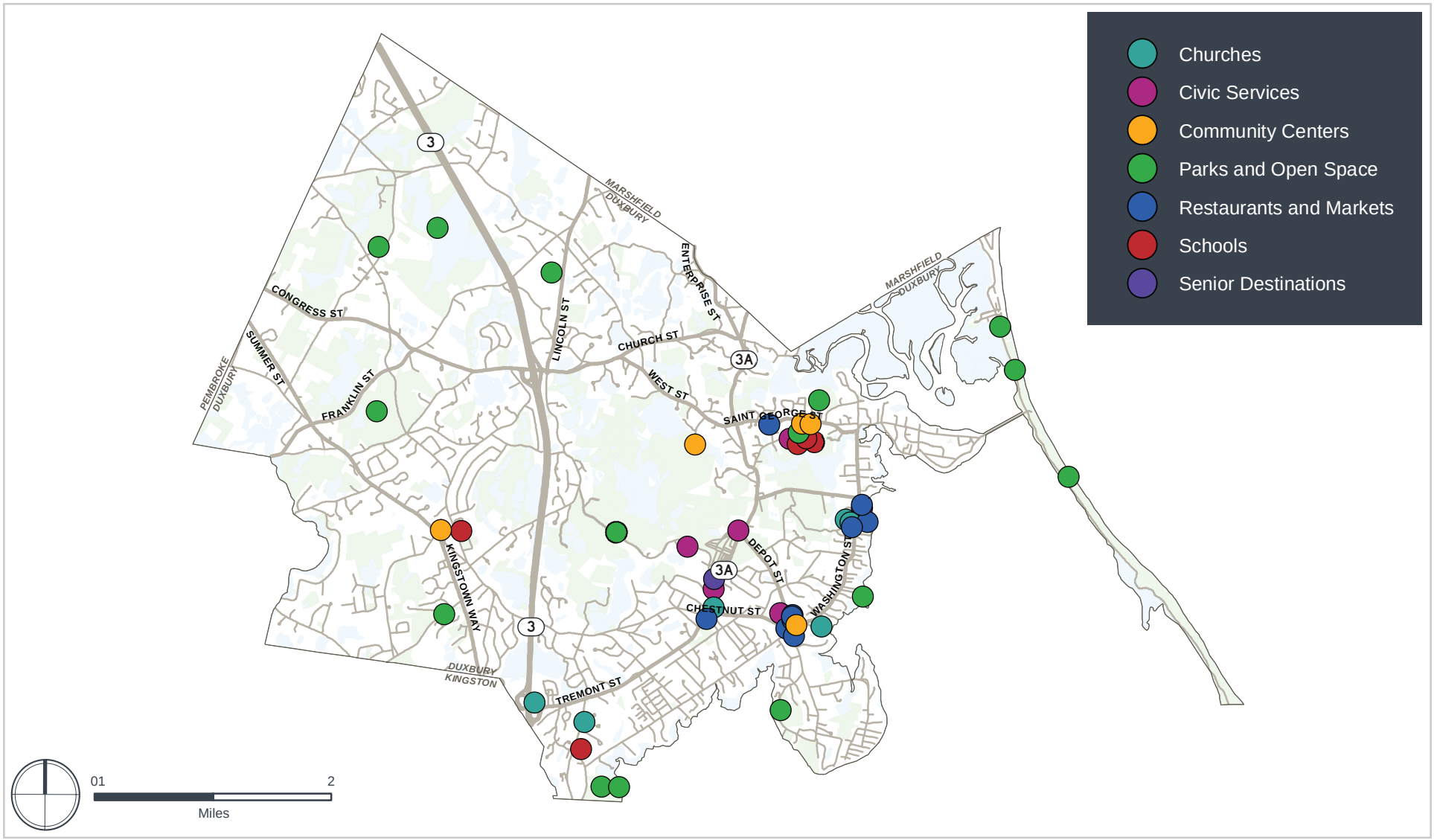
EXISTING CONDITIONS – BICYCLE LATENT DEMAND

A convenient cycling distance of one mile is used as the distance for the bicycle latent demand analysis. **Figure 8** shows the corridors surrounding Halls Corner that 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. Most destinations in Duxbury are located within the Halls Corner corridor between Bay Road and Saint George Street and Route 3A, which encompasses the key destinations of Town Hall, the Senior Center, and route access to the library and schools. This area has the highest potential for bicycle demand.

EXISTING CONDITIONS- PEDESTRIAN LATENT DEMAND

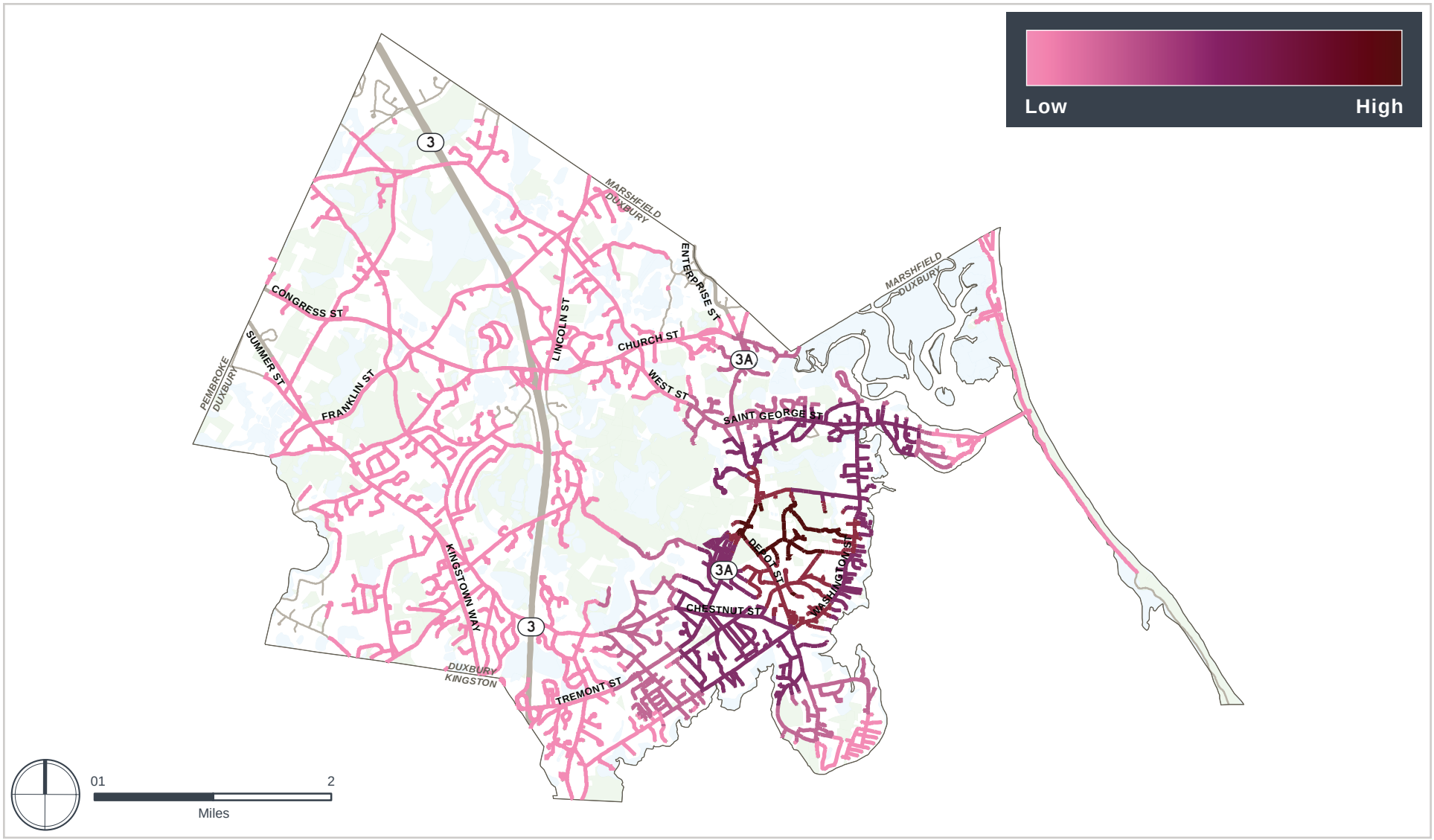
A walking distance of one-half mile is used as a buffer for the pedestrian latent demand analysis, shown in **Figure 9**. As with the bicycle analysis, the Halls Corner area has the highest utility for pedestrians. Duxbury does not have many sidewalks; the few that exist are in good condition on Chestnut Street and portions of Washington Street. High demand is also present along Saint George Street, where sidewalks are connected. Improving the pedestrian network surrounding Halls Corner and the school complex would accommodate the high concentration of pedestrian accessible destinations.

Figure 7. ***Point of Interest Locations***



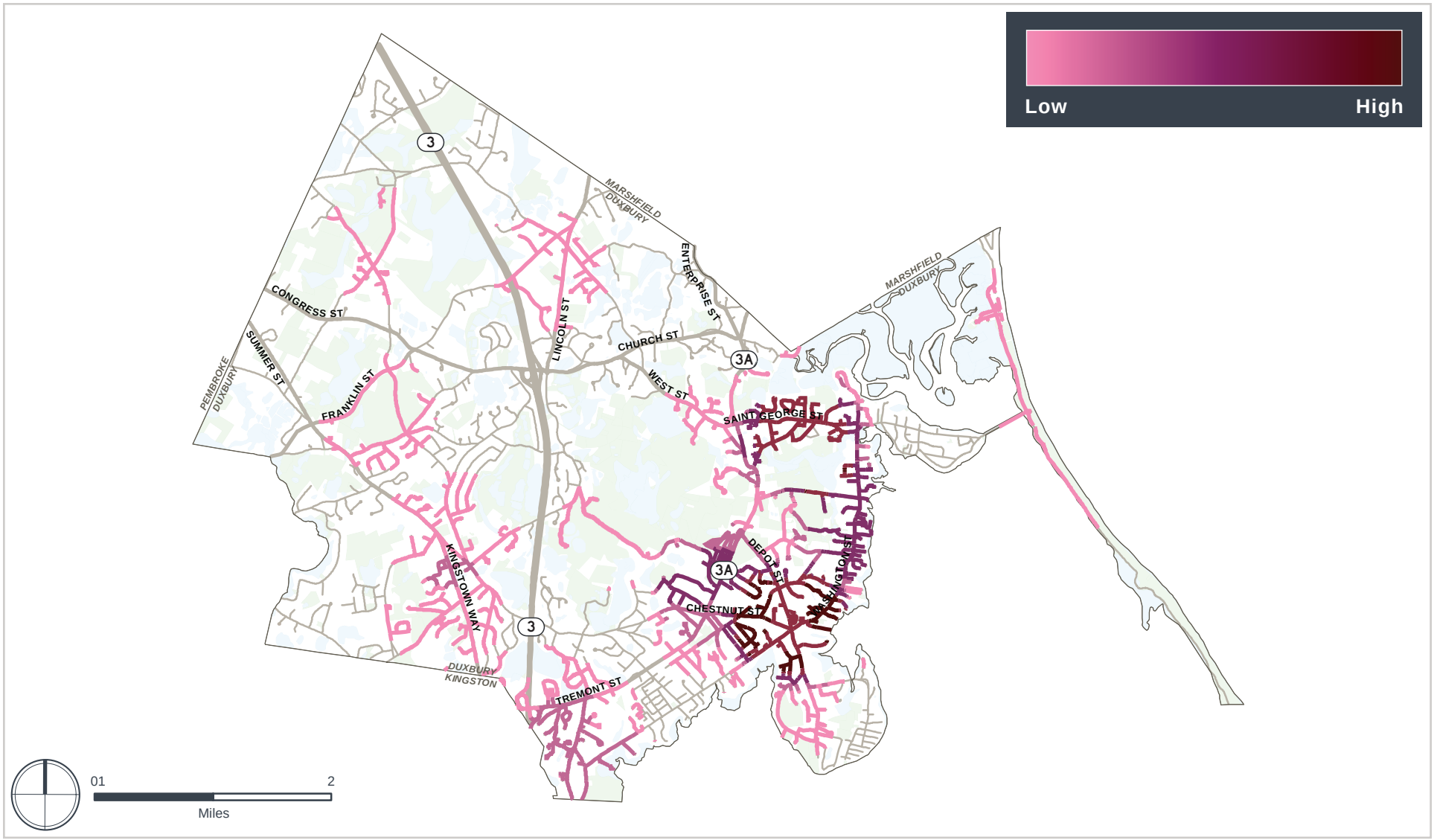
Data Source: HSH

Figure 8. ***Bicycle Latent Demand***



Data Source: HSH

Figure 9. ***Pedestrian Latent Demand***



Data Source: HSH

STAKEHOLDER INPUT

The Prioritization Plan seeks to incorporate the many ideas and visions of community members. At the beginning of the project process, HSH staff met with the Town of Duxbury staff 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 meeting, an online tool for gathering public comments called a WikiMap was created to allow community members to contribute to the process online. The WikiMap was linked on Duxbury's public website.

WIKIMAP

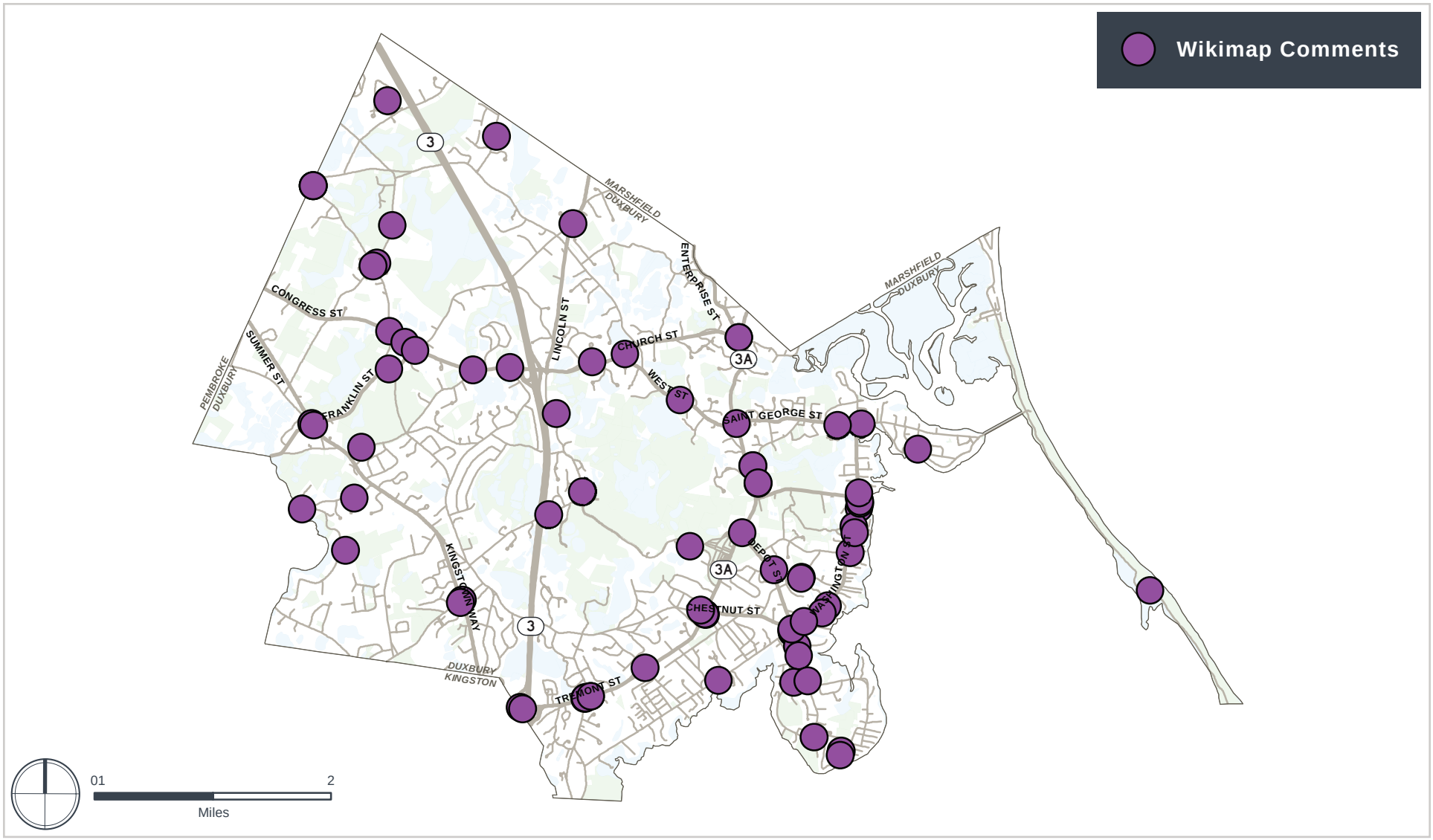
The WikiMap was created to allow community members to contribute their comments, concerns, and project ideas. HSH collected around 270 comments via the WikiMap. The website allowed users to provide comments by four user types: Accessibility (ADA), Bicyclist, Pedestrian, and Transit. Participants could also make comments on specific routes without identifying a user type. Participants provided 187 comments on pedestrian issues, 14 comments on transit issues, one comment referring to ADA concerns, and 64 comments on bicycle issues. **Figure 10** is an image of the Duxbury WikiMap with comments left by residents.

Comments related to the bicyclist and pedestrian realm expressed the need for sidewalk improvements along Washington Street and Tremont Street/Route 3A. Pedestrian comments expressed that these locations need maintenance and are dangerous for traveling. Bicyclist comments expressed that these locations have dangerous intersections. Respondents reported the need for intersection improvements along Tremont Street/Route 3A and within the Halls Corner corridor. Additional transit and pedestrian comments both included comments about speeding issues along major streets and lack of bicycle and pedestrian facilities where multi-user traffic exists.

PUBLIC INFORMATION MEETING

In addition to the WikiMap, a comprehensive public process was executed to gauge community input and experiences. The virtual public meeting was held in October 2020, in which HSH staff met with Duxbury staff and residents to present about the Complete Streets Funding Program and collect feedback from the residents. After a presentation from HSH staff, residents and Duxbury officials broke out into groups to discuss transportation issues and opportunities within the community. Areas of concern identified during the public meeting were Washington Street and Powder Point Avenue. Attendants of the public meeting also expressed safety concerns with conditions on Route 3A and with poor lighting conditions on roads. Concerns about trees being removed on public roads were also expressed because all public roads are considered scenic.

Figure 10. ***Stakeholder Input Collected via WikiMap***



Data Source: HSH, Wikimap

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) 2017 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.[15] 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 the 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

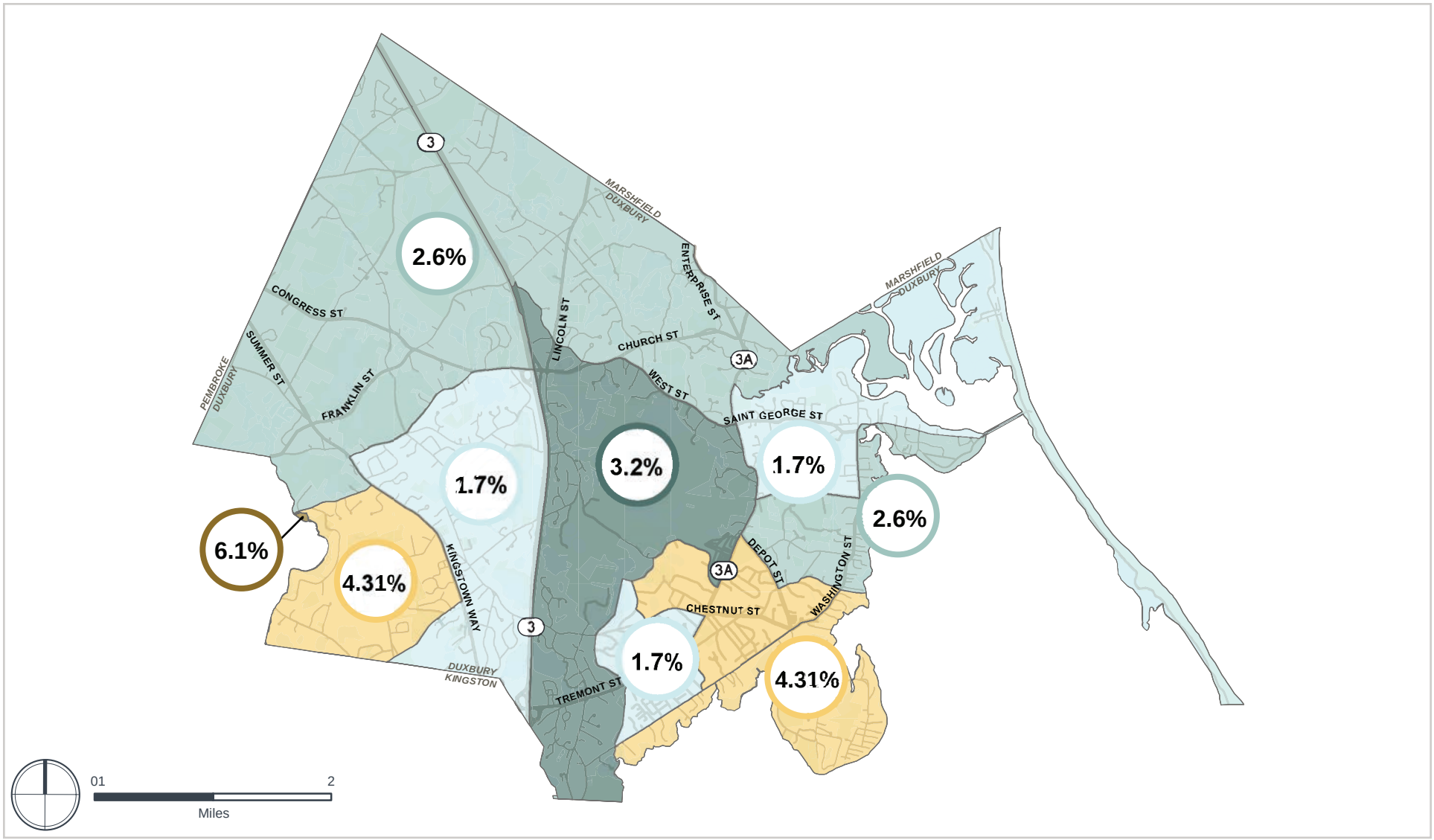
This plan considers environmental justice risk factors to prioritize underserved communities. Using MassGIS's 2010 U.S. Census Environmental Justice Populations data, minority, non-English speaking, and low-income populations are considered. Data were compiled for Census 2010 block groups from the 2010 Census redistricting tables and from the ACS 2017 5-Year Estimates.[16] Duxbury does not have census block groups that exceed environmental justice thresholds for low-income populations.

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, vision, cognitive, ambulatory, self-care, and independent living difficulty.[17] Compliance with the ADA is required for any project constructed with Complete Streets funding. The plan will aim to prioritize projects that connect to or expand pedestrian facilities near locations where greater proportions of individuals with disabilities are expected to travel. ACS data showed that less than 30% of the population in Duxbury reported having a disability (**Figure 11**) with the highest concentrations in the western and southern areas of the Town.

[15] MassGIS Data: 2010 U.S. Census Environmental Justice Populations
[16] 2010 U.S. Census Environmental Justice Populations, MassGIS
[17] *How Disability Data are Collected from the American Community Survey,* Census.gov

Figure 11. ***Persons with Disabilities***



Data Source: HSH, American Community Survey 5-Year Estimates

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 Duxbury's Prioritization Plan. HSH's analysis mirrors MassDOT's prioritization requirements while adding an additional layer of nuance to the prioritization of projects. Working with the Town, a construction schedule was determined that considers prioritization ranking, opportunities to coordinate with other ongoing or anticipated construction projects, the ability to design and construct the project within one year, and feasibility. 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 10 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 in the sections that follow.

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 a 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 or low-stress bicycle networks.

POINTS OF INTEREST (LATENT DEMAND)

Points of interest, including healthcare services, schools, libraries, and public services within a convenient walking distance (one-half mile) and bicycling distance (one mile), were considered, and weighted for each project. For example, projects in Halls Corner scored higher in this category; projects in high-density areas have the potential to connect greater numbers of people to desired destinations.

Halls Corner Duxbury has several points of interest that are important to residents. Photo: HSH

NUMBER OF PEDESTRIAN AND BICYCLE CRASHES ADJACENT TO PROJECT

While all Complete Streets projects are designed to improve safety, projects at locations where a pedestrian or bicycle crash occurred in recent years have significant priority.

LEVEL OF INFRASTRUCTURE IMPROVEMENT

This prioritization measure is a combination of existing and proposed conditions for all modes. HSH staff considered the existing level of comfort of users, including pavement condition, ADA accessibility, and crossing conditions for pedestrians; road speed, vehicle volumes, shoulders, and sightlines for cyclists; and sightlines, stopping distance, and intersection complexity for vehicles. Then proposed projects were judged on the extent to which they would improve the comfort, safety, and network connectivity for users of all ages and abilities. For instance, a new segment of sidewalk construction connecting to other links would have a higher impact level than the reconstruction of an existing sidewalk. A Rectangular Rapid Flash Beacon (RRFB) to help pedestrians cross a busy street would be scored higher than a project proposing a traditional Pedestrian Crossing sign.

ENVIRONMENTAL JUSTICE

Our prioritization process calculates the number of environmental justice communities, based on MassGIS data and thresholds, within one-quarter mile of each project. Duxbury has no environmental justice communities.

PERCENT OF PERSONS WITH A DISABILITY

The percentage of people with a disability within a one-quarter mile distance from a project site was calculated using ACS 5-year estimates. Areas of the Town that had high proportions of disabled residents were weighted higher than areas of the Town that had fewer disabled residents.

PRIORITY AREAS

Projects are prioritized based on the number of "Priority Areas" within walking distance of the project corridor or intersection where the transportation network's most vulnerable users may be most likely to frequent. These include senior centers, assisted living facilities, community centers, and schools.

Duxbury Free Library entrance. Photo: HSH

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 staff) 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 of Duxbury's existing infrastructure and further the community 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 3**). Project types are defined in **Table 4**, the Eligible Project Worksheet provided by MassDOT. 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. 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 5**. Additionally, estimates that are completed for the top 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
Massachusetts Department of Transportation

Complete Streets Funding Program

Project Prioritization Plan

Project Basics / Location

Project Priority Ranking	Project Name	Project Description	Project Source	Project Location	Google Maps Link
15	HALLS CORNER TRAFFIC CIRCLE SAFETY IMPROVEMENTS	This project will explore the feasibility of relocating some of the parking spaces in the traffic circle, and possible re-alignment or reconfiguration of parking to alleviate some congestion and to improve sightlines and increase safety for pedestrians and bicyclists, while addressing the need for convenience and safety to continue to have successful business tenants.	Master Plan	Halls Corner: the intersection of Chestnut Street, Depot Street, Washington Street, Standish Street, and Bay Road	https://goo.gl/maps/tZsfMqpHmr5SrTPL9
9	STANDISH STREET SIDEWALK RECONSTRUCTION AND BICYCLE RACK INSTALLATION	Sidewalks on the eastern side of Standish Street are in good condition. Existing sidewalks on the western side of Standish Street are deteriorating, and some of the streetscaping interferes with car doors. Landscaping has been an issue relative to the desired streetscape and existing streetscape at this location. This project will examine and propose the reconstruction of a five-foot-wide sidewalk (approximately 100 feet in length) on the western side of Standish Street from One	Other	On the western side of Standish Street, beginning from One Bay Road at the intersection of Standish Street to 8 Standish Street	https://www.google.com/maps/@42.0229989,-70.6834918,19.75z
5	BAY ROAD SIDEWALK CONSTRUCTION AND INSTALLATION OF SIGNAGE AND SPEED FEEDBACK RADAR SIGNS ALONG BAY ROAD	A desired outcome would possibly include the construction of a five-footwide sidewalk on the south side of Bay Road from the intersection of Halls Corner and Bay Road (approximately 400 feet) to the lot for 25 Bay Road. High visibility crosswalks with ADA-compliant curb ramps will be installed to the parking lot driveway at 15 Bay Road to improve safety and accessibility for pedestrians. This project will also install speed feedback signs in both directions. The project will also install Share the Road (W16-1) signage every quarter mile.	Other	The south side of Bay Road, beginning from the intersection of Halls Corner to 25 Bay Road	https://www.google.com/maps/@42.022853,-70.684417,19.25z
2	DEPOT STREET SIDEWALK CONNECTION TO TRANSIT AND REGULATORY SIGNAGE INSTALLATION, SAFETY IMPROVEMENTS IN HALLS CORNER	A desired outcome would possibly include the construction of a five-foot wide sidewalk on the western side of Depot Street from the 5 Depot Street to the Brother's Market parking lot at 64 Depot Street (approximately 730 feet). A high visibility crosswalk with ADA-compliant curb ramps constructed on the eastern side of Depot Street for users to navigate across the shopping plaza driveways, improving connectivity and accessibility to transit in Duxbury by providing pedestrian connections to the transit stop are desired. This project will also install signage that provides more guidance on how to navigate through the traffic circle to improve traffic flow and ease congestion. Roundabout circulation plaques (Manual on	Other	The western side of Depot Street, beginning from 5 Depot Street to the Brother's Market parking lot at 64 Depot Street	https://www.google.com/maps/@42.0237265,-70.6836226,19.75z
12	CHESTNUT STREET TO HALLS CORNER SIDEWALK CONSTRUCTION AND INSTALLATION OF SIGNAGE AND SPEED FEEDBACK RADAR SIGNS ALONG CHESTNUT STREET	A five-foot-wide sidewalk will be explored as the feasibility to construct a sidewalk from 18 Chestnut Street to the Halls Corner intersection (approximately 180 feet) is a desired outcome. A high visibility crosswalk with ADA-compliant curb ramps is desired across Chestnut Street at 15 Chestnut Street. This project will also install speed feedback signs on Chestnut	Other	Chestnut Street from Halls Corner to Tremont St/Route 3A	https://www.google.com/maps/@42.0236495,-70.6840245,19.75z
10	TRAFFIC CIRCLE REDESIGN TO IMPROVE TRAFFIC FLOW AND REDUCE CONGESTION	This project will, with testing and public input, construct a mini roundabout that is safe and accessible for all users to navigate around and through Halls Corner as a highly visible traffic calming strategy that - this is also shown to greatly improve safety and smooth congestion.	Master Plan	Halls Corner: the intersection of Chestnut Street, Depot Street, Washington Street, Standish Street, and Bay Road	https://www.google.com/maps/@42.0233473,-70.68329,20.75z
1	SIDEWALK CONSTRUCTION AND SHARE THE ROAD SIGNAGE WASHINGTON STREET FROM HALLS CORNER/WASHINGTON STREET TO HARDEN HILL ROAD (PHASE 1) AND SHARE THE ROAD SIGNAGE AND MARKINGS, WASHINGTON STREET	this project will construct a sidewalk that is approximately 720 feet long on the southern side of Washington Street to connect to the existing sidewalk that ends at 11 Washington Street. A high visibility crosswalk with ADA-compliant curb ramps across Harden Hill Road to improve visibility and safety of the crosswalk for all users. If feasible, this project will also install Share the Road signage (MUTCD W16-1) every quarter mile. This project will also paint shared lane markings every 250 feet in the center of the lanes to emphasize the right of cyclists to use the full travel lanes.	Other	The eastern side of Washington Street, beginning at 11 Washington Street to Harden Hill Road	https://www.google.com/maps/@42.0238305,-70.6824073,18.5z
19	SIDEWALK CONSTRUCTION ON WASHINGTON STREET FROM HARDEN HILL ROAD TO METCALF WAY (PHASE 2)	this project will construct a sidewalk (approximately 1,130 feet) on the southern side of Washington Street from Harden Hill Road to Metcalf Way. Two high visibility crosswalks with ADA-compliant curb ramps will be installed across Wadsworth Lane and Metcalf Way.	Other	The eastern side of Washington Street from Harden Hill Road to Metcalf Way	https://www.google.com/maps/@42.0249423,-70.6802732,17.5z
19	Sidewalk Construction On Washington Street From Metcalf Way to Shipyard Lane (Phase 3)	this project will construct five-foot-wide sidewalk (approximately 965 feet) will be constructed on the southern side of Washington Street from Metcalf Way to Shipyard Lane. Two high visibility crosswalks with ADA-compliant curb ramps will be installed across Metcalf Way and Shipyard Lane.	Other	The eastern side of Washington Street from Metcalf Way to Shipyard Lane	https://www.google.com/maps/@42.027343,-70.677011,17.5z
17	SIDEWALK CONSTRUCTION ON WASHINGTON STREET FROM SHIPYARD LANE TO LINDEN LANE (PHASE 4)	this project will construct a sidewalk (approximately 1,500 feet) long on the southern side of Washington Street to create a connection from Shipyard Lane to Linden Lane. Three high visibility crosswalks with ADA-compliant curb ramps will be installed across Josselyn Avenue, Friendship Lane, and Linden Lane.	Other	The eastern side of Washington Street from Shipyard Lane to Linden Lane	https://www.google.com/maps/@42.030188,-70.6752938,17z
23	SIDEWALK CONSTRUCTION ON WASHINGTON STREET FROM LINDEN LANE TO FREEMAN PLACE (PHASE 5)	this project will construct a sidewalk (approximately 680 feet) on the southern side of Washington Street to create a connection from Linden Lane to Freeman Place. Three high visibility crosswalks with ADA-compliant curb ramps will be installed across Short Lane, Water Street, and Freeman Place.	Other	The eastern side of Washington Street to create a connection from Linden Lane to Freeman Place	https://www.google.com/maps/@42.0326851,-70.6728923,18z
21	SIDEWALK CONSTRUCTION ON WASHINGTON STREET FROM FREEMAN PLACE TO BAYSIDE MARINE CORPORATION (PHASE 6)	this project will construct a sidewalk (approximately 100 feet) long on the western side of Washington Street from Freeman Place to Bayside Marine Corporation. A high visibility crosswalk with ADA-compliant curb ramps across Winsor Street.	Other	The eastern side of Washington Street from Freeman Place to Bayside Marine Corporation	https://www.google.com/maps/@42.0356519,-70.673767,17z
6	SIDEWALK CONSTRUCTION ON DEPOT STREET FROM HALLS CORNER TO SOUTH STATION STREET (PHASE 1)	This project will ideally construct a sidewalk that extends approximately 1,200 feet on the eastern side of Depot Street, from the existing sidewalk that ends at 19 Depot Street to South Station Street.	Other	The eastern side of Depot Street, from 19 Depot Street to South Station Street	https://www.google.com/maps/@42.0258196,-70.6868925,16.5z
16	SIDEWALK CONSTRUCTION ON DEPOT STREET FROM SOUTH STATION STREET TO PRIOR FARM ROAD (PHASE 2)	This project will ideally construct a sidewalk (approximately 900 feet) on the eastern side of Depot Street from South Station Street to 185 Depot Street at the Prior Farm Road intersection.	Other	The eastern side of Depot Street from South Station Street to 185 Depot Street at the Prior Farm Road intersection	https://www.google.com/maps/@42.0295106,-70.6866486,17.75z
21	SIDEWALK CONSTRUCTION TO DEPOT STREET FROM PRIOR FARM ROAD TO SURPLUS STREET (PHASE 3)	This project will construct a sidewalk (approximately 850 feet) on the eastern side of Depot Street from 185 Depot Street to Surplus Street.	Other	The eastern side of Depot Street from 185 Depot Street to Surplus Street	https://www.google.com/maps/@42.0317661,-70.6888112,17.75z
24	SIDEWALK CONSTRUCTION ON DEPOT STREET FROM SURPLUS STREET TO ROUTE 3A (PHASE 4)	This project will construct a sidewalk (approximately 1,200 feet) on the eastern side of Depot Street from the Surplus Street intersection to the Route 3A intersection.	Other	The eastern side of Depot Street from the Surplus Street intersection to the Route 3A intersection	https://www.google.com/maps/@42.0339079,-70.6910184,17.75z
7	SIDEWALK CONSTRUCTION ON RAILROAD AVENUE FROM SAINT GEORGE STREET TO ALDEN STREET	This project will construct a sidewalk (approximately 950 foot) on the western side of Railroad Avenue from the intersection of Saint George Street to the intersection of Alden Street	Safety/Pedestrian/Bicycle Audit	The western side of Railroad Avenue from the intersection of Saint George Street to the intersection of Alden Street	https://www.google.com/maps/@42.0477645,-70.6870534,17.5z
4	SIDEWALK CONSTRUCTION ON ALDEN STREET FROM SAINT GEORGE STREET TO DUXBURY FREE LIBRARY AND SPEED ADVISORY SIGNS ON ALDEN STREET	This project will construct a sidewalk that extends approximately 950 feet on the southern side of Alden Street from Saint George Street to the Duxbury Free Library. This project will also install regulatory signage on the eastbound and westbound sides of Alden Street to inform drivers of the speed limit. Advisory speed and school ahead signs will be placed to inform drivers to operate more cautiously on Alden Street. Speed feedback signs will be installed in both directions to encourage adherence to the speed limit.	Safety/Pedestrian/Bicycle Audit	The southern side of Alden Street from Saint George Street to the Duxbury Free Library	https://www.google.com/maps/@42.0481113,-70.6837659,17.5z

Modes Served / Project Types

Project Priority Ranking	Modes Served: Pedestrian	Bicycle	Transit	Vehicle/Freight	Intersection Redesign: Roundabouts/Mini Traffic Circle	Intersection Reconstruction	Tighten Curb Radii/Curb Extension	Intersection Signalization	Street Reconfigurations & Traffic Calming: Road Diet/Lane Elimination	Lane Narrowing	Other Traffic Calming Elements	Pedestrian Crossing Modifications: ADA-compliant Curb Ramps	Pedestrian Hybrid Beacon/HAWK	Ped-Activated Warning Device/RRFBs	Pedestrian Signal Upgrades	Crossing Islands	Raised Intersection or Raised Crosswalk	Crosswalk Improvements	Pedestrian & Bike Network Connections: Sidewalk	Shared-Use Path/Separated Bike Lane	On-road Bike Lane	Bicycle Boulevards	At-grade Rail Crossing Improvements	Transit Investments: Transit Station/Stop Access Improvements	Transit Service Improvements	Environment & Streetscape Investments: Street Lighting	Wayfinding for Pedestrians/Bicydists	Bicycle Parking	Bicycle-Friendly Drain Grates	Stormwater Management	Street Trees/Landscaping
15	Yes	Yes	No	Yes	Yes		Yes				Yes																				
9	Yes	Yes	No	No								Yes						Yes	Yes									Yes			
5	Yes	No	No	No								Yes						Yes	Yes												
2	Yes	No	Yes	Yes								Yes						Yes	Yes					Yes							
12	Yes	No	No	No								Yes						Yes	Yes												
10	Yes	Yes	No	Yes	Yes	Yes																									
1	Yes	No	No	No								Yes						Yes	Yes												
19	Yes	No	No	No								Yes						Yes	Yes												
19	Yes	No	No	No								Yes						Yes	Yes												
17	Yes	No	No	No								Yes						Yes	Yes												
23	Yes	No	No	No								Yes						Yes	Yes												
21	Yes	No	No	No								Yes						Yes	Yes												
6	Yes	No	No	No								Yes						Yes	Yes												
16	Yes	No	No	No								Yes						Yes	Yes												
21	Yes	No	No	No								Yes						Yes	Yes												
24	Yes	No	No	No								Yes						Yes	Yes												
7	Yes	No	No	No								Yes						Yes	Yes												
4	Yes	No	No	No								Yes						Yes	Yes												

Assessment / Funding Request / Construction Schedule

Project Priority Ranking	Network Gap: Is a Network Gap being filled?	High Crash Location: Pedestrian	Bicycle	Vehicle	Environmental Justice: Is an Environmental Justice Population Served? (See MassGIS Map)	Safe Routes to School: Does this project improve safety or accessibility within one mile of a school?	Safe Routes for Seniors: Does this project improve safety or accessibility within 1/4 mile of a Senior destination?	Accessibility: Does this project improve conditions for people with disabilities?	State-owned ROW: Does this project include any state-owned right-of-way?	Funding Request: Estimated Project Cost Range	Funding Requested from MassDOT	Other Funding Source(s) & Amount (if applicable)	Construction Schedule: Anticipated Construction Duration
15	No	No	No	No	No	No	No	Yes	No				
9	No	No	No	No	No	No	No	Yes	No				
5	Yes	No	No	No	No	No	No	Yes	No				
2	Yes	No	No	No	No	No	No	Yes	No				
12	Yes	No	No	No	No	No	No	Yes	No				
10	No	No	No	No	No	No	No	No	No				
1	Yes	No	No	No	No	No	No	Yes	No				
19	Yes	No	No	No	No	No	No	Yes	No				
19	Yes	No	No	No	No	No		Yes	No				
17	Yes	No	No	No	No	No	No	Yes	No				
23	Yes	No	No	No	No	No	No	Yes	No				
21	Yes	No	No	No	No	Yes	No	Yes	No				
6	Yes	No	No	No	No	No	No	Yes	No				
16	Yes	No	No	No	No	No	No	Yes	No				
21	Yes	No	No	No	No	Yes	Yes	Yes	No				
24	Yes	No	No	No	No	Yes	Yes	Yes	No				
7	Yes	No	No	No	No	Yes	No	Yes	No	$250,000 - $400,000			
4	Yes	No	No	No	No	Yes	No	Yes	No	$100,000 - $250,000			

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

massDOT Massachusetts Department of Transportation

Complete Streets Funding Program

Project Prioritization Plan

Project Basics				Location	
Project Priority Ranking	**Project Name**	**Project Description**	Project Source	**Project Location**	**Google Maps Link**
14	SIDEWALK RECONSTRUCTION ON ALDEN STREET FROM DUXBURY FREE LIBRARY TO RAILROAD AVENUE	This project will reconstruct the existing four-foot-wide sidewalk (approximately 650 feet) on the southern side of Alden Street from the Duxbury Free Library to the intersection at Railroad Avenue to build a five-foot-wide sidewalk.	Safety/Pedestrian/Bicycle Audit	The southern side of Alden Street from the Duxbury Free Library to the intersection at Railroad Avenue	https://www.google.com/maps/@42.0465,-70.6861177,17.5z
8	SIDEWALK CONSTRUCTION ON ALDEN STREET FROM RAILROAD AVENUE TO THE ART COMPLEX MUSEUM AND SAFETY IMPROVEMENTS, ALDEN STREET AT RAILROAD AVENUE INTERSECTION	This project will construct a sidewalk (approx. 1200 feet) from Railroad Avenue to the Art Complex Museum. This project will also install high-visibility crosswalks with pedestrian curb ramps at the intersection of Alden Street and Railroad Avenue. An RRFB will be installed on Alden Street to improve the	Safety/Pedestrian/Bicycle Audit	Alden Street from Railroad Avenue to the Art Complex Museum	https://www.google.com/maps/@42.0451461,-70.6881836,17.75z
11	SIDEWALK CONSTRUCTION ON ALDEN STREET FROM THE ART COMPLEX MUSEUM TO ROUTE 3A	connect pedestrians, possibly via a sidewalk (approximately 270 feet) on the east side of Alden Street, from the art museum to the intersection at Route 3A.	Safety/Pedestrian/Bicycle Audit	The eastern side of Alden Street, from the art museum to the intersection at Route 3A	https://www.google.com/maps/@42.0434986,-70.6893246,18.25z
3	SIDEWALK CONSTRUCTION AND CROSSWALK AT ON ST GEORGE STREET AND INSTALLATION OF SIGNAGE ON SAINT GEORGE STREET	This project will construct a sidewalk (approximately 750 feet) on the northern side of Saint George Street from Cedar Street to 64 Saint George Street. This project will also install regulatory signage on the eastbound and westbound sides of Saint George Street to inform drivers of the speed limit.	Safety/Pedestrian/Bicycle Audit	The northern side of Saint George Street from Cedar Street to 64 Saint George Street	https://www.google.com/maps/@42.0484624,-70.679678,17.25z
18	SIDEWALK CONSTRUCTION ON POWDER POINT AVENUE FROM COVE STREET TO KING CESAR ROAD (PHASE 1)	This project will ideally construct a five-foot-wide sidewalk on Powder Point Avenue, from Cove Street to King Cesar Road (approximately 1,200 feet).	Other	Powder Point Avenue from Cove Street to King Cesar Road	https://www.google.com/maps/@42.0486653,-70.6709537,17.75z
26	SIDEWALK CONSTRUCTION ON POWDER POINT AVENUE FROM KING CESAR ROAD TO WESTON ROAD (PHASE 2)	This project will ideally construct a sidewalk on Powder Point Avenue from King Cesar Road to Weston Road (approximately 1,600 feet).	Other	Powder Point Avenue from King Cesar Road to Weston Road	https://www.google.com/maps/@42.0479801,-70.6660948,17.5z
26	SIDEWALK CONSTRUCTION ON POWDER POINT AVENUE FROM WESTON ROAD TO 263 POWDER POINT AVENUE (PHASE 3)	This project will ideally construct a five-foot-wide sidewalk on Powder Point Avenue, from Weston Road to 263 Powder Point Road (approximately 1,100 feet).	Other	Powder Point Avenue from Weston Road to 263 Powder Point Road	https://www.google.com/maps/@42.0471225,-70.6608213,18z
24	SIDEWALK CONSTRUCTION ON POWDER POINT AVENUE FROM WESTON ROAD TO 263 POWDER POINT AVENUE (PHASE 4)	This project will ideally construct a sidewalk on Powder Point Avenue from 263 Powder Point Road to King Cesar Road (approximately 1,600 feet).	Other	Powder Point Avenue from 263 Powder Point Road to King Cesar Road	https://www.google.com/maps/@42.0469248,-70.6557955,17.75z
13	SPEED HUMPS AND RAISED CROSSWALKS ALONG BAY ROAD	This project will install a series of speed humps and raised crosswalks with ADA accessible curb ramps along Bay Road to reduce travel speeds while drivers travel between Halls Corner and Loring Street near the Town border. The construction of a raised crosswalk will be at the intersection of Soule Ave and Bay Road to replace the existing crosswalk. Speed humps will be constructed near 36 Bay Road approximately 500 feet from the Town Center, and between the intersections of Hicks Pond Road Grandview Avenue.	Other	Bay Road from Halls Corner to Loring Street	https://www.google.com/maps/place/Art+Complex+Museum/@42.0468003,-70.6846269,19z/data=!4m5!3m4!1s0x0:0x30a43f561887970c!8m2!3d42.0439246!4d-70.6873095#:~:text=42.046753%2C%20-70.684592

Project Priority Ranking	Modes Served: Pedestrian	Bicycle	Transit	Vehicle/Freight	Intersection Redesign: Roundabouts/Mini Traffic Circle	Intersection Reconstruction	Tighten Curb Radii/Curb Extension	Intersection Signalization	Street Reconfigurations & Traffic Calming: Road Diet/Lane Elimination	Lane Narrowing	Other Traffic Calming Elements	Pedestrian Crossing Modifications: ADA-compliant Curb Ramps	Pedestrian Hybrid Beacon/HAWK	Ped-Activated Warning Device/RRFBs	Pedestrian Signal Upgrades	Crossing Islands	Raised Intersection or Raised Crosswalk	Crosswalk Improvements	Pedestrian & Bike Network Connections: Sidewalk	Shared-Use Path/Separated Bike Lane	On-road Bike Lane	Bicycle Boulevards	At-grade Rail Crossing Improvements	Transit Investments: Transit Station/Stop Access Improvements	Transit Service Improvements	Environment & Streetscape Investments: Street Lighting	Wayfinding for Pedestrians/Bicyclists	Bicycle Parking	Bicycle-Friendly Drain Grates	Stormwater Management	Street Trees/Landscaping
14	Yes	No	No	No								Yes						Yes	Yes												
8	Yes	No	No	No								Yes		Yes				Yes	Yes												
11	Yes	No	No	No								Yes						Yes	Yes												
3	Yes	No	No	No							Yes	Yes						Yes	Yes												
18	Yes	No	No	No								Yes						Yes	Yes												
26	Yes	No	No	No								Yes						Yes	Yes												
26	Yes	No	No	No								Yes						Yes	Yes												
24	Yes	No	No	No								Yes						Yes	Yes												
13	Yes	No	No	Yes								Yes					Yes	Yes													

Project Priority Ranking	Network Gap: Is a Network Gap being filled?	High Crash Location: Pedestrian	Bicycle	Vehicle	Environmental Justice: Is an Environmental Justice Population Served? (See MassGIS Map)	Safe Routes to School: Does this project improve safety or accessibility within one mile of a school?	Safe Routes for Seniors: Does this project improve safety or accessibility within 1/4 mile of a Senior destination?	Accessibility: Does this project improve conditions for people with disabilities?	State-owned ROW: Does this project include any state-owned right-of-way?	Funding Request: Estimated Project Cost Range	Funding Requested from MassDOT	Other Funding Source(s) & Amount (if applicable)	Construction Schedule: Anticipated Construction Duration
14	Yes	No	No	No	No	Yes	No	Yes	No				
8	Yes	No	No	No	No	Yes	No	Yes	No	$50,000 - $100,000			
11	Yes	No	No	No	No	Yes	No	Yes	No				
3	No	No	No	No	No	Yes	No	Yes	No	$50,000 - $100,000			
18	Yes	No	No	No	No	Yes	No	Yes	No				
26	Yes	No	No	No	No	Yes	No	Yes	No				
26	Yes	No	No	No	No	Yes	No	Yes	No				
24	Yes	No	No	No	No	No	No	Yes	No				
13	No	No	No	No	No	No	No	No	No				

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**
S1. Pavement markings or signage that provides a new separate accommodation for bicycle, pedestrian or transit modes	**B1**. Improvement of shared use paths (non-safety related)	**P1**. Sidewalk repairs (tree roots, uplifted panels, etc.)	**T1**. Improving transit connections for pedestrians, including: ramps, providing and/or moving crosswalks, signing
S2. Removal of protruding objects (pedestrian path of travel, bicycle, vehicular or transit facility)	**B2**. Designated bicycle lanes	**P2**. Providing ADA/AAB compliant curb ramps	**T2**. Improving transit connections for bicyclists, including: providing secure bicycle parking, signing
S3. Pedestrian signal & timing (minor updates)	**B3**. Bicycle parking fixtures and/or shelters at transit and other locations	**P3**. Detectable warning surfaces	**T3**. Transit shelter
S4. Changing pedestrian signal timing (i.e., lead pedestrian interval)	**B4**. On-street bicycle parking	**P4**. Pedestrian wayfinding signs	**T4**. Transit signal prioritization
S5. Radar speed feedback ("Your Speed") signs	**B5**. Provide bicycle-safe drain grates and other hardware	**P5**. Providing new sidewalks	**T5**. Bus pull-out areas
S6. Reducing corner radii to lower vehicle speeds and/or decrease pedestrian crossing distances	**B6**. Bicycle boulevards	**P6**. Providing pedestrian buffer zones	**T6**. Railroad grade crossings improvements (signs, flange way fill, etc.)
S7. Additional regulatory signing (for existing regulations)	**B7**. Bicycle wayfinding signs	**P7**. Pedestrian Refuge Islands	**T7**. Transit contra-flow lanes
S8. Speed humps/speed tables	**B8**. Shared lane markings (sharrows)	**P8**. Curb extensions at pedestrian crossings	**T8**. Park-n-ride facilities
S9. Street lighting	**B9**. Bike route signs	**P9**. Crosswalks	**T9**. Transit-only lanes
S10. Road diets	**B10**. New shared use paths	**P10**. Widening existing sidewalks	**TO**. Tansit Facilities - Other
S11. Speed attenuation devices	**B11**. Designated Separated Bicycle Lane	**P11**. Accessible pedestrian signals	
S12. Roadway resurfacing or micro surfacing if restriping for new bicycle lanes	**B12**. Elimination of hazardous conditions on shared use paths	**P12**. New or improved crossing treatments at intersections, midblock, etc. including RRFB's and HAWK signals	
S13. Intersection reconstruction – reducing complexity and crossing distance	**B13**. Intersection treatments (bicycle signals, bicycle detection, bike lane extensions, turn boxes)	**P13**. New pedestrian accommodations at existing traffic signals	
S14. New curbing or edging on uncurbed streets.	**BO**. Bicycle Facilities - Other	**P14**. Interim public plazas	
S15. Addition of or widening of shoulders		**P15**. Traffic re-routing to create pedestrian zones	
S16. Intersection signalization (major updates/upgrades & new Installation)		**P16**. Providing medians with ADA/AAB-compliant design	
S17. Traffic calming measures		**PO**. Pedestrian Facilities - Other	
S18. Roundabouts			
SO. Traffic & Safety - Other			

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

Table 5. 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
Bicycle Mobility	Bicycle Latent Demand
	Bicycle Level of Comfort

The prioritization criteria outlined by MassDOT are expanded upon by HSH to provide a more nuanced analysis of proposed projects.

Project Descriptions

The following projects are concept-level project proposals for Complete Streets improvements throughout the Town of Duxbury. Project identification is based on existing conditions analysis, community input, and conversations with Town staff.

It is important to note that Duxbury has evolved over hundreds of years, from the native indigenous residents who named many places in the community – the Wampanoag Nation – and then through early settlement by the first Pilgrims on the Mayflower. Existing trails, trade routes, and paths slowly evolved into heavier use, and in the later 1800s to today, a railway arrived and later left, with tourism and escape evolving after a waterfront shipbuilding industry that heavily used the waterfront for industrial construction for a time began to fade. The transition from horse, to horse and buggy, to rail and streetcar, and to the automobile have all taken place in this small community.

These dynamics, and the pattern of change from a more agricultural community to a town that has experienced growth into a more semi-rural character because of the highway – which was constructed in the 1960s – have helped establish the patterns of subdivisions, private road construction, and evolving transportation in the Town. The Town has wisely and carefully shaped its land development since the 1940s when zoning and planning were begun and has protected vast areas of the Town; in doing so, they have preserved its drinking water and wooded acreage for future generations to enjoy. As this growth occurred, land donations to establish the swimming hole at the Blue Fish River (now a historic fire station lot), the gift of land at Mattakeeset Court for public access, and other opportunities to improve public access to the water, including Duxbury Bay

Maritime School, the non-profit Duxbury Beach Reservation, and land acquisitions by the Duxbury Conservation Commission, have helped create the successful playground on the waterfront we all enjoy.

Today's challenges reflect that more people of all ages and children playing and traveling to and from school, lessons, and sports activities are living in Duxbury year-round, using the waterfront to recreate, and at least 10% of the workforce works within the community where they reside today. New road construction has tapered off, and sidewalks were primarily built along Washington Street during the Great Depression and to move people from the two train stations to their residences and some of the businesses located there. It is only relatively recently that the desire to enhance safety for pedestrians and cyclists has arisen. Some of the sidewalks along Washington Street were built to improve on existing gravel which had been laid for pedestrians using the train depots, adding curbs and paving, and connecting portions to the school located there in the past. In the 1950s, Town Meeting members asked the Selectmen to stop making sidewalk improvements, although more had been planned along Washington Street and heading to Powder Point at that time, due to public safety concerns. Town officials have revisited the matter a few times since then but have not had the support of the Town Meeting members to make these changes. One new public sidewalk has been constructed since that time.

Recent resident surveys indicate the desire and the need for improvements to pedestrian and bicycle safety. Throughout this time, sidewalk minimums for ADA-compliance have evolved to five feet width, and other measures for public safety have been established, which are unfamiliar to the community outside of areas like the library and school campus. Complete Streets designs will incorporate both the best available solutions and the best fit to each area, constrained by things like available road layout widths, existing utilities, and streetscaping that maintains community character, as well as public input throughout each design process.

Halls Corner

Halls Corner is the largest retail business district in Duxbury. Attractiveness and cohesiveness of the area will drive the continuation of economic vibrancy as new tenants and owners arrive over the years to come. While heavily frequented and having undergone significant changes over the years, current impediments to the area include traffic flows, safety relative to the roundabout and its approaches, and accessibility for pedestrians and bicyclists, including connectivity across the market areas. Improvements at Halls Corner will address the concerns of residents, Town officials, business owners, visitors, and users of the area. All improvements listed here require the exploration of public versus private property through resolving the street layout and overall coordination with the property owners, business tenants, Town officials, and other stakeholders and residents on the

overall desired design, as well as the look and feel of the streetscape when addressing these concerns.

HALLS CORNER TRAFFIC CIRCLE SAFETY IMPROVEMENTS

The historic nature of the five-way intersection, which evolved during the transition from horse-drawn buggies to automobiles into the present day, poses challenges in terms of the angles of the intersection first documented in a 1929 letter to the editor of the local newspaper. Parking spaces located within the existing traffic circle, which have been present for decades, have been cited as an impediment to traffic flows. The alignment of many of the parking spaces causes drivers to reverse directly into the traffic circle. Weekend traffic jams have been noted due to high volumes of drivers, bicyclists, and pedestrians navigating the area. Bicyclists have reported having to enter the traffic circle with automobile drivers at the same time due to limited space and congestion. Most businesses in Halls Corner have additional off-street parking; however, the pull-in design is highly desired by the business tenants for their older customers and for the convenience of all their customers in terms of easy, one-stop transactions with short walks in safe pedestrian locations: sidewalks. This project will explore the feasibility of relocating some of the parking spaces in the traffic circle and possible re-alignment or reconfiguration of parking to alleviate some congestion and to improve sightlines and increase safety for pedestrians and bicyclists while addressing the need for convenience and safety to enhance the business environment. Limitations here include formalizing the street layout and evaluating public and private collaboration necessary to achieve improvements, including relocation of utilities.

STANDISH STREET SIDEWALK RECONSTRUCTION AND BICYCLE RACK INSTALLATION

Sidewalks on the eastern side of Standish Street are in good condition. Existing sidewalks on the western side of Standish Street are deteriorating, and some of the streetscaping interferes with car doors. Landscaping has been an issue relative to the desired streetscape and existing streetscape at this location. This project will examine and propose the reconstruction of a five-foot-wide sidewalk (approximately 100 feet in length) on the western side of Standish Street from One Bay Road/Halls Corner to 8 Standish Street with granite curbing. High-visibility crosswalks with pedestrian curb ramps will be installed across Standish Street at the Halls Corner intersection. Public and private collaboration is important, and the design of the streetscape in keeping with the character of the community will be an important consideration.

There is no existing public bicycle parking infrastructure located in front of the businesses located at 1 Washington Street, 5 Standish Street, 7 Standish Street, and 9 Standish Street. The sidewalks in this area are 13 feet wide and provide public benches and landscaping to create a welcoming environment. This project will also install bicycle racks within the seven-foot-wide section of the

sidewalk between 5 Standish Street and 9 Standish Street next to where benches and landscaping currently exist.

BAY ROAD SIDEWALK CONSTRUCTION AND INSTALLATION OF SIGNAGE AND SPEED FEEDBACK RADAR SIGNS ALONG BAY ROAD

There is no sidewalk on the southern side of Bay Road. The current wide shoulder acts as a sidewalk for pedestrians, creating safety and accessibility issues for pedestrians. This project will explore the feasibility of a five-foot-wide sidewalk on the southern side of Bay Road. Limitations include formalizing the street layout and evaluating public and private collaboration necessary to achieve improvements. A desired outcome would possibly include the construction of a five-foot-wide sidewalk with granite curbing on the south side of Bay Road from the intersection of Halls Corner and Bay Road (approximately 400 feet) to the parking lot for 25 Bay Road. High-visibility crosswalks with pedestrian curb ramps will be installed to the parking lot driveway at 15 Bay Road to improve safety and accessibility for pedestrians.

Vehicles traveling at high speeds have been reported along the Bay Road by community input. This project will also install speed feedback signs in both directions. The project will also install Share the Road (W16-1) signage every quarter mile.

DEPOT STREET SIDEWALK CONNECTION TO TRANSIT AND REGULATORY SIGNAGE INSTALLATION, SAFETY IMPROVEMENTS IN HALLS CORNER

The sidewalk on the western side of Depot Street is missing sections. The small portion of the existing sidewalk is in poor condition. The Halls Corner Brother's Market is a point of interest for community members. There is a GATRA bus stop at this location. This project will explore the feasibility of installing the missing sidewalk sections. Limitations include formalizing the street layout and evaluating public and private collaboration necessary to achieve improvements. A desired outcome would possibly include the construction of a five-foot-wide sidewalk with granite curbing on the western side of Depot Street from 5 Depot Street to the Brother's Market parking lot at 64 Depot Street (approximately 730 feet). A high-visibility crosswalk with pedestrian curb ramps would be constructed on the eastern side of Depot Street for users to navigate across the shopping plaza driveways, improving connectivity and accessibility to transit in Duxbury by providing pedestrian connections to transit stops. Considerations should be made to moving utility poles.

This project will also install signage that provides more guidance on how to navigate through the traffic circle to improve traffic flow and ease congestion. Roundabout circulation plaques (*Manual on Uniform Traffic Control Devices (MUTCD)* R6-5P) accompanied by yield signs (MUTCD R1-2) at stop lines/traffic circle entrance points from Standish Street, Bay Road, Washington Street, Chestnut Street, and Depot Street are desired to be installed at the Halls Corner intersection. Roundabout directional arrow signs (MUTCD R6-4) will replace the current direction signs located in the center

median of Halls Corner, with similar consideration as to design and location. Unsignalized pedestrian crosswalk signs will be installed in advance of the nearest existing crosswalk lines, reminding drivers that they must yield to pedestrians. This will improve safety for all users, specifically pedestrians crossing the streets to reach destinations at Halls Corner.

CHESTNUT STREET TO HALLS CORNER SIDEWALK CONSTRUCTION AND INSTALLATION OF SIGNAGE AND SPEED FEEDBACK RADAR SIGNS ALONG CHESTNUT STREET

On Chestnut Street, there is no sidewalk directly connected to the Halls Corner intersection. A sidewalk begins on the north side of Chestnut Street at 18 Chestnut Street and is in good condition. The feasibility of a five-foot-wide sidewalk with granite curbing will be explored from 18 Chestnut Street to the Halls Corner intersection (approximately 180 feet). This would complete the pedestrian connection from Chestnut Street to Halls Corner. A high-visibility crosswalk with pedestrian curb ramps is desired across Chestnut Street at 15 Chestnut Street.

This project will also install speed feedback signs on Chestnut Street in both directions between Halls Corner and Loring Street to encourage safe driving along Chestnut Street towards Route 3A and Halls Corner and improve safety for pedestrians. The project will also install Share the Road (W16-1) signage every quarter mile.

TRAFFIC CIRCLE REDESIGN TO IMPROVE TRAFFIC FLOW AND REDUCE CONGESTION

The flow of traffic is something that both the public and the Town have referenced as an issue that needs improvements in Halls Corner. This project will, with testing and public input, construct a mini-roundabout that is safe and accessible for all users to navigate around and through Halls Corner as a highly visible traffic calming strategy. This is also shown to greatly improve safety and smooth congestion. The mountable island in the center needs a minimum diameter of 50 feet; a smaller island would need to be flush, e.g., painted. The mini-roundabout will help maintain a slower speed limit and should be paired with traffic calming strategies at each approach prior to the roundabout. Circular Intersection warning signs (W2-6) are installed prior to YIELD signs (R1-2) at each approach. A field survey will determine if construction can be completed within the existing layout.

ELIGIBLE PROJECTS

1) B3. Bicycle parking fixtures and/or shelters at transit and other locations
2) P2. Providing ADA/AAB-compliant curb ramps
3) P3. Detectable warning surfaces
4) P5. Providing new sidewalks

5) S5. Radar speed feedback ("Your Speed") signs
6) S7. Additional regulatory signing (for existing regulations)
7) S13. Intersection reconstruction – reducing complexity and crossing distance
8) S17. Traffic calming measures
9) S18. Roundabouts

Washington Street

Washington Street stretches approximately two miles from Halls Corner to the Powder Point area and acts as a connector to several points of interest in Duxbury. Washington Street also acts as a point of access to the coastline. Completing paths of connectivity improves access and safety for all users to navigate through the Town during the peak summer and off-peak seasons. There are significant challenges to improving this very old traveled way, which has been examined by the Town council, the Department of Public Works, and the Planning Department working with professional surveyors and Town volunteers. There is no public layout established on the ground or in plan form – the way is "used and maintained" by the Town, and old layouts of the way verbally described in documents over 100 years old must be surveyed, bounds found or placed, and potential conflicts with existing property owners along the street with established stone walls, driveways, house lots, utilities, and other structures may need to be resolved as part of the process of establishing a street layout. The layout may need to be widened and utilities relocated to implement this work. Other alternatives will be explored to improve safety while working towards the solutions identified previously, as they will likely be more expedient and potentially less costly, while the ideal solution of establishing and possibly widening the road to construct the proposed improvements will be considered.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM HALLS CORNER/WASHINGTON STREET TO HARDEN HILL ROAD (PHASE 1) AND SHARE THE ROAD SIGNAGE AND MARKINGS, WASHINGTON STREET

Ideally, this project will construct a five-foot-wide minimum sidewalk with granite curbing that is approximately 720 feet long on the southern side of Washington Street to connect to the existing sidewalk that ends at 11 Washington Street. A high-visibility crosswalk with pedestrian curb ramps across Harden Hill Road will improve visibility and safety of the crosswalk for all users. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

If feasible, this project will also install Share the Road signage (MUTCD W16-1) every quarter mile. This project will also paint shared lane markings every 250 feet in the center of the lanes to emphasize the right of cyclists to use the full travel lanes.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM HARDEN HILL ROAD TO METCALF WAY (PHASE 2)

Ideally, this project will construct a five-foot-wide minimum sidewalk (approximately 1,130 feet) with granite curbing on the southern side of Washington Street from Harden Hill Road to Metcalf Way. Two high-visibility crosswalks with pedestrian curb ramps will be installed across Wadsworth Lane and Metcalf Way. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM METCALF WAY TO SHIPYARD LANE (PHASE 3)

Ideally, this project will construct a five-foot-wide minimum sidewalk (approximately 965 feet) with granite curbing on the southern side of Washington Street from Metcalf Way to Shipyard Lane. Two high-visibility crosswalks with pedestrian curb ramps will be installed across Metcalf Way and Shipyard Lane. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM SHIPYARD LANE TO LINDEN LANE (PHASE 4)

Ideally, this project will construct a five-foot-wide minimum sidewalk (approximately 1,500 feet) with granite curbing on the southern side of Washington Street to create a connection from Shipyard Lane to Linden Lane. Three high-visibility crosswalks with pedestrian curb ramps will be installed across Josselyn Avenue, Friendship Lane, and Linden Lane. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM LINDEN LANE TO FREEMAN PLACE (PHASE 5)

Ideally, this project will construct a five-foot-wide minimum sidewalk (approximately 680 feet) with granite curbing on the southern side of Washington Street to create a connection from Linden Lane to Freeman Place. Three high-visibility crosswalks with pedestrian curb ramps will be installed across Short Lane, Water Street, and Freeman Place. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

SIDEWALK CONSTRUCTION, WASHINGTON STREET FROM FREEMAN PLACE TO BAYSIDE MARINE CORPORATION (PHASE 6)

Ideally, this project will construct a five-foot-wide minimum sidewalk (approximately 100 feet) with granite curbing on the western side of Washington Street from Freeman Place to Bayside Marine Corporation. A high-visibility crosswalk with pedestrian curb ramps across Winsor Street. This is part of a phased project to connect two points of interest – Halls Corner to Powder Point.

ELIGIBLE PROJECTS

1) P2. Providing ADA/AAB-compliant curb ramps
2) P3. Detectable warning surfaces
3) P5. Providing new sidewalks
4) S1. Pavement markings or signage that provide a new separate accommodation for bicycle, pedestrian, or transit modes

Chestnut Street

Chestnut Street is a connecting road from Route 3A to Halls Corner that is approximately 0.75 miles long. Speeding is a reported issue on the street, as well as crashes near the Halls Corner intersection.

SPEED HUMPS AND RAISED CROSSWALKS ALONG CHESTNUT STREET

This project will install a series of speed humps and raised crosswalks along Chestnut Street to reduce travel speeds while drivers travel between Halls Corner and Tremont Street/Route 3A. The construction of a raised crosswalk with ADA-accessible curb ramps will be near 15 Chestnut Street, approximately 150 feet away from the Halls Corner intersection. Speed humps will be constructed between Bayridge Lane and the driveway to the Holy Family Church along Chestnut Street, approximately 300 feet east of the Tremont Street/Route 3A intersection, and between the intersections of Old Meeting House Hill Street and Pilgrim By-Way.

Bay Road

Bay Road is a coastal route of the Landline Greenway network. Completing points of connectivity improves access and safety for all users to navigate through the Town during the peak summer and off-peak seasons. To improve multimodal network connectivity, shared lane markings, shared-use paths, bike lanes, and sidewalks should be created, again with the review of width and layout challenges being a first step in establishing the feasibility of the best types of markings and improvements.

SPEED HUMPS AND RAISED CROSSWALKS ALONG BAY ROAD

This project will install a series of speed humps and raised crosswalks along Bay Road to reduce travel speeds while drivers travel between Halls Corner and Loring Street near the Town border. The construction of a raised crosswalk with ADA-accessible curb ramps will be at the intersection of Soule Ave and Bay Road to replace the existing crosswalk. Speed humps will be constructed near 36

Bay Road approximately 500 feet from the Town Center, and between the intersections of Hicks Pond Road Grandview Avenue.

Depot Street

Depot Street leads from Route 3A to Halls Corner. Depot Street connects Duxbury Town Hall to one of the Town's economic centers. Users utilize this road to connect between the two areas. Community input included those who walk in the road to reach Halls Corner from residential neighborhoods on Depot Street.

SIDEWALK CONSTRUCTION, DEPOT STREET FROM HALLS CORNER TO SOUTH STATION STREET (PHASE 1)

This project will ideally construct a five-foot-wide minimum sidewalk with granite curbing that extends approximately 1,200 feet on the eastern side of Depot Street, from the existing sidewalk that ends at 19 Depot Street to South Station Street. Two high-visibility crosswalks with pedestrian curb ramps are desired across Bayberry Lane and Station Street. This is part of a phased project to connect residential neighborhoods on Depot Street to Halls Corner, Duxbury Town Hall, and First Parish Unitarian Church.

SIDEWALK CONSTRUCTION, DEPOT STREET FROM SOUTH STATION STREET TO PRIOR FARM ROAD (PHASE 2)

This project will ideally construct a five-foot-wide minimum sidewalk (approximately 900 feet) with granite curbing on the eastern side of Depot Street from South Station Street to 185 Depot Street at the Prior Farm Road intersection. This is part of a phased project to connect residential neighborhoods on Depot Street to Halls Corner, Duxbury Town Hall, and First Parish Unitarian Church.

SIDEWALK CONSTRUCTION, DEPOT STREET FROM PRIOR FARM ROAD TO SURPLUS STREET (PHASE 3)

This project will construct a five-foot-wide minimum sidewalk (approximately 850 feet) with granite curbing on the eastern side of Depot Street from 185 Depot Street to Surplus Street. A high-visibility crosswalk with pedestrian curb ramps will be installed across Surplus Street. This is part of a phased project to connect residential neighborhoods on Depot Street to Halls Corner, Duxbury Town Hall, and First Parish Unitarian Church.

SIDEWALK CONSTRUCTION, DEPOT STREET FROM SURPLUS STREET TO ROUTE 3A (PHASE 4)

This project will construct a five-foot-wide minimum sidewalk (approximately 1,200 feet) with granite curbing on the eastern side of Depot Street from the Surplus Street intersection to the Route

3A intersection. This is part of a phased project to connect residential neighborhoods on Depot Street to Halls Corner, Duxbury Town Hall, and First Parish Unitarian Church.

ELIGIBLE PROJECTS

1) P2. Providing ADA/AAB-compliant curb ramps
2) P3. Detectable warning surfaces
3) P5. Providing new sidewalks

Railroad Avenue

Railroad Avenue is a connector between Alden Street and Saint George Street. It hosts local businesses and their parking lots. Vehicular users may use Railroad Avenue as a cut-through route, so safety improvements are necessary for all users to safely travel between Alden Street and Saint George Street. Children frequent this route due to its proximity to the school campus and the activities available to them in this location, and recent very successful improvements to the Millbrook Corner with small restaurants have livened up this previously quieter commercial area in recent years.

SIDEWALK CONSTRUCTION, RAILROAD AVENUE FROM SAINT GEORGE STREET TO ALDEN STREET

This project will construct a five-foot-wide minimum sidewalk (approximately 950 feet) with granite curbing on the western side of Railroad Avenue from the intersection of Saint George Street to the intersection of Alden Street, with continued cooperation from the private owner of the existing sidewalk on the western side. It will extend the existing sidewalk connection in front of 30 Railroad Avenue to the residential neighborhood, school, and public library to Saint George Street. This improves the connection to several destinations for students and children, including Alden Elementary School, Duxbury Middle School, and Duxbury High School. If necessary, the Town can consider improvements to the opposite side of the road as an alternative, but all indications are currently that the private owners will cooperate with the Town on this needed connection.

ELIGIBLE PROJECTS

1) P2. Providing ADA/AAB-compliant curb ramps
2) P5. Providing new sidewalks
3) S14. New curbing or edging on uncurbed streets.

Alden Street

Alden Street acts as a connector from Route 3A to Saint George Street. It is a Town hub area as the school complex, public library, and art museum are located here. This is a high-traffic area for drivers, pedestrians, and bicyclists. It is critical to ensure safety and connectivity improvements in the area.

SIDEWALK CONSTRUCTION, ALDEN STREET FROM SAINT GEORGE STREET TO DUXBURY FREE LIBRARY AND SPEED ADVISORY SIGNS ON ALDEN STREET

This project will construct a five-foot-wide minimum sidewalk with granite curbing that extends approximately 680 feet on the southern side of Alden Street from Saint George Street to the Duxbury Free Library. Two high-visibility crosswalks with pedestrian curb ramps will be constructed at the intersection of Saint George and Alden Streets across Saint George Street. The project provides a missing connection for several destinations for students and children, including Alden Elementary School, Duxbury Middle School, and Duxbury High School.

This project will also install regulatory signage on the eastbound and westbound sides of Alden Street to inform drivers of the speed limit. Advisory speed and school ahead signs will be placed to inform drivers to operate more cautiously on Alden Street. Speed feedback signs will be installed in both directions to encourage adherence to the speed limit.

SIDEWALK CONSTRUCTION, ALDEN STREET FROM RAILROAD AVENUE TO THE ART COMPLEX MUSEUM AND SAFETY IMPROVEMENTS, ALDEN STREET AT RAILROAD AVENUE INTERSECTION

This project would construct a five-foot-wide sidewalk (approximately 1,200 feet) with granite curbing on the east side of Alden Street from Railroad Avenue to the art museum. The project provides missing connections to several destinations for students and children, including Alden Elementary School, Duxbury Middle School, and Duxbury High School, and will provide a pedestrian connection from the schools to the art museum. This project has been a point of conflict with local residents and property owners here have expressed their concerns, but there seems to be a need for the pedestrian network connection. Road layouts here need to be evaluated with survey work.

This project will also install high-visibility crosswalks with pedestrian curb ramps at the intersection of Alden Street and Railroad Avenue. An RRFB will be installed on Alden Street to improve the visibility and safety of pedestrians. The project provides missing safety features to several destinations for students and children, including Alden Elementary School, Duxbury Middle School, and Duxbury High School.

SIDEWALK CONSTRUCTION, ALDEN STREET FROM THE ART COMPLEX MUSEUM TO ROUTE 3A

This project would construct a five-foot-wide sidewalk (approximately 270 feet) with granite curbing on the east side of Alden Street, from the art museum to the intersection at Route 3A. Like the issues expressed above, the Alden Street neighborhood will be involved in evaluating a project that will connect pedestrians, possibly via a sidewalk. Road layouts here would need to be evaluated with survey work.

ELIGIBLE PROJECTS

1) P2. Providing ADA/AAB-compliant curb ramps
2) P5. Providing new sidewalks
3) S14. New curbing or edging on uncurbed streets.

Saint George Street

Saint George Street acts as a major connector from Route 14 and Route 3A to the Powder Point area. Saint George Street is in a Town hub that includes many points of interest: the school complex, public library, recreation areas, and local businesses are located here. This is a high-traffic area for drivers, pedestrians, and bicyclists, so safety and connectivity improvements are critical.

SIDEWALK CONSTRUCTION AND CROSSWALK AND INSTALLATION OF SIGNAGE ON SAINT GEORGE STREET

This project will construct a five-foot-wide sidewalk (approximately 80 feet) with granite curbing on the northern side of Saint George Street from Cedar Street to 64 Saint George Street. This will complete the pedestrian connection from Saint George Street to Washington Street. A high-visibility crosswalk with ADA-complaint curb ramps will be installed across Cedar Street to connect the existing sidewalk from the intersection of Cedar Street and Saint George Street to the new sidewalk.

This project will also install regulatory signage on the eastbound and westbound sides of Saint George Street to inform drivers of the speed limit. Advisory speed and school ahead signage will be placed to inform drivers to operate more cautiously on Saint George Street. Speed feedback signs will be installed from both directions to encourage safe driving on routes that are traveled by students.

ELIGIBLE PROJECTS

1) P2. Providing ADA/AAB-compliant curb ramps
2) P3. Detectable warning surfaces
3) P5. Providing new sidewalks

4) S14. New curbing or edging on uncurbed streets.

Powder Point Avenue

Powder Point Avenue acts as a major access point to Duxbury Beach and lacks connectivity for pedestrians and bicyclists. The installation of bicycle and pedestrian facilities will continue future connections from Washington Street and Saint George Street. This safety concern for bicyclists and pedestrians has been a long-standing concern (going back at least to the 1950s, according to Town annual reports). As with Washington Street, the lack of an established street layout, existing public and private infrastructure, and utilities are important issues that must be included as part of the considerations in how to best address the safety needs while working with the neighborhood and private property owners.

SIDEWALK CONSTRUCTION, POWDER POINT AVENUE FROM COVE STREET TO KING CESAR ROAD (PHASE 1)

This project will ideally construct a five-foot-wide minimum sidewalk with granite curbing on Powder Point Avenue, from Cove Street to King Cesar Road (approximately 1,200 feet). A high-visibility crosswalk with pedestrian curb ramps will be installed across King Cesar Road. This project will increase visibility and safety for pedestrians in the Powder Point neighborhood. This is part of a phased project to connect points of interest on Washington Street to Powder Point.

SIDEWALK CONSTRUCTION, POWDER POINT AVENUE FROM KING CESAR ROAD TO WESTON ROAD (PHASE 2)

This project will ideally construct a five-foot-wide minimum sidewalk with granite curbing on Powder Point Avenue from King Cesar Road to Weston Road (approximately 1,600 feet). Two high-visibility crosswalks with pedestrian curb ramps will be installed across Russell Road and Moulton Road. This project will increase visibility and safety for pedestrians in the Powder Point neighborhood. This is part of a phased project to connect points of interest on Washington Street to Powder Point.

SIDEWALK CONSTRUCTION, POWDER POINT AVENUE FROM WESTON ROAD TO 263 POWDER POINT AVENUE (PHASE 3)

This project will ideally construct a five-foot-wide minimum sidewalk with granite curbing on Powder Point Avenue, from Weston Road to 263 Powder Point Road (approximately 1,100 feet). This project will increase visibility and safety for pedestrians in the Powder Point neighborhood. This is part of a phased project to connect points of interest on Washington Street to Powder Point.

SIDEWALK CONSTRUCTION, POWDER POINT AVENUE FROM WESTON ROAD TO 263 POWDER POINT AVENUE (PHASE 4)

This project will ideally construct a five-foot-wide minimum sidewalk with granite curbing on Powder Point Avenue from 263 Powder Point Road to King Cesar Road (approximately 1,600 feet). This project will increase visibility and safety for pedestrians in the Powder Point neighborhood. This is part of a phased project to connect points of interest on Washington Street to Powder Point.

ELIGIBLE PROJECTS

1) P9. Crosswalks
2) P2. Providing ADA/AAB-compliant curb ramps
3) P3. Detectable warning surfaces
4) P5. Providing new sidewalks

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