



Town of Barnstable

COMPLETE STREETS PRIORITIZATION PLAN

SEPTEMBER 2023

Prepared by Cape Cod Commission Staff on behalf of the Town of Barnstable. This report was funded in part through grants from the Massachusetts Department of Transportation (MassDOT). The views and opinions expressed herein do not necessarily state or reflect those of the MassDOT.

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COMPLETE STREETS PRIORITIZATION PLAN

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Executive Summary

The Town of Barnstable is seeking to improve the travel experience for all users of its streets – motorists, pedestrians, and bicyclists – through the development of a Complete Streets Prioritization Plan. With funding provided by the Massachusetts Department of Transportation (MassDOT), Barnstable has retained the services of the Cape Cod Commission (CCC) transportation staff to develop this plan. The purpose of this study is to explore transportation improvement alternatives that will reduce conflicts, improve traffic flow, and incorporate multi-modal transportation options in Barnstable, while furthering the creation of vibrant, pedestrian- and bicycle-oriented mixed-use centers throughout the town.

The plan includes discussion of the town’s characteristics and existing conditions to help identify problem areas. With a population of over 40,000 people (year-round) and a summer population at least two to three times as large, summer traffic demands can be challenging, especially for pedestrians, who must use many town streets that lack sidewalks. Additional factors are also considered such as speed limits and areas with reported pedestrian or bicyclist crashes.

Potential need for pedestrian/bicyclist travel is affected by the distributions of the residential population, including Environmental Justice (EJ) populations designated by the state based on low-income populations, minority populations, and English isolation populations in areas of Hyannis. Other areas that are well suited to access via walking and bicycling are business and community activity areas. Consequently, the study group identified such areas within Barnstable.

CCC and the Town of Barnstable held 5 public workshops in summer 2022 to gather input and prepare a list of potential projects. Staff then developed criteria to evaluate project characteristics including type of project (e.g., sidewalk, intersection improvements, etc.), traffic levels, speed levels, crash history, gap analysis and several others. Evaluation of these criteria resulted in a benefit score for each project that was then adjusted for project cost. These benefit/cost scores were provided to Town of Barnstable officials to develop a project ranking for the 67 projects shown in the following table. A public workshop was held virtually in February 2023 for public feedback on the list and ranking of the projects included in the Prioritization Plan.

Following MassDOT review, an approved prioritization plan was approved in August 2023 and allows the Town of Barnstable to apply for up to \$500,000 of Complete Streets Tier 3 funding from MassDOT.

Barnstable Complete Streets Prioritization Plan

Complete Streets Project Ranking

Project Priority Ranking	Project Name	Estimated Project Cost Range	Funding Requested from MassDOT
1	Route 132 Reconstruction	>\$500,000	\$500,000.00
2	West End Rotary Retrofit	>\$500,000	\$500,000.00
3	West Main Street at Pine Street Traffic Signal	\$250,000 - \$500,000	\$350,000.00
4	Ocean Street at South St/Old Colony Rd Intersection Reconfiguration	>\$500,000	\$500,000.00
5	Pitchers Way Sidewalk (North)	\$250,000 - \$500,000	\$325,000.00
6	South Street Pedestrian Improvements	>\$500,000	\$500,000.00
7	Bearses Way at Pitcher's Way Intersection Upgrades	>\$500,000	\$500,000.00
8	West Main Street Shared Use Path	>\$500,000	\$500,000.00
9	Shootflying Hill Road / Service Road Shared Use Path (Portion of future Cape Cod Rail Trail)	>\$500,000	\$500,000.00
10	Lincoln Road Streetscape Improvements	>\$500,000	\$500,000.00
11	Attucks Lane Shared Use Path	>\$500,000	\$500,000.00
12	Hyannis West Elementary School Pedestrian Improvements	\$100,000 - \$250,000	\$150,000.00
13	Ocean Street Sidewalk	>\$500,000	\$500,000.00
14	Race Lane at Osterville-West Barnstable Road Intersection Improvements	>\$500,000	\$500,000.00
15	Barnstable Road Streetscape and Safety Upgrades	>\$500,000	\$500,000.00
16	Yarmouth Road Shared Use Path	>\$500,000	\$500,000.00
17	Service Road Shared Use Path (Portion of Cape Cod Rail Trail Extension)	>\$500,000	\$500,000.00
18	Main Street (Hyannis) Crosswalk Safety Improvements	>\$500,000	\$500,000.00
19	Pitchers Way Sidewalk (South)	>\$500,000	\$500,000.00
20	Sturgis Charter School (West) Crosswalk	\$50,000 - \$100,000	\$50,000.00
21	Phinney's Lane Shared Use Path	>\$500,000	\$500,000.00
22	Main Street (Centerville) at South Main Street Pedestrian Upgrades	\$250,000 - \$500,000	\$250,000.00
23	Old Strawberry Hill Road Sidewalk	>\$500,000	\$500,000.00
24	Phinney's Lane at Old Strawberry Hill Road Intersection Upgrades	\$250,000 - \$500,000	\$300,000.00
25	Pitchers Way Sidewalk (Old Main St to West Main Street)	<\$50,000	\$30,000.00
26	Winter Street Sidewalk Improvements	\$250,000 - \$500,000	\$400,000.00

Barnstable Complete Streets Prioritization Plan

27	Chestnut Street Sidewalk Improvements	\$50,000 - \$100,000	\$100,000.00
28	Main Street (Hyannis) Pedestrian Push Button Upgrades	\$250,000 - \$500,000	\$300,000.00
29	Commerce Road Sidewalk Extension	\$250,000 - \$500,000	\$350,000.00
30	Marstons Mills Race Lane Roundabout Upgrades	>\$500,000	\$500,000.00
31	Main Street (Centerville) Crosswalks	\$50,000 - \$100,000	\$100,000.00
32	Race Lane Shared Use Path	>\$500,000	\$500,000.00
33	Oak Street Sidewalk/Shared Use Path	>\$500,000	\$500,000.00
34	East Bay Road Sidewalk Extension	\$250,000 - \$500,000	\$350,000.00
35	Shootflying Hill Road at Old Stage Road crosswalk upgrades	<\$50,000	\$25,000.00
36	North Street Corridor Sidewalk Improvements	>\$500,000	\$500,000.00
37	Bayview Street Sidewalk Project	\$250,000 - \$500,000	\$350,000.00
38	Race Lane at Old Stage/Old Falmouth Intersection Reconstruction	>\$500,000	\$500,000.00
39	Putnam Avenue Sidewalk Extension	>\$500,000	\$500,000.00
40	Craigville Beach Road Crossing Upgrades	\$50,000 - \$100,000	\$50,000.00
41	Main Street (Centerville) Crosswalk Improvements	\$50,000 - \$100,000	\$100,000.00
42	Main Street (Centerville) Sidewalk - Mother's Park	<\$50,000	\$40,000.00
43	Marston Avenue Pedestrian Upgrades	<\$50,000	\$12,000.00
44	Phinney's Lane Sidewalk (Route 28 towards Main Street Centerville)	<\$50,000	\$45,000.00
45	Phinney's Lane/Hyannis Road Crosswalk	<\$50,000	\$15,000.00
46	Main Street (Cotuit) Crosswalk at Lowell Ave	<\$50,000	\$20,000.00
47	Route 149 Sidewalk	>\$500,000	\$500,000.00
48	Cotuit Village Raised Crosswalks	\$100,000 - \$250,000	\$250,000.00
49	Main Street (Osterville) Raised Crosswalks	\$250,000 - \$500,000	\$400,000.00
50	Santuit-Newtown Road Sidewalk	>\$500,000	\$500,000.00
51	Mary Dunn Road Sidewalk	\$250,000 - \$500,000	\$350,000.00
52	Wequaquet Lane Sidewalk	\$50,000 - \$100,000	\$50,000.00
53	Lumbert Mill Road Sidewalk	\$250,000 - \$500,000	\$300,000.00
54	Bay Lane Sidewalk Extension	>\$500,000	\$375,000.00

Barnstable Complete Streets Prioritization Plan

55	Downtown Hyannis Two-Way Conversion	>\$500,000	\$500,000.00
56	Reconfiguration of “six points” intersection	>\$500,000	\$500,000.00
*	Route 28 at Pitcher's Way Intersection Improvements	>\$500,000	NA
*	Airport Rotary Retrofit/Route 28 Sidewalk	>\$500,000	NA
*	Route 28 Shared Use Path (Hyannis)	>\$500,000	NA
*	Route 28 Safety Improvements (Centerville)	>\$500,000	NA
*	Route 6A at Route 132 Intersection Improvements	>\$500,000	NA
*	Route 28 at Santuit-Newtown Road Traffic Signal	>\$500,000	NA
*	Route 28 at Barnstable Intermediate School	>\$500,000	NA
*	Route 28 at Route 149 pedestrian accommodations	\$100,000 - \$250,000	NA
*	Route 6A Sidewalks	>\$500,000	NA
*	Route 28 at Lumbert Mill Road pedestrian signal improvement	\$100,000 - \$250,000	NA
*	Route 132 at Route 6 EB Ramp pedestrian upgrades	\$50,000 - \$100,000	NA

**To be funded outside of Complete Streets Program*

Introduction

The Town of Barnstable has agreed to join MassDOT's Complete Streets program to provide streets that address the mobility needs of all users – pedestrians, cyclists, drivers, persons with disabilities, and transit riders – making streets safer, more sustainable, and more accessible to a wide variety of people. Providing safer, more sustainable, and more accessible means of travel between home, school, work, recreation, and retail destinations helps promote a more livable community.

The Cape Cod Commission, serving as the regional planning agency for the fifteen towns on Cape Cod, has reviewed transportation issues and recommended potential improvements at many locations over the years during various planning activities, including the Regional Transportation Plan, the Transportation Improvement Program, Developments of Regional Impact, and various planning projects.

The project team has reviewed the roadways in Barnstable and collected needed data from Automatic Traffic Recorders (ATRs) as well as Turning Movement Counts (TMCs). High traffic volumes, particularly in the summer months, have caused congestion and crashes along some of the main routes, such as Routes 28, 6A and Route 132 as well as at busy intersections along these routes.

The study relies on public participation to better understand how street design can impact the quality of life in Barnstable neighborhoods. Cape Cod Commission staff has met with stakeholders and interested members of the public to facilitate the project direction, develop alternatives, and create a list of priority projects to improve Barnstable streets.

STUDY OBJECTIVES

The purpose of this study is to explore transportation improvement alternatives that will reduce conflicts, improve traffic flow, and incorporate multi-modal transportation options in Barnstable, while furthering the creation of vibrant, pedestrian- and bicycle-oriented mixed-use centers throughout the town. The safe accommodation of pedestrians and bicycles has been previously identified by the Cape Cod Commission as critical to achieving the goals of the town to create nodes of mixed-use development.

The study aims to establish a preferred roadway redesign which addresses multi-modal transportation improvements, including pedestrian and bicycle connectivity. The study includes recommendations for roadway changes that accommodate projected traffic volumes while accommodating all users of the roadway. This evaluation of preferred alternatives results in a Complete Streets Prioritization Plan for the Town of Barnstable.

TOWN CHARACTERISTICS

According to the United States Census, Barnstable has an estimated population of 49,532, making it the most populous town in Barnstable County (2022). Barnstable ranks 1st in employment with 23,305 year-round, full-time jobs, according to the U.S. Bureau of Labor Statistics. Employment is higher in all Cape communities in the summer.

The Commonwealth of Massachusetts classifies Environmental Justice (EJ) areas in different ways. The types of classification that apply to Barnstable are listed below:

- **Minority:** The block group minority population is $\geq 40\%$, or the block group minority population is $\geq 25\%$ and the median household income of the municipality the block group is in is $< 150\%$ of the Massachusetts median household income.
- **Income:** At least 25% of households have a median household income 65% or less than the state median household income.
- **Language isolation:** 25% or more of households do not include anyone older than 14 who speaks English very well.

There are twelve different census blocks in Barnstable that fall into EJ classifications. As shown in Figure 1, there are four minority-based blocks in Hyannis; six minority & income-based blocks in Hyannis; one minority & English isolation-based block in Hyannis and one minority, income, & English isolation-based block in Hyannis.

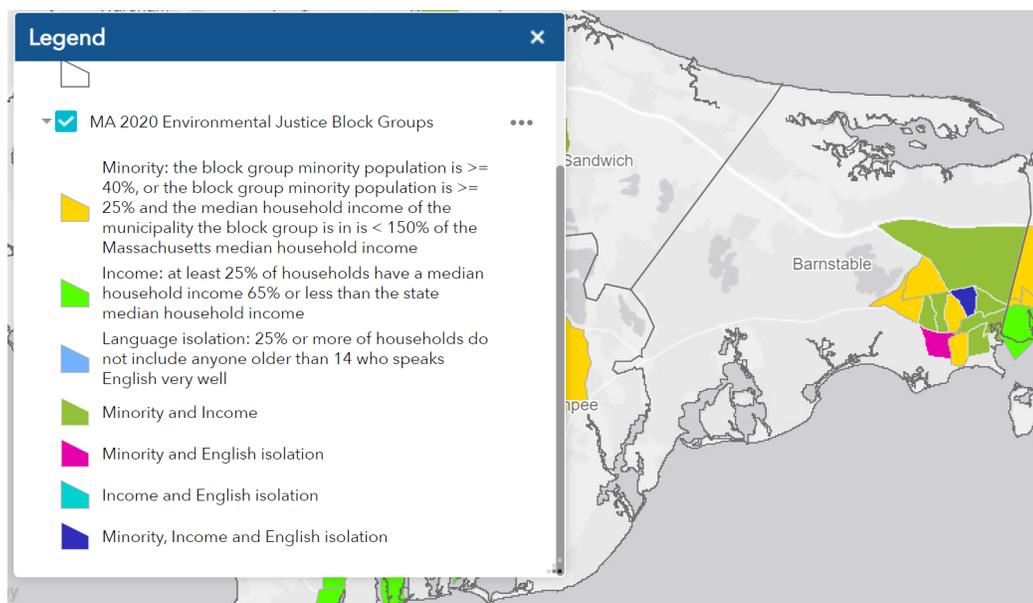


Figure 1: Environmental Justice Population Areas

Previous Studies

Over the past several years the Cape Cod Commission and other agencies have undertaken transportation planning studies – several of which are listed below, including summaries of relevant recommendations.

The Barnstable Complete Streets Online Project Viewer provides links to pertinent projects and studies that have been undertaken in town. Under the [Prioritization Plan](#) tab of the online tool, a relevant studies section is presented for interested parties to learn more about these projects and plans.

BARNSTABLE CAPITAL IMPROVEMENT PLAN (CIP)

Commission staff reviewed the most recent iteration of the Barnstable CIP and made sure to include several projects that have already been prioritized by the Town in the Complete Streets Prioritization Plan.

The FY 2024-2028 Capital Improvement Plan can be found [here](#).

ROADWAY SAFETY AUDITS (RSA)

There have been numerous Roadway Safety Audits (RSAs) conducted in Barnstable over the last 10 years, and Commission staff closely reviewed these audits and considered recommendations for potential Complete Streets Prioritization Plan projects.

RSA locations included:

- Route 28 at Osterville-West Barnstable Road
- Route 28 (Iyannough Road) at Yarmouth Road
- Route 132 (Iyannough Road) at Cape Cod Community College
- Route 28 (Falmouth Road) at Strawberry Hill Road
- Route 28 (Falmouth Road at Route 132 (Iyannough Road)- Airport Rotary
- Route 6A at Mary Dunn Road/Indian Trail
- Hyannis West End Rotary (West Main Street, Main Street, Scudder Avenue)
- Route 28 at Santuit-Newtown Road
- Route 132 (East of Bearse's Way to West of Airport Rotary)
- Route 28 at Pitcher's Way, Lincoln Road, and Barnstable Intermediate School (In Progress)

Problem Identification

Besides synthesizing ideas from a review of previous studies, the project team also identified current transportation issues and concerns, as well as proposed improvements from the following sources.

SITE VISITS

Coinciding with the kick-off of the project, Commission staff spent time documenting existing conditions across Barnstable by visiting all villages in town and experiencing the transportation system both from the drivers and pedestrians' perspective. Staff identified several locations that already meet Complete Streets standards, but also recognized places in need of improvements. Staff documented these existing conditions through photographs that can be seen in the Barnstable Complete Streets Online Project Viewer on the [Village View](#) tab.

MEETINGS WITH TOWN OF BARNSTABLE & PUBLIC WORKSHOPS

After a kick-off meeting with Town of Barnstable staff in May 2022, a public engagement schedule was prepared by Town and CCC Staff to include several public workshops in the Summer of 2022.

Commission staff along with Town of Barnstable staff led a series of five public workshops, advertised as Barnstable Complete Streets Conversations, and solicited input on potential projects for inclusion in the Barnstable Complete Streets Prioritization Plan. Meetings were held throughout the Town to Barnstable to capture the ideas of all 7 villages. The meeting schedule was as follows:

- Monday, July 18, 2022 at 4:30 PM at the Osterville Public Library
- Wednesday, July 20, 2022 at 4:30 PM at Liberty Hall (Marstons Mills)
- Tuesday, July 26, 2022 at 4:30 PM at the Barnstable Adult Community Center
- Thursday, July 28, 2022 at 4:30 PM at the Centerville Public Library
- Wednesday, August 3, 2022 at 4:30 PM at St. Mary's Episcopal Church

Figure 3 shows a flyer for the 5 public meetings.



Barnstable Complete Streets Conversation

Public Workshop Series

Coming to a Village Near You

"Complete Streets are designed and operated to provide safety, comfort and accessibility for users of all ages and abilities including pedestrians, cyclists, transit users and motorized vehicles."

<p><u>Villages of Osterville & Cotuit</u> Monday, July 18, 2022 at 4:30 PM Osterville Public Library 43 Wianno Avenue, Osterville</p>	<p><u>Village of Marstons Mills</u> Wednesday, July 20, 2022 at 4:30 PM Liberty Hall 2150 Main Street, Marstons Mills</p>
<p><u>Village of Hyannis</u> Tuesday, July 26, 2022 at 4:30 PM Barnstable Adult Community Center 825 Falmouth Road, Hyannis</p>	<p><u>Village of Centerville</u> Thursday, July 28, 2022 at 4:30 PM Centerville Public Library 585 Main Street, Centerville</p>
<p><u>Villages of Barnstable & West Barnstable</u> Wednesday, August 3, 2022 at 4:30 PM St. Mary's Episcopal Church 3055 Main Street, Barnstable</p>	  <p>CAPE COD COMMISSION</p>

For more information, please visit:
www.capecodcommission.org/BarnstableCompleteStreets

This meeting is accessible to people with disabilities. The Cape Cod Metropolitan Planning Organization (MPO) provides reasonable accommodations and/ or language assistance free of charge upon request (including but not limited to interpreters in American Sign Language and languages other than English, assistive listening devices and alternate material formats, such as audio tapes, Braille and large print, as available). For accommodations or language assistance please contact the Cape Cod MPO by phone: (508) 362-3828, fax (508) 362-3136, Telecommunications Relay Services (TRS), dial 711 or email frontdesk@capecodcommission.org. Title VI Notice of Nondiscrimination: The Cape Cod MPO complies with Title VI of the Civil Rights Act of 1964 and related federal and state statutes and regulations. It is the policy of the Cape Cod MPO to ensure that no person or group of persons shall on the grounds of Title VI protected categories, including race, color, national origin, or under additional federal and state protected categories including sex, age, disability, sexual orientation, gender identity or expression, religion, creed, ancestry, veteran's status (including Vietnam-era veterans), or background, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity administered by the Cape Cod MPO. To request additional information about this commitment, or to file a complaint under Title VI or a related nondiscrimination provision, please contact the MPO's Title VI Coordinator by phone at (508)362-3828, Telecommunications Relay Services (TRS), dial 711, fax (508) 362-3136 or by e-mail at mhevenor@capecodcommission.org. If this information is needed in another language, please contact the MPO's Title VI Coordinator by phone at (508)362-3828. Caso estas informações sejam necessárias em outro

Figure 2: Public Workshop Flyer

Barnstable Complete Streets Prioritization Plan

During the public workshops, Town of Barnstable staff introduced the MassDOT Complete Streets program, then Commission staff led a discussion through an online project tool that showed existing conditions and offered a map for interested parties to draw potential projects they would like to see included in the Prioritization Plan. Staff walked through how to use the online mapping tool and the tool was left open for a month after the meetings to allow for ample opportunity to comment.

At the close of the public comment period, over 500 comments were submitted to be considered for the Prioritization Plan. Commission staff met with Town of Barnstable staff to review the comments and began to construct a draft Prioritization Plan.

The Town of Barnstable also created an introductory video to explain the Complete Streets Funding process. The [video](#) is included on the project website.

VIRTUAL PUBLIC INPUT MEETING (DRAFT PRIORITIZATION PLAN)

Upon completion of a draft Prioritization Plan, Commission and Town of Barnstable staff hosted a virtual public input meeting in February 2023 to review the draft Prioritization Plan and take comments and suggestions on the plan. Staff presented on the proposed projects – one was deleted and three were added, resulting in sixty-five projects in the final Prioritization Plan.

ONLINE TOOLS

The Barnstable Existing Conditions Map, the Public Comment Tool and the Draft Priorities Map were demonstrated at all meetings throughout the project, but these tools were also made available on the Commission’s website. By placing these tools on the website—and publicizing them—the Commission was able to capture a broader range of community views (while supporting individuals who could not attend the Public Workshops).

The Barnstable Complete Streets Online Project Viewer included the [Existing Conditions Map](#), the [Public Comment Tool](#), and the [Draft Priorities Map](#).

The Existing Conditions Map showed the following conditions:

- Sidewalks and Destinations
- Roadway Classification
- Crashes and Traffic Volume
- Bike, Pedestrian and Transit Infrastructure

ROADWAY CLASSIFICATION

Roadway functional classes were also examined, with the jurisdiction and typology of roads impacting whether a road is under Barnstable jurisdiction, and whether a certain treatment is

appropriate. Most of the roads in Barnstable are contained in the Census-designated Urbanized Area (UZA) for Cape Cod. Additionally, roadways under MassDOT jurisdiction are not eligible for Complete Streets Tier 3 construction funds (for example, Route 28, and 6A). Other Barnstable streets included in this study fall into lower classifications such as minor arterial, collector, or local road. These classifications indicate the relative importance of mobility vs. accessibility and are used to guide design characteristics.

Participants were—and are—able to view road classification in the Complete Streets Online Project Viewer [here](#).

SIDEWALKS AND DESTINATIONS

Sidewalks are prevalent in all 7 Barnstable Villages. However many roadways in town lack adequate pedestrian infrastructure. Route 28 has sections of sidewalk (or shared use path) but lacks consistency across the Town. Hyannis, the most densely populated village in Barnstable has 48.5 miles of sidewalk, nearly 50% of all sidewalks in Barnstable. Statistics about sidewalks can be seen [here](#).

BIKE, PEDESTRIAN, AND TRANSIT

The [Barnstable Complete Streets Online Project Viewer](#) offers users a view of the locations of community activities, bike accommodations (lanes, existing paths, proposed paths, and future portions of the Cape Cod Rail Trail), and existing transit routes.

TRAFFIC VOLUMES AND CRASH HISTORY

Traffic volumes and crash pattern data are accessible in the Barnstable Complete Streets Online Project Viewer [here](#). Specifically, these data include:

- Traffic Volumes: Route 6 (limited access and ineligible for Complete Streets funding), Route 28 (State owned and ineligible for Complete Streets funding) and Route 132 (between Route 6 and Route 28) are by far the heaviest traveled roads and are represented in dark green on the map. There is also heavy traffic along Routes 6A, Yarmouth Road, West Main Street, and others throughout town (source: Cape Cod Commission/MassDOT traffic counting programs).
- Crash Data: Over the most recent three years on record (2018-2020), there were 106 reported crashes in Barnstable that involved either a pedestrian or a bicyclist. The greatest concentration of crashes occurred in Hyannis (source: MassDOT Crash Portal). The Barnstable Complete Streets Online Project Viewer shows bike or pedestrian crashes over a wider period (2012-2017) in order to give the users a wider view of the safety picture.

PUBLIC COMMENT TOOL

The Public Comment Tool was interactive and allowed people to add points and lines to the map to identify the type of recommendation, the proposed solution and action (install or update), and other comments. A total of 504 points and/or routes were inputted into the public comment tool in Summer 2022.

DRAFT PRIORITIES MAP

In February 2023, the Draft Priorities Map was released. This draft map showing the top projects was released to the public (and was demonstrated at the Virtual Public Input Session). Those top projects were determined based on feedback from Town Staff and the feedback received at the Public Workshops and the Public Comment Tool. Participants were then asked to complete a short online public survey, which asked them “Are there any projects that you feel are missing from the draft Prioritization Plan; Should any of the projects defined within the draft Prioritization Plan rank higher or lower?”. Participants could also submit open-ended responses. The survey received responses from 8 unique individuals. Additional comments via email were also welcomed. This feedback was then fed into the final ranking of projects. As mentioned, Commission staff and Town of Barnstable staff added five projects and removed one project from the prioritization plan, totaling 67 projects being included.

The public comment tools assisted the Commission and Town of Barnstable staff in identifying:

- 1) The locations of problematic areas in which to walk, bike or take transit.
- 2) The types of Complete Streets projects most favored by participants.
- 3) The relative ranking of individual projects.

Project Evaluation

PROJECTS FOR EVALUATION

In the following figure, 67 complete streets projects have been identified and included in the Prioritization Plan. Proposed projects include categories such as:

- Bicycle Infrastructure
- Crosswalk Improvement/Signage
- Intersection Improvement
- Multi-use Paths
- Sidewalk Construction
- Sidewalk Reconstruction

Projects are ranked in order, with the highest scores corresponding to projects that are the highest priority. The priority listing does not necessarily indicate the order of implementation, however. Additional factors—such as available funding, project readiness, and whether the project can be combined with another project or with routine maintenance work—will be used by the Town to determine the exact order of implementation.

Town of Barnstable staff noted the importance of including state owned roadways as part of the Prioritization Plan, even if ineligible for funding, and requested those projects to be included at the bottom of the ranking list – these projects are still a priority for the Town of Barnstable.

EVALUATION METHODOLOGY

The following rating system was developed by CCC and Town of Barnstable staff and was used specifically for evaluating Barnstable’s list of projects. Points were summed up and were assigned a final score. The top performing project received a score of 22 (out of a max of 22).

Table 1: Project Evaluation Scores

Safety	Points
1 Highest: Project will improve (pedestrian/bike/vehicle) safety at a High Crash Location or Road Safety Audit (RSA) location	5
2 High: Project will improve safety significantly for more than one mode (pedestrian/bike/vehicle/freight/transit)	3
3 Medium: Project will improve safety significantly for at least one mode (pedestrian/bike/vehicle/freight/transit)	1
4 Low: Project addresses a location with no known crashes or does not improve safety	0
Mobility	Points
1 High: Project fills a gap in the regional network	4
2 Medium: Project fills a gap in the local network or extends an existing network	2
3 Low: Project provides a disconnected link	0
Access	Points
1 Highest: Project directly supports (bike/pedestrian/transit) access to vulnerable population being within proximity of a school or a senior destination	5
2 High: Project directly supports (bike/pedestrian/transit) access to major pedestrian-oriented destinations such as a recreation area, town center or a large population area	3

Barnstable Complete Streets Prioritization Plan

3 Medium: Project improves (bike/pedestrian/transit) access to a smaller population area	1
4 Low: Project does not greatly improve multimodal access	0
Ease of Implementation	Points
1 Highest: Project is already under design and needs more funding to achieve construction (project has existing support and momentum)	3
2 High: Project cost is relatively low, or the project is easy to implement and is within the right-of-way with no takings and will not impact wetlands, historic or archeological areas	2
3 Medium: Project is viable with minor impacts to ROW or environment	1
4 Low: Project will significantly impact the ROW and/or entails significant environmental impacts	0
Project Support	Points
1 Highest: Project has been identified in the Town's Capital Improvement Plan (CIP) or has funding allocated for it from other sources (TIP, grants, etc.).	3
2 High: Project aligns with regional transportation goals as defined within the Cape Cod Commission's Regional Transportation Plan	2
3 Medium: Project was identified as a priority by (5) or more members of the public	1
4 Low: Project was identified as a priority by less than (5) or more members of the public	0
Equity	Points
1 High: Project serves an Environmental Justice population	2
2 Medium: Project is with 3 miles of an Environmental Justice population	1
3 Low: Project does not directly serve an Environmental Justice population	0

Recommendations and Project Prioritization

BARNSTABLE COMPLETE STREETS PRIORITIZATION TABLE

The ultimate recommendation of this study is the implementation of projects in the Barnstable Complete Street Prioritization Table. While Routes 28 and 6A are under MassDOT jurisdiction and are outside the scope of the Complete Streets Program, they are nevertheless critical corridors for pedestrian and cyclist travel in Barnstable as denoted with 11 state road projects listed in the Prioritization Plan. As MassDOT proceeds with implementation of complete street upgrades to facilities under their jurisdiction, the following are recommended for on state-owned roadways in Barnstable:

- Construct ADA-compliant sidewalks, curb ramps, pedestrian signals and crosswalks.
- Construct shared use paths (SUPs) with appropriate crossings and signage.
- Provide pull-off areas for bus stops.
- Provide wayfinding signage guiding users to best routes connecting to beaches, recreation areas, the future Cape Cod Rail Trail, and other destinations.

Based the scoring evaluation methodology previously discussed, a ranked list of projects is presented in Table 3. A complete printout of the prioritization plan worksheet is available in the Appendix.

Barnstable Complete Streets Prioritization Plan

Table 2: Project Ranking

Project Priority Ranking	Project Name	Project Description	Estimated Project Cost Range	Funding Requested from MassDOT
1	Route 132 Reconstruction	Corridor improvement project to improve safety for all modes. Key intersection upgrades between Bearses Way and the Airport Rotary in Hyannis. Upgrades will include multimodal accommodations including a shared use path and upgrades to pedestrian crossings.	>\$500,000	\$500,000.00
2	West End Rotary Retrofit	This project includes modernizing the West End Rotary with new roundabout signage and striping elements to improve safety and slow speeds. The project will include sidewalk reconstruction, installation of a shared use path between Scudder Avenue and Main St and installation of ADA compliant crossings at rotary entry/exit points.	>\$500,000	\$500,000.00
3	West Main Street at Pine Street Traffic Signal	This project includes the installation of a traffic signal on West Main Street at the intersection of Pine Street & Barnstable High School driveway to improve safety for all modes. The project will include a new ADA compliant crosswalk to the school.	\$250,000 - \$500,000	\$350,000.00
4	Ocean Street at South St/Old Colony Rd Intersection Reconfiguration	This project includes upgrades of the signalized intersection of Ocean Street at South Street/Old Colony Road to improve safety for all modes. The project will include new pedestrian signal equipment and ADA compliance.	>\$500,000	\$500,000.00
5	Pitchers Way Sidewalk (North)	This project includes the installation of a sidewalk along Pitchers Way in Hyannis from the intersection of Route 28 to the intersection of Bearses Way. The length of this project is roughly .8 miles.	\$250,000 - \$500,000	\$325,000.00
6	South Street Pedestrian Improvements	This project includes reconstructing the existing South Street sidewalks and crossings to provide safer bicycle and pedestrian accommodations. The length of this project is roughly 1 mile.	>\$500,000	\$500,000.00
7	Bearses Way at Pitcher's Way Intersection Upgrades	This project includes improvements for all roadway users at the intersection of Bearses Way at Pitcher's Way. Further investigation will be needed to identify the preferred alternative at this intersection.	>\$500,000	\$500,000.00
8	West Main Street Shared Use Path	This project includes the construction of a shared use path along West Main Street. The shared use path would extend from the intersection of Route 28 to the intersection of West End Rotary. The length of the path would be approximately 2 miles.	>\$500,000	\$500,000.00

Barnstable Complete Streets Prioritization Plan

9	Shootflying Hill Road / Service Road Shared Use Path (Portion of future Cape Cod Rail Trail)	This project includes the installation of a new shared use path along Shootflying Hill Road and Service Road from the intersection of Route 132 to the terminus of the existing SUP on Service Road. This project follows the future Cape Cod Rail Trail alignment. The length of this project is roughly 2.9 miles.	>\$500,000	\$500,000.00
10	Lincoln Road Streetscape Improvements	Incorporate streetscape improvements to Lincoln Road with street trees, benches, lighting. Assess mid-block crosswalk locations. Upgrade existing pedestrian amenities and crossings and provide a new portion of sidewalk on the west side of the road to connect to Route 28.	>\$500,000	\$500,000.00
11	Attucks Lane Shared Use Path	This project includes the installation of a shared use path along Attucks Lane from Independence Drive to Route 132. This project is part of the future Cape Cod Rail Trail alignment. The length of this project is roughly 1.3 miles.	>\$500,000	\$500,000.00
12	Hyannis West Elementary School Pedestrian Improvements	This project includes upgrades to pedestrian infrastructure in the vicinity of Hyannis West Elementary. One element of the project is to improve the crosswalk on Old Craigville Road. Installation of ADA compliant curb ramps and tactile warning pads as well as improved signage will be included. Pedestrian improvements at the West Main Street crossing in front of Hyannis West are also to be upgraded.	\$100,000 - \$250,000	\$150,000.00
13	Ocean Street Sidewalk	This project includes the installation of a sidewalk on Ocean Street from Kalmus Beach to the JFK Memorial. The length of sidewalk is 0.5 miles	>\$500,000	\$500,000.00
14	Race Lane at Osterville-West Barnstable Road Intersection Improvements	This project includes improvements to the intersection of Race Lane at Osterville-West Barnstable Road to improve safety for all travel modes. Multi modal accommodations will be installed.	>\$500,000	\$500,000.00
15	Barnstable Road Streetscape and Safety Upgrades	Incorporate streetscape improvements to Barnstable Road with street trees, benches, lighting. Assess mid-block crosswalk locations. Upgrade existing pedestrian signal equipment and crossings at the Winter St and Charles St signalized intersections.	>\$500,000	\$500,000.00
16	Yarmouth Road Shared Use Path	This project includes the construction of a shared use path along Yarmouth Road from the intersection of Route 28 to the Yarmouth Town Line. The length of this project is roughly 1.1 miles	>\$500,000	\$500,000.00
17	Service Road Shared Use Path (Portion of Cape Cod Rail Trail Extension)	This project includes the construction of a Shared Use Path along Service Road from the Sandwich Town Line to Route 149 as part of the future CCRT connection. This project is roughly 1.8 miles in length.	>\$500,000	\$500,000.00

Barnstable Complete Streets Prioritization Plan

18	Main Street (Hyannis) Crosswalk Safety Improvements	This project includes the crosswalk safety improvements on Main Street (Hyannis) to include items such as raised crosswalks, ADA compliance, bump outs and warning beacons.	>\$500,000	\$500,000.00
19	Pitchers Way Sidewalk (South)	This project includes the installation of a sidewalk along Pitchers Way in Hyannis from the intersection of Route 28 to the intersection of West Main Street. The length of this project is roughly 1 mile.	>\$500,000	\$500,000.00
20	Sturgis Charter School (West) Crosswalk	This project includes the installation of a crosswalk with an RRFB, ADA compliant curb ramps, tactile warning plates, etc. across West Main Street at the Sturgis Charter School West Campus driveway.	\$50,000 - \$100,000	\$50,000.00
21	Phinney's Lane Shared Use Path	This project includes the construction of a shared use path along Phinney's Lane from Route 132 to Route 28. The length of the shared use path is roughly 2 miles.	>\$500,000	\$500,000.00
22	Main Street (Centerville) at South Main Street Pedestrian Upgrades	This project includes constructing pedestrian infrastructure at the intersection of Main Street at South Main Street in Centerville. Upgrades include crosswalks with ADA compliant ramps with tactile warning plates, warning beacons and signage as necessary. Sidewalk upgrades are included as part of this project.	\$250,000 - \$500,000	\$250,000.00
23	Old Strawberry Hill Road Sidewalk	This project includes a new sidewalk on Old Strawberry Hill Road from Phinney's Lane to Route 28. The length of this project is roughly 0.9 miles.	>\$500,000	\$500,000.00
24	Phinney's Lane at Old Strawberry Hill Road Intersection Upgrades	Intersection upgrade to improve safety at this location for all modes. The project would include installation of sidewalks and crosswalks.	\$250,000 - \$500,000	\$300,000.00
25	Pitchers Way Sidewalk (Old Main St to West Main Street)	This project includes the installation of a sidewalk along Pitchers Way in Hyannis from the intersection of West Main Street to the intersection of Old Main Street. The length of this project is roughly 300 feet.	<\$50,000	\$30,000.00
26	Winter Street Sidewalk Improvements	Reconstruct existing sidewalks to be ADA compliant and complete sidewalk gaps. Upgrade pedestrian crossings. This project is roughly .6 miles.	\$250,000 - \$500,000	\$400,000.00
27	Chestnut Street Sidewalk Improvements	Reconstruct existing sidewalks to be ADA compliant and complete sidewalk gaps. Upgrade pedestrian crossings. This project is roughly .3 miles.	\$50,000 - \$100,000	\$100,000.00
28	Main Street (Hyannis) Pedestrian Push Button Upgrades	Update all pedestrian signal equipment at existing signalized intersections on Main Street between Sea Street and Lewis Bay Road.	\$250,000 - \$500,000	\$300,000.00
29	Commerce Road Sidewalk Extension	This project includes the construction of a sidewalk along Commerce Road in Barnstable Village from the existing terminus of the sidewalk to the intersection of Route 6A. This project is roughly 0.6 miles in length.	\$250,000 - \$500,000	\$350,000.00

Barnstable Complete Streets Prioritization Plan

30	Marstons Mills Race Lane Roundabout Upgrades	This project includes reconstruction of the Marstons Mills Roundabout on Race Lane/Route 149 to the latest roundabout design standards to improve safety for all modes.	>\$500,000	\$500,000.00
31	Main Street (Centerville) Crosswalks	This project includes the installation of pedestrian crossings with ADA compliant curb ramps and tactile warning plates at the intersection of Main Street at Old Stage Rd/Park Avenue.	\$50,000 - \$100,000	\$100,000.00
32	Race Lane Shared Use Path	This project includes the construction of a shared use path along Race Lane. The shared use path would extend from the intersection of Old Stage/Old Falmouth Road to the Sandwich Town Line. The length of the path would be approximately 3.3 miles and would likely be phased.	>\$500,000	\$500,000.00
33	Oak Street Sidewalk/Shared Use Path	This project includes the installation of a sidewalk/shared use path along Oak Street from Route 132 to Old Stage Road. This project will likely be constructed in phases. The length of this project is roughly 1.9 miles.	>\$500,000	\$500,000.00
34	East Bay Road Sidewalk Extension	This project includes the construction of a sidewalk from the terminus of the existing sidewalk at Bates Street to Dowses Beach entrance. The length of this sidewalk is roughly .6 miles.	\$250,000 - \$500,000	\$350,000.00
35	Shootflying Hill Road at Old Stage Road crosswalk upgrades	This project includes pedestrian upgrades at the intersection of Shootflying Hill Road at Old Stage Road in Centerville. A crosswalk with ADA compliant curb ramps and tactile warning plates would be installed as part of this project.	<\$50,000	\$25,000.00
36	North Street Corridor Sidewalk Improvements	Reconstruct existing sidewalks to be ADA compliant and complete sidewalk gaps. Upgrade pedestrian signal equipment to latest standards.	>\$500,000	\$500,000.00
37	Bayview Street Sidewalk Project	Pedestrian improvement project to improve ADA accessibility and crosswalk enhancements on Bayview Street from Main St to Yarmouth town line.	\$250,000 - \$500,000	\$350,000.00
38	Race Lane at Old Stage/Old Falmouth Intersection Reconstruction	This project includes the reconstruction of the intersection of Race Lane at Old Stage/Old Falmouth Road to improve safety for all modes.	>\$500,000	\$500,000.00
39	Putnam Avenue Sidewalk Extension	This project includes the construction of a sidewalk along Putnam Avenue in Cotuit from the existing terminus of sidewalk to the Main Street intersection. This project is roughly 1.7 miles in length. ADA compliant crossings will be constructed where necessary.	>\$500,000	\$500,000.00
40	Craigville Beach Road Crossing Upgrades	This project includes upgrades with ADA compliance at the existing crosswalks along Craigville Beach Road, mostly in the vicinity of Craigville Beach. There are currently 8 grade level crossings along this section of the road.	\$50,000 - \$100,000	\$50,000.00

Barnstable Complete Streets Prioritization Plan

41	Main Street (Centerville) Crosswalk Improvements	This project includes upgrades to all existing crosswalks on Main Street in Centerville. All crossing upgrades include ADA compliant curb ramps and tactile warning plates.	\$50,000 - \$100,000	\$100,000.00
42	Main Street (Centerville) Sidewalk - Mother's Park	This project includes the installation of a segment of sidewalk (400 feet) from the existing sidewalk on Main Street between Phinney's Lane and Mother's Park Rd.	<\$50,000	\$40,000.00
43	Marston Avenue Pedestrian Upgrades	This project includes the installation of a crosswalk at the intersection of Marston Ave at Ocean Ave/Hyannis Ave to connect to existing sidewalks.	<\$50,000	\$12,000.00
44	Phinney's Lane Sidewalk (Route 28 towards Main Street Centerville)	This project includes the construction of a short segment of sidewalk from the terminus of existing sidewalk on Phinney's Lane to the intersection of Route 28. The length of this project is roughly .1 miles.	<\$50,000	\$45,000.00
45	Phinney's Lane/Hyannis Road Crosswalk	This project includes the installation of a crosswalk across Phinney's Lane at the intersection of Hyannis-Barnstable Road	<\$50,000	\$15,000.00
46	Main Street (Cotuit) Crosswalk at Lowell Ave	This project includes the installation of a crosswalk with ADA compliant curb ramps and appropriate signage across Main Street at the intersection of Lowell Ave.	<\$50,000	\$20,000.00
47	Route 149 Sidewalk	This project includes the installation of a sidewalk on Route 149 from Burgess Park to the Marstons Mills roundabout. The length of sidewalk is roughly 1.3 miles.	>\$500,000	\$500,000.00
48	Cotuit Village Raised Crosswalks	Construct raised crosswalks at select locations on School Street in Cotuit for traffic calming in the village.	\$100,000 - \$250,000	\$250,000.00
49	Main Street (Osterville) Raised Crosswalks	Construct raised crosswalks at select locations on Main St in Osterville for traffic calming in the village.	\$250,000 - \$500,000	\$400,000.00
50	Santuit-Newtown Road Sidewalk	This project includes the installation of a sidewalk along Santuit-Newtown Road in Marstons Mills from the intersection of Wakeby Road to the existing terminus of sidewalk at Lovells Pond. The length of this project is roughly 1.2 miles.	>\$500,000	\$500,000.00
51	Mary Dunn Road Sidewalk	This project includes the construction of a sidewalk along Mary Dunn Road from Althea Rd to the future CCRT trail head. The length of this project is roughly .6 miles	\$250,000 - \$500,000	\$350,000.00
52	Wequaquet Lane Sidewalk	This project includes an extension of the Wequaquet Lane sidewalk from the CVS driveway to Quisset Road. The length of this project is roughly 725 feet.	\$50,000 - \$100,000	\$50,000.00
53	Lumbert Mill Road Sidewalk	This project includes the construction of a sidewalk on Lumbert Mill Road from the existing terminus (Ebenezer Road) to Tarmac Rd. The length of the sidewalk is roughly .6 miles.	\$250,000 - \$500,000	\$300,000.00

Barnstable Complete Streets Prioritization Plan

54	Bay Lane Sidewalk Extension	This project includes the construction of a sidewalk from the terminus of the existing sidewalk at Beech Leaf Island Road to South Main Street. The length of this sidewalk is roughly .9 miles.	>\$500,000	\$375,000.00
55	Downtown Hyannis Two-Way Conversion	Two-way conversion of Main Street, South Street, Ocean Street, and Old Colony. Improvements to include restriping roadways, removal/reinstallation of signage; removal/disabling most traffic signals and update to pedestrian signals as necessary. Intersection reconfiguration expenses include minor curb realignments; bollards, public space improvements. Establishment of on street bicycle network include striping/coloring of lanes and sharrows; installation of protective barriers.	>\$500,000	\$500,000.00
56	Reconfiguration of "six points" intersection	Roundabout improvement at the intersection of South Street, Ocean Street and Old Colony Road.	>\$500,000	\$500,000.00
*	Route 28 at Pitcher's Way Intersection Improvements	This project includes intersection upgrades with multimodal accommodations. New signal equipment will be installed as part of this project. MassDOT is in the preliminary design phase of this project.	>\$500,000	NA
*	Airport Rotary Retrofit/Route 28 Sidewalk	This project includes converting the Airport Rotary in Hyannis to a modern roundabout design with the installation of sidewalk on Route 28 from Walton Avenue to the Airport Rotary. MassDOT is in the preliminary design phase of this project.	>\$500,000	NA
*	Route 28 Shared Use Path (Hyannis)	This project includes the installation of a shared use path from Airport Rotary to Yarmouth Road along Route 28 in Hyannis. The length of this project is roughly 0.8 miles.	>\$500,000	NA
*	Route 28 Safety Improvements (Centerville)	Installation of a median or TWLTL with turn pockets on Route 28 between Old Stage Road and Phinney's Lane. Upgrades to the existing shared use path and sidewalk along Route 28 would be included in this project.	>\$500,000	NA
*	Route 6A at Route 132 Intersection Improvements	Intersection upgrade to improve safety at this location for all modes. The project would include installation of sidewalks and crosswalks. Consideration of a roundabout.	>\$500,000	NA
*	Route 28 at Santuit-Newtown Road Traffic Signal	This project includes the installation of a traffic signal at the intersection of Route 28 at Santuit-Newtown Road and multi modal accommodations	>\$500,000	NA
*	Route 28 at Barnstable Intermediate School	This project includes multimodal upgrades along Route 28 in the vicinity of the Barnstable Intermediate School/Old Strawberry Hill Road. Project elements include pedestrian upgrades along the existing shared use path as well as crosswalk upgrades across Route 28.	>\$500,000	NA

Barnstable Complete Streets Prioritization Plan

*	Route 28 at Route 149 pedestrian accommodations	Install missing pedestrian signal equipment along with associated sidewalk and crosswalk infrastructure	\$100,000 - \$250,000	NA
63*	Route 6A Sidewalks	This project includes upgrading sidewalks and improving ADA compliance at crossings from Route 132 to Old Jail Lane along Route 6A. MassDOT is currently in the preliminary design phase of this project.	>\$500,000	NA
64*	Route 28 at Lumbert Mill Road pedestrian signal improvement	Install missing pedestrian signal equipment along with associated sidewalk and crosswalk infrastructure	\$100,000 - \$250,000	NA
65*	Route 132 at Route 6 EB Ramp pedestrian upgrades	This project includes safety upgrades to the pedestrian accommodations at the intersection of the Route 6 EB ramp at Route 132 to include warning beacons and improved signage.	\$50,000 - \$100,000	NA

**To be funded outside of Complete Streets Program*

NEXT STEPS

The study team has submitted a draft plan to MassDOT for feedback and has received approval and suggested edits. The Town of Barnstable is now eligible to apply for Complete Streets funding up to \$500,000 (competitive process). This phase is referred to as Tier 3 of the Complete Streets Program. Project considerations include the following general and specific comments.

General Comments

1. Wayfinding signs should comply to the MUTCD.
2. When designing a new sidewalk segment, the project limits must meet an existing sidewalk network or terminate with compliant curb ramps. If terminating at an intersection, include a reciprocal curb ramp and crosswalk.
3. At marked crossings, the bottom ramp run (4',0" by width of ramp opening), exclusive of flared sides, shall be wholly contained within the marked crossing. Refer to AAB 521 CMR: 21.2.1.
4. Pushbuttons/Pedestrian Beacons/RRFBs/HAWKS should be accessible from a level landing. Refer to AAB 521 CMR 21.10.4 for reach and clearance guidance.
5. Shared Use paths are preferred to be 12 feet wide or a minimum of 10 feet wide. The Shared Use Paths detailed in the Plan do not reference any specific width. This level of detail will be required for a Tier 3 project application.
6. When applying for Tier 3 funding, feasibility of the sidewalk installation on corridors with constrained ROW should be known.

Specific Comments

1. Project Descriptions should provide a clear description of the work being proposed. This needs to be a detailed, yet succinct description of the work being proposed. When proposing improvements, better define which improvements are being proposed in the Project Description.
2. Provide proposed sidewalk, bicycle lane/buffer and shared used path widths in the Project Descriptions. These must be listed when applying for Tier 3 funding.
3. If total Estimated Project Cost is greater than the Complete Streets Funding Requested, provide/identify Other Funding Source(s) or indicate as TBD.
4. For Ranks 16 and 33 and for lines 72 – 82, provide clarification. State-owned roadways are not eligible for Complete Streets Funding Program reimbursement. Please revise the Complete Streets Funding Requested and Other Funding Source(s) and Amount, or indicate as TBD.
5. For Ranks 7, 38, 55 and 56, MassDOT is defining road diets as the repurposing of roadway space to improve safety and mobility for all modes of transportation, through the elimination of one or more vehicular travel lanes. Confirm that your municipality's proposed road diet(s) is eliminating travel lanes rather than exclusively narrowing one or more vehicular lanes. Revise if necessary.

Appendix

APPENDIX A: BARNSTABLE COMPLETE STREETS POLICY



The Town of Barnstable

Office of Town Manager



367 Main Street, Hyannis, MA 02601

Office: 508.862.4610

Fax: 508.790.6226

www.town.barnstable.ma.us

Citizens' Resource Line: 508.862.4925

Mark S. Ells, Town Manager
mark.ells@town.barnstable.ma.us

M. Andrew Clyburn, Assistant Town Manager
andy.clyburn@town.barnstable.ma.us

TO: Complete Streets Program Administrator
Massachusetts Department of Transportation
10 Park Plaza
Boston, MA. 02116

January 18, 2022

Dear Program Administrator,

Enclosed please find a copy of the Town of Barnstable's Complete Streets Policy as well as the certified letter confirming a unanimous, affirmative vote from the Town Council approving the Policy at the December 2, 2021 meeting.

We are excited about the opportunity to participate in the Complete Streets Program. Barnstable has already shown commitment to integrating Complete Streets design principles through the installation of shared-use paths, street trees and high visibility crosswalks. This Policy formally establishes the Town's commitment to continue to implement improvements to enhance our community's mobility, safety and sustainability.

Thank you for your consideration; please let us know if you require any additional information in support of our Policy submission.

Sincerely,

Mark S. Ells
Town Manager



Town of Barnstable

Office of Town Clerk

367 Main Street, Hyannis MA 02601

Ann M. Quirk, CMC/CMMC/MMC
Town Clerk

Office: 508-862-4044
Fax: 508-790-6326

January 10, 2022

To whom it may concern:

Please be advised that the following is a true copy of an item duly passed by the Barnstable Town Council on December 2, 2021:

2022-054 RESOLVE APPROVING THE TOWN OF BARNSTABLE COMPLETE STREETS POLICY FOR SUBMISSION TO THE MASSACHUSETTS DEPARTMENT OF TRANSPORTATION FOR PARTICIPATION IN THE COMPLETE STREETS FUNDING PROGRAM INTRO: 12/02/2021

Upon a motion duly made and seconded it was

RESOLVED: That the Town Council hereby approves the Town of Barnstable Complete Streets Policy, as presented to the Town Council at this meeting.

VOTE: PASSES 13 YES

Roll Call: Atsalis, Bogan, Clark, Cullum, Rapp Grasseti, Hebert, Mendes, Levesque, Neary, Schnepf, Shaughnessy, Starr, Steinhilber

Sincerely,

Ann M. Quirk
Town Clerk/Town of Barnstable



BARNSTABLE TOWN COUNCIL

ITEM# 2022-054
INTRO: 12/02/2021

SUMMARY

TO: Town Council
FROM: Mark S. Ells, Town Manager
THROUGH: Elizabeth S. Jenkins, Planning & Development Director
DATE: December 02, 2021
SUBJECT: Resolve approving the Town of Barnstable Complete Streets Policy for submission to the Massachusetts Department of Transportation for participation in the Complete Streets Funding Program

BACKGROUND: The Massachusetts Department of Transportation (MassDOT) Complete Streets Funding Program, established in 2016, dedicates state transportation funds to plan and implement Complete Streets. Complete Streets are designed and operated to provide safety, comfort and accessibility for users of all ages and abilities. The purpose of the Policy is to formalize the planning, design, operation and maintenance of the Town's roadways to ensure that, when determined feasible, accommodations are provided to improve safety and accessibility while preserving and enhancing the Town's esteemed scenic, historic and environmental resources.

The Town of Barnstable has already shown commitment to integrating Complete Streets design principles through the installation of shared-use paths, street trees and high visibility crosswalks. The proposed Policy establishes the Town's commitment to continue to implement improvements to enhance the community's mobility, safety and sustainability.

The proposed Complete Street's Policy incorporates ten policy elements, as defined by MassDOT, including but not limited to vision and intent, applicable projects, exceptions, performance measures and implementation. The Policy is scored based on the level of commitment defined within each policy element and must receive an overall score of at least 80 points to be accepted by MassDOT.

The Complete Streets Funding Program is defined by a three tier process. Within Tier 1, a municipality develops a Complete Streets Policy which must be approved by the highest elected official or governing body and must receive a qualifying score from MassDOT. Additionally, Town staff is required to attend Complete Streets training. Upon notification that the Policy has been approved by MassDOT, a municipality continues to Tier 2 to develop a Prioritization Plan ultimately reviewing existing and coordinating additional plans, studies and analyses to rank priority projects by factors including cost, community support, traffic and safety benefits and anticipated timeframe for completion. Once a Prioritization Plan is approved by MassDOT, at

Tier 3, a municipality can apply for construction funding to implement a project or several projects identified within the Prioritization Plan.

Example Complete Streets project types include intersection redesign such as curb extensions at pedestrian crossings; street reconfiguration and traffic calming including lane narrowing to add a bike lane; pedestrian crossing modifications such as incorporation of Americans with Disabilities Act (ADA) compliant curb ramps; pedestrian and bike network connections including the installation of a sidewalk; transit investments such as bus shelters and bike racks; and environmental and streetscape investments including street lighting and street trees.

In adopting this Policy, the Town of Barnstable will incorporate a Complete Streets approach prioritizing a network of transportation that is connected, efficient and accessible which will enhance the quality of life for the community by improving health and safety, encouraging economic viability, promoting social equity, and supporting environmental sustainability.

FISCAL IMPACT: The Complete Streets Funding Program provides two opportunities for municipalities to obtain funding for efforts to identify priority projects and for implementation of desired improvements. A municipality can request up to \$38,000 in technical assistance to help with the development of a Prioritization Plan coordinated within Tier 2. The funding provided for technical assistance is used to hire a consultant or regional agency to conduct studies and analyses to develop a list of Complete Streets projects, coordinate public outreach, and to establish criteria for prioritization of projects. Once a Prioritization Plan is approved by MassDOT, at Tier 3, a municipality may submit an application for construction funding and can receive up to \$400,000 in any rolling four-fiscal-year period. The Town can decide whether to request construction funding for one project for the total \$400,000 or to distribute the total potential funding, not to exceed \$400,000, over the course of several smaller grants during any four-fiscal-year timeframe. MassDOT will grant awards through a competitive application process to occur twice annually.

STAFF ASSISTANCE: Elizabeth Jenkins, Director of Planning and Development; Kate Maldonado, Assistant Director of Planning and Development; Daniel W. Santos, P.E., Director of Public Works; Griffin Beaudoin, Town Engineer; Paul Graves, Senior Project Manager



Town of Barnstable

367 Main Street
Hyannis, Massachusetts 02601

COMPLETE STREETS POLICY

Introduction

Complete Streets are designed and operated to provide safety, comfort and accessibility for users of all ages and abilities including pedestrians¹, cyclists, transit users and motorized vehicles. In adopting this policy, the Town of Barnstable will incorporate a Complete Streets approach prioritizing a network of transportation that is connected, efficient and accessible which will enhance the quality of life for our community by improving health and safety, encouraging economic viability, promoting social equity, and supporting environmental sustainability.

The Town of Barnstable has already shown commitment to integrating Complete Streets design principles through the installation of shared-use paths, street trees and high visibility crosswalks. This policy establishes the Town's commitment to continue to implement improvements to enhance our community's mobility, safety and sustainability.

The purpose of this policy is to formalize the planning, design, operation and maintenance of our roadways to ensure that, when determined feasible, accommodations are provided for users of all ages and abilities to improve safety and accessibility while preserving and enhancing the Town's esteemed scenic, historic and environmental resources.

1. Vision and Intent

The Town of Barnstable recognizes that all projects including new construction, reconstruction, and maintenance are opportunities to incorporate Complete Streets design principles. The Town will, to the maximum extent feasible, plan, design, construct, maintain and operate all projects to provide for a comprehensive and interconnected street network for people of all ages and abilities. The Town will consider context sensitivity and roadway character when establishing Complete Streets projects.

2. Users and Modes

The Town of Barnstable acknowledges that Complete Streets are designed and operated to provide safety, comfort, and accessibility for users of all ages and all abilities including pedestrians¹, bicyclists, equestrians, motorists, transit users, school bus riders, freight haulers, delivery and service personnel, commercial vehicles and emergency responders.

3. All Projects and Phases

The Town of Barnstable acknowledges that Complete Streets projects represent an incremental approach achieved through various elements and improvements to be accomplished over time with long-term results. Where feasible and practical, Complete Streets design principles shall be considered

¹The term "pedestrian" shall include (1) any person traveling by foot; and (2) any person in or on any conveyance, other than a bicycle, constructed and designed for propulsion by human muscular power; and (3) any mobility-impaired person using a wheelchair, whether operated manually or motorized. (23 USC § 217; and MGL Chapter 90 Section 18A; and Town of Barnstable Traffic Regulations, September 15, 1994)

in review of all publicly funded and privately funded projects, per the procedures outlined below, as determined by the Department of Public Works.

- *All publicly funded transportation projects that impact the right-of-way.* Publicly funded projects will be reviewed and overseen by the Department of Public Works.
- *All privately funded transportation projects that impact the right-of-way.* Privately funded projects will be reviewed by Town staff at Site Plan Review. The project proponent will be made aware of the Town's Complete Streets Policy and the Prioritization Plan and the proposal will be reviewed for compatibility with the Policy and the Prioritization Plan. The installation of privately funded projects will be overseen by the Department of Public Works and permitting staff in coordination with the developer's engineer.
- *All private developments that impact the right-of-way.* All new roads will be reviewed by the Planning Board through the Town's subdivision process. The project proponent will be made aware of the Town's Complete Streets Policy and the Prioritization Plan and the proposal will be reviewed for compatibility with the Policy and the Prioritization Plan. The installation of private developments will be overseen by the Department of Public Works and permitting staff in coordination with the developer's engineer.
- All transportation infrastructure and street design projects requiring funding or approval by the Town of Barnstable.
- All projects funded by the State and Federal Government including but not limited to Chapter 90 funds, Transportation Improvement Program (TIP), the MassWorks Infrastructure Program, Community Development Block Grants (CDBG), Town improvement grants, Capital Funding, and other state and federal funds for street and infrastructure design.
- The Town of Barnstable shall commit to collaborating with MassDOT to incorporate Complete Streets principles for the design, construction, and maintenance of state-owned roadways.
- The Department of Public Works will use best judgement with regard to the feasibility of applying Complete Streets design principles when conducting municipal road repairs and upgrades and/or expansion projects within the public right-of-way.

4. Exceptions

It is recognized that incorporation of Complete Streets elements into a project will not always be feasible or practical. Exceptions to Barnstable's Complete Streets Policy may be granted by the Department of Public Works. A written request for an exception shall be submitted for review to the Department of Public Works and will be granted if documentation, data, or conditions indicate that any of the following circumstances apply:

- Transportation networks, such as interstate freeways, where specific users, including cyclists and/or pedestrians, are prohibited by law.
- Where the cost of implementation or impact of accommodation associated with an enhancement is determined to be excessively disproportionate to the need or probable use.
- Locations where there is an absence of current and future need for incorporation of Complete Streets design principles.
- Locations where protected scenic, historic, or environmental features and or qualities would be adversely impacted. This includes projects on designated scenic roads, rural roads or private roads where certain actions may not be practical or feasible due to factors such as ownership or environmental impacts.
- A project that involves emergency repairs or ordinary maintenance such as roadway mowing, street sweeping, minor roadway repairs and normal re-paving, pothole filing, and public infrastructure and utilities repair, within the right-of-way.
- Public and private utility improvement projects.

- Existing private ways.

5. Network

The Town of Barnstable's Complete Streets Policy will establish a network approach that supports a connected and integrated community with accessible and efficient connections between home, school, work, transit, recreation, medical facilities and retail destinations. The Town recognizes that a network approach will furthermore support economic growth and community stability.

6. Jurisdiction

The Town of Barnstable acknowledges that coordination with various agencies, who play a significant role in funding, planning and developing streets, is imperative for successful implementation of Complete Streets elements.

Implementation of Barnstable's Complete Streets Policy will be achieved through coordination between Town departments with multi-jurisdictional cooperation and, to the extent possible, private developers, as well as state, regional and federal agencies. Additionally, the Town will work cooperatively with neighboring communities and regional entities, including MassDOT, in an effort to strengthen regional connectivity for all users.

7. Design

In order to maximize safety, accessibility, design flexibility and technological advancements, the latest design guidance, standards, and recommendations available will be used in the implementation of Complete Streets elements, including, but not limited to, the most up-to-date versions of:

- The Massachusetts Department of Transportation (MassDOT) Project Design and Development Guidebook
- The National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide
- The National Association of City Transportation Officials (NACTO) Urban Street Design Guide
- The latest edition of American Association of State Highway and Transportation Officials (AASHTO) A Policy on Geometric Design of Highway and Streets
- The United States Department of Transportation Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD)
- The Architectural Access Board (AAB) 521 CMR Rules and Regulations
- The Cape Cod Commission's Complete Streets/Living Streets Design Manual
- Cape Cod Metropolitan Planning Organization's Cape Cod Regional Transportation Plan
- The Town of Barnstable's Local Comprehensive Plan
- The Town of Barnstable's Growth Incentive Plan
- Walk audits performed in coordination with WalkBoston and Road Safety Audits (RSA).
- Documents and plans created for The Town of Barnstable such as bicycle and pedestrian network plans.

8. Context Sensitivity

The Town of Barnstable will develop and implement Complete Streets projects in a context sensitive manner that is attentive to the needs of all users; integrates the community's goals, objectives and values; and is compatible with the community's physical, economic and social setting. The context-sensitive approach to process and design shall incorporate a range of goals by considering stakeholder and community values on a level plane with the project need. When considering and prioritizing

Complete Streets projects, the Town will take into account the surrounding community, current and planned infrastructure and expected transportation needs. The overall goal of this approach is to preserve and enhance scenic, historic, and environmental resources while improving and maintaining public safety.

9. Performance Measures

The Town of Barnstable shall utilize the following performance measures which will be assessed and presented annually by the Department of Public Works, to gauge implementation and effectiveness. These measures include:

- Total linear feet of new or reconstructed shared use paths and sidewalks
- Total linear feet of roadway enhanced by roadway repair, pavement marking, and/or signage
- Total number and type of crosswalk and intersection improvements
- Total number of ADA accommodations built such as new or reconstructed curb ramps
- Number of new street trees planted

10. Implementation

The Town of Barnstable will make Complete Streets practices a routine part of everyday operations and shall approach every project as an opportunity to improve the overall transportation network for all users.

The Town of Barnstable will utilize inter-department coordination among Planning and Development, the Department of Public Works and other related departments to promote efficient use of resources to establish and prioritize Town roadways and paths that provide a safe, comfortable and convenient environment for all users.

The Town of Barnstable's Planning and Development department will review and revise or develop proposed revisions to incorporate Complete Streets principles into the Town's Local Comprehensive Plan, Open Space and Recreation Plan, zoning and subdivision codes, and all additional guidelines and programs as applicable.

The Town of Barnstable's Department of Public Works will maintain an inventory of Complete Streets improvements as evaluated by the performance standards described herein and will commit to improving methods for measuring and collecting data as new technology is developed.

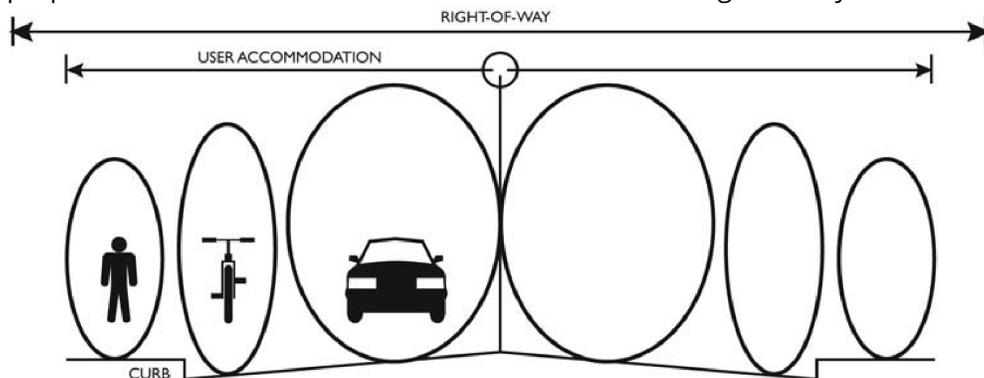
Town staff will continue to attend classes and training opportunities on Complete Streets and will regularly solicit feedback from the public to ensure that the community's goals, objectives and values are considered and incorporated. In addition, the Town will actively seek additional sources of funding and grants for implementation of Complete Streets design principles.

APPENDIX B: MASSDOT DESIGN GUIDE BICYCLE/PEDESTRIAN ACCOMMODATIONS

The following are excerpted from the Massachusetts Department of Transportation's Design Guide. The Cape Cod Commission has included applications of each case identified with **parentheses**.

Case 1 - Separate Accommodation for All Users **(Bike Lane)**

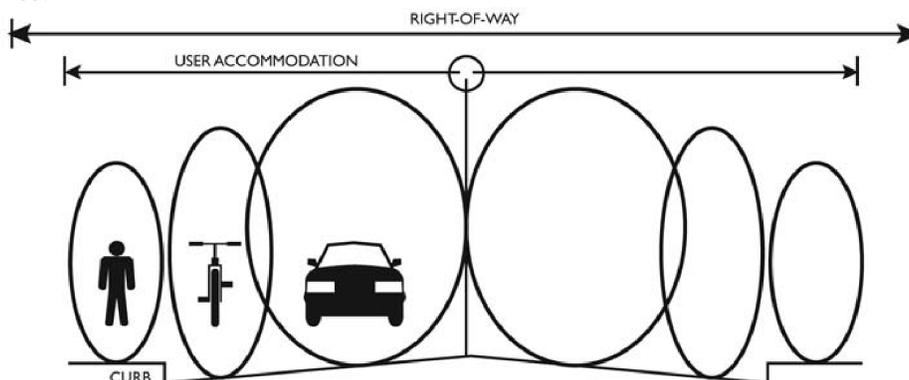
- Often the preferred option to provide safe, convenient, and comfortable travel for all users.
- Appropriate for areas with moderate to high levels of pedestrian and bicycle activity.
- Appropriate for roadways with moderate to high motor vehicle speeds.
- Appropriate in areas without substantial environmental or right-of-way constraints.



MassDOT Design Guide: Case 1 - Separate Accommodation for All Users

Case 2 - Partial Sharing for Bicycles and Motor Vehicles **(Wide Shoulder)**

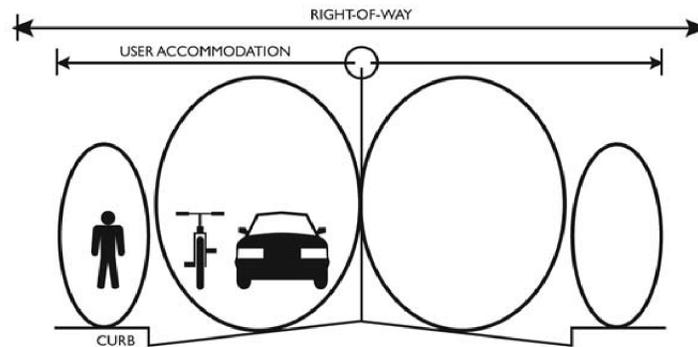
- Used in areas where the width necessary to provide Case 1 accommodation is not available.
- Under Case 2, pedestrians are provided with a sidewalk or separate path while space for bicyclists and drivers overlap somewhat.
- Appropriate in areas with low motor vehicle speeds and low to moderate motor vehicle volumes.



MassDOT Design Guide: Case 2 - Partial Sharing for Bicycles and Motor Vehicles

Case 3 - Shared Bicycle/Motor Vehicle Accommodation (**Sharrow**)

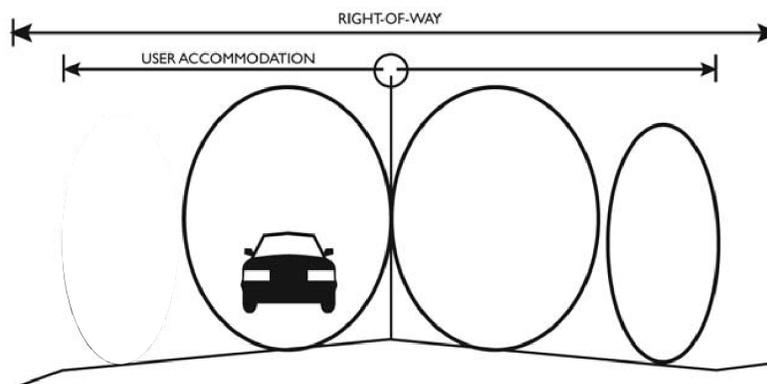
- Under Case 3, pedestrians remain separate, but bicycle and motor vehicle space are shared.
- Used in densely developed areas where right-of-way is constrained.
- Also, applicable to most residential/local streets where speeds and traffic volumes are low.



MassDOT Design Guide: Case 3 - Shared Bicycle/Motor Vehicle Accommodation

Case 4 - Shared Bicycle/Pedestrian Accommodation

- Under Case 4, pedestrians and bicyclists share the shoulder.
- Common in rural or sparsely developed areas.
- Appropriate for areas with infrequent pedestrian and bicycle use.

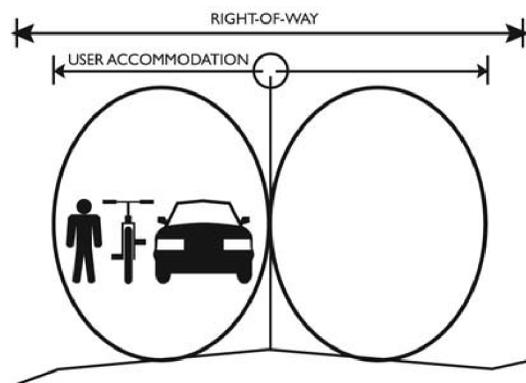


MassDOT Design Guide: Case 4 - Shared Bicycle/Pedestrian Accommodation

The Bikeways Committee has identified wider sidewalks and preferably multi-use paths as strategies for Case 4.

Case 5 - Shared Accommodation for All Users

- Under Case 5, all users share the roadway.
- Appropriate where user demands, and motor vehicle speeds are very low or when severe constraints limit the feasibility of providing separate accommodation.



MassDOT Design Guide: Case 5 - Shared Accommodation for All Users

APPENDIX C: PRIORITIZATION TABLES

Project ID	Project Name	Description	Assessment	Location	URL	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21	Y22	Y23	Y24	Y25	Y26	Y27	Y28	Y29	Y30	Y31	Y32	Y33	Y34	Y35	Y36	Y37	Y38	Y39	Y40	Y41	Y42	Y43	Y44	Y45	Y46	Y47	Y48	Y49	Y50	Y51	Y52	Y53	Y54	Y55	Y56	Y57	Y58	Y59	Y60	Y61	Y62	Y63	Y64	Y65	Y66	Y67	Y68	Y69	Y70	Y71	Y72	Y73	Y74	Y75	Y76	Y77	Y78	Y79	Y80	Y81	Y82	Y83	Y84	Y85	Y86	Y87	Y88	Y89	Y90	Y91	Y92	Y93	Y94	Y95	Y96	Y97	Y98	Y99	Y100	Y101	Y102	Y103	Y104	Y105	Y106	Y107	Y108	Y109	Y110	Y111	Y112	Y113	Y114	Y115	Y116	Y117	Y118	Y119	Y120	Y121	Y122	Y123	Y124	Y125	Y126	Y127	Y128	Y129	Y130	Y131	Y132	Y133	Y134	Y135	Y136	Y137	Y138	Y139	Y140	Y141	Y142	Y143	Y144	Y145	Y146	Y147	Y148	Y149	Y150	Y151	Y152	Y153	Y154	Y155	Y156	Y157	Y158	Y159	Y160	Y161	Y162	Y163	Y164	Y165	Y166	Y167	Y168	Y169	Y170	Y171	Y172	Y173	Y174	Y175	Y176	Y177	Y178	Y179	Y180	Y181	Y182	Y183	Y184	Y185	Y186	Y187	Y188	Y189	Y190	Y191	Y192	Y193	Y194	Y195	Y196	Y197	Y198	Y199	Y200	Y201	Y202	Y203	Y204	Y205	Y206	Y207	Y208	Y209	Y210	Y211	Y212	Y213	Y214	Y215	Y216	Y217	Y218	Y219	Y220	Y221	Y222	Y223	Y224	Y225	Y226	Y227	Y228	Y229	Y230	Y231	Y232	Y233	Y234	Y235	Y236	Y237	Y238	Y239	Y240	Y241	Y242	Y243	Y244	Y245	Y246	Y247	Y248	Y249	Y250	Y251	Y252	Y253	Y254	Y255	Y256	Y257	Y258	Y259	Y260	Y261	Y262	Y263	Y264	Y265	Y266	Y267	Y268	Y269	Y270	Y271	Y272	Y273	Y274	Y275	Y276	Y277	Y278	Y279	Y280	Y281	Y282	Y283	Y284	Y285	Y286	Y287	Y288	Y289	Y290	Y291	Y292	Y293	Y294	Y295	Y296	Y297	Y298	Y299	Y300	Y301	Y302	Y303	Y304	Y305	Y306	Y307	Y308	Y309	Y310	Y311	Y312	Y313	Y314	Y315	Y316	Y317	Y318	Y319	Y320	Y321	Y322	Y323	Y324	Y325	Y326	Y327	Y328	Y329	Y330	Y331	Y332	Y333	Y334	Y335	Y336	Y337	Y338	Y339	Y340	Y341	Y342	Y343	Y344	Y345	Y346	Y347	Y348	Y349	Y350	Y351	Y352	Y353	Y354	Y355	Y356	Y357	Y358	Y359	Y360	Y361	Y362	Y363	Y364	Y365	Y366	Y367	Y368	Y369	Y370	Y371	Y372	Y373	Y374	Y375	Y376	Y377	Y378	Y379	Y380	Y381	Y382	Y383	Y384	Y385	Y386	Y387	Y388	Y389	Y390	Y391	Y392	Y393	Y394	Y395	Y396	Y397	Y398	Y399	Y400	Y401	Y402	Y403	Y404	Y405	Y406	Y407	Y408	Y409	Y410	Y411	Y412	Y413	Y414	Y415	Y416	Y417	Y418	Y419	Y420	Y421	Y422	Y423	Y424	Y425	Y426	Y427	Y428	Y429	Y430	Y431	Y432	Y433	Y434	Y435	Y436	Y437	Y438	Y439	Y440	Y441	Y442	Y443	Y444	Y445	Y446	Y447	Y448	Y449	Y450	Y451	Y452	Y453	Y454	Y455	Y456	Y457	Y458	Y459	Y460	Y461	Y462	Y463	Y464	Y465	Y466	Y467	Y468	Y469	Y470	Y471	Y472	Y473	Y474	Y475	Y476	Y477	Y478	Y479	Y480	Y481	Y482	Y483	Y484	Y485	Y486	Y487	Y488	Y489	Y490	Y491	Y492	Y493	Y494	Y495	Y496	Y497	Y498	Y499	Y500	Y501	Y502	Y503	Y504	Y505	Y506	Y507	Y508	Y509	Y510	Y511	Y512	Y513	Y514	Y515	Y516	Y517	Y518	Y519	Y520	Y521	Y522	Y523	Y524	Y525	Y526	Y527	Y528	Y529	Y530	Y531	Y532	Y533	Y534	Y535	Y536	Y537	Y538	Y539	Y540	Y541	Y542	Y543	Y544	Y545	Y546	Y547	Y548	Y549	Y550	Y551	Y552	Y553	Y554	Y555	Y556	Y557	Y558	Y559	Y560	Y561	Y562	Y563	Y564	Y565	Y566	Y567	Y568	Y569	Y570	Y571	Y572	Y573	Y574	Y575	Y576	Y577	Y578	Y579	Y580	Y581	Y582	Y583	Y584	Y585	Y586	Y587	Y588	Y589	Y590	Y591	Y592	Y593	Y594	Y595	Y596	Y597	Y598	Y599	Y600	Y601	Y602	Y603	Y604	Y605	Y606	Y607	Y608	Y609	Y610	Y611	Y612	Y613	Y614	Y615	Y616	Y617	Y618	Y619	Y620	Y621	Y622	Y623	Y624	Y625	Y626	Y627	Y628	Y629	Y630	Y631	Y632	Y633	Y634	Y635	Y636	Y637	Y638	Y639	Y640	Y641	Y642	Y643	Y644	Y645	Y646	Y647	Y648	Y649	Y650	Y651	Y652	Y653	Y654	Y655	Y656	Y657	Y658	Y659	Y660	Y661	Y662	Y663	Y664	Y665	Y666	Y667	Y668	Y669	Y670	Y671	Y672	Y673	Y674	Y675	Y676	Y677	Y678	Y679	Y680	Y681	Y682	Y683	Y684	Y685	Y686	Y687	Y688	Y689	Y690	Y691	Y692	Y693	Y694	Y695	Y696	Y697	Y698	Y699	Y700	Y701	Y702	Y703	Y704	Y705	Y706	Y707	Y708	Y709	Y710	Y711	Y712	Y713	Y714	Y715	Y716	Y717	Y718	Y719	Y720	Y721	Y722	Y723	Y724	Y725	Y726	Y727	Y728	Y729	Y730	Y731	Y732	Y733	Y734	Y735	Y736	Y737	Y738	Y739	Y740	Y741	Y742	Y743	Y744	Y745	Y746	Y747	Y748	Y749	Y750	Y751	Y752	Y753	Y754	Y755	Y756	Y757	Y758	Y759	Y760	Y761	Y762	Y763	Y764	Y765	Y766	Y767	Y768	Y769	Y770	Y771	Y772	Y773	Y774	Y775	Y776	Y777	Y778	Y779	Y780	Y781	Y782	Y783	Y784	Y785	Y786	Y787	Y788	Y789	Y790	Y791	Y792	Y793	Y794	Y795	Y796	Y797	Y798	Y799	Y800	Y801	Y802	Y803	Y804	Y805	Y806	Y807	Y808	Y809	Y810	Y811	Y812	Y813	Y814	Y815	Y816	Y817	Y818	Y819	Y820	Y821	Y822	Y823	Y824	Y825	Y826	Y827	Y828	Y829	Y830	Y831	Y832	Y833	Y834	Y835	Y836	Y837	Y838	Y839	Y840	Y841	Y842	Y843	Y844	Y845	Y846	Y847	Y848	Y849	Y850	Y851	Y852	Y853	Y854	Y855	Y856	Y857	Y858	Y859	Y860	Y861	Y862	Y863	Y864	Y865	Y866	Y867	Y868	Y869	Y870	Y871	Y872	Y873	Y874	Y875	Y876	Y877	Y878	Y879	Y880	Y881	Y882	Y883	Y884	Y885	Y886	Y887	Y888	Y889	Y890	Y891	Y892	Y893	Y894	Y895	Y896	Y897	Y898	Y899	Y900	Y901	Y902	Y903	Y904	Y905	Y906	Y907	Y908	Y909	Y910	Y911	Y912	Y913	Y914	Y915	Y916	Y917	Y918	Y919	Y920	Y921	Y922	Y923	Y924	Y925	Y926	Y927	Y928	Y929	Y930	Y931	Y932	Y933	Y934	Y935	Y936	Y937	Y938	Y939	Y940	Y941	Y942	Y943	Y944	Y945	Y946	Y947	Y948	Y949	Y950	Y951	Y952	Y953	Y954	Y955	Y956	Y957	Y958	Y959	Y960	Y961	Y962	Y963	Y964	Y965	Y966	Y967	Y968	Y969	Y970	Y971	Y972	Y973	Y974	Y975	Y976	Y977	Y978	Y979	Y980	Y981	Y982	Y983	Y984	Y985	Y986	Y987	Y988	Y989	Y990	Y991	Y992	Y993	Y994	Y995	Y996	Y997	Y998	Y999	Y1000	Y1001	Y1002	Y1003	Y1004	Y1005	Y1006	Y1007	Y1008	Y1009	Y1010	Y1011	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