



CAPE COD
COMMISSION

Closing the Gaps: Connecting Cape Cod's Bicycle and Pedestrian Network to Transit Routes

October 2013*



*Updated November 2013



Acknowledgements

We would like to thank to the Cape Cod Regional Transit Authority and the Federal Transit Administration for their support. Town officials and volunteers from local bicycle and pedestrian committees also generously shared their time and provided helpful information.

Thank you also to the Cape Cod Commission staff who worked on this project:

- Glenn Cannon, Director of Technical Services
- Martha Hevenor, Planner II
- Lev Malakhoff, Senior Transportation Engineer
- Gary Prahm, GIS Analyst





Executive Summary

INTRODUCTION AND BACKGROUND

A diverse transportation system provides multi-modal accessibility options – including bicycling, walking, public transit, and automobile travel. Improving bicycle and pedestrian access to transit routes is part of a broader effort to foster an integrated, multimodal transportation environment throughout the region. Providing non-automobile choices for travelers also creates a robust public transportation system that helps reduce energy use and personal transportation costs and, with expanded bicycle and pedestrian options, increases health benefits.

The Cape Cod Regional Transit Agency (CCRTA) is the primary public transit provider on Cape Cod, offering bus service to all 15 towns in Barnstable County. Other bus companies (Plymouth and Brockton, Peter Pan bus lines, and GATRA) also provide limited service. Train service from Boston to Cape Cod is now available seasonally on weekends (as of May 2013), with stops in Buzzards Bay and Hyannis. Bicycle and pedestrian accessibility to transit service/routes varies throughout the Cape, with some bus routes located in close proximity to and connecting with bicycle and pedestrian facilities and other routes with more limited bicycle and pedestrian accommodations.

The purpose of this report is to review connectivity of existing public transit (bus) routes with existing bicycle routes and paths and recommend improvements to eliminate gaps in connectivity. The review includes sidewalk accessibility along the bus routes. The report also provides an overview of bicycle and pedestrian planning on Cape Cod, building upon previous studies and plans and updating the region's bicycle route/path and sidewalk data. It includes town by town summaries of bicycle and pedestrian planning, accompanied by maps of transit routes, bicycle paths/routes, sidewalks and potential "connector" pieces.

HOW TO USE THIS REPORT

The first part of this report provides background and reference material on general bicycle and pedestrian planning elements and also provides information specific to Cape Cod. The second part of the report focuses on the connectivity/linkage plan between existing bicycle routes and paths and existing transit routes. It contains bicycle/pedestrian planning summaries for each of the Cape's 15 communities with "priority" matrices



for implementation consideration. The recommendations at the end of the report pertain to both sections.

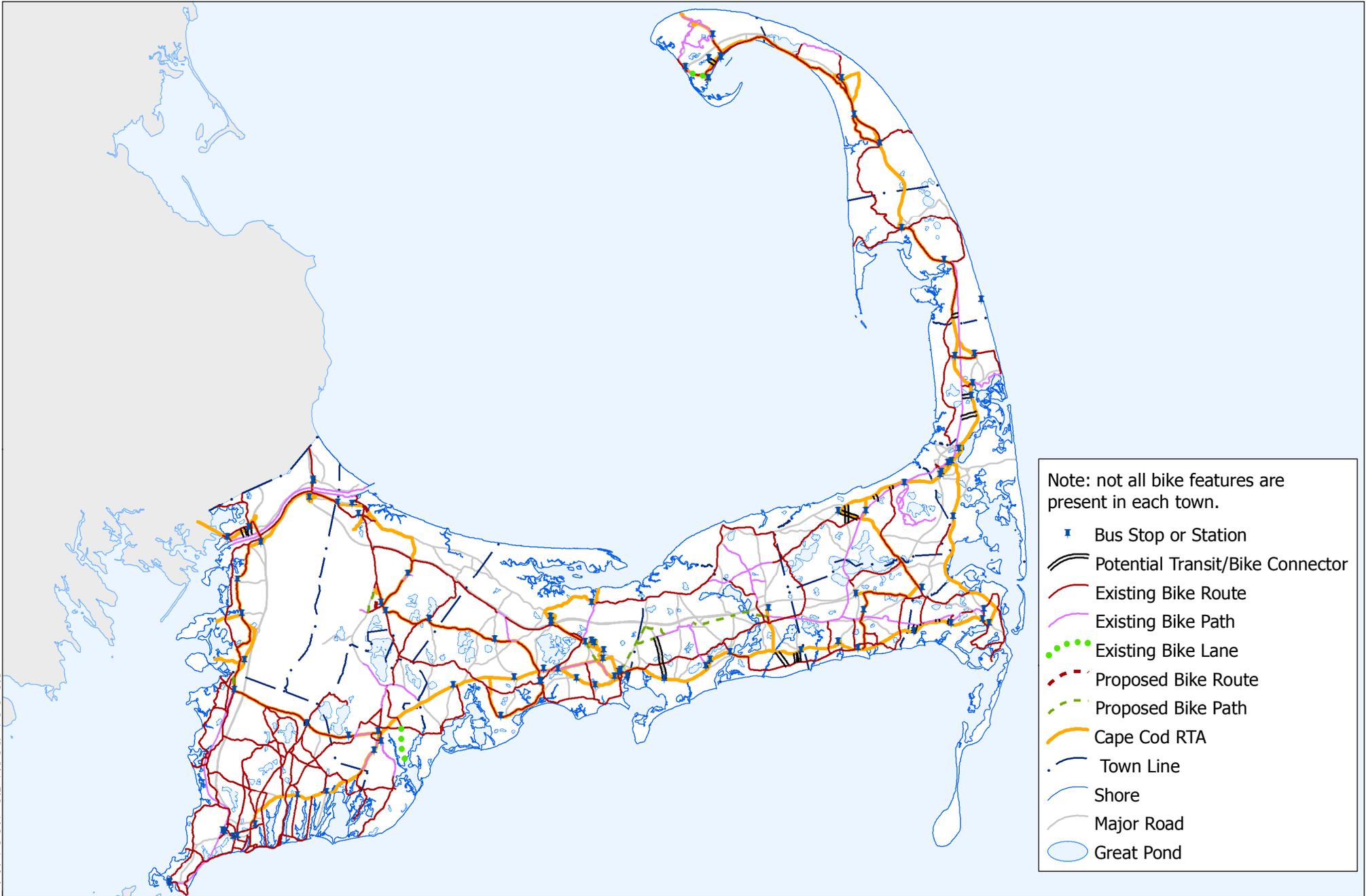
STUDY AREA



STUDY AREA MAP

The study area for this report is the 15 towns of Cape Cod

The map on the following page shows the existing bus routes, bicycle routes and paths. (Individual town maps in the body of the report provide better detail.)



Cape Cod Bus Routes and Bicycle Path/Route Locations

Sources:

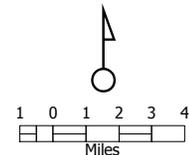
Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.

Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.

Base map features: MassGIS and Cape Cod Commission.

This map is produced by the GIS Department of the Cape Cod Commission, a division of Barnstable County, August 2013.

The information depicted on these maps is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel level analysis. It should not substitute for actual on-site survey, or supersede deed research.



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TOWN SUMMARY TABLE

The following table provides a compilation of potential transit route – bicycle path/route connectors, and sidewalk connectors from the Town Bicycle/Pedestrian Planning Summaries.

Bike/Ped/Transit Connector	Description	Notes
Barnstable		
Route 28 sidewalks	Bus route pedestrian access	No sidewalks between Route 149 and Stop & Shop plaza or Marstons Mills Marketplace.
Bourne		
Perry Ave connector	Connects Canal bike path to Main Street (bus route). Share the road –striping, signage, sharrows.	Connects to 3 Mile Park, but not direct access to canal path.
Old Bridge Road connector	Connects Canal bike path to Main Street (bus route). Share the road –striping, signage, sharrows.	Direct connection.
County Road sidewalk	Bus route pedestrian access	Lacks sidewalks
Route 28A/Sandwich Road sidewalk	Bus route pedestrian access	Lacks sidewalk most of route.
Brewster		
Thad Ellis Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage, sharrows. 1/4 mile direct connection.	
Underpass Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
Millstone Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
Route 137 connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage, but paved shoulder may be feasible in sections	
Route 124 connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage	



Bike/Ped/Transit Connector	Description	Notes
Route 137 sidewalk	Bus route pedestrian access	No sidewalks on Route 137
Chatham		
Route 137 connector	Connects Route 28 (bus route) to CCRT. On road, shoulders, striping, signage	
Sam Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection – striping, signage, sharrows	
George Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection with striping and shoulders or bike lane. Off road path may be feasible.	
Route 28 sidewalk	Connects Route 28 (bus route) to CCRT	Most of route has sidewalk but condition is poor in some locations. If enhanced could accommodate bikes.
Dennis		
Shad Hole Road connector	On road connection – striping, sharrows, signage	
Depot Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage	
Sea Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage.	
Route 134 sidewalk	Bus route pedestrian access.	Route 134 lacks sidewalk north of Patriot Square
Route 28 sidewalk	Bus route pedestrian access	Gaps in connectivity outside of Dennisport.
Eastham		
Governor Prence Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage. NPS received funding for flashing beacon crosswalk at Route 6 intersection for connection to Fort Hill.	
Samoset Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage	
Route 6 sidewalk	Bus route pedestrian access	East side of Route 6 lacks sidewalks, Town Hall and Brackett Road commercial areas are the bus stop locations.



Bike/Ped/Transit Connector	Description	Notes
Falmouth		
Route 151/Sandwich Road connector	Connects Route 151 (bus route) to Sandwich Road bike route. Signage to direct riders to bus stop location (at gas station set back from road).	
Harwich		
Route 28 sidewalk	Bus route pedestrian access.	Gaps in sidewalk connectivity outside of Harwichport to West Harwich. In 2010 bike/ped improvement plan.
Mashpee		
Route 28 sidewalk	Bus route pedestrian access	Some locations without sidewalk.
Route 151 sidewalk	Bus route pedestrian access	Sidewalk at school and Mashpee Commons. Town plans to extend bike path to Falmouth line.
Orleans		
Bay Ridge connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage.	Involves access through private property.
Route 28 sidewalk	Bus route pedestrian access	No sidewalks north of Finlay Road. Narrow shoulder width.
Main Street connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage	
West Road connector	Connects Route 6A (bus route) to CCRT. Also connects gap in bike path. On road –striping, sharrows, signage.	
Provincetown		
Shank Painter connector	Connects Shank Painter Road (bus route/stop) to Bradford Street bike route. On road. Bike lane or paved shoulders, striping.	Road lacks sidewalk in most locations Heavy volume of bike and pedestrian traffic.
Sandwich		
Merchants Square connector	Connects Route 6A bus route to proposed Tupper Road bike route. On road through plaza Signage, sharrows, striping	
Truro		
Route 6 sidewalk	Bus route pedestrian access	No sidewalks except for segment between school and police station. 4' shoulders along much of route. May be addressed in Outer Cape Bicycle Pedestrian Master Plan.



Bike/Ped/Transit Connector	Description	Notes
Wellfleet		
Old County/Blackfish Variety connector	Connects Route 6 (bus route) to CCRT. Crosswalk, striping to improve connection between CCRT and bus stop/Old County Road.	May be addressed in Outer Cape Bicycle Pedestrian Master Plan.
Springbrook connector	Connects Route 6 (bus route) to CCRT	Other options nearby to connect West Road and Audubon to CCRT cross private property.
Yarmouth		
Higgins Crowell connector	Connects Route 28 (bus route) to bike path and proposed CCRT extension. On road. Striping, sharrows, signage	

PRIORITY PROJECTS

The report contains a “priority” matrix for both the potential transit –bike path/route connectors and the transit route sidewalk connectors. The purpose of the evaluation is not to rank the projects against each other but to identify which might address particular connectivity/access needs (e.g. town center access, access for lower income and minority populations, access to a bus stop, etc.) and which have been previously studied or identified as a priority. The projects with the most green boxes checked may be considered highest regional priorities in the initial priority evaluation; however further analysis will be needed to fully develop an implementation plan, based on community needs and input, existing conditions, project cost, and funding.

SUMMARY/RECOMMENDATIONS

The following actions are recommended to advance safe and interconnected transit and bicycle/pedestrian travel on Cape Cod:

- *The Cape Cod Commission (CCC) should work together with the towns to conduct a bicycle level of service (BLOS) analysis for the existing bicycle routes to identify areas where improvements are needed. While the routes overlap and connect with transit routes in many locations throughout the region, some are located on roads with little or no shoulder and high traffic volumes. A BLOS study could help identify how and where to create better*



conditions for bicycling and help advance the regional goal of creating an interconnected and safe route from Falmouth and Bourne to Provincetown.

- *Towns and the CCC should work together to collect additional data (such as right of way and existing pavement width, traffic volumes, posted vehicle speeds, etc.) for high priority potential connector pieces to help identify appropriate treatment options and advance planning efforts.* This work should include the RTA to coordinate future transit plans into the region's bicycle and pedestrian planning.
- *The CCC should collect bicycle and pedestrian counts on bicycle routes and transit routes.* These data are important when prioritizing projects for implementation.
- *Towns should continue to update and install signage to guide bicyclists.* Signage will be a major part of linking the connector pieces to the routes. Sign placement should be planned to ensure that it does not impact scenic character or create visual clutter.
- *The RTA should install additional bicycle racks on buses, where feasible.* Bus routes with highest bicyclist counts should be a priority.
- *The RTA should consider implementing a seasonal bicycle shuttle on the Route 6A corridor and between Main Street in Buzzards Bay and the Bourne Bridge, similar to the Route 6 shuttle on the Outer Cape.* Shuttle service could help bicycle travel on popular but hazardous routes. This could begin as a pilot program on summer weekends.
- *The CCC should work with the towns to review bicycling conditions along Mass Bikeway 1/Claire Saltonstall Bikeway and revise the route where needed.* With increased development, changing land use patterns, and higher traffic volumes on the Cape since the state initially designated the route, portions have become hazardous for cyclists and need to be rerouted. Once revised, the route will become the recommended route for cycling between Falmouth and Bourne to Provincetown.
- *The CCC should continue to hold regional bicycle and pedestrian committee meetings with town representatives, the RTA, and Mass DOT to address transit – bicycle/pedestrian connections in the region.* Continued and coordinated regional and local planning is needed to advance an integrated transportation network in the region.



- *Each town should establish a bicycle/pedestrian committee comprised of resident volunteers and town staff such as planners, DPW, and police to guide bicycle and pedestrian planning in the community. The committee can provide a forum for addressing bicycle and pedestrian issues in the community and help advance improvements.*
- *The CCC should continue to consult town bicycle committees to ensure that bike route maps are updated on a regular basis.*
- *Towns should capitalize on opportunities to install bicycle and pedestrian infrastructure along routes while other construction projects are planned. Coordinating these projects can result in significant cost savings when installing bike/pedestrian infrastructure such as bike lanes, shoulders, and sidewalks. Future wastewater infrastructure construction projects in the region could provide opportunities to upgrade bicycle and pedestrian facilities.*



Table of Contents

Table of Contents	1
Introduction.....	3
Background and purpose	3
Previous studies and plans.....	5
Benefits of bicycling	8
Guide to terminology	10
Bicycle and pedestrian facility implementation considerations	11
Existing Bicycle/Multi Use Paths and Bicycle Routes on Cape Cod.....	18
Bicycle and Multi Use Paths.....	18
Bicycle Routes	22
2010 Integrated Bicycle Plan for Cape Cod Projects	29
Feasibility study Selected Projects	29
Inventory of Current Bicycle and Pedestrian Projects.....	33
Town Bicycle/Pedestrian /Transit Summaries and Maps.....	34
Overview.....	34
Background	34
Methodology.....	34
Public participation.....	35
Observations and analysis.....	36
Bicycle/Pedestrian/Transit maps	38
Town Bicycle Pedestrian Planning Summaries	54
Town summary table.....	81
Implementation	85
Overview of planning process	85
Financing.....	85
Priority projects.....	87
Summary/recommendations	93
Appendix.....	97



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Introduction

BACKGROUND AND PURPOSE

A diverse transportation system provides multi-modal accessibility options – including bicycling, walking, public transit, and automobile travel. Pedestrian and bicycle access to and integration with transit services is a critical component of a public transportation system. Coordinating pedestrian and bicyclist needs with transit planning expands mobility options for travelers, which is especially important for young people, the elderly, and people who do not own cars or prefer not to drive. Providing non-automobile choices for travelers also creates a robust public transportation system that helps reduce energy use and personal transportation costs and, with expanded bicycle and pedestrian options, increases health benefits.

The Cape Cod Regional Transit Agency (CCRTA) is the primary public transit provider on Cape Cod, offering bus service to all 15 towns in Barnstable County. Other bus companies (Plymouth and Brockton, Peter Pan bus lines, and GATRA) also provide limited service. Train service from Boston to Cape Cod is now available seasonally on weekends (as of May 2013), with stops in Buzzards Bay and Hyannis. Bicycle and pedestrian accessibility to transit service/routes varies throughout the Cape, with some bus routes located in close proximity to and connecting with bicycle and pedestrian facilities and other routes with more limited bicycle and pedestrian accommodations.

The purpose of this report is to review connectivity of existing public transit (bus) routes with existing bicycle routes and paths and recommend improvements to eliminate gaps in connectivity. The review includes sidewalk accessibility to the bus routes. Bicycling (and walking) help connect what transportation planners refer to as the “last mile” - that portion of the trip which connects travelers from the bus or train to their final destination. Improving bicycle and pedestrian access to transit routes is part of a broader effort to foster an integrated, multimodal transportation environment throughout the region.

The report also provides an overview of bicycle and pedestrian planning on Cape Cod and builds upon previous studies and plans. It includes town by town summaries of bicycle and pedestrian planning, accompanied by maps of transit routes, bicycle paths/routes, sidewalks, and potential “connector” pieces.



HOW TO USE THIS REPORT

The first part of this report provides background and reference material on bicycle and pedestrian planning in general and specific to Cape Cod. The second part of the report focuses on the connectivity/linkage plan between existing bicycle routes and paths and existing transit routes. It contains bicycle/pedestrian planning summaries of each of the Cape's 15 communities with "priority" matrices for implementation consideration. The recommendations at the end of the report pertain to both sections.

STUDY AREA



STUDY AREA MAP

The study area for this report is the 15 towns of Cape Cod

LIST OF ACRONYMS



This report contains the following acronyms:

ADA:	Americans with Disabilities Act
CCC:	Cape Cod Commission
CCRT:	Cape Cod Rail Trail
CCRTA (and RTA):	Cape Cod Regional Transit Authority
FTA:	Federal Transit Administration
GATRA:	Greater Attleboro Taunton Regional Transit Authority
LCP:	Local Comprehensive Plan
MassDOT:	Massachusetts Department of Transportation
NPS:	National Park Service
RTP:	Regional Transportation Plan

PREVIOUS STUDIES AND PLANS

This report incorporates analyses and recommendations from previous local and regional bicycle and pedestrian studies as well as directives from local comprehensive plans (LCPs) and the 2012 Regional Transportation Plan (RTP). A list of references is provided in the appendix.

2010 INTEGRATED BICYCLE PLAN FOR CAPE COD

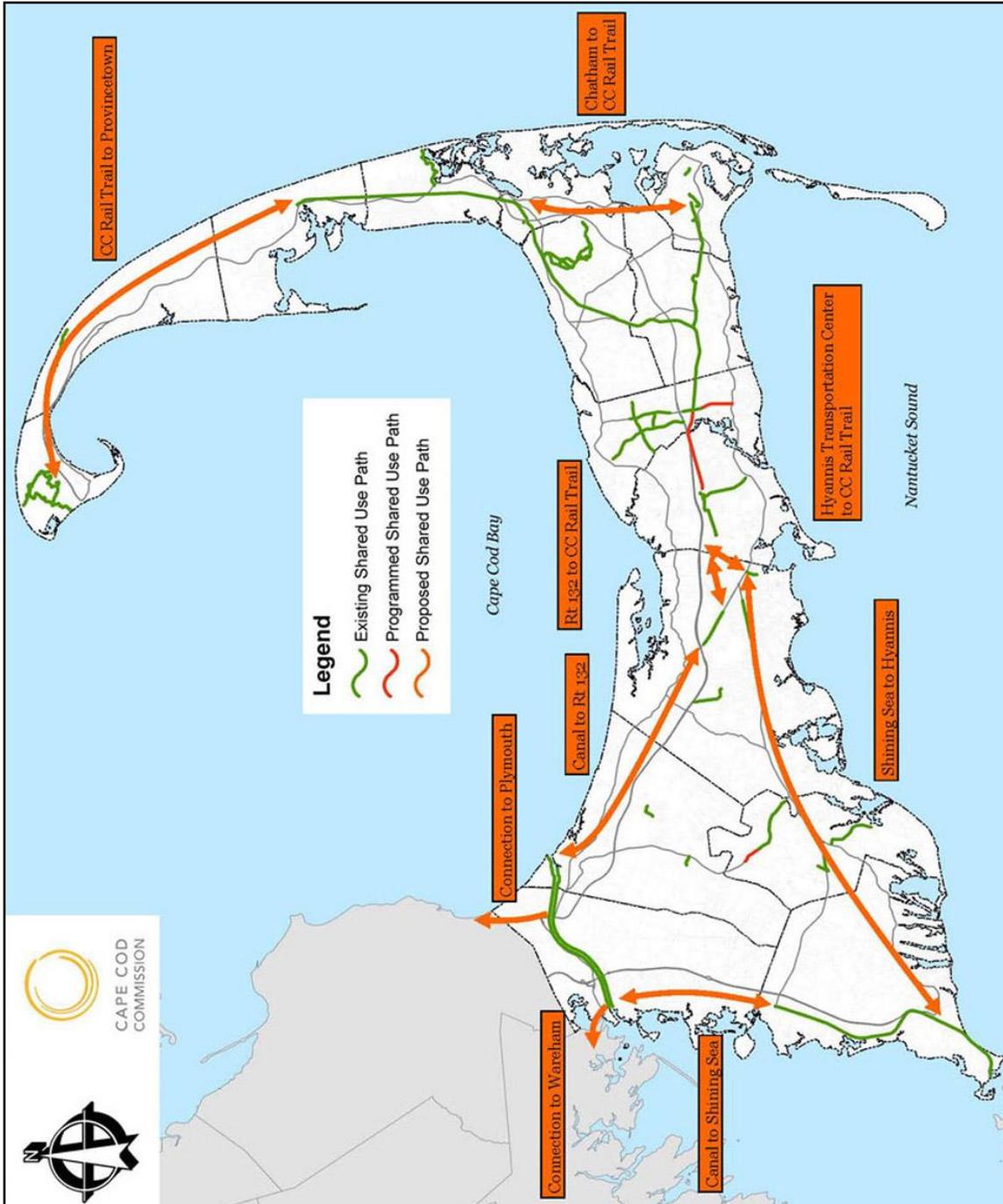
The 2010 Integrated Bicycle Plan for Cape Cod¹ (the “*Feasibility Study*”) developed by the National Park Service (NPS) in partnership with the Cape Cod Commission (CCC) represents the most recent and comprehensive study of bicycle and pedestrian related projects for the region and is an important reference document. The *Feasibility Study* contains an initial list of more than 120 potential projects including new bicycle facilities or accommodations, improvements to existing facilities, and programmatic initiatives aimed at supporting bicycling use throughout Cape Cod. From that initial list the study identifies about 40 projects that would be “relatively easy to implement and yield significant benefit within reasonable costs.” The projects identified are among those needed to develop a regional network that would improve bicycle access and mobility, enhance safety, and/or encourage greater use of bicycling as a transportation option. The 2010 Integrated Bicycle Plan for Cape Cod section of this report provides a list of the study’s “selected” projects. The Town Bicycle and Pedestrian Planning Summaries in this report and the priority matrices also identify “selected” projects from the *Feasibility Study*.

¹ Available on line at:
www.capecodcommission.org/resources/transportation/2010_CCNS_Bike_Feasibility.pdf



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The following figure from the *Feasibility Study* represents an overall vision for bicycle path connections to and within Cape Cod. The segments shown in green are existing paths, and those in orange represent generalized routes; detailed alignments are to be defined. The figure represents the regional vision for expansion of the Cape's bicycle path infrastructure that would connect Falmouth and Bourne to Provincetown.





BENEFITS OF BICYCLING

Bicycling for transportation or recreational purposes is beneficial in numerous ways, and investing in bicycle infrastructure is a worthwhile investment. Local residents, businesses, and visitors to the region all benefit from bicycling – on an individual level, and on a community level - from the associated economic, environmental, and health benefits. Bicycle and pedestrian infrastructure requires relatively low investment, and expanding bicycle (and pedestrian) facilities would provide an overall benefit to the region.²

TRANSPORTATION

Bicycling (and walking) is an easy way to complete short trips, while helping to reduce automobile travel. Potential benefits from reduced automobile travel include less traffic congestion, increased traffic safety, road and parking facility savings, and reduced air pollution. Bicycling also provides a needed form of transportation, particularly for those without cars or driver's licenses who might depend on the bicycle as their main form of transportation.

HEALTH

Bicycling (and walking) is an excellent form of physical activity to prevent and/or control detrimental health conditions and also enhance overall fitness. Physical activity reduces the risk of cardiovascular disease, type 2 diabetes, some cancers, and a variety of other chronic conditions. Exercise such as bicycling is also beneficial for mental health and stress management.

ECONOMICS

² Litman, Todd, *Evaluating Non- Motorized Transportation Benefits and Cost*, Victoria Transport Policy Institute May 2013. This article is a useful reference for identifying benefits and costs of “non-motorized” forms of transportation, noting that conventional economic evaluation tends to overlook and ignore the benefits of bicycling and walking and thus undervalues providing infrastructure that supports them.



State and national economic impact studies have shown that bicycling - including the bicycle industry (bike manufacturing, distribution, retail, etc.), bicycle tourism, and the health benefits from cycling - generates significant revenue and cost savings for the regional and local economy.³ Bicycle and pedestrian infrastructure requires smaller rights-of-way and less overall financial investment than roadways.⁴ Bicycling also creates jobs – both within the industry and from bicycle/pedestrian infrastructure projects, which create more jobs per dollar than road projects. Evidence suggests that bicycling and walking projects create 11-14 jobs per \$1 million spent, compared to just 7 jobs created per \$1 million spent with highway projects.⁵

Studies conducted in Iowa, Minnesota, and Vermont have shown significant state revenue generation from bicyclists' spending on goods and services and job creation supported by that spending.⁶ A study conducted on the Outer Banks in North Carolina (like Cape Cod, a coastal regional where tourism is a primary revenue source) found that bicycle tourism there generates \$60 million annually, and that a one-time \$6.7 million bicycle infrastructure investment resulted in that annual nine-to-one return. The study also indicated that the quality of bicycling in the area influenced visitors' vacation planning.⁷

Bicyclist destinations particularly benefit from bicyclists' spending in the local economy. As with the Outer Banks, Cape Cod's downtowns, beaches, and other natural and cultural attractions also draw visitors (and residents) seeking to travel by bicycle. Cyclists eat, shop, and vacation in communities that are bike-friendly and are beneficial visitors: a recent study shows that bicyclists spend more than car drivers per month at restaurants, bars, and convenience stores.⁸ The studies' findings are important for a business to consider, suggesting that providing amenities and parking spaces for bicycles may be beneficial economically (and more so than cars at times).

³ Flusche, Darren, *Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure*, League of American Bicyclists and the Alliance for Bike & Walking, June 2009, updated and expanded July 2012. This publication provides major findings from recent economic impact studies and is a useful resource.

⁴ 2012 Regional Transportation Plan.p.345

⁵ Peletier, Heidi Garrett, *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*, Political Economy Research Institute, University of Massachusetts, Amherst, June 2011.

⁶ See Flusche for citations and links to the studies.

⁷ See Flusche.

⁸ Kelly J. Clifton, Sara Morrissey, and Chloe Ritter, "Business Cycles: Catering to the Bicycling Market," TR News (May – June 2012) contains links and references to recent studies.



ENVIRONMENT

Bicycling produces no pollution and does not consume fossil fuels. The most frequent, comfortable, and practical trips for bicyclists— those under five miles—produce the greatest environmental benefits, since trips shorter than five miles are the least fuel efficient and produce the highest emissions per mile.

GUIDE TO TERMINOLOGY

The following terms have the following meanings in this report:

Bikeway - A generic term that refers to a travel way upon which bicycles can travel. A street where people can ride bicycles is a bikeway. Not all bikeways are bicycle “facilities” (see definition below).

Bicycle facility - A bikeway that is designated specifically for bicycles through signage or pavement markings. Bicycle facilities may be on or adjacent to the roadway (e.g., bike lanes or paved shoulders) or an independent facility (bike paths). Bicycle facilities also include associated bicycle accommodations such as bicycle shelters, parking, and bicycle-oriented traffic control devices.

Bicycle lane (“Class II” facility) – A portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential and exclusive use of bicyclists. Bike lanes are striped at the outer edge of vehicle travel lanes, on the shoulder or between a vehicle travel lane and parking or turn lanes.

Bicycle path - A right of way, separate from a roadway, designated for bicycle or other non-motorized use. The term bicycle path is used interchangeably with “shared-use” and “multi-use” path in this report.

Bicycle route - A suggested route for bicycle travel. It may be an on-road route where bicyclists and motor vehicles share the travel way, and it may include stretches of other designated bicycle facilities. In general, a bicycle route designation does not require that the road include any special bicycle facilities. (See also “signed shared route.”)

Level of service – A qualitative measure that characterizes operational conditions within a traffic stream and their perception by motorists and passengers.

Bicycle Level of Service – a model used to estimate bicyclists’ perception of how well a roadway accommodates bicycles.



Pedestrian Level of Service – a model uses to estimate pedestrians’ perception of how well a roadway accommodates pedestrians.

Multi-Use Path – See Shared-Use Path.

“Share the road” program – a public education initiative directed at cyclists and motorists to encourage safe roadway behavior and promote safe travel spaces for all road users. State and local transportation departments throughout the country promote such programs through signage workshops, brochures, and other informational materials.

Shared Use Path (“Class I” facility) - A path or trail that is physically separated from motor vehicle traffic located either within the road right-of-way or within an independent right-of-way. Also referred to as “multi-use” pathways, they include bicycle paths, rail-trails or other facilities built for bicycle and pedestrian traffic and allowing other non-motorized travel modes such as skateboards and horses.

Sharrow - A “shared-lane” (share + arrow) marking used to indicate that bicycles and cars operate in the same lane. Sharrow placement – depending on the width of the travel lane – guides bicyclist position in the roadway.

Shoulder – The portion of a roadway contiguous with vehicle travel lanes, for accommodation of stopped vehicles and emergency use, often used by cyclists where paved.

Signed Shared Route – A bicycle route that has been identified as a preferred route with signage. (See also Bicycle Route.)

BICYCLE AND PEDESTRIAN FACILITY IMPLEMENTATION CONSIDERATIONS

This section of the report identifies “suitability” factors to consider when planning for bicycle and pedestrian facilities. Bicyclists with different levels of experience, confidence, and purpose for riding have varied accommodation needs. The range of needs should be taken into consideration when deciding which type of facility to implement. Bicycle facility planners and designers typically consider these three levels/groups when planning a facility:

- Group A - Advanced Bicyclists; Experienced riders who can operate under most traffic conditions and who desire direct routes and high speeds.



- Group B - Basic Bicyclists: Casual or new adult and teenage riders who desire low-speed, low-volume streets or designated bicycle facilities.
- Group C: Children: Pre-teen riders whose key destinations are within or adjacent to residential streets areas and who prefer low volume streets with slow traffic or clearly defined separate bicycle paths.

Other factors such as available right-of-way width, topography, roadway traffic volumes, and vehicle speeds are also key factors in siting and design of bicycle facilities. Many of Cape Cod's "unimproved" roads, particularly those with little traffic and low speeds are adequate for bicycling and may not necessitate additional safety treatments. In some cases, relatively simple measures such as striping a fog line to delineate a space for bicycles on the road or installing sharrows for shared lanes, may provide a safety improvement for little cost. Other roads, with higher vehicle speeds and traffic volumes may not be suitable for even experienced cyclists without separation from motor vehicles.

Facility types and treatments:

PAVED SHOULDERS

Paved shoulders are the areas at the sides of the road that are outside of the vehicular travel lanes, but are paved. Shoulders are distinguished from the travel lanes by striping. Paved shoulders should be at least 4 feet wide to accommodate bicycle travel, but if that is not possible, any additional shoulder width is better than none at all. Riding in the shoulder area may be challenging for inexperienced bicyclists who lack the skills and confidence to ride in close proximity to cars. Paved shoulders should be provided in both directions on a roadway, with bike traffic travelling in the same direction as motor vehicle traffic in the adjacent lane. Curbs can be hazardous to cyclists; in areas where curbs are present, additional shoulder space should be provided if possible to protect the cyclist from hitting the curb.

Road paving and reconstruction projects provide ideal opportunities to add or improve shoulders for bicyclists. This includes utility projects such as water and sewer pipe installation. Paved shoulders also can be added to existing roads as a separate construction project, but that is generally more expensive than adding them during other road work projects. It also may be possible to create shoulders within the existing road footprints (i.e. no widening necessary) through a lane or road "diet" that reduces the number of vehicle lanes and/or their width to produce room for a shoulder or a bike lane.



Paved Shoulders Suitability Considerations
Rural roadways where bicycle travel is common
Secondary roadways without curb and gutter
Roadways with few commercial driveways and intersections
Roads already heavily used by cyclists
Designated bike routes without improvements
Roads that establish a network or close a gap

BICYCLE LANE

A bicycle lane is a portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential and exclusive use of bicyclists. Striped bike lanes can be effective as a safety treatment, especially for less-experienced bicyclists. Bike lanes are not appropriate under all roadway conditions such as high speed roadways. Streets with bicycle lanes should be part of a connected bikeway system rather than being an isolated feature.



Bicycle Lane Suitability Considerations
Right of way can accommodate minimum bike lane width of 4 feet (for roads without curbs or gutters; 5 feet if there are).
Bike lane will be at least one-half mile in length.
Two-lane residential/collector streets with lower traffic volumes, low-posted speed limit, and an absence of complicated intersections .

SHARED USE/ MULTI-USE PATH

Shared or multi-use paths are often preferred facilities for less experienced bicyclists and children because they do not have to share the path with motor vehicles. Design standards require adequate width for two-directional use by both cyclists and pedestrians, provision of good sight



distance, avoidance of steep grades and tight curves that force bicyclists to make awkward movements, and minimal cross-flow by motor vehicles. Multi-use pathways need continuity with other facilities.

Shared Path Suitability Considerations
Pathway will have connection/continuity with other bike/ped facilities so that cyclists are not stranded without a nearby bikeway connection.
Minimal road cross-flow from motor vehicles (i.e. driveways, road intersections).
Sufficient land area to accommodate minimum width standards, while avoiding steep grades and tight curves.

SHARROW

Sharrows delineate the “shared” lane for motor vehicles and bicycles and guide bicycle position in the road. They are a potential safety treatment option on roads that lack the width needed for a bike lane or shoulder. Sharrows may be appropriate on roads where motor vehicle speeds are less than 35 miles per hour (mph). Proper placement of the sharrow is a critical safety factor.



Sharrow Suitability Considerations
Posted speed limit 35 mph or less
Placement should be at least 12 feet from curb if parking lane is present

SIGNAGE (for bicyclists and pedestrians)

“Wayfinding” signage provides directional information to guide travelers to destinations. It is useful for directing bicyclists and walkers to the safest route to their destination. “Safety” signage communicates safety regulations and warning (i.e. “yield to bicycles,” “stop,” “share the road,” “use shoulder only” etc.). Both types of signage are important features of bicycle routes.



SIGNED SHARED BICYCLE ROUTE

Signed routes are a cost-effective way to inform bicyclists of the safest route to reach their destinations and should be part of a comprehensive, connected bikeway network. Routes should be located on roads with



physical or operational characteristics that are favorable to bicycling such as wide travel lanes, bike lanes, paved shoulders, and/or low traffic speeds and volumes. Directional signage and/or pavement markings should be provided along the route to guide riders.

Questions about potential liability issues can discourage towns from designating routes, and town officials should consult with legal counsel for advice. In general, liability for designating bike routes should not be a concern, provided the route is generally compliant with state and national standards and policies⁹. MassDOT’s policy provides useful guidance to consider when designating a route. (See Appendix.)

Signed Shared Route Suitability Factors
Routes should be located on roads with physical or operational characteristics that are favorable to bicycling such as wide travel lanes, bike lanes, paved shoulders, and/or low traffic speeds and volumes.
Route connects to destination(s)
Signage and/or pavement markings should be provided along route to guide riders.

WIDE OUTSIDE LANE

A wide outside lane (or wide curb lane) is a shared-use lane that is wider than a standard lane and allows a motorist to safely pass a cyclist while remaining in the same lane. They are often used in urban locations where curbing and a parking lane preclude the ability to widen the roadway. Some cyclists prefer wide outside lanes over bike lanes because they provide sufficient space for the motor vehicles to pass and do not restrict the cyclist to a (relatively) narrow bike lane. Also, by widening the outside lane by a few extra feet both motorists and bicyclists have more space in which to maneuver. However, bicycle lanes do provide a designated space for the cyclist, and some cyclists feel that the delineation of separate lanes exclusively is safer than sharing even a wide lane.

Wide Outside Lane Suitability Factors
Road can accommodate minimum of 14 foot outside lane width
15 feet preferred width where extra space is required for maneuvering (e.g. on steep grades) or to keep clear of on-street parking or other obstacles

⁹ MassBike Executive Director David Watson (email October 16, 2013). A useful resource on liability and bicycle facilities can be found in: http://www.bikeleague.org/sites/bikeleague.org/files/bikeleague/bikeleague.org/programs/bicycledfriendlyamerica/communities/pdfs/nchrp_liability_aspects_of_bikeways.pdf



CONFLICT ZONES

“Conflict” zones are painted (or thermoplastic) road surface areas that guide cyclists through locations where motor vehicles might cross into a bike lane or shoulder area occupied by bicycles. Blue or green paint alerts bicyclists that they are entering a “conflict” area (such as right-turning lanes, merging lanes, etc.) and provides a visible “zone” to guide them through it. Painted conflict zones also alert motorists of cyclists’ presence and their right of travel.

ROAD OR LANE DIETS

The number of travel lanes and/or their width can be reconfigured within the existing pavement footprint to create shoulders or bike lanes from the road space “gained” by reducing vehicle travel lane(s). A road “diet” reduces the number of motor vehicle travel lanes; a lane diet reduces the lane width. Any roadway reconfiguration/diet requires careful consideration of traffic characteristics and other factors to understand potential level of service and safety impacts.

SIDEWALK

Sidewalks should provide a safe and continuous pathway for pedestrians. They should be separated from the road by either a curb or a planted buffer area such as a planted strip located between the sidewalk and roadside. Sidewalks in residential or low-density commercial areas vary in width from 4 to 8 feet. ADA standards require sidewalks to provide a minimum of 5 foot width at least every 200 feet (for passing). If a planted strip is provided between the sidewalk and the curb, it should be at least 2 feet wide to allow for maintenance activities. The planted strip also provides space for street lights, fire hydrants, street hardware, and landscaping. Sidewalk design depends on several factors including whether the location is urban, suburban, or rural; historic character; street type, and environmental factors. While designed for pedestrian use, bicycles may use sidewalks unless a town restricts their use.

CROSSWALKS

Crosswalks provide marked areas for pedestrians to cross a roadway safely. They typically are installed at intersections but may also be placed to enhance safety at non-intersection locations with pedestrian activity. “Yield” or other warning signs may accompany the crosswalk. Crosswalk markings – including horizontal or diagonal stripes – and distinctive colors help define the pedestrian path of travel across a road and increase



visibility. Crosswalk safety enhancement treatments include “raised” crosswalks, textured pavers, warning lights, and medians/islands. (See also “striped/textured pavement” below.)

CURB EXTENSIONS

Curb extensions - also known as bulb-outs - extend the curb line or sidewalk out into the street or parking lane, which reduces the effective street width. Curb extensions significantly improve pedestrian crossings by reducing the pedestrian crossing distance, improving the ability of pedestrians and motorists to see each other, and reducing the time that pedestrians are in the street.

STRIPED/TEXTURED PAVEMENT

The use of paving materials such as brick, cobbles, concrete pavers, or other materials that create variation in color and texture reinforces the identity of the area as a traffic-restricted zone. Striped or textured pavement can be used to guide pedestrians/bicyclists or define a path of travel. (See conflict zones above.)



Existing Bicycle/Multi Use Paths and Bicycle Routes on Cape Cod

BICYCLE AND MULTI USE PATHS

The maps beginning on page 38 show the following bicycle and multi-use paths:

CAPE COD RAIL TRAIL

The Cape Cod Rail Trail (CCRT) was constructed in the 1970s from the out of service Cape Cod line rail right-of-way. The Massachusetts Department of Conservation and Recreation (DCR) owns and maintains the Rail Trail. The CCRT runs from Route 134 in Dennis, just north of Great Western Road, to LeCount Hollow Road in Wellfleet. An extension of the trail, from Harwich to Chatham, was completed in 2006 along the out-of-service Chatham branch rail right-of-way. Other extension projects are currently in the planning stages: a Dennis – Yarmouth piece will extend the trail from its terminus at Route 134 in Dennis to Peter Homer Park, just west of Station Avenue in Yarmouth. Construction is expected to be complete in 2016. The next extension piece would run from Peter Homer Park in Yarmouth to Mary Dunn Road in Barnstable, with eventual connection to Route 132 in Hyannis. This segment includes a bike/pedestrian bridge over Willow Street. An additional connection to the Hyannis Transportation Center is also under consideration and is a key recommendation of the Yarmouth Road Corridor Study Task Force. An extension on the eastern end of the trail is in initial stages, as the National Park Service (NPS) received funding to connect the current terminus in South Wellfleet to Truro and Provincetown. Planning is expected to get underway in 2014.

The rail trail is currently 10 feet wide in the newer sections and 8.5 feet wide in the old sections. The main line is 21.9 miles long, with 45 roadway crossings. The Harwich–Chatham “spur” is 6.2 miles long with 15 roadway crossings. Cyclists use the Cape Cod Rail Trail for both commuting and recreational purposes, as its length and location is ideal for riding from Wellfleet to Dennis and connecting with local routes and destinations along the way.



CAPE COD CANAL BIKE PATHS

The Cape Cod Canal Bike Paths run along both sides of the Cape Cod Canal. The Army Corps of Engineers owns and maintains the paths as frontage roads for the Cape Cod Canal. Both sides have benches and sitting areas, and are lit at night. The southern-side path is 6.5 miles long, 8 feet wide and has two roadway crossings. The mainland-side path is 7 miles long, 8 feet wide and has seven roadway crossings.

SHINING SEA BIKE PATH

The Shining Sea Bike Path, located in Falmouth, was constructed from a portion of the out-of-service Woods Hole Branch rail right-of-way. The first phase of construction, which runs from the Steamship Authority terminal in Woods Hole to the Falmouth Bus Depot on Depot Street, was completed in 1976, and subsequent phases have been added in the past decade, with the 10.7 mile trail currently terminating just south of County Road in Falmouth.

PROVINCE LANDS TRAILS AND HERRING COVE BEACH PATH

The Province Lands trails, owned by the Cape Cod National Seashore, are located in Provincetown. They provide paths through the dunes and adjacent woodlands between Race Point, Herring Cove, and Beech Forest, with connections to the beaches and Provincetown Municipal Airport. Cyclists primarily use the Province Lands trails for recreation and not to commute. The paths were built in the 1960s before development of bicycle path standards were developed. As a result they have steep slopes, sharp curves and other hazards. Bicycle traffic is restricted to 10 MPH travel for safety. There are a total of 7.6 miles of bicycle paths, with a paved surface 8 feet wide (with portions widened to 10 feet and resurfaced in 2008), and four roadway crossings. The Herring Cove beach path serves as a connection between the Herring Cove Beach parking lot and Province Lands Road. There is also a connection to the Province Lands trails through the parking lot.

SETUCKET ROAD AND DENNIS PATHS

Several paths exist in Dennis, owned by the town, creating a network for bicyclists and pedestrians. The longest path runs along Old Bass River Road from just south of Bob Crowell Road. The portion south of Mayfair Road is designated as Bicycle Route 1, part of the Claire Saltonstall Bikeway. The Old Bass River Road Path is 3.1 miles long, 8.5 feet wide, and contains 18 roadway crossings. Another nearby path is the Setucket



Road Path, which begins in Yarmouth near Route 6A and ends west of Airline Road. The path crosses Route 134 and Old Bass River Road. The western section of path, until Mayfair Road, is also designated as Bicycle Route 1. The Setucket Road Path is 3.2 miles long, 8.5 feet wide, and contains 19 roadway crossings. The third path in Dennis is located on Old Chatham Road between Old Bass River Road and Route 134. The Old Chatham Road Path is 0.7 miles long, 8.5 feet wide, and contains one roadway crossing. In total, these three paths are 7.0 miles long, and contain 38 roadway crossings.

NICKERSON STATE PARK TRAILS

Massachusetts Department of Conservation and Recreation (DCR) owns several bicycle paths located within Nickerson State Park in Brewster. These paths are recreational trails, offering a scenic ride through the park. They total 6.8 miles of bicycle path, with six roadway crossings.

NAUSET TRAIL

The Nauset Trail is located at the Cape Cod National Seashore in Eastham. It begins at Route 6 and the Salt Pond Visitors Center and runs to Coast Guard Beach. A connection to the Cape Cod Rail Trail can be made across Route 6 onto Salt Pond Road and Locust Road. The Nauset Trail is owned by the Cape Cod National Seashore and used primarily for recreation. It is 1.9 miles long, 8 feet wide, and has six roadway crossings.

HEAD OF THE MEADOW TRAIL

The Head of the Meadow Trail is located in Truro in the Cape Cod National Seashore. It runs from Head of the Meadow Road to High Head Road in Pilgrim Heights. The trail is owned by the Cape Cod National Seashore and is used primarily for recreational purposes and is 1.9 miles long, 8.5 feet wide, and has no roadway crossings.

ROUTE 28 PATH

The Route 28 path runs along Route 28 in Barnstable from Bearses Way to Old Stage Road. The Town of Barnstable constructed the path in 1980 as a safe route to the middle and high school, but sections have narrow pavement, insufficient shoulders, and inadequate roadway crossings. The path is used primarily for commuting, as it connects residences, businesses, schools and other points of interest. The Route 28 Path is 2.5 miles long, 8 feet wide, and has 28 roadway crossings.



ROUTE 130 PATH

The town-owned Route 130 path runs along Route 130 from Heritage Memorial Park to just north of Route 28 in Mashpee. In 2012 the town extended the path about $\frac{3}{4}$ mile from Heritage Park to Pickeral Cove Road. The Route 130 Path is about 3 miles long.

OLD TOWNHOUSE ROAD TRAIL

The town-owned Old Townhouse Road trail runs from near Station Avenue in Yarmouth, along Old Townhouse Road, behind the Bayberry Hills Golf Course, to Higgins Crowell Road. One alternative for the future Cape Cod Rail Trail extension from Yarmouth to Barnstable includes an upgrade/widening of the Old Townhouse Road path. This trail is 2 miles long, 8 feet wide, and has three roadway crossings.

OLD STAGE ROAD PATH

The town-owned Old Stage Road path begins at Route 149 in Barnstable, continues along the Service Road, and then turns down Old Stage Road. The path ends at Oak Street, where travelers can continue by sidewalk to Route 28 and Centerville shopping areas. It is used for both recreation and commuting, connecting West Barnstable and Centerville. The Old Stage Road path is 1.9 miles long, and has six roadway crossings.

FOREST ROAD PATH

The town of Yarmouth constructed the Forest Road path alongside Forest Road in 2006 and running from Old Townhouse Road to Winslow Gray Road in Yarmouth. Users can reach South Yarmouth and Route 28 by continuing on Forest Road. The Forest Road path is 1.4 miles long, 8.5 feet wide, and has 8 roadway crossings.

ROUTE 151 PATH

The town-owned Route 151 path runs along Route 151 from Mashpee Commons to Old Barnstable Road in Mashpee. At Old Barnstable Road, two forks turn south to access Mashpee High School. A third fork turns north and provides a connection to the Golf Club at Southport. The path is 1.1 miles long and has one roadway crossing. The town plans to extend the path to the Falmouth town line.

DONNA'S LANE PATH – GREAT NECK ROAD SOUTH



A bike path runs along Donna's Lane in Mashpee, providing a connection from Route 28 and the South Cape Village and Mashpee Commons commercial areas to the Great Neck Road South bicycle path.

HYANNIS TRANSPORTATION CENTER PATH

The Hyannis Transportation Center path runs from Route 28 in Barnstable to Main Street Hyannis. The path is 0.4 miles long and has three roadway crossings.

FORESTDALE SCHOOL PATH

The Forestdale School path is located in Sandwich and connects Route 130 to the Forestdale School. It is accessible by bike or on foot from surrounding neighborhoods and serves the needs of students traveling to and from the school. It is 0.4 miles long, 10 feet wide, and has two roadway crossings.

DOWNTOWN FALMOUTH PATH

The downtown Falmouth path, owned by the Town of Falmouth, is located on Hamlin Street in Falmouth, between Dillingham Avenue and Katherine Lee Bates Road. As a connection to downtown Falmouth, the path is used to access town hall, the library, and businesses. The downtown Falmouth path is 0.2 miles long and has no roadway crossings.

BICYCLE ROUTES

A bicycle route is any road, path, or trail that has been designated for bicycle use. The primary purpose of a designating a bike route is to identify the best travel way between destinations. In many cases, bicycle routes are located on side streets with a low volume of traffic, or on roads with wide shoulders. The maps beginning on page 38 show Cape Cod's bicycle routes.

Designating a bicycle route is an inexpensive way to facilitate bicycle travel and can help tourists and cyclists unfamiliar with an area find the best way to get around town. Signing designated bike routes can also provide an interim measure to establish an interconnected network that may be suitable for future bike accommodations such as paths or lanes. If roadway or traffic conditions become hazardous or otherwise undesirable, the route can always be changed through map revisions and signage.



CLAIRE SALTONSTALL BIKEWAY

The Claire Saltonstall Bikeway, or State Bicycle Route 1, is a series of bicycle paths and on-road routes that travel from Boston to both Provincetown and Woods Hole. The Cape Cod portion starts at Route 3A in Bourne and travels across the Sagamore Bridge sidewalk. After the Sagamore Bridge, the bikeway splits. One branch travels south, parallel to Route 28 and eventually joins with the Shining Sea Bikepath, until reaching Woods Hole. The main branch travels parallel to Route 6, joins with the Cape Cod Rail Trail, and then continues north to Provincetown. According to MassBike, the bikeway was mapped and established in 1978 by the Massachusetts General Court as a memorial to Claire Saltonstall, who died in a bicycle-motor vehicle accident. The Claire Saltonstall Bikeway, indicated by a green oval, is the primary signed bicycle route on Cape Cod, connecting Falmouth to Provincetown. The Bourne to Provincetown portion of the route is about 75 miles long, while the Bourne to Woods Hole portion is 22 miles long. Overall, the Claire Saltonstall Bikeway is about 165 miles long.

With increased development, changing land use patterns, and higher traffic volumes on the Cape since the state initially designated the route, portions have become hazardous for cyclists and needs to be rerouted. In addition, many signs have disappeared over the years, and the route is difficult to follow without a map. The CCC will conduct a study in 2014 and make recommendations for route revisions for Mass DOT to consider in its efforts to develop a state wide system of bicycle routes. The revision to the route is a key step in providing a safe, interconnected, and convenient route from Falmouth to Provincetown. While much it will likely be an on-road route, it should be designed so that upgrades – including shoulders, bicycle lanes, and off-road paths, could also be added over time.

LOCAL BICYCLE ROUTES

In addition to the Claire Saltonstall Bikeway, most Cape Cod communities have designated local bicycle routes in their towns. Many are signed shared routes, while others lack signage. Chatham and Eastham, for example, have designated on-road local routes for scenic rides and to reach popular attractions/destinations.

POTENTIAL REGIONAL BICYCLE ROUTES



The 2012 RTP provides two potential regional bicycle routes for consideration. They are not proposed as signed shared routes at this time but may help guide cyclists to alternatives to Route 6A and Route 28. Route 6A, in particular, attracts many cyclists seeking to tour Cape Cod, from the Cape Cod Canal in Bourne to the Orleans/Eastham rotary but is narrow and dangerous for bicycling.

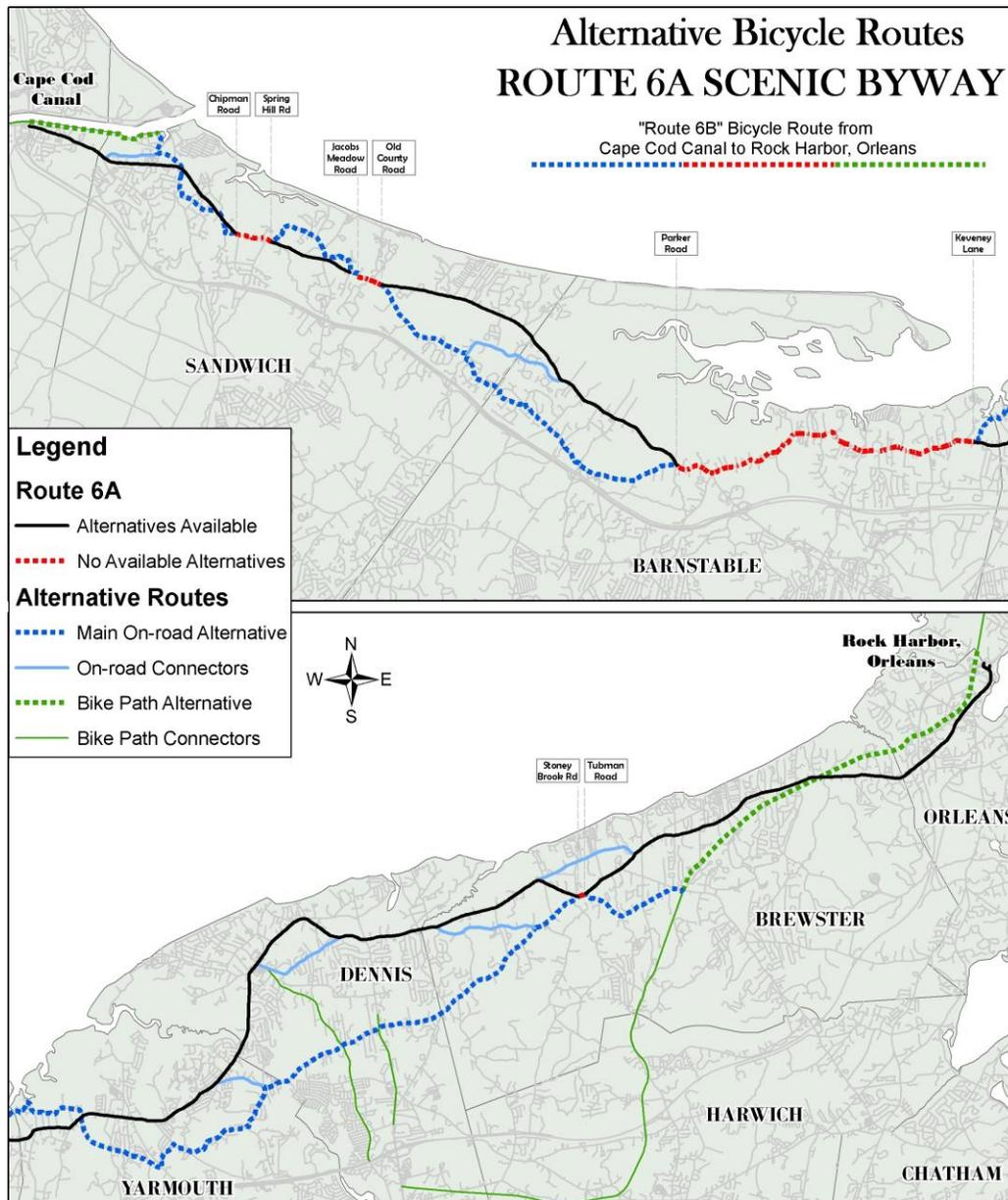
"ROUTE 6B" – NORTHSIDE BICYCLE ROUTE

The following figure shows a potential on-road bicycle route from the Cape Cod Canal area in Sandwich to the area including the Eastham Rotary and Rock Harbor at the Orleans/Eastham town line. Some non-roadway alternatives (such as the Cape Cod Canal multi-use path are not shown). The goal of establishing the Northside Route is to provide for the "best" bicycle travel within, among, and through the areas north of Route 6 in the towns from Sandwich to Orleans - and to generally avoid the narrow and busy Route 6A.

This alternative provides direct access to Route 6A and does not require cyclists to travel more than about one and a half times the distance that would be traveled if the cyclist stayed on Route 6A. Additionally, the alternate route still provides a showcase for the scenic and historic qualities of the district.

This figure was developed as part of the Route 6A Corridor Management Plan update, released by the CCC in 2010. The maps indicate useful alternatives to Route 6A as well as connector routes. The sections of Route 6A identified in red indicate road segments where no viable alternative exists.

Maps of the main "Route 6B" route are shown in subsequent figures.



ROUTE "6B" – NORTHSIDE BICYCLE ROUTE

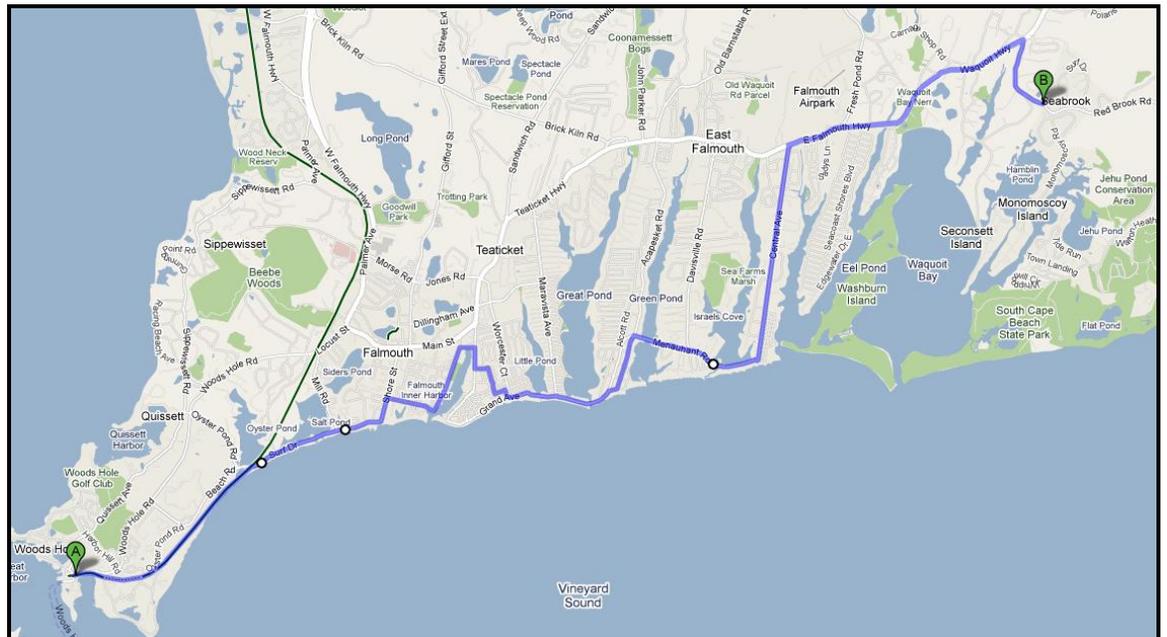
"ROUTE 28B" – SOUTHSIDE BICYCLE ROUTE

The following figure shows the Falmouth portion of a potential on-road bicycle route from the Woods Hole in Falmouth to Chatham Light. The goal of establishing the Southside Route is to provide for the "best" bicycle travel within, among, and through the areas south of Route 6 in the towns



from Falmouth to Chatham - and to generally avoid the narrow and busy Route 28. Maps of the rest of the route through Mashpee, Barnstable, Yarmouth, Dennis, Harwich, and Chatham are in the RTP¹⁰.

This alternative provides direct access to Route 28 and does not require cyclists to travel more than about one and a half times the distance that would be traveled if the cyclist stayed on Route 28. Additionally, the alternate route still provides a showcase for the scenic and historic qualities of the area.



POTENTIAL ROUTE "28B" IN FALMOUTH (SOURCE: CAPE COD COMMISSION, GOOGLE MAPS)

SIDEWALK CONNECTIONS

Most of Cape Cod's roadways do not have sidewalks. While many of these roads have low traffic volumes and are located in quiet residential areas, some are higher volume roads in commercial or higher density residential neighborhoods that do warrant sidewalks. On a street without sidewalks, pedestrians must walk in the shoulders or on private property. This can be unsafe and reduces access for the elderly and disabled. Respondents to a regional bike and pedestrian survey who found walking in their

¹⁰ See pages 381-385. Available on line at http://www.capecodcommission.org/resources/transportation/rtp/05_BikePed_08222011.pdf



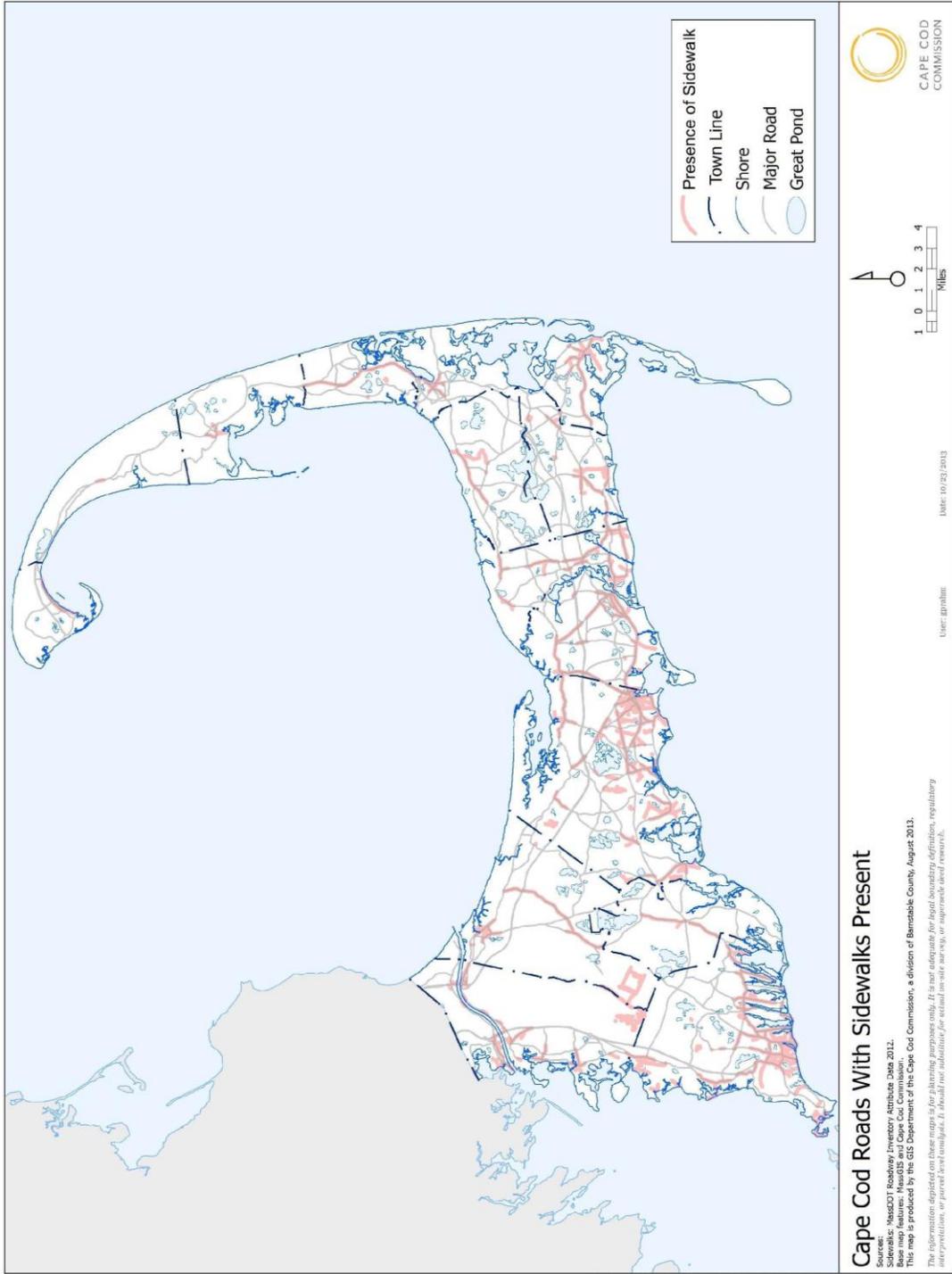
neighborhood difficult gave lack of sidewalks as the top reason.¹¹ Expanding the existing sidewalk network (and correcting improperly designed sidewalks) will help to encourage pedestrian usage in, around, and between business and population centers. The sidewalk network also includes crosswalks. Ensuring that crosswalks are located at high pedestrian areas throughout Cape Cod will help to improve safety as well as access.

The town narratives section of this report indicates whether the bus routes and stops have sidewalks. The following figure shows the existing sidewalk network, based on Mass DOT road data layers (with additional input from town officials on recent sidewalk installations). Note: sidewalks of non-standard dimensions and materials are not included in the state's inventory file and may not be shown on the map.

¹¹ Survey results available on the CCC website:
[http://www.capecodcommission.org/resources/initiatives/Data_All_131003\(1\).pdf](http://www.capecodcommission.org/resources/initiatives/Data_All_131003(1).pdf)



CAPE COD COMMISSION



MAP SHOWING CAPE COD SIDEWALKS (SEE INDIVIDUAL TOWN MAPS FOR BETTER DETAIL.)



2010 Integrated Bicycle Plan for Cape Cod Projects

In 2010, the Cape Cod National Seashore (CCNS) completed an Integrated Bicycle Plan (“Feasibility Study”) for Cape Cod. The National Park Service in partnership with the Cape Cod Commission developed the study to identify improvements necessary to develop an integrated bicycle network throughout Cape Cod. The study helps lay the groundwork needed to improve bicycling conditions in the region by developing a comprehensive and connected bicycle network. The study provides a list of both infrastructure improvements and programmatic initiatives to promote bicycling, enhance bicycle access, and improve safety. A list and summary of projects identified in the *Feasibility Study* is provided below. Together with the RTP, it represents the most recent Cape-wide bicycle study and plan.

The complete study is available on the Commission’s web-site:
http://www.capecodcommission.org/resources/transportation/2010_CCNS_Bike_Feasibility.pdf

FEASIBILITY STUDY SELECTED PROJECTS

The *Feasibility Study* produced the following list of projects. The study did not assign a ranking or priority, but rather categorized the projects according to the level of benefit and the barriers to implementation. According to the study, all proposed projects should be viewed as valid and potential projects that may be pursued for funding. Coordination between Cape Cod National Seashore, the Cape Cod Commission, Mass DOT and/or the respective municipality will be needed to advance selection and implementation of individual projects.

For further information such as preliminary design concepts, planning-level cost estimates, and recommendations for implementation, readers should refer to the study.

IMPROVEMENTS TO EXISTING FACILITIES



The following table lists 16 projects from the *Feasibility Study* proposing improvements to existing facilities. According to the study, the list was developed through an extensive public participation process involving all 15 Cape Cod towns and stakeholders and Mass DOT.

*An asterisk (added for the purposes of this report) indicates the project involves or could include a Potential Transit Route – Bike Route/Path Connector or sidewalk identified in this report.

Feasibility Study – Improvement to Existing Facilities Selected Projects

Project 5.2.1: Design Alternatives for Cape Cod Rail Trail Extension to Provincetown.
Project 5.2.2: Wayfinding Signage and Pavement Markings on CCRT
Project 5.2.3: Intersection Improvements on Setucket Road Path
*Project 5.2.4: Enhance Bicycling Conditions by Providing Paved Shoulders
Project 5.2.5: Identify Possible Sidewalks and Pedestrian Crossings near Brackett Road & Route 6
Project 5.2.6: Western Extension of CCRT through Independence Park
Project 5.2.7: Western Extension of CCRT to Hyannis Transportation Center
Project 5.2.8: Connect Chatham Municipal Parking Lot and Old Colony Rail Trail and Old Queen Anne Road via Route 137 Improvements
Project 5.2.9: Extension of the Old Colony Rail Trail from Volunteer Park to Schoolhouse Pond
Project 5.2.10: Connect Shining Sea Bikeway to Gifford Street
Project 5.2.11: Extend Shining Sea Bikeway through Bourne to Cape Cod Canal Bikeway
Project 5.2.12: Parking Improvements at Trailheads
Project 5.2.13: Connect Cape Cod Canal Bikeway to Hyannis Transportation Center
Project 5.2.14: Develop Plan for Intermodal Center in Falmouth
Project 5.2.15: Improve Bicycle Facilities on Tupper Road South of Route 6A
Project 5.2.16: Evaluate Use of Unpaved Roads for Bike Path Connections in Cape Cod National Seashore



NEW FACILITIES

The following table lists 22 projects proposing construction of new facilities. *An asterisk (added for the purposes of this report) indicates the project involves or could include a Potential Transit Route – Bike Route/Path Connector or sidewalk link identified in this report.

Feasibility Study – Improvement to Existing Facilities Selected Projects

Project 5.3.1: Evaluate Local Roads and Establish Bicycle Connections between Cape Cod National Seashore and Neighboring Communities
Project 5.3.2: Feasibility Study and Design of Bike Path along Route 6 from Herring Cove Parking Lot to Race Point Road
Project 5.3.3: Identify Possible Connections between the Cape Cod Rail Trail and Cape Cod National Seashore Trails
*Project 5.3.4: Regional and local Pedestrian and Bikeway connectivity to Dennis Port
Project 5.3.5: Identify Regional Connections between Existing Paths and Locations with High Pedestrian Traffic
Project 5.3.6: Identify a “Shore Route” South of Route 28 from Woods Hole in Falmouth to Stage Harbor in Chatham
Project 5.3.7: Identify a “Bay Route” from the Cape Cod Canal in Bourne to Orleans
Project 5.3.8: Relocation of Existing Rail Line and Conversion to Trail
Project 5.3.9: Connect Harwich Port to Old Colony Rail Trail
Project 5.3.10 Designate Route 28 as a Bike Route and Improve Conditions
*Project 5.3.11 Establish Bicycle & Pedestrian Connections between Orleans Villages
*Project 5.3.12 Connect MacMillan Pier to Cape Cod National Seashore Bicycle Paths
Project 5.3.13 Connect Province Lands Bicycle Trail and Head of the Meadow Trail
Project 5.3.14 Connect Truro Village Center to Truro Destinations
Project 5.3.15: Connect Shawme-Crowell State Forest to the Cape Cod Canal Bikeway
*Project 5.3.16: Connect Wellfleet Bay Wildlife Sanctuary to Cape Cod Rail Trail
*Project 5.3.17: Identify Potential Bikeway Alignment through Sandwich Historic District.
Project 5.3.18: Identify and Implement “OBHC Triangle” Route
Project 5.3.19 Improve Bicycling Conditions on Route 130 in Sandwich
Project 5.3.20: Improve Bicycling Conditions on Quaker Meeting House Road in Sandwich.
*Project 5.3.21: Establish a Bicycle & Pedestrian Connection from Fort Hill Area Trails to Governor Prence Road
Project 5.3.22: Define Loops and Connections to Develop a “Grand Cape Tour” Along the Cape Cod Rail Trail



COSTS

The table below from the *Feasibility Study*¹² provides unit costs for bicycle and pedestrian accommodations.

Accommodation	Requirements	Unit Cost
On-road bikeway	Signing & striping	\$2/ Linear Foot
On-road bikeway	Widen existing roadway to provide shoulder/bike lane	\$95/ Linear Foot
Off-road bikeway	Construct shared use path adjacent to existing roadway, including utility pole relocation	\$145/Linear Foot
Off-road bikeway	Construct rail to trail path using abandoned railroad bed, minimal grading required	\$125/ Linear Foot
Off-road bikeway	Construct shared use path on new alignment	\$165/ Linear Foot
Off-road bikeway	Construct shared using existing corridor, minor grading and clearing required	\$150/ Linear Foot
Roadway Crossing, residential	Pavement markings, and curb cuts/ADA curb ramps	\$1,500 Each
Roadway Crossing, signalized	Mast arms, signal heads, pedestrian signals, pavement markings, and curb cuts/ADA curb ramps	\$70,000 Each
5' Sidewalk, bituminous	Sidewalks located on both sides of street	\$120/ Linear Foot
5' Sidewalk, concrete	Sidewalks located on both sides of street	\$140/ Linear Foot
Bicycle/pedestrian bridge	Total lump sum construction	\$1,200,000
Wayfinding Signage	Complete signage for wayfinding including directional and distance signs, route signs, destinations, etc.	\$18,400/Linear Mile
Bicycle rack (parking)	Installation on existing slab, drill & grout bolts	\$1,500 Each
Parking lot, trailhead		\$50,000 Each

¹² Page 94

INVENTORY OF CURRENT BICYCLE AND PEDESTRIAN PROJECTS



CAPE COD
COMMISSION

Numerous bicycle and pedestrian projects are in various states of planning and construction throughout the region. See Appendix for an inventory of recent and current projects. The Cape Cod Commission updates the list periodically as it receives new information.



Town Bicycle/Pedestrian /Transit Summaries and Maps

OVERVIEW

This section of the report provides town bicycle/pedestrian planning summaries with maps for each town that shows existing and proposed bicycle routes and paths, existing bus routes and potential transit/bike connector and sidewalks.

BACKGROUND

In 2011 the Cape Cod Commission, in partnership with the RTA, completed a Cape Cod regional bicycle/transit route map . As a follow-up to the map, the CCC, again in partnership with the RTA, and with funding provided by the Federal Transit Administration (FTA), developed the Cape Cod Regional Bicycle Wayfinding Design Guidelines in 2012. The document includes a bicycle signage plan for routes in each town. Both projects involved outreach and input from the 15 communities on their desired bicycle route locations and signage needs. This report, also funded by FTA, serves as the third piece of the RTA's and CCC's transit and bicycle/pedestrian planning partnership.

METHODOLOGY

The project team reviewed the most recent regional and local bicycle planning documents, including the Cape-wide *Feasibility Study* and town bicycle plans where available. It also researched Local Comprehensive Plans and bicycle route maps prepared by the towns. The team requested bus route data from the RTA and created geographic information systems (GIS) maps showing the fixed bus routes. MassDOT road inventory data layers were used to create base maps of existing bicycle routes and paths and sidewalks. These initial data layers contained errors in route and path locations and the project team sought input from bicycle committees and town officials to correct the data. Based on the maps, the team then identified gaps between existing transit routes and existing bicycle routes and paths and identified roads for potential “connectors.” The team



conducted site visits and also observed sidewalk locations on the bus routes. A draft map of the bike routes/paths and bus routes for each town was then prepared and sent to the town's bicycle/pedestrian representative with a request to review and revise as needed. Map changes were made based on comments received.

For the purposes of this project the team generally looked for the most direct roads between the existing transit route and existing bicycle route to provide an on-road/share the road connector. In some cases local bicycle committees indicated their interest in noting additional improvements or amenities planned for their community, such as bicycle rack locations or bus stops with poor access. These are discussed in the town narratives. Some towns show no mapped connector pieces. This is because the transit route overlaps with or already connects to a bicycle route or path.

PUBLIC PARTICIPATION

A regional bicycle/pedestrian steering committee comprised of a designated representative from each town as well as representatives from MassBike, MassDOT, RTA, and Senator Wolf's office met periodically in 2012 and 2013. Local bicycle committee members attended meetings as well. The committee guided the development of a Cape-wide bicycle-transit route informational pamphlet for the RTA and development of unified bicycle signage for the region (as noted above) and was consulted in the updating of the bicycle routes data layers for this project. Committee members serve as liaisons between their local boards and bicycle committees and state and regional transportation planners. The regional committee will to continue meet on an as - needed basis in the upcoming year.

REGIONAL BICYCLE AND PEDESTRIAN PLANNING SURVEY

The Cape Cod Commission launched a bicycle and pedestrian planning survey in December 2011 that ran on its web-site through August 2013. The survey results indicate that more Cape Cod residents and visitors would walk and bicycle more often with better accommodations, for both transportation purposes and recreation/exercise. The full survey results are included in the report's appendix. Other responses include:

- 43 percent of the participants said they bicycle for transportation purposes "often," with another 43 percent responding "sometimes." 14 percent answered that they "never" bicycle for transportation purposes.



- Regarding walking for transportation purposes, 41 percent responded that they do it often, while 50 percent said they walk sometimes. 10 percent said they never walk.
- 70 percent of respondents felt that capitalizing on opportunities to improve bicycle network during planned construction was “extremely important” for improving bicycling in the region.
- Respondents also felt that providing off-road multi-use paths where feasible and widening road shoulders where feasible are extremely important, 62 percent and 66 percent, respectively.

WEBSITE

The Cape Cod Commission’s website contains a Bicycle/Pedestrian Initiative page that provides notice of upcoming meetings and updates on projects in the region. Users can browse or download reports, plans, or other bicycle/pedestrian information and contact Commission staff with comments or questions.

OBSERVATIONS AND ANALYSIS

One objective of this report is to update the Cape Cod’s bicycle route data and compile that information into a regional base map that will be updated periodically with new route and bike facility information. While developing this report and its accompanying maps/plans, the project team encountered numerous discrepancies in the existing data layers. The CCC will share the updated data layers with Mass DOT to ensure that the state’s bicycle route and facility inventory is current and matches the CCC’s and towns’ databases.

The project team encountered differing “philosophies” about designating and signing bicycle routes, with concerns expressed in some communities about liability issues and the suitability of existing routes for bicycling. (See also discussion under Signed Shared Bicycle Routes in the Bicycle/Pedestrian Facility Implementation Considerations section.) It is important to remember that bicyclists are using Cape Cod’s roads and paths, and signing a route simply helps direct them to the best way of travel. An interconnected bicycle network is composed of a variety of facility types – both on and off road, some of which may not be suitable for all riders

A prime objective of this report is to review the connectivity between existing bus routes and existing bicycle routes and paths. A review of the



maps shows connectivity between them in many locations, i.e. many of the region's bicycle facilities overlap with or travel in close proximity to existing bus routes. However, the bicycle "level of service" on the bike routes varies, with some routes more appealing for cycling than others. This report identifies potential on-road connections between the bike routes and paths and bus routes. Bike lanes, striped and/or widened shoulders as well as off road paths may provide appropriate connectors, but analysis of the existing routes themselves also should be conducted to identify potential problem areas and where improvements could be made in the on-road network.

Recent bicycle planning efforts in some communities such as Harwich, Mashpee, Falmouth, and Sandwich have produced updated routes with consideration given to both connectivity and safety issues. The towns of Wellfleet, Truro, and Provincetown will be developing a bicycle and pedestrian master plan that will provide an opportunity for these communities to review and address bicycle routes and transit connections on the Outer Cape.

Most existing bus routes have sidewalks along at least one side of the road, but gaps in connectivity along the routes, particularly outside of the town centers may make it difficult for pedestrians to access some bus stops, particularly along higher speed routes. Locations where a potential connector links to a bus route that lacks sidewalks may be appropriate for an off-road shared use path that would address both cyclists' and walkers' needs. In some cases, the right of way may not be able to accommodate a separate facility for both cyclists and walkers but could accommodate a shared use path adjacent to the road.

As bicycling activity increases in the region, places to park bikes, particularly at popular destinations such as beaches, is needed. The RTA in 2012 provided bicycle racks to towns that expressed an interest in placing them in the vicinity of a bus route. In addition, the RTA has added bicycle racks at bus stops throughout the region.

Providing bicycle transport on buses is another amenity that benefits both recreational bicyclists and commuters, visitors as well as local residents. The ability to bring a bicycle on a bus in inclement weather or at night is especially important to people who rely on their bicycle (and bus) for transportation. The RTA buses currently can only accommodate two bicycles. Increasing their bicycle carrying capacity would help more people choose bicycling for getting around the Cape. In addition, the RTA runs a bicycle shuttle between Wellfleet and Provincetown in the summer. A shuttle service could be one way to help cyclists reach the Bourne Bridge from Buzzards Bay or reach a destination on Route 6A, a popular but hazardous route for bicycling.



BICYCLE/PEDESTRIAN/TRANSIT MAPS

This section contains maps of the 15 towns, plus one of the entire region.

MAP TERMS/CATEGORIES

The maps provide the following information:

CCRTA Route: The course of travel for a bus line. The maps show the road routes and designated stops for the fixed route RTA buses. Passengers may board the RTA fixed route buses at any of the scheduled bus stops or they may flag the bus down anywhere along the bus route (except for along Route 6). For PB and GATRA, the map shows only the stops.

Existing Bicycle Path: Off-road bicycle or shared-use path.

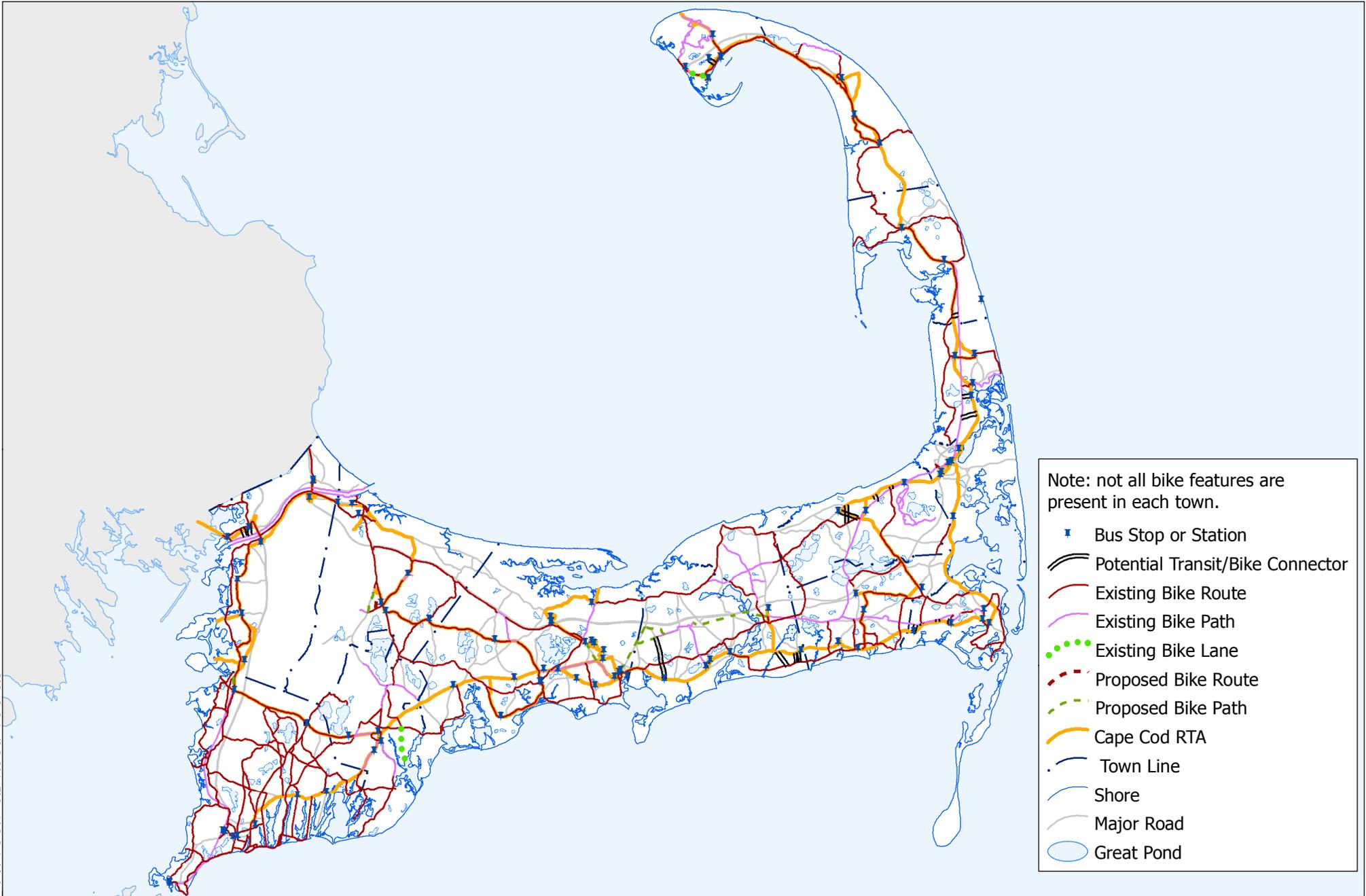
Existing Bicycle Route: A designated on-road route for bicycle travel. Some routes also contain segments on multi-use or bicycle paths

Existing Bicycle Lane: A portion of the roadway that has been designated by striping, signing, and pavement markings for the preferential and exclusive use of bicyclists.

Proposed Bicycle Routes: A bicycle route or path that is identified as “proposed” in the Regional Transportation Plan or by a municipality. This category includes facilities in design or under construction.

Potential Transit –Bicycle Connector: A roadway segment that links an existing transit route to an existing bicycle route or path .

Sidewalk: A hard surface pedestrian path adjacent to or near a road (as identified in the Mass DOT road file or town data base).



Cape Cod Bus Routes and Bicycle Path/Route Locations

Sources:

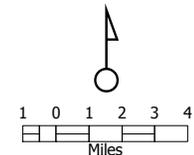
Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.

Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.

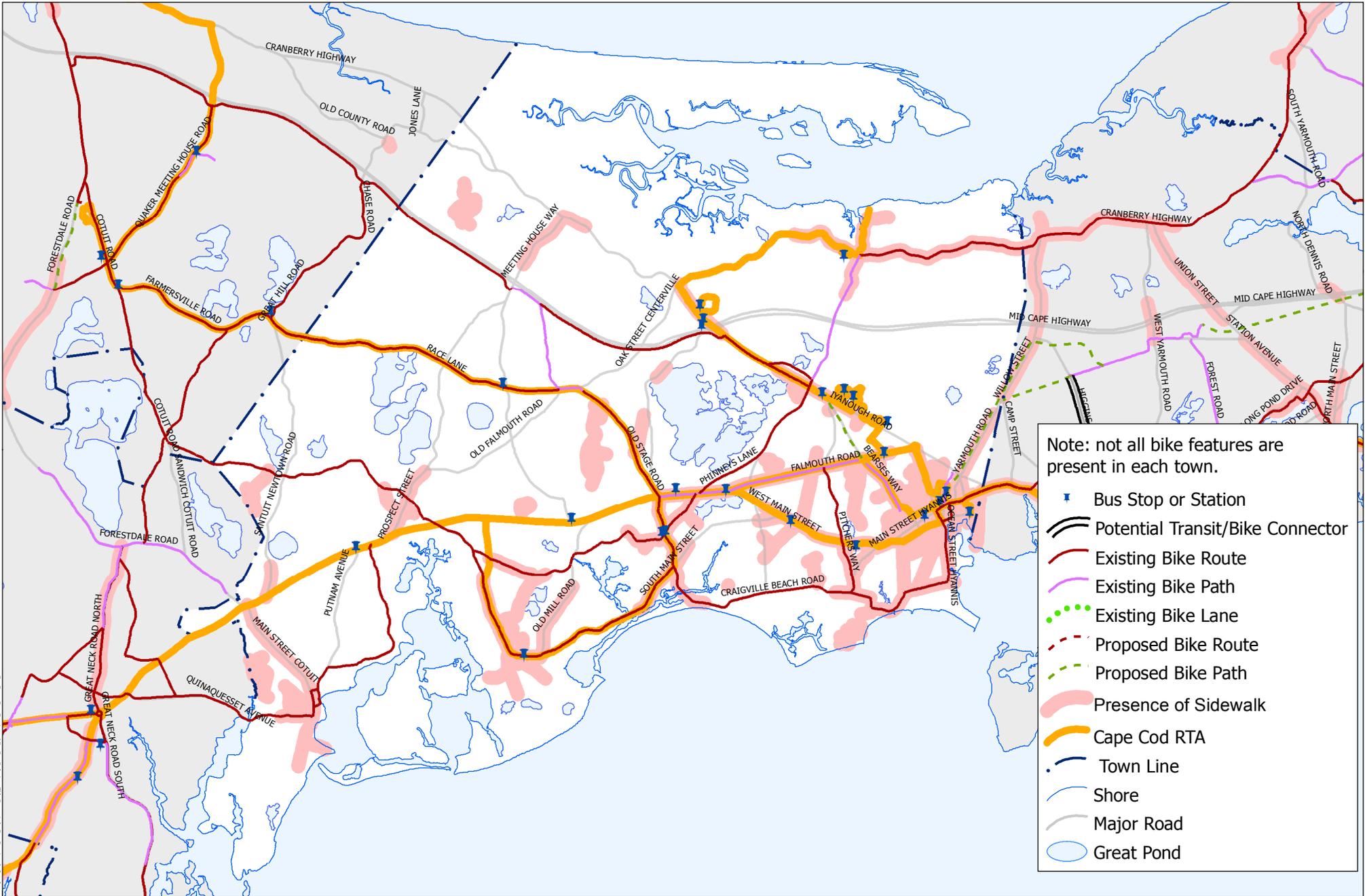
Base map features: MassGIS and Cape Cod Commission.

This map is produced by the GIS Department of the Cape Cod Commission, a division of Barnstable County, August 2013.

The information depicted on these maps is for planning purposes only. It is not adequate for legal boundary definition, regulatory interpretation, or parcel level analysis. It should not substitute for actual on-site survey, or supersede deed research.

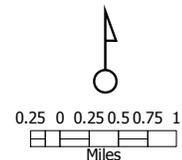


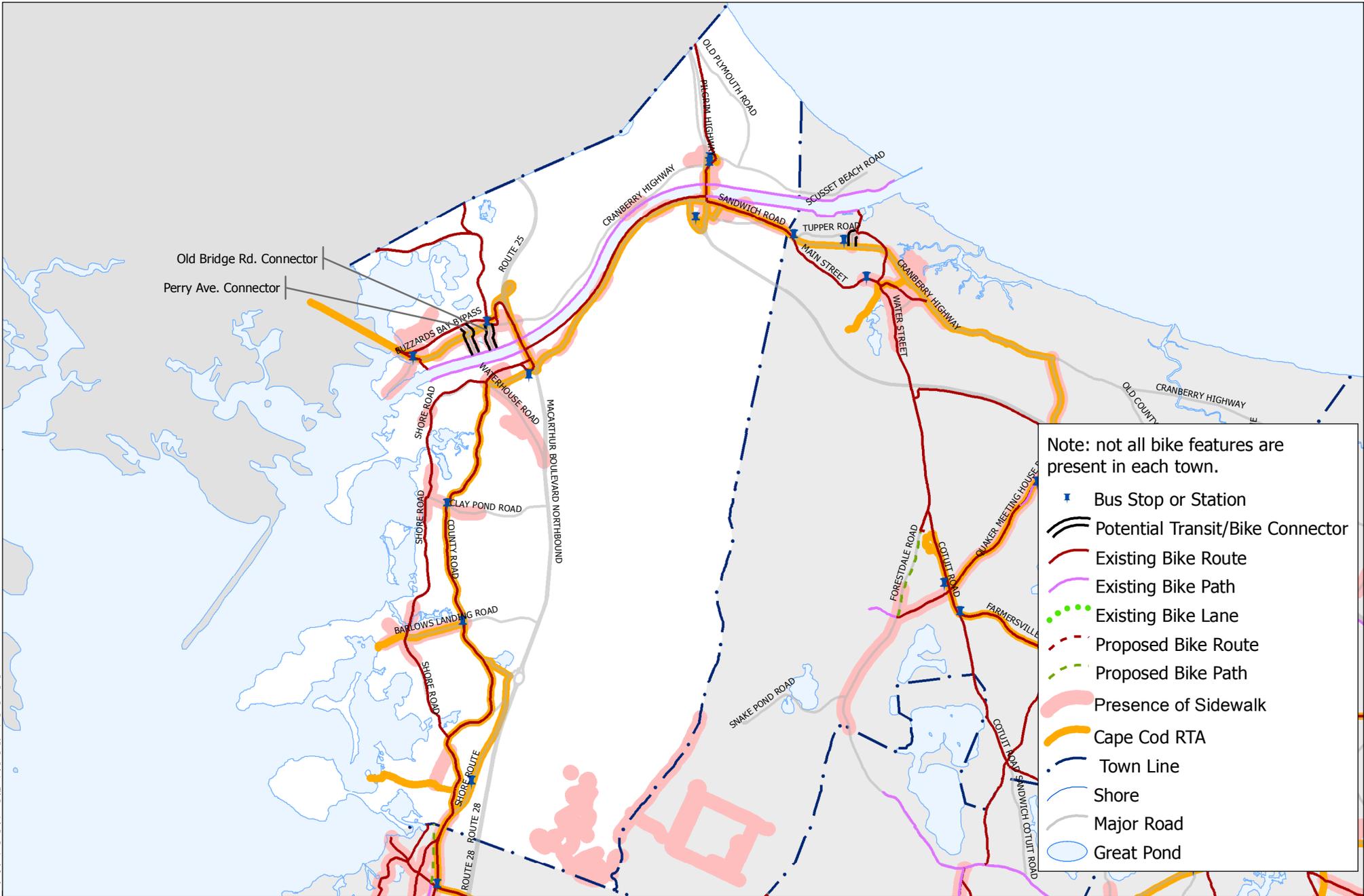
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Town of Barnstable Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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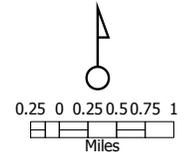


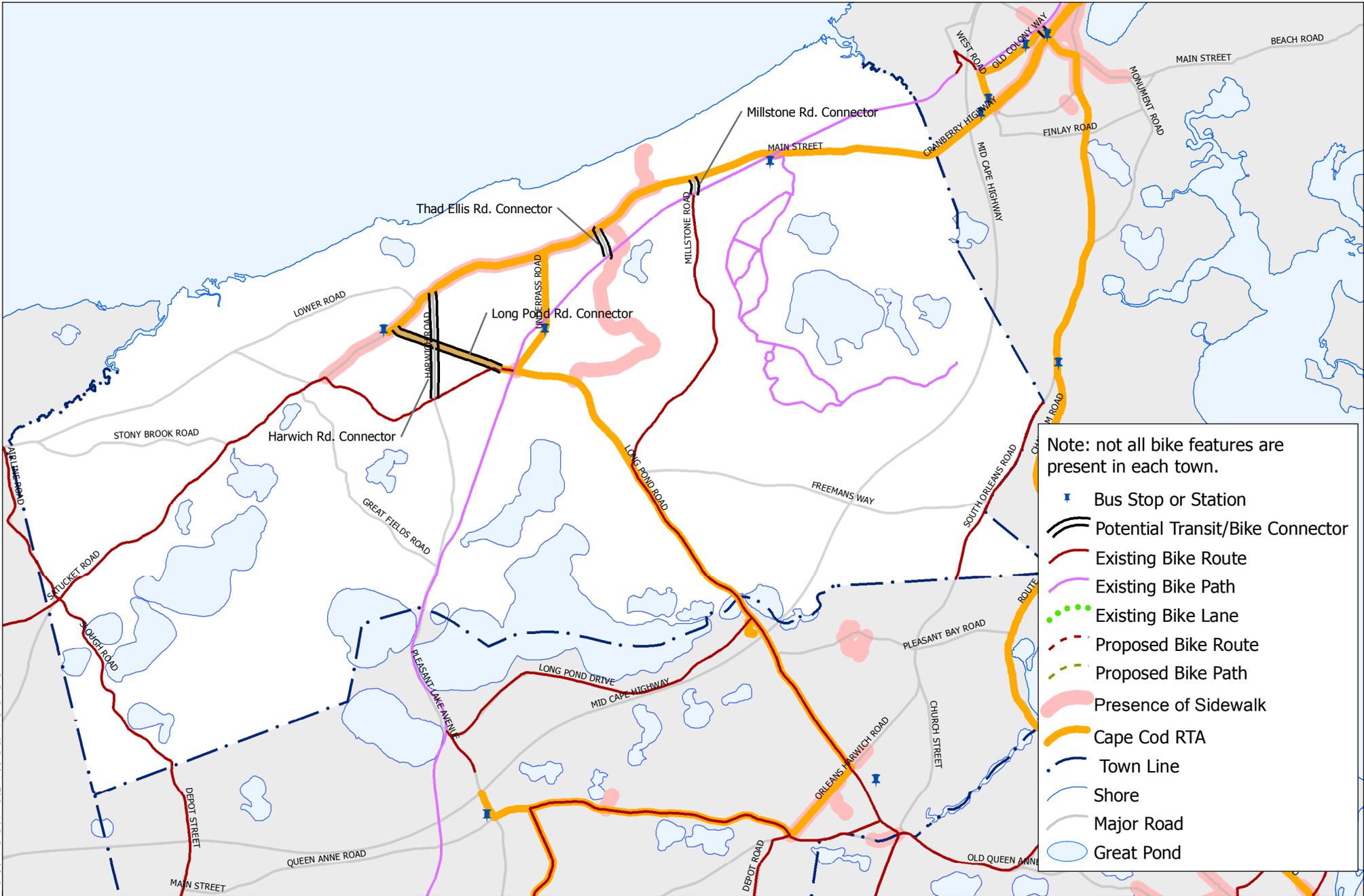


- Note: not all bike features are present in each town.
- Bus Stop or Station
 - Potential Transit/Bike Connector
 - Existing Bike Route
 - Existing Bike Path
 - Existing Bike Lane
 - Proposed Bike Route
 - Proposed Bike Path
 - Presence of Sidewalk
 - Cape Cod RTA
 - Town Line
 - Shore
 - Major Road
 - Great Pond

Town of Bourne Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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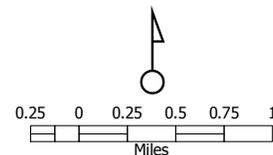


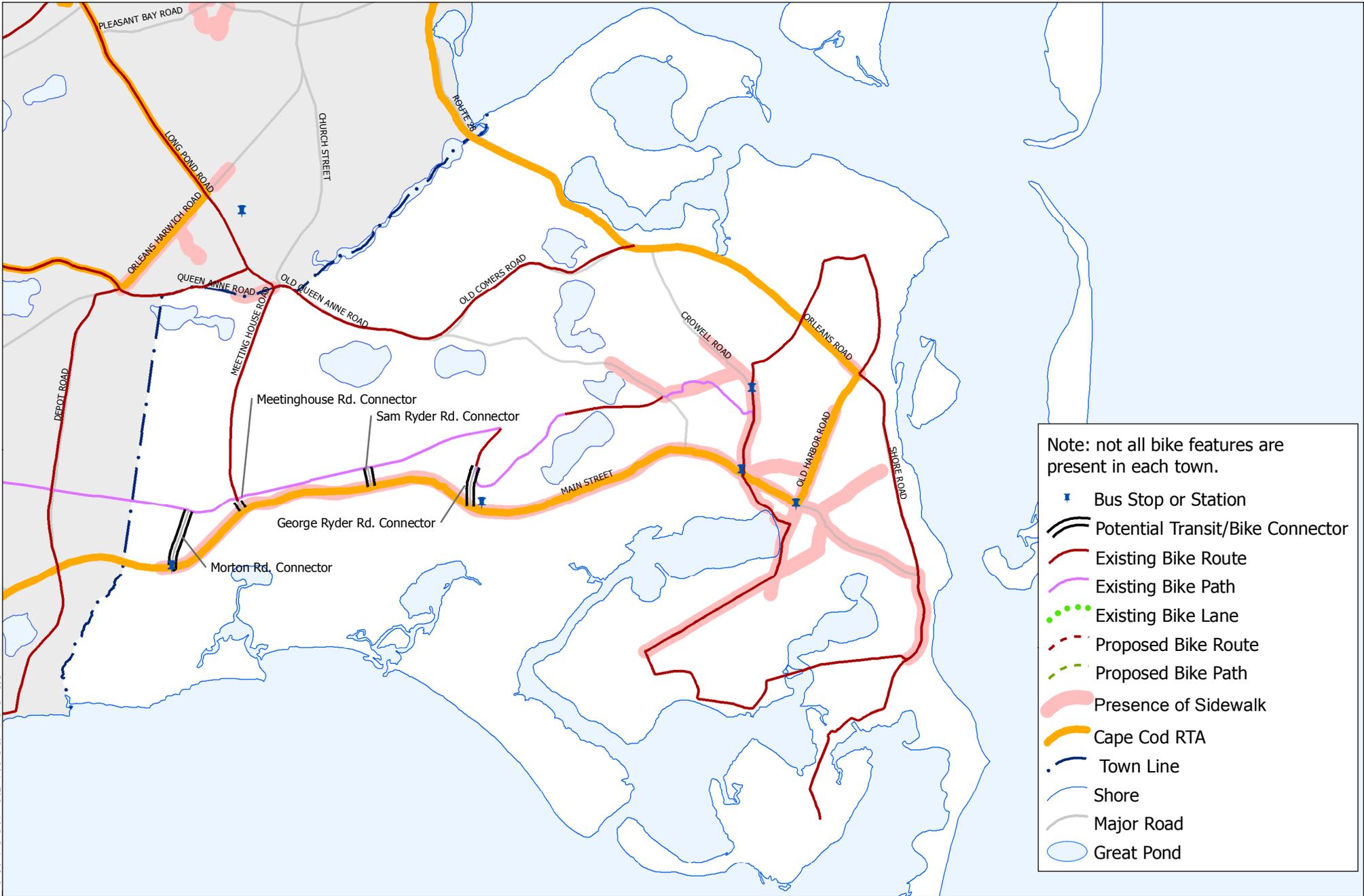


Town of Brewster Bus Routes and Bicycle Path/Route Locations

Sources:

Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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Note: not all bike features are present in each town.

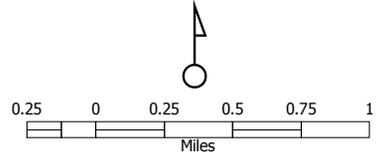
- Bus Stop or Station
- Potential Transit/Bike Connector
- Existing Bike Route
- Existing Bike Path
- Existing Bike Lane
- Proposed Bike Route
- Proposed Bike Path
- Presence of Sidewalk
- Cape Cod RTA
- Town Line
- Shore
- Major Road
- Great Pond

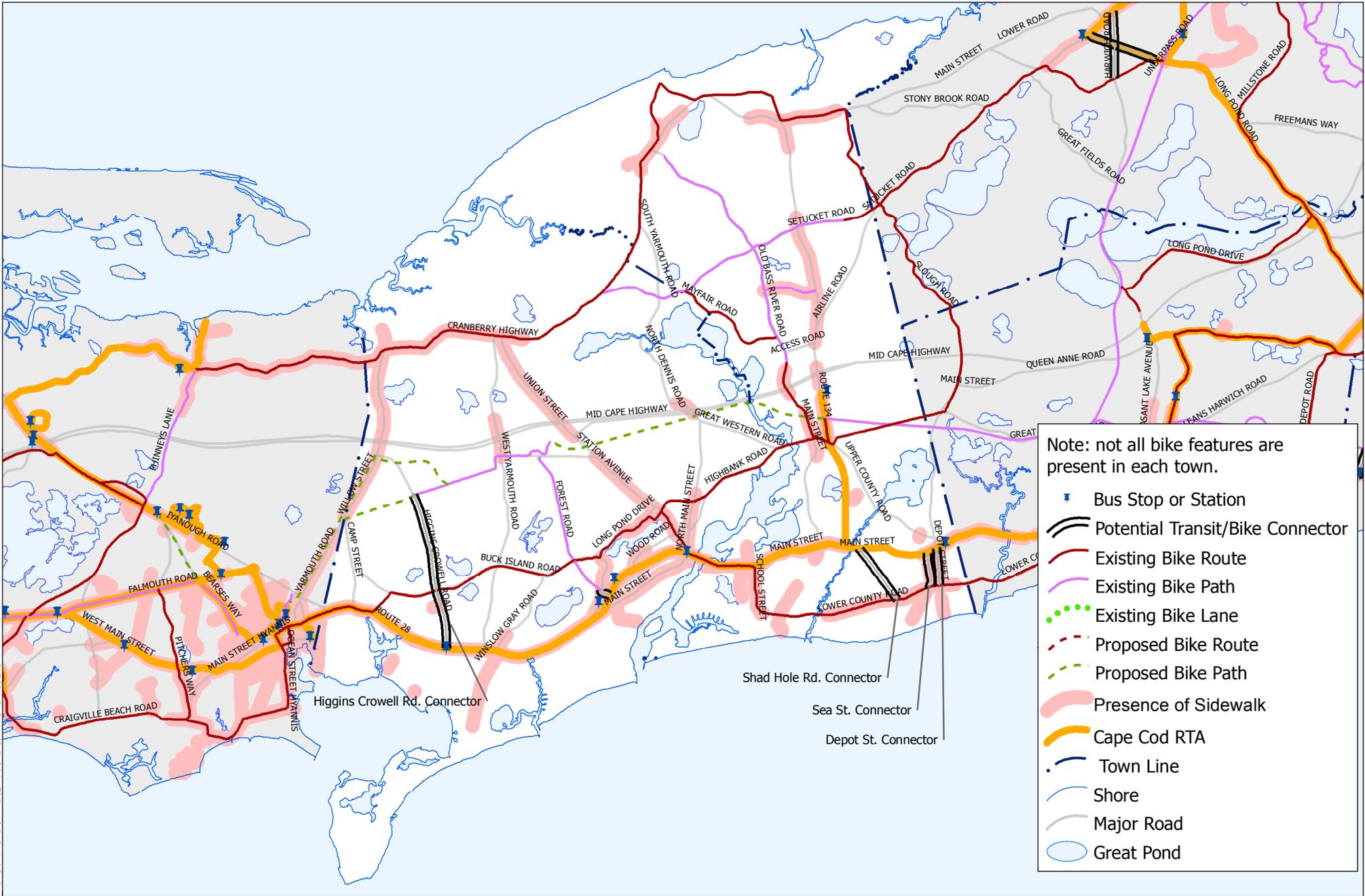
Town of Chatham Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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User: gprahm

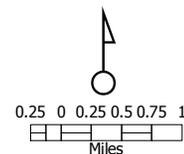
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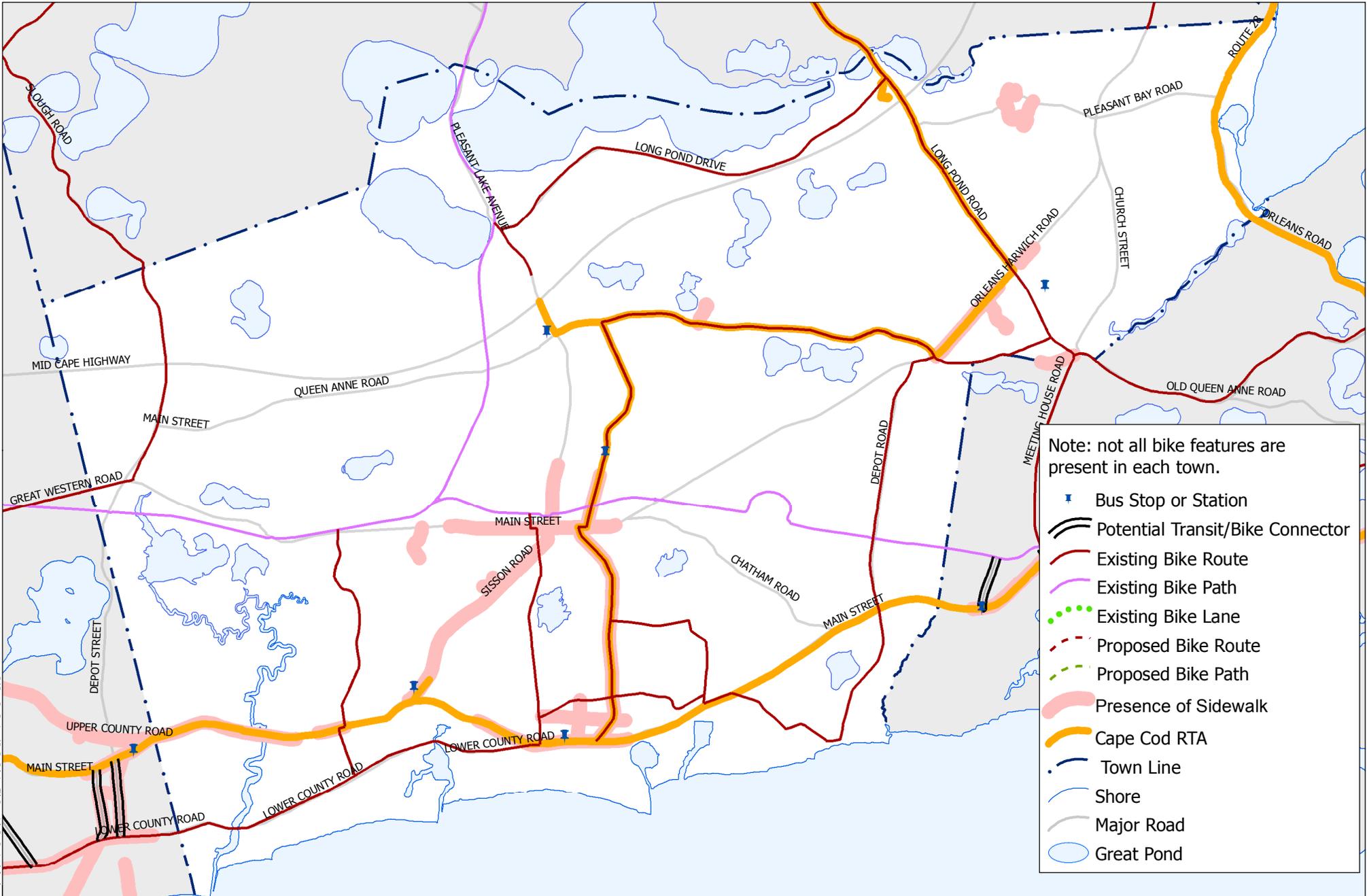




Towns of Dennis and Yarmouth Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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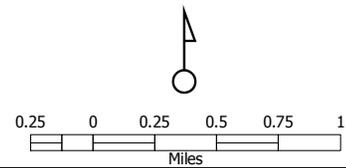


Town of Harwich Bus Routes and Bicycle Path/Route Locations

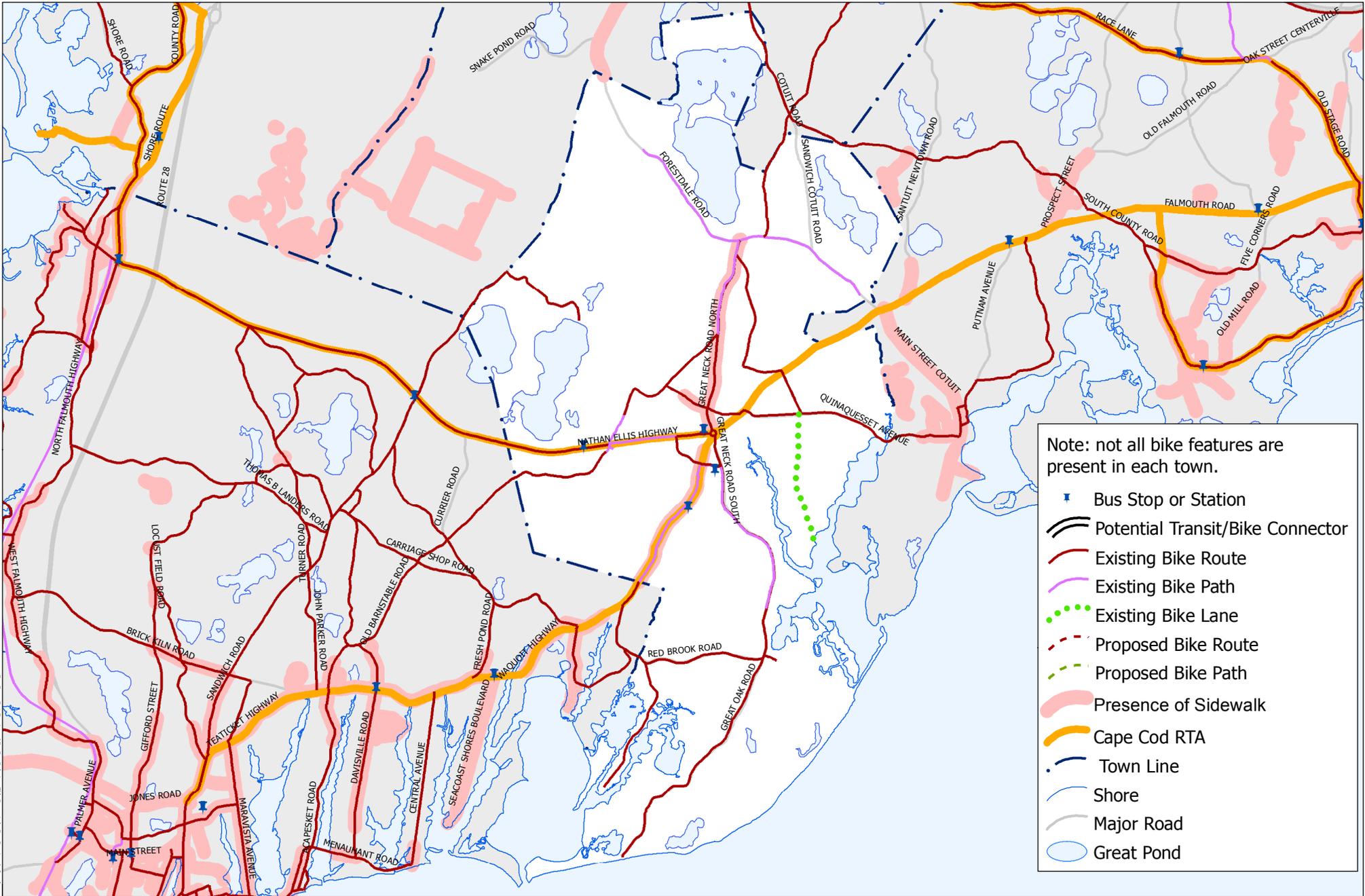
Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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User: gprahm

Date: 10/22/2013



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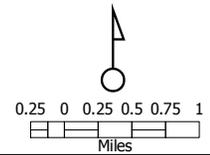


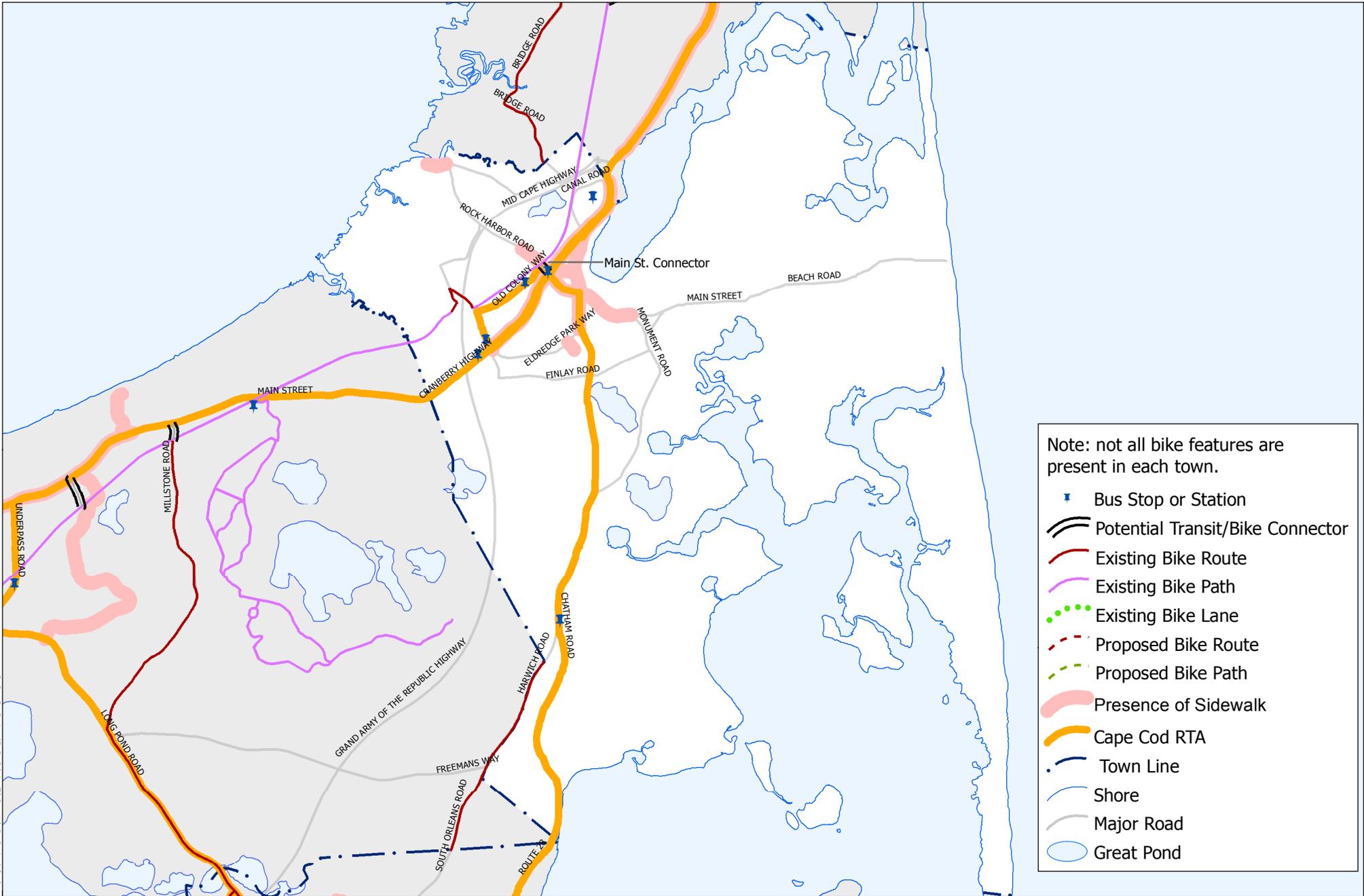
Note: not all bike features are present in each town.

- Bus Stop or Station
- Potential Transit/Bike Connector
- Existing Bike Route
- Existing Bike Path
- Existing Bike Lane
- Proposed Bike Route
- Proposed Bike Path
- Presence of Sidewalk
- Cape Cod RTA
- Town Line
- Shore
- Major Road
- Great Pond

Town of Mashpee Bus Routes and Bicycle Path/Route Locations

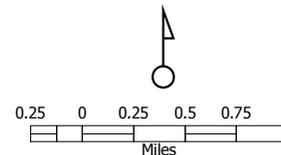
Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
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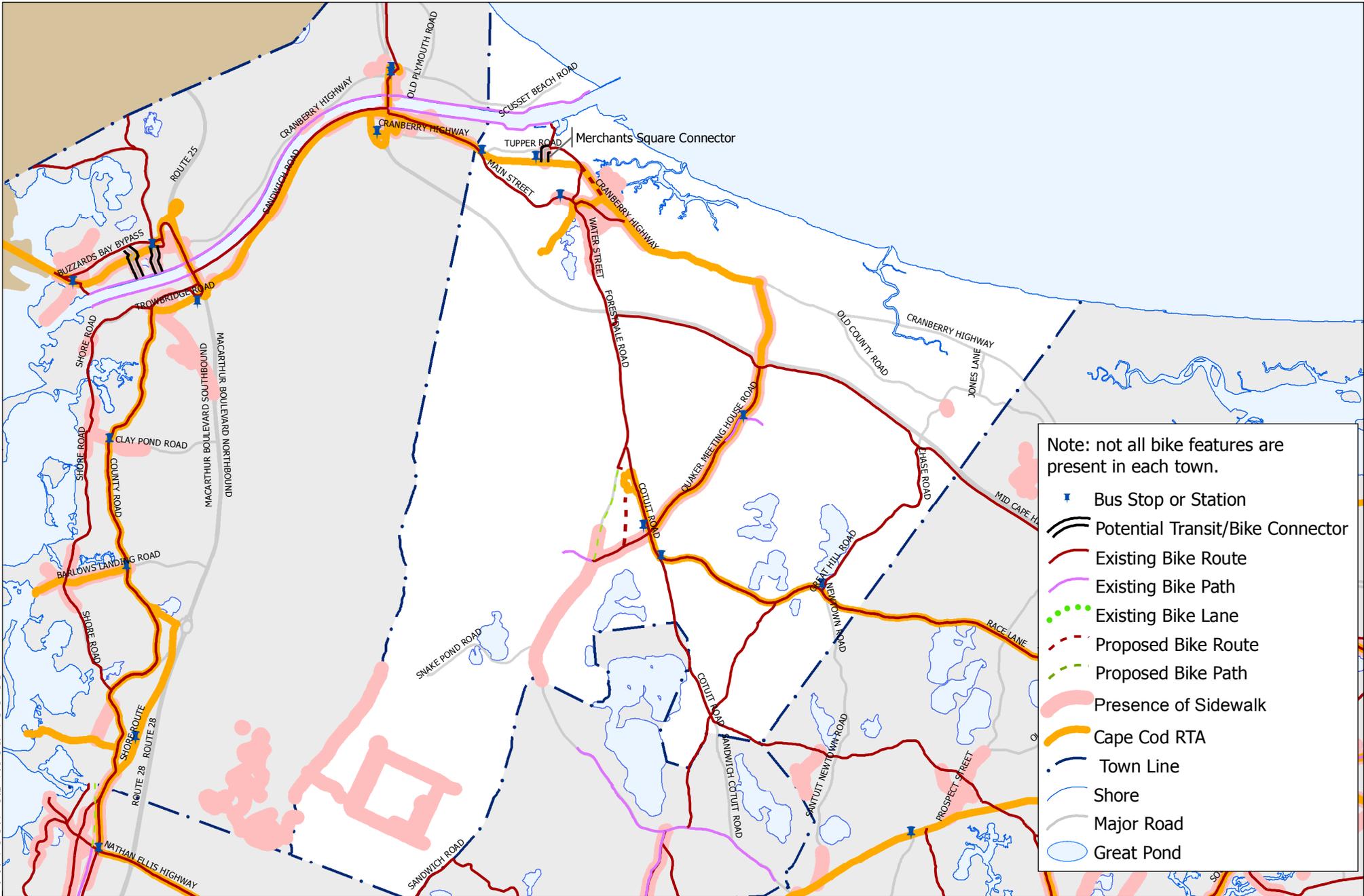




Town of Orleans Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
 This map is produced by the GIS Department of the Cape Cod Commission, a division of Barnstable County, August 2013.
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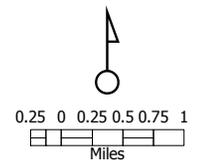


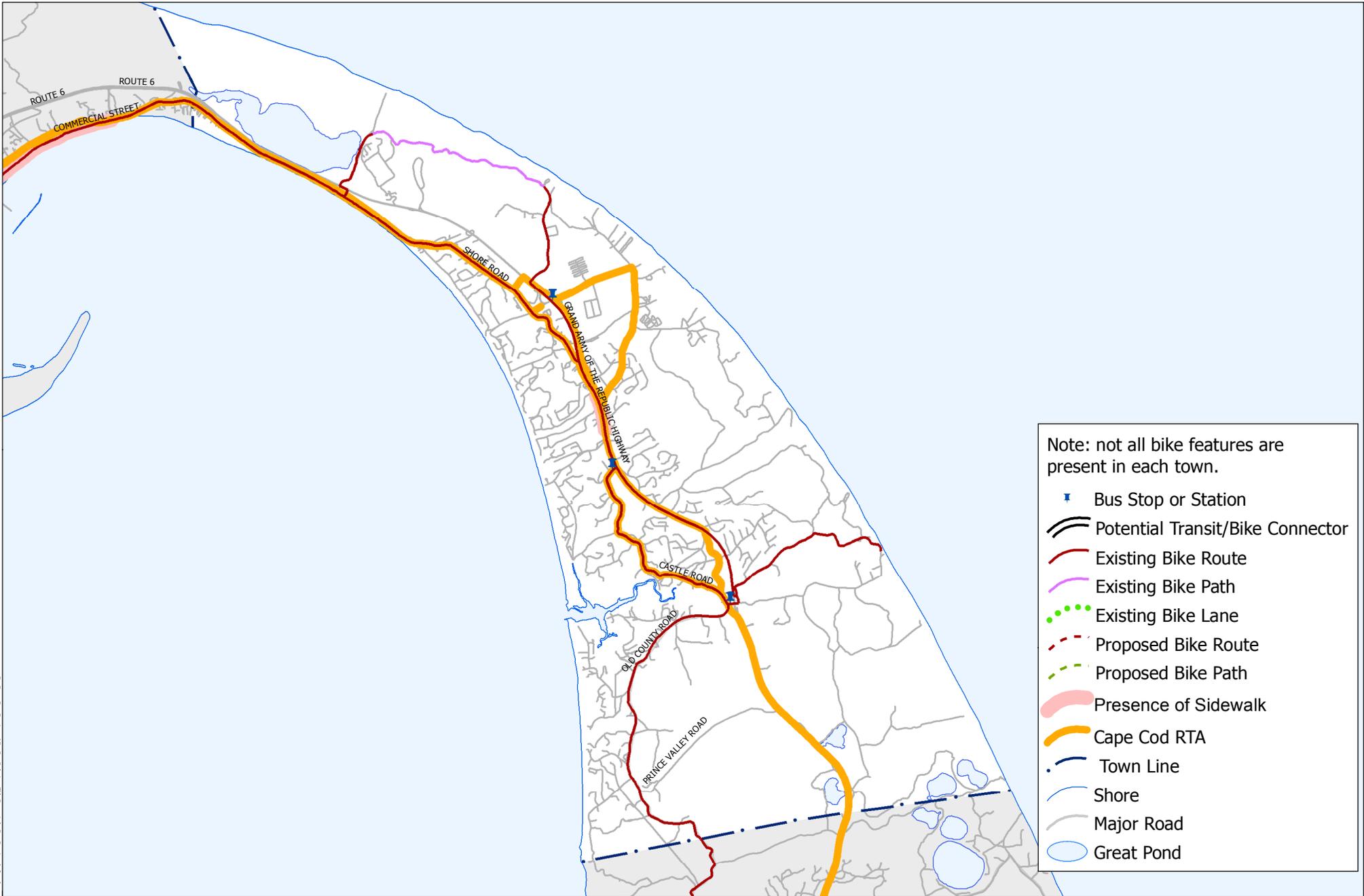
Town of Sandwich Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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User: gprahm

Date: 10/22/2013



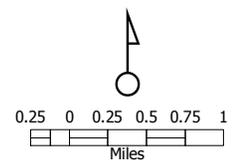


Note: not all bike features are present in each town.

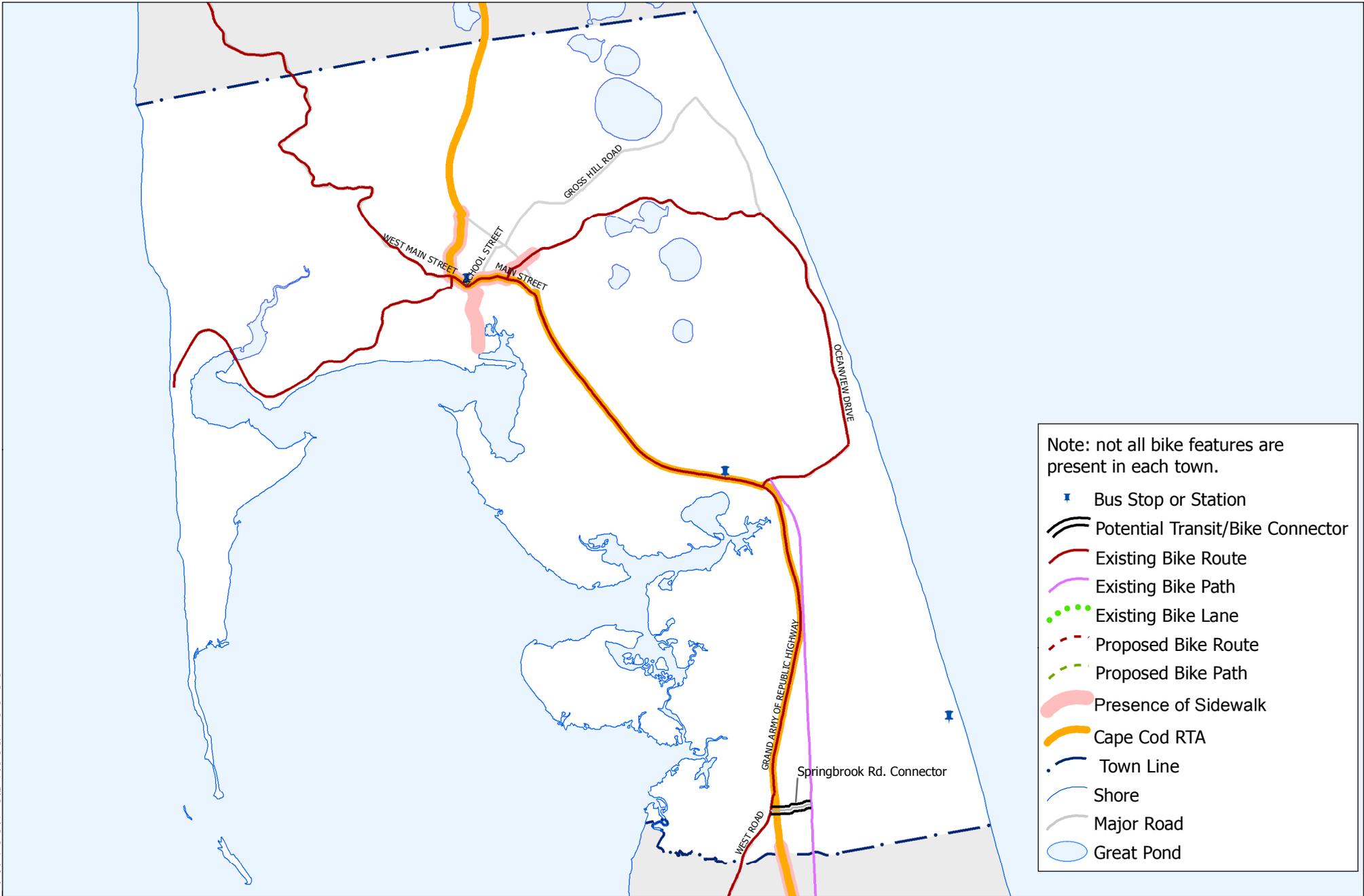
-  Bus Stop or Station
-  Potential Transit/Bike Connector
-  Existing Bike Route
-  Existing Bike Path
-  Existing Bike Lane
-  Proposed Bike Route
-  Proposed Bike Path
-  Presence of Sidewalk
-  Cape Cod RTA
-  Town Line
-  Shore
-  Major Road
-  Great Pond

Town of Truro Bus Routes and Bicycle Path/Route Locations

Sources:
 Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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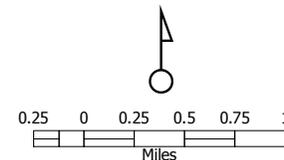
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Town of Wellfleet Bus Routes and Bicycle Path/Route Locations

Sources:

Bike trails: combination of CCC and Office of Transportation Planning data collected between 2006 - 2013.
 Transit Routes: provided digitally by the Cape Cod Regional Transit Authority, 2012, with CCC GIS corrections 2013.
 Base map features: MassGIS including sidewalk data from Road Inventory 2012, and Cape Cod Commission.
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TOWN BICYCLE PEDESTRIAN PLANNING SUMMARIES

The following section provides a summary table of bicycle/pedestrian planning elements for each of the 15 towns on Cape Cod and includes the following information for each community.

Bicycle/Pedestrian Group or Committee: This category provides the name of the town's bicycle/pedestrian committee.

Local Comprehensive Plan (LCP) bicycle/pedestrian directives: This category identifies bicycle/pedestrian related goals and directives provided in the LCP.

Feasibility Study Projects: This category identifies the town's potential bicycle and pedestrian projects described and analyzed in the *Feasibility Study*.

Potential Transit – Bike Path/Route -Connectors: This category identifies potential connections between existing bicycle routes or paths and existing transit routes.

Transit Route Sidewalks: Indicates whether sidewalks are present on the transit routes.



BARNSTABLE

Bicycle/pedestrian group or committee: The Town of Barnstable’s Growth Management Department directs bicycle planning and works with a bicycle “focus group” to help support and inform the planning effort. The town is pursuing bicycle and pedestrian improvements in several areas through its “Barnstable by Bike” initiative.

Local Comprehensive Plan bicycle/pedestrian directives: Section 4, Infrastructure and Facilities

Goal 4.1.4 Implement the bikeway system connecting major activities and linking with bikeways in neighboring towns.
Action 4.1.4.1 Implement the Barnstable Bikeway Network Plan, which includes locations for bike lanes, bike paths and bike routes.
Action 4.1.4.2 Coordinate regional bikeway planning with adjacent towns and the Cape Cod Commission.
Action 4.1.4.3 Accommodations for intermodal connections, such as bike racks on trains, buses, at workplaces, remote parking facilities and shopping areas, will be encouraged whenever possible
Action 4.1.4.4 Wherever feasible, roads should include bike lanes and appropriate curbing, pavement markings and signage.
Action 4.1.4.5 Development and redevelopment will incorporate provisions for bicyclists.
Action 4.1.5.1 The town will continue to update the Sidewalk Plan that will include locations of sidewalks, priorities of construction, and funding sources.

Feasibility Study projects

5.2.6 - Construct western extension of Cape Cod Rail Trail through Independence Park to Service Road at Exit 6;
5.2.7 - Construct planned alignment to extend CCRT to Hyannis via new bike path, including direct connection to Hyannis Transportation Center.

Other Plans: Barnstable Bicycle Network Plan (see list of resources in Appendix)

Transit Route/Sidewalk Connections

Route 28: lacks sidewalks much of route west of Old Stage Road Marstons Mills Marketplace bus stop lacks sidewalk connection (except along frontage).
Route 132: has sidewalks.
Race Lane: lacks sidewalks

Potential Transit Route-Bicycle Route/Path Connectors

Existing bus routes generally connect or overlap with bicycle routes/paths.



BOURNE

Bicycle/pedestrian Group or Committee: The Town of Bourne’s Transportation Advisory Committee has a bicycle/pedestrian representative seat, but the town does not have a designated bicycle/pedestrian committee.

Local Comprehensive Plan bicycle/pedestrian directives

Section 16.5, Other Priorities for Transportation: Build dedicated bicycle paths connecting village centers with outlying neighborhoods and connecting the Falmouth rail trail to the canal.

Feasibility Study projects

Relocate rail line to east of Macarthur Blvd. and convert existing rail to bike path.

Transit Route Sidewalks

Sandwich Road/Route 28A: has sidewalk on west side between Falmouth line and County Road intersection, but lacks them elsewhere;

County Road: lacks sidewalk.

Main Street: has sidewalks on both sides (which connect to train station).

Potential Transit - Bicycle Route/Path Connectors

Perry Avenue connector: Connects Main Street to Canal Bike Path

Old Bridge Road connector: Connects Main Street to Canal Bike Path

Additional Notes: With the recent advent of the Cape Flyer weekend train service between Boston and Hyannis, visitors are arriving at the Buzzards Bay train station and heading out on foot and by bike. The additional cyclist and pedestrian traffic could provide a significant economic boost to Main Street businesses. The recent streetscape improvements on Main Street enhance pedestrian access and comfort. It is also important to address bicycle safety issues in this area. The canal bike path is located adjacent to the train station, but cyclists heading south over the Bourne Bridge face a challenging ride and an unclear route. The town is reviewing bicyclist safety improvements and alternatives, particularly as it works together with Mass DOT on redesigning the Belmont Circle. A bike shuttle to transport bikes from the train station across the bridge should also be considered.



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POTENTIAL CONNECTORS: PERRY AVENUE LOOKING TOWARD MAIN STREET (TOP) AND OLD BRIDGE ROAD LOOKING FROM CANAL PATH ACCESS/PARKING TOWARD MAIN STREET (BOTTOM).



BREWSTER

Bike/pedestrian Group

Brewster Bikeways Committee

Local Comprehensive Plan (1997) bicycle /pedestrian directives –

Transportation Goal 3: Bicycling and walking should be encouraged as an alternative to automobile trips. Where appropriate, historic footpaths should be maintained and safe bicycle links to regional bike networks should be established. Where feasible, bikeways and footpaths between existing subdivisions are encouraged in order to open up through-linked bicycle and walking routes away from major roads

Goal 8: Roadway construction and upgrades should include provisions for bikeways and/or separate walkways where road layouts permit and local review deems appropriate.

Feasibility Study Projects

5.3.18 - Identify and implement “OBHC” route connecting Orleans-Brewster-Chatham and Harwich (multiple towns)

Transit Route Sidewalks

Route 6A: has sidewalks east of Route 124 through the town center but lacks them in other areas. New sidewalk installation is expected in 2018/19 as part of MassDOT’s Route 6A resurfacing project.

Route 137: Lacks sidewalks

Underpass Road: Has sidewalks

Potential Transit – Bicycle Route/Path Connectors

Thad Ellis Road connector: connects Route 6A (bus route) to the CCRT.

Millstone Road connector: Connects Route 6A to CCRT

Route 124 (Harwich Road) connector: Connects Route 6A (bus stop) to CCRT

Thad Ellis Road connector: Connects Route 6A to CCRT

Route 137 (Meetinghouse Road) Connects Route 6A to CCRT.

Additional Notes: The Bikeways Committee would like to see bike racks installed at Brewster beaches.



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POTENTIAL CONNECTORS: ROUTE 137 (AT RAIL TRAIL INTERSECTION). (TOP) AND UNDERPASS ROAD BELOW





CHATHAM

Bike/pedestrian Group

Chatham Bikeways Committee

Local Comprehensive Plan bicycle/pedestrian directives: *Improve pedestrian safety and comfort by developing the following programs. (CF15)*

A systematic program to construct sidewalks on major roadways in Chatham, including roadways in the vicinity of schools, neighborhood centers, beaches and parks and improving shoulders for pedestrian use where sidewalk construction is not feasible

Continue development of a town-wide network of walking trails through and connecting town recreation and conservation lands.

Develop downtown crosswalk improvements, seats, and amenities.

Develop bicycle routes and trails extending from the Cape Cod Rail Trail and serving commercial and recreational areas and continue efforts to extend the Rail Trail to form a loop back to the Trail in Brewster or Orleans. Develop parking areas for bicycles and cars in commercial, recreational, and trail access areas. (CF16)

Feasibility Study Projects.

5.2.9 - Extend existing bicycle spur from Volunteer Park to Schoolhouse Pond via Sam Ryder Road.

5.3.6 - Identify a "Shore Route" south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns).

5.3.8 - Identify and implement OBHC route connecting Orleans-Brewster-Harwich (multiple towns)

Transit Routes Sidewalks

Route 28 has a sidewalk on one side for most of its length (both sides downtown) but is in poor condition in some locations.

Potential Transit Route – Bicycle Route/Path Connectors

Route 137 (Meetinghouse Road) connector: connects CCRT to Route 28 (transit route)

Sam Ryder Road connector: connects the rail trail to Route 28 (transit route).

George Ryder Road connector: connects the rail trail to Route 28.



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POTENTIAL CONNECTORS: ROUTE 137 FROM RAIL TRAIL TOWARDS ROUTE 28 (TOP)
AND GEORGE RYDER ROAD LOOKING TOWARDS ROUTE 28 (BOTTOM)





DENNIS

Bicycle/pedestrian Committee or Group: No designated committee
Local Comprehensive Plan (2002) bicycle/pedestrian directives:

From Chapter 4 Transportation:

Proposed Bicycle Facility Improvements: CCRT extension; Old Bass River Bike Path-pavement marking program and signs for busy crossings, plus shoulders on Old Bass River Road to extend on-road facility to Route 6A; Route 134 – paved shoulders; Lower County Road – Sea Street to Lighthouse Road paved shoulders.

Minimum Performance Standards

4.1.2.2 Development and redevelopment shall incorporate provisions for bicyclists and pedestrians so as to minimize automobile trips.

4.1.2.3 Road construction or intersection widening and/or upgrades shall provide for safe bicycle and pedestrian travel and accessibility, where appropriate. Roadway safety feature such as adequate lane and shoulder widths, smooth pavements and bicycle responsive traffic signals shall be included.

4.1.2.5 Bicycling and walking shall be encouraged as an alternative to automobile trips. Where appropriate, historic footpaths shall be maintained and safe bicycle and walking links shall be created to establish an interconnected regional transportation system. Where appropriate, bikeways and footpath connections between commercial, residential neighborhoods and between compatible uses shall be provided to create a safe alternative to travel on major roads

Feasibility Study projects*

5.2.3 - Install striping at Setucket Road/Old Chatham Road multi-use path segments;

5.2.3 - Establish bicycle connection from Old Colony Rail Trail to downtown Dennisport;

5.3.4-Regional and local bicycle and pedestrian connectivity to Dennisport.

Identify a “Shore Route” south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns).

Transit Route Sidewalks

Route 134: Sidewalk on the east side from Patriot Square to Upper County. Lacks sidewalk north of Patriot Square .

Route 28: Has sidewalks on at least one side from Harwich town line west through Dennisport, with gaps in several locations up to the Yarmouth line.

Transit Route – Bicycle Route/Path Connectors

*Shad Hole Road Connector: Connects Route 28 (bus route) to Lower County Road (bike route).

*Depot Street Connector: Connects Route 28 to Lower County Road.

* Asterisk indicates project is both selected in *Feasibility Study* or town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link.



*Sea Street Connector: Connects Route 28 (bus route) to Lower County Road (bike route).



CONNECTORS: SHAD HOLE ROAD (TOP) AND DEPOT STREET (BOTTOM).



EASTHAM

Bike/pedestrian Group

Eastham Bikeways Committee

Local Comprehensive Plan bicycle/pedestrian directives

- Sidewalks should be extended along the easterly side of Route 6 in the vicinity of Massasoit Road, Oak Road and the Old State Highway, as well as other areas.
- The Bikeways Committee recommends improvements and has encouraged bicycle use for both recreational purposes and commuting to neighboring communities (see Open Space section).
- Consideration should be given to installation of bicycle racks and rentable storage bins in appropriate locations. Bicycle racks should be provided at all Town beaches, in environmentally appropriate locations.
- The Town should work with the State and National Seashore to maintain bicycle paths, including regular mowing, sweeping and plowing. The committee should also encourage the State to consider additional Rail Trail parking including using school parking lots, the Orleans District Court parking lot and other locations that are not heavily used on weekends or during the summer. These options should be explored prior to the construction of new parking lots.
- Provide signage along the Cape Cod Rail Trail to indicate beaches, commercial areas and other attractions within the Town.

Feasibility Study Projects *

- *5.2.5 - Identify possible sidewalks and/or pedestrian crossings in the vicinity of Brackett Road/Route 6;
- *5.3.2 Establish bicycle/pedestrian connection from Fort Hill to Governor Prence Road.
- 5.3.3 - Identify possible connections between CCRT and National Seashore trails;

Other Plans: Eastham Bikeways, available at: http://www.eastham-ma.gov/Public_Documents/EasthamMA_BComm/BikewaysDocs/bikeways.pdf

Transit Route Sidewalks

- Route 6: has sidewalks on the west side. No sidewalks east side.
- Nauset Road: (Nauset High School stop.) Lacks sidewalks.

* Asterisk indicates project is both selected in *Feasibility Study* or town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link.



Transit - Bike Path/Route Connectors

*Governor Prence Road connector: connects the CCRT to Route 6. The NPS received funding to install an upgraded crosswalk to provide a safe crossing for pedestrians and cyclists from the west side of Governor Prince into Fort Hill.

Samoset Road connector: connects the CCRT to Route 6 and Town Hall/Superette bus stop



WORN FOOTPATH AT ROUTE 6/BRACKETT ROAD BUS STOP (TOP). ROUTE 6 EAST SIDE LACKS SIDEWALKS. BOTTOM PHOTO SHOWS ROUTE 6/GOVERNOR PRENCE ROAD



INTERSECTION.GOVERNOR PRENCE ROAD CONNECTS TO RAIL TRAIL.



FALMOUTH

Bike/pedestrian Group

Falmouth Bikeways Committee

Local Comprehensive Plan bicycle/pedestrian directives

Policy 2: Existing transportation rights-of-way should be retained for future transportation uses.

Policy 3: Roadway construction and upgrades shall include provisions for bikeways, pedestrians and bicyclists where appropriate. Roadway safety features such as adequate lane and shoulder widths, smooth pavements, pavement markings, bicycle and pedestrian responsive traffic signals and, where appropriate, separate grade bicycle paths.

Policy 4: Construction of appropriate bicycle facilities shall be included in all transportation planning, design, construction and maintenance activities on all regional and local roadways where feasible, excluding Class. Construction of new regional roads and widening of major road segments shall be undertaken only where other alternatives have been demonstrated to be ineffective or infeasible. Such improvements shall be consistent with the Comprehensive Plan.

Policy 5: Bicycling and walking should be encouraged as an alternative to automobile trips. Where appropriate, historic footpaths should be maintained and safe bicycle links to regional bikeway networks should be established. Where feasible, bikeways and footpaths between existing subdivisions are encouraged in order to open up through-linked bicycling and walkway routes away from major roads.

Feasibility Study Projects

5.2.10 - Establish connection from East Falmouth to Gifford Street to Shining Sea Bikepath;

5.2.11 - Extend Shining Sea Bikeway north to Bourne, and ultimately to Cape Cod Canal Bikepath, via right-of-way to east side of northbound Route 28.

5.3.6 - Identify a "Shore Route" south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns).

Transit Route Sidewalks

Route 28 has a sidewalk on at least one side.



Transit- Bike Path/Route Connectors

Falmouth's transit routes connect to bicycle routes and paths. However, the Falmouth Bikeway Committee noted the following needs:

- RTA stop along Route 28 at Seacoast Shores is not accessible to cyclists, who can only reach it by riding on Route 28, which is challenging for bicycling in this location, given the traffic speeds and volume and lack of shoulder width.
- The Falmouth Mall stop is not an ideal stop for cyclists and lacks decent bike racks. A location that would be more amenable to bicyclists and pedestrians for a bus stop would be Colonial Plaza, at the corner of Worcester Court and Davis Straits Road.
- The bus stop at the corner of Sandwich Road and Route 151 is located off the road in a gas station. Better signage is needed to help people find the stop.

SIGNAGE CONNECTOR: ROUTE 151 (BIKE AND BUS ROUTE) AT SANDWICH ROAD.
SIGNAGE WOULD HELP PEOPLE FIND THE BUS STOP/GAS STATION WHICH IS SET BACK OFF OF THE ROAD.





HARWICH

Bike/pedestrian Group: Harwich Bikeways Committee

Local Comprehensive Plan bicycle/pedestrian directives

Action 5.4.1 – Internal road crossings of Route 137 and Route 39 should accommodate bicycles, in conjunction with the Route 137 bike improvements underway.

Action 5.6.1. – Provide bicycle connections between Harwich Center and Harwich Port. Consider extending rail trail.

Feasibility Study Projects *

5.3.6 - Identify a “Shore Route” south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns).

5.3.9 - - Establish bicycle/pedestrian connections between the existing Old Colony Rail Trail spur and HarwichPort;

5.3.18 - Identify and implement OBHC route connecting Orleans-Brewster-Harwich Chatham (multiple towns)

Other Plan/Study:

2010 Harwich Bicycle/Pedestrian Improvements Plan. The Town is implementing Phase I of the route recommendations.

Transit Route Sidewalks

Route 137: Has sidewalks;

*Route 28: Has sidewalks east of Snow Inn Road through Harwichport to about Doane Road; then occurring intermittently through West Harwich. Completing the Route 28 sidewalk connection is listed as a future project in 2010 Harwich Bicycle/Pedestrian Improvements Plan.

Route 39 has sidewalks in the town center area and in East Harwich on the south side of the road. (No designated stops on Route 39.)

Queen Anne Road: does not have sidewalks. (No designated stops on Queen Anne Road)

Potential Transit Route - Bike Path/Route Connectors

Existing bus routes and bike routes and paths connect and/or overlap.

* Asterisk indicates project is both selected in *Feasibility Study* or a town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link



MASHPEE

Bike/pedestrian Group – No designated group.

Local Comprehensive Plan (1998) bicycle/pedestrian directives:

The transportation section of Mashpee’s LCP has extensive bicycle route planning and inventory information, as well as a section on pedestrian facilities. The town has completed several sidewalks and bicycle paths since adoption of the LCP and implemented recommendations. (The town is in the process of updating the 1998 plan.)

Feasibility Study Projects

5.3.6 - Identify a “Shore Route” south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns).

Transit Route Sidewalks

Route 28: Has sidewalks along the route by the Mashpee Commons, South Cape Village and Community Health Center stops.

Route 151: has sidewalks (or bike path) connecting to school and Mashpee Commons.

Suggested Transit/Bike Path or Route Connectors

Route 28 and Route 151 (existing bus routes) connect with existing bicycle routes and/or paths. The town plans to extend the Route 151 shared-use path to the Falmouth town line.

DONNA’S LANE BIKE PATH CONNECTS ROUTE 28 (BUS STOPS AT SOUTHCAPE VILLAGE AND MASHPEE COMMONS) TO GREAT NECK ROAD SOUTH BIKE PATH AND ROUTE.





ORLEANS

Bike/pedestrian Group

Orleans Bike and Walkways Committee

Local Comprehensive Plan bicycle/pedestrian directives

- Establish set biking lanes on roads and bike path linkages to East and South
- Implement sidewalk and bikeway extension program on main roads.
- Develop a systematic program for extending sidewalks and bikeways in areas where there is high pedestrian traffic

Feasibility Study Projects *

- *5.3.11 - Establish bicycle/pedestrian connections between village center, South Orleans, East Orleans, Rock Harbor/Skaket areas;
- 5.3.18 Identify and implement OBHC route connecting Orleans-Brewster-Harwich(multiple towns).

Other plans: Orleans Bikeways Plan 2008-2013 (Powerpoint presentation), Route 28 Orleans bike trail feasibility study. Both are available at: at http://www.town.orleans.ma.us/Pages/OrleansMA_BComm/walkways

Transit Route Sidewalks

- Route 6A: has sidewalks
- Route 28: sidewalks in the downtown but none south of Finlay Road.

Potential Transit - Bike Path/Route Connectors

- *Main Street connector: connects Route 6A (bus route/stop to CCRT).
- *West Road connects Route 6A (and Skaket Plaza bus stop) to CCRT.
- Bay Ridge connector connects Route 6A (bus route, with stop at adjacent Underground Plaza) to CCRT.

Additional notes

The Orleans Village Center Committee developed a plan in 2012 to install sharrows on Main Street. The town also conducted a study of alternatives for a trail connection between Orleans center and South Orleans in the 2009 bike plan. As Route 28 (bus route) proceeds outside the downtown towards Chatham, its narrow lanes and vehicle speeds make it a dangerous for cyclists and pedestrians. A separate bicycle facility within the right of way (such as a paved shoulder or bike lane) or an off-road shared use path may be feasible.

* Asterisk indicates project is both selected in *Feasibility Study* or a town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link.



CAPE COD
COMMISSION



POTENTIAL CONNECTORS: MAIN STREET (ABOVE) CONNECTS ROUTE 6A BUS STOP TO CCRT. BAY RIDGE ROAD (BELOW) CONNECTS ROUTE 6A UNDERGROUND PLAZA WITH CCRT.





PROVINCETOWN

Bicycle/pedestrian Group or Committee

Provincetown Bikeways Committee

Local Comprehensive Plan bicycle/pedestrian directives:

Capital Facilities section 7.1.2:

POLICY A: Road or intersection improvements shall provide for safe bicycle and pedestrian travel and accessibility, where appropriate.

POLICY B: Bicycling and walking shall be encouraged as an alternative to automobile trips. Where appropriate, historic footpaths shall be maintained and safe bicycle and walking links shall be created to establish an interconnected regional transportation system. Where appropriate, bikeways and footpath connections between commercial and residential neighborhoods, and between compatible uses shall be provided to create a safe alternative to travel on major roads.

Bicycle and Pedestrian Needs and Concerns Section 7.1.4 E. identifies the need for connections between the National Seashore bike trails and town streets such as Conwell.

Feasibility Study Projects *

- 5.2.1 - Identify; extend CCRT to Provincetown (multiple towns)
- *5.3.3 - Improve connections between town streets and bicycle paths within the National Seashore;
- 5.3.12 Establish connection from MacMillan Pier ferry and transit station to existing bike paths in the National Seashore;

Other Plans

The Cape Cod Commission issued a report on bike/ped safety alternatives for Shank Painter Road, available at:

http://www.capecodcommission.org/resources/transportation/SPR2012_report.pdf

Transit Routes Sidewalks

Bradford Street (Route 6A): Sidewalks are present on one side (both sides in some locations) in the downtown and continue through the west end, though poorly defined/separated from road in some areas. The far east end of Bradford Street lacks sidewalks.

Shank Painter Road: Much of Shank Painter Road lacks sidewalks.

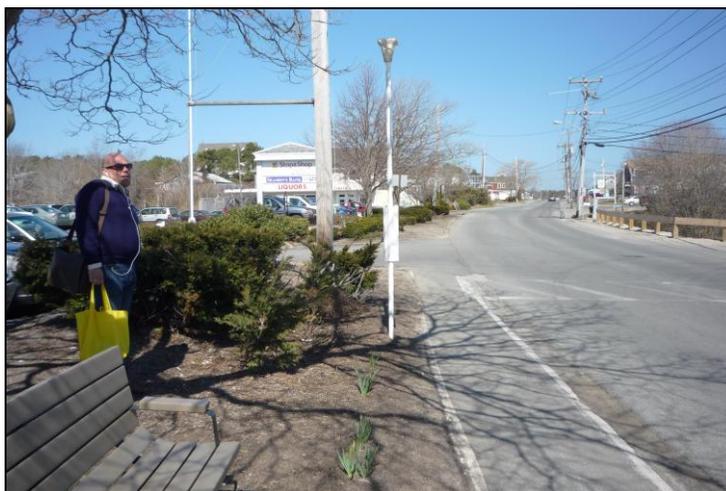
Potential Transit - Bike Path/Route Connectors

* Asterisk indicates project is both selected in *Feasibility Study* or a town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link.



*Provincetown's primary transit routes (Bradford Street and Shank Painter Road) have connections/overlaps with the bicycle routes. The Bikeways Committee has been working on a proposal for a bike lane on Bradford Street as well as potential safety enhancements for Shank Painter Road.

Additional Notes: The National Park Service received funding in to develop a bicycle/pedestrian master plan for Provincetown, Truro and Wellfleet that includes integrating existing bike/pedestrian facilities and the excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connector/rail trail extension. The NPS also received funding for bicycle/pedestrian safety improvements, including a bike connection/route between Race Point and Macmillan Wharf. Through the development of the Master Plan, the town will have the opportunity to identify its top priority bicycle pedestrian projects.



CONNECTOR:
SHANK PAINTER
ROAD BUS STOP
(TOP) AND
LOOKING NORTH
FROM THE STOP.



SANDWICH

Bike/pedestrian group

The Sandwich Energy Committee had been working as an ad hoc committee on bicycle matters in 2011 but there is no designated town bicycle/pedestrian committee.

Local Comprehensive Plan bicycle/pedestrian directives

No specific bicycle or pedestrian actions.

Feasibility Study Projects

5.2.15 - Improve bicycling facilities at Tupper Road south of Route 6A;
5.3.17 - Identify potential alignment through Sandwich historic district to Route 130
5.3.15 - Connect Shawme-Crowell State Park to the Cape Cod Canal;
5.3.19 - Improve bicycling facilities at Route 130 from existing sidewalk south of Forestdale School to Mashpee town line;
5.3.20 - Improve bicycling facilities at Quaker Meeting House Road from Cotuit Road to existing Sidewalk near Oakridge School to Sandwich High School.

Transit Route Sidewalks

Farmersville Road (Race Lane/Great Hill Road bus stop): lacks sidewalks.
Cotuit Road: lacks sidewalks between Farmersville Road stop and Quaker Meetinghouse Road (Stop & Shop stop).
Route 130: lacks sidewalks.

Potential Transit/Bike Path or Route Connectors

The transit routes generally have connections/overlap to both existing and proposed bicycle routes. The following potential connector may be useful to consider as the town proceeds with its bicycle route planning between the canal bike path and the historic downtown area.

Merchants' Square/Tupper Road/Route 6A connector - a link through Merchant's Square would connect proposed Tupper Road bicycle route to the Merchants Square (Route 6A bus stop).



CAPE COD
COMMISSION



NEW SIDEWALK ON QUAKERMEETINGHOUSE ROAD (TOP) AND POTENTIAL CONNECTOR AT MERCHANTS SQUARE (BELOW) WHICH LINKS PROPOSED BIKE ROUTE ON TUPPER ROAD WITH ROUTE 6A AND MERCHANTS SQUARE BUS STOP.





TRURO

Bike/pedestrian Group

Truro Bike and Walkways Committee

Local Comprehensive Plan bicycle/pedestrian directives

Transportation section Goal 5: Create a safe and unified bicycle and pedestrian system.

Performance Standard 10: Bicycle links to regional bike networks should be established and, where feasible, bikeways and walkways should be arranged between existing subdivisions.

Feasibility Study projects

5.2.1 - Extend CCRT to Provincetown (multiple towns).

5.3.14 - Establish connection between Truro Village Center and destinations, Head of the Meadow trail, and Coast Guard beach;

Transit Route Sidewalks

Route 6: lacks sidewalks except between Truro Elementary School and the police/fire station.

Highland Road: lacks sidewalks

Truro Center Road : lacks sidewalks.

Potential Transit - Bike Path or Route Connector:

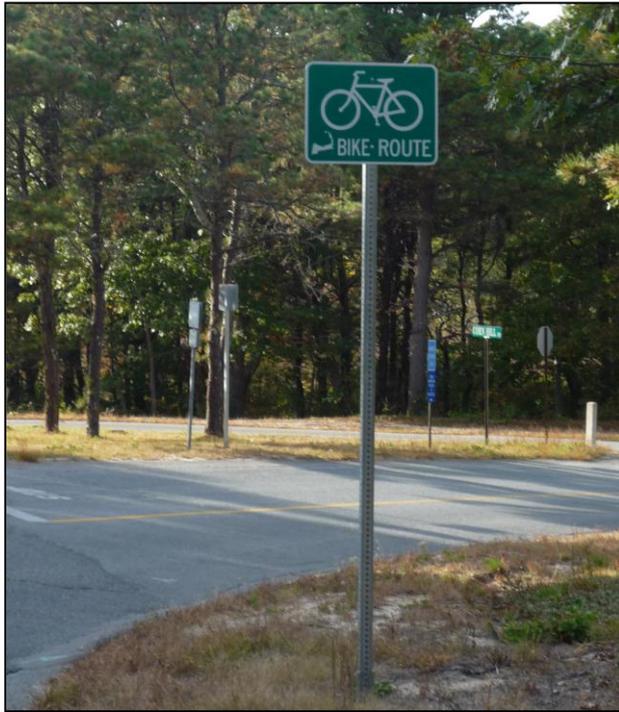
Existing transit routes generally connect or overlap with existing bike routes.

Additional Notes:

The National Park Service received funding to develop a bicycle/pedestrian master plan for Provincetown, Truro and Wellfleet that includes integrating existing bike/pedestrian facilities and the excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connector/rail trail extension. Through the development of the Master Plan, Truro will have the opportunity to identify its top priority bicycle pedestrian projects.



CAPE COD
COMMISSION



NEW SIGNAGE ALONG CLAIRE SALTONSTALL BIKEWAY AT CASTLE ROAD AND CORN HILL ROAD, AND (BELOW) BUS STOP AT JAMS ON TRURO CENTER ROAD, ALSO ON THE BIKE ROUTE.





WELLFLEET

Bike/pedestrian Group

Wellfleet Bike and Walkways Committee

Local Comprehensive Plan bicycle/pedestrian directives

- Develop a pedestrian accessibility plan for downtown Wellfleet that identifies parcels lacking adequate sidewalks. Develop zoning by-laws which would provide safe pedestrian accessibility in commercial areas of downtown.
- Devise plans for walking & bicycle paths which will knit together different sectors of Wellfleet, and provide easy access to central village galleries and harbor areas.
- Extend and expand bike trail from South Wellfleet to Wellfleet
- Consider pedestrian and bicycle access across Route 6, including the possible construction of a footbridge.

Feasibility Study projects*

- 5.3.16 Connect Wellfleet Bay Wildlife Sanctuary to Cape Cod Rail Trail.
- 5.3.2 - Extend CCRT to Provincetown (multiple towns);

Other Plans/Projects

Wellfleet Route 6 Safety Study
(http://www.capecodcommission.org/resources/transportation/2012-Wellfleet-Rt6_12272012.pdf)

Transit Route Sidewalks

- Route 6: does not have sidewalks. The shoulder width in the area of the Blackfish Creek Variety Flex stop is approximately 5 feet on each side of road.
- Downtown Wellfleet has sidewalks.

Potential Transit – Bicycle Route/Path Connectors

- *Springbrook Connector : connects Route 6 and West Road (bike route) to CCRT. Note: other potential options south of Springbrook on private properties.
- Old County/Blackfish Variety -Connector: connects Blackfish Market Flex bus stop (Route 6/Old Country Road) to Lecount Hollow Road and the CCRT. Crossing Route 6 between the bus stop and the rail trail is difficult and dangerous in summer months due to traffic volumes. This connection will likely be addressed in the bicycle/pedestrian Master Plan. In the meantime, crosswalks, pavement striping/markings, and signage could provide interim improvements.

* Asterisk indicates project is both selected in *Feasibility Study* or town plan and is a Potential Transit Route – Bike Route/Path Connector or sidewalk link.



Accommodations are also need to improve bicyclist/pedestrian crossings at Route 6 at Main Street (plans are in development).

Additional Notes:

The National Park Service received funding to develop a bicycle/pedestrian master plan for Provincetown, Truro and Wellfleet that includes integrating existing bike/pedestrian facilities and the excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connector/rail trail extension. Through the development of the Master Plan, Truro will have the opportunity to identify its top priority bicycle pedestrian projects.



BUS STOP ON WEST SIDE OF ROUTE 6 OPPOSITE BLACKFISH VARIETY (FACING SOUTH TOWARDS LECOUNT HOLLOW ROAD AND RAIL TRAIL). BOTH ROUTE 6 AND LECOUNT HOLLOW ROAD ARE BIKE ROUTES, BUT CROSSING ROUTE 6 TO REACH LECOUNT AND THE RAIL TRAIL IS DIFFICULT IN SUMMER MONTHS.



YARMOUTH

Bike/pedestrian Group – None

Local Comprehensive Plan bicycle/pedestrian items

-

Feasibility Study Projects

5.3.10 - Designate Route 28 as a bike route, establish east-west bike lanes.
5.3.6 - Identify a “Shore Route” south of Route 28 from Woods Hole to Stage Harbor in Chatham (multiple towns);
5.3.10 - Identify a “Bay Route” north of Route 6 from Canal to Orleans; Construct western extension of CCRT [through Hyannis to Route 6/Service Road];

Other Plans: CCRT extension from Dennis to Peter Holmes Park (construction to begin 2014) and extension from Peter Holmes Park to Mary Dunn Road in Barnstable.

- Route 28 Living Streets study prepared by the CCC includes proposed shoulders and bicycle lanes plus full ADA accessible sidewalks on both sides of Route 28 between West Yarmouth Road and Forest Road (1.7 miles.)

Transit Route Sidewalks

Route 28 has sidewalks

Potential Transit - Bike Path or Route Connectors

Higgins Crowell Road connector: connects Route 28 (bus route) to bike path.



TOWN SUMMARY TABLE

The following table provides a compilation of potential transit route – bicycle path/route connectors and sidewalk connectors from the Town Bicycle/Pedestrian Planning Summaries.

Bike/Ped/Transit Connector	Description	Notes
Barnstable		
Route 28 sidewalks	Bus route pedestrian access	No sidewalks between Route 149 and Stop & Shop plaza or Marstons Mills Marketplace.
Bourne		
Perry Ave connector	Connects Canal bike path to Main Street (bus route). Share the road –striping, signage, sharrows.	Connects to 3 Mile Park, but not direct access to canal path.
Old Bridge Road connector	Connects Canal bike path to Main Street (bus route). Share the road –striping, signage, sharrows.	Direct connection.
County Road sidewalk	Bus route pedestrian access	Lacks sidewalks
Route 28A/Sandwich Road sidewalk	Bus route pedestrian access	Lacks sidewalk most of route.
Brewster		
Thad Ellis Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage, sharrows. 1/4 mile direct connection.	
Underpass Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
Millstone Road connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, sharrows, signage	
Route 137 connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage, but paved shoulder may be feasible in sections	
Route 124 connector	Connects Route 6A (bus route) to CCRT. On road connection – striping, signage	
Route 137 sidewalk	Bus route pedestrian access	No sidewalks on Route 137
Chatham		



Bike/Ped/Transit Connector	Description	Notes
Route 137 connector	Connects Route 28 (bus route) to CCRT. On road, shoulders, striping, signage	
Sam Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection – striping, signage, sharrows	
George Ryder Road connector	Connects Route 28 (bus route) to CCRT. On road connection with striping and shoulders or bike lane. Off road path may be feasible.	
Route 28 sidewalk	Connects Route 28 (bus route) to CCRT	Most of route has sidewalk but condition is poor in some locations. If enhanced could accommodate bikes.
Dennis		
Shad Hole Road connector	On road connection – striping, sharrows, signage	
Depot Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage	
Sea Street connector	Connects Route 28 (bus route) to Lower County Road bike route. On road connection – striping, sharrows, signage.	
Route 134 sidewalk	Bus route pedestrian access.	Route 134 lacks sidewalk north of Patriot Square
Route 28 sidewalk	Bus route pedestrian access	Gaps in connectivity outside of Dennisport.
Eastham		
Governor Prence Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage. NPS received funding for flashing beacon crosswalk at Route 6 intersection for connection to Fort Hill.	
Samoset Road connector	Connects Route 6 (bus route) to CCRT. On road connection – striping, sharrows, signage	
Route 6 sidewalk	Bus route pedestrian access	East side of Route 6 lacks sidewalks, Town Hall and Brackett Road commercial areas are the bus stop locations.
Falmouth		



Bike/Ped/Transit Connector	Description	Notes
Route 151/Sandwich Road connector	Connects Route 151 (bus route) to Sandwich Road bike route. Signage to direct riders to bus stop location (at gas station set back from road).	
Harwich		
Route 28 sidewalk	Bus route pedestrian access.	Gaps in sidewalk connectivity outside of Harwichport to West Harwich. In 2010 bike/ped improvement plan.
Mashpee		
Route 28 sidewalk	Bus route pedestrian access	Some locations without sidewalk.
Route 151 sidewalk	Bus route pedestrian access	Sidewalk at school and Mashpee Commons. Town plans to extend bike path to Falmouth line.
Orleans		
Bay Ridge connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage.	Involves access through private property.
Route 28 sidewalk	Bus route pedestrian access	No sidewalks north of Finlay Road. Narrow shoulder width.
Main Street connector	Connects Route 6A (bus route) to CCRT. On road –striping, sharrows, signage	
West Road connector	Connects Route 6A (bus route) to CCRT. Also connects gap in bike path. On road –striping, sharrows, signage.	
Provincetown		
Shank Painter connector	Connects Shank Painter Road (bus route/stop) to Bradford Street bike route. On road. Bike lane or paved shoulders, striping.	Road lacks sidewalk in most locations Heavy volume of bike and pedestrian traffic.
Sandwich		
Merchants Square connector	Connects Route 6A bus route to proposed Tupper Road bike route. On road through plaza Signage, sharrows, striping	
Truro		
Route 6 sidewalk	Bus route pedestrian access	No sidewalks except for segment between school and police station. 4' shoulders along much of route. May be addressed in Outer Cape Bicycle Pedestrian Master Plan.
Wellfleet		



Bike/Ped/Transit Connector	Description	Notes
Old County/Blackfish Variety connector	Connects Route 6 (bus route) to CCRT. Crosswalk, striping to improve connection between CCRT and bus stop/Old County Road.	May be addressed in Outer Cape Bicycle Pedestrian Master Plan.
Springbrook connector	Connects Route 6 (bus route) to CCRT	Other options nearby to connect West Road and Audubon to CCRT cross private property.
Yarmouth		
Higgins Crowell connector	Connects Route 28 (bus route) to bike path and proposed CCRT extension. On road. Striping, sharrows, signage	



Implementation

OVERVIEW OF PLANNING PROCESS

Advancing bicycle and pedestrian projects from the “idea” phase through design and installation or construction can be a challenging process for a community given limited availability of funds and the ongoing need for transportation infrastructure improvements. An important step of the process is to develop a bicycle or sidewalk plan that identifies the community’s needs and priorities. It is also useful to have a designated town board/committee to oversee bicycle/pedestrian matters. Town bike committees generally are comprised of community residents who are knowledgeable and interested in bicycle/pedestrian matters. Representatives from DPW, police, and town planning staff also serve on/guide some committees. Their professional expertise and role as town officials are assets to a committee. This group can help develop a local bike plan as well as provide a public forum for discussion of bicycle and pedestrian needs. In addition, developing priorities for project implementation is an important planning step, and this group can help guide that process.

FINANCING

Many of the potential on-road transit route – bicycle path/route connectors identified in this report involve relatively low-cost measures to enhance safety and connection to the bus route, such as signage and pavement markings. However, as communities further examine and improve bicycling conditions not only of the connector pieces but also of the designated routes themselves, additional funding will be needed for planning, design, and construction of improvements. Potential sources of funding include the following programs. To be eligible for federal funding, projects need to be listed on the Transportation Improvement Plan (TIP), the regional document which sets the basis for acquiring federal funds. Towns are encouraged to also contact Cape Cod Commission transportation staff about developing strategies for funding projects.

- Federal Highway Administration, Surface Transportation Program’s Enhancement Program (STP-E): funding from this program may be used for bicycle and pedestrian facilities and



preservation of abandoned railway corridors for bicycle/pedestrian trails.

- Surface Transportation Program (STP): funding may be used for construction of bicycle and pedestrian facilities or for safety-related maps or brochures. Projects must be primarily for transportation and not recreation.
- Highway Safety Improvement (HSIP): funding may be used for projects that improve safety for bicyclists and pedestrians.
- Congestion Mitigation and Air Quality Improvement Program (CMAQ): Funds may be used projects that seek to increase use of non-motorized forms of transportation. Applicants seeking funding must demonstrate that the project will reduce airborne pollutants.
- National Highway System: funds may be used to construct bicycle and pedestrian adjacent to a highway that is part of the National Highway System.
- Scenic Byways Program: funds may be used for bicycle and pedestrian projects that are directly related to the overall purpose of the program, which is to preserve and establish state and national scenic byways.
- Recreational Trails Program: funds may be provided for recreational trails.
- Safe Routes to School program: funds may be used for projects that enable and encourage children to walk and bicycle to school. The program is administered by MassRides, whose staff members also work with schools and provide training and consulting services to improve walking and bicycling safety.
- Federal Transit Administration Program: funds may be used for bicycle/pedestrian improvements related to accessing transit, including shelters, bike racks, and signage.
- Chapter 90/Local State Aid Program: funds are available for local roadway improvement projects and may also be applied as the local matching funds for other federal or state funding programs.



PRIORITY PROJECTS

POTENTIAL TRANSIT – BICYCLE ROUTE/PATH CONNECTORS PRIORITY MATRIX

The table below evaluates the potential transit route –bike route/bike path connectors based on the following factors:

- Location within in a town center or economic center.
- Location within a mile of an Environmental Justice neighborhood,¹⁴ school, or senior center/housing.
- Project is “selected” in the Feasibility Study or included in other plan.
- Project located within a half mile of a bus stop?
- Project enhances bicycle/pedestrian access to a civic, cultural, natural, or recreational destination or attraction.

The purpose of the evaluation is not to rank the projects against each other but to identify which might address particular connectivity/access needs (e.g. town center access, access for lower income and minority populations, access to a bus stop, etc.) and which have been previously studied or identified as a priority. The projects with the most green boxes checked may be considered highest regional priorities in the initial priority evaluation; however further analysis will be needed to fully develop an implementation plan, based on community needs and input, existing conditions, project cost, and funding.

¹⁴ See Appendix for map. Environmental Justice Criteria:Massachusetts Environmental Justice (EJ) populations are determined by identifying all 2010Census block groups that meet any of the following criteria: **Income** :25% or more of households earn 65% or less than the MA median income; **Minority Population**: 25% or more of residents identify as a race other than white; and **English Language Isolation**: 25% of more of households have no one over 14 who speaks English well.

INITIAL PRIORITY MATRIX TRANSIT –BICYCLE CONNECTIONS					
	Town/village center or economic center location	Feasibility Study or other plan	Within mile of bus stop	Within mile of Environmental Justice Neighborhood, school, or senior center/housing	Enhances access to civic, cultural or natural/recreational attraction or destination
Bike/Ped/Transit Connector					
Bourne					
Perry Ave connector	X		X		X
Old Bridge Road connector	X		X		X
Brewster					
Thad Ellis Road connector			X		X
Millstone Road connector			X		X
Route 137 connector			X		
Route 124 connector			X		
Route 137 sidewalk			X		X
Chatham					
Route 137 connector			X		
Morton Road connector					
Sam Ryder Road connector					X
George Ryder Road connector			X		X
Dennis					
Shad Hole Road connector		X		X	X
Depot Street connector	X	X	X	X	x
Sea Street connector		X	X	X	X
Eastham					
Gov. Prence Road connector		X			X

INITIAL PRIORITY MATRIX TRANSIT –BICYCLE CONNECTIONS					
	Town/village center or economic center location	Feasibility Study or other plan	Within mile of bus stop	Within mile of Environmental Justice Neighborhood, school, or senior center/housing	Enhances access to civic, cultural or natural/recreational attraction or destination
Bike/Ped/Transit Connector					
Samoset Road connector	X		X		X
Falmouth					
Route 151/Sandwich Road connector (signage)			X		
Orleans					
Bay Ridge connector			X	X	X
Main Street connector	X	X	X		X
West Road connector			X	X	X
Provincetown					
Shankpainter connector	X	X	X	X	X
Sandwich					
Merchants Square connector			X		X
Wellfleet					
Old County/Blackfish Variety connector			X		X
West/Springbrook Road		X			X
Yarmouth					
Higgins Crowell connector			X	X	X



SIDEWALK CONNECTORS

Similar to the Potential Transit – Bicycle Route/Path Priority Matrix on previous page the following table evaluates the sidewalk connectors based on the following factors:

- Location within in a town center or economic center.
- Location within a mile of an Environmental Justice neighborhood¹⁵, school, or senior center/housing.
- Sidewalk construction is included in or recommended in another plan.
- Project (i.e. area needing sidewalk connector) is located within a mile of a bus stop.
- The project (i.e. sidewalk connector) enhances bicycle/pedestrian access to a civic, cultural, natural, or recreational destination or attraction.

The purpose of the evaluation is not to rank the projects against each other but to identify which might address particular connectivity/access needs (e.g. town center access, access for lower income and minority populations, access to a bus stop, etc.) and which have been previously studied or identified as a priority. The table also identifies areas with both a Potential Transit Bike Path/Route Connector and a sidewalk (gap) project as these locations may have high need for bicycle/pedestrian improvement. The projects with the most green boxes checked may be considered highest regional priorities in the initial priority evaluation; however further analysis will be needed to fully develop an implementation plan, based on community needs and input, existing conditions, project cost, and funding.

¹⁵ See Appendix for map. Environmental Justice Criteria:Massachusetts Environmental Justice (EJ) populations are determined by identifying all 2010 Census block groups that meet any of the following criteria: **Income** :25% or more of households earn 65% or less than the MA median income; **Minority Population**: 25% or more of residents identify as a race other than white; and **English Language Isolation**: 25% of more of households have no one over 14 who speaks English well.

	Town/village economic center location	Within mile of bus stop	Within mile of Environmental Justice Neighborhood, school, or senior center/housing	Enhances access to civic, cultural or natural/recreational attraction or destination	Proximate to Potential Transit Bike-Route/Path connector
Bike/Ped/Transit Connector					
Bourne					
County Road sidewalk		X	X		
Route 28A/Sandwich Road sidewalk		X			
Brewster					
Route 137 sidewalk				X	X
Dennis					
Route 134 sidewalk			X		
Route 28 sidewalk		X			
Eastham					
Route 6 sidewalk	X	X	X	X	X
Harwich					
Route 28 sidewalk		X	X		
Mashpee					
Route 28 sidewalk					
Route 151 sidewalk				X	X
Route 28 sidewalk				X	
Provincetown					
Shank Painter Road sidewalk		X	X	X	X
Sandwich					
Cotuit Road sidewalk		X			
Route 130 sidewalk	X	X		X	

	Town/village economic center location	Within mile of bus stop	Within mile of Environmental Justice Neighborhood, school, or senior center/housing	Enhances access to civic, cultural or natural/recreational attraction or destination	Proximate to Potential Transit Bike-Route/Path connector
Bike/Ped/Transit Connector					
Truro					
Route 6 sidewalk		X	X	X	
Wellfleet					
Route 6 sidewalk		X		X	X



SUMMARY/RECOMMENDATIONS

Pedestrian and bicycle access to and integration with transit services is a critical component of a public transportation system. Coordinating pedestrian and bicyclist needs with transit planning expands mobility options for travelers, which is especially important for young people, the elderly, and people who do not own cars or prefer not to drive. Providing non-automobile choices for travelers also creates a robust public transportation system that helps reduce energy use and personal transportation costs and, with expanded bicycle and pedestrian options, increases health benefits.

Improving bicycle and pedestrian access to transit is part of a broader effort to foster an integrated, multimodal transportation environment throughout the region. With a holistic coordinated approach to transportation planning that integrates bicycling and walking infrastructure with transit planning, travelers on Cape Cod will have expanded options for getting around.

This report examines the connectivity between existing bicycle paths and routes and existing transit routes and identifies potential connector pieces to link them. The report also reviews sidewalk presence on the transit routes. In general, the region's transit routes connect to or overlap with designated bicycle routes and (in fewer instances) bicycle paths. On-road connector pieces with relatively low cost improvements (i.e. signage, pavement markings) could serve as links between the two. Most of the transit routes have sidewalks at least on one side, but all have gaps, some in the vicinity of bus stops.

The following actions are recommended to advance safe and interconnected transit and bicycle/pedestrian travel on Cape Cod:

- *The CCC should work together with the towns to conduct a bicycle level of service analysis (BLOS) for the existing bicycle routes to identify areas where improvements are needed.* While the routes overlap and connect with transit routes in many locations throughout the region, some are located on roads with little or no shoulder and high traffic volumes. A BLOS study could help identify how and where to create better conditions for bicycling and help advance the regional goal of creating an interconnected and safe route from Falmouth and Bourne to Provincetown.



- *Towns and the CCC should work together to collect additional data (such as right of way and existing pavement width, traffic volumes, posted vehicle speeds, etc.) for high priority potential connector pieces to help identify appropriate treatment options and advance planning efforts. This work should include the RTA to coordinate future transit plans into the region's bicycle and pedestrian planning.*
- *The CCC should collect bicycle and pedestrian counts on bicycle routes and transit routes. These data are important when prioritizing projects for implementation.*
- *Towns should continue to update and install signage to guide bicyclists. Signage will be a major part of linking the connector pieces to the routes. Sign placement should be planned to ensure that it does not impact scenic character or create visual clutter.*
- *The RTA should install additional bicycle racks on buses, where feasible. Bus routes with highest bicyclist counts should be a priority.*
- *The RTA should consider implementing a seasonal bicycle shuttle on the Route 6A corridor and between Main Street in Buzzards Bay and the Bourne Bridge, similar to the Route 6 shuttle on the Outer Cape. Shuttle service could help bicycle travel on popular but hazardous routes. This could begin as a pilot program on summer weekends.*
- *The CCC should work with the towns to review bicycling conditions along Mass Bikeway 1/Claire Saltonstall Bikeway and revise the route where needed. With increased development, changing land use patterns, and higher traffic volumes on the Cape since the state initially designated the route, portions have become hazardous for cyclists and need to be rerouted. Once revised, the route will become the recommended route for cycling between Falmouth to Bourne to Provincetown.*
- *The CCC should continue to hold regional bicycle and pedestrian committee meetings with town representatives, the RTA, and Mass DOT to address transit – bicycle/pedestrian connections in the region. Continued and coordinated regional and local planning is needed to advance an integrated transportation network in the region.*
- *Each town should establish a bicycle/pedestrian committee comprised of resident volunteers and town staff such as planners, DPW, and police to guide bicycle and pedestrian planning in the*



community. The committee can provide a forum for addressing bicycle and pedestrian issues in the community and help advance improvements.

- *The CCC should continue to consult town bicycle committees to ensure that bike route maps are updated on a regular basis.*
- *Towns should capitalize on opportunities to install bicycle and pedestrian infrastructure along routes while other construction projects are planned.* Coordinating these projects can result in significant cost savings when installing bike/pedestrian infrastructure such as bike lanes, shoulders, and sidewalks. Future wastewater infrastructure construction projects in the region could provide opportunities to upgrade bicycle and pedestrian facilities.



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Appendices

1. References and Resources
2. MassDOT Bicycle Route Signage Policy
3. Inventory of Cape Cod Bicycle and Pedestrian Projects
4. Environmental Justice Areas map
5. Cape Cod Bicycle and Pedestrian Survey. (Available on Cape Cod Commission web site):
[http://www.capecodcommission.org/resources/initiatives/Data_All_131003\(1\).pdf](http://www.capecodcommission.org/resources/initiatives/Data_All_131003(1).pdf)

REFERENCES AND RESOURCES

2009 Cape Cod Regional Policy Plan.
2011 Regional Transportation Plan. Prepared on behalf of Cape Cod Metropolitan Planning Organization.
2006 MassHighway Project Development and Design Guide
Town of Barnstable Comprehensive Plan 2008.
Town of Bourne 2006 Local Comprehensive Plan
2003 Town of Chatham Long Range Comprehensive Plan

2002 Town of Dennis Local Comprehensive Plan.
2012 Town of Eastham Local Comprehensive Plan
2005 Town of Falmouth Local Comprehensive Plan
1998 Town of Mashpee Local Comprehensive Plan
2006 Town of Orleans Comprehensive Plan.
2000 Town of Provincetown Local Comprehensive Plan.
2009 Town of Sandwich Local Comprehensive Plan.
2005 Town of Truro Local Comprehensive Plan.
2008 Wellfleet Local Comprehensive Plan Update.

Bicycle and Pedestrian Plans and Studies

Barnstable Bikeway Network

<http://www.town.barnstable.ma.us/PropertyManagement/Barnstable-Bikeway-Network.pdf>

Bicycling in Chatham

http://www.chatham-ma.gov/Public_Documents/ChathamMA_Bikeways/OCRT_Poster09_11x17.pdf

Eastham Bikeways Committee Long Range Plan

Eastham Bike Route Sign Location Map

See Eastham Bikeways Committee web page: http://www.eastham-ma.gov/public_documents/easthamma_bcomm/bike

2010 Harwich Bicycle/Pedestrian Improvements Plan

http://www.capecodcommission.org/resources/transportation/Harwich_PedBikePlan_Jan2011.pdf

2010 Integrated Bicycle Plan for Cape Cod

http://www.capecodcommission.org/resources/transportation/2010_CCNS_Bike_Feasibility.pdf

Orleans Bike Plan 2008-2013 Powerpoint presentation

See Orleans Bike Committee webpage for this and related documents:

http://www.town.orleans.ma.us/pages/OrleansMA_BComm/walkways

Cape Cod Commission Studies

(All available on Cape Cod Commission website: www.capecodcommission.org)

Shank Painter Road Corridor Study 2012

Wellfleet Route 6 Safety Study 2012

Town Center Bicycle and Pedestrian Level of Service 2012

Other References

Kelly J. Clifton, Sara Morrissey, and Chloe Ritter, *Business Cycles: Catering to the Bicycling Market*, TR News (May – June 2012)

Darren Flusche, *Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure*, League of American Bicyclists and the Alliance for Bike & Walking, June 2009, updated and expanded July 2012.

Heidi Garrett Peletier, , *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*, Political Economy Research Institute, University of Massachusetts, Amherst, June 2011

- Roadway design in accordance with FHWA desirable standards (from Selecting Roadway Design Treatments to Accommodate Bicycles, FHWA-RD-92-073 Tables 4,5,6 latest version). When truck, bus and RV volumes exceed 5%, use the appropriate table values.
- Smooth, paved surfaces for the bicycle path of travel (with "bicycle safe" cascade drainage gates)
- Desirable sight distances (measured from expected bicycle path of travel)
- Consistent treatment (path of travel, signing, safety measures, etc.) throughout the signed corridor
- Connection to a contiguous bikeway system, or a specified designation, at each end of the signed roadway route
- Designated roadway crossings (crosswalks, signs, signals, etc.) where required, in accordance with MUTCD
- Potential conflict with motor vehicles must be minimized

Requests for Bicycle Route and/or Share the Road signing shall be submitted to the Deputy Chief Engineer or Highway Operations.

For installation of Bicycle Route signing, absolute conformance with the criteria in this policy is required; no waiver or exception process is available.

If absolute conformance is not provided, MassHighway will consider installation of Share the Road signing only. These signs will be used to designate roadways which a significant number of bicycles will use, but where full conformance with desirable design standards is not provided.

Where MassHighway determines that neither Bicycle Route nor Share the Road signs are permitted under this policy, bicyclists may still continue to use all roadways where bicycles are not legally prohibited.

List of Current Cape Cod Bicycle and Pedestrian Projects

September 2013

TOWN	Study/Plan/Project/Improvement	DESCRIPTION	STATUS
Barnstable	Yarmouth Connector/Cape Cod Rail Trail Extension	Extension of CCRT in two phases: (1) from Peter Homer Park in Yarmouth to Mary Dunn Road, and (2) Mary Dunn Road to Route 132.	Public informational meetings held February 2013. Project Initiation Form (PIF) submitted 6/2013
Barnstable	Willow St/Yarmouth Road Shared Use Path	Recommended component of preferred alternative from Yarmouth Road Corridor Study. Shared use path along the west side of Yarmouth Rd/Willow St connecting (proposed) Cape Cod Rail Trail Extension in the vicinity of Higgins Crowell Rd to Route 28 near the Hyannis Transportation Center's shared use path.	Study report complete.
Barnstable	Kennedy Legacy Trail	Walking trail from the Kennedy Museum on Main Street, down Pearl Street and proceed along South Street and Ocean Street.	Complete.
Bourne	Buzzards Bay Main Street improvements	Streetscape and pedestrian amenities on Main Street.	Complete
Brewster/Orleans	Living Streets Pilot Project	Pilot project on a segment of Route 6A to plan and design multi-modal transportation improvements and enhanced stormwater management.	Report complete.
Chatham	Old Colony Rail Trail to Route 28 West Chatham	Connection between bike trail at George Ryder Road to Route 28.	In discussion.
Dennis	Cape Cod Rail Trail Western Extension	Extension of the Cape Cod Rail Trail from its terminus at Route 134 in Dennis to Peter Homer Park in Yarmouth.	Construction for the Dennis to Station Avenue Yarmouth project on the 2014 TIP, to be constructed by 2016.
Eastham	Correction of hazards at Cape Cod National Seashore Nauset Bike Trail	Redesign and overhaul of Nauset Bike Trail from Coast Guard beach to Salt Pond Visitors Center.	Funding awarded.
Eastham	Cape Cod National Seashore pedestrian and bicycle crossings	Installation of self-activated warning beacon, signage, and crosswalk at Route	Funding awarded.

List of Current Cape Cod Bicycle and Pedestrian Projects

September 2013

TOWN	Study/Plan/Project/Improvement	DESCRIPTION	STATUS
	improvements.	6/Governor Prince Road intersection.	
Falmouth	Shining Sea Bikeway to Falmouth center.	Connection between bike path and Katharine Lee Bates Road.	Plans underway. Town and Steamship Authority have agreed on lease modification to use KLB Road for bikeway connector.
Harwich	2010 Plan for Improved Pedestrian and Bicycle Facilities in Harwich.	First step of plan is to improve bike/ped connections between Harwich Center and Harwich Port.	Study report complete. Phase I routes have been signed.
Mashpee	Route 130 Bicycle Path	Path extension from about ¾ mile from Heritage Park to Pickeral Cove Road.	Complete summer 2012.
Mashpee	Great Neck Road sidewalk	New sidewalk	Complete summer 2013
Mashpee	Old Barnstable Road sidewalk extension	Extension from Great Neck Road North to the Quashnet School (150 Old Barnstable Road).	Complete spring 2013
Orleans	Village Center streetscape improvements study	Study includes recommendations for bike connections & accommodations in the Main Street village center area.	Study complete. Sharrows and bike racks to be proposed.
Provincetown	Provincetown, Truro and Route 6 Multiuse Path Master Planning and Conceptual Design project.	Developing a plan for integrating existing bike/pedestrian facilities and using excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connection.	Funding awarded.
Provincetown	Race Point/Macmillan Pier Bicycle Connection	Share the road connection between Province Lands bike trails and downtown Provincetown.	Funding for design and construction awarded.
Provincetown	Cape Cod National Seashore pedestrian and bicycle crossings improvements.	Installation of self-activated warning beacon, signage, and crosswalk at intersection of Provincelands Trail and Race Point Road at Beech Forest.	Funding awarded.
Provincetown	Shank painter Road Improvements	Proposed sidewalk improvements and bicycle lane on Shank painter Road Route 6 to Bradford Street.	Study complete]. (Fog line painted – creating 3-4' shoulder in places.)

List of Current Cape Cod Bicycle and Pedestrian Projects

September 2013

TOWN	Study/Plan/Project/Improvement	DESCRIPTION	STATUS
Sandwich	Marina to downtown shared use path.	Combination multi-use path and shoulder improvements from Sandwich marina to Jarves Street.	Review of alternative routes/concepts underway.
Sandwich	Quaker Meeting House Road sidewalk plan		Construction complete spring 2013.
Truro	Provincetown, Truro and Route 6 Multiuse Path Master Planning and Conceptual Design project.	Developing a plan for integrating existing bike/pedestrian facilities and using excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connection.	Funding awarded.
Wellfleet	Provincetown, Truro and Route 6 Multiuse Path Master Planning and Conceptual Design project.	Developing a plan for integrating existing bike/pedestrian facilities and using excess of Route 6 right-of-way with shared roads as well as a preferred alternative for Wellfleet to Provincetown connection.	Funding awarded.
Wellfleet	Cape Cod National Seashore pedestrian and bicycle crossings improvements.	Installation of self-activated warning beacon, signage, and crosswalk at intersection of Cape Cod Rail Trail and Marconi Beach Road.	Funding awarded.
Yarmouth	Cape Cod Rail Trail Extension	2 projects: (1)Extension of the Cape Cod Rail Trail from its terminus at Route 134 in Dennis to Peter Homer Park/Yarmouth and (2) further extension of Cape Cod Rail Trail from Peter Homer Park to Mary Dunn Road in Barnstable). See Barnstable and Dennis entries above).	Public informational meetings held February 2013. PIF submitted 6/2013.
Regional	Outer Cape Bicycle Shuttle	Vehicles, trailers, signage and marketing for a bicycle shuttle to serve Provincetown, Truro, and Wellfleet.	Weekend service to resume summer 2013.
Regional	Cape Cod Regional Bicycle and Pedestrian Questionnaire	A questionnaire to inform regional bicycle pedestrian plan.	Survey closed 9/2013.
Regional	Town center Level of Service (LOS)	Assessment of issues relating to bicycle	Report complete.

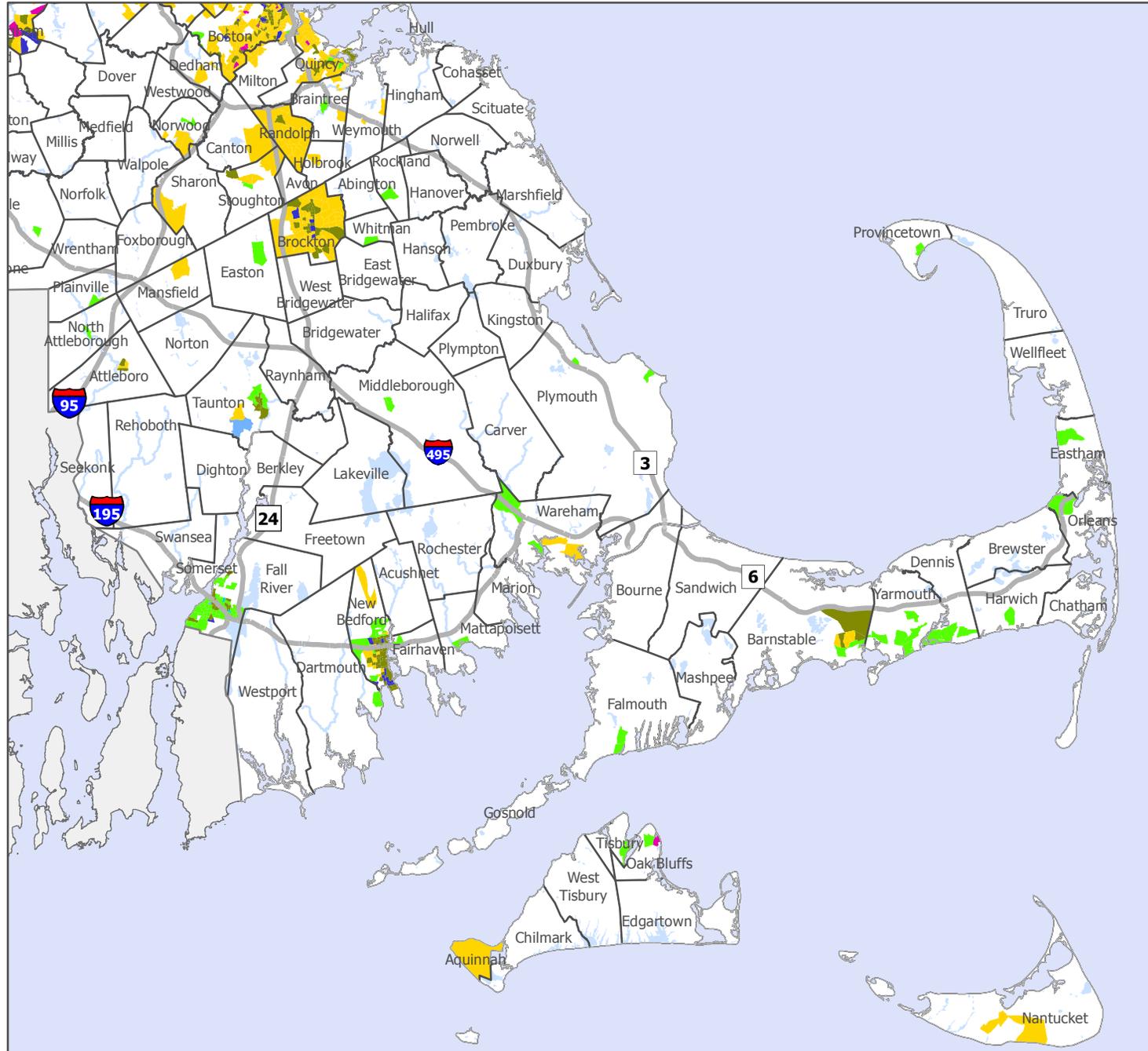
List of Current Cape Cod Bicycle and Pedestrian Projects

September 2013

TOWN	Study/Plan/Project/Improvement	DESCRIPTION	STATUS
	analysis.	and pedestrian safety and accommodations in town centers.	
Regional	Cape Cod Regional Transit Authority TRIP grant projects	Short and long term planning projects including demographics collection, build-out analysis, signage, & transit route/bike and pedestrian facility connection planning.	Work underway on all projects by CCC staff.
CCC	CCC Web-site Bicycle/Pedestrian Program Initiative		Launched January 2012.

2010 Environmental Justice Populations

Southeast Region



Massachusetts Environmental Justice Criteria:

Environmental Justice (EJ) populations are determined by identifying all Census 2010 block groups that meet any of the following criteria:

- Income** 25% or more of households earn 65% or less than the MA median household income
- Minority population** 25% or more of residents identify as a race other than white
- English language isolation** 25% or more of households have no one over the age of 14 who speaks English only or very well

Populations meeting one EJ criterion

- income
- minority population
- English isolation

Populations meeting two EJ criteria

- income and minority population
- income and English isolation
- minority population and English isolation

Populations meeting three EJ criteria

- income, minority population and English isolation

For more information contact:
EEA EJ Policy Program Coordinator
617-626-1000



CAPE COD COMMISSION

3225 MAIN STREET • P.O. BOX 226 • BARNSTABLE, MASSACHUSETTS 02630
(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

