

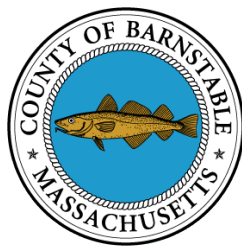


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Town of Orleans

Complete Streets Prioritization Plan

January 11, 2021



Prepared by Cape Cod Commission staff on behalf of the Town of Orleans

Acknowledgements

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Executive Summary

The Town of Orleans 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), Orleans 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 Orleans while furthering the creation of vibrant, pedestrian and bicycle oriented mixed-use centers throughout the town.

The plan includes discussion of the towns characteristics and existing conditions to help identify problem areas. With a population of nearly 6,000 people (year-round) and a summer population two to three times as large, summer traffic demands can be challenging, especially to pedestrians, on many town streets which currently do not have 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 populations designated by the state based on low income in northern Orleans. The study group identified business and community activity areas throughout Orleans. These consist of destinations that are well-suited for access via walking or cycling. CCC staff performed a Gap Analysis for all segments of Orleans's' streets to identify highly-desirable pedestrian/bicycling corridors on roadways that currently do not include facilities.

CCC and the Town of Orleans held a public workshop in December 2019 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, paved shoulders, 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 project benefit/cost scores were provided to Town of Orleans officials to develop a project ranking for the twenty-eight projects shown in the following table.

Following MassDOT review and resubmissions as necessary, an approved prioritization plan will allow the Town of Orleans to apply for up to \$400,000 of Complete Streets funding from MassDOT.



Complete Streets Project Ranking

Project I.D.	Rank	Projects	Total Cost	Funding Requested
P01	1	Beach Rd/Main St from Rt 28 to Nauset Beach: multiuse path	\$3,476,000	\$400,000
P10	2	Old Colony Way from Staples Plaza to Main St on south side: construct sidewalk	\$300,000	\$300,000
P06	3	Main St from Tonset Rd to Rt 28: reconstruct sidewalk, eliminate pole obstructions	\$300,000	\$300,000
P07	4	Main St from Meetinghouse Rd to Rt 28: construct sidewalk	\$1,157,000	\$400,000
P04	5	Tonset Rd/Main St Intersection: retiming signal, add left turn arrow, ped crossing, bike box	\$317,000	\$317,000
P22	6	Main St/School Rd intersection: improve safety	\$175,000	\$175,000
P35	7	Main St/Meetinghouse Rd intersection: improve safety	\$166,000	\$166,000
P41	8	Bay Ridge Ln: multi-use path connection to Cape Cod Rail Trail	\$245,000	\$245,000
P37	9	Sidewalk connections to Brewster on Route 6A*	\$732,000	
P29	10	West Rd (Cape Cod Rail Trail section): improve on-road accommodations	\$8,000	\$8,000
P18	11	West Rd/Salty Ridge Rd intersection: install warning signage/safe crossing/kiosk	\$14,000	\$14,000
P20	12	Cape Cod Rail Trail @ West Rd: improve crossing, flashing beacon	\$26,000	\$26,000
P15	13	Rt 6A: add improved crosswalks and sidewalk on south side of Rt 6A*	\$714,000	
P05	14	Tonset Rd Ext from Main St to Rt 28: add sidewalk	\$300,000	\$300,000
P13	15	Skaket Beach Rd: multi-use path	\$736,000	\$400,000
P08	16	Downtown & various locations: install bike racks	\$5,000	\$5,000
P11	17	Rock Harbor Rd: bike/ped accommodations, shoulders	\$1,342,000	\$400,000
P09	18	Depot Square: Bike Rest stop - kiosk, benches, fix it station, bike racks, etc.)	\$32,000	\$32,000
P21	19	Rt 28 from Cove Rd to Main St: add sidewalk*	\$300,000	
P03	20	Tonset Rd: traffic calming	\$642,000	\$400,000
P39	21	Route 6A/28 from Eastham Rotary to Old County Rd: construct sidewalks*	\$433,000	
P42	22	Brewster Cross Rd: sidewalk	\$300,000	\$300,000



P33	23	Rt 28 from Tonset Rd Ext to middle school: upgrade sidewalk*	\$300,000	
P43	24	Rt 28 from downtown to Brewster town line: construct multi-use path*	\$4,792,000	
P31	25	Monument Rd: traffic calming, improve crosswalk and install advance warning signage for Crystal Lake	\$515,000	\$400,000
P32	26	Tonset Rd/Hopkins Ln intersection: improve safety	\$166,000	\$166,000
P26	27	Beach Rd: install speed tables	\$15,000	\$15,000
P12	28	Skaket Beach Rd: traffic calming	\$203,000	\$203,000
P25	29	Rt 28/Rt 39 & Quanset Rd intersection: improve safety*	\$5,178,000	
P27	30	Install advanced warning ahead of bike crossings	\$13,000	\$13,000
P28	31	Construct gear lockers at beaches	\$19,000	\$19,000
P17	32	Create bike/ped facilities connecting to Orleans Conservation Trust and other open space trails	\$64,000	\$64,000
P24	33	Rt 28/Monument Rd intersection: improve safety*	\$175,000	
P23	34	Rt 28/Pond Rd & Finlay Rd: improve safety*	\$175,000	
P40	35	Rts 6A/28 from Eastham Rotary to Orleans Roundabout: road diet*	\$610,000	
P36	36	Tonset Rd from Main Street to Hopkins Ln: shared use path	\$630,000	\$400,000
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P14	39	Cape Cod Rail Trail @ Main St: bike tunnel or bridge	\$3,426,000	\$400,000
P19	40	Cape Cod Rail Trail @ Rt 6 (near Salty Ridge Rd): construct bridge over Rt 6*	\$6,758,000	
P02	41	Brewster Cross Rd: convert to 1-way eastbound	\$206,000	\$206,000
P16	42	Downtown from elementary school: construct pathway	\$368,000	\$368,000
P38	43	Improved pedestrian connection through Orleans Cemetery (Tonset Rd to Main St)	\$424,000	\$400,000

**To be funded outside of Complete Streets Program*



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Introduction/Background

The Town of Orleans 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, sustainable, and more accessible to a wide variety of people. Providing safer, more accessible and comfortable 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 at many locations over the years during various planning activities, including the Regional Transportation Plan, the Transportation Improvement Program, and Developments of Regional Impact, and various planning projects considering the existing safety issues and potential improvements.

The project team has reviewed all streets in Orleans and collected needed data from Automatic Traffic Recorders (ATR) as well as Turning Movement Counts (TMCs). High traffic volumes, particularly in the summer months, has caused congestion and crashes along some of the main routes, such as Routes 6, 6A, and 28 as well as at busy intersections along these routes and busy roads such as Main Street.

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



TOWN CHARACTERISTICS

According to the United States Census' American Community Survey for 2017, Orleans has an estimated population of 5,827, making it the 11th most populous town in Barnstable County. Orleans ranks 8th in employment with 4,353 employees according to the U.S. Bureau of Labor Statistics.

According to the U.S. 2010 census, a portion of northern Orleans contains an Environmental Justice Population categorized as low income as shown in Figure 1. "Low income" in this case is defined based on state criteria as follows. The 2010 Massachusetts state median income used is \$62,133, released by the USDA Economic Research Service. 65.49% of this value is \$ 40,673. Any census block group with a median household income in 2010 less than or equal to this value was identified as an Environmental Justice population.

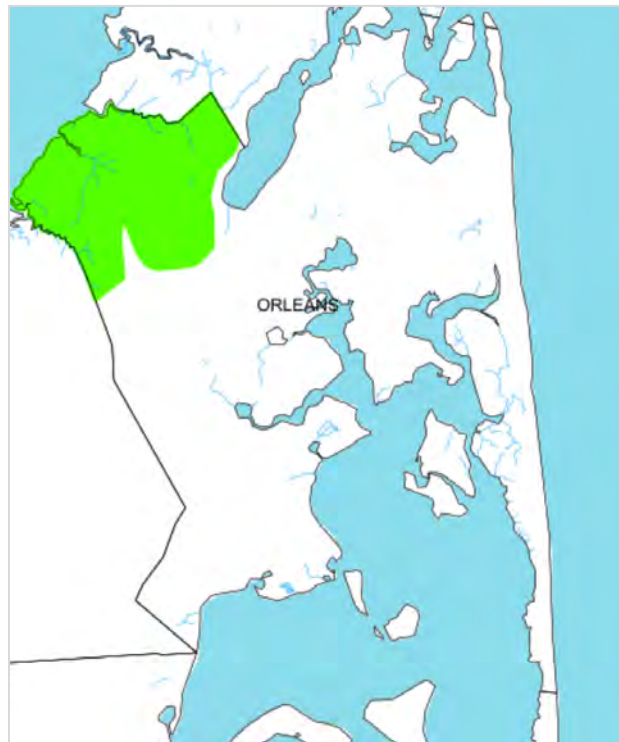


Figure 1 - Environmental Justice Population areas – Low Income

REVIEW OF 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.

In 2018 the Cape Cod Commission produced the "Orleans Parking & Circulation Study" for the town. The study included recommendations for the creation of new connections, complete sidewalks, and cross walks.



The study noted that there are three gaps in the current sidewalk network in downtown Orleans:

1. The south side of Old Colony Way,
2. Brewster Cross Road, and
3. The west side of Route 28 north of Main Street

The following figure shows recommendations to fill these gaps.

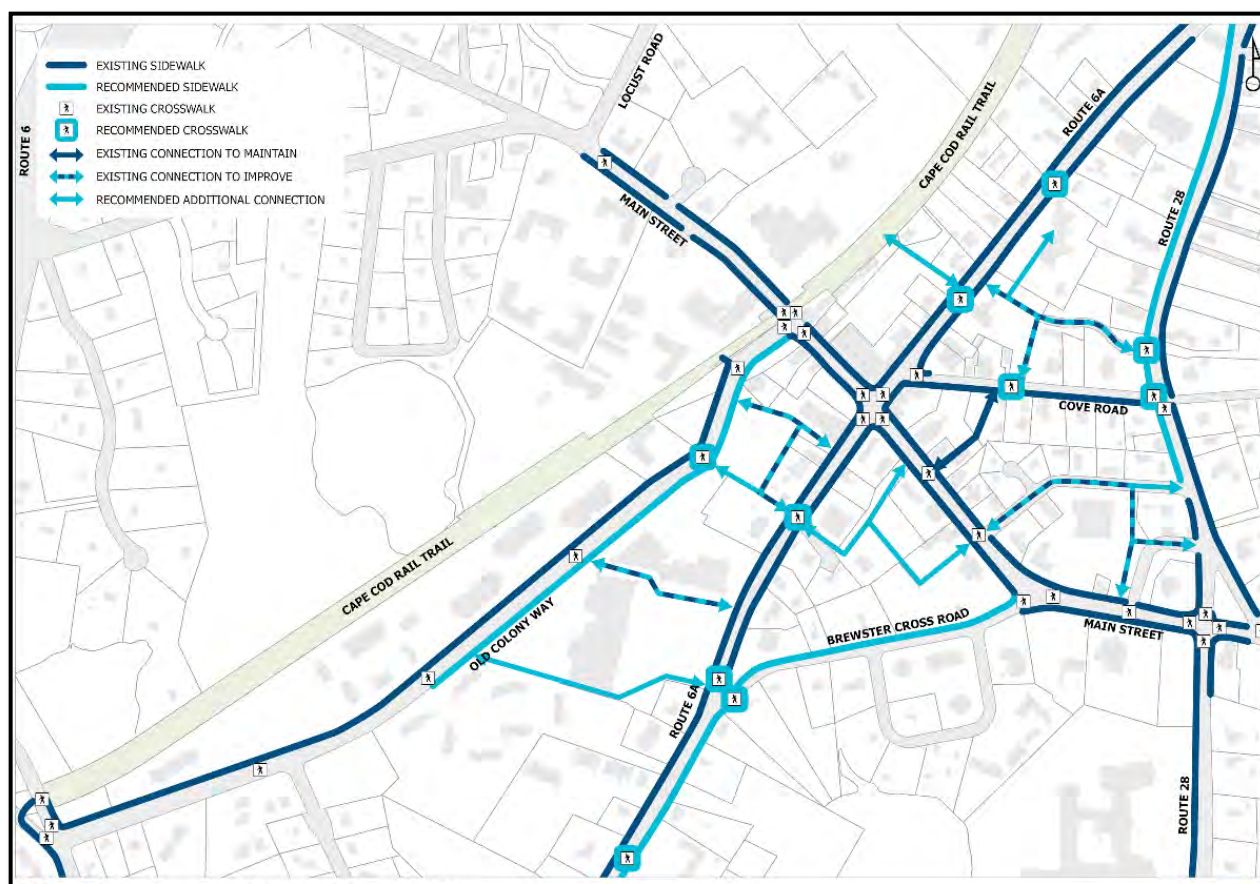


Figure 2 - Recommendations from Orleans Parking & Circulation Study



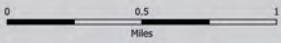
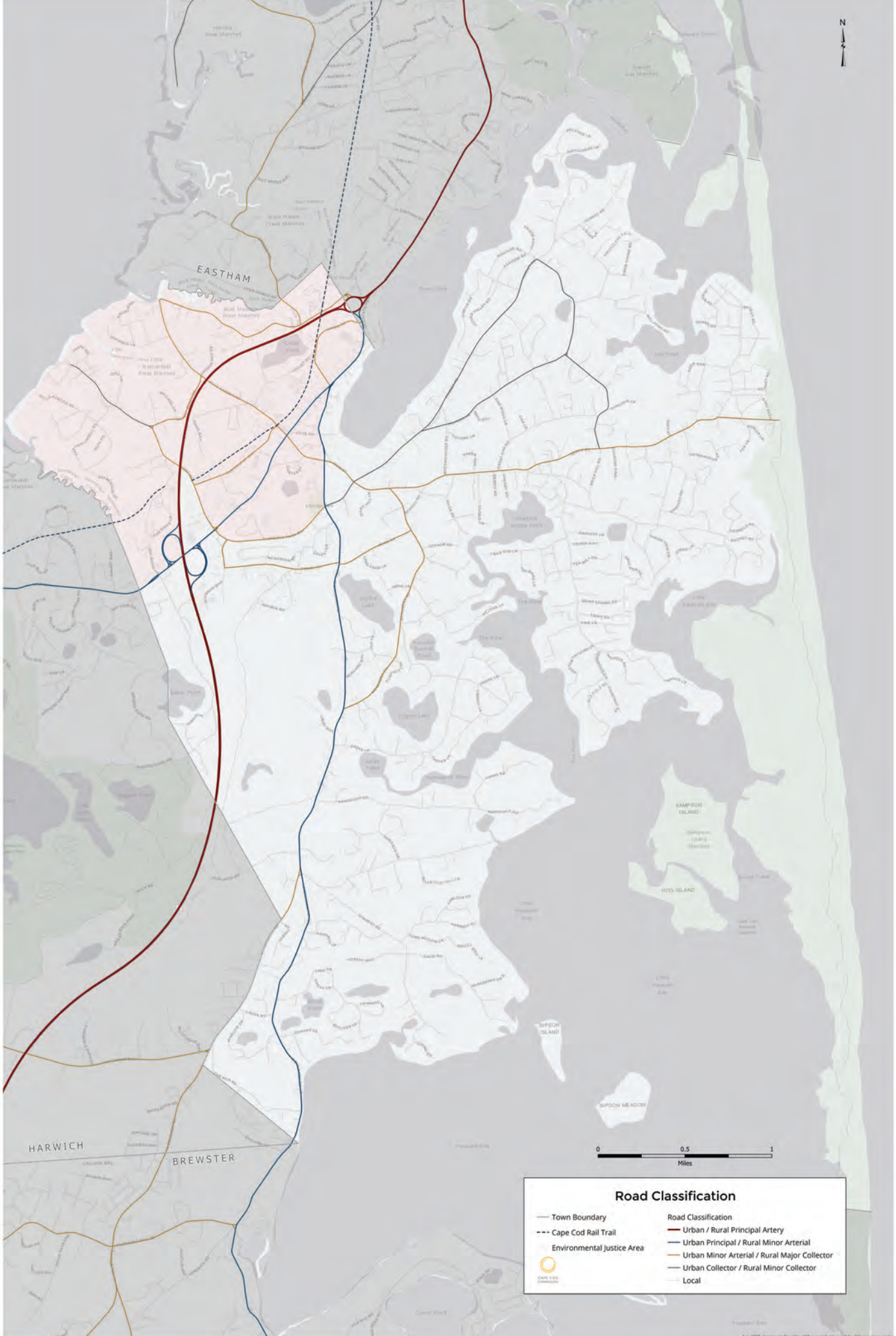
Problem Identification

The Cape Cod Commission prepared several maps to help community officials and members of the public better understand the challenges to biking and walking and identify areas in need of improvement. These maps were presented at a public workshop held at the Orleans Department of Public Works on December 3, 2019. Approximately 20 people attended the meeting, the majority of whom were Orleans residents. The meeting included a presentation that explained the goals of the Complete Streets program and the elements of a prioritization plan. The attendees broke into smaller groups, each of which were invited to write their comments down on one of several maps.

Problem identification maps are described in the following sections:

ROADWAY FUNCTIONAL CLASSIFICATION

A majority of the roads in Orleans are contained in the Census-designated Urbanized Area for Cape Cod as shown in Figure 3. Orleans streets included in this study (U.S. Route 6 and State Routes 28 & 6A, under state jurisdiction, are not eligible) all 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.



Road Classification

— Town Boundary	Road Classification
- - - Cape Cod Rail Trail	— Urban / Rural Principal Artery
○ Environmental Justice Area	— Urban Principal / Rural Minor Arterial
	— Urban Minor Arterial / Rural Major Collector
	— Urban Collector / Rural Minor Collector
	— Local



SIDEWALK AVAILABILITY AND LOCATIONS OF ACTIVITIES

For the most part, sidewalks in Orleans are limited to the downtown area as shown in Figure 4. In addition to a few sidewalk segments scattered throughout the town, the most significant amount of bicycling/pedestrian infrastructure consists of the Cape Cod Rail Trail connecting to the town line of Brewster to the town line of Eastham. Many of Orleans's commercial attractions are located along Route 6A and Main Street and a high concentration of civic/community activities are along and near the downtown area.



Sidewalks and Destinations

— Town Boundary	Activity Sites
- - - Cape Cod Rail Trail	• Arts & Culture
█ Existing Sidewalk	• Library
	• Recreation
	• School
	• Senior Center
	• Accommodation and Food Services
	• Gallery
	○ Retail Trade

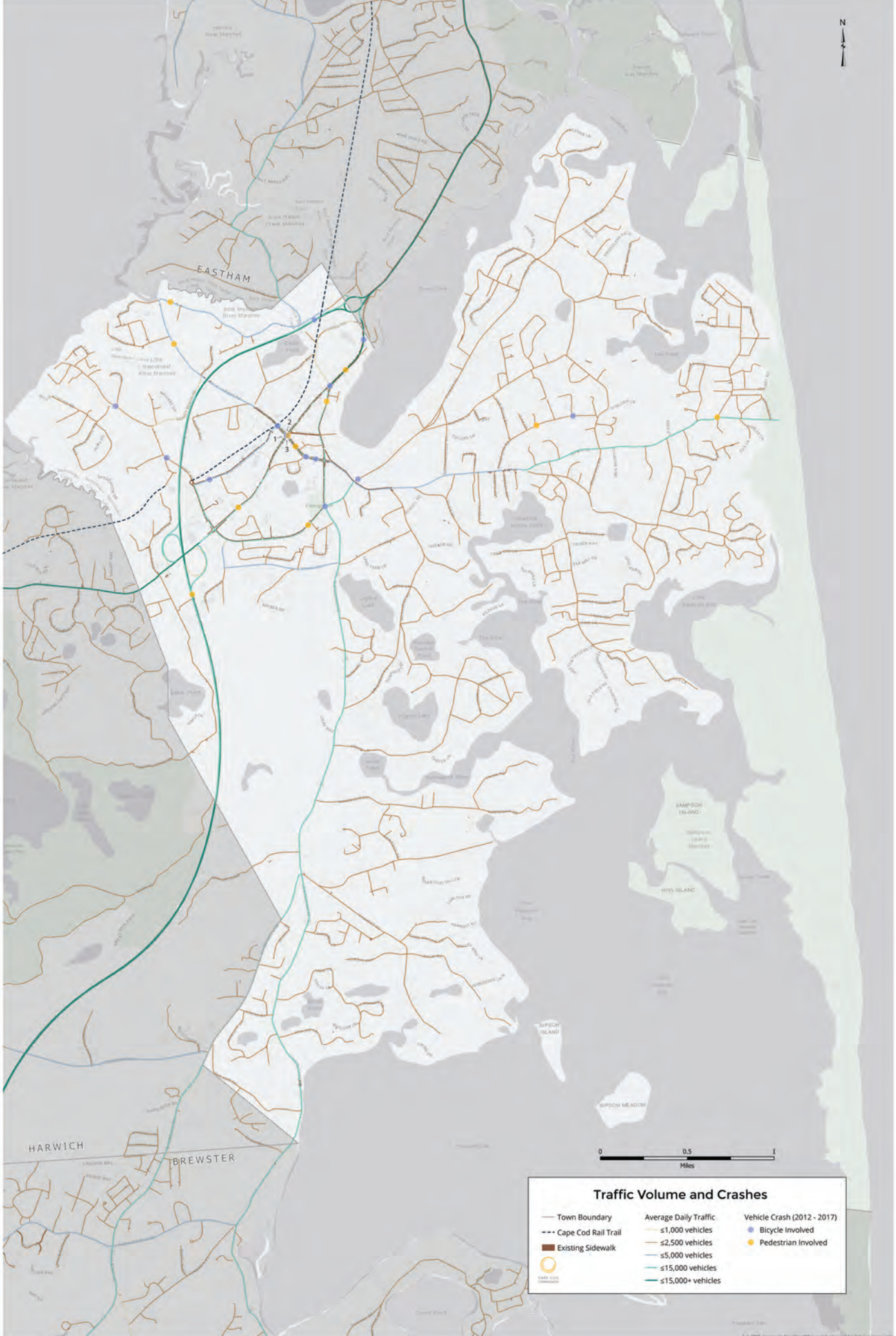
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TRAFFIC VOLUMES AND CRASH HISTORY

Several types of data are shown in Figure 5. These data include:

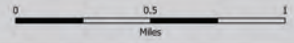
- **Traffic Volumes:** Route 6 is by far the heaviest traveled road and is represented as the thickest line width. There is also heavy traffic along Routes 6A and 28 and Main Street. (*source: Cape Cod Commission/MassDOT traffic counting programs*).
- **Crash Data:** Over the most recent three years on record (2016-2018), there were thirteen reported crashes in Orleans that involved either a pedestrian or a bicyclist. The greatest concentration of crashes occurred in the downtown area (*source: MassDOT Crash Portal*).



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Traffic Volume and Crashes

— Town Boundary	Average Daily Traffic	● Bicycle Involved
- - - Cape Cod Rail Trail	— ≤1,000 vehicles	● Pedestrian Involved
— Existing Sidewalk	— ≤2,500 vehicles	
● Cape Cod	— ≤5,000 vehicles	
	— ≤15,000 vehicles	
	— ≤15,000+ vehicles	



Cape Cod Commission GIS staff have developed a gap analysis tool to help identify priority gaps in the pedestrian network. The tool provides “Gap Scores” for roadway segments by analyzing the travel distance to various activity areas. The color-coded roadways shown in Figure 6 comprise Orleans’s streets (excluding Routes 6, 6A, and 28) that currently are not classified as “walkable.” A walkable street is defined in this case to include the presence of a sidewalk or a combination of low-speed limit, low average daily traffic, and no centerline.

Gap Scores are calculated based on travel distance using network analysis to activity sites. Activity sites include community activities (CA) and business activities (BA), as described in the following lists:

Community Activity Sites:

- Schools
- Colleges
- Libraries
- Hospitals
- Arts and culture facilities
- Recreational facilities
- Community centers
- Senior centers
- Beaches
- Trailheads

Business Activity Sites:

- Retail trade
- Accommodation and food services
- Galleries

Using GIS network analysis for each road segment, determine the number of community activity sites and business activity sites within ¼ mile, ½ mile, and 1 mile. For each activity type, determine a Gap Score using the following weighting system:

$$3 * (\text{sites within } \frac{1}{4} \text{ mile}) + 2 * (\text{sites within } \frac{1}{2} \text{ mile}) + 1 * (\text{sites within } 1 \text{ mile})$$

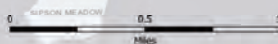
For each activity type, Gap Scores are normalized on a 0-100 range. These are then added together and finally normalized again on a 0-100 range. These results are presented in the color-coded map of Figure 6. The areas which have the highest Gap Scores, and therefore the highest utility for pedestrians (and bicyclists) once safe and comfortable facilities are created are shown in red.



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Walking Demand		
Town Boundary	Cape Cod Rail Trail	Existing Sidewalk
Arts & Culture	Library	Recreation
School	Senior Center	Accommodation and Food Services
Gallery	Retail Trade	Walking Demand Score ≤20
		Walking Demand Score ≤40
		Walking Demand Score ≤60
		Walking Demand Score ≤80
		Walking Demand Score ≤100



On December 3, 2019, Cape Cod Commission and Town of Orleans staff held a public workshop at the Orleans DPW facility for members of the public, town officials, and other interested parties. With approximately 20 participants, the workshop consisted of two parts:

Part 1: Presentation

The topics presented include:

- Definition of a Complete Street
- Benefits of Complete Streets
 - Safety Benefits
 - Health Benefits
 - Benefits for People with Disabilities
 - Benefits for Children
 - Benefits for Aging Population
- Funding Available for Complete Streets
- Prioritization Plan Template
- Complete Streets Project Types:
 - Traffic Flow and Safety
 - Bicycle Facilities
 - Pedestrian Facilities
 - Transit Facilities
- Complete Streets Needs
- Context Sensitivity
- Existing Conditions
 - Sidewalks and Destinations
 - Roadway Classification
 - Speed Limits, Crashes, Traffic Volume
 - Gap Analysis



Figure 7 - Presentation slide for public workshop



Figure 8 – Presentation at Orleans DPW in December 2019

Part 2: Tabletop Exercise

After a period of questions and comments, workshop participants were divided into four separate groups for a tabletop exercise. Using a set of paper maps laid on the



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tables, the participants added written comments and drew linework to identify problem areas and make suggestions for improvement.



Figure 9 - Audience participation in problem identification/project development



Project Identification & Evaluation

Following the public workshop, the study team met to narrow down/combine the suggestions to create a list of twenty-five projects for evaluation, scoring, and ranking. Following an initial review, the study team identified three additional projects for a total of twenty-eight.

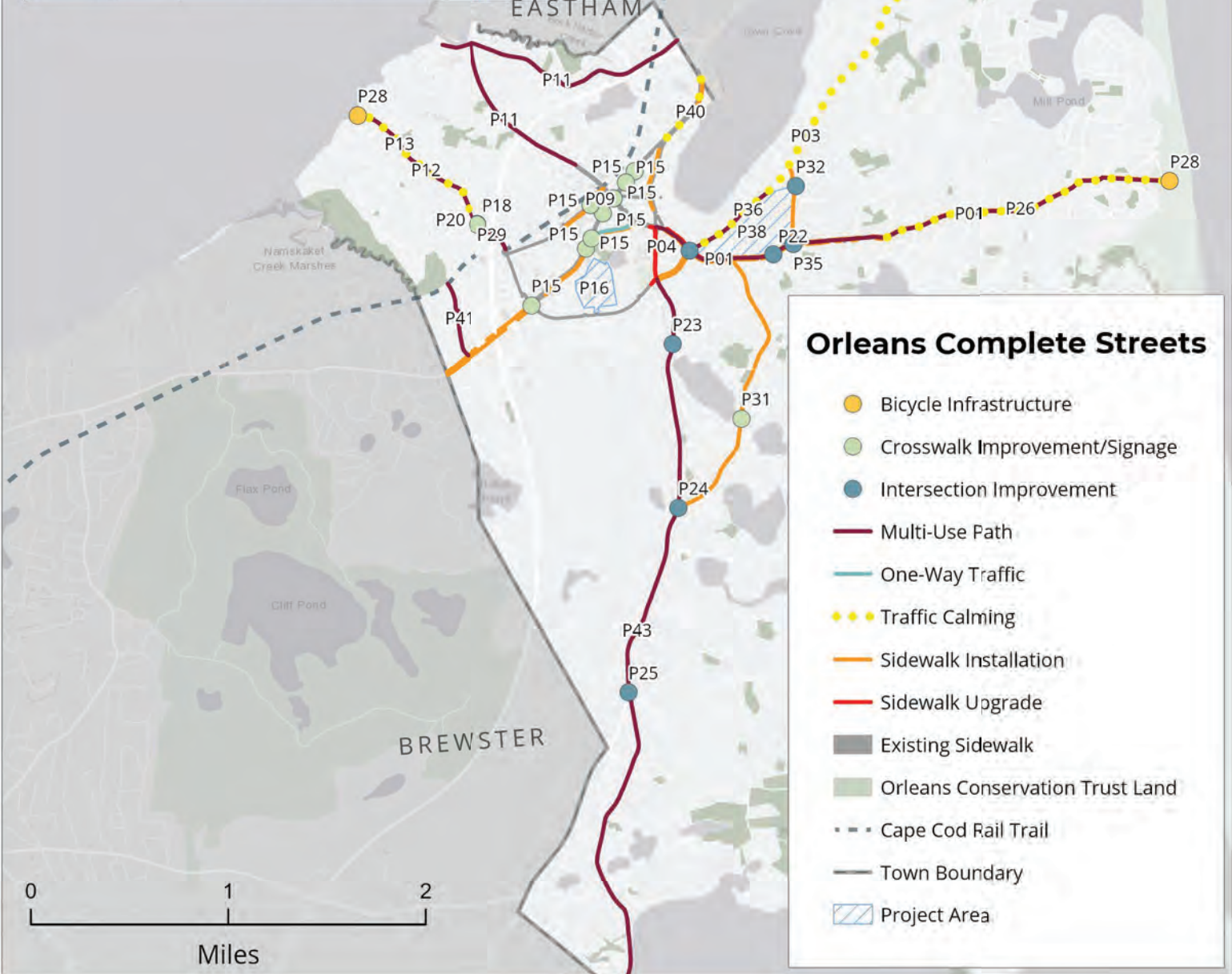
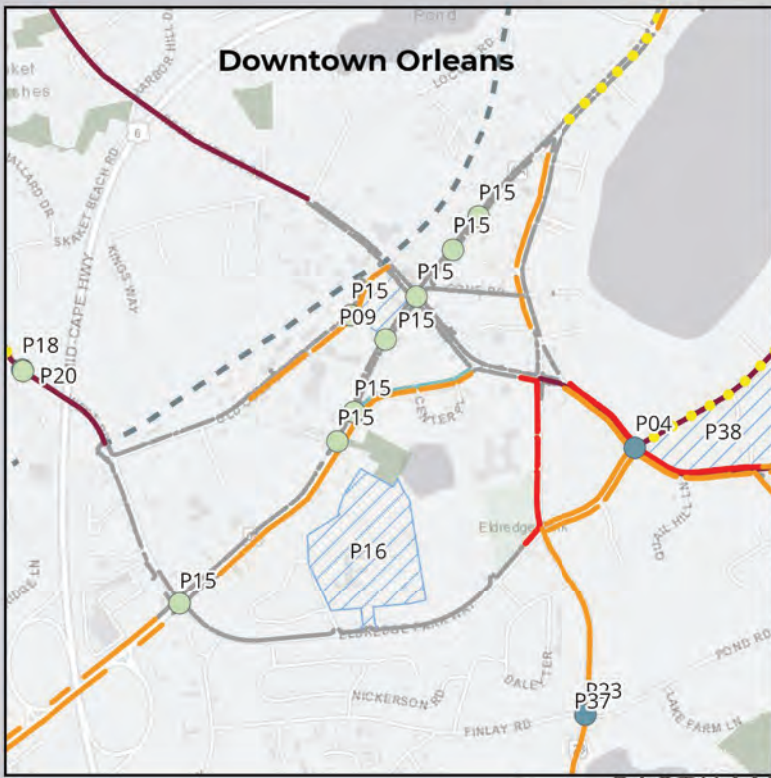
The following sections includes a discussion of potential projects, scoring methodology, and project evaluation.

PROJECTS FOR EVALUATION

In the following figure, forty-three complete streets projects have been identified. Proposed projects include categories such as:

- Bicycle Infrastructure
- Crosswalk Improvement/Signage
- Intersection Improvement
- Multi-use path
- One-way Traffic
- Traffic Calming
- Sidewalk Construction
- Sidewalk Reconstruction

Complete Streets projects are identified by an identification number (e.g., PO1 – P43) that has generally been assigned based on alphabetical order and are shown on the map and included in the listing in Table 1.



Orleans Complete Streets

- Bicycle Infrastructure
- Crosswalk Improvement/Signage
- Intersection Improvement
- Multi-Use Path
- One-Way Traffic
- Traffic Calming
- Sidewalk Installation
- Sidewalk Upgrade
- Existing Sidewalk
- Orleans Conservation Trust Land
- Cape Cod Rail Trail
- Town Boundary
- Project Area

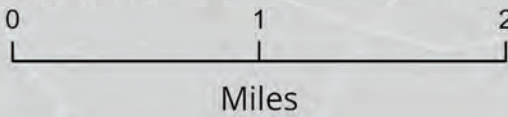




Table 1 - List of Projects

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P06	Main St from Tonset Rd to Rt 28: reconstruct sidewalk, eliminate pole obstructions	\$300,000
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P42	Brewster Cross Rd: sidewalk	\$300,000
P43	Rt 28 from downtown to Brewster town line: construct multi-use path*	\$4,792,000

**To be funded outside of Complete Streets Program*

EVALUATION METHODOLOGY

Projects identified through the public workshop and stakeholder meetings include new sidewalks, shared-use paths, and shoulder improvements. Some of the criteria are evaluated using MassDOT’s Project Intake Tool (MAPIT) – an online mapping application that identifies various affected geographies (e.g., environmental resources, environmental justice areas, crash clusters, etc.). The following procedures are proposed specifically for evaluating Orleans’s list of projects.

Stage 1:

Evaluate project benefits based on following criteria:

- **[1a] Improvement in pedestrian safety:** in an area with reported pedestrian crashes, provision of pedestrian facilities where no accommodation exists gains maximum score of 10. Considers traffic volumes and vehicle speeds and problem areas identified as part of a Road Safety Audit. Facilities on both sides of the road can gain an extra 5 points.
- **[1b] Improvement in pedestrian mobility:** provision of fully separated pedestrian facilities where no accommodation exists gains maximum score of 50. Facilities on both sides of the road can gain an extra 5 points.
- **[1c] Improvement in bicycling safety** in an area with reported bicyclist crashes, provision of bicycling facility where no accommodation exists gains



maximum score of 10. Considers traffic volumes and vehicle speeds and problem areas identified as part of a Road Safety Audit. Facilities on both sides of the road can gain an extra 5 points.

- **[1d] Improvement in bicycling mobility:** provision of fully separated bicycling facility where no accommodation exists gains maximum score of 50. Facilities on both sides of the road can gain an extra 5 points.
- **[1e] Improvement in network connectivity:** providing safe & comfortable connections to existing shared-use paths and along roadways with high Gap Scores gains a maximum score of 20. Projects that are regional in nature (e.g., provide connections to adjacent towns and support the regional bicycling/pedestrian networks) can score an additional 5 points.

Combine benefit scores from above criteria and multiply by project length (in miles) to find Stage 1 Score.

$$\text{Stage 1 Score} = (1a + 1b + 1c + 1d + 1e) \times \text{Project Length}$$

Stage 2:

Evaluate project benefits based on supplemental criteria:

- **[2a] Access to Environmental Justice areas:** providing safe & comfortable facilities within or near Environmental Justice Areas gains a maximum score of 10. Environment Justice areas are identified using MAPIT, projects located in adjacent areas are given progressively lower scores based on proximity.
- **[2b] Public/Stakeholder support:** projects supported by both public and stakeholders gain a maximum score of 10.
- **[2c] Compatibility with community goals:** projects identified in local plans (e.g., LCP, transportation studies) can gain a maximum score of 10.
- **[2d] Environmental impacts:** projects that increase impervious surfaces or impact sensitive areas can receive a negative score up to -4. Scoring is based on number of environmental resource categories impacted as identified using from the Cape Cod Commission’s RPP Data Viewer.* These resources include:
 - Wetlands
 - BioMap2 Core Habitat or NHESP Priority Habitats of Rare Species
 - NHESP Certified Vernal Pools Buffer
 - FEMA Floodplains or Sea, Lake and Overland Surge from Hurricanes (SLOSH)

Projects that include improvements to environmental areas (e.g., low-impact design, stormwater management) can receive a positive score up to +10.

* <https://www.capecodcommission.org/our-work/2018-rpp-data-viewer/>

Combine benefit scores from above to find Stage 2 score

$$\text{Stage 2 Score} = 2a + 2b + 2c + 2d + 2e$$



Total Benefit Scoring

In consultation with task force members, identify weighting factors for each scoring stage. These weighting factors have been determined to be:

Stage 1 Weighting Factor =1.0

Stage 2 Weighting Factor =1.0

Multiply stage scores by weighting factors and combine to find Total Benefit Score

$$\text{Total Benefit Score} = \text{Stage 1 Score} \times \text{Stage 1 Weighting Factor} \\ + \text{Stage 2 Score} \times \text{Stage 2 Weighting Factor}$$

Benefit/Cost Scoring

Project costs are calculated for each project type depending on length from the table available in Appendix C. It is expected that funding is limited and would not be available for implementation of all considered projects. To maximize overall benefits, a Benefit/Cost Score is calculated for each project by dividing the Total Benefit Score of each project by its cost:

$$\text{Benefit/Cost Score} = \text{Total Benefit Score} / \text{Project Cost}$$

Prioritization & Implementation

After determining Benefit/Cost scores for each project, create ranked list with highest scores corresponding to projects that are the highest priority. The priority listing does not necessarily indicate the order of implementation. Additional factors will be considered in project selection such as:

- Available funding
- Project readiness
- Project can be combined with another non-complete streets project

PROJECT EVALUATIONS

Using the criteria described above, the study team evaluated each project resulting in the scores presented in Table 2.



Table 2 - Initial Evaluation of Projects

Proj. ID	Project Name	1a - Pedestrian Safety	1b - Pedestrian Mobility	1c - Bicycle Safety	1d - Bicycle Mobility	1e - Network Connectivity	Stage 1 Score	2a - Access to Environmental Justice areas	2b - Public/Stakeholder Support	2c - Compatibility with Community Goals	2d - Environmental Impacts	Stage 2 Score	Total Benefit Score	Benefit/Cost Score
P01	Beach Rd/Main St from Rt 28 to Nauset Beach: multiuse path	7.2	41.0	5.0	41.0	20.0	319.5	2	10	10	0	22.0	341.5	126
P02	Brewster Cross Rd: convert to 1-way eastbound	3.9	16.0	3.6	16.0	17.0	11.3	5	7	10	-3	19.0	30.3	189
P03	Tonset Rd: traffic calming	1.6	19.0	1.6	19.0	14.0	104.9	2	7	5	-3	11.0	115.9	231
P04	Tonset Rd/Main St Intersection: retiming signal, add left turn arrow, ped crossing, bike box	5.0	24.0	5.0	24.0	10.0	20.4	2	7	10	0	19.0	39.4	159
P05	Tonset Rd (Extension) from Main St to Rt 28: add sidewalk	3.2	36.0	2.5	36.0	15.0	18.5	2	7	5	0	14.0	32.5	139
P06	Main St from Tonset Rd to Rt 28: reconstruct sidewalk, eliminate pole obstructions	4.1	33.0	3.2	33.0	4.0	15.4	5	7	5	-1	16.0	31.4	134
P07	Main St from Meetinghouse Rd to Rt 28: construct sidewalk	4.5	43.0	3.5	43.0	8.0	81.6	2	7	5	-1	13.0	94.6	105
P08	Downtown & various locations: install bike racks		6.0		6.0	0.0	0.0	5	7	10	0	22.0	22.0	5500
P09	Depot Square: Bike Rest stop - kiosk, benches, fix it station, bike racks, etc.)		10.0		10.0	0.0	0.0	5	10	10	-1	24.0	24.0	960
P10	Old Colony Way from Staples Plaza to Main St on south side: construct sidewalk	3.6	34.0	2.8	34.0	4.0	15.7	5	7	5	0	17.0	32.7	140
P11	Rock Harbor Rd: bike/ped accommodations, shoulders	2.8	35.0	2.8	35.0	20.0	181.5	10	10	10	0	30.0	211.5	202
P12	Skaket Beach Rd: traffic calming	2.0	14.0	2.0	14.0	20.0	31.2	10	10	10	0	30.0	61.2	386



CAPE COD
COMMISSION

P13	Skaket Beach Rd: multi-use path	6.5	27.0	4.5	27.0	20.0	51.0	10	10	10	0	30.0	81.0	141
P14	Cape Cod Rail Trail @ Main St: bike tunnel or bridge	13.0	45.0	13.0	45.0	20.0	13.6	10	5	7	-3	19.0	32.6	12
P15	Rt 6A: add improved crosswalks	0.0	12.0		12.0	10.0	0.0	5	7	10	0	22.0	22.0	677
P16	Downtown from elementary school: construct pathway	4.5	37.0	4.5	37.0	4.0	26.1	2	7	5	0	14.0	40.1	139
P17	Create bike/ped facilities connecting to Orleans Conservation Trust and other open space trails		15.0		15.0	0.0	0.0		7	5	-1	11.0	11.0	220
P18	West Rd/Salty Ridge Rd intersection: install warning signage/safe crossing	5.0	7.0	5.0	7.0	8.0	3.2	10	7	5	0	22.0	25.2	2400
P19	Cape Cod Rail Trail @ Rt 6 (near Salty Ridge Rd): construct bridge over Rt 6	10.0	46.0	10.0	46.0	13.0	25.0	10	7	5	-4	18.0	43.0	8
P20	Cape Cod Rail Trail @ West Rd: improve crossing, RRFB	0.0	9.0		9.0	8.0	2.6	10	7	10	0	27.0	29.6	1480
P21	Rt 28 from Cove Rd to Main St: add sidewalk	5.9	32.0	4.6	32.0	16.0	18.1	2	7	5	-1	13.0	31.1	133
P22	Main St/School Rd intersection: improve safety	3.0	23.0	3.0	23.0	10.0	12.4	2	5	3	0	10.0	22.4	164
P23	Rt 28/Pond Rd & Finlay Rd: improve safety	4.5	20.0	4.5	20.0	10.0	11.8	2	5	3	-1	9.0	20.8	152
P24	Rt 28/Monument Rd intersection: improve safety	4.5	26.0	4.5	26.0	4.0	13.0	2	5	3	0	10.0	23.0	168
P25	Rt 28/Rt 39 & Quanset Rd intersection: improve safety	4.5	47.0	4.5	47.0	9.0	22.4	0	10	10	0	20.0	42.4	10
P26	Beach Rd: install speed tables	2.2	8.0	2.2	8.0	20.0	0.0	2	10	5	0	17.0	17.0	1417
P27	Install rumble strips on roads as advanced warning ahead of bike crossings		13.0		13.0	0.0	0.0		5	5	0	10.0	10.0	1000
P28	Construct gear lockers at beaches		11.0		11.0	0.0	0.0		10	5	-1	14.0	14.0	933
P29	West Rd (Cape Cod Rail Trail section): improve on-road accommodations	2.5	5.0	2.5	5.0	8.0	4.6	10	10	10	0	30.0	34.6	5864
P30	Monument Rd from Main St to Route 28: construct sidewalk	2.7	44.0	2.1	44.0	7.0	149.7	2	5	3	-1	9.0	158.7	95
P31	Monument Rd: traffic calming, improve crosswalk and install advance warning signage for Crystal Lake	1.2	28.0	1.2	28.0	5.0	95.1	2	10	7	-2	17.0	112.1	278



P32	Tonset Rd/Hopkins Ln intersection: improve safety	3.0	25.0	3.0	25.0	6.0	12.4	2	5	3	0	10.0	22.4	172
P33	Rt 28 from Tonset Rd to middle school: upgrade sidewalk	4.5	31.0	3.5	31.0	10.0	16.0	5	7	5	0	17.0	33.0	141
P34	Meetinghouse Rd from Main St to Hopkins Ln: construct sidewalk	1.8	42.0	1.4	42.0	7.0	28.3	2	5	3	0	10.0	38.3	111
P35	Main St/Meetinghouse Rd intersection: improve safety	3.0	21.0	3.0	21.0	8.0	11.2	2	5	3	0	10.0	21.2	163
P36	Tonset Rd from Main Street to Hopkins Ln: shared use path	5.2	40.0	3.6	40.0	12.0	50.4	2	7	5	0	14.0	64.4	131
P37	Sidewalk connections to Brewster on Route 6A	6.8	38.0	5.3	38.0	15.0	51.5	10	7	10	0	27.0	78.5	137
P38	Improved pedestrian connection through Orleans Cemetery (Tonset Rd to Main St)	2.3	30.0	2.3	30.0	8.0	21.8	2	10	10	0	22.0	43.8	132
P39	Route 6A/28 from Rotary to Old County Rd: construct sidewalks	10.5	18.0	7.7	18.0	11.0	19.6	10	10	10	-1	29.0	48.6	144
P40	Rts 6A/28 from Eastham Rotary to Orleans Roundabout: road diet	11.1	22.0	10.2	22.0	16.0	40.6	10	10	10	0	30.0	70.6	148
P41	Bay Ridge Ln: multi-use path connection to Cape Cod Rail Trail	6.0	17.0	6.0	17.0	9.0	11.0	10	7	10	0	27.0	38.0	198
P42	Brewster Cross Rd: sidewalk	2.7	29.0	2.1	29.0	17.0	16.0	5	7	5	0	17.0	33.0	141
P43	Rt 28 from downtown to Brewster town line: construct multi-use path	11.3	39.0	11.3	39.0	13.0	442.7	2	7	10	0	19.0	461.7	123

Recommendations & Project Prioritization

The ultimate recommendation of this study is the implementation of projects in the Orleans Complete Street Prioritization Tables presented at the end of this chapter.

Additionally, recommendations for local and state roads are listed in the following sections.

Unmapped Recommendations:

- Create bike/ped facilities connecting Skaket Beach to Nauset Beach ("Coast to Coast")
- Create bike/ped facilities connecting affordable housing to downtown
- Wayfinding signage



- Create bike/ped facilities connecting to town landings
- Incentivize property owners to allow sidewalks on their property

As part of ongoing planning for the revitalization of Orleans and as an effort to connect parts of Orleans (for example, points of interest with the Cape Cod Rail Trail), the Cape Cod Commission is working with the Town of Orleans to create a Wayfinding Plan. The proposed signage program will be integrated into a regional signage plan moving forward.

STATE ROADS (ROUTES 6, 6A, AND 28)

While outside the scope of the Complete Streets Program, Routes 6A and 28 are nevertheless critical corridors for pedestrian and cyclist travel in Orleans. As MassDOT proceeds with implementation of complete street upgrades to facilities under their jurisdiction, the following are recommended for Routes 6A & 28 in Orleans:

- Construct ADA-compliant sidewalks
- Provide pull-off areas for bus stops
- Provide wayfinding signage guiding users to best routes connecting to beaches, recreation areas, Cape Cod Rail Trail, and other destinations



ORLEANS COMPLETE STREETS PRIORITIZATION TABLE

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

Table 3 - Project Ranking

Project I.D.	Rank	Projects	Total Cost	Funding Requested
P01	1	Beach Rd/Main St from Rt 28 to Nauset Beach: multiuse path	\$3,476,000	\$400,000
P10	2	Old Colony Way from Staples Plaza to Main St on south side: construct sidewalk	\$300,000	\$300,000
P06	3	Main St from Tonset Rd to Rt 28: reconstruct sidewalk, eliminate pole obstructions	\$300,000	\$300,000
P07	4	Main St from Meetinghouse Rd to Rt 28: construct sidewalk	\$1,157,000	\$400,000
P04	5	Tonset Rd/Main St Intersection: retiming signal, add left turn arrow, ped crossing, bike box	\$317,000	\$317,000
P22	6	Main St/School Rd intersection: improve safety	\$175,000	\$175,000
P35	7	Main St/Meetinghouse Rd intersection: improve safety	\$166,000	\$166,000
P41	8	Bay Ridge Ln: multi-use path connection to Cape Cod Rail Trail	\$245,000	\$245,000
P37	9	Sidewalk connections to Brewster on Route 6A*	\$732,000	
P29	10	West Rd (Cape Cod Rail Trail section): improve on-road accommodations	\$8,000	\$8,000
P18	11	West Rd/Salty Ridge Rd intersection: install warning signage/safe crossing/kiosk	\$14,000	\$14,000
P20	12	Cape Cod Rail Trail @ West Rd: improve crossing, flashing beacon	\$26,000	\$26,000
P15	13	Rt 6A: add improved crosswalks and sidewalk on south side of Rt 6A*	\$714,000	
P05	14	Tonset Rd Ext from Main St to Rt 28: add sidewalk	\$300,000	\$300,000
P13	15	Skaket Beach Rd: multi-use path	\$736,000	\$400,000
P08	16	Downtown & various locations: install bike racks	\$5,000	\$5,000
P11	17	Rock Harbor Rd: bike/ped accommodations, shoulders	\$1,342,000	\$400,000



P09	18	Depot Square: Bike Rest stop - kiosk, benches, fix it station, bike racks, etc.)	\$32,000	\$32,000
P21	19	Rt 28 from Cove Rd to Main St: add sidewalk*	\$300,000	
P03	20	Tonset Rd: traffic calming	\$642,000	\$400,000
P39	21	Route 6A/28 from Eastham Rotary to Old County Rd: construct sidewalks*	\$433,000	
P42	22	Brewster Cross Rd: sidewalk	\$300,000	\$300,000
P33	23	Rt 28 from Tonset Rd Ext to middle school: upgrade sidewalk*	\$300,000	
P43	24	Rt 28 from downtown to Brewster town line: construct multi-use path*	\$4,792,000	
P31	25	Monument Rd: traffic calming, improve crosswalk and install advance warning signage for Crystal Lake	\$515,000	\$400,000
P32	26	Tonset Rd/Hopkins Ln intersection: improve safety	\$166,000	\$166,000
P26	27	Beach Rd: install speed tables	\$15,000	\$15,000
P12	28	Skaket Beach Rd: traffic calming	\$203,000	\$203,000
P25	29	Rt 28/Rt 39 & Quanset Rd intersection: improve safety*	\$5,178,000	
P27	30	Install advanced warning ahead of bike crossings	\$13,000	\$13,000
P28	31	Construct gear lockers at beaches	\$19,000	\$19,000
P17	32	Create bike/ped facilities connecting to Orleans Conservation Trust and other open space trails	\$64,000	\$64,000
P24	33	Rt 28/Monument Rd intersection: improve safety*	\$175,000	
P23	34	Rt 28/Pond Rd & Finlay Rd: improve safety*	\$175,000	
P40	35	Rts 6A/28 from Eastham Rotary to Orleans Roundabout: road diet*	\$610,000	
P36	36	Tonset Rd from Main Street to Hopkins Ln: shared use path	\$630,000	\$400,000
P34	37	Meetinghouse Rd from Main St to Hopkins Ln: construct sidewalk	\$441,000	\$400,000
P30	38	Monument Rd from Main St to Route 28: construct sidewalk	\$2,130,000	\$400,000
P14	39	Cape Cod Rail Trail @ Main St: bike tunnel or bridge	\$3,426,000	\$400,000
P19	40	Cape Cod Rail Trail @ Rt 6 (near Salty Ridge Rd): construct bridge over Rt 6*	\$6,758,000	
P02	41	Brewster Cross Rd: convert to 1-way eastbound	\$206,000	\$206,000

P16	42	Downtown from elementary school: construct pathway	\$368,000	\$368,000
P38	43	Improved pedestrian connection through Orleans Cemetery (Tonset Rd to Main St)	\$424,000	\$400,000

**To be funded outside of Complete Streets Program*

NEXT STEPS

The study team is submitting a draft plan to MassDOT for feedback and will resubmit as required. Following approval of the prioritization plan, the Town of Orleans will be eligible to apply for Complete Streets funding up to \$400,000 (competitive process). This phase is referred to as Tier 3 of the Complete Streets Program. Project considerations include:

- The costs of several of the projects listed in the priority plan exceed the \$400,000 threshold. At the time of applying for Tier 3 funding, additional funding sources must be identified.
- Wayfinding signs should comply with the Manual on Uniform Traffic Control Devices.
- At marked crossings, the bottom of the 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.
- The use of brick within the pedestrian access route is not recommended. Due to independent movement during freeze thaw cycles, over time it becomes difficult for brick to maintain compliance.
- Shared-use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.
- The National Committee on Uniform Traffic Control Devices has recommended that the SHARE THE ROAD (W16-1P) plaque no longer be used in conjunction with the Bicycle (W11-1) and other vehicular traffic



Town of Orleans

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Town Administrator
John F. Kelly

Town of Orleans Complete Streets Policy

Vision and Purpose:

As one of the fifteen towns of Barnstable County, the Town of Orleans is part of a distinctive region known for its coastlines, historic villages, and environmental resources. All of these towns face the challenges of colonial layouts with narrow roadways that constrain modern travel between home, school, work, recreation and shopping destinations. This is especially true when the volume of users swells during the summer tourist season. The Town recognizes the necessity of preserving and enhancing scenic, aesthetic, historical and environmental resources, while ensuring that all users and resources are considered when designing roadway network improvements.

To enhance the safety, health, economic viability, and quality of community life, as well as to further equity objectives, the Town adopts a Complete Streets policy to accommodate all users of the roadway network, regardless of their ages, abilities, or income levels.

The Town of Orleans Complete Streets policy formalizes the planning, design, operation and maintenance of roadways by directing town decision-makers to consistently plan, design, construct, and maintain roadways to accommodate all anticipated users. Users include, but not limited to, pedestrians, bicyclists, motorists, transit riders and vehicles, emergency vehicles, and freight and commercial vehicles.

Core Commitment:

The Town of Orleans is committed to implementing a balanced and flexible approach to Complete Streets. It will utilize the latest design guidance, standards and recommendations to improve or maintain safety, mobility and infrastructure conditions within the unique characteristics of its community.

The Town will develop and implement projects in a manner that is sensitive to the community's physical, economic, and social setting. This context-sensitive approach to project development, process and design ensures consideration of stakeholder and community values. It includes goals related to livability with greater participation of those affected in order to gain project consensus.

The Town recognizes that users of various modes of transportation, including but not limited to pedestrians, cyclists, transit and school bus riders, motorists, delivery and service personal, freight haulers, and emergency responders, are legitimate users of streets and require safe facilities. All users includes persons of all ages, abilities, and income levels.

The Town recognizes that all projects, including new construction, maintenance and reconstruction, are potential opportunities to apply Complete Streets concepts. The Town will, to the maximum extent practical, design, construct, maintain and operate all streets to provide for a comprehensive and integrated street network of facilities for people of all ages, abilities and income levels.

Complete Streets design recommendations will be incorporated, as appropriate, into:

- All publicly and privately funded projects;
- All transportation infrastructure and street design projects requiring funding or approval by the Town of Orleans; and
- All projects funded by the State and Federal government - including but not limited to Chapter 90 funds, town improvements grants, Transportation Improvement Program (TIP), the MassWorks Infrastructure Program, Community Development Block Grants (CDBG), Capital Funding and other state and federal funds for street and infrastructure design .

Private developments and related roadway design components will also adhere to the Complete Street principles. In addition, to the extent practical, state-owned roadways will comply with the Complete Streets policy, including the design, construction and maintenance of such roadways within town boundaries.

Town Departments, in consultation as appropriate with town committees and working groups with related charges, will use best judgment regarding the desirability and feasibility of applying Complete Streets principles for routine roadway maintenance and projects, such as repaving, restriping, and so forth.

Exemptions:

Transportation infrastructure projects, including but not limited to, roadway reconstruction, roadway reconfigurations or subdivisions, may be excluded upon approval by the Board of Selectmen with consultation as appropriate with town departments and town committees and working groups with related charges, when documentation and data indicate that any of the following apply:

- Roadways where specific users are prohibited by law, such as limited access highways. An effort will be made in these cases for accommodations elsewhere.
- Where it is demonstrated that costs or impacts of accommodation are excessively disproportionate to the need or probable future use.
- Other town policies, regulations or requirements contradict or preclude implementation of Complete Streets principles.

Best Practices:

The Town of Orleans Complete Streets policy will focus on developing a connected, integrated network that serves all users. Complete Streets concepts will be integrated into policies, planning and design of all types of public and private projects, including new

construction, reconstruction, rehabilitation, repair, and maintenance of transportation facilities on streets and redevelopment projects. As practicable, recommendations for incorporating Complete Streets elements from the appropriate town departments and town committees and working groups with related charges will occur in the beginning stages of projects, that is prior to design.

Implementation of the Complete Streets policy will be carried out cooperatively within all town departments with multi-jurisdictional responsibility and, to the greatest extent possible, among private developers and state, regional and federal agencies. The Town will work cooperatively with neighboring communities and regional entities in an effort to strengthen regional connectivity options for all users.

The Town recognizes that Complete Streets may be achieved through single elements incorporated into a particular project, or incrementally through a series of smaller improvements or maintenance activities over time.

The latest design guidance, standards and recommendations available will be used in the implementation of Complete Streets, including the most up-to-date versions of:

- Massachusetts Department of Transportation: Project Design and Development Guidebook,
- American Association of State Highway Transportation Officials (AASHTO): A Policy on Geometric Design of Highways and Streets,
- United States Department of Transportation Federal Highway Administration: Manual on Uniform Traffic Design Controls,
- Architectural Access Board (AAB): 521 CMR Rules and Regulations,
- Cape Cod Commission: Complete Streets/Living Streets Design Manual,
- Cape Cod Metropolitan Planning Organization: Cape Cod Regional Transportation Plan, and
- Documents and plans created for the Town of Orleans, including but not limited to:
 - Orleans Comprehensive Plan
 - Orleans Village Center Streetscape Plan
 - Orleans Conservation, Recreation and Open Space Plan

Evaluation of Effectiveness:

The Town will develop performance measures to periodically assess the rate, success, and effectiveness of implementing the Complete Streets policy. The Town will determine the frequency of assessment and utilize appropriate metrics for analyzing the success of this policy. Town committees and working groups with related charges will be consulted regarding assessment measures and frequency. These metrics may include:

- Total miles of new on-street bicycle routes defined by lane markings or signage,
- Linear feet of new pedestrian accommodation,
- Number of new curb ramps or other retrofitted pedestrian facilities,
- Increase in the number of users of public transportation,
- Decrease in the number of traffic accidents involving vehicles, bicycles and pedestrians in Complete Streets areas,
- Number of new street trees planted along streets,
- Number of Low Impact Development (LID) landscape areas installed.

These metrics will be made public through reporting by appropriate Town staff. Implementation strategies will be adjusted as needed based on the findings.

Implementation:

The Town will make Complete Streets practices a routine part of everyday operations, shall approach every transportation project and program as an opportunity to improve streets and the transportation network for all users, and shall work in coordination with other departments, agencies, and jurisdictions to achieve Complete Streets.

The Traffic and Parking Study Committee (TPSC) will be the primary Town agency to implement this initiative. The Committee is composed of the Police Chief, Director of Public Works, Fire Chief, and Director of Planning & Community Development. The TPSC will coordinate with other Town committees and working groups as appropriate, including, but not limited to, the Planning Board, Bicycle & Pedestrian Committee, and the Historical Commission. The focus of the group convened by the TPSC will be to ensure the implementation of the context-sensitive Complete Streets policy and, where necessary, alter existing practices and overcome barriers that act as impediments to implementation. In addition, this group will regularly update and solicit feedback on potential projects with the general public to ensure that the perspectives of the community are considered and incorporated, as appropriate.

The Town will integrate Complete Streets principles in all new planning documents, as applicable (e.g., master plans, open space and recreation plan, etc.), laws, procedures, rules, regulations, guidelines, programs and templates, and make recommendations for zoning and subdivision codes to encourage contextual design of complete streets policies, respecting the presence of important scenic, environmental and historic resources.

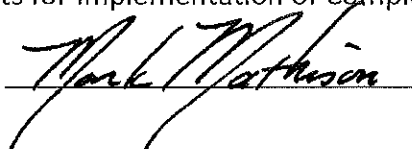
The Town will maintain a comprehensive inventory of pedestrian and bicycle facility infrastructure that will highlight projects that eliminate gaps in the sidewalk and bikeway network.

The Town will propose projects to be included in the 5-year Capital Improvement Plan to support implementation of this Policy.

The Town will secure training for pertinent staff and decision-makers on both the technical content of Complete Streets principles and best practices, as well as community engagement methods for implementing the Complete Streets policy. Training may be accomplished through workshops and other appropriate means.

The Town will utilize inter-department coordination to promote the most responsible and efficient use of resources for activities within the public way. The town will seek out appropriate sources of funding and grants for implementation of Complete Street policies.

Approved, Orleans Board of Selectmen:



Date: 1/15/2020

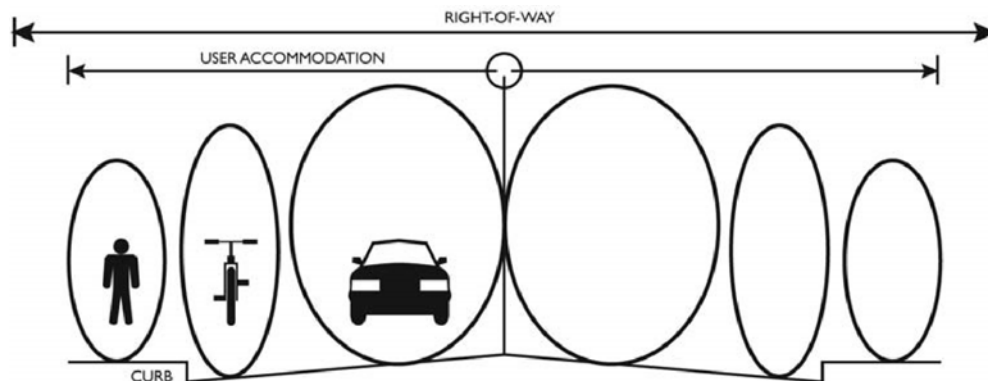


Appendix B: MassDOT Design Guide Bicycle/Pedestrian Accommodation

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.

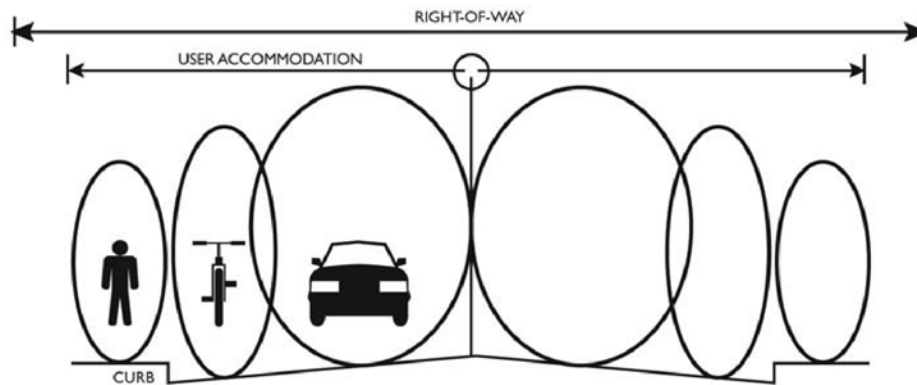


MassDOT Design Guide: Case 1 - Separate Accommodation for All Users



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

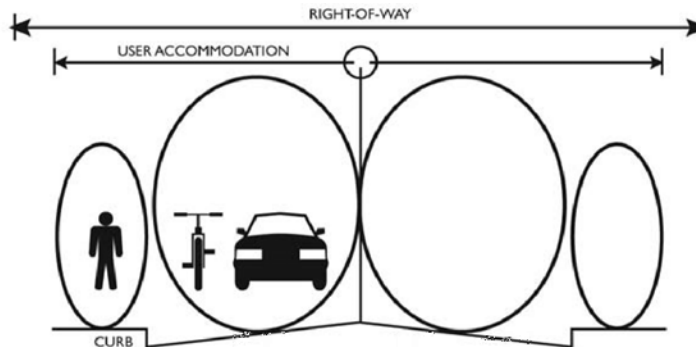
- Used in areas where the width necessary to provide Case 1 accommodation is not available.
- Under Case 2, pedestrians are provided with a sidewalk or separate path while space for bicyclists and drivers overlap somewhat.
- Appropriate in areas with low motor vehicle speeds and low to moderate motor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



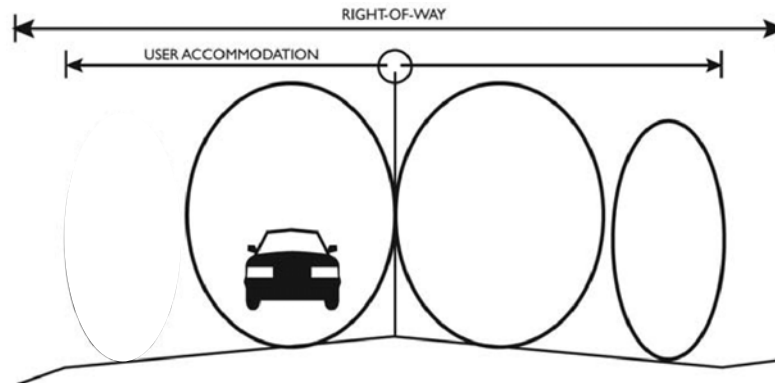
MassDOT Design Guide: Case 3 - Shared Bicycle/Motor Vehicle Accommodation

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.

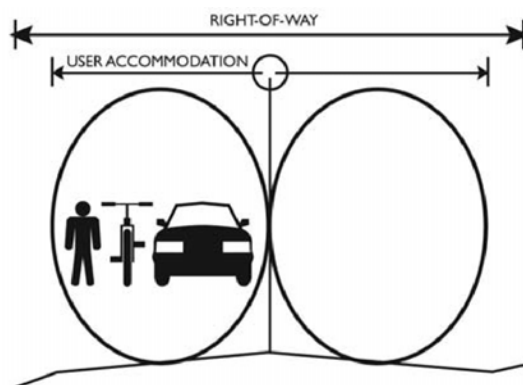


MassDOT Design Guide: Case 4 - Shared Bicycle/Pedestrian Accommodation

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: Unit Costs of Improvements

The following tables of unit costs of bicycle and pedestrian accommodation techniques were used to determine project costs used in this prioritization plan. The first table has the latest costs based on MassDOT projects. The second table includes costs for certain additional items and was originally included in the “Bicycle Feasibility Study: Integrated Bicycle Plan for Cape Cod” published by the National Park Service/Cape Cod National Seashore in partnership with the Cape Cod Commission in 2011.

Town of Eastham, Massachusetts
MassDOT Complete Streets Funding Program Project Prioritization Plan
Conceptual Construction Cost Estimate (Unit Cost Summary)

Item	Unit Price	Unit	Comment
<i>Pedestrians</i>			
HMA Sidewalk (1 side)	\$ 8.00	per SF	
Concrete Sidewalk (1 side)	\$ 12.00	per SF	
Granite Curbing (1 side)	\$ 50.00	per LF	
R&R Granite Curbing (1 side)	\$ 25.00	per LF	
Concrete ADA Curb Ramp	\$ 3,000.00	per EACH	
Crosswalk	\$ 500.00	per EACH	Crosswalks are based on 10 feet wide per linear foot cost
Pedestrian crossing sign	\$ 100.00	per EACH	
RRFB (one on either side of a street)	\$ 15,000.00	per EACH	
Install APS Signal Head and Push Button on existing Post	\$ 3,000.00	per EACH	
Install new APS Signal Head and Push Button and Post	\$ 7,000.00	per EACH	
Install new post for APS Signal Head	\$ 4,000.00	per EACH	
<i>Reconstruction/Widening</i>			
Remove existing pavement and replace with loam and seed	\$ 18.00	per SF	
Roadway Widening	\$ 11.00	per SF	
Utility Pole Relocation	\$ 5,000.00	per EACH	
Tree Removal - diameter under 24 inches	\$ 1,200.00	per EACH	
Tree Removal - diameter 24 inches and over	\$ 2,500.00	per EACH	
<i>Bike</i>			
Remove existing pavement markings	\$ 1.00	per LF	
4" ReflectORIZED White Markings for bike lane (1 side)	\$ 1.00	per LF	
Bicycle Lane Symbol	\$ 280.00	per EACH	Every 500 feet and/or after every intersection
Sharrow Symbol	\$ 350.00	per EACH	Every 250 feet and/or after every intersection
Bike Sign and Post	\$ 240.00	per EACH	Every 1,000 feet or so
<i>Drainage</i>			
1 catchbasin, 1 manhole, and a 10 foot lateral pipe	\$ 10,000.00	per EACH	Every 300 feet, needed with every sidewalk installation
Main line (12" or 15" RCP)	\$ 78.00	per LF	If roadway does not have existing drainage, then closed drainage system is needed with sidewalk installation (as well as drainage structures above)
Stormceptor Unit	\$ 12,000.00	per EACH	Assume 1 per 5 catchbasins

References:

- Unit Prices: based on MassDOT Average Weighted Unit Prices (Statewide and District) and unit price from limited local projects. (Verification by the City is recommended)

Assumptions:

- All pavement markings unit cost price are based on thermoplastic
- All signs cost includes rebuild 2' x 2' existing sidewalk panel for sign installation

Cost Adjustments:

- Add 20% for Contingencies
- Add 8% for Police Detail



Table 4 Bicycle & Pedestrian Accommodations Unit Costs

Accommodation	Requirements	Unit	Unit Cost
On-road bikeway	Signing & striping	LF	\$ 2.00
On-road bikeway	Widen existing roadway to provide shoulder/bike lane	LF	\$ 95.00
Off-road bikeway	Construct shared use path adjacent to existing roadway, including utility pole relocation	LF	\$ 145.00
Off-road bikeway	Construct rail to trail path using abandoned railroad bed, minimal grading required	LF	\$ 125.00
Off-road bikeway	Construct shared use path on new alignment	LF	\$ 165.00
Off-road bikeway	Construct shared using existing corridor, minor grading and clearing required	LF	\$ 150.00
Roadway Crossing, residential	Pavement markings, and curb cuts/ADA curb ramps	EA	\$ 1,500.00
Roadway Crossing, signalized	Mast arms, signal heads, pedestrian signals, pavement markings, and curb cuts/ADA curb ramps	EA	\$ 70,000.00
5' Sidewalk, bituminous	Sidewalks located on both sides of street	LF	\$ 120.00
5' Sidewalk, concrete	Sidewalks located on both sides of street	LF	\$ 140.00
Bicycle/pedestrian bridge	Total lump sum construction	LS	\$1,200,000.00
Wayfinding Signage	Complete signage for wayfinding including directional and distance signs, route signs, destinations, etc.	LM	\$ 18,400.00
Bicycle rack (parking)	Installation on existing slab, drill & grout bolts	EA	\$ 1,500.00
Parking lot, trailhead		EA	\$ 50,000.00



Orleans
5

Date
Name/Title
12/24/20
George Meservey, Orleans Town Planner

Orleans Complete Streets Project Analysis

Rank	Project Name	Project Description	EI	Complete Streets Location			Project Origin (planning documentation or supporting analysis)	Project Origin and Type	Complete Streets Needs							Complete Streets Funding Request			Construction Schedule		
				Environmental Justice Population	Project Limits	Project Start Location: X, Y Coordinates (MA State Plane meter)			Project End Location: X, Y Coordinates (MA State Plane meter)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Safety	ADA Accessibility	Streets	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicle Operations	Freight Operations	Will this project be in Coordination with other Communities? (list, if applicable)	Total Estimated Project Cost	Complete Streets Funding Requested
1	Beach Rd/Main St from Rt 28 to Nauset Beach: multiuse path	Construction of approximately 2.8 miles of asphalt shared use path from the intersection of Route 28 to Nauset Beach along the south side of Main Street and Beach Road. The project includes curb ramps and crosswalks at all road crossings. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	yes	Rt28/Main St intersection to Nauset Beach at terminus of Beach Rd, 2.8 miles	325738.652308609, 838395.794198732	329928.118918241, 838767.450926445	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P9. Crosswalks	X	X	X	X				No	\$3,476,000	\$400,000	T. B. D.	24	FY21
2	Old Colony Way from Staples Plaza to Main St on south side: construct sidewalk	Construction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the south side of Old Colony Way from the Staples Plaza to Main Street. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Old Colony Way: sidewalk on south side from Staples Plaza to Main St, 0.2 miles	325064.608709703, 838480.803867434	325285.705499016, 838728.429248529	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000	\$300,000		6	FY22
3	Main St from Tonset Rd to Rt 28: reconstruct sidewalk, eliminate pole obstructions	Reconstruction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the north side of Main Street from Tonset Road to Route 28. Relocate utility poles away from traveled surface. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Main St from Tonset Rd to Rt 28, 0.2 miles	325994.01249702, 838295.327893631	325996.593276356, 838209.817184029	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000	\$300,000		12	FY23
4	Main St from Meetinghouse Rd to Rt 28: construct sidewalk	Construction of approximately 0.8 miles of 5-foot wide asphalt sidewalk along the north side of Main Street from Meetinghouse Road to Route 28. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Main St from Meetinghouse Rd to Rt 28, 0.8 miles	326832.36391038, 838264.488765241	325996.593276356, 838209.817184025	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$1,157,000	\$400,000	T. B. D.	12	FY24
5	Tonset Rd/Main St Intersection: retiming signal, add left turn arrow, ped crossing, bike box	Installation of safety improvements at the intersection of Tonset Road and Main Street. Includes signal re-timing, adding a left-turn arrow, signage and signal for pedestrian crossing and pavement marking for a bike box	no	Approaches to and Intersection of Tonset Rd/Main St	325994.01249702, 838205.327893631		CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks P11. Accessible pedestrian signals	X	X	X		X			No	\$317,000	\$317,000		9	FY25
6	Main St/School Rd intersection: improve safety	Provide ADA-compliant sidewalks on approaches and crosswalks at the intersection of Main Street and School Road	no	Approaches to and Intersection of Main St/School Rd	326663.733941811, 838177.048718756		CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X							No	\$175,000	\$175,000		6	FY26
7	Main St/Meetinghouse Rd intersection: improve safety	Provide ADA-compliant sidewalks on approaches and crosswalks at the intersection of Main Street and Meetinghouse Road	no	Approaches to and Intersection of Main St/Meetinghouse Rd	326833.707668661, 838263.735204702		CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X							No	\$166,000	\$166,000		6	FY26
8	Bay Ridge Ln: multi-use path connection to Cape Cod Rail Trail	Construction of approximately 0.2 miles of asphalt shared use path from the end of Bay Ridge Lane to the Cape Cod Rail Trail. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	yes	From Bay Ridge Ln to Cape Cod Rail Trail, 0.2 miles	324109.353636463, 837644.319259294	323979.81153727, 837910.434283507	CS Needs Assessment	B10. New shared use paths	X	X	X	X				No	\$245,000	\$245,000		9	FY27
9	Sidewalk connections to Brewster on Route 6A*	Construction of approximately 0.5 miles of 5-foot wide asphalt sidewalk along the one side of Route 6A from the Brewster town line to Eldridge Park Way. Sidewalk will be constructed to connect with future Brewster sidewalk on the north side of Route 6A and will transition to the south side and back to the north side in order to avoid Route 6 ramps. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Rt 6A from Brewster town line to Eldridge Park Way, 0.5 miles	324007.173634953, 837201.634906778	324705.300383855, 837761.306918323	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$732,000		T. B. D.	12	
10	West Rd (Cape Cod Rail Trail section): improve on-road accommodations	Install signage and pavement markings on approximately 0.2 miles of West Road from Salty Ridge Road to the Cape Cod Rail Trail to designate bicycle lanes.	yes	West Rd from Salty Ridge Rd to Cape Cod Rail Trail, 0.2 miles	324262.079772823, 838428.033847433	324495.078274854, 838222.059595577	CS Needs Assessment	B2. Designated bicycle lanes	X	X	X	X				No	\$8,000	\$8,000		6	FY27
11	West Rd/Salty Ridge Rd intersection: install warning signage/safe crossing/kiosk	Installation of upgraded crosswalk and ADA compliant curb ramps at the crossing of West Road by Salty Ridge Road. Installation of warning signage and informational kiosk informing Cape Cod Rail Trail users of local destinations.	yes	Approaches to and Intersection of West Rd/Salty Ridge Rd	324262.079772823, 838428.033847433		CS Needs Assessment	S1. Pavement markings or signage that provides a new separate accommodation for bicycle, pedestrian, or transit modes P9. Crosswalks	X	X	X	X				No	\$14,000	\$14,000		6	FY27
12	Cape Cod Rail Trail @ West Rd: improve crossing, flashing beacon	Installation of upgraded crosswalk and ADA compliant curb ramps at the crossing of West Road by the Cape Cod Rail Trail. Installation of an RRF8.	yes	Approaches to and Intersection of West Rd/Salty Ridge Rd	324495.078274854, 838222.059595577		CS Needs Assessment	P12. New or improved crossing treatments at intersections, midblock, etc. including RRF8's and HAWK signals	X	X	X	X				No	\$26,000	\$26,000		6	FY27
13	Rt 6A: add improved crosswalks and sidewalk on south side of Rt 6A*	Construction of approximately 0.4 miles of 5-foot wide asphalt sidewalk along the south side of Route 6A from the bowling alley to Brewster Cross Rd. Installation of Route 6A crosswalks at 6 locations as shown in the CS Needs Assessment. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	various locations per 2012 Orleans Parking & Circulation Study, sidewalk from bowling alley to Brewster Cross Rd, 0.4 miles			CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P9. Crosswalks	X	X	X					No	\$714,000		T. B. D.	12	
14	Tonset Rd Ext from Main St to Rt 28: add sidewalk	Construction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the north side of Tonset Road Extension from Main Street to Route 28. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Tonset Rd (Extension) from Main St to Rt 28, 0.2 miles	325994.01249702, 838205.327893631	325732.228167504, 837978.509250644	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000	\$300,000		9	FY28
15	Skaket Beach Rd: multi-use path	Construction of approximately 0.6 miles of asphalt shared use path from the intersection of West Road to Skaket Beach along one side of Skaket Beach Road. The project includes curb ramps and crosswalks at all road crossings. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	yes	Skaket Beach Rd from West Rd to Skaket Beach, 0.6 miles	324111.501726956, 838718.438615673	323321.063911388, 839343.493370706	CS Needs Assessment	B10. New shared use paths	X	X	X	X				No	\$736,000	\$400,000	T. B. D.	24	FY29
16	Downtown & various locations: install bike racks	Installation of bike racks at various locations in downtown and other bicyclist-desired locations.	yes	various locations			CS Needs Assessment	B0. Bicycle Facilities - Other				X				No	\$5,000	\$5,000		6	FY29
17	Depot Square: Bike Rest stop - kiosk, benches, fix it station, bike racks, etc.)	Installation of benches, upgraded kiosk, fix-it station, bike racks and other amenities at Depot Square	yes		325275.90222113, 838699.818126047		CS Needs Assessment	B0. Bicycle Facilities - Other					X			yes	\$32,000	\$32,000		6	FY30
18	Rock Harbor Rd: bike/ped accommodations, shoulders	Construct approximately 4' wide shoulders for 1.9 miles on both sides of Rock Harbor Road from Locust Road to the Cape Cod Rail Trail.	yes	Rock Harbor Rd from Locust Rd to Cape Cod Rail Trail 1.9 miles	325068.847101095, 838905.002630066	325695.592882934, 839777.11255103	CS Needs Assessment	S15. Addition of or widening of shoulders	X	X	X	X				No	\$1,342,000	\$400,000	T. B. D.	12	FY30
19	Rt 28 from Cove Rd to Main St: add sidewalk*	Construction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the west side of Route 28 from Cove Road to Main Street. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Rt 28 from Cove Rd to Main St, 0.2 miles	325680.502504971, 838644.993981332	325996.593276356, 838209.817184029	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000		T. B. D.	12	
20	Tonset Rd: traffic calming	Installation of traffic calming features (e.g., speed tables) along approximately 1.9 miles of Tonset Road from Route 28 to Brick Hill Road.	yes	Tonset Rd from Rt 28 to Brick Hill Rd, 1.9 miles	325731.996535115, 837977.50537304	327688.05941988, 840267.735649216	CS Needs Assessment	S17. Traffic calming measures	X	X	X	X				No	\$642,000	\$400,000	T. B. D.	9	FY31
21	Route 6A/28 from Eastham Rotary to Old County Rd: construct sidewalks*	Construction of approximately 0.3 miles of 5-foot wide asphalt sidewalk along the east side of Route 6A/28 from the Eastham Rotary to Old County Road. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Route 6A/28 from Eastham Rotary to Old County Rd, 0.3 miles	326050.77289114, 839726.210996423	326046.577084818, 839387.213899056	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$433,000		T. B. D.	12	
22	Brewster Cross Rd: sidewalk	Construction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the north side of Brewster Cross Road from Main Street to Route 6A. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Brewster Cross Rd from Rt 6A to Main St, 0.2 miles	325205.042046903, 838320.098257437	325540.942436596, 838441.567444931	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000	\$300,000		12	FY32
23	Rt 28 from Tonset Rd Ext to middle school: upgrade sidewalk*	Reconstruction of approximately 0.2 miles of 5-foot wide asphalt sidewalk along the west side of Route 28 from Tonset Road Extension to the Orleans Middle School. ADA compliant crossings and curb ramps with be constructed where necessary.	yes	Rt 28 from Tonset Rd to middle school, 0.2 miles	325732.228167504, 837978.509250644	325718.987883476, 838242.215674155	CS Needs Assessment	P2. Providing ADA/AA8 compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$300,000		T. B. D.	9	

Orleans Complete Streets Project Analysis

Project Details			EJ	Complete Streets Location			Project Origin and Type		Complete Streets Needs							Complete Streets Funding Request			Construction Schedule		
Rank	Project Name	Project Description	Environmental Justice Population	Project Limits	Project Start Location: X,Y Coordinates (MA State Plane meter)	Project End Location: X,Y Coordinates (MA State Plane meter)	Complete Streets Project Origin (planning documentation or supporting analysis)	Complete Streets Project Type (refer to the Eligible Projects Worksheet)	Safety	ADA Accessibility	Pedestrian Mobility	Bicycle Mobility	Transit Operations and Access	Vehicular Operations	Freight Operations	Will this project be in Coordination with other Communities? (list, if applicable)	Total Estimated Project Cost	Complete Streets Funding Requested	Other Funding Source(s) and Amount (if applicable)	Anticipated Construction Duration (number of months)	Desired Construction Start Date (month/year)
24	Rt 28 from downtown to Brewster town line: construct multi-use path*	Construction of approximately 3.9 miles of asphalt shared use path from the Brewster town line (south) to Tonset Road Extension along one side of Route 28. The project includes curb ramps and crosswalks at all road crossings. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	no	Rt 28 from Eldredge Park Way to Brewster town line, 3.9 miles	325730.595327534, 837976.814010447	325436.295648399, 832119.293810872	CS Needs Assessment	B10. New shared use paths P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P9. Crosswalks	X	X	X	X				No	\$4,792,000		T.B.D.	24	
25	Monument Rd: traffic calming, improve crosswalk and install advance warning signage for Crystal Lake	Installation of traffic calming features (e.g., speed tables) along approximately 1.9 miles of Tonset Road from Route 28 to Brick Hill Road.	no	Monument Rd from Main St to Rt 28, 1.5 miles	326330.655405695, 838144.778345506	325904.018388908, 836104.545791747	CS Needs Assessment	S17. Traffic calming measures P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P4. Pedestrian wayfinding signs	X	X	X		X			No	\$515,000	\$400,000	T.B.D.	9	FY33
26	Tonset Rd/Hopkins Ln intersection: improve safety	Provide ADA-compliant sidewalks on approaches and crosswalks at the intersection of Tonset Road and Hopkins Lane.	no	Approaches to and Intersection of Tonset Rd/Hopkins Ln	326639.328561526, 838691.495425926		CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X							No	\$166,000	\$166,000		9	FY34
27	Beach Rd: install speed tables	Installation of speed tables along Beach Road at 3 locations.	no	various locations			CS Needs Assessment	S8. Speed humps/speed tables								No	\$15,000	\$15,000		6	FY34
28	Skaket Beach Rd: traffic calming	Installation of traffic calming features (e.g., speed tables) along approximately 0.6 miles of Skaket Beach Road from West Road to Skaket Beach.	yes	Skaket Beach Rd from West Rd to Skaket Beach, 0.6 miles	324111.501726956, 838718.438615673	323321.063911388, 839343.493370706	CS Needs Assessment	S17. Traffic calming measures	X	X	X		X			No	\$203,000	\$203,000		6	FY34
29	Rt 28/Rt 39 & Quanset Rd intersection: improve safety*	Constructions of a roundabout intersection with ADA-compliant sidewalks and crosswalks at all approaching roadways.	no	Approaches to and Intersection of Rt 28/Rt 39	325508.381514992, 834586.994318782		CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks S18. Roundabout	X							No	\$5,178,000		T.B.D.	9	
30	Cape Cod Rail Trail @ Main St: bike tunnel or bridge	Construct a grade-separated crossing (bridge or tunnel) for the Cape Cod Rail Trail at Main Street.	yes	Cape Cod Rail Trail approaches to Main Street	325279.679068347, 838735.43221237		CS Needs Assessment	B0. Bicycle Facilities - Other P0. Pedestrian Facilities - Other	X	X	X					No	\$3,426,000	\$400,000	T.B.D.	24	FY38
31	Create bike/ped facilities connecting to Orleans Conservation Trust and other open space trails	Construct bike/ped facilities including shared use paths, ADA-compliant crosswalks, etc. at 5 locations in Orleans to improve non-motorized access to Orleans Conservations Trust and other open space trails	varies	various locations			CS Needs Assessment	B10. New shared use paths P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P9. Crosswalks	X	X	X					No	\$64,000	\$64,000		9	FY34
32	Rt 28/Pond Rd & Finlay Rd: improve safety*	Provide ADA-compliant sidewalks on approaches and crosswalks at the intersection of Route 28 and Pond Road/Finlay Road.	yes	Approaches to and Intersection of Rt 28/Pond Rd	325856.659413275, 837446.617747967		CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X							No	\$175,000		T.B.D.	9	
33	Rt 28/Monument Rd intersection: improve safety*	Provide ADA-compliant sidewalks on approaches and crosswalks at the intersection of Route 28 and Monument Road.	no	Approaches to and Intersection of Rt 28/Monument Rd	325904.018388908, 836104.545791747		CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X							No	\$175,000		T.B.D.	9	
34	Install advanced warning ahead of bike crossings	Install signage and/or pavement markings on roadways in advance of bike crossings to alert drivers of potential conflicts with cyclists.	varies	various locations			CS Needs Assessment	S0. Traffic & Safety - Other	X		X					No	\$13,000	\$13,000		6	FY34
35	Construct gear lockers at beaches	Installation of 30 gear lockers at town beaches. These lockers are used to store beach chairs, umbrellas, etc. in order to allow beachgoers to bike or walk thus reduce driving to beaches.	varies	various locations			CS Needs Assessment	B0. Bicycle Facilities - Other P0. Pedestrian Facilities - Other		X	X					No	\$19,000	\$19,000		6	FY34
36	Monument Rd from Main St to Route 28: construct sidewalk	Construction of approximately 1.5 miles of 5-foot wide asphalt sidewalk along the west side of Monument Road from Main Street to Route 28. ADA compliant crossings and curb ramps with be constructed where necessary.	no	Monument Rd from Main St to Rt 28, 1.5 miles	326330.655405695, 838144.778345506	325904.018388908, 836104.545791747	CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$2,130,000	\$400,000	T.B.D.	12	FY37
37	Meetinghouse Rd from Main St to Hopkins Ln: construct sidewalk	Construction of approximately 0.3 miles of 5-foot wide asphalt sidewalk along the west side of Meetinghouse Road from Main Street to Hopkins Lane. ADA compliant crossings and curb ramps with be constructed where necessary.	no	Meetinghouse Rd: sidewalk from Main St to Hopkins Ln, 0.3 miles	326833.707668661, 838263.735204702	326857.25310106, 838741.381373298	CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces P5. New Sidewalk P9. Crosswalks	X	X	X					No	\$441,000	\$400,000	T.B.D.	9	FY36
38	Tonset Rd from Main Street to Hopkins Ln: shared use path	Construction of approximately 0.5 miles of asphalt shared use path from the Main Street to Hopkins Lane along the east side of Tonset Road. The project includes curb ramps and crosswalks at all road crossings. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	no	Tonset Rd from Main Street to Hopkins Ln, 0.5 miles	325994.344962556, 838205.333802192	326639.328561526, 838691.495425926	CS Needs Assessment	P2. Providing ADA/AA compliant curb ramps P3. Detectable warning surfaces B10. New shared use paths P9. Crosswalks	X	X	X					No	\$630,000	\$400,000	T.B.D.	12	FY35
39	Rts 6A/28 from Eastham Rotary to Orleans Roundabout: road diet*	Reduce Route 6A/28 from 4- to 2-travel lanes between the Eastham Rotary and the Orleans Roundabout. Re-allocate roadway space to non-motorized travelers.E7	yes	Rts 6A/28 from Eastham Rotary to Orleans Roundabout, 0.5 miles	326050.773289114, 839726.210996423	325778.795772234, 839098.078030683	CS Needs Assessment	S10. Road diets	X	X	X		X			No	\$610,000		T.B.D.	12	
40	Cape Cod Rail Trail @ Rt 6 (near Salty Ridge Rd): construct bridge over Rt 6*	Construct bridge for Cape Cod Rail Trail to cross over Route 6 in the vicinity of Salty Ridge Road. This would eliminate need for trail users to travel along West Road.	yes	Cape Cod Rail Trail from Salty Ridge Road to West Road	324379.113046335, 838197.36275852		CS Needs Assessment	B0. Bicycle Facilities - Other P0. Pedestrian Facilities - Other	X	X	X					No	\$6,758,000		T.B.D.	24	
41	Brewster Cross Rd: convert to 1-way eastbound	Installation of signage and pavement markings to convert Brewster Cross road from 2-way operation to 1 way eastbound.	yes	Brewster Cross Rd from Rt 6A to Main St, 0.2 miles	325205.042046903, 838320.098257437	325540.942436596, 838441.567444931	CS Needs Assessment	S10. Road diets	X	X	X		X			No	\$206,000	\$206,000		9	FY39
42	Downtown from elementary school: construct pathway	Construction of approximately 0.3 miles of asphalt shared use path from the Orleans Elementary School to the Orleans Council on Aging on Brewster Cross Road. Note: shared use paths are preferred to be 12 feet wide or a minimum of 10 feet wide.	yes	From Orleans Elementary School to Council on Aging, 0.3 miles	325250.475499688, 837903.775119259	325344.134011575, 838371.989135716	CS Needs Assessment	B10. New shared use paths	X	X	X					No	\$368,000	\$368,000		9	FY40
43	Improved pedestrian connection through Orleans Cemetery (Tonset Rd to Main St)	Construction of approximately 0.3 miles of 5' asphalt pedestrian path through the Orleans Cemetery from Tonset Road to Main Street.	no	Orleans Cemetery from Tonset Rd to Main St, 0.3 miles	326529.850589676, 838602.22711091	326750.115026411, 838228.470091568	CS Needs Assessment	P5. Providing new sidewalks	X	X	X					No	\$424,000	\$400,000	T.B.D.	9	FY41

CAPE COD COMMISSION

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