



CAPE COD
COMMISSION

Rail Trail Crossing Inventory

FINAL REPORT

FEBRUARY 8, 2022



Prepared by Cape Cod Commission Staff.

CONTENTS

Executive Summary	8
Project Description	9
Project Goals	9
Project Purpose and Inspiration	9
Project Structure.....	10
Background: The Rail Trail Network on Cape Cod	12
Regional Transportation Background.....	12
Growth in the Bike Network.....	12
Quality of Rail Trails and Crossings	13
Surveyed Paths	13
Collected Information	14
Feature Criteria	15
Crash History	15
Crash Features	15
Road Approaches	16
Rating Quality of Infrastructure from the Road Approach.....	16
Rail Trail Approaches	28
Rating Quality of Infrastructure for the Path Approach.....	28
Next Steps	38
Possible Countermeasures	39
Appendix: Crossing Inventory	43
Falmouth.....	43

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Shining Sea Bikeway #1 (Surf Drive)..... 44

Shining Sea Bikeway #2 (Elm Road)..... 46

Shining Sea Bikeway #3 (Locust Street)..... 48

Shining Sea Bikeway #4 (Depot Avenue)..... 52

Shining Sea Bikeway #5 (Skating Lane)..... 54

Shining Sea Bikeway #6 (Ter Heun Drive)..... 56

Shining Sea Bikeway #7 (Woodrise Road)..... 60

Shining Sea Bikeway #8 (Quahog Pond Road)..... 62

Shining Sea Bikeway #9 (Chapoquit Road)..... 64

Shining Sea Bikeway #10 (Old Dock Road)..... 66

Shining Sea Bikeway #11 (Chase Road)..... 69

Shining Sea Bikeway #12 (Wing Road)..... 71

Shining Sea Bikeway #13 (Winslow Road)..... 73

Shining Sea Bikeway #14 (County Road)..... 75

Provincetown..... 77

 Province Lands Bicycle Trail #1 (Race Point Road #1 / Near Parking Lot)..... 78

 Province Lands Bicycle Trail #2 (Race Point Road #2 / Northernmost Road Leading to Provincetown
 Municipal Airport)..... 80

 Province Lands Bicycle Trail #3 (Race Point Road #3 / Southernmost Road Leading to Provincetown
 Municipal Airport)..... 82

 Province Lands Bicycle Trail #4 (Race Point Road #4 / Where the Province Lands Bike Trail Splits)
 84

 Province Lands Bicycle Trail #5 (Race Point Road #5 / North of Tin Pot Alley)..... 86

 Province Lands Bicycle Trail #6 (Race Point Road #6 / Near Parking Lot)..... 88

Truro..... 90

 Head of the Meadow Trail #1 (Holden Street)..... 91

Wellfleet..... 93

 Cape Cod Rail Trail #1 (Cemetery Road)..... 94

 Cape Cod Rail Trail #2 (Marconi Beach Road)..... 96

Eastham..... 99

Cape Cod Rail Trail #3 (Nauset Road, Near Railroad Avenue).....100

Cape Cod Rail Trail #4 (Brackett Road).....102

Cape Cod Rail Trail #5 (Old Orchard Road).....105

Cape Cod Rail Trail #6 (Kingsbury Beach Road).....107

Cape Cod Rail Trail #7 (Locust Road).....109

Cape Cod Rail Trail #8 (Samoset Road)111

Cape Cod Rail Trail #9 (Crosby Village Road).....113

Cape Cod Rail Trail #10 (Bridge Road).....115

Cape Cod Rail Trail #11 (Governor Prence Road).....118

Nauset Trail # 1 (Ocean View Drive).....120

Nauset Trail #2 (Pine Crest Road).....122

Nauset Trail #3 (Tomahawk Trail).....124

Nauset Trail #4 (Unnamed Road)126

Nauset Trail #5 (Jacques Road).....127

Nauset Trail #6 (Nauset Road #3 / Near Wild Goose Lane)130

Nauset Trail #7 (Nauset Road #2 / Near School House Road)132

Nauset Trail #8 (Nauset Road #1).....134

Orleans.....136

Cape Cod Rail Trail #12 (Jones Road).....137

Cape Cod Rail Trail #13 (Locust Road / Southernmost Crossing with Rail Trail).....139

Cape Cod Rail Trail #14 (Main Street)141

Cape Cod Rail Trail #15 (Old Colony Way)144

Cape Cod Rail Trail #16 (West Road #1 / Southernmost Crossing with West Road)147

Cape Cod Rail Trail #17 (West Road #2 / Northernmost Crossing with West Road)149

Brewster151

Cape Cod Rail Trail #18 (Upland Circle).....152

Cape Cod Rail Trail #19 (Mitchell Lane).....154

Cape Cod Rail Trail #20 (Deer Road).....156

Cape Cod Rail Trail #21 (Millstone Road).....158

Cape Cod Rail Trail #22 (Underpass Road).....160

Cape Cod Rail Trail #23 (School Entrance Road).....162

Cape Cod Rail Trail #24 (Long Pond Road).....164

Cape Cod Rail Trail #25 (Proprietor’s Cartway).....167

Cape Cod Rail Trail #26 (Fisherman’s Landing Road).....169

Cape Cod Rail Trail #27 (Harwich Road).....171

Harwich.....173

 Cape Cod Rail Trail #28 (Pleasant Lake Avenue at Access Road to Town Beach) ...174

 Cape Cod Rail Trail #29 (Pleasant Lake Avenue #1 / Between Seymour’s Pond and Long Pond)
 176

 Cape Cod Rail Trail #30 (Sequattom Road).....178

 Cape Cod Rail trail #31 (Pleasant Lake Avenue #2 / Adjacent to Hinckley’s Pond) .180

 Cape Cod Rail Trail #32 (Headwaters Drive).....183

 Cape Cod Rail Trail #33 (Queen Anne Road).....185

 Cape Cod Rail Trail #34 (Lothrop Avenue).....188

 Cape Cod Rail Trail #35 (Private Road Near Cranberry Bog).....191

 Cape Cod Rail Trail #36 (Great Western Road / East of East Reservoir).....193

 Cape Cod Rail Trail #37 (Bells Neck Road).....197

 Cape Cod Rail Trail #38 (Depot Street).....199

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail # 1 (Uncle Harry’s Road)
 202

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #2 (Island Pond Road)
 204

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #3 Pleasant Lake Avenue
 (Adjacent to Island Pond Cemetery).....206

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #4 (Woodbine Lane)
 208

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #5 (Meadow Lane)210

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #6 (Oak Street) 212

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #7 (Colby’s Road / Lover’s
 Lane Extension).....214

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #8 (Orleans-Harwich Road)
 216

Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #9 (Depot Road, near Town Forest).....221

Chatham223

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #10 (Morton Road)224

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #11 (Meetinghouse Road)226

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #12 (Sam Ryder Road)228

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #13 (George Ryder Road #2, Adjacent to Airport)230

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #14 (George Ryder Road #1, Just South of Katie Ford Rd).....233

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #15 (Old Queen Anne Road).....235

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #16 (Stepping Stones Road #2, Just East of Old Queen Anne Road).....238

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #17 (Tennis Court Parking Entrance, Right Off Stepping Stones Road)240

 Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail (Stepping Stones Road #1, Just West of People’s Cemetery).....242

Dennis244

 Cape Cod Rail Trail #39 (Great Western Road).....245

 Cape Cod Rail Trail #40 (S & J Exco Driveway).....247

 Cape Cod Rail Trail #41 (South Gages Way)249

 Cape Cod Rail Trail #42 (Old Bass River Road / Main Street)252

Yarmouth.....255

 Cape Cod Rail Trail #43 (North Main Street)256

 Cape Cod Rail Trail #44 (Dupont Avenue).....259

 Cape Cod Rail Trail #45 (Old Town House Road, East of Forest Road).....261

 Cape Cod Rail Trail #46 (Forest Road)263

TABLE OF CONTENTS



Cape Cod Rail Trail #47 (West Yarmouth Road)265
Cape Cod Rail Trail #48 (Old Town House Road, West of West Yarmouth Road) ...268

Rail Trail Crossing Inventory

FINAL REPORT | FEBRUARY 2022

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The information depicted on the maps and figures in this report are for planning purposes only. They are not adequate for legal boundary definition, regulatory interpretation, or parcel level analysis. They should not substitute for actual on-site survey or supersede deed research. Unless otherwise noted, the source for road data and information for maps and figures in this report is the Massachusetts Department of Transportation (MassDOT) (2015) and Cape Cod Commission planimetric data (2014). Unless otherwise noted, parcel data is from a Cape Cod Commission regional parcel data set (2018).

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Executive Summary

This report, the Rail Trail Crossing Inventory, is part of a regional effort to promote safe bicycle and pedestrian accommodation across Cape Cod consistent with the Cape Cod Regional Transportation Plan. Promoting safety at rail trail crossing locations with roads is particularly important because the rail trail network is expanding Cape-wide, based around the backbone of the Cape Cod Rail Trail, which will one day stretch from the Cape Cod Canal to Provincetown. In this document, the term “rail trail” will generally be used even though not all the facilities are along old rail lines. While rail trails are generally comfortable for pedestrians and bicyclists of all ages, crossings can present difficulties. If crossings are not perceived as safe, then the whole system can fail to achieve its potential and will not meaningfully offer an alternative to driving for short trips.

This report inventories 95 crossing locations—defined as at-grade crossings of a road—in 11 different towns across Cape Cod. While this inventory is not exhaustive, it covers the most heavily used trails in the region. Additionally, sidepaths are not generally inventoried (unless they are a part of a larger off-street network). As mentioned in the report, however, it is hoped that this inventory will be a base on which to build, with additional locations being added onto it over time by local government staff, as well as by staff from the Cape Cod Commission.

The report contains several sections. First, the **Project Description** offers project goals, as well as the purpose and inspiration of the project. It also describes the structure (in greater detail than is noted here). The **Background** describes the rail trail network of Cape Cod and its growth, before describing aspects of path quality. The **Collected Information** section describes how each rail trail/road intersection is analyzed (through crash history, as well as features of road and path approaches). This section describes the specific features of the crossings that Cape Cod Commission staff inventoried and explains the way in which those are measured and categorized. It also offers a breakdown of infrastructure treatments among all inventoried locations. For example, in the subsection dealing with Advance Warning Signs, the report shows the number of approaches that have this treatment and that lack it (along with the condition of the signage, if relevant). This allows planners to understand how common certain features are countywide.

The **Collected Information** section also offers some basic design guidance (along with helpful diagrams that show why such treatments are important). This section also provides references to formal design guides from such sources as the Federal Highway Administration (FHWA) and the National Association of City Transportation Officials (NACTO). The **Possible Countermeasures** section then shows charts of possible countermeasures based on FHWA guidance.

The actual **Crossing Inventory** is found in the Appendix, which includes collected information as well as photographs from crossing locations.

Key information presented in this report can also be viewed in an online dashboard available at the following link: [Rail Trail Crossing Inventory Web App.](#)

Project Description

PROJECT GOALS

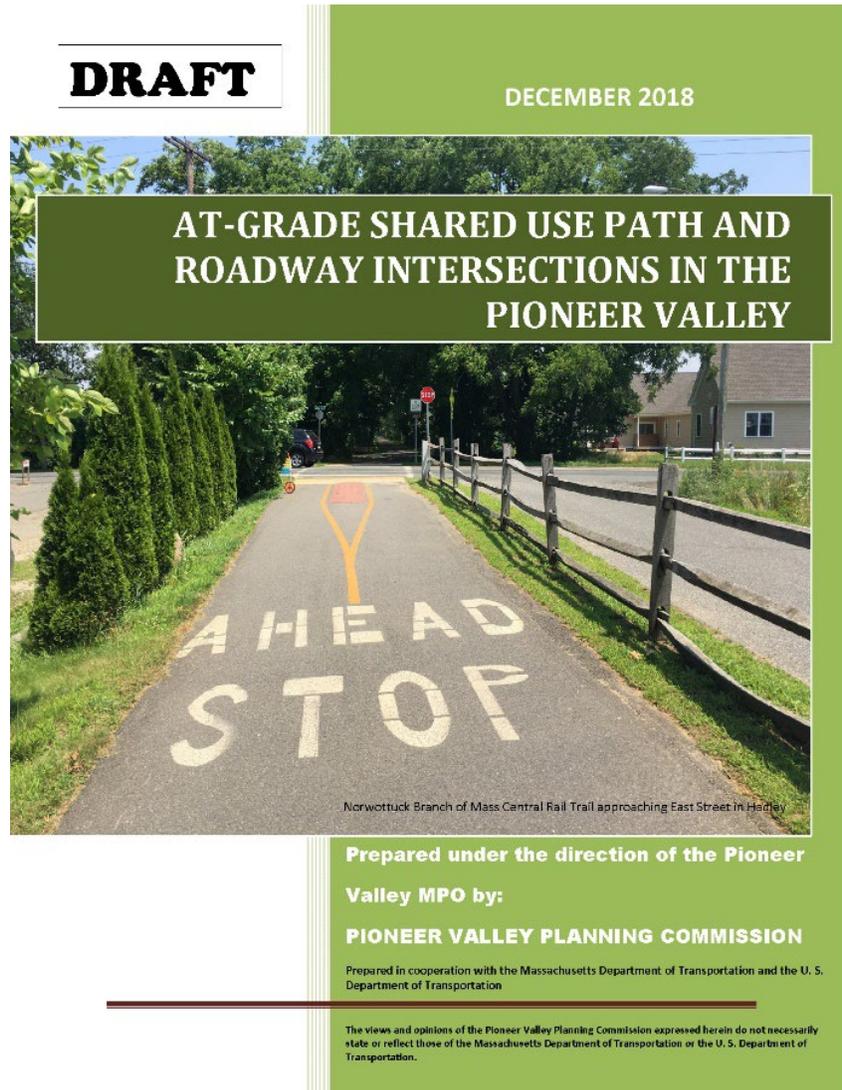
This project aims to inventory the state of at-grade rail trail crossings along the road network on Cape Cod. Specifically, this report provides detailed information on the crash history of the intersection(s), built environment and geometric characteristics of the trail and street approach(es).

PROJECT PURPOSE AND INSPIRATION

The purpose of this report is to serve as a comprehensive resource for municipal transportation planners in Barnstable County's different towns, and for planners working for the Commonwealth (where trails cross Massachusetts-managed roads). To this end, this report begins by offering general best practices for crossing locations, then will describe the condition at each crossing.

This report was inspired by a similar effort conducted by the Pioneer Valley Planning Commission (PVPC), the Regional Planning Agency (RPA) responsible for regional planning in and around Springfield, Massachusetts. In 2019, that agency created the "At-Grade Shared Path Intersections in the Pioneer Valley," a report which inventoried 71 crossings on 14 different paths on that region's trail network.

Figure 1: The Pioneer Valley Planning Commission document



PROJECT STRUCTURE

The following information is listed for each trail/street intersection:

- **Crash history and characteristics** (date, time, type of crash, the manner of crash, crash severity, light, road, and weather).
- **Street safety features** (direction, advance warning signs, bike trail crossing signs, advance pavement markings, control type, shark teeth yield markings, crosswalk markings, median between crosswalk, additional safety features, visibility of trail, grade, posted speed limit, and average lane and shoulder width)

RAIL TRAIL CROSSING INVENTORY

- **Trail safety features** (direction, control type, condition of signage, pavement markings, advance warning signs, sight distance, width at the intersection, median approaching intersection, other features, crossing distance, crosswalk style, crosswalk width, tactile warning plates).

Additionally, for relevant locations, Cape Cod Commission staff noted other aspects of the crossing, which are included in this report. For all locations, pictures of the crossing are included, with an effort made to show the road and path approaches.

Background: The Rail Trail Network on Cape Cod

REGIONAL TRANSPORTATION BACKGROUND

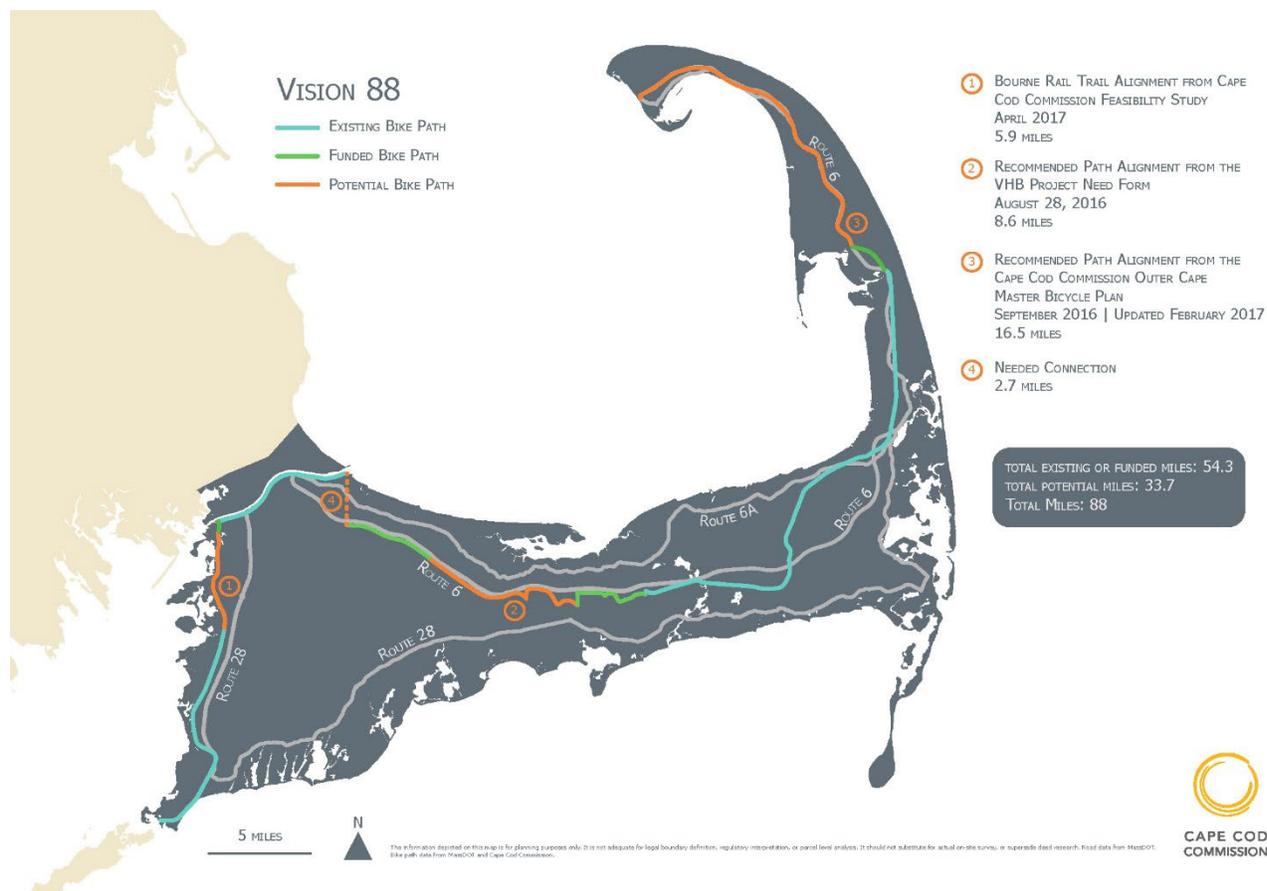
Cape Cod's contemporary built environment reflects the interaction of successive eras in its history. In the 1800s, the maritime economy meant that development was dense and concentrated around docks and processing facilities. Long expanses of open space separated these villages. Following this era of fishing and farming, the region's economy gradually moved toward the tourism industry, taking advantage of its proximity to Boston. This filled in some gaps in the region's geography, but the real change happened later, in the mid- and late-20th Century, when mass automobility filled in many gaps in the settlement pattern, spreading growth onto the Cape's interior. The suburbanization in this era encouraged automobile dependence and discouraged alternative forms of transportation that were more competitive in the denser, maritime-focused downtowns of the Cape's different villages.

GROWTH IN THE BIKE NETWORK

Starting in the 1970s, the Cape has seen development of improved bicycle infrastructure, focused mainly on bike trails, with some disused rail lines being repurposed into rail trails. The network continues to be extended, with an extension of the Cape Cod Rail Trail expected for completion to Yarmouth and Barnstable in 2025. This extension is a part of Vision 88, which is an effort to create off-street bicycle facilities from one end of the Cape to the other (Woods Hole to Provincetown). Trails would form the backbone of a Cape-wide bicycling and walking system. Further trails and smaller-scale on-street infrastructure (sidewalks, traditional and buffered bike lanes, accessible curb ramps, and infrastructure that improves crossing visibility) will connect to this spine, boosting regional accessibility for people walking and biking.

RAIL TRAIL CROSSING INVENTORY

Figure 2: The Proposed Vision 88 Network



QUALITY OF RAIL TRAILS AND CROSSINGS

While the reach of the trail network is expanding, the quality of these facilities is also of paramount importance. Features of a path like paving quality, evenness, and routine maintenance (for example, clearing mud and tree debris) are important to guaranteeing a comfortable and safe ride. Additionally, street crossings with rail trails play an outsized role in the perceived comfort of the overall facility because this is the sole location where collisions with motor vehicles generally occur.

SURVEYED PATHS

In the summer of 2020, staff members from the Cape Cod Commission collected data from all locations where rail trails crossed roads at grade in Barnstable County. A total of 95 locations from across the Cape had locations surveyed, as shown below. The Cape Cod Rail Trail comprised a majority of locations (48 of 95). The communities with the greatest number of sites were Harwich (20) and Falmouth (14). Importantly, *regionally oriented* off-street paths were inventoried, while smaller-scale local paths (and

RAIL TRAIL CROSSING INVENTORY

sidepaths) were generally not included. However, Cape Cod Commission staff aim to build on this inventory at the request of communities (and likewise, encourage local governments to use this as a template for other locations of concern).

Table 1: Inventoried Cape Cod Rail Trails (with Number of Crossings)

Rail Trail	At Grade Roadway Intersections
Shining Sea Bikeway	14
Cape Cod Rail Trail	48
Cape Cod Rail Trail Harwich-Chatham Extension (Old Colony Rail Trail)	18
Nauset Rail Trail	8
Province Lands Bike Trail	6
Head of the Meadow Bike Trail	1

Table 2: Inventoried Cape Cod Rail Trails (by Community, in Alphabetical Order)

Community	At Grade Roadway Intersections
Brewster	10
Chatham	9
Dennis	4
Eastham	17
Falmouth	14
Harwich	20
Orleans	6
Provincetown	6
Truro	1
Wellfleet	2
Yarmouth	6

Collected Information

Staff collected many different components of the crossing environment, which are listed in the following section. Together, these components impact the overall safety of rail trail crossings with roadways. Below each component, this report also includes justifications and sources from regional, state, and national design guidance that explain how each intersection feature impacts safety. The most common sources that are cited in this inventory are below:

- *Small Town & Rural Design Guide* (2016)

RAIL TRAIL CROSSING INVENTORY

- *The Guide for the Development of Bicycle Facilities, 4th Edition, American Association of State Highway and Transportation Officials (AASHTO) (2012)*
- *Massachusetts Highway Department Project Development and Design Guide, Chapter 11 (2006)*
- *Manual on Uniform Traffic Control Devices (MUTCD), (2012 Revision)*
- *FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations (2018)*

FEATURE CRITERIA

Crash History

Crashes were examined in close vicinity around the crossings (generally crashes within ¼ to ½ mile were included). Importantly, even crashes not involving non-motorists are included. While the consequences of a crash are often the most severe for non-motorists, staff are also concerned about improving safety around these crossings for motorists. The following crash information was collected:

Crash Features

- **Crash Date**
- **Crash Time**
- **Crash Severity:**
 - Not Reported
 - Property damage only (none injured)
 - Non-Fatal Injury
 - Fatal Injury (The severity of the crash is determined by the most severe outcome).
- **Non-Motorized Action (All Persons):** None; P1: Cyclist; P2: Cyclist; P1: Pedestrian; P2 Pedestrian; etc. (This signifies the nature of the individuals involved in the crash).
- **Light Conditions:** Daylight; Dawn; Dusk; Dark – lighted roadway; Dark – roadway not lighted; Dark – unknown roadway lighting
- **Weather Conditions:** Clear; Cloudy; Rain; Snow; Sleet, hail, freezing rain; Fog, smog, smoke; Severe crosswinds; Blowing sand, snow; Other; Unknown

ROAD APPROACHES

The following section describes the features that were measured on the driver-facing approaches to the rail trail/road crossing. Options are listed, and then, if relevant, best practices from design guides are included.

Rating Quality of Infrastructure from the Road Approach

For the sign and marking-related features of the road approach, the data collector took note of whether certain features were present. If features were present, they were rated as being in one of the following conditions:

- **Poor:** Bad visibility either because of significant fading or wearing, vegetation, pole, or sign blockage, and/or damage to poles, signage, or markings.
- **Fair:** Signs may be partially covered by vegetation or other signs, some fading or damaged but mostly visible.
- **Good:** Signs are easily visible, not obscured, and not damaged.

For the columns “Visibility of Bike Trails,” (from the perspective of drivers) and “Sight Distance” (from the perspective of path users,” the following rating scheme was used:

- **Good:** A driver/bike trail user can easily see intersecting traffic from both sides of the roadway without any obstructions.
- **Fair:** A driver/bike trail user has some visibility of intersecting traffic from one or both sides of the roadway, but is impaired because of existing vegetation, land use, fixed objects, and/or roadway geometry.
- **Poor:** A driver/bike trail user has difficulty in viewing intersecting traffic from either direction of travel because of existing vegetation, land use, fixed objects, and/or roadway geometry.

It is important to note that visibility-related measurements were based on the perceived safety and comfort of trail users (and intersecting drivers). Intersections were not evaluated formally on the AASHTO methodology of sight line triangles, stopping distance, and other metrics.

ADVANCE WARNING SIGNS (FOR DRIVERS)

Countywide Status

188 valid approaches were measured countywide: 71 approaches lacked advance warning signs (including two approaches where such signage was not appropriate because location was a T-intersection); 2 approaches were in “Poor” condition (including one sign missing letters); 24 approaches were in “Fair” condition; and 91 approaches were in “Good” condition.

Design Guidance

According to the 2012 *Guide for the Development of Bicycle Facilities*, advance warning signs controlling roadway traffic should be placed in accordance with visibility requirements (but not less than 50 feet in

RAIL TRAIL CROSSING INVENTORY

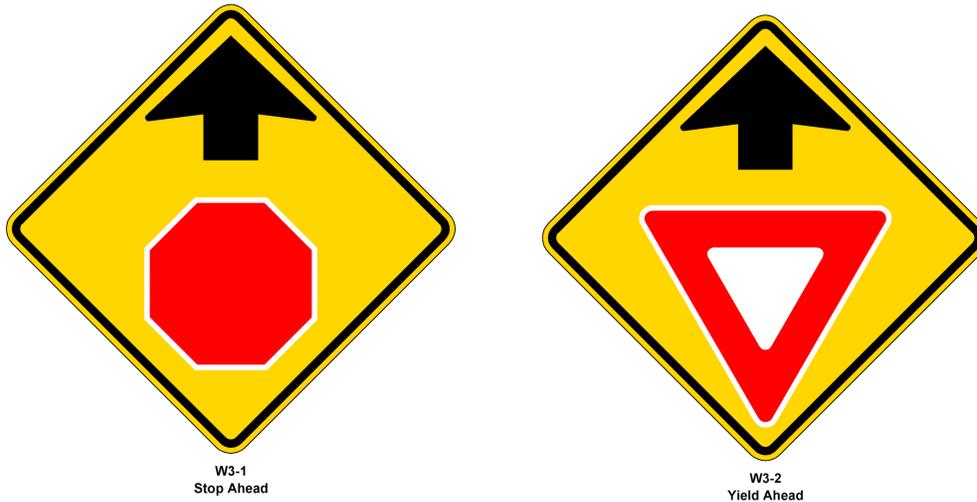
advance of the crossing). When there is no specific control on the driver, the W11-series signs for drivers is required, but supplementary plaques (such as W11-15P and W16-9p) are optional. When drivers have a STOP or YIELD sign, an Advance Stop (W3-1) or Yield sign (W3-2) is optional. Additionally, when the road is curving or otherwise suffers from low visibility, a Rectangular Rapid Flashing Beacon (RRFB) can be installed instead of advance warning signage. Refer to [Section 9B.18](#) or [Section 2C.49](#) in the *MUTCD* for more specifics on signage.

Figure 3: The MUTCD W11 Series Sign and Optional Plaques



RAIL TRAIL CROSSING INVENTORY

Figure 4: Optional W3-1 (Left) and W3-2 Sign (Right) – Used Optionally When Drivers Stop or Yield to Trail



Sign image from the Manual of Traffic Signs <<http://www.traffic-sign.us/>>
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BIKE TRAIL CROSSING SIGNS (FOR DRIVERS)

Countywide Status

188 valid approaches were measured countywide: 64 approaches lacked bike trail crossing signs for drivers; of the crossings with signs, 5 signs were in “Poor” condition; 15 signs were in “Fair” condition’ and 104 signs were in “Good” condition. In addition to the bike trail crossing signs, data collectors noted where street-facing bicycle wayfinding signs were present. These are noted with an asterisk below the data collection chart. These were collected with the bike trail crossing signs, even though their location varied (and sometimes, they were placed closer to the advance warning signs).

Design Guidance

According to AASHTO's 2012 *Guide for the Development of Bicycle Facilities*, bike trail warning signs can be placed on the roadway at the crossing location, while the MUTCD further clarifies that “vehicular traffic warning signs should be used only at locations where the road user's sight distance is restricted, or the condition, activity, or entering traffic would be unexpected.” Wayfinding signs are generally green while regulatory signs are white and warning signs are yellow. According to the *MUTCD*, “if a post-mounted **W11-1, W11-11, W11-15, or W11-15a** sign is placed at the location of the crossing point where golf carts, pedestrians, bicyclists, or other trail users might be crossing the roadway, a **diagonal downward pointing arrow (W16-7P) plaque** [...] shall be mounted below the sign. If the W11-1, W11-11, W11-15, or W11-15a sign is mounted overhead, the W16-7P supplemental plaque shall not be used.”

W11 signs at crossing locations are only used where drivers are uncontrolled (they are not combined with stop or yield control).

Figure 5: An Image of Appropriate Trail Signage, Image from the Small Town and Rural Design Guide, 2016



ADVANCE PAVEMENT MARKINGS (FOR DRIVERS)

Countywide Status

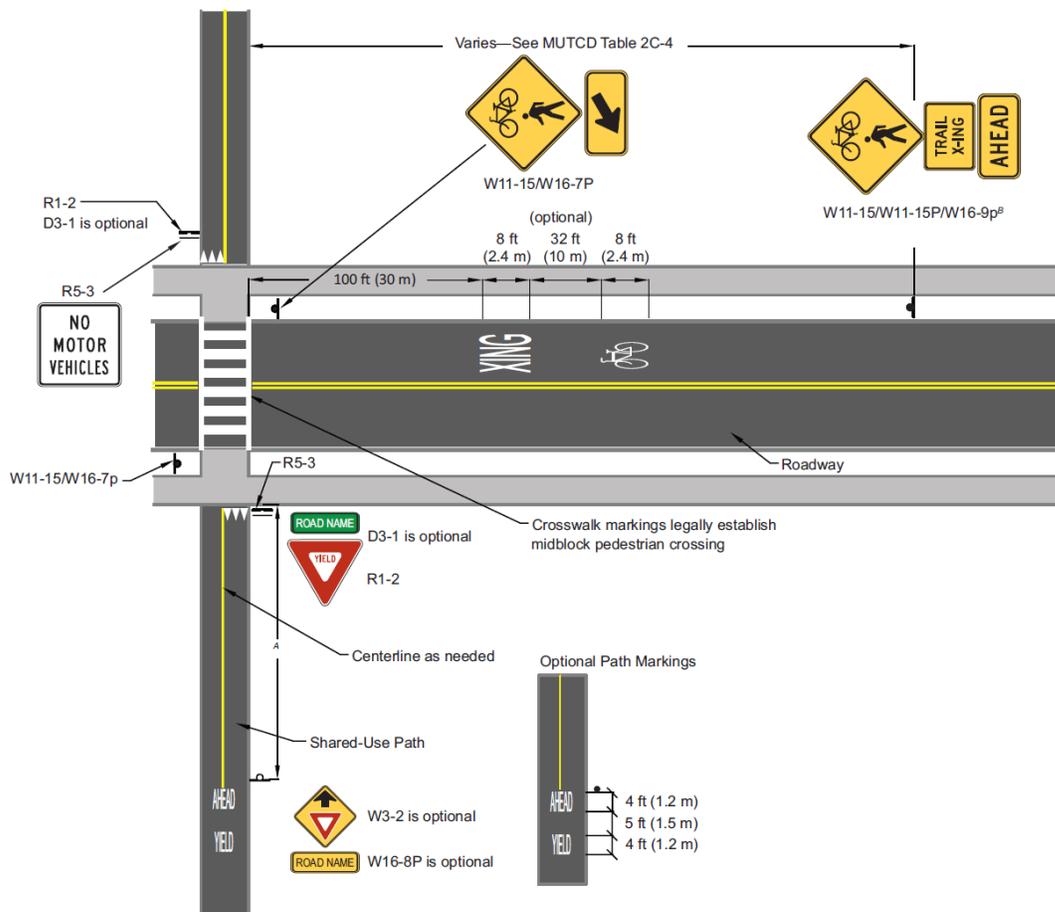
188 valid approaches were measured countywide: 115 approaches lacked advance pavement markings for drivers; of the crossings with signs, 35 pavement markings were “Poor;” 18 were “Fair;” and only 20 were “Good.” (These numbers refer to the “XING” lettering and bicycle image pavement markings). Advance yield markings—sometimes called “Shark Teeth” Yield Markings—were also measured. Only 2 locations had advance yield markings. Those two locations were in good condition (using the same standards as described above). Stop bars can also be used where drivers have stop control. However, no locations had advance stop bars.

Design Guidance

When there is YIELD control or no control for drivers on the crossing approach, pavement markings are optional, but they do increase visibility, according to AASHTO’s *Guide for the Development of Bicycle Facilities*. The image below offers a view of what such markings can look like (letters of “XING” and an image of a bicycle). More specific guidance is found in that guide, and in [Section 3B of the MUTCD](#). When drivers have a STOP sign, the “XING” and bicycle image pavement markings should not be used.

RAIL TRAIL CROSSING INVENTORY

Figure 6: Example of Pavement Markings from AASHTO's Guide for the Development of Bicycle Facilities



Notes:

- ^A Advance warning signs and solid centerline striping should be placed at the required stopping sight distance from the roadway edge, but not less than 50 ft (15 m).
- ^B W11 series sign is required, supplemental plaques are optional.

AASHTO's *Guide for the Development of Bicycle Facilities* also describes advance yield markings (a series of triangles) and advance stop bars. According to that document, "advance stop lines or yield lines may be used on multilane roadway approaches to a path crossing where the path is given priority." These pieces of infrastructure reduce the likelihood for a multiple-threat crash between the path user and a vehicle" by "provid[ing] a clearer field of vision." *MUTCD* provides the following guidance of relevance for advance yield and stop markings.

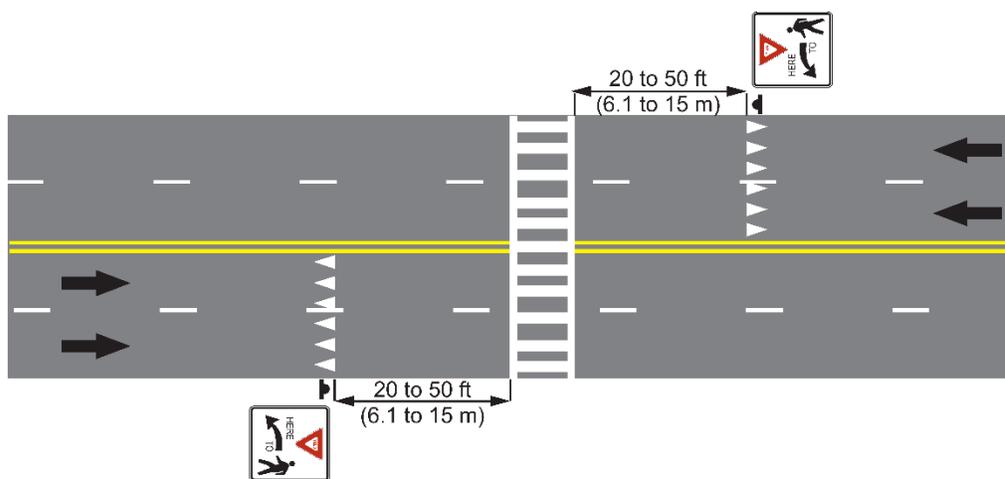
- At controlled intersections, the *MUTCD* recommends that stop and yield lines be placed at least 4 feet in advance of the nearest crosswalk line. Where there is not a marked crosswalk, engineers should use their judgement to place it at the desired stop/yield point (between 4 and 30 feet of the intersection).

RAIL TRAIL CROSSING INVENTORY

- Stop lines at midblock signalized locations should be placed at least 40 feet in advance of the nearest signal indication.
- If yield or stop lines are used at a crosswalk that crosses an uncontrolled multi-lane approach, the yield lines or stop lines should be placed 20 to 50 feet in advance of the nearest crosswalk line, and parking should be prohibited in the area between the yield or stop line and the crosswalk.

The following image shows the last situation. As can be seen, YIELD/STOP HERE TO PEDESTRIAN signage (R1-5 series) shall be used.

Figure 7: Example of Pavement Yield Markings in Advance of a Marked Crosswalk, from AASHTO's Guide for the Development of Bicycle Facilities



CONTROL TYPE (FOR DRIVERS)

Countywide Status

188 valid control types were measured at crossing approaches countywide. The heavy majority (159) were uncontrolled. 24 were STOP controlled and 5 were YIELD controlled.

Design Guidance

Guidance for control type is found in the *MUTCD*, the *Massachusetts Highway Department Project Development and Design Guide* (Chapter 11), and AASHTO's *Guide for the Development of Bicycle Facilities*. AASHTO notes that control should follow the principle of providing the least amount of restriction that is effective. Sight distance/sight triangles are useful to determine the level of control needed (calculations for which can be found between pages 162 and 165 in AASHTO's *Guide for the Development of Bicycle Facilities*). The expectation is that motor vehicles should approach crossings cautiously and at a slower speed.

Signalization should be considered at certain intersection if the number of users is met. According to the *Massachusetts Highway Department Project Development and Design Guide*, "warrants for signalization are

RAIL TRAIL CROSSING INVENTORY

discussed in the *MUTCD* and Warrant #4 should be used as guidance for path crossings, as bicycles are considered pedestrians under these circumstances.” Specifically, the vehicle-related warrants are found in 4C-1 to 4C-4. The number of vehicles in those warrants can be reduced to 70% of the regular warrant if the speed limit is over 40 mph/hour (posted, or the 85th percentile). That same guide also notes that signalization should be considered where rail trails intersect roads with more than 10,000 vehicles/day.

Additionally, RRFBs are increasingly being used to control approaching automobile traffic and improve path user visibility (these will be discussed more in the *Additional Safety Features* section below).

CROSSWALK MARKINGS

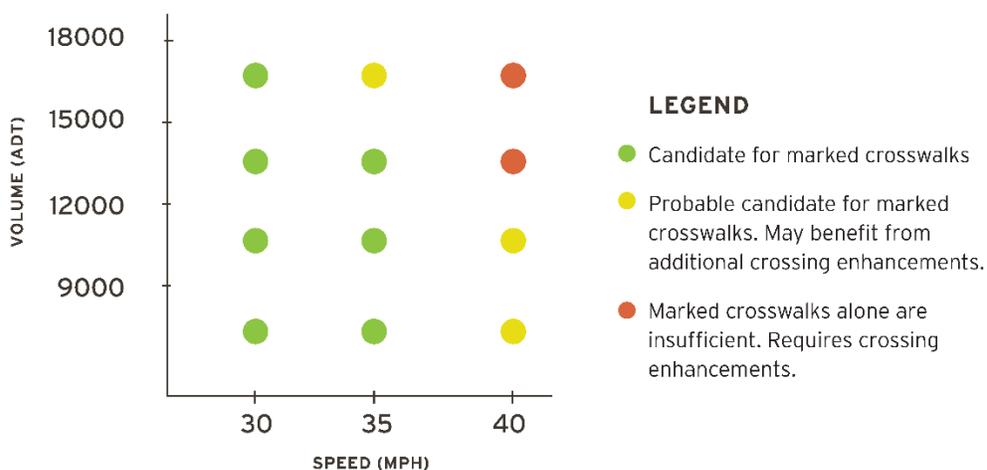
Countywide Status

188 road approaches to crosswalks were measured to determine the condition of crosswalks. Importantly, crosswalk condition was measured under this section (the road approach section), while the type of crosswalk was measured under the trail approach section (later in this report). 12 approaches lacked a crosswalk. Of the remaining approaches with crosswalks, 61 were in “Poor” condition; 83 were in “Fair” condition, and 32 were in “Good” condition.

Design Guidance

Markings should be clear and highly visible. However, the presence of highly visible crosswalks, are not, in and of themselves, adequate to promote visibility at crossings. They should be coupled with other features in this report. The figure below offers a rough estimate of when crosswalks are and are not adequate.

Figure 8: Guidance for Marked Crosswalks, from the guide, “Small Town and Rural Multimodal Networks,” 2016



MEDIAN BETWEEN CROSSWALKS

Countywide Status

188 road approaches were measured to determine the status of medians between crosswalks. Of those, 163 approaches lacked crosswalk medians, while only 25 approaches had this feature.

RAIL TRAIL CROSSING INVENTORY

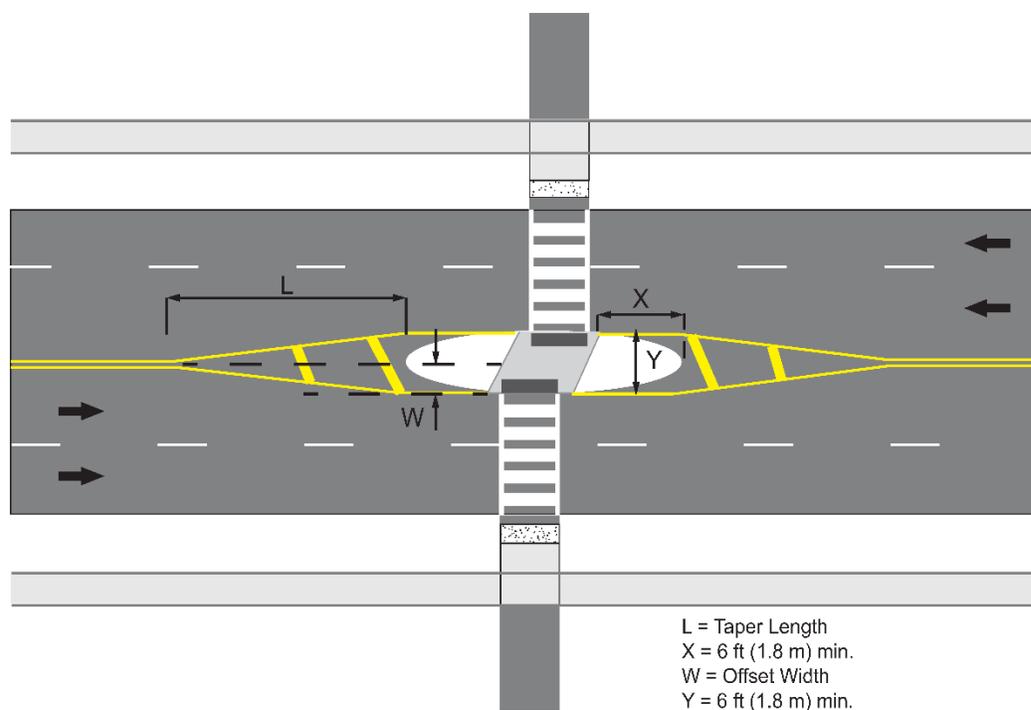
Design Guidance

A median in the middle of the road breaks up the crossing distance and improves safety by allowing pedestrians to only focus on traffic coming from one direction at a time (and taking refuge in the middle of the street). While medians can be used anywhere, AASHTO notes that they are particularly useful when one of the following conditions is present:

1. High volumes of roadway traffic and/or speeds create difficult crossing conditions for path users
2. Roadway width is excessive given the available crossing time
3. The roadway cross section is three or more lanes in width.

The median should be large enough to store groups of users while waiting. The minimum width is 6 feet, with 10 feet preferred (to better store bicyclists and their bikes). An example of a crosswalk median is shown below. Designers should reference PROWAG (*Public Rights-of-Way Accessibility Guidelines*) for specific dimensions.

Figure 9: A Crossing Median from AASHTO's Guide for the Development of Bicycle Facilities



ADDITIONAL SAFETY FEATURES

Countywide Status

The county has a wide variety of different safety features that were noted by Cape Cod Commission staff (some locations had multiple safety features noted). The most common features at approaches are: RRFBs (30); State Law Yield Signs (30); and State Law Stop Signs (24). No other features are nearly as

RAIL TRAIL CROSSING INVENTORY

common. Raised crosswalks (4), speed bumps (4) are the only other features that are found in more than 3 approaches.

Design Guidance

According to the FHWA document, *Small Town and Rural Multimodal Networks*, "RRFBs [shown in the figure below] are a yield enhancement device for use at uncontrolled crossings. They may be configured with solar power where it is the most cost-effective option." The *MUTCD* notes that "RRFBs shall not be used for crosswalks across approaches controlled by YIELD signs, STOP signs, traffic control signals, or pedestrian hybrid beacons." Path users actuate the signals, which flash to improve yield compliance and visibility. Engineers can reference [FHWA Interim Approval 21](#) (2018) for specific guidance on RRFBs. \

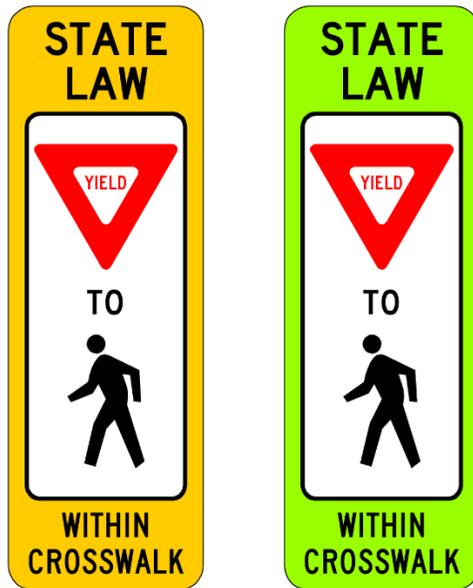
The State Law Yield or Stop Sign (R1-6 series) is placed at the crossing to promote visibility and remind motorists that they must stop or yield within the crosswalk. Raised crosswalks elevate path users in relation to drivers (while also slowing drivers), while speed bumps simply slow drivers.

Figure 10: RRFB in Dennis, MA (at South Gages Way), 2020



RAIL TRAIL CROSSING INVENTORY

Figure 11: State Law Yield Signs, Image from trafficsign.us



R1-6
In-Street Pedestrian Crossing (Yield)

Sign images from the Manual of Traffic Signs <<http://www.trafficsign.us/>>
These sign images copyright Richard C. Moeur. All rights reserved.

VISIBILITY OF BIKE TRAILS

Countywide Status

Generally, users of rail trails are highly visible from roadway approaches. Of the 188 valid approaches, 12 were rated "Poor", 55 were "Fair," and 121 were "Good."

Design Guidance

Bike trail visibility is a function of 1.) signage and other control devices; 2.) visibility/clearance; and 3.) topography. Engineering guidance is found in the *MUTCD* and AASHTO's *Guide for the Development of Bicycle Facilities*. Specific guidelines and equations for road-based sightlines are found in Figure 5-15 and Table 5-7 from the latter document.

GRADE

Countywide Status

Of the 188 valid road approaches, 4 were downhill, 35 were slightly downhill, 7 were uphill, and 22 were slightly uphill. The majority (120) were flat. Grade is important in that downhill approaches can encourage speeding. Grades can impact visibility as well. For specific guidance on how grade can impact visibility and safety at crossings, refer to Sections 5.2.7, 5.2.8, and 5.35 in AASHTO's *Guide for the Development of Bicycle Facilities*.

RAIL TRAIL CROSSING INVENTORY

POSTED SPEED LIMIT

Countywide Status

The vast majority of roadway approaches (180 out of 190) lacked speed limit signage (a location was deemed to lack this signage if it was not visible at the location where other advance signage was located). 2 approaches were 25 mph, 5 were 30 mph, 1 was 35 mph, and 2 were 40 mph. A higher speed limit necessitates more safety interventions to maintain safe crossings, while a slower approach can ensure that a crossing remains safe even with few/simple crossing treatments.

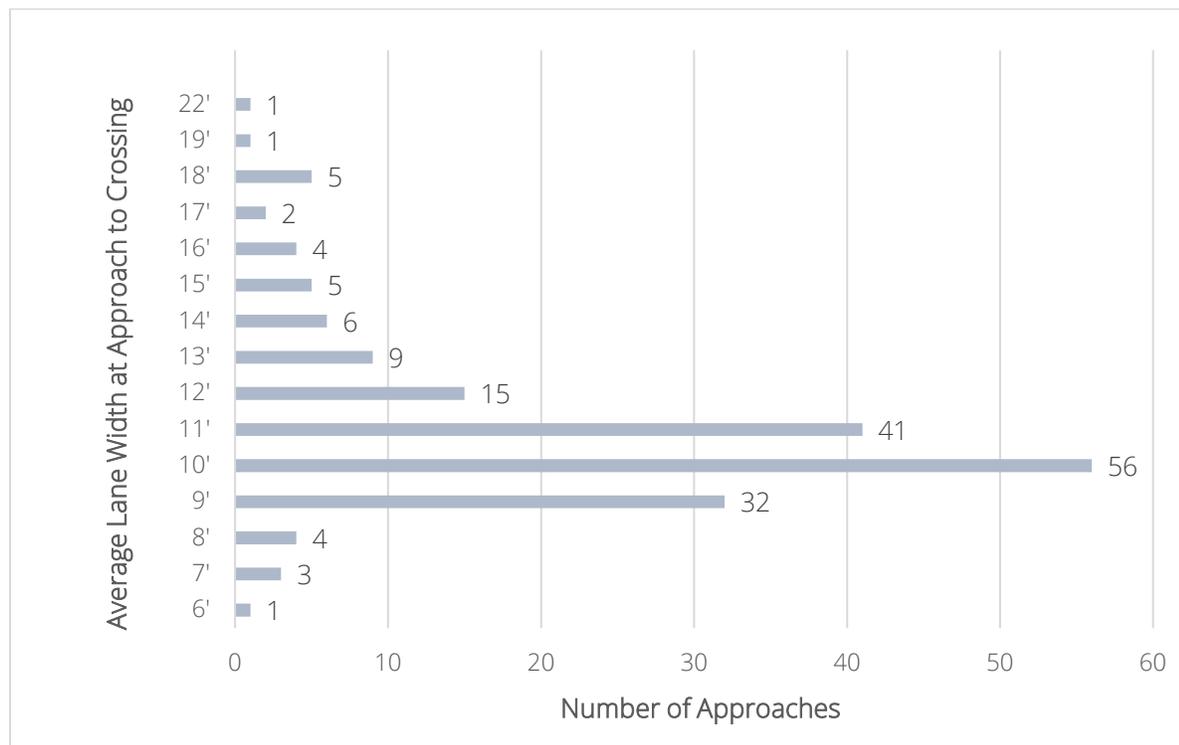
AVERAGE LANE AND SHOULDER WIDTH

Countywide Status

The average (mean) width of the lanes at approaches countywide is 10 feet and four inches. This is relatively narrow and suggests that average speeds may be low (most drivers consciously and subconsciously slow down with narrower lanes).

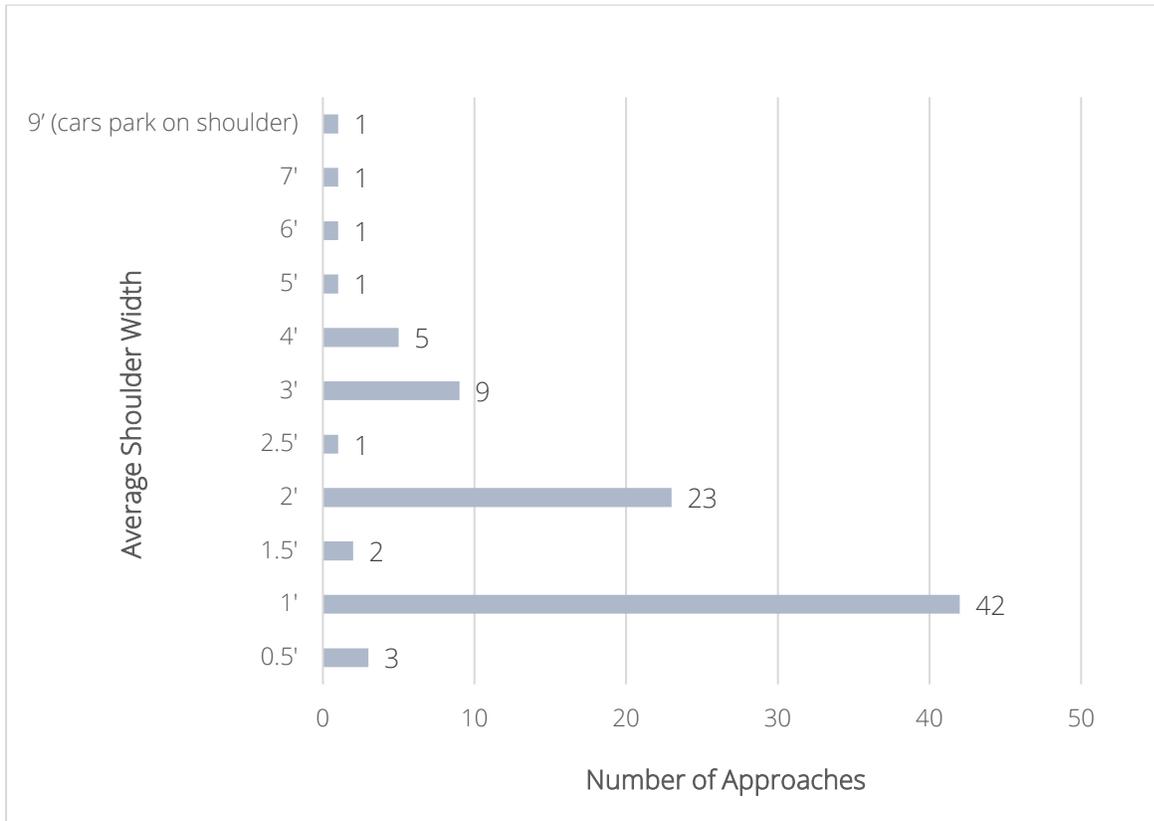
Regarding the mean width of shoulders, 94 of 183 valid approaches lack shoulders (although for some of them, this is because vehicles approach on dirt roads). Of those with shoulders, the mean value is 1.9 feet.

Figure 12: Average Lane Width (in Feet) at Crossing Approach



RAIL TRAIL CROSSING INVENTORY

Figure 13: Average Shoulder Width (in Feet) at Crossing Approach



RAIL TRAIL APPROACHES

Rating Quality of Infrastructure for the Path Approach

The same rating scheme was used for the path approaches as for the road approaches.

CONTROL TYPE (FOR PATH USERS)

Countywide Status

Of the 188 valid approaches, 46 path approaches had no intersection control; all the remaining 142 approaches were controlled by STOP signs.

Design Guidance

As with road approaches, guidance for control type is found in the *MUTCD*, the Massachusetts Highway Department's *Project Development and Design Guide* (Chapter 11), and AASHTO's *Guide for the Development of Bicycle Facilities*.

As was noted in the Control Type section for roadway approaches, AASHTO's *Guide for the Development of Bicycle Facilities* notes the ideal control type "follows the principle of providing the least amount of restriction that is effective." Instead, "installing unwarranted or unrealistically restrictive controls on path approaches in an attempt to 'protect' path users can result in path users disregarding the signs and other traffic control devices at the intersection. This can lead to a loss of respect for traffic control at more critical locations." That guide notes that bicyclists often ignore "STOP" signs at path-roadway intersections and "tend to operate as though there are "YIELD" signs at these locations."

As mentioned, signalization can be considered for higher-volume intersections, with MUTCD Warrant #4 being used for path crossings.

CONDITION OF SIGNAGE (FOR PATH USERS)

Countywide Status

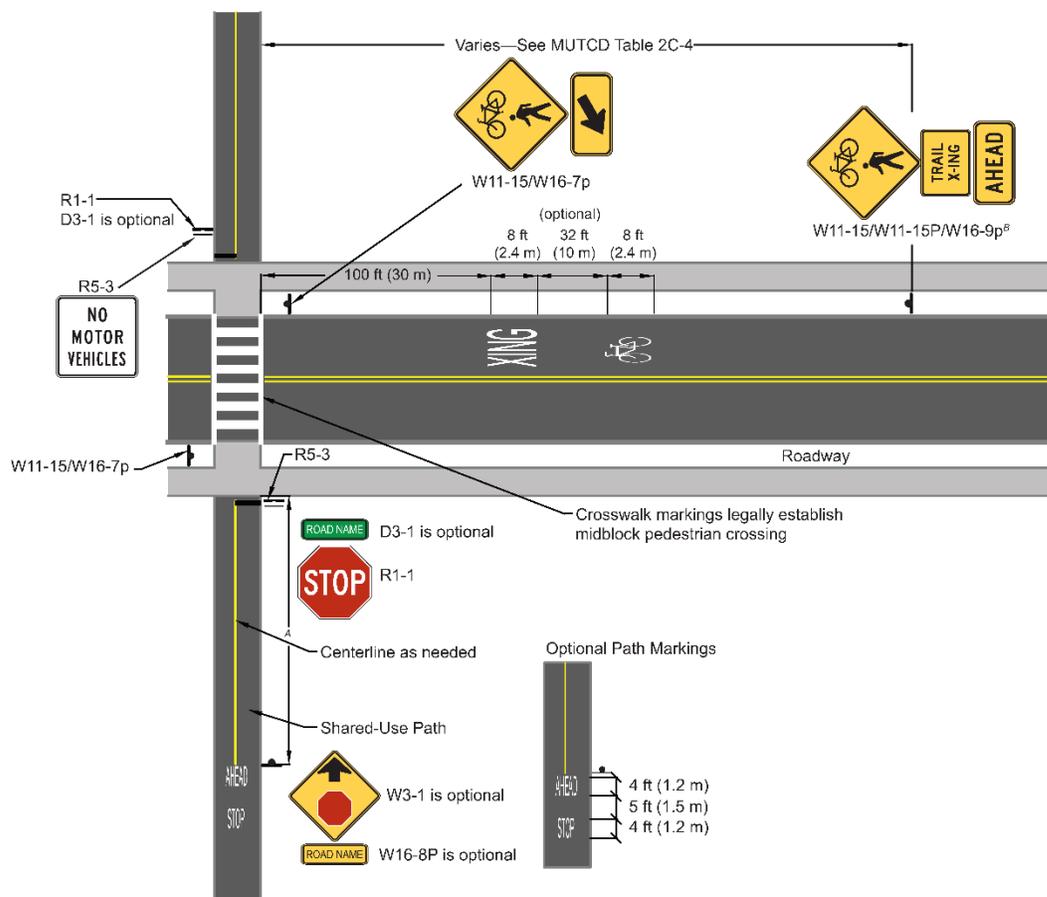
Of 188 valid approaches, there was no path signage at 42 locations. Of the remaining approaches, the condition of signage was "Poor" at 7 locations, "Fair" at 22 locations, and "Good" at 117 locations.

Design Guidance

For YIELD control, the R1-2 sign is mandated, with an optional street name sign attached above. With STOP control, the R1-1 sign is required (again, with an optional street name sign above). The below image shows the signage required for path users with STOP control.

RAIL TRAIL CROSSING INVENTORY

Figure 14: Stop Controlled Path Crossing, Image from AASHTO's Guide for the Development of Bicycle Facilities



PAVEMENT MARKINGS (FOR PATH USERS)

Countywide Status

Of 188 valid path approaches, 67 approaches lacked any pavement markings. 83 approaches had pavement markings in "Poor" condition, 30 approaches had pavement markings in "Fair" condition, and only 8 approaches had pavement markings in "Good" condition.

Design Guidance

Pavement markings include stop and yield lines at or near the intersection, and lettering and solid yellow lines in advance of the crossing. According to AASHTO's *Guide for the Development of Bicycle Facilities*, "stop and yield lines may be used to indicate the point at which a path user should stop or yield at a traffic control device [...] Stop or yield lines may be placed across the entire width of the path. If used,

RAIL TRAIL CROSSING INVENTORY

the stop or yield line should be placed a minimum of 2 ft (0.6 m) behind the nearest sidewalk or edge of roadway if a sidewalk is not present.” Markings cannot be used to replace appropriate signage.

Additionally, depending upon control type, crash history, and need, the following markings can be used:

- No STOP control for path users: ROAD XING
- STOP control for path users: STOP AHEAD
- YIELD control for path users: YIELD AHEAD

According to that same guide, these pavement markings should be placed at the same location as the other advance warning signage, but not less than 50 feet in advance of the intersection. At the pavement markings, solid yellow lines can be used to discourage passing movements near the crossing.

ADVANCE WARNING SIGNS (FOR PATH USERS)

Countywide Status

Of 188 valid path approaches, 91 approaches had advance warning signs, while 97 lacked such signage.

Design Guidance

Depending upon control type, crash history, and need, the following signs are all used optionally:

- No STOP control for path users: W2-1 and W16-8P
- STOP control for path users: W3-1 and W16-8P
- YIELD control for path users: W3-2 and W1618P

SIGHT DISTANCE (FOR PATH USERS)

Countywide Status

Of 186 valid path approaches, 3 approaches had “Poor” sight distance of the perpendicular road; 40 had “Fair” sight distance and a heavy majority (143 locations) had “Good” sight visibility.

Design Guidance

Sight distance is determined by a variety of factors, including grade, vegetation, and sight triangles. Visibility requirements for sight triangles are found in Table 5-18 of AASHTO's *Guidance or the Development of Bicycle Facilities*.

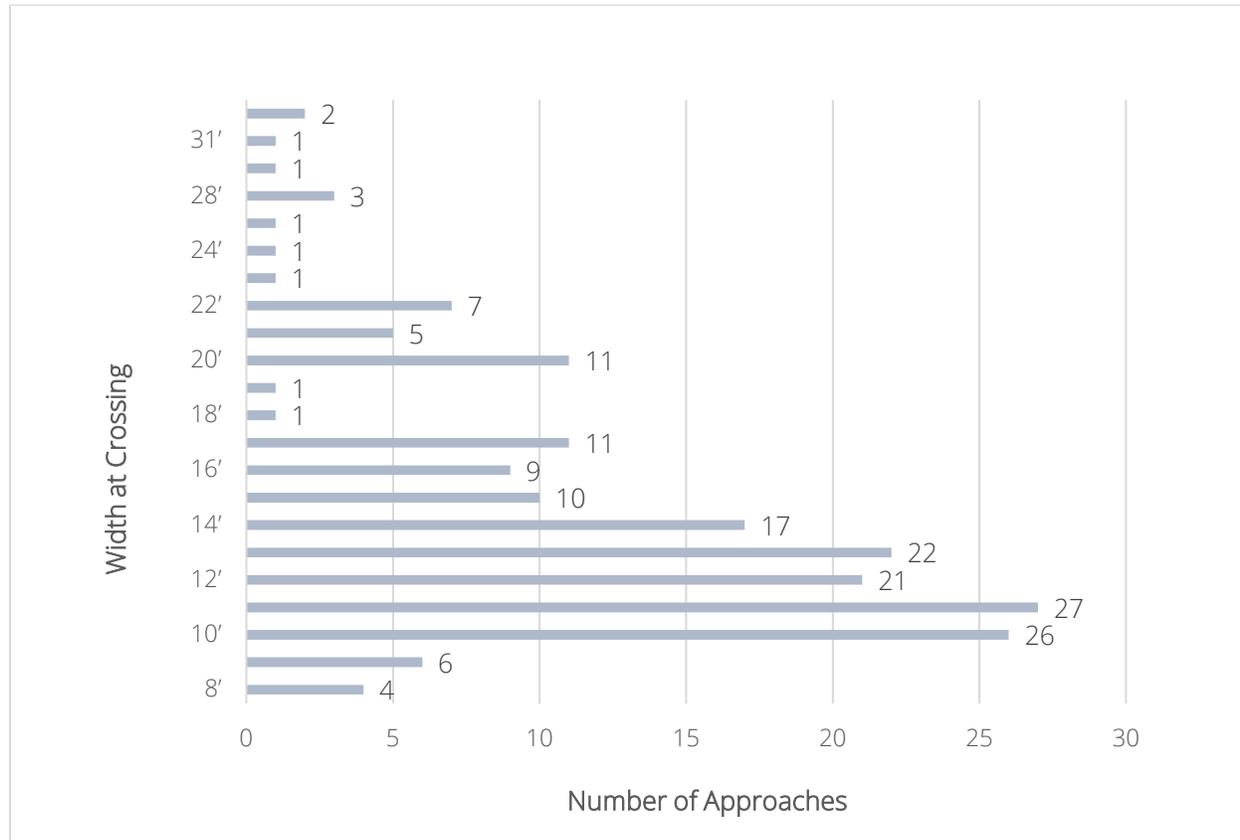
WIDTH OF PATH AT THE INTERSECTION

Countywide Status

Of 188 valid path approaches, path widths at the intersection varied dramatically. The average (mean) width of the path was ~14.4 feet with a median width of ~12.5 feet.

RAIL TRAIL CROSSING INVENTORY

Figure 15: Width of Path at Intersection by Approaches



Design Guidance

Generally, paths widen somewhat at the intersection as compared to non-intersection locations. So, the measurement of path width at intersections alone should not be used to automatically assume the width of the path generally. Nonetheless, it can provide a general sense of comfort and safety. A wider path can generally accommodate heavier traffic (and can more safely accommodate bicyclist queuing in advance of the crossing). For additional guidance, reference 5.3.5 of AASHTO's *Guide for the Development of Bicycle Facilities*.

MEDIAN APPROACHING INTERSECTION

Countywide Status

Countywide, 85 of 188 valid intersections had medians approaching intersections.

Design Guidance

Medians for path users are used for several reasons. First, they alert bicyclists on paths to slow down while approaching the crossing, while horizontally separating opposite-moving bicyclists. Secondly, according to the Massachusetts Highway Department's *Project Development & Design Guide*, path-oriented medians separate the path into two parts, discouraging traffic from mistaking the path for a road (and thus turning onto it). With low landscaping, the median can act as an attractive gateway to the path and can limit vehicles access (while maintaining it for emergency vehicles). The low landscaping can

RAIL TRAIL CROSSING INVENTORY

ensure that visibility is also maintained. Additionally, while bollards are sometimes coupled with path medians, some bicyclists believe that bollards can present a crash hazard for bicyclists. A path median can therefore replace a bollard, removing this threat.

OTHER FEATURES

Countywide Status

Of 188 valid approaches, a majority had no other features. Of those approaches with other features, the most common features were RRFB buttons. No other feature was seen on more than 2 approaches.

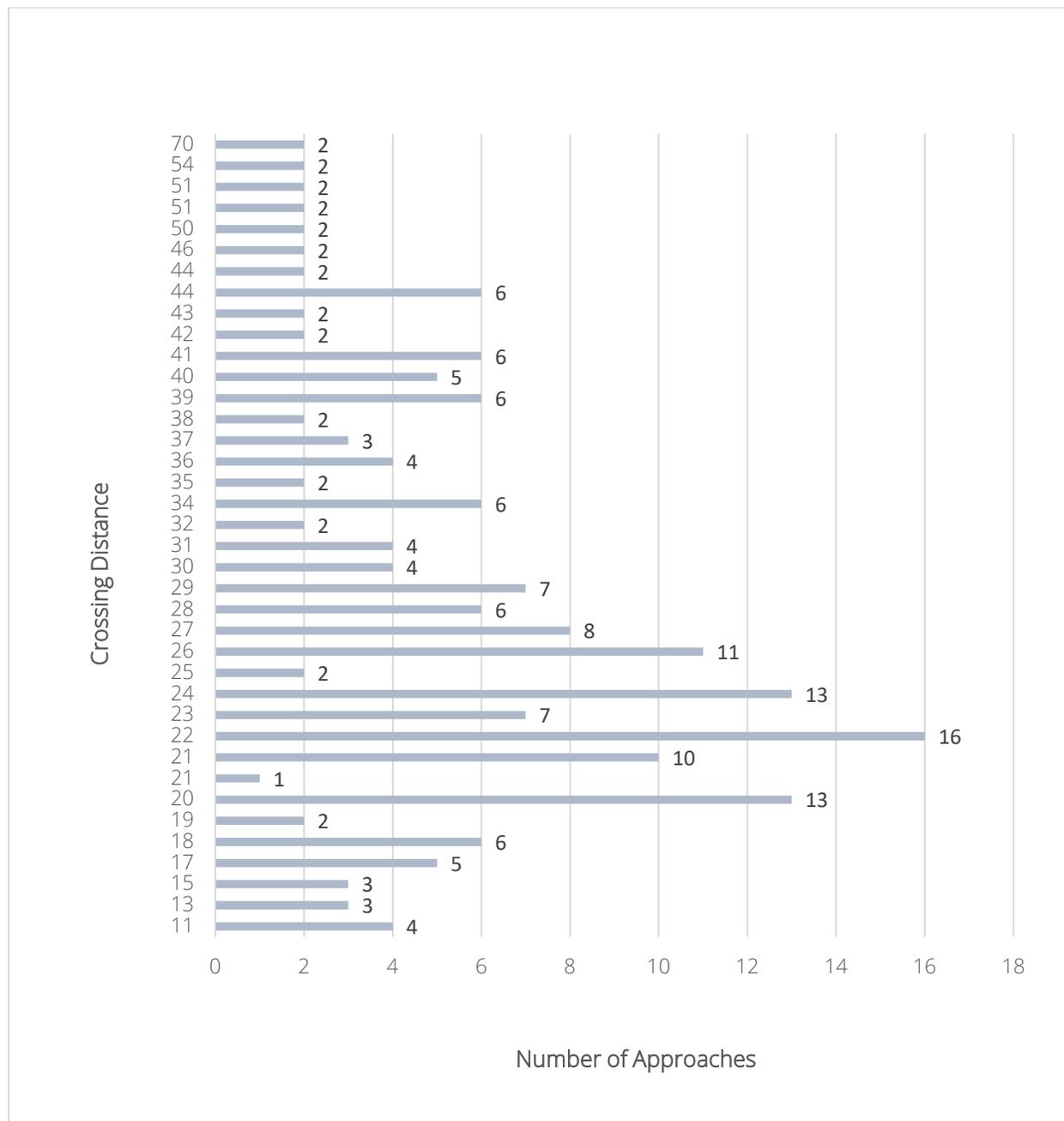
CROSSING DISTANCE

This measures the length of the crosswalk, or alternatively, the width of the road.

Countywide Status

Countywide, the mean length of crosswalks at approaches is 27.8 feet, with the median being ~25.5 feet. This means that because the data is positively skewed, there are a moderate number of intersections with high crossing distance, while those with low crossing distance are clustered closer to the center.

Figure 16: Crossing Distance by Approach



Design Guidance

Narrower crossings have decreased crash exposure (and intersections with fewer lanes have a decreased risk of multiple threat crashes). Additionally, drivers tend to drive slower through narrower intersections than wider intersections. Specific design guidance is not shown here in detail, except to note that a wider crossing (along with higher speeds) requires more advanced crossing safety measures (often in combination with each other). The following chart shows FHWA guidance on crossing treatments that could or should be used based on road attributes.

RAIL TRAIL CROSSING INVENTORY

Figure 17: Countermeasures from FHWA’s “Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations”

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	① 2 4 5 6	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 7 9	① 4 5 6 7 9	① 5 6 7 9	① 5 6 9
3 lanes with raised median (1 lane in each direction)	① 2 3 4 5	① ③ 5 7 9	① ③ 5 7 9	① 3 4 5 7 9	① ③ 5 7 9	① ③ 5 7 9	① ③ 4 5 7 9	① ③ 5 7 9	① ③ 5 9
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	① 2 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 9	① 3 4 5 6 7 9	① ③ 5 6 7 9	① ③ 5 6 9	① ③ 4 5 6 7 9	① ③ 5 6 9	① ③ 5 6 9
4+ lanes with raised median (2 or more lanes in each direction)	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 7 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 7 8 9	① ③ 5 8 9	① ③ 5 8 9
4+ lanes w/o raised median (2 or more lanes in each direction)	① ③ 5 6 7 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 7 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 7 8 9	① ③ 5 6 8 9	① ③ 5 6 8 9
<p>Given the set of conditions in a cell,</p> <p># Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.</p> <p>● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.</p> <p>○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*</p> <p>The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.</p>					<p>1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs</p> <p>2 Raised crosswalk</p> <p>3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line</p> <p>4 In-Street Pedestrian Crossing sign</p> <p>5 Curb extension</p> <p>6 Pedestrian refuge island</p> <p>7 Rectangular Rapid-Flashing Beacon (RRFB)**</p> <p>8 Road Diet</p> <p>9 Pedestrian Hybrid Beacon (PHB)**</p>				

*Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures,' for more information about using multiple countermeasures.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagenwey, J. Feaganes, and B.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA, Manual on Uniform Traffic Control Devices, 2009 Edition, (revised 2012), Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA, Crash Modification Factors (CMF) Clearinghouse. <http://www.cmfclearinghouse.org/>; FHWA, Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE), <http://www.pedbikesafe.org/PEDSAFE/>; Zegeer, C., R. Srinivasan, B. Lan, D. Carter, S. Smith, C. Sundstrom, N.J. Thirk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

CROSSWALK STYLE

Countywide Status

Of 188 valid approaches, the breakdown of crosswalk type is as follows:

- 9 approaches with no crosswalk
- 54 approaches with standard crosswalks
- 15 approaches with continental crosswalks

RAIL TRAIL CROSSING INVENTORY

- 75 approaches with ladder crosswalks
- 29 approaches with “zebra” crosswalks
- 6 approaches with raised or stamped brick crosswalks

Within the inventory, crosswalk types are sometimes broken down into sub-categories (for example, “Ladder w/ Paint.” Additionally, the boundary between a Ladder and Zebra crosswalk is often thin. Best effort was made to separate these, but these crosswalk types are broadly similar; both increase the driver field of vision by use of parallel or semi-parallel lines in relation to traffic.

Design Guidance

Standard crosswalks are created by created two parallel lines (solid white) that run perpendicular to traffic. Those lines “shall not be less than 6 inches or greater than 24 inches in width,” according to Section 3B.18 of the *MUTCD*. However, designers can often improve visibility of the crosswalk by using some of the following designs. The first three improve visibility by running lines in the direction of traffic (thereby ensuring drivers can see the lines more clearly and at a greater distance). The last is an example of a crosswalk being colored differently than the surrounding road (again improving visibility). AASHTO also provides guidance on where high-visibility crosswalks are appropriate in their *Guide for the Development of Bicycle Facilities*:

“High-visibility marked crosswalks are recommended at uncontrolled path–roadway intersections. On roadways with low traffic volumes and speeds where sight distances are adequate, the marked crosswalk should be sufficient to accommodate pedestrians effectively. It is recommended that a minimum of 20 pedestrian crossings (or 15 or more elderly and/or child pedestrians) per peak hour exist at a location before placing a high priority on installing a marked crosswalk alone. Additional crossing measures [beyond just high-visibility crosswalks] are recommended at uncontrolled locations where the speed limit exceeds 40 mph and either:

- The roadway has four or more lanes of travel without a raised crossing island and an Average Daily Traffic (ADT) of 12,000 vehicles per day or greater; or
- The roadway has four or more lanes of travel with a raised crossing island (either existing or planned) and an ADT of 15,000 vehicles per day or greater (17).”

RAIL TRAIL CROSSING INVENTORY

Figure 18: Continental Crosswalk (top left); Ladder Crosswalk (top right); Zebra Crosswalk (bottom left); Stamped / Painted crosswalk (bottom right). Images are all from Barnstable County locations.



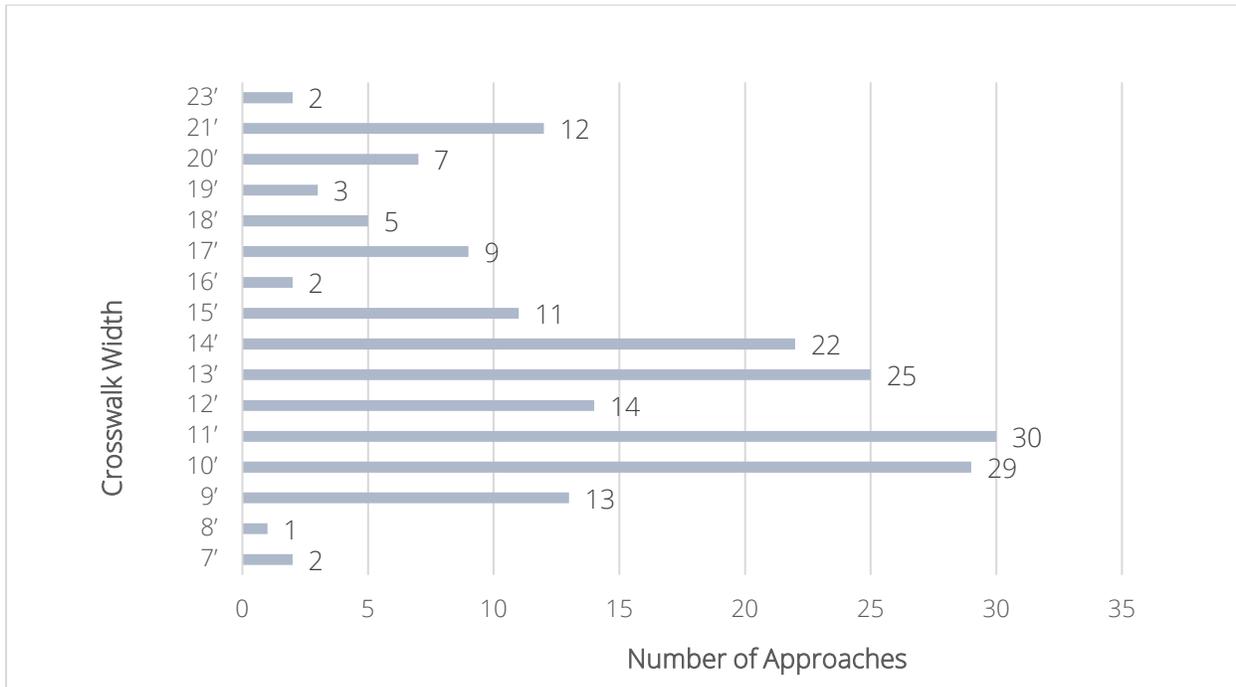
CROSSWALK WIDTH

The crosswalk width measures the distance between the two bars of the crosswalk (or where the bars would be if they do not exist). Generally, a wider crosswalk is more highly visible to drivers (and offers plenty of space for trail users).

Countywide Status

The crosswalk widths of approaches are shown below. As can be seen, crosswalk widths are clustered in the 9'-15' range (and especially centered around 10'-11'). However, there are some wider crosswalks countywide.

Figure 19: Crosswalk Width by Approach



Design Guidance

As mentioned above, a wider crosswalk is generally more visible. The *MUTCD* offers limited guidance on crosswalk width. Section 3B.18 of the *MUTCD* notes that “if transverse lines are used to make a crosswalk, the gap between the lines [the width] shall be not less than 6 feet. If diagonal or longitudinal lines are used without transverse lines to mark a crosswalk, the crosswalk shall be not less than six feet.” Neither guide references a maximum width.

TACTILE WARNING PLATES

Countywide Status

A heavy majority of path approaches to intersections lack tactile warning plates (149 of 188 valid approaches). Of those with tactile warning plates, 4 are rated in “Fair” condition and 35 are rated in “Good” condition.

Design Guidance

Tactile warning plates are composed of many small (0.9-1.4 inch) domes that indicate where the walkway/path ends and where the street begins. They can be helpful to those with visual disabilities, among others. Guidance for tactile warning plates is found in the document, *Public Rights-of-Way Accessibility Guidelines* (an update was proposed in 2011). That document, in Chapter R3 (Sections 305 and 306), details technical requirements for the designers.

Figure 20: Tactile Warning Plates at a Road Crossing, Shining Sea Bikeway in Falmouth



Next Steps

It is hoped that the prior information in the report will be used for by town planners, engineers, and other staff, as well as the public to provide safe and effective trail crossings. The next section—Possible Countermeasures— provides rough guidance on possible infrastructure interventions that may be appropriate at a location based on speed and volume. The Appendix, which follows the Possible Countermeasures section, provides the specific inventory of 95 crossings across the Cape. These inventories crossings, however, are merely a start. As specific crossings are updated, Cape Cod Commission staff will work with the relevant town officials to update the information in the interactive online map. Additionally, Commission staff will broaden this project to collect similar data on sidepaths adjacent to roadways.

Possible Countermeasures

The following tables are based on FHWA guidance found in the "Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations" (shown earlier in this document as Figure 17. Importantly, there were no inventoried roads with Annual Average Daily Traffic (AADT) greater than 15,000.

Table 3: Possible Countermeasures Based on AADT, Speed, and Road Geometry (Vehicle AADT < 9,000)

	Roadway Vehicle AADT < 9,000						
	Roadway Speed ≤ 30 mph			Roadway Speed 35 mph		Roadway Speed ≥ 40 mph	
2 lanes (1 lane in each direction)	1	2		1		①	
	4	5	6		5	6	
				7		9	
						7	9
Locations (# Corresponding to Map and Report)	Shining Sea Bikeway #2, 4, 5, 7, 8 , 9, 10, 11, 12, 13, 14			Shining Sea Bikeway #1 Cape Cod Rail Trail #4, 10, 22, 27, 28*, 29, 31		Cape Cod Rail Trail #21, 24	
	Province Lands Bicycle Trail # 1 , 2, 3, 4, 5, 6					Cape Cod Rail Trail – Harwich to Chatham Extension #9, 11, 47 Nauset Trail #8**	
	Head of the Meadow Trail #1			* Took speed from parallel road to represent safety more accurately.		** This is a one-lane road.	
	Cape Cod Rail Trail #1-3; 5, 6, 7, 8, 9 , 11-19, # 20 , 23, 25 , 26, 30, 32, 33, 34, 35 , 36, 37 , 38, 41, 42						
	Cape Cod Rail Trail – Harwich to Chatham Extension # 1 , 2, 4, 5, 6, 7 , 10, 13, 13-16, 17 , 18, 40 , 44, 46 , 48 Nauset Trail # 1 , 2, 3, 4 , 5, 6, 7						

RAIL TRAIL CROSSING INVENTORY

For the above chart, speed and AADT data from MassDOT were sometimes unavailable. Therefore, Google StreetView was used for to check speeds as required, and a best guess was made for AADT based on street characteristics.

Additionally, the letters that are italicized and bold signify that the crossing is of either a dirt road, or of a small, non-through road.

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate uncontrolled crossing location.
- Signifies that the countermeasure should always be considered but not mandated or required, based upon engineering judgement at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgement.

Numbers are as follows:

1. High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2. Raised crosswalk
3. Advance Yield Here To (Stop Here For) Pedestrian sign and yield (stop) line
4. In-Street Pedestrian Crossing sign
5. Curb extension'
6. Pedestrian refuge island
7. Rectangular Rapid-Flashing Beacon (RRFB)**
8. Road Diet
9. Pedestrian Hybrid Beacon (PHB)**

**PHBs and RRFBs cannot be used together at the same crossing location.

RAIL TRAIL CROSSING INVENTORY

Table 4: Possible Countermeasures Based on AADT, Speed, and Road Geometry (Vehicle AADT > 9,000 <15,000 AADT)

	Roadway Vehicle AADT 9,000 – 15,000								
	Roadway Speed ≤ 30 mph			Roadway Speed 35 mph			Roadway Speed ≥ 40 mph		
2 lanes (1 lane in each direction)	①	2		①			①		
	4	5	6		5	6		5	6
				7		9	⑦		⑨
Locations (# Corresponding to Map and Report)	Shining Sea Bikeway #3			Shining Sea Bikeway #6*					
	Cape Cod Rail Trail #39*, 43, 45			Cape Cod Rail Trail – Harwich to Chatham Extension #8**					
	Cape Cod Rail Trail – Harwich to Chatham Extension #3			* Speed is taken from the Jones Road figures					
				** EB approach is 35 mph, while WB approach is 30 mph					

For the above chart, speed and AADT data from MassDOT were sometimes unavailable. Therefore, Google StreetView was used for to check speeds as required, and a best guess was made for AADT based on street characteristics.

Given the set of conditions in a cell,

Signifies that the countermeasure is a candidate uncontrolled crossing location.

- Signifies that the countermeasure should always be considered but not mandated or required, based upon engineering judgement at a marked uncontrolled crossing location.
- Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgement.

Numbers are as follows:

1. High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2. Raised crosswalk
3. Advance Yield Here To (Stop Here For) Pedestrian sign and yield (stop) line
4. In-Street Pedestrian Crossing sign

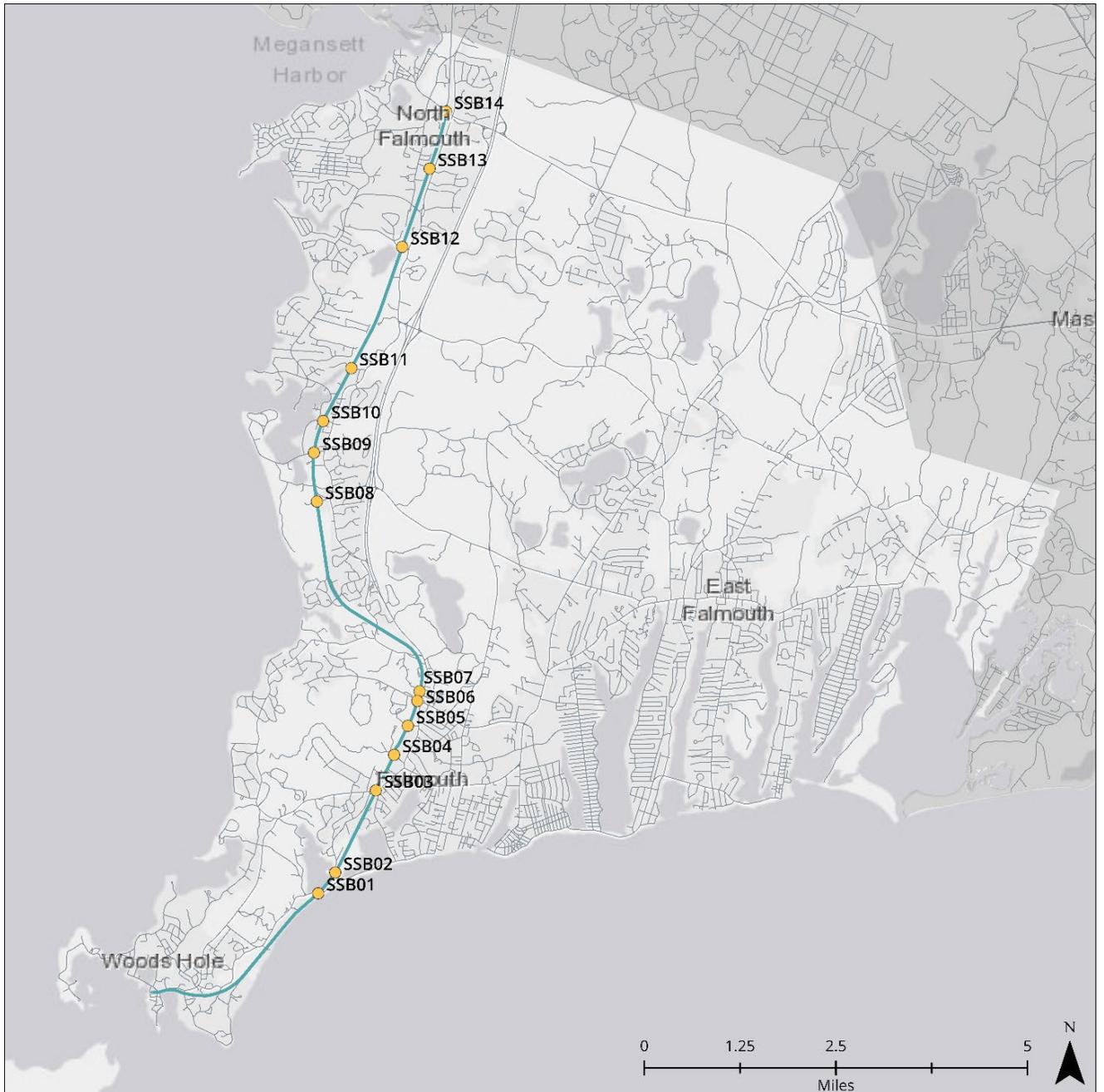
RAIL TRAIL CROSSING INVENTORY

5. Curb extension'
6. Pedestrian refuge island
7. Rectangular Rapid-Flashing Beacon (RRFB)**
8. Road Diet
9. Pedestrian Hybrid Beacon (PHB)**

**PHBs and RRFBs cannot be used together at the same crossing location.

Appendix: Crossing Inventory

FALMOUTH



Shining Sea Bikeway #1 (Surf Drive)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

SURF DRIVE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Fair	None*	Poor	Yield	None	Good	No	State Law Yield Sign	Good	None	None	12'2'
WB	Poor	Good**	Poor	Yield	None	Good	No	State Law Yield Sign***	Fair	None	None	11'/none

* Green, wayfinding signage only

** Green, wayfinding-oriented signage as well (close to the bike trail crossing signposts)

*** State Law Yield Sign is on post with bike trail crossing signpost (WB only)

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Fair	Fair	No	Good	11'	No	None	43'	Zebra	11'	None
SB	Stop	Fair	Fair	No	Good	11'	No	None	43'	Zebra	11'	None

IMAGES

Figure 21: Westbound View of the Crossing with Bike Trail Crossing Signage and Zebra Crossing



Figure 22: Low-Lying Shrub Vegetation Means High Visibility at the Intersection



EXTRA NOTES

Sand covering up side of road.

Shining Sea Bikeway #2 (Elm Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

ELM ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Fair	Good	Poor	None	None	Good	No	None	Good	None	None	11'/1'
SB	Fair	Good	Poor	None	None	Good	No	None	Fair	None	None	11'/2.5'

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Fair	No	Good	16'	No	None	22'	Ladder	9'	None
WB	Stop	Good	Fair	No	Good	16'	No	None	22'	Ladder	9'	None

IMAGES

Figure 23: View of the Road Approach



Figure 24: Advance Warning Signage with Faded Pavement Markings



Shining Sea Bikeway #3 (Locust Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/20/2016	12:07 PM	Property damage only (none injured)	None	Daylight	Clear
11/4/2016	11:43 AM	Property damage only (none injured)	None	Daylight	Clear
1/5/2017	6:00 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Clear
1/27/2017	7:58 PM	Unknown	None	Dark - lighted roadway	Clear
6/7/2017	7:34 AM	Non-fatal injury	None	Daylight	Clear
8/20/2017	6:10 PM	Non-fatal injury	None	Daylight	Clear
6/29/2017	2:29 PM	Property damage only (none injured)	None	Daylight	Clear
6/29/2017	5:02 PM	Non-fatal injury	None	Daylight	Clear
4/25/2018	1:36 PM	Property damage only (none injured)	None	Daylight	Rain/Clear
6/4/2019	9:33 AM	Non-fatal injury	None	Daylight	Clear
6/14/2019	1:13 PM	Property damage only (none injured)	None	Daylight	Clear
10/15/2019	3:06 PM	Non-fatal injury	P3: Cyclist	Daylight	Clear

LOCUS STREET SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	Good*	Fair	None	None	Poor	No	RRFB	Good	None	None	11' / 2'
EB	Good	Good*	Fair	None	None	Poor	No	RRFB	Fair	Downhill	None	11' / 2'

*Green, wayfinding-oriented signage as well (close to the bike trail crossing signposts)

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Fair	Poor	Yes	Good	10'	No	Bench, Bike Rack, RRFB Button	26'	Ladder	12'	None
SB	Stop	Fair	Poor	Yes	Good	10'	No	Bench, Bike Rack, RRFB Button	26'	Ladder	12'	None

EXTRA NOTES

Steep drop on edges of path approaching path

Figure 25: High Quality Pavement Markings on the Road Approach



Figure 26: Actuated RRFBs at the Intersection



Figure 27: Fluorescent Bike Trail Ahead Sign



Figure 28: Wayfinding Signage and Decorative Entry Point



Shining Sea Bikeway #4 (Depot Avenue)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
5/31/2016	7:53 AM	Non-fatal injury	None	Daylight	Rain
10/29/2018	7:58 AM	Property damage only (none injured)	None	Daylight	Clear

DEPOT AVENUE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Fair	Good	Poor	None	None	Fair	No	None	Good	None	None	14'/9' (cars park on shoulder)
WB	None	Good*	None	None	None	Fair	No	None	Good	Slight Downhill	None	8'/None

*Green, wayfinding-oriented signage as well.

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Cross walk Width	Tactile Warning Plates
NB	Stop	Good	Poor	No	Good	21'	No	Air and bike repair sign	39'	Continental	14'	Good

Falmouth – Shining Sea Bikeway

SB	Stop	Good	None	Yes	Fair	14'	No	None	39'	Continental	14'	Fair
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EXTRA NOTES

There is a parking lot with a bike repair area, as well as a bike up restaurant.

IMAGES

Figure 29: Cyclists Are Requested to Dismount at the Crossing



Figure 30: Wayfinding-Oriented Sign Attached to the Trail Crossing Sign (Road Approach)



Shining Sea Bikeway #5 (Skating Lane)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

SKATING LANE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Fair	None	None	Stop	None	Poor	No	None	Fair	Slight Uphill	None	10'
WB	None	Fair	None	Stop	None	Poor	No	None	Good	None	None	10'

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	No	Good	9'	No	None	21'	Standard	11'	None
SB	None	None	Poor	No	Good	10'	No	None	21'	Standard	11'	None

EXTRA NOTES

In the back parking lot of steamship authority, there is little to no traffic.

IMAGES

Figure 31: Road Traffic is STOP-Controlled, as is Eastbound Trail Traffic



Shining Sea Bikeway #6 (Ter Heun Drive)

CRASH HISTORY SURROUNDING THE CROSSING

There are numerous crashes—listed below—that occurred at this crossing.

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
4/20/2015	10:44 AM	Property damage only (none injured)	None	Daylight	Clear
5/13/2015	4:47 PM	Property damage only (none injured)	None	Daylight	Clear
6/12/2015	3:02 PM	Property damage only (none injured)	None	Daylight	Clear
8/10/2015	12:26 PM	Property damage only (none injured)	None	Daylight	Clear
8/18/2015	3:02 PM	Property damage only (none injured)	None	Daylight	Clear
11/12/2015	7:08 PM	Property damage only (none injured)	None	Dark - lighted roadway	Rain
4/22/2016	5:31 PM	Property damage only (none injured)	None	Daylight	Clear
6/8/2016	12:07 PM	Property damage only (none injured)	None	Daylight	Clear
7/15/2016	6:32 PM	Property damage only (none injured)	None	Daylight	Clear
8/22/2016	3:43 AM	Property damage only (none injured)	None	Dark - lighted roadway	Clear
8/31/2016	10:59 AM	Property damage only (none injured)	None	Daylight	Clear
8/1/2016	10:59 AM	Property damage only (none injured)	None	Daylight	Clear/Other
10/13/2016	6:03 AM	Property damage only (none injured)	None	Dawn	Clear
10/28/2016	2:57 PM	Property damage only (none injured)	None	Daylight	Clear

Falmouth – Shining Sea Bikeway

2/7/2017	5:49 PM	Non-fatal injury	None	Dark - lighted roadway	Cloudy
4/5/2017	5:42 PM	Property damage only (none injured)	None	Daylight	Clear
6/20/2017	8:20 AM	Property damage only (none injured)	None	Dusk	Cloudy
6/26/2017	3:35 PM	Non-fatal injury	None	Daylight	Clear
4/29/2017	7:40 AM	Property damage only (none injured)	None	Daylight	Clear
9/23/2017	11:17 AM	Property damage only (none injured)	None	Daylight	Rain
5/9/2018	1:07 PM	Property damage only (none injured)	None	Daylight	Clear
8/28/2018	12:12 PM	Property damage only (none injured)	None	Daylight	Clear
12/8/2018	11:28 AM	Property damage only (none injured)	None	Daylight	Clear
10/2/2019	8:49 AM	Property damage only (none injured)	None	Daylight	Cloudy

TER HEUN DRIVE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Good*	None	None	None	Good	No	None	Good	Slight Uphill	None	18'/1'
WB	Good	Good*	None	None	None	Good	No	None	Good	Slight Downhill	None	15'/1'

*Green, wayfinding-oriented signage as well (either attached to same signpost, or proximate to the bike trail crossing sign pole).

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	None	Yes	Good	14'	Yes	None	41'	Ladder	11'	None
SB	Stop	Good	Poor	Yes	Fair	12'	Yes	None	41'	Ladder	11'	None

EXTRA NOTES

On an incline, right near a busy intersection.

IMAGES

Figure 32: Road Approach to the Shining Sea Path with Bike Trail Crossing Signage



Figure 33: Bike Trail Approach at Ter Heun Drive (with Separator that Slows Bicycle Traffic)



Shining Sea Bikeway #7 (Woodrise Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
5/31/2016	7:53 AM	Non-fatal injury	None	Daylight	Rain
10/29/2018	7:58 AM	Property damage only (none injured)	None	Daylight	Clear

WOODRISE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	None*	None	None	None	Poor	No	None	Poor	Uphill	None	11'/None
WB	Good	None*	None	None	None	Poor	No	None	Poor	Uphill	None	11'/None

*Green, wayfinding-oriented signage only.

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	10'	No	None	20'	Ladder	10'	None
SB	Stop	Good	Poor	Yes	Good	10'	No	None	20'	Ladder	10'	None

EXTRA NOTES

The crossing is across a sidewalk that gets significant traffic.

IMAGES

Figure 34: Cyclists Are Requested to Dismount at the Crossing



Figure 35: Wayfinding-Oriented Bike Trail Crossing Sign (Road Approach)



Shining Sea Bikeway #8 (Quahog Pond Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

QUAHOG POND ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Fair	Fair	None	None	None	Fair	No	None	Good	Slight Downhill	None	12'/None (one lane)
WB	Good	None*	None	None	None	Fair	No	None	Good	None	None	12'/None (one lane)

*None (green wayfinding-oriented signs only)

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Fair	Yes	Good	20'	Yes	None	32'	Ladder	18'	Good
SB	Stop	Good	Fair	Yes	Good	20'	Yes	None	32'	Ladder	18'	Good

EXTRA NOTES

The path crosses a dirt road, with very limited traffic.

IMAGES

Figure 36: Road Approach Looking Toward the Shining Sea Bikeway



Figure 37: Path Approach at Quahog Pond Road (this approach has a STOP sign, but the opposite one does not)



Shining Sea Bikeway #9 (Chapoquit Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

CHAPOQUIT ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	Good*	Fair	None	None	Good	No	None	Good	Slight Uphill	None	10'/0.5'
EB	None	Good*	Poor	None	None	Good	No	None	Good	None	None	10'/0.5'

*Green, wayfinding-oriented signage as well (either attached to same signpost, or proximate to the bike trail crossing sign pole).

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Fair	Poor	Yes	Good	20'	Yes	None	25'	Ladder	20'	Good
SB	Stop	Fair	Poor	Yes	Good	20'	Yes	None	25'	Ladder	20'	Good

IMAGES

Figure 38: Bike Trail Crossing Sign Indicating Crossing Area (with Wayfinding)



Figure 39: Advance Warning Sign for Path User with Splitter



Shining Sea Bikeway #10 (Old Dock Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/7/2015	4:43 PM	Non-fatal injury	None	Daylight	Clear
4/27/2016	8:14 PM	Property damage only (none injured)	None	Dark - lighted roadway	Clear
6/23/2016	3:27 PM	Non-fatal injury	None	Daylight	Clear
6/11/2016	1:53 PM	Non-fatal injury	P1: Cyclist	Daylight	Rain

OLD DOCK ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Poor* & **	Poor	None	None	Good	No	State Law Yield Sign ***	Good	Slight Uphill	None	13'/none
WB	None	Good**	Fair	None	None	Good	No	State Law Yield Sign***	Good	None	None	12'/none

* Sign quality itself is good but is impeded by vegetation

** Green, wayfinding signage as well

*** State Law Yield Sign is in the road

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Poor	Yes	Good	21'	Yes	None	30'	Ladder	21'	Good
NB	Stop	Good	Poor	Yes	Good	21'	Yes	None	30'	Ladder	21'	Good

EXTRA NOTES

EB approach signs are obstructed by vegetation. Also, there is a large parking lot adjacent to the crossing.

IMAGES

Figure 40: Ladder Crosswalk, State Law “Yield to Pedestrians” Sign Provide Good Visibility



Figure 41: Signage for Eastbound Traffic is Impeded by Foliage



Shining Sea Bikeway #11 (Chase Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

CHASE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Good*	Poor	None	None	Fair	No	None	Fair	None	None	16'/none (one lane)
WB	None	Good*	Fair	None	None	Fair	No	None	Good	Slight Downhill	None	9'/none

*Wayfinding oriented signs present as well

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Poor	Yes	Good	21'	Yes	None	24'	Ladder	21'	Good
NB	Stop	Good	Poor	Yes	Good	21'	Yes	None	24'	Ladder	21'	Good

EXTRA NOTES

The crossing is on a side street with little to no traffic.

IMAGES

Figure 42: Highly Visible Bike Trail Crossing Signs and a Ladder Crosswalk



Figure 43: Splitter & Post Decreases Chance of a Vehicle Turning onto Trail



Shining Sea Bikeway #12 (Wing Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/27/2017	12:45 PM	Property damage only (none injured)	None	Daylight	Clear

WING ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Poor*	Poor	None	None	Fair	No	None	Good	None	None	9'/none
WB	None	Fair*	Poor	None	None	Fair	No	None	Good	None	None	9'/none

*Green wayfinding-oriented signs present as well

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	None	Yes	Good	20'	Yes	None	20'	Ladder	21'	Fair
NB	Stop	Good	Poor	Yes	Good	20'	Yes	None	20'	Ladder	21'	Good

EXTRA NOTES

The crossing is on a side street with only residential traffic. There is a bench and a bike rack near the crossing on path.

IMAGES

Figure 44: Bike Trail Crossing Signs Could be Partially Obscured by Telephone Poles and Foliage (Depending on Approach Angle)



Figure 45: A Wide Crosswalk and Ladder Markings Improve Intersection Visibility



Shining Sea Bikeway #13 (Winslow Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/24/2019	2:13 PM	Non-fatal injury	P1: Cyclist	Daylight	Clear

WINSLOW ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Good*	Fair	None	None	Fair	No	None	Good	None	None	9'/none
WB	None	Good*	Fair	None	None	Fair	No	None	Good	None	None	9'/none

*Green, wayfinding signage as well

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	No	Good	20'	Yes	None	20'	Ladder	21'	Good
SB	Stop	Good	Poor	No	Good	20'	Yes	None	20'	Ladder	21'	Good

EXTRA NOTES

Missing advance warning signs on path. Additionally, there is no street sign at crossing. There is a bench with bike rack on the path.

IMAGES

Figure 46: Pavement Markings Alerting Bicyclists to the Crossing



Figure 47: No Regulatory Signage in Advance of the Crossing



Shining Sea Bikeway #14 (County Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

COUNTY ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Fair*	Good	None	None	Fair	No	None	Poor	Uphill	None	10'/none
WB	None	Fair	Good	None	None	Good	No	None	Poor	Slight Uphill	None	12'/2'

*Green, wayfinding signage as well

SHINING SEA BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	None	None	None	Yes	Good	10'	No	None	24'	Zebra	10'	Good
NB	Stop	Good	None	Yes	Good	10'	No	None	24'	Zebra	10'	Good

EXTRA NOTES

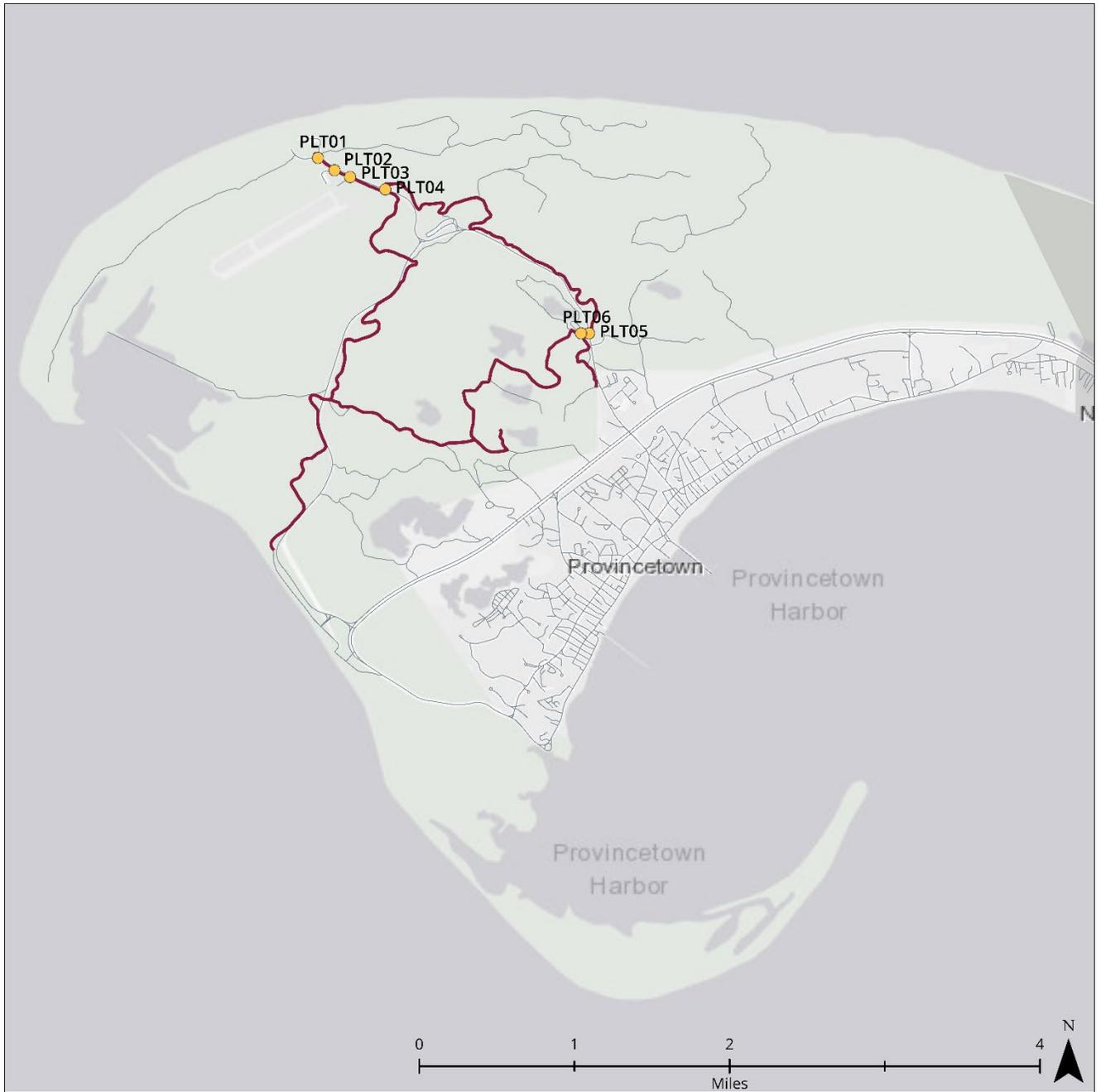
Very busy crossing, lots of traffic. End of SSB, there is a large parking area.

IMAGES

Figure 48: The Presence of the Rail Crossing can Decrease Visibility at Intersection). Zebra Crosswalk Helps Highlight Intersection Users



PROVINCETOWN



Province Lands Bicycle Trail #1 (Race Point Road #1 / Near Parking Lot)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None*	Fair	None	None	None	Poor	No	None	Fair	None	None	12'/1'
EB	None*	Fair	None	None	None	Poor	No	None	Fair	None	None	12'/1'

*Advance Warning Signs are not necessarily needed, as this is a parking lot.

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Poor	None	No	Good	12'	No	None	24'	Standard (faded yellow paint)	14'	None
NB	Stop	Good	Poor	Yes	Poor	12'	No	None	24'	Standard (faded yellow paint)	14'	None

EXTRA NOTES

Sand in road and on crossing, NB path approach is on a slope and view of crossing is obstructed

IMAGES

Figure 49: Road Approach (Intersection partially Covered in Sand)



Figure 50: Path Approach to Crossing (Facing Toward Parking Lot)



Province Lands Bicycle Trail #2 (Race Point Road #2 / Northernmost Road Leading to Provincetown Municipal Airport)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	None	None	None	None	Poor	No	None	Fair	None	None	10'/none
WB	None	None	None	None	None	Poor	No	None	Fair	None	None	10'/none

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Poor	Yes	Fair	11'	No	None	20'	Ladder	13'	None
NB	Stop	Good	Poor	No	Fair	13'	No	None	20'	Ladder	13'	None

EXTRA NOTES

Crosses entrance to the airport parking.

IMAGES

Figure 51: Road Approach (Note the Faded Intersection and Lack of Signage)



Figure 52: Path Approach to Crossing (Facing North)



Province Lands Bicycle Trail #3 (Race Point Road #3 / Southernmost Road Leading to Provincetown Municipal Airport)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	None	None	Stop	None	Poor	No	None	Good	None	None	11'/none (one lane)
WB	None	None	None	None	None	Poor	No	None	Poor	None	None	15'/none

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	None	None	Poor	No	Good	12'	No	None	13'	Zebra (faded)	12'	None
NB	None	None	Poor	No	Good	14'	No	None	13'	Zebra (faded)	12'	None

IMAGES

Figure 53: Road Approach (Facing East Towards Race Point Road)



Figure 54: Path Approach (Facing Northbound)



EXTRA NOTES

Crosses the employee parking entrance of the airport. Entrance has a makeshift reflective warning sign.

Province Lands Bicycle Trail #4 (Race Point Road #4 / Where the Province Lands Bike Trail Splits)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	Good	None	None	None	Fair	No	RRFB	Good	None	None	10'/2'
EB	Poor*	Good	None	None	None	Fair	No	RRFB	Good	None	None	10'/none

*Advance Warning Signs lacks lettering.

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	Fair	Poor	No	Fair	11'	No	Information Signage	22'	Standard w/Paint (cracked)	10'	None
SB	Stop	Poor	Poor	Yes	Good	10'	No	None	22'	Standard w/Paint (cracked)	10'	None

IMAGES

Figure 55: Road Approach



Figure 56: Path Approach



Province Lands Bicycle Trail #5 (Race Point Road #5 / North of Tin Pot Alley)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	Good	None	None	None	Fair	No	RRFB	Good	None	None	10'/1.5'
SB	None	Good	None	None	None	Fair	No	RRFB	Good	None	None	10'/1.5'

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Fair	No	Fair	10'	No	RRFB (button)	22'	Standard w/Paint (cracked)	9'	None
WB	Stop	Fair	None	No	Fair	14'	No	RRFB (button)	22'	Standard w/Paint (cracked)	9'	None

IMAGES

Figure 57: Road Approach (Note the RRFBs) and Painted Crosswalk



Figure 58: Path Approach



Province Lands Bicycle Trail #6 (Race Point Road #6 / Near Parking Lot)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

RACE POINT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	None	None	Fair	Yes	None	Poor	None	None	16'/none (one way)
SB	None	None	None	None	None	Fair	Yes	None	Good	None	None	13'/none (one way)

PROVINCE LANDS BICYCLE TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	No	Fair	11'	No	None	20'	Ladder	12'	None
WB	Stop	Fair	None	No	Fair	14'	No	None	23'	Ladder	10'	None

EXTRA NOTES

At the entrance to a parking area.

IMAGES

Figure 59: Road Approach (Note the 2-Stage Crossing).



Figure 60: Path Approach



TRURO



Head of the Meadow Trail #1 (Holden Street)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

HOLDEN STREET, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	Good	None	None	None	Good	No	None	Good	Slight Down hill	None	13'/2'
SB	None	Good	None	None	None	Good	No	None	Good	None	None	15'/1'

HEAD OF THE MEADOW TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	Yes	Good	22'	No	None	43'	Standard	10'	Good
WB	None	None	None	No	Good	22'	No	None	43'	Standard	10'	None

EXTRA NOTES

WB approach doesn't exist, The trail begins at this crossing.

IMAGES

Figure 61: Road Approach



Figure 62: Path Approach to Crossing



WELLFLEET



Cape Cod Rail Trail #1 (Cemetery Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

CEMETARY ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trails	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	None	None	None	None	None	No	None	Good	None	None	11/none (one lane)
EB	None	None	None	None	None	None	No	None	Good	Slight Down hill	None	13/none (one lane)

*Green wayfinding signage present as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	None	None	No	Good	10'	No	None	15'	None	10'	None
SB	None	None	None	No	Good	10'	No	None	15'	None	10'	None

EXTRA NOTES

Very rural location with little traffic. Cemetery Road is a dirt road.

IMAGES

Figure 63: Road Approach (Only Paved on One Side)



Figure 64: Path Approach to Crossing



Cape Cod Rail Trail #2 (Marconi Beach Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
10/18/2015	4:50 PM	Property damage only (none injured)	None	Dusk	Clear
6/20/2016	4:13 PM	Property damage only (none injured)	None	Daylight	Clear
6/21/2016	6:00 PM	Property damage only (none injured)	None	Daylight	Clear
8/5/2016	1:54 PM	Property damage only (none injured)	None	Daylight	Clear
8/4/2016	2:09 PM	Non-fatal injury	None	Daylight	Clear
9/17/2016	4:21 PM	Property damage only (none injured)	None	Daylight	Clear
6/2/2017	7:03 AM	Non-fatal injury	None	Daylight	Clear
9/15/2017	12:45 PM	Property damage only (none injured)	None	Daylight	Clear
6/1/2019	4:30 PM	Non-fatal injury	P1: Pedestrian	Daylight	Cloudy/Fog, smog, smoke

MARCONI BEACH ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	Good*	Poor	None	None	Poor	No	RRFB, and pavement grooves (to encourage reduced	Good	None	None	13'/none

Wellfleet – Cape Cod Rail Trail

								vehicle speed)				
EB	Good	Good*	Fair	None	None	Fair	No	RRFB and pavement grooves	Good	None	None	16'/none

*Green wayfinding signage present as well.

** Additionally, there is a State Law Stop Sign (on post with Bike Trail Crossing Signs)

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Fair	Yes	Good	13'	Yes	RRFB (Button)	35'	Standard w/ yellow paint	14'	None
SB	Stop	Good	Fair	Yes	Good	13'	Yes	RRFB (Button)	35'	Standard w/ yellow paint	14'	None

EXTRA NOTES

Beach road, increased traffic

IMAGES

Figure 65: Grooves in Pavement Help Slow Traffic and Draw Attention to Crossing



Figure 66: Faded Paint is Used on the Crosswalk. Note the RRFBs.



EASTHAM



Cape Cod Rail Trail #3 (Nauset Road, Near Railroad Avenue)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/7/2015	1:23 PM	Non-fatal injury	None	Daylight	Clear
3/30/2016	11:42 AM	Non-fatal injury	None	Daylight	Clear

NAUSET ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	None	Stop	None	Fair	No	RRFB, State Law Yield Sign**	Good	None	None	10'/none
WB	Good	Good*	None	Stop	None	Fair	No	RRFB, State Law Yield Sign**	Good	None	None	11'/none

*Green wayfinding signage present as well.

** State Law Yield Sign is placed in road

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	13'	Yes	RRFB Button	40'	Standard	14'	None

SB	Stop	Good	Poor	Yes	Good	13'	Yes	RRFB Button	40'	Standard	14'	None
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EXTRA NOTES

At a safe, three-way intersection.

IMAGES

Figure 67: Road Approach Looking Northward. Note the two RRBs



Figure 68: Path Approach (Looking Westward).



Cape Cod Rail Trail #4 (Brackett Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/7/2015	1:23 PM	Non-fatal injury	None	Daylight	Clear
3/30/2016	11:42 AM	Non-fatal injury	None	Daylight	Clear

BRACKETT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	None**	None	None	None	Poor	No	RRFB and State Law Yield Sign (in road).	Good	None	None	10'/2'
WB	Good	Good*	None	None	None	Poor	No	RRFB and State Law Yield Sign (in road) and State Law Stop Sign attached to wayfinding sign	Good	None	None	12'/none

*Green wayfinding signage present as well.

** There is only an arrow—consistent with a W-Series sign—attached to RRFB

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Fair	No	Good	13'	Yes	RRFB (Button)	25'	Ladder w/Paint (faded)	13'	None
NB	Stop	Good	Fair	No	Good	13'	Yes	RRFB (Button)	25'	Ladder w/Paint (faded)	13'	None

EXTRA NOTES

Parking area.

IMAGES

Figure 69: Road Approach Looking East



Figure 70: Path Approach (Looking Northward). Note the Faded Paint.



Cape Cod Rail Trail #5 (Old Orchard Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

OLD ORCHARD ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	None	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None	10'/none
WB	Good	Good*	None	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	Slight Down hill	None	10'/none

* Green wayfinding signage present as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Fair	Poor	Yes	Fair	12'	Yes	None	25'	Standard	15'	None

SB	Stop	Good	Poor	No	Fair	24'	Yes	None	24'	Standard	14'	None
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EXTRA NOTES

Busy side road next to US-6.

IMAGES

Figure 71: Road Approach Looking West with Standard Crosswalk, State Law Yield & Stop Signage, and Bike Trail Crossing Sign



Figure 72: Road Crossing (Looking Northward)



Cape Cod Rail Trail #6 (Kingsbury Beach Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

KINGSBURY BEACH ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	Fair	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None	10'/none
WB	Good	Good*	Fair	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None	10'/none

*Green wayfinding signage present as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	13'	Yes	None	21'	Standard (with	13'	None

										Faded Paint)		
SB	Stop	Good	Poor	Yes	Fair	12'	Yes	None	21'	Standard (with Faded Paint)	13'	None

EXTRA NOTES

Not so busy side street.

Images

Figure 73: Road Approach with Standard Crosswalks (with Faded Paint), Bike Trail Crossing Signs, and State Law Yield & Stop Signs (Looking West)



Figure 74: Stop-Controlled Path Approach (Looking Southbound) Note the State Law Yield Sign.



Cape Cod Rail Trail #7 (Locust Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
6/19/2015	2:36 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear

LOCUST ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	None	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	Slight Down hill	None	10'/none
WB	Good	Good*	None	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	Slight Uphill	None	8'/none

* Green wayfinding signage present as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
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SB	Stop	Good	Poor	Yes	Good	13'	Yes	None	23'	Standard	13'	None
NB	Stop	Good	None	No	Good	13'	Yes	None	22'	Standard	13'	None

IMAGES

Figure 75: Image of Crossing (Looking Eastward) Note the Ladder Crosswalk and the State Law Yield Sign & Stop Signs



Figure 76: Image of Crossing from Trail (Looking Northward). Note the Bicyclist-Oriented Wayfinding.



Cape Cod Rail Trail #8 (Samoset Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/23/2016	6:34 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear

SAMOSSET ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	Poor	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	Slight Uphill	None	12'/none
WB	Good	Good*	Fair	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Slight Downhill	None	None	10'/none

*Green wayfinding signage as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
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SB	Stop	Good	Good	No	Good	12'	Yes	None	22'	Standard	13'	None
NB	Stop	Good	Good	No	Good	12'	Yes	None	22'	Standard	13'	None

EXTRA NOTES

Small parking area (very small)

IMAGES

Figure 77: Road Approach with Standard Crosswalks, Bike Trail Crossing Signs, and State Law Yield & Stop Signs (Looking East)



Figure 78: Path Approach. Note the Splitters on the Approach



Cape Cod Rail Trail #9 (Crosby Village Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

CROSBY VILLAGE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	None	None	Stop	None	Poor	No	None	Good	None	None	9'/none (one lane, dirt road)
EB	None	None	None	Stop	None	Poor	No	None	Good	None	None	9'/none (one lane, dirt road)

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	None	None	Poor	No	Good	11'	Yes	None	17'	Standard	11'	None
NB	None	None	None	Yes	Good	11'	Yes	None	17'	Standard	11'	None

EXTRA NOTES

On a quiet dirt road.

IMAGES

Figure 79: Road Approach (Looking West)



Figure 80: Path Approach (Looking South)



Cape Cod Rail Trail #10 (Bridge Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

BRIDGE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	Good*	Poor	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign	Good	None	None	10'/none
EB	Good	Good*	Poor	None	None	Poor	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None	10'/none

*Green wayfinding signage present as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Poor	Poor	Yes	Good	12'	Yes	None	24'	Standard (partially	13'	None

Eastham – Cape Cod Rail Trail

										Painted; faded)		
SB	Stop	Fair	Poor	No	Good	14'	Yes	None	24'	Standard (partially painted; faded)	13'	None

EXTRA NOTES

Signage is vandalized.

IMAGES

Figure 81: Road Approach Looking South with State Law Yield Sign, Bike Trail Crossing Sign, and Faded Crosswalk (Partially Painted)



Figure 82: Path Approach (Looking South)



Cape Cod Rail Trail #11 (Governor Prence Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

GOVERNOR PRENCE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	Good	None	None	None	Fair	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None
WB	Good	Good*	Good	None	None	None	Fair	No	State Law Yield Sign and State Law Stop Sign**	Good	None	None

*Green wayfinding signage present as well.

** The State Law Stop Signs are on posts with Bike Trail Crossing Signs. The State Law Yield Sign is placed in road.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	No	Good	12'	Yes	None	20'	Standard	14'	None
SB	Stop	Good	Poor	Yes	Good	14'	Yes	None	20'	Standard	14'	None

IMAGES

Figure 83: Image of Road Approach (Looking West. Note the State Yield Sign, Standard Crosswalk, and Bike Trail Crossing Sign.



Figure 84: Image of Road Crossing from Path. Note the Splitters and the STOP Control



Nauset Trail # 1 (Ocean View Drive)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

OCEAN VIEW DRIVE, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Fair	None	None	None	Fair	Yes	Speed Bump and Rotary	Good	Slight Down hill	None	17'/none
SB	Good	Good	None	None	None	Fair	Yes	Speed bump and rotary	Fair	Slight Uphill	None	13'/none

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	No	Fair	11'	No	None	15'	Ladder*	11'	Good
WB	Stop	Fair	None	No	Fair	20'	No	None	18'	Zebra*	11'	Good

*Crossing is a two-stage crossing so EB crossing described east side of crossing and WB crossing describes west side of crossing.

IMAGES

Figure 85: Road Approach (Looking Northward). Note the Rotary.



Figure 86: Path Approach (Looking West). Note the Paint Delineating the Speed Bump



Nauset Trail #2 (Pine Crest Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

PINE CREST ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	Stop	None	Poor	No	Raised Crossing	Fair	None	None	9'/none
SB	None	None	None	Stop	None	Poor	No	Raised Crossing	Fair	None	None	9'/none

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None*	None	No	Fair	11'	No	None	22'	Zebra	13'	Good
W B	None	None	None	Yes	Fair	10'	No	None	23'	Zebra	13'	Good

*There is no control for path users, but there is a sign in advance of the EB crossing saying, "STOP AHEAD." There was likely a crossing before, but it was removed, and this sign remained. That single sign is in good condition.

IMAGES

Figure 87: Road Approach



Figure 88: Path Approach



Nauset Trail #3 (Tomahawk Trail)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

PINE CREST ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	Poor	Stop	None	Poor	No	None	Good	None	None	9'/none
SB	Good	None	Poor	Stop	None	Poor	No	None	Poor	Slight Down hill	None	9'/none

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Fair	None	Yes	Fair	12'	No	None	18'	Zebra	11	Good
WB	Stop	Fair	None	Yes	Fair	12'	No	None	18'	Zebra	11	Good

IMAGES

Figure 89: Road Approach (Facing Northward). Note the Faded Crosswalk Markings and Advance Pavement Markings



Figure 90: Path Approach (Facing Westward)



Nauset Trail #4 (Unnamed Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

UNNAMED ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	Stop	None	Poor	No	None	Good	None	None	10'/none (one lane, dirt road)
SB	None	None	None	Stop	None	Poor	No	None	Good	None	None	10'/none (one lane, dirt road)

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	No	Good	11'	No	None	11'	Continental	11'	None
WB	None	None	None	No	Good	11'	No	None	11'	Continental	11'	None

The unnamed road is dirt.

IMAGES

Figure 91: Road Approach



Figure 92: Path Approach. Note the Faded Crosswalk Covered by Dirt from Passing Cars.



Nauset Trail #5 (Jacques Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

JACQUES ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	Stop	None	Poor	No	None	Fair	Slight Down hill	None	10'/none (one lane, dirt road)
SB	None	None	None	Stop	None	Poor	No	None	Fair	Slight Uphill	None	10'/none (one lane)

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	No	Fair	10'	No	None	19'	Continental	10'	None
WB	None	None	None	No	Fair	10'	No	None	19'	Continental	10'	None

IMAGES

Figure 93: Road Approach



Figure 94: Path Approach. Note the Faded Crosswalk Covered by Dirt from Passing Cars.



Nauset Trail #6 (Nauset Road #3 / Near Wild Goose Lane)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing.

NAUSET ROAD #3, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	None	None	Poor	No	None	Fair	None	None	11'/none
SB	None	None	None	None	None	Poor	No	None	Fair	None	None	11'/none

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	Yes	Good	10'	No	None	36'	Zebra	9'	Good
WB	Stop	Good	None	Yes	Good	10'	No	None	36'	Zebra	9'	Good

IMAGES

Figure 95: Road (Looking Northward from Parking Lot)



Figure 96: Path Approach (Looking East).



Nauset Trail #7 (Nauset Road #2 / Near School House Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
12/29/2018	11:51 PM	Non-fatal injury	None	Dark - roadway not lighted	Clear

NAUSET ROAD #2, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	None	Good*	None	None	None	Fair	Yes	None	Fair	None	None	18'2'
NB	None	None**	None	None	None	Fair	Yes	None	Fair	None	None	18'2'

*Facing westbound/northwest technically (for southbound cars because of the roadway geometry). There is also Pedestrian Crossing sign facing eastward, but that appears connected to the crosswalk crossing Nauset Road east of School House Road.

** NB drivers are coming out of a parking lot

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	No	Good	18'	No	None	22'	Ladder*	14'	Good
WB	Stop	Good	None	Yes	Good	11'	No	None	18'	Ladder*	11'	Good

*Two stage crossing.

IMAGES

Figure 97: View of Rail Trail Crossing (Looking South)



Figure 98: Path Approach (Looking East).



Nauset Trail #8 (Nauset Road #1)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history surrounding the crossing. Crossing traffic is only moving eastward, as the path crosses a highway off-ramp.

NAUSET ROAD #1, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good	None	Yield	None	None	No	One way	Good	None	None	22'1/2'
SB	None*	Good	None	None	None	None	No	One way, no SB	Good	None	None	None

* There is no SB traffic at the intersection (it is a highway off-ramp)

NAUSET RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	No	Good	15'	No	One way road	32'	Standard	14'	Good
WB	None	None	None	No	Good	15'	No	One way road	32'	Standard	14'	Good

IMAGES

Figure 99: Road Approach (Looking Northward)



Figure 100: Path Approach (Looking East).



ORLEANS



Cape Cod Rail Trail #12 (Jones Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

JONES STREET, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Fair	Good*, **	Good	None	None	Fair	Yes	None	Good	None	None	9'/none
NB	Good	Good*, **	None	None	None	Fair	Yes	None	Good	None	None	10'/none

* Green, wayfinding signage present as well

** Jones Lane is split by a Y shaped intersection. The northern side of the Y is considered part of Canal Road on Google Maps and other sources, but signage at the location shows it as Jones Lane. The southernmost leg does not have a northward-facing sign for southbound traffic (but there is a northward facing sign at the northernmost leg, Canal Road).

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Fair	Poor	No	Good	23'	Yes	None	25'	Ladder w/Paint (faded)	17'	None
EB	Stop	Good	Poor	No	Good	22'	Yes	None	28'	Ladder w/Paint (faded)	18'	None

EXTRA NOTES

Bike racks on either side of the bike trail before crossing

IMAGES

Figure 101: Image of Path Crossing from Canal Road (North Leg of the Y Intersection)



Figure 102: Image of Path Crossing the Southern Leg of the Y Intersection (Jones Road). Note the Bike Trail Crossing Signage and Ladder Crosswalk



Cape Cod Rail Trail #13 (Locust Road / Southernmost Crossing with Rail Trail)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

LOCUST ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Fair*	Good**	Fair	None	None	Fair	Yes	None	Good	Slight Uphill	30	10'/none
WB	Fair*	Fair**	None	None	None	Fair	Yes	None	Poor	Uphill	None	9'/none

* Advance Warning Signs are actually located on Canal Road because of the street's configuration.

**Green wayfinding signage as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Poor	Poor	No	Good	15'	Yes	State Law Yield Sign	51'	Ladder	14'	None
SB	Stop	Poor	Poor	No	Good	15'	Yes	State Law Yield Sign	51'	Ladder	14'	None

IMAGES

Figure 103: Image of Crossing (Looking Eastward). Note the Ladder Crosswalk and the State Law Yield Sign



Figure 104: Image of Crossing from Trail (Looking Southbound)



Cape Cod Rail Trail #14 (Main Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
4/15/2015	4:12 PM	Property damage only (none injured)	None	Daylight	Clear
1/23/2016	1:59 PM	Property damage only (none injured)	None	Daylight	Cloudy/Snow

MAIN STREET, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	Fair	None	None	Good	No	State Law Yield Sign** and RRFB	Good	None	None	12’/3’
NB	Good	Good*	Good	None	None	Good	No	RRFB	Good	None	None	11’/4’

* Green wayfinding signage as well.

** State Law Yield Sign attached to Advanced Warning Sign

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Poor	Yes	Good	17’	Yes	Flashing Stop Sign, RRFB	38’	Standard	16’	Good

Orleans – Cape Cod Rail Trail

								(motion) , State Law Yield Sign				
W B	Stop	Good	Poor	Yes	Good	14'	No	RRFB (motion) , Road crossing 500 ft." Sign	38'	Standard	16'	Good

EXTRA NOTES

Bike racks on either side of the bike trail before crossing

IMAGES

Figure 105: Image of Path Crossing from Road (Looking Southward). Note the RRFBs



Figure 106: Image of the Flashing STOP Sign at Crossing (Looking Westbound)



Cape Cod Rail Trail #15 (Old Colony Way)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
6/29/2015	7:13 PM	Property damage only (none injured)	None	Daylight	Clear

OLD COLONY WAY SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Good	None	None	None	Poor	No	State Law Yield Sign, New Curb Extension	Fair	None	None	11'7'
WB	None	Good	None	None	None	Poor	No	State Law Yield Sign, New Curb Extension	Good	None	None	13'4'

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	None	None	None	No	Good	8'	No	None	42'	Zebra (partially)	7'	None

Orleans – Cape Cod Rail Trail

										Painted; faded). *		
NB	None	None	None	No	Fair	8'	No	None	42'	Zebra (partially painted; faded). *	7'	None

* Street recently redone in 2021.

EXTRA NOTES

Bike rack, and picnic table area

IMAGES

Figure 107: Image of Crossing with State Yield Sign



Figure 108: Bicycle Wayfinding and Maps Available at Location



Cape Cod Rail Trail #16 (West Road #1 / Southernmost Crossing with West Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

WEST ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Fair*	None	None	None	Good	No	State Law Yield sign**	Good	Slight Down hill	None	11'/3'
SB	None	Good*	None	None	None	Good	No	State Law Yield sign**	Fair	Slight Down hill	None	11'/5'

*Green wayfinding signage as well

** State Law Yield Sign is in the road

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	No	Fair	31'	No	None	35'	Ladder	13'	None
WB	Stop	Fair	Fair	Yes	Good	26'	Yes	None	35'	Ladder	13'	None

IMAGES

Figure 109: Image of Crossing with State Yield Sign



Figure 110: Image of Crossing from Trail



Cape Cod Rail Trail #17 (West Road #2 / Northernmost Crossing with West Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/29/2016	11:42 AM	Non-fatal injury	P2: Cyclist	Daylight	Rain

WEST ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Fair	Fair*	None	None	None	Fair	No	State Law Stop sign	Good	None	None	10'/3'
NB	None	Fair*	None	None	None	Fair	No	State Law Yield sign	Good	None	None	10'/3'

*Green wayfinding signage present as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	None	None	None	No	Good	38'	No	None	37'	Zebra	11'	None
EB	None	None	None	No	Fair	8'	No	None	37'	Zebra	11'	None

IMAGES

Figure 111: Image of Crossing from West Road heading Southbound



Figure 112: Image of Crossing facing Eastbound



BREWSTER



Cape Cod Rail Trail #18 (Upland Circle)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

UPLAND CIRCLE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good	Poor	None	None	Fair	No	None	Good	None	None	14'/none
NB	Good	Good*	Fair	None	None	Fair	No	None	Poor	None	None	13'/none

*Green wayfinding signage present as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Fair	Poor	Yes	Good	13'	Yes	None	21'	Ladder w/ Paint	12'	None
WB	Stop	Good	Poor	Yes	Good	13'	Yes	None	21'	Ladder w/ Paint	12'	None

IMAGES

Figure 113: Southbound View of Road Crossing (Note Coloring in Crosswalk)



Figure 114: Image of Crosswalk (Path Approach)



Cape Cod Rail Trail #19 (Mitchell Lane)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

MITCHELL LANE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	Poor	None	None	Fair	No	None	Fair	Slight Uphill	None	7'/none
NB	Good	Good*	Poor	None	None	Fair	No	None	Fair	Slight Uphill	None	7'/none

*Green wayfinding signage present as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Poor	Yes	Good	15'	No	None	17'	Ladder w/ Paint	15'	None
EB	Stop	Good	Poor	Yes	Good	15'	No	None	17'	Ladder w/ Paint	15'	None

IMAGES

Figure 115: Advance Bike Trail Crossing Signs



Figure 116: Image of Crosswalk (Note the Yellow Paint)



Cape Cod Rail Trail #20 (Deer Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

DEER ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	None	None	None	Stop	None	None	No	None	Good	Slight Uphill	None	8'/none
NB	None	None	None	Stop	None	None	No	None	Good	Slight Down hill	None	8'/none (dirt road)

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	EB	None	None	Poor	No	Good	11'	Yes	None	18'	None	18'
EB	WB	None	None	Poor	No	Good	12'	Yes	None	18'	None	18'

IMAGES

Figure 117: View of Intersection of Trail with Road.



Figure 118: Northbound Approach is not Paved.



Cape Cod Rail Trail #21 (Millstone Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
4/17/2015	5:28 PM	Property damage only (none injured)	None	Daylight	Clear
8/17/2016	10:25 AM	Non-fatal injury	P2: Cyclist	Daylight	Cloudy

MILLSTONE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	Good	None	None	Good	No	RRFB	Good	None	25	10'/1'
NB	Fair	Good*	Good	None	None	Fair	No	RRFB	Fair	None	35	10'/none

* Green, wayfinding signage present on SB approach

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	None	Yes	Good	17'	Yes	RRFB (motion)	25'	Ladder w/ Paint (partially painted)	15'	None
EB	Stop	Fair	Poor	Yes	Good	15'	Yes	RRFB (motion)	25'	Ladder w/ Paint	15'	None

										(partially painted)		
--	--	--	--	--	--	--	--	--	--	---------------------	--	--

EXTRA NOTES

A resident expressed his concern for the safety of pedestrians accessing the CCRT. The road seems busy/dangerous.

IMAGES

Figure 119: View of Trail with Advance Bike Trail Crossing Sign in Foreground and RRFB in Background



Figure 120: View of Road Crossin (STOP Controlled) with RRFB. Some Coloring in Crosswalk



Cape Cod Rail Trail #22 (Underpass Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/5/2015	5:23 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear

UNDERPASS ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	Good	None	Good	Good	Yes	RRFB	Good	Down hill	None	10'2'
NB	Fair	Good*	Good	None	Good	Good	Yes	RRFB	Good	Slight Uphill	None	9'3'

* Green, wayfinding signage present as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Stamped Brick	19'	None
EB	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Stamped Brick	19'	None

IMAGES

Figure 121: Stamped Brick Crosswalk, Along with RRFB and Other Signage



Figure 122: Image of the RRFB, with Clear Pavement Markings



Cape Cod Rail Trail #23 (School Entrance Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

SCHOOL ENTRANCE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Fair	None*	None	None	None	Fair	No	None	Good	None	None	11'/none
SB	Fair	Good**	None	None	None	Fair	No	None	Good	None	None	11'/none

* Green, wayfinding-oriented signage only

** Green, wayfinding-oriented signage as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Good	No	Good	14'	Yes	None	21'	Ladder w/ Paint (faded)	15'	None
WB	Stop	Good	Good	No	Good	14'	Yes	None	21'	Ladder w/ Paint (faded)	15'	None

IMAGES

Figure 123: Advance Warning Signage (Southbound View)



Figure 124: View of Road Crossing at School Entrance Road (Note the Coloring on the Crosswalk)



Cape Cod Rail Trail #24 (Long Pond Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
9/5/2015	4:44 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear
10/27/2015	4:48 PM	Property damage only (none injured)	None	Daylight	Clear
7/18/2016	3:42 PM	Property damage only (none injured)	None	Daylight	Clear
1/8/2018	1:34 PM	Non-fatal injury	None	Daylight	Cloudy
9/26/2018	11:08 AM	Property damage only (none injured)	None	Daylight	Cloudy
7/3/2019	7:21 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear
9/24/2019	4:50 PM	Non-fatal injury	P1: Cyclist	Daylight	Clear

LONG POND ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	Good	None	None	Good	No	RRFB; State Law Yield in Crosswalks sign**	Good	None	None	10'/1'
WB	Good	Good*	Good	None	None	Good	No	RRFB; State Law Yield in Crosswalks sign**	Good	None	None	10'/1'

* Green, wayfinding signage as well

**State Law Yield Sign attached to RRFB post

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Poor	No	Good	13'	Yes	RRFB (motion)	26'	Stamped Brick	14'	None
NB	Stop	Good	Poor	No	Good	13'	Yes	RRFB (motion)	26'	Stamped Brick	14'	None

EXTRA NOTES

Large parking area; crossing is next to tough intersection

IMAGES

Figure 125: Image of the Road Approach to the Trail Crossing with High Quality Road Markings and Bike Trail Crossing Sign (RRFB in Distance)



Figure 126: View of Trail Crossing at Long Pond Road. Stamped Brick Helps Draw Attention to Crossing, Along with RRBSs



Cape Cod Rail Trail #25 (Proprietor’s Cartway)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

PROPRIETOR’S CARTWAY ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	None	None	None	None	Fair	No	None	Fair	None	None	9'/none (one lane dirt road)
EB	None	None	None	None	None	Fair	No	None	Fair	None	None	9'/none (one lane dirt road)

* Green, wayfinding signage present as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	None	Poor	Yes	Good	11'	No	None	44'	Standard	11'	None
SB	None	None	Poor	Yes	Good	11'	No	None	44'	Standard	11'	None

IMAGES

Figure 127: Road View of Crossing



Figure 128: Path View of Crossing



Cape Cod Rail Trail #26 (Fisherman’s Landing Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

HARWICH ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	Good	None	None	Fair	No	None	Fair	Uphill	None	9'/none
SB	Good	Good*	Good	None	None	Fair	No	None	Good	None	None	10'/none

* Green, wayfinding signage present as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Poor	No	Good	13'	Yes	None	21'	Ladder w/ Paint (faded)	14'	None
WB	Stop	Good	Poor	No	Good	13'	Yes	None	21'	Ladder w/ Paint (faded)	14'	None

IMAGES

Figure 129: View of Trail Crossing Looking Westward



Figure 130: Approach to Road Crossing with Splitter and STOP Control



Cape Cod Rail Trail #27 (Harwich Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
2/21/2019	1:49 AM	Property damage only (none injured)	None	Dark - lighted roadway	Snow

HARWICH ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	Good	None	None	Good	No	RRFB, State Law Yield Sign**	Good	None	None	10'/1'
NB	Good	Good	Good	None	None	Good	No	RRFB	Fair	Slight Uphill	None	9'/1'

* Green, wayfinding signage present on SB approach
 State Law Yield Sign is on its own post near wayfinding signage

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Poor	Yes	Fair	17'	Yes	RRFB (motion)	30'	Ladder	17'	None
EB	Stop	Good	Poor	Yes	Fair	17'	Yes	RRFB (motion)	30'	Ladder	17'	None

IMAGES

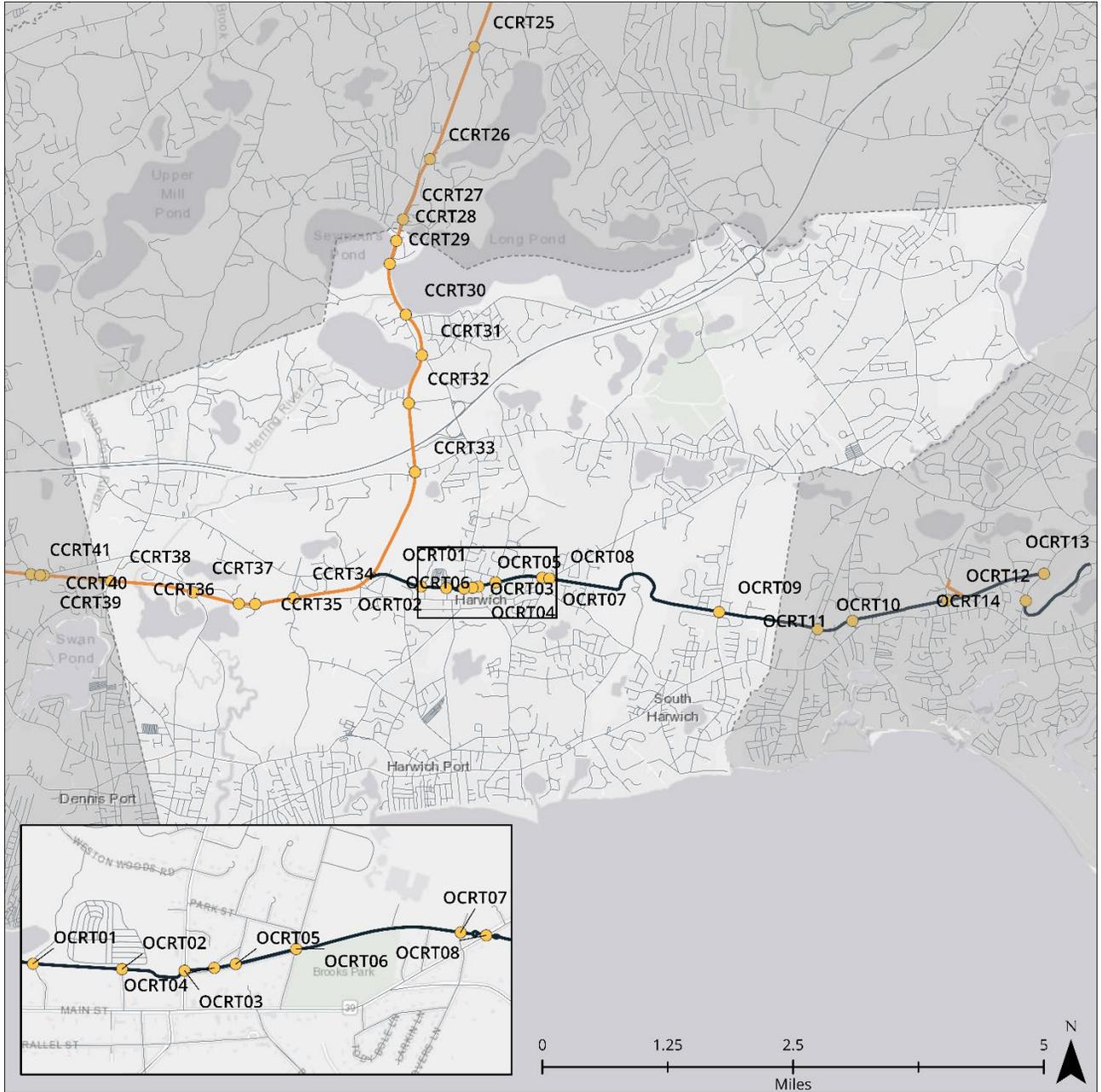
Figure 131: View of Trail Crossing Looking Southbound. Advance Bike Trail Sign, RRFB, and Advance Pavement Markings Provide High Visibility



Figure 132: View of Road Crossin (STOP Controlled)



HARWICH



Cape Cod Rail Trail #28 (Pleasant Lake Avenue at Access Road to Town Beach)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

PLEASANT LAKE AVENUE AY ACCESS ROAD TO TOWN BEACH, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Good	None	None	None	Poor	No	None	Good	None	None	14'/none (one lane)
WB	None	Good	None	None	None	Poor	No	None	Good	None	None	14'/none (one lane)

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	None	Poor	Yes	Good	10'	No	None	20'	Standard	10'	None
SB	None	None	Poor	Yes	Good	10'	No	None	20'	Standard	10'	None

IMAGES

Figure 133: View of Trail Crossing at Access Road



Figure 134: Road Crossing Warning Sign (from Trail)



Cape Cod Rail Trail #29 (Pleasant Lake Avenue #1 / Between Seymour’s Pond and Long Pond)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

PLEASANT LAKE AVENUE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB (SB at loc.)	Good	Good*	Poor	None	None	Fair	No	RRFB, State Law Stop Sign	Good	None	None	10'/1'
EB (NB at loc.)	Good	Good*	Poor	None	None	Fair	No	RRFB	Fair	None	None	11'/1'

* Green, wayfinding signage present on both approaches

** WB State Law Stop Sign attached to Advance Warning Signs

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Ladder	20'	None
SB	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Ladder	20'	None

IMAGES

Figure 135: View of Trail Crossing Looking Southward Showing State Law Stop at Crosswalk Sign, the Bike Trail Crossing Sign, and the RRFB



Figure 136: Trail Crossing with Zebra Crosswalk and Lane Splitters



Cape Cod Rail Trail #30 (Sequattom Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
3/5/2015	9:07 AM	Property damage only (none injured)	None	Daylight	Snow
12/17/2016	7:00 AM	Non-fatal injury	None	Daylight	Snow/Sleet, hail (freezing rain or drizzle)

SEQUATTOM ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	None	Poor*	None	None	None	Fair	Yes	None	Fair	None	None	14'/none (one lane)
WB	Fair	None**	None	None	None	Fair	No	None	Fair	None	None	16'/none (one lane)

* Green, wayfinding signage as well.

** Green, wayfinding signage only

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	15'	Yes	None	11'	Ladder	15'	None
SB	Stop	Good	Poor	Yes	Good	15'	Yes	None	11'	Ladder	15'	None

IMAGES

Figure 137: View of Trail Crossing at Sequattom Road (Looking West)



Figure 138: Bike Trail Crossing Signage at Trail Crossing (Looking East)



Cape Cod Rail trail #31 (Pleasant Lake Avenue #2 / Adjacent to Hinckley’s Pond)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
3/10/2017	9:35 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Snow/Sleet, hail (freezing rain or drizzle)
6/27/2019	10:52 AM	Property damage only (none injured)	None	Daylight	Clear

PLEASANT LAKE AVENUE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good**	Poor	None	None	Fair	No	RRFB; State Law Stop Sign (attached to Advance Warning Sign)	Good	None	None	12’/2’
SB	Good*	Good**	Poor	None	None	Fair	No	RRFB and advanced roadway flashing system	Fair	Slight Down hill	None	11’/1’

								(Advance RRFB)				
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* SB, there is an Advance RRFB that flashes when pedestrians/bicyclists are crossing. This is in addition to the Advance Warning Sign.

** * Green, wayfinding signage as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Ladder	13'	None
WB	Stop	Good	Poor	Yes	Good	16'	Yes	RRFB (motion)	28'	Ladder	13'	None

IMAGES

Figure 139: Ladder Crosswalk and RRFBs Promote Safe Crossings



Figure 140: Advance RRFB is Combined with Advance Bike Trail Crossing Signage



Cape Cod Rail Trail #32 (Headwaters Drive)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/26/2017	10:57 AM	Property damage only (none injured)	None	Daylight	Clear
8/23/2018	4:50 PM	Non-fatal injury	P2: Cyclist	Daylight	Clear

HEADWATERS DRIVE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Fair	Good*	Poor	None	None	Poor	No	None	Good	None	25	11'/1'
EB	Good	Good*	Poor	None	None	Poor	No	None	Fair	Slight Down hill	None	11'/2'

* Green, wayfinding signage as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Poor	Yes	Good	12'	Yes	None	40'	Ladder	13'	None

SB	Stop	Good	Poor	Yes	Good	12'	Yes	None	40'	Ladder	13'	None
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IMAGES

Figure 141: Signage Helps Improve Motorists' Visibility Around a Turn (Facing Westbound)



Figure 142: View of Trail Crossing at Headwaters Drive



Cape Cod Rail Trail #33 (Queen Anne Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
1/29/2015	2:29 PM	Property damage only (none injured)	None	Daylight	Clear
1/31/2015	6:34 AM	Property damage only (none injured)	None	Dark - lighted roadway	Snow
11/7/2015	7:59 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Clear
2/5/2016	2:30 PM	Property damage only (none injured)	None	Daylight	Cloudy/Snow
8/7/2019	11:58 AM	Non-fatal injury	None	Daylight	Clear
1/29/2015	2:29 PM	Property damage only (none injured)	None	Daylight	Clear
1/31/2015	6:34 AM	Property damage only (none injured)	None	Dark - lighted roadway	Snow

QUEEN ANNE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good*	Good**	None	None	None	Fair	No	RRFB and advanced roadway flashing signs**	Good	None	None	12'/2'
WB	Good*	Good	None	None	None	Fair	No	RRFB and advanced	Good	None	None	12'/2'

								roadway flashing signs**				
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* The Advanced Warning Signs take the form of Advance RRFBS that flash when pedestrians/bicyclists are crossing.

** Green, wayfinding signage additionally for EB traffic. WB traffic lacks wayfinding signage.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop*	Good	Poor	Yes	Good	14'	Yes	RRFB (motion); flashing signals for path users	26'	Ladder	15'	None
NB	Stop	Good	Fair	Yes	Fair	14'	Yes	RRFB (motion); flashing signals for path users	26'	Ladder	15'	None

* STOP signs have a flashing beacon attached to them on both approaches

IMAGES

Figure 143: View of Trail-Facing Flashing Red Light



Figure 144: RRFB Improves Yield Compliance Among Motorists



Cape Cod Rail Trail #34 (Lothrop Avenue)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
6/30/2015	8:35 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Clear
8/20/2015	6:04 PM	Property damage only (none injured)	None	Daylight	Clear
2/19/2016	8:12 AM	Non-fatal injury	None	Daylight	Clear
4/22/2016	1:25 PM	Property damage only (none injured)	None	Daylight	Cloudy
11/3/2017	1:00 PM	Property damage only (none injured)	None	Daylight	Clear
9/27/2018	12:19 PM	Property damage only (none injured)	None	Daylight	Clear
11/5/2018	2:08 PM	Property damage only (none injured)	None	Daylight	Cloudy
2/13/2019	11:14 AM	Property damage only (none injured)	None	Daylight	Cloudy

LOTHROP AVENUE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good**	None	None	None	Fair	No	None	Good	Slight Down hill	None	9'/1'
NB	Good*	Good	None	None	None	Fair	No	Stop at intersection	Poor	Slight Down hill	None	11'/1'

								before crosswalk				
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* Advance Warning Sign for NB traffic lacks words. It is also located in advance of a STOP sign and a road crossing.

** Green, wayfinding signage as well for SB traffic. NB traffic lacks wayfinding signage.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Poor	No	Good	17'	Yes	None	23'	Ladder	11'	None
EB	Stop	Good	None	No	Good	14'	Yes	None	23'	Ladder	11'	None

EXTRA NOTES

Recommend changing intersection from a 2 way stop to a four way stop.

IMAGES

Figure 145: View of Crossing at Lothrop Avenue (see Ladder Crossing)



Figure 146: Path Approach to Lothrop Avenue



Cape Cod Rail Trail #35 (Private Road Near Cranberry Bog)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

ROAD SAFETY FEATURES AT PRIVATE ROAD

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None	None	Stop	None	Poor	No	None	Good	Slight Downhill	None	7'/none
SB	None	None	None	Stop	None	Poor	No	None	Fair	Slight Uphill	None	6'/none

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	None	None	Poor	No	Good	10'	No	Crossing sign warning	22'	Standard	11'	None
EB	None	None	Poor	No	Good	10'	No	Crossing sign warning	22'	Standard	11'	None

EXTRA NOTES

Private Driveway of Cranberry Bog

IMAGES

Figure 147: A Crossing Sign & Faded Pavement Markings in Advance of Crossing



Figure 148: Perpendicular Road Approaches are STOP controlled



Cape Cod Rail Trail #36 (Great Western Road / East of East Reservoir)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/16/2018	7:03 PM	Property damage only (none injured)	None	Daylight	Clear
10/20/2019	6:00 PM	Property damage only (none injured)	None	Dusk	Clear

GREAT WESTERN ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Fair*	None	None	None	Fair	No	RRFB (motion) at intersection; ** Advanced RRFB.	Fair	Down hill	None	10'/2'
SB	Good	Fair*	None	None	None	Fair	No	RRFB (motion) at intersection.	Fair	Slight Uphill	None	10'/1'

*Green, wayfinding signage additionally

** Associated with that RRFB, there is an Advance RRFB ~100' south of intersection as cars go around turn. SB Advance Warning Signs are traditional (not blinking).

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Poor	Yes*	Good	16'	Yes	RRFB (motion)	34'	Ladder	17'	None
W B	Stop	Good	Poor	No	Good	17'	Yes	RRFB (motion)	34'	Ladder	17'	None

* Signage is generally in good condition, but the Advance Warning Signs for eastbound bicyclists is quite cracked.

EXTRA NOTES

Cars move fast through this intersection. It is on a corner and appears somewhat dangerous.

IMAGES

Figure 149: Zebra Crosswalk and Splitters Provide Visibility



Figure 150: Parking Observed Immediately South of Intersection



Figure 151: Cracked Sign Facing Eastbound Bicyclists



Cape Cod Rail Trail #37 (Bells Neck Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

BELLS NECK ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	None	None	None	Poor	No	None	Good	Slight Downhill	None	19'/none (two lane dirt road)
SB	Fair	Good*	None	None	None	None	No	None	Good	Slight Downhill	None	18'/none (two lane dirt road)

*Green, wayfinding signage additionally.

On the SB approach, Bike Trail Crossing sign is in good condition, but slightly covered by vegetation.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	No	Good	17'	Yes	None	36'	Ladder	20'	None
W B	Stop	Good	Fair	No	Good	19'	Yes	None	39'	Ladder	19'	None

EXTRA NOTES

There is debris in the road.

IMAGES

Figure 152: Southbound Intersection Approach Showing Wayfinding Signage, Bike Trail Crossing Sign, and Ladder Crosswalk



Figure 153: Faded Pavement Markings and Debris in Road at the Crossing



Cape Cod Rail Trail #38 (Depot Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/17/2018	11:22 AM	Non-fatal injury	P3: Cyclist	Daylight	Cloudy
5/30/2019	12:16 PM	Property damage only (none injured)	None	Daylight	Clear

DEPOT STREET ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Fair	Good*	None	None	None	Fair	No	None	Good	Slight Uphill	None	10'/1'
NB	Good	None**	None	None	None	Fair	No	None	Fair	None	None	9'/2'

*Green wayfinding signs as well

** Green, wayfinding signs only

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop sign	Good	Poor	Yes	Fair	13'	Yes	Info. Station, access to	23'	Ladder	13'	None

Harwich – Cape Cod Rail Trail and Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

								parking, space to pull off				
EB	Stop sign	Good	Poor	Yes	Fair	13'	Yes	Info. Station, Access to parking, space to pull off	23'	Ladder	13'	None

IMAGES

Figure 154: Southbound Intersection Approach Showing Wayfinding Signage, Bike Trail Crossing Sign, and Ladder Crosswalk



Figure 155: Westbound View of Rail Trail, Showing Slightly Faded Ladder Markings



Harwich – Cape Cod Rail Trail and Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail # 1 (Uncle Harry's Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

Uncle Harry's Road is characterized by low-volume driveways (not roads). Consequently, charts are not shown below.

EXTRA NOTES

Lightly populated; private driveway (barely a crossing). In fact, the road appears unpaved and blocked by objects, such as boats.

IMAGES

Figure 156: View of Trail Crossing at Uncle Harry's Road (Taken from Road Approach)



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #2 (Island Pond Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

ISLAND POND ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	None*	None	None	None	None	No	None	Good	None	None	9'/none
SB	None	None*	None	None	None	None	No	None	Fair	Slight Down hill	None	10'/none

* Unsure if there are green wayfinding signs as well

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Fair	No	Good	11'	No	None	26'	None	10'	None
WB	Stop	Good	Fair	No	Good	11'	No	None	26'	None	10'	None

IMAGES

Figure 157: View of Trail Crossing at Island Pond Road. Note the Lack of Signage and Lack of Crosswalk



Figure 158: Road Crossing is STOP Controlled



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #3 Pleasant Lake Avenue (Adjacent to Island Pond Cemetery)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
1/6/2017	7:31 AM	Property damage only (none injured)	None	Daylight	Snow

PLEASANT LAKE AVENUE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Fair	Good*	None	None	None	Fair	No	None	Fair	None	None	11’/1’
SB	Good	Good*	None	None	None	Fair	No	None	Fair	None	None	11’/1’

* Green, wayfinding signage attached to Bike Trail Crossing signs at crossings

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Fair	Fair	Yes	Fair	11’	No	None	38’	Ladder	12’	None
WB	Stop	Good	Fair	No	Good	11’	No	None	38’	Ladder	12’	None

IMAGES

Figure 159: Bike Trail Crossing Signs and Ladder Crosswalks Help Improve Intersection Visibility



Figure 160: Trail Crossing is STOP Controlled



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #4 (Woodbine Lane)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

WOODBINE LANE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None (it is a T-intersection) *	None (it is a T-intersection) *	None	None	None	Fair	No	None	Fair	None	None	14'/none
SB	Good	None	None	Stop	None	Fair	No	None	Good	Slight Uphill	None	9'/none

* Traffic is eastbound and westbound most of the way (traffic running parallel to the sidepath). However, when crossing path, cars are considered NB traffic.

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
WB	Stop	Fair	Poor	No	Good	12'	No	None	13'	Standard	10'	None
EB	Stop	Good	None	No	Good	15'	No	None	17'	Standard	12'	None

IMAGES

Figure 161: Bike Trail Crossing is Fairly Visible Though it Lacks Many High-Visibility Crossing Features (Note Only a Wayfinding Bike Trail Crossing Sign is Present)



Figure 162: Trail Users Have STOP Control and a Bollard



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #5 (Meadow Lane)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
1/9/2018	11:35 AM	Property damage only (none injured)	None	Daylight	Clear

MEADOW LANE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None (it is a T-intersection) *	None (it is a T-intersection) *	None	None	None	Fair	Yes	None	Fair	Slight Down hill	None	17'/none
SB	Good	None	None	Stop	None	Fair	Yes	None	Good	None	None	9'/none

* Traffic is eastbound and westbound most of the way (traffic running parallel to the sidepath). However, when crossing path, cars are considered NB traffic.

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Fair	Poor	No	Good	12'	No	None	13'	Standard	10'	None

EB	Stop	Good	None	No	Good	15'	No	None	17'	Standard	12'	None
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IMAGES

Figure 163: Approach View from Road (Looking Northward)



Figure 164: Path Approach



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #6 (Oak Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
3/7/2015	6:29 PM	Non-fatal injury	None	Dark - lighted roadway	Clear

OAK STREET ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	None	None	None	Fair	Yes	None	Fair	Slight Down hill	None	17'/none
SB	Good	Good*	None	Stop	None	Fair	Yes	None	Good	None	None	9'/none

* Green, wayfinding signage as well.

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Fair	No	Good	13'	No	None	27'	Ladder	11'	None
WB	Stop	Good	Fair	No	Good	13'	No	None	27'	Ladder	11'	None

IMAGES

Figure 165: Advance Bike Trail Crossing Signs (Northbound Approach)



Figure 166: Trail Users Have STOP Control on Both Approaches



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #7 (Colby’s Road / Lover’s Lane Extension)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

COLBY’S ROAD / LOVER’S LANE EXTENSION ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	None*	None	Yield	None	None	No	None	Good	None	None	15'/none (one lane driveway)
SB	None	None*	None	Yield	None	None	No	None	Good	None	None	15'/none (one lane driveway)

* The existing yield signs are also lacking sign imagery (they are just blank grey signs in the yield shape)

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	None	None	None	No	Good	11'	No	None	22'	None	11'	None
EB	None	None	None	No	Good	11'	No	None	22'	None	11'	None

IMAGES

Figure 167: YIELD Signs are Blank. Road Approaches are Not Paved.



Figure 168: Trail View (Note that the Crossing is Covered in Dirt).



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #8 (Orleans-Harwich Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
1/6/2017	7:31 AM	Property damage only (none injured)	None	Daylight	Snow

ORLEANS-HARWICH ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	Good	None	None	None	Poor	No	RRFB	Good	None	30	11'/1'
EB	Good	Good*	None	None	None	Poor	No	RRFB	Good	None	None	11'/0.5'

* Eastbound Bike Trail Crossing signs are placed somewhat in advance of actual crossing (~50 ft).

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Fair	Yes	Good	17'	No	Rotary; RRFB (button)	43'	Standard	17'	None

Harwich – Cape Cod Rail Trail and Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

SB	Stop	Good	Fair	Yes	Good	17'	No	Rotary; RRFB (button)	43'	Standard	17'	None
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Harwich – Cape Cod Rail Trail and Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

IMAGES

Figure 169: Eastbound View of Crossing (from Road). Advance Bike Trail Crossing Signage, Open Sightlines, RRFBS, and RRFB Help Visibility



Figure 170: Image of RREB from Trail



Figure 171: Rotary in Trail Slows Traffic in Advance of Crossing



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #9 (Depot Road, near Town Forest)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
1/6/2017	7:31 AM	Property damage only (none injured)	None	Daylight	Snow

DEPOT ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	Good*	None	None	None	Poor	No	None	Good	None	None	10'/2'
NB	Good	Good*	None	None	None	Poor	No	None	Good	None	None	11'/1'

* Green, wayfinding signage attached to Bike Trail Crossing signposts at crossings

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Poor	Yes		10'	No	None	27"	Standard	10'	None
EB	Stop	Good	Poor	Yes		10'	No	None	27"	Standard	10'	None

IMAGES

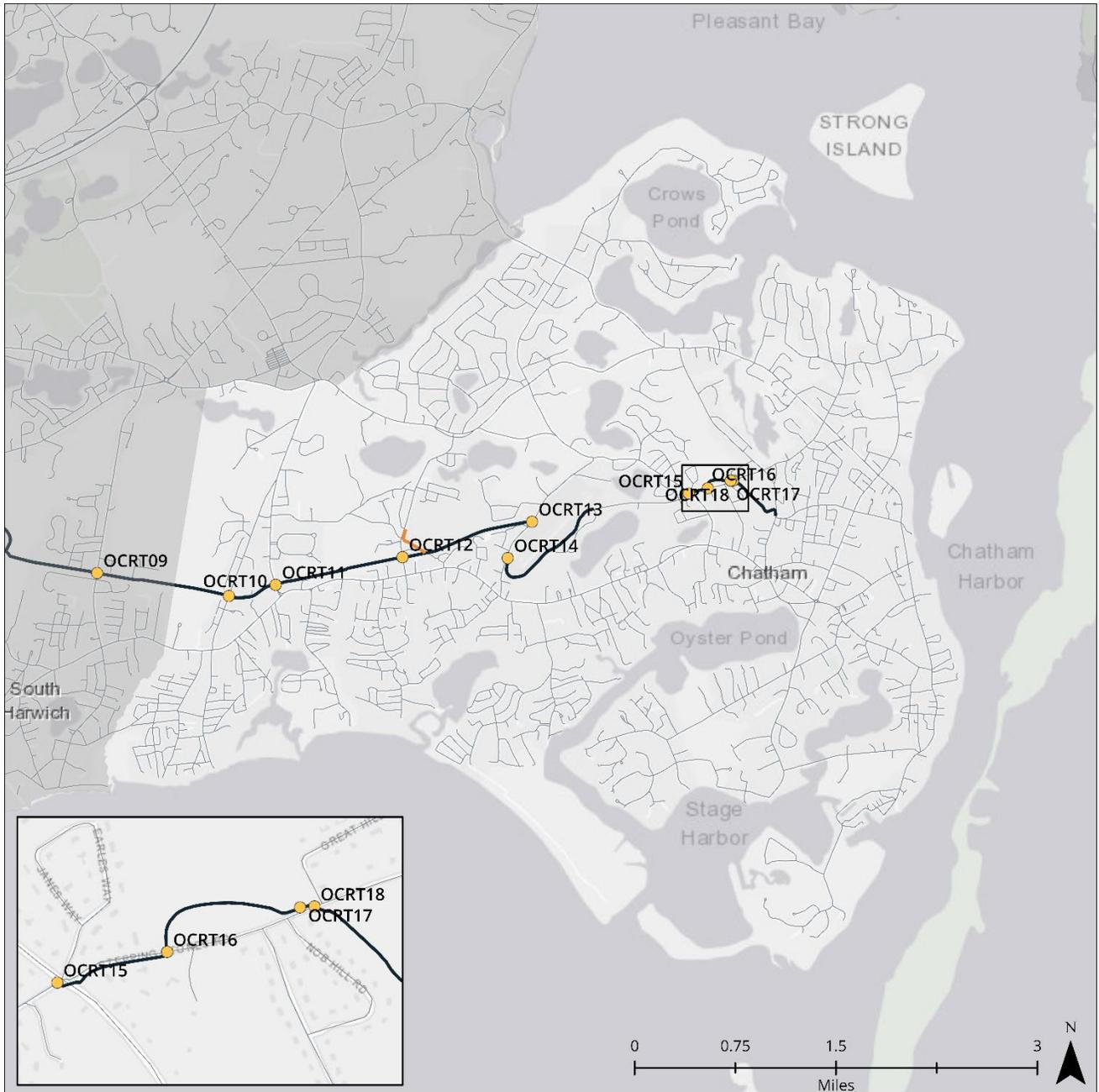
Figure 172: Image of Rail Trail Crossing of Depot Road



Figure 173: Road Crossing View from Trail (Path Users are STOP Sign Controlled, but the STOP Sign is Not Visible in Image)



CHATHAM



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #10 (Morton Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

MORTON ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	None*	Poor	None	None	Poor	No	State Law Stop Sign**	Fair	Slight Down hill	None	10'/none
SB	Good	None*	Poor	None	None	Poor	No	State Law Stop Sign**	Fair	Slight Down hill	None	10'/none

* Green, wayfinding signage present, but no regulatory Bike Trail Crossing signs

** State Law Stop Signs attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Fair	None	Yes	Good	11'	No	None	21'	Zebra (faded)	10'	None
EB	Stop	Fair	None	No	Good	12'	No	None	22'	Zebra (faded)	10'	None

IMAGES

Figure 174: Road Approach is Not Highly Visible and Lacks Regulatory Bike Trail Signage



Figure 175: View from Path Crossing (Note the Faded Crosswalk)



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #11 (Meetinghouse Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/4/2015	10:55 AM	Property damage only (none injured)	None	Daylight	Clear/Unknown
6/24/2019	11:07 AM	Non-fatal injury	P2: Cyclist	Daylight	Clear

MEETINGHOUSE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	None	None	None	Poor	No	RRFB (only on one side of street)	Fair	None	None	18'2'
SB	Good	Good*	Poor	None	None	Poor	No	RRFB (two sides of street)	Good	None	None	11'1'

* Green, wayfinding signage as well.

Bike Trail Crossing signs take the form of an RRFB.

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
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Chatham – Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

EB	Stop	Good	None	Yes	Good	9'	No	RRFB (button)	40'	Ladder	10'	None
W B	Stop	Good	None	Yes	Good	9'	No	RRFB (button)	40'	Ladder	10'	None

IMAGES

Figure 176: Northbound Road Approach with RRFBs on 2 Sides of Road



Figure 177: Trail Crossing is STOP Controlled. Facing SB, There is Only a Single RRFB.



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #12 (Sam Ryder Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

SAM RYDER ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good	None*	Poor	None	None	Fair	No	State Law Stop Sign**	Fair	Slight Down hill	None	10'/1'
NB	Good	None*	Fair	None	None	Fair	No	State Law Stop Sign**	Good	Slight Down hill	None	10'/1'

* Green, wayfinding-oriented signs only (attached to State Law Stop Signs)

**State Law Stop Sign attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	None	Yes	Good	11'	No	None	24'	Zebra	10'	None
EB	Stop	Good	None	Yes	Good	11'	No	None	24'	Zebra	10'	None

IMAGES

Figure 178: Road Approach with Zebra Crosswalk



Figure 179: Path Approach



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #13 (George Ryder Road #2, Adjacent to Airport)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
2/5/2016	7:22 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Snow/Sleet, hail (freezing rain or drizzle)

GEORGE RYDER ROAD #2, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	None*	Poor	None	None	Fair	No	Bike lane	Good	None	None	11’/3’
SB	None	None*	Fair	None	None	Fair	No	None	Good	None	None	10’/1’

* Green, wayfinding signage only

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	None	None	None	No	Fair	9’	No	None	31’	Zebra	9’	None

Chatham – Cape Cod Rail Trail, Harwich to Chatham Extension / Old Colony Rail Trail

EB	Stop	Good	None	Yes	Good	30'	Yes	Seating/ informat ion/bike rack area	31'	Zebra	9'	None
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NOTES

Bicyclists travelling south/eastbound do not generally cross George Ryder Road at this location but use a bike lane on George Ryder Road to travel south and access the southernmost crossing (OCRT #14).

IMAGES

Figure 180: View of the Crossing; Note the Lack of Regulatory Bike Trail Crossing Signs



Figure 181: View of the Seating and Bike Rack Area



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #14 (George Ryder Road #1, Just South of Katie Ford Rd)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

GEORGE RYDER ROAD #1, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	None*	Poor	None	None	Fair	No	Bike Lane, State Law Stop Sign**	Good	None	None	10'4'
EB	Good	None*	Poor	None	None	Fair	No	Bike Lane, State Law Stop Sign**	Good	None	None	10'4'

* Green, wayfinding signage only (attached to State Law Stop Signs).

**State Law Stop Sign is attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	Fair	Yes	Fair	28'	Yes	Access to bike lane	32'	Zebra	10'	None
SB	None	None	None	No	Good	9'	No	None	32'	Zebra	9'	None

NOTES

Bicyclists travelling north/westbound do not generally cross George Ryder Road at this location but use a bike lane on George Ryder Road to travel north and access the northern crossing (OCRT #13).

IMAGES

Figure 182: View of the Crossing from the Road. Note Zebra Crosswalk.



Figure 183: Road Approach with Planter-Style Splitter



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #15 (Old Queen Anne Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
6/9/2016	5:02 PM	Non-fatal injury	None	Daylight	Clear
7/5/2016	6:35 PM	Property damage only (none injured)	None	Daylight	Clear
8/15/2017	8:24 AM	Not Reported	None	Daylight	Cloudy/Rain
12/21/2017	6:36 AM	Property damage only (none injured)	None	Dawn	Clear
10/13/2019	11:52 AM	Non-fatal injury	P2: Cyclist	Daylight	Clear

OLD QUEEN ANNE ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Fair	None*	None	None	None	Poor	No	State Law Stop Sign**	Fair	Slight Down hill	None	9'/1'
SB	Good	None	None	None	None	Poor	No	None	Poor	Slight Down hill	None	10'/1'

* Green, wayfinding signage only (attached to State Law Stop Sign).

**State Law Stop Sign is attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	Fair	No	Fair	10'	No	None	54'	Zebra	12'	None
W B	Stop	Good	Poor	Yes	Fair	12'	No	None	54'	Zebra	11'	None

IMAGES

Figure 184: View of the Crossing from the Road. (Looking Northward)



Figure 185: Path Approach. Note the Faded Crosswalk



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #16 (Stepping Stones Road #2, Just East of Old Queen Anne Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
6/6/2015	11:59 AM	Non-fatal injury	P2: Pedestrian	Daylight	Cloudy

STEPPING STONES ROAD #2, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Good	None*	None	None	None	Fair	No	State Law Stop Sign**	Fair	Slight Uphill	None	9'/1'
EB	Good	None*	None	None	None	Fair	No	State Law Stop Sign**	Fair	Uphill	30'	10'/1'

* Green, wayfinding signage only (attached to State Law Stop Sign).

**State Law Stop Sign attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	Stop	Good	None	Yes	Fair	13'	No	None	24'	Zebra	17'	None
SB	Stop	Good	None	No	Fair	10'	No	None	24'	Zebra	17'	None

IMAGES

Figure 186: View of the Crossing from the Road.



Figure 187: Close-Up of the Intersection



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail #17 (Tennis Court Parking Entrance, Right Off Stepping Stones Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

TENNIS COURT PARKING ENTRANCE, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB*	None	None**	None	None	None	Fair	No	None	Fair	None	None	9'/1'
SB	None	None**	None	None	None	Fair	No	None	Fair	None	None	9'/1'

* Northbound traffic is actually coming from west and east. SB traffic is coming from parking lot.

** Green, wayfinding signage is visible, but is meant for the crossing to the east.

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	Good	None	Yes	Good	11'	No	None	25'	Standard	9'	None
W B	None	None	None	No	Good	11'	No	None	25'	Standard	9'	None

IMAGES

Figure 188: View of the Crossing Looking Northwest Toward Tennis Courts



Figure 189: View Looking East Toward Crossing of Stepping Stones Road



Cape Cod Rail Trail – Harwich to Chatham Extension / Old Colony Rail Trail (Stepping Stones Road #1, Just West of People’s Cemetery)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

STEPPING STONES ROAD #1, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	None*	Poor	None	None	Fair	No	State Law Stop Sign**	Good	Slight Down hill	None	10’/1’
WB	Good	None*	Poor	None	None	Fair	No	State Law Stop Sign**	Good	Slight Down hill	None	9’/1’

* Green, wayfinding signage only (attached to State Law Stop Sign).

**State Law Stop Sign attached to wayfinding signage

CAPE COD RAIL TRAIL – HARWICH TO CHATHAM EXTENSION / OLD COLONY RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	Fair	Yes	Good	13’	No	None	29’	Zebra	14’	None
NB	Stop	Good	None	Yes	Poor	14’	No	None	29’	Zebra	14’	None

IMAGES

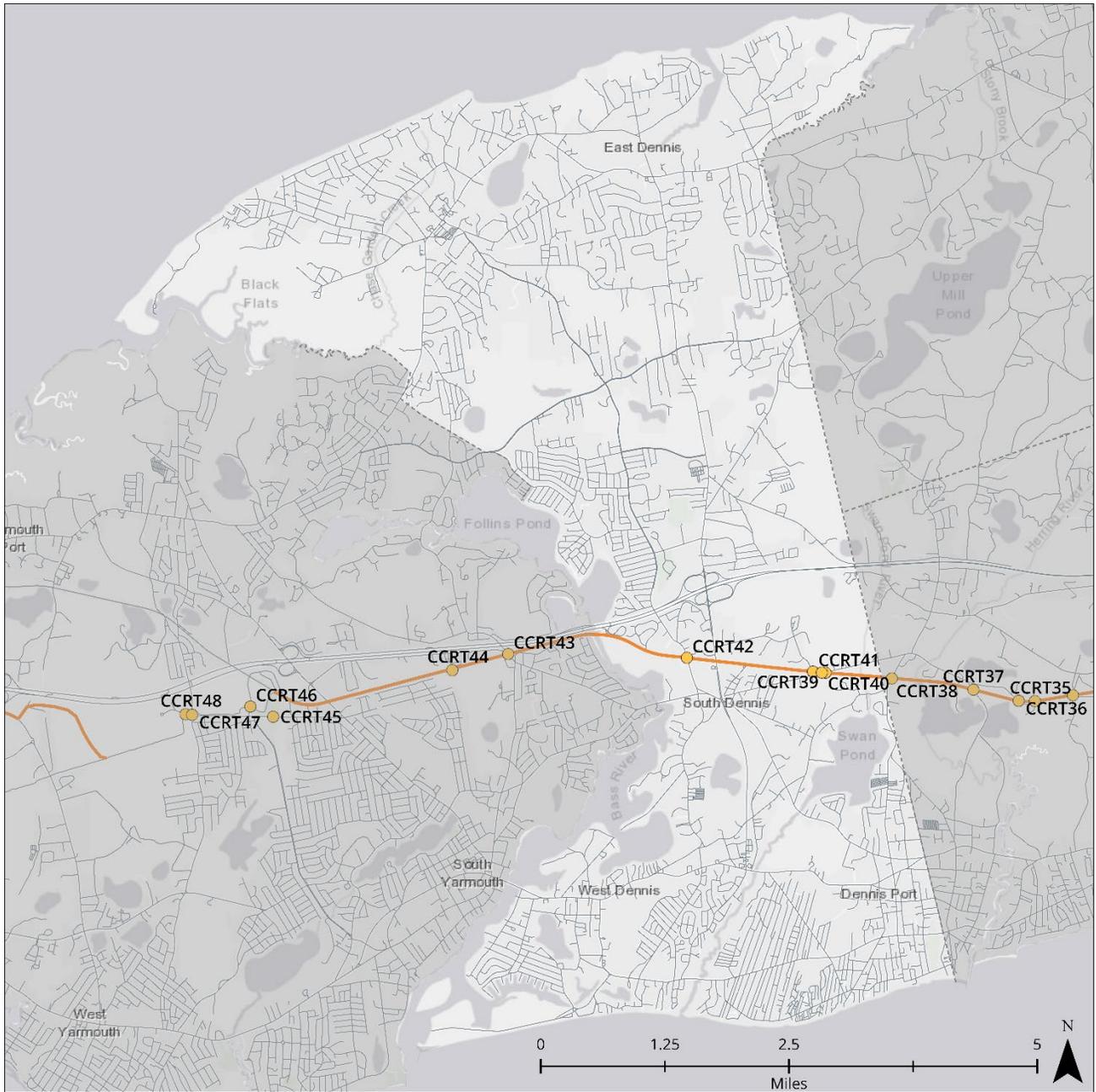
Figure 190: View of the Crossing from the Road. (Looking Eastward)



Figure 191: Path Approach.



DENNIS



Cape Cod Rail Trail #39 (Great Western Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
5/12/2016	2:03 PM	Property damage only (none injured)	None	Daylight	Clear
5/4/2016	7:02 AM	Property damage only (none injured)	None	Daylight	Cloudy

GREAT WESTERN ROAD, ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
EB	Good	Good*	Poor	None	None	Poor	No	None	Good	Slight Downhill	40	12' / 6'
WB	Good	Good*	None	None	None	None	No	None	Fair	Slight Uphill	40	12' / 0'

*Green, wayfinding signage as well.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
SB	Stop	Good	None	No	Fair	10'	No	None	25'	None	None	None
NB	Stop	Good	Poor	No	Good	17'	Yes	None	25'	Continental	13'	None

IMAGES

Figure 192: Aerial Image of the Crossing from North Side. Crosswalk Markings are Completely Lacking for Westbound Traffic.



Figure 193: Road Approach from East Side Showing the Bike Trail Crossing Signage and the Wayfinding Signage (Advance Signage is Not in Picture)



Cape Cod Rail Trail #40 (S & J Exco Driveway)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
5/12/2016	2:03 PM	Property damage only (none injured)	None	Daylight	Clear
5/4/2016	7:02 AM	Property damage only (none injured)	None	Daylight	Cloudy
8/1/2017	3:15 PM	Property damage only (none injured)	P3: Cyclist	Daylight	Clear

S & J EXCO DRIVEWAY ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	None*	None	None	Stop	None	Good	No	None	Fair	Uphill	None	None
NB	None*	None	None	None	None	Good	No	None	Good	Downhill	None	None

*There are Advance Warning Signs in the area, but those are for the crossing to the east.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	None	No	Fair	11'	No	None	44'	Continental	10'	None
WB	Stop	Good	None	No	Good	9'	No	None	44'	Continental	10'	None

EXTRA NOTES

Steep driveway. No advanced warnings on path.

IMAGES

Figure 194: Bike Trail Crossing, Facing East



Figure 195: A View of the Path Crossing from S & J Exco Parking Lot



Cape Cod Rail Trail #41 (South Gages Way)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
8/5/2017	1:36 PM	Property damage only (none injured)	None	Daylight	Cloudy
10/10/2018	5:40 AM	Property damage only (none injured)	None	Dark - lighted roadway	Clear
7/19/2019	1:41 PM	Property damage only (none injured)	None	Daylight	Clear

SOUTH GAGES WAY ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good*	Good**	Good	None	None	Good	Yes	RRFB, Median	Good	Slight Downhill	None	11' / 2'
NB	Fair*	Good**	Good	None	None	Good	Yes	RRFB, Median	Fair	Slight Uphill	None	11' / 2'

*Advance warning signs with LED border tied into the detection system.

** Green, wayfinding signage additionally.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
W B	Stop	Good	Good	Yes*	Good	20'	Yes	RRFB (motion)	51'	Standard	20'	Fair

Dennis – Cape Cod Rail Trail

								and push button)*				
EB	Stop	Good	Good	Yes*	Good	20'	Yes	RRFB (motion and push button)*	51'	Standard	20'	Fair

* Bike loop detectors as well

EXTRA NOTES

Lots of sand in the path due to vehicles. Lots of heavy vehicle traffic in this area due to local businesses.

IMAGES

Figure 196: Bike Trail Approach with Pavement Markings



Figure 197: A View of the Crossing Looking Eastward (Note RRFBs)



Cape Cod Rail Trail #42 (Old Bass River Road / Main Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
9/12/2019	12:38 PM	Property damage only (none injured)	None	Daylight	Rain

MAIN STREET SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Good*	Good* *	Good	None	None	Good	Yes	RRFB, Raised Crosswalk	Good	None	None	11'/3'
NB	Good*	Good* *	Good	None	None	Good	Yes	RRFB, Raised Crosswalk	Good	None	None	11'/3'

* Advance warning signs with LED border tied into the detection system

**Wayfinding oriented signs as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at the Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Fair	No	Good	28'	Yes	RRFB (motion and	46'	Standard	23'	Good

Dennis – Cape Cod Rail Trail

								push (button) *				
EB	Stop	Good	Fair	No	Good	28'	Yes	RRFB (motion and push (button) *	46'	Standard	23'	Good

* Bike loop detectors as well

EXTRA NOTES

Large parking area.

IMAGES

Figure 198: Bike Trail Crossing Signs, RRFBs, Raised Crosswalk, and Clear Sightlines Make Crossing Highly Visible



Figure 199: East-Facing View of Path Crossing. Medians Provide a Place for Bicyclists and Pedestrians to Make 2-Stage Crossings



YARMOUTH



Cape Cod Rail Trail #43 (North Main Street)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
3/3/2015	2:29 PM	Non-fatal injury	None	Daylight	Cloudy
4/30/2016	1:12 PM	Property damage only (none injured)	None	Daylight	Cloudy/Unknown
6/5/2017	1:21 PM	Property damage only (none injured)	None	Daylight	Cloudy/Rain
7/15/2018	1:02 PM	Property damage only (none injured)	None	Daylight	Clear
8/7/2018	9:00 AM	Property damage only (none injured)	None	Daylight	Clear
1/14/2019	5:51 PM	Property damage only (none injured)	None	Dark - roadway not lighted	Clear/Unknown
7/8/2019	4:59 PM	Property damage only (none injured)	None	Daylight	Clear

NORTH MAIN STREET SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	Fair	None	None	Fair	No	RRFB	Good	Slight Downhill	None	11'2'
SB	Good	Good*	Fair	None	None	Fair	No	RRFB	Good	None	None	11'3'

*Green, wayfinding signage as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop sign	Good	Fair	No	Good	22'	Yes	None	29'	Ladder	21'	Good
WB	Stop sign	Good	Fair	No	Good	22'	Yes	None	29'	Ladder	21'	Good

EXTRA NOTES

On both sides of the path there's spots to pull of, it is a high traffic roadway

IMAGES

Figure 200: Ladder Crosswalk, Bike Trail Crossing Signs, Advance Bike Trail Crossing Signs, RRFBs, and Clear Sightlines Make Crossing Highly Visible



Figure 201: West-Facing View of Path Crossing



Cape Cod Rail Trail #44 (Dupont Avenue)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

DUPONT AVENUE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	Good	Good*	Good	None	None	Good	Yes	Raised Crosswalk, RRFB	Good	None	None	9/11'
SB	Good	Good*	Good	None	None	Good	Yes	Raised Crosswalk, RRFB	Good	None	None	9/11'

*Green, wayfinding-oriented signs as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	Stop	Good	Good	No	Fair	22'	Yes	RRFB (button)	39'	Standard (Raised)	21'	Good
WB	Stop	Good	Good	No	Fair	22'	Yes	RRFB (button)	39'	Standard (Raised)	21'	Good

EXTRA NOTES

IMAGES

Figure 202: High-Quality Advance Pavement Markings, with a Splitter and Clear Lines of Sight



Figure 203: Raised Crosswalk Ahead Signage, Along with Sharrow's Demonstrating Bicyclist Crossings



Cape Cod Rail Trail #45 (Old Town House Road, East of Forest Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
5/21/2016	12:10 PM	Non-fatal injury	None	Daylight	Cloudy
11/12/2017	6:05 AM	Property damage only (none injured)	None	Daylight	Clear

OLD TOWN HOUSE ROAD DRIVE SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	Fair	Good	None	None	None	Poor	Yes	None	Good	None	30'	11'/1'
EB	Good	Good	None	None	None	Poor	Yes	None	Good	None	30'	11'/2'

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	None	Poor	No	Good	8'	No	None	38'	Stamped Brick	12'	None
SB	None	None	None	No	Good	10'	No	None	38'	Stamped Brick	8'	None

EXTRA NOTES

This is a busy road crossing, with high traffic volumes

IMAGES

Figure 204: Westbound View of the Crosswalk with Median to Allow 2-Stage Crossings



Figure 205: Raised and Stamped Brick Crosswalk Improves Visibility. Bricks are Faded However.



Cape Cod Rail Trail #46 (Forest Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
7/6/2016	10:17 AM	Property damage only (none injured)	None	Daylight	Clear

FOREST ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
NB	None	Poor	None	None	None	Fair	No	None	Fair	None	None	11'/1'
SB	None	Fair	None	None	None	Fair	No	None	Poor	None	None	13'/none

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	No	Good	14'	No	Barriers for slowing down	70'	Continental	9'	None

Yarmouth – Cape Cod Rail Trail

W B	None	Poor	None	Yes	Poor	12'	No	Barriers for slowing down	70'	Continen tal	9'	None
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IMAGES

Figure 206: Bike Trail Crossing Sign (Northbound View)



Figure 207: Bicyclists Required to Slow Down and Maneuver Around Gates



Cape Cod Rail Trail #47 (West Yarmouth Road)

CRASH HISTORY SURROUNDING THE CROSSING

Crash Date	Crash Time	Crash Severity	Non-Motorist Action (All Persons)	Light Conditions	Weather Conditions
3/5/2015	6:07 PM	Non-fatal injury	None	Dark - lighted roadway	Snow
11/7/2015	5:57 PM	Property damage only (none injured)	None	Dark - lighted roadway	Clear
8/25/2016	7:56 PM	Property damage only (none injured)	None	Dark - lighted roadway	Clear
11/7/2017	9:58 AM	Non-fatal injury	None	Daylight	Cloudy
1/24/2019	7:49 AM	Property damage only (none injured)	None	Daylight	Cloudy
8/6/2019	12:43 PM	Property damage only (none injured)	None	Daylight	Cloudy/Rain

WEST YARMOUTH ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
SB	Fair	None*	None	Stop	None	Fair	No	None	Good	None	None	11'/4'
NB	Fair	None*	None	Stop	None	Fair	No	None	Fair	None	None	11'/1'

* Bike Crossing Trail Signs not appropriate because of road-facing STOP control.

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
EB	None	None	None	Yes	Good	12'	No	Barriers prevent bikes from riding across	50'	Continental	13'	None
WB	None	None	None	No	Good	12'	No	Barriers same as EB	50'	Continental	13'	None

IMAGES

Figure 208: Barriers Require Bicyclists to Slow/ Walk Across Before Crossing. Continental Crosswalk Improved Visibility.



Figure 209: Image Looking Northward; Advance Bike Trail Crossing Signage Improves Awareness of Crossing on Both Approaches



Cape Cod Rail Trail #48 (Old Town House Road, West of West Yarmouth Road)

CRASH HISTORY SURROUNDING THE CROSSING

No crash history around the crossing.

OLD TOWN HOUSE ROAD SAFETY FEATURES

Dir.	Advance Warning Signs	Bike Trail Crossing Signs	Advance Pavement Markings	Control Type	Shark Teeth Yield Markings	Crosswalk Markings	Median Between Crosswalk	Additional Safety Features	Visibility of Bike Trail	Grade	Posted Speed Limit	Avg. Lane and Shoulder Width
WB	None	Good*	None	None	None	Poor	No	Speed Bump	Good	None	None	10'/none
EB	None	Poor*	None	None	None	Poor	No	Speed Bump	Good	None	None	10'/none

*Green, wayfinding-oriented signs as well

CAPE COD RAIL TRAIL BIKEWAY SAFETY FEATURES

Dir.	Control Type	Condition of Signage	Pavement Markings	Advance Warning Signs	Sight Distance	Width at Intersection	Median Approaching Intersection	Other Features	Crossing Distance	Crosswalk Style	Crosswalk Width	Tactile Warning Plates
NB	None	None	None	No	Good	17'	No	None	27'	Continental	12'	None
SB	Stop	Poor	None	No	Fair	38'	No	None	27'	Continental	12'	None

IMAGES

Figure 210: Westbound Road Approach with Speed Bumps, Faded Crosswalk, and Faded Shared Use Path Signage



Figure 211: Eastbound Road Approach with Speed Bumps, Faded Crosswalk, and High-Quality Shared Use Path Signage

