

2.4 Bicycle and Pedestrian Transportation

Bicycles are a low cost, non-motorized form of transportation. Bicycle infrastructure and facilities require smaller right-of-ways and less overall investment than roadways. There are three basic types of bicycle infrastructure: paths, lanes, and routes. Paths generally have their own separated right-of-way and follow certain standards for width, grade, and accessibility. Bicycle lanes are separate lanes within roadways marked for bicycle use. There are currently no bicycle lanes on Cape Cod. Bicycle routes are roadways with wide shoulders that have been designated for bicycle use. Pedestrians can access shared use paths and sidewalks. Pedestrian facilities support village centers and local businesses, and encourage travelers to walk instead of driving. Moreover, bicycle and pedestrian facilities can increase property values and make areas more attractive to new residents, businesses, and tourists¹.

2.4.1 Bicycle Paths

Table 2.4-1: Bike Path and Route Mileage by Town and Region

Town / Region	LENGTH IN MILES	
	Bike Paths	Bike Routes
All Cape	83.8	333.0
Upper Cape	22.2	166.1
Mid Cape	16.6	66.6
Lower Cape	25.4	50.7
Outer Cape	19.6	49.6
Bourne	11.5	26.1
Sandwich	2.5	22.5
Falmouth	4.8	92.6
Mashpee	3.4	25.0
Barnstable	4.8	41.2
Yarmouth	4.5	11.6
Dennis	7.3	13.8
Harwich	8.7	20.2
Chatham	2.3	7.3
Brewster	12.5	12.1
Orleans	1.9	11.1
Eastham	7.2	10.0
Wellfleet	2.8	16.4
Truro	1.9	17.6
Provincetown	7.7	5.6



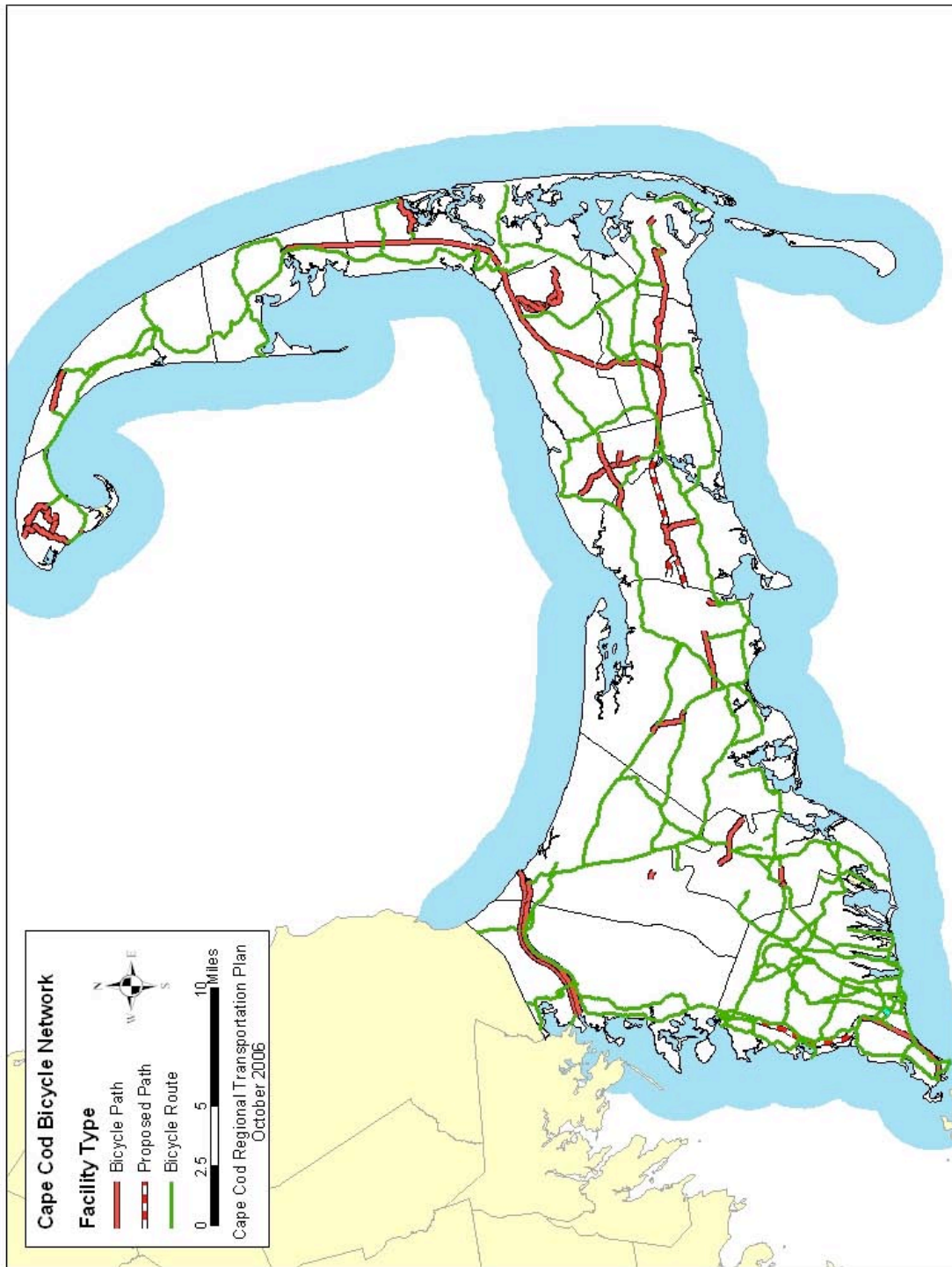


Figure 2.4-1: Bicycle Paths and Routes on Cape Cod



A bicycle path is a paved right of way, separate from roadways. A bicycle path is not a sidewalk. According to the American Association of State Highway and Transportation Officials (AASHTO), bicycle paths should have a paved surface 8-10 feet wide, with a 4 inch wide center line. Shoulders of 2-feet should be placed on either side of the path, with signage placed no closer than 3 feet from the pavement. The cross slope of a bicycle path should be no more than 2%. Bicycle paths must also meet other standards for grading, accessibility, and roadway crossings². There are many bicycle paths throughout Cape Cod. Some serve recreational needs, while others serve transportation needs.

2.4.1.1 Cape Cod Rail Trail

The Cape Cod Rail Trail was constructed in the 1970s from the out of service Cape Cod Line rail right-of-way. Since 1991, an extension, two bridges over Route 6, and a tunnel have been constructed. The Massachusetts Department of Conservation and Recreation (DCR) owns and maintains the Rail Trail.

The Rail Trail runs from Route 134 in Dennis, just north of Great Western Road, to LeCount Hollow Road in Wellfleet. All along the trail are seating areas and trash cans. An extension of the trail, from Harwich to Chatham, was recently completed along the out-of-service Chatham Branch rail right-of-way. A bicycle roundabout was constructed at the intersection of the Rail Trail and the Harwich-Chatham extension (**Figure 2.4-6**). Currently, the main line of the Rail Trail is under renovation. The trail is being repaved and widened, with a grassy shoulder and more amenities. Phase 1 construction began in September 2005 on the section from Dennis to Nickerson State Park in Brewster. This portion of the Rail Trail was completed and officially reopened on June 17, 2006. The section of the trail from Nickerson State Park to Wellfleet is still under renovation and slated for completion in June 2007³. A further extension of the Rail Trail from Route 134 to Willow Street in Yarmouth is currently being studied by the towns of Yarmouth and Dennis in consultation with Barnstable town officials. The project would include several grade separated crossings and would incorporate the Old Townhouse Path. The feasibility study is planned for completion in February 2007. A further extension to the Hyannis Transportation Center is also under consideration.

The trail is currently 10 feet wide in the new section and 8.5 feet wide in the old sections. The main line is 21.9 miles long, with 45 roadway crossings. The Harwich-Chatham Extension is 6.2 miles long with 15 roadway crossings. DCR estimates that 400,000 people use the rail trail annually⁴. In addition, the rail trail is occasionally used for emergency vehicles. Given its length and location, the Cape Cod Rail Trail can be used to commute within the Lower and Outer Cape.





Figure 2.4-2: Cape Cod Rail Trail Crossing at Main Street, Harwichport



Figure 2.4-3: Cape Cod Rail Trail at Brackett Road, Eastham



Figure 2.4-4: Harwich-Chatham Rail Trail Extension at the Harwich-Chatham Town Line



Figure 2.4-5: End of the Harwich-Chatham Rail Trail Extension At Crowell Rd., Chatham



Figure 2.4-6: Bicycle Roundabout on the Cape Cod Rail Trail, Harwich



2.4.1.2 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 2 roadway crossings. The mainland-side path is 7 miles long, 8 feet wide and has 7 roadway crossings.



Figure 2.4-7: Southern-Side of the Canal Bicycle Path, East of Sagamore Bridge



Figure 2.4-8: Mainland-Side of the Canal Bicycle Path, East of Railroad Bridge



Figure 2.4-9: Shining Sea Bicycle Path at Ter Huen Drive, Falmouth



Figure 2.4-10: Shining Sea Bicycle Path at Palmer Ave., Falmouth

2.4.1.3 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. The second phase, from Depot Street to the southern crossing of Palmer Avenue, was recently completed. Phase 3 will extend the



bike path from Palmer Avenue to just south of Old County Road. The trail is currently 4.6 miles long, 8.5 feet wide, with 11 roadway crossings.

2.4.1.4 Provincelands Trails and Herring Cove Beach Path

The Provincelands Trails are the set of trails at Race Point in Provincetown. They provide a path from near Route 6 to the Provincetown beaches and the Provincetown Municipal Airport. Travelers primarily use the Provincelands Trails for recreation and not to commute. The paths were built in the 1960s before bicycle path standards were developed. As a result they have many steep slopes, sharp curves and other hazards. Bicycle traffic is restricted to 10 MPH travel for safety. The Provincelands Trails are owned by the Cape Cod National Seashore. There are a total of 7.6 miles of bicycle paths, with a paved surface 8 feet wide, and 4 roadway crossings.

The Herring Cove Beach Path serves as a connection between the Herring Cove Beach parking lot and Province Land Road in Provincetown. There is also a connection to the Provincelands Trails through the parking lot. The Herring Cove Beach Path is 0.1 miles long, 8 feet wide, and has no roadway crossings.



Figure 2.4-11: Provincelands Trail at the Race Point Visitors Center, Facing West

2.4.1.5 Setucket Road and Dennis Paths

Several paths exist in Dennis, 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 Street 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 at 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 Street, 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 1 roadway crossing. All of these paths are owned and maintained by the Town of Dennis except for the section of path in Yarmouth, which is owned and maintained by that town. They provide a network of bicycle transportation for residents of Dennis. In total, these three paths are 7.0 miles long, and contain 38 roadway crossings.



Figure 2.4-12: Setucket Road Path East of North Dennis Road, Looking East



Figure 2.4-13: Setucket Road Path East of North Dennis Road, Looking West



2.4.1.6 Nickerson State Park Trails

Several bicycle paths are located within Nickerson State Park in Brewster. These paths are used for recreation, offering a scenic ride through the park. They are owned by the Massachusetts Department of Environmental Management. There are a total of 6.8 miles of bicycle path, with 6 roadway crossings.

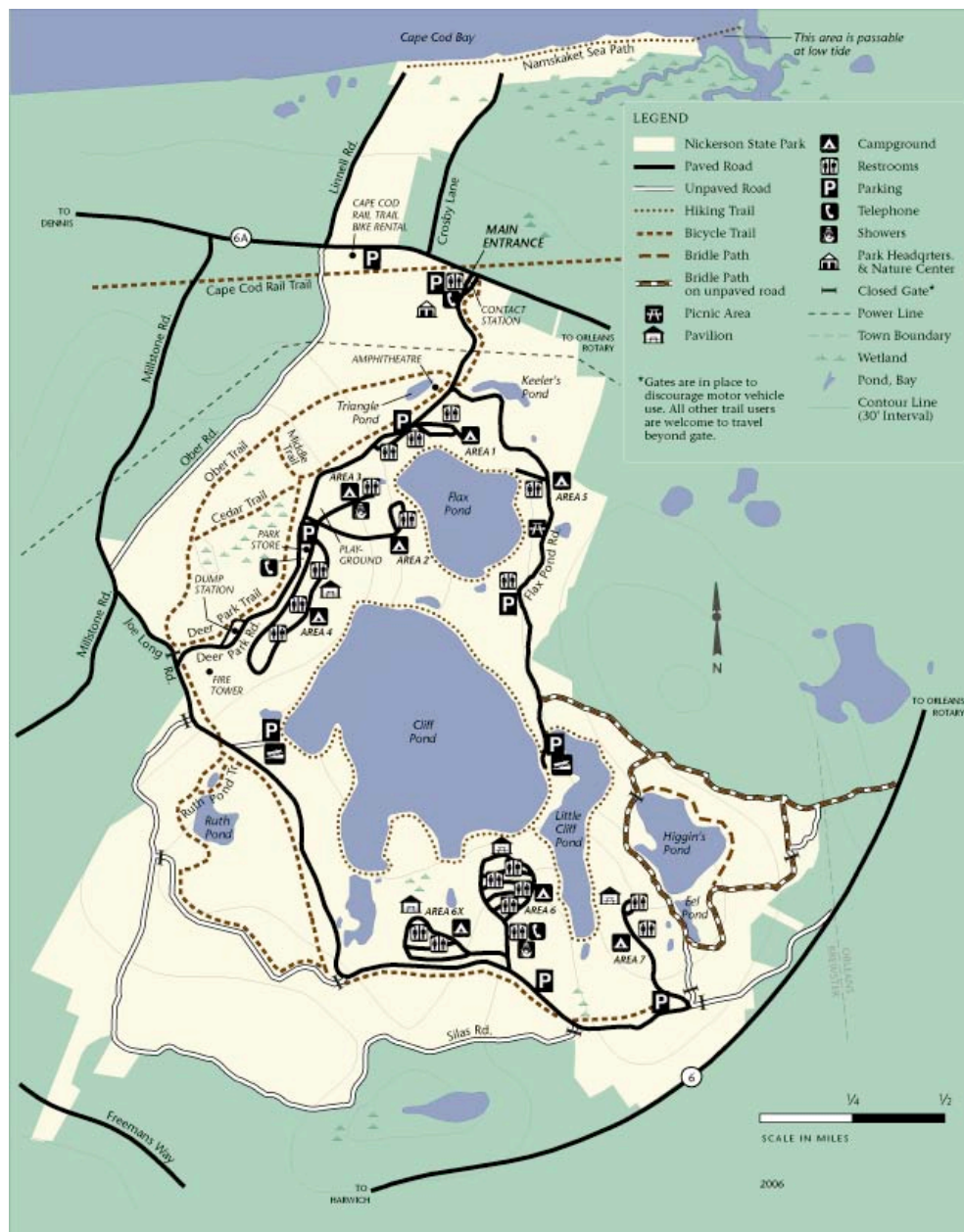


Figure 2.4-14: Map of Nickerson State Park Trails⁵



2.4.1.7 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 Coastguard Beach. A connection to the Cape Cod Rail Trail can be made via Bicycle Route 1. The Nauset Trail is owned by the Cape Cod National Seashore and used primarily for recreation. The Nauset Trail is 1.9 miles long, 8 feet wide, and has 6 roadway crossings.



Figure 2.4-15: Nauset Trail from the Salt Pond Visitor's Center Looking East



Figure 2.4-16: Nauset Trail from Coastguard Beach Parking Lot in Eastham

2.4.1.8 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. It is used primarily for recreational purposes. The Head of the Meadow Trail is 1.9 miles long, 8.5 feet wide, and has no roadway crossings.



Figure 2.4-17: Head of the Meadow Trail at Head of the Meadow Road, Truro

2.4.1.9 Route 28 Path

The Route 28 Path runs along Route 28 in Barnstable from Bearses Way to Old Stage Road. The path was constructed in 1980 by the Town of Barnstable as a safe route to the middle and high schools⁶. However, some sections of the path have not been designed to bicycle path standards, with 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.



2.4.1.10 Route 130 Path

The Route 130 Path runs along Route 130 from Heritage Memorial Park to just north of Route 28 in Mashpee. The path is owned by the town of Mashpee. The Route 130 Path is 2.4 miles long and has 11 roadway crossings.



Figure 2.4-18: Looking North on Route 130 Bicycle Path at Lovell's Lane, Mashpee



Figure 2.4-19: Looking South on Route 130 Bicycle Path at Lovell's Lane, Mashpee

2.4.1.11 Old Townhouse Road Trail

The Old Townhouse Road Trail runs from near Station Avenue, along Old Townhouse Road, behind the Bayberry Hills Golf Course, to Higgins Crowell Road in Yarmouth. Currently, the Rail Trail Extension Feasibility Study being performed by the towns of Yarmouth and Dennis is looking at using the Old Townhouse Road Trail right-of-way to connect the Rail Trail to Hyannis and the Claire Saltonstall Bikeway. The Old Townhouse Road Trail is 2 miles long, 8 feet wide, and has 3 roadway crossings.



Figure 2.4-20: Old Townhouse Road Path East of West Yarmouth Rd., Yarmouth



Figure 2.4-21: Old Townhouse Road Path West of West Yarmouth Rd., Yarmouth





Figure 2.4-22: Old Townhouse Road Path at the Bayberry Golf Course in Yarmouth



Figure 2.4-23: Old Stage Road Path at the Service Road in Barnstable

2.4.1.12 Old Stage Road Path

The 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. The path was constructed in the early 1980s and is owned by the Town of Barnstable. 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 6 roadway crossings.

2.4.1.13 Forest Road Path

The Forest Road Path was built alongside Forest Road in 2006. It runs from Old Townhouse Road to Winslow Gray Road in Yarmouth. Continuing south on Forest Road, users can reach South Yarmouth and Route 28. Although terminating at Old Townhouse Road, the Forest Road Path does not directly connect with the trail there. The Forest Road Path is 1.4 miles long, 8.5 feet wide, and has 8 roadway crossings.





Figure 2.4-24: Forest Road Path, Looking North



Figure 2.4-25: Forest Road Path, Looking South

2.4.1.14 Route 151 Path

The Route 151 Path runs along Route 151 from Mashpee Commons to Old Barnstable Road in Mashpee. At Old Barnstable Road, 2 forks turn south to access Mashpee High School. A third fork turns north and provides a connection to the Golf Club at Southport. The Route 151 Path is owned by the Town of Mashpee. The path is 1.1 miles long and has 1 roadway crossing.



Table 2.4-2: Bicycle Path Mileage by Path

Path Name		Length in Miles	Width in Feet	Number of Roadway Crossings
Cape Cod Canal Bike Path	<i>Mainland</i>	7.04	8	7
	<i>Cape Cod</i>	6.52	8	2
	Total	13.57	8	9
Cape Cod Rail Trail	<i>Main Path</i>	21.9	8.5 / 10	45
	<i>Harwich-Chatham Ext.</i>	6.2	8.5	15
	Total	28.1	8.5 / 10	60
Downtown Falmouth Path		0.2	-	0
Forest Road Path		1.4	8.5	8
Forestdale School Path		0.4	10	
Head of the Meadow Trail		1.9	8.5	0
Hyannis Transportation Center Path		0.4	-	3
Nauset Trail		1.9	8	6
Nickerson State Park Trails		6.8	-	6
Old Stage Road Path		1.9	-	6
Old Townhouse Road Path		2.0	8	3
Provincelands Trail		7.6	8	4
<i>Herring Cove Beach Path</i>		0.1	8	0
Route 130 Path		2.4	-	11
Route 151 Path		1.1	-	1
Route 28 Path		2.5	8	28
Setucket Road and Dennis Paths		7.0	8.5	38
Shining Sea Bikeway		4.6	8.5	11

2.4.1.15 Hyannis Transportation Center Path

The Hyannis Transportation Center Path runs from Route 28 in Barnstable to Main Street Hyannis. The trail was built during the construction of the Hyannis Transportation Center in 2002. The Hyannis Transportation Center Path is 0.4 miles long and has 3 roadway crossings.



2.4.1.16 Forestdale School Path

The Forestdale School Path is located in Sandwich. It connects Route 130 to the Forestdale School. Given that one can walk or bicycle from the nearby neighborhoods, the shared-use path serves the needs of students traveling to and from the school. The Forestdale School Path is 0.4 miles long, 10 feet wide, and has 2 roadway crossings.

2.4.1.17 Downtown Falmouth Path

The Downtown Falmouth Path is located on Hamlin Street in Falmouth, between Dillingham Avenue and Katherine Lee Bates Road. The bicycle path is owned by the Town of Falmouth. 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.

2.4.2 Bicycle Routes

A bicycle route is any road, path, or trail that has been designated for bicycle use. In many cases, these are side streets with a low volume of traffic, or roads with wide shoulders. In the context of this section, only those bicycle routes located on roadways are discussed. Roadways designated for bicycle usage have the ability to link paths where bicycle rights-of-way are limited or unavailable. Many bicycle routes exist on Cape Cod, some of which are better signed than others. They allow bicycle users a wide network of travel across Cape Cod.

2.4.2.1 Claire Saltonstall Bikeway

The Claire Saltonstall Bikeway, or State Bicycle Route 1, is a series of bicycle paths and on-street routes that travel from Boston to both Provincetown and Woods Hole. The bikeway starts on Cape Cod at Route 3A in Bourne. It travels across the Sagamore Bridge, utilizing the bridge's sidewalk. After the Sagamore Bridge, the bikeway splits. One branch travels south, parallel to Route 28 and eventually joining 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. The bikeway was mapped and established in 1978⁷ by the Massachusetts General Court as a memorial to Claire Saltonstall, who died in a bicycle-motor vehicle accident⁸. The Claire Saltonstall Bikeway, indicated by a green oval (**Figure 2.4-26**), is one of the best signed bicycle routes on Cape Cod. According to MassBike, however, many signs have disappeared and the route is impossible to follow without a map⁹. The Cape Cod section of the Claire Saltonstall Bikeway is 98.3 miles in length. The Bourne to Provincetown portion is about 75.4 miles long, while the Bourne to Woods Hole portion is 22.9 miles long. Overall, the Claire Saltonstall Bikeway is about 165 miles long.



Figure 2.4-26:
Signage on State
Bicycle Route 1



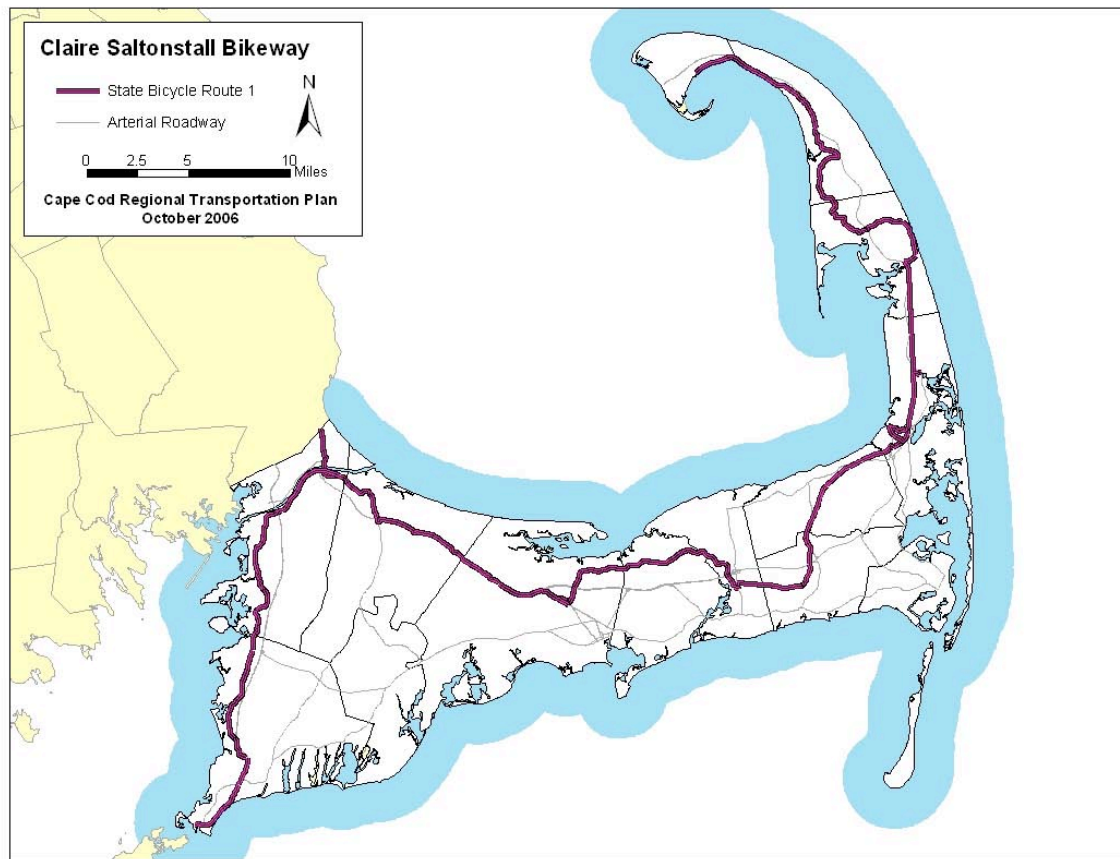


Figure 2.4-27: Claire Saltonstall Bikeway

2.4.2.2 State Bicycle Routes

The Commonwealth of Massachusetts has also identified other bicycle routes throughout Cape Cod¹⁰. Some examples are Buck Island Road in Yarmouth, Great Western Road in Dennis and Harwich, or Great Neck Road in Mashpee (**Figure 2.4-1**). The Cape Cod Commission and Americorps performed a survey of many of these roads in June 2006. According to the survey, many of these roads are unsigned and some have sharp turns, no shoulders, or high traffic volumes. Evaluating existing bicycle routes, maintaining proper signage, and identifying possible new routes will help to encourage more bicycle use on Cape Cod, both commuter and recreational. In total, there are 172.6 miles of roadway on Cape Cod designated as bicycle routes by the Commonwealth of Massachusetts.

2.4.2.3 Falmouth Bicycle Routes

The Town of Falmouth has designated many of their roads to be bicycle routes. Some examples are Gifford Street, Sippewisset Road, Route 151, and Menauhant Road. According to a survey conducted by the Cape Cod Commission and Americorps



performed in 2006, many of these routes are signed and have sidewalks. In total, there are 101.8 miles of roadway in Falmouth designated as bicycle routes.



Figure 2.4-28: Route 28 North of the Davis Straits Intersection, a Designated Bicycle Route in Falmouth

2.4.2.4 Low Volume Roads

Bicyclists and pedestrians can utilize low volume roads with minimal automobile conflicts. Cape Cod has 445.3 miles of major roads with summer average daily volumes (ADT) of 5,000 vehicles per day or less, and 85.3 miles of major roads with 1,000 vehicles per day or less. For reference, an ADT of 5,000 is equivalent to about 1 vehicle every 7 seconds during daylight hours. An ADT of 1,000 is equivalent to about 1 vehicle every 35 seconds during daylight hours. Cape Cod also has about 1,450 miles of local paved roads that are suitable for safe bicycle and pedestrian traffic. These roads must be considered as part of the bicycle and pedestrian network, since trips usually begin or end on side streets or in low traffic residential neighborhoods.



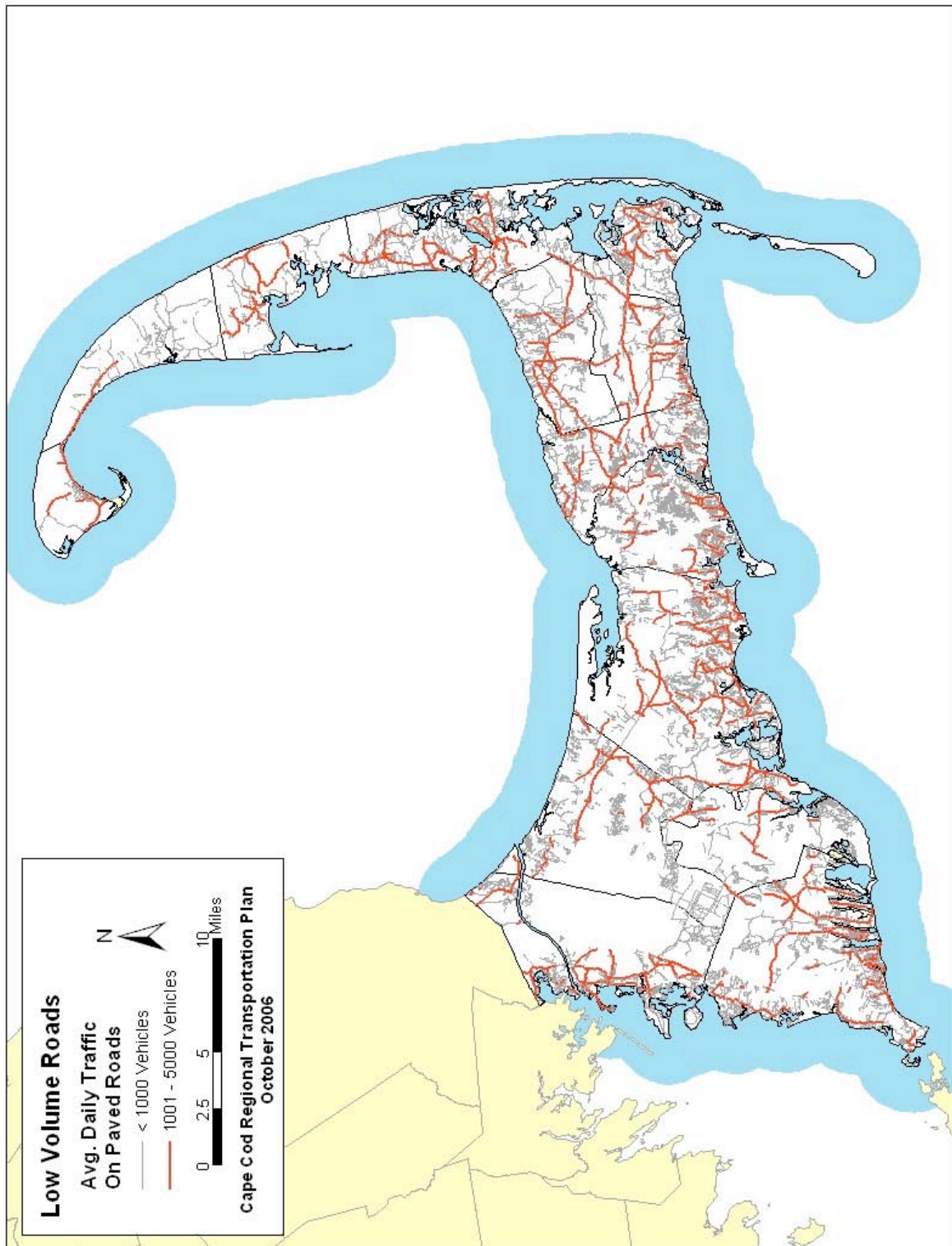


Figure 2.4-29: Low Volume Roads



2.4.3 Sidewalk Network

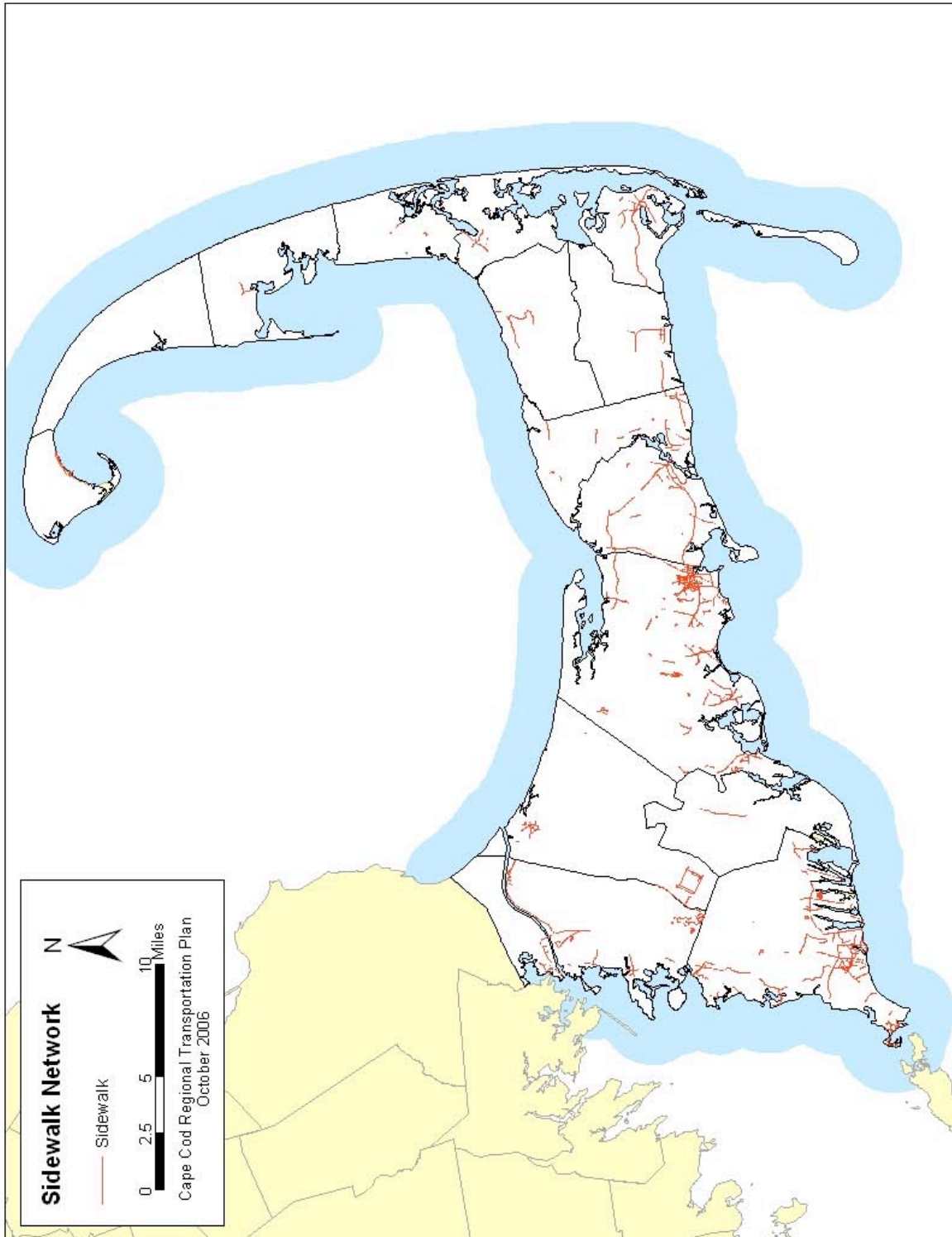


Figure 2.4-30: Sidewalk Network



Sidewalks are paved surfaces, usually adjacent to roadways, which are designed primarily for pedestrian usage. Sidewalks are typically 4 to 6 feet wide, made with slabs of concrete, paved asphalt, bricks, or other hard substances. The Americans with Disabilities Act requires sidewalk curb cuts to be large enough and shallow enough for wheelchair usage. Telephone poles, road signs, and other architectural barriers must also be removed in order to create an unobstructed path for walking¹¹. In Massachusetts, bicyclists may ride on sidewalks outside business districts unless otherwise prohibited by local ordinances¹².

According to the 2005 Massachusetts Statewide Roadway Inventory File, there are 225.8 miles of sidewalk located on Cape Cod¹³. In addition, 26.5 miles of road have sidewalks on either side. These roads are concentrated primarily in Hyannis and downtown Falmouth. Of all paved roadways on Cape Cod, 8.5% have a sidewalk on at least one side. The average sidewalk width on Cape Cod by mileage is 4.4 feet.

All of these figures illustrate pedestrian issues that must be addressed by any review of bicycle and pedestrian transportation. Over 90% of Cape Cod roadways do not have sidewalks. While many of these streets are low volume and residential, some are not and do warrant sidewalks. On a street without sidewalks, pedestrians must walk in the shoulders or on private property. This is not only less safe, but it restricts access for the elderly and disabled. Moreover, some sidewalks on Cape Cod have architectural barriers, such as telephone poles, located within the sidewalk. Obstructions like these make sidewalk navigation more difficult, especially for the disabled. 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. Crosswalks provide a safe means for pedestrians and other sidewalk users to cross roadways. All crosswalks are marked on the roadway surface by white paint. Generally, crosswalks located on lower volume roads have no traffic control devices, or a sign telling motorists to yield to pedestrians. However, many crosswalks have crossing signals that stop traffic, allow pedestrians to cross, and warn pedestrians when traffic is about to resume. Typically, crossing signals are located with traffic signals at roadway intersections. However there are four pedestrian signals on Cape Cod that are not located at a roadway intersection. Ensuring that crosswalks are located at high pedestrian areas throughout Cape Cod will help to improve safety as well as access. Access can also be improved by ensuring that crosswalks accommodate all users, including the elderly and disabled. Properly designed curb cuts that are usable by wheelchairs, tones at crosswalk signals for the blind, and other amenities can significantly improve sidewalk access for the disabled.

2.4.4 Bicycle and Pedestrian Amenities

Beyond bicycle and pedestrian infrastructure, there are various amenities that address the needs of the traveler. Employers and businesses almost always have enough automobile



parking. The same does not always hold true for bicycles. Bicycle racks allow the traveler to securely park their property without fearing that it will be stolen or damaged. Water fountains, vending machines or nearby cafes provide the traveler with nourishment after their ride or walk. Public restrooms are also useful to both pedestrians and bicyclists. Showers and locker facilities allow employees to change into clean clothes. All of these amenities help to encourage non-motorized transportation.

There are many amenities available to bicyclists and pedestrians on Cape Cod. The Hyannis Transportation Center has bicycle racks, public restrooms, water fountains, vending machines and other user amenities. In addition, the Cape Cod Regional Transit Authority (CCRTA) offers bicycle racks with space for two bicycles on each CCRTA bus. Bicycle racks, restrooms, food, and other amenities are also available at the Exit 6 Rest Area near the Barnstable Park-and-Ride Lot. The Steamship Authority Piers in Hyannis and Woods Hole offer restrooms and vending machines to customers who arrive by bicycle. Moreover, some employers offer bicycle and pedestrian amenities to their employees. All of the amenities address the “destination barriers¹⁴” that bicyclists and pedestrians perceive, such as not being able to safely park their bicycle, showing up to work sweaty, or arriving at their workplace hungry and thirsty. By making non-motorized travel more attractive to potential users, more people will be inclined to ride a bicycle and walk to work.

2.4.5 Bicycle and Pedestrian Facility Accessibility and Mobility

Not everyone can ride a bicycle or walk as their primary mode of transportation. Users must live relatively close to where they work and shop in order to ensure a reasonable travel time. The low density of Cape Cod development is in this way not conducive to bicycle travel. Moreover, a certain level of fitness is necessary to deal with the physical exertion. On Cape Cod, where many residents are elderly, bicycling or walking may not be practical for some travelers. Despite these barriers, there are many potential users who can be targeted and encouraged to travel by bicycling or walking for its positive environmental, physical, and economic benefits.

Bicycle paths and routes can be made more accessible by ensuring that there are adequate entry points, safe roadway crossings, and proper signage. There is a tradeoff between entry points and roadway crossings, since roadways are often the place where bicyclists enter a bicycle path. As the number of entry points increase, so do the number of roadways bicyclists must cross in order to travel the path. Most Cape Cod bicycle path-roadway crossings have yellow stanchions or gates that encourage bicyclists to stop and watch for vehicles before crossing (**Figure 2.4-31** and **Figure 2.4-32**). Two roadway crossings of the Cape Cod Rail Trail in Harwich and Brewster have signals which warn oncoming vehicles when bicyclists or pedestrians are approaching the intersection. Signage is also important to accessibility, since it directs users to and along the path. Posted maps, street signs, and signs listing local points of interest also help to direct travelers to their destinations. By implementing safety and signage measures such as



these, bicycle and pedestrian facilities can become more accessible to both first time and frequent users.



Figure 2.4-31: West Yarmouth Road crossing of the Old Townhouse Road Trail



Figure 2.4-32: Meetinghouse Road crossing of the Harwich-Chatham Extension of the Cape Cod Rail Trail

Mobility is also a very important issue to consider when discussing bicycle paths and routes. The Cape Cod Transportation Demand Model divides Cape Cod into 267 Transportation Analysis Zones (TAZ) based on census data, economic activity, travel patterns and other factors. The Cape Cod transportation network can be conceptualized as a series of links that connect neighboring TAZs. Each link represents a potential transportation connection, and is not necessarily associated with the existence of a bikeway or other transportation facility. In this way, areas of Cape Cod that are connected by bicycle transportation can be identified, as well as areas that lack connections (**Figure 2.4-33**).

Bicycle paths on Cape Cod, with the exception of the Rail Trail and Shining Sea Bikepath, are generally too short, or the wrong location, to facilitate commuting. For example, the Nauset Trail only conducts travelers from Route 6 to the Cape Cod National Seashore. The Forest Road Path does not continue all the way to the commercial activity on Route 28. The key is to construct and connect paths in such a way as to link areas with residential, commercial, and recreational uses. Otherwise, bicyclists will only be able to use bicycle paths as part of a larger bicycle route or for recreational purposes.

Because bicycles are small and lightweight, they are very portable and easy to transfer from mode to mode. Bus services, such as the CCRTA, Plymouth and Brockton, and Peter Pan / Bonanza Bus Lines, can accommodate cyclists with racks and storage areas. The Steamship Authority and other ferry services allow passengers to bring their bicycles for a fee. Special reservations can also be made with air carriers in order to transport bicycles¹⁵. For this reason, bicycle transportation can help to connect users to other modes of transportation.



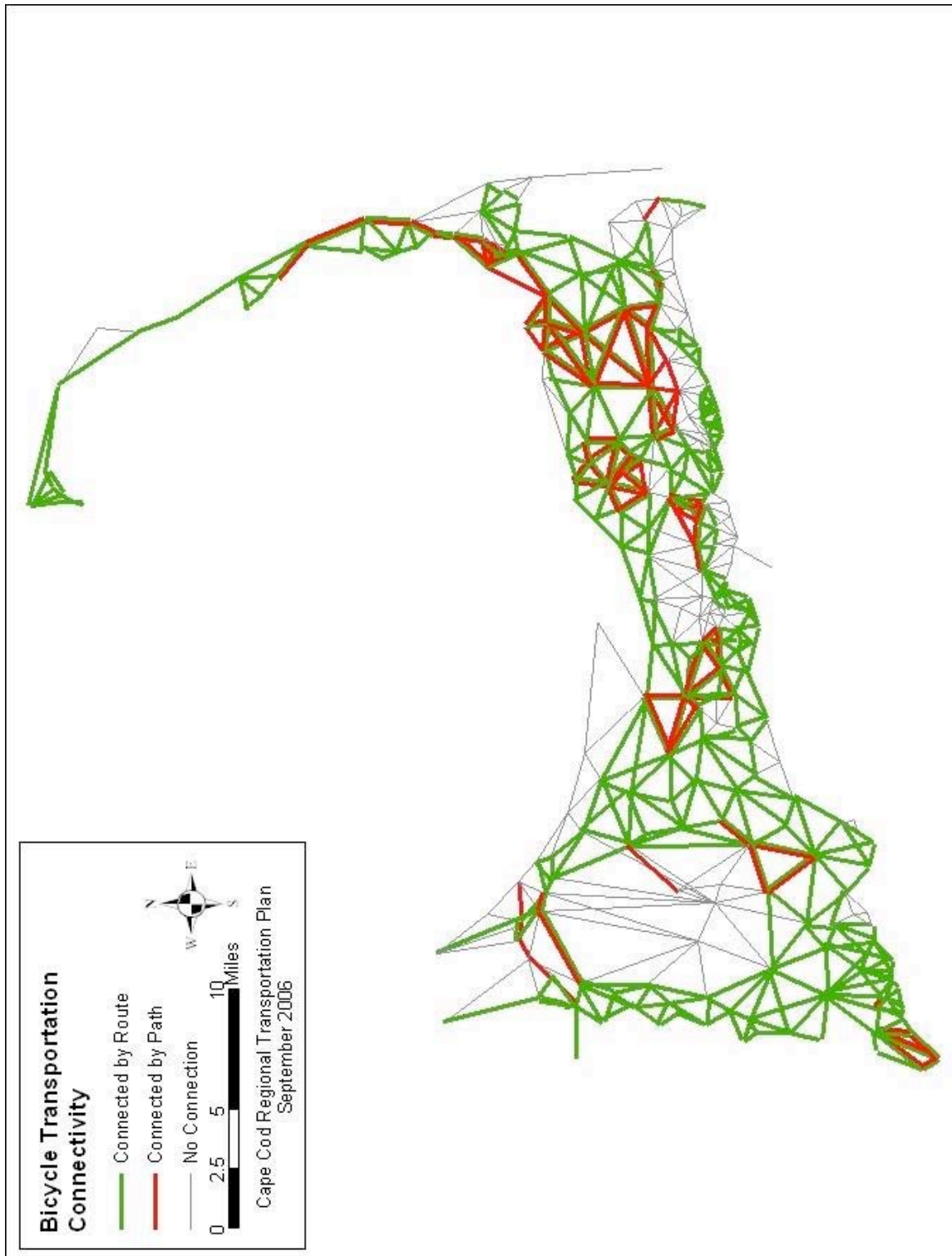


Figure 2.4-33: Cape Cod TAZs Connected by Bicycle Transportation



2.4.6 Conclusion

Bicycle and pedestrian transportation are non-motorized forms of transportation. The infrastructure for bicycles and pedestrians, such as bicycle paths, bicycle routes, and sidewalks, must follow federal, state, and local design standards in order to ensure safety and accessibility. There are 83.8 miles of bicycle paths on Cape Cod, and 333 miles of bicycle routes. Among these are the Cape Cod Rail Trail, Shining Sea Bike Path, and the Claire Saltonstall Bikeway. For all paved roads on Cape Cod, 8.5% have a sidewalk. Low volume roads can also be used by bicyclists and pedestrians. Beyond the actual infrastructure, amenities such as bicycle racks, benches, restrooms, showers, and lockers help to encourage bicycle and pedestrian use. By connecting and extending bicycle paths, ensuring proper safety and signage on bicycle routes, and providing travelers with the proper amenities, bicycle and pedestrian transportation will continue to play an important role in the Cape Cod transportation system.

¹ Rails to Trails Conservancy. "Economic Benefits of Trails and Greenways." Trails and Greenways Clearinghouse, Washington D.C. 2003. Available Online at www.railstotrails.org/resources/documents/resource_docs/tgc_economic.pdf.

² American Association of State Highway and Transportation Officials. "Guide to the Design of Bicycle Facilities." 3rd Edition, 1999.

³ Massachusetts Department of Conservation and Recreation. "Cape Cod Rail Trail Press Release." June 19, 2006. Available at www.mass.gov/envir/press/pressreleases/.

⁴ Massachusetts Department of Conservation and Recreation. "Cape Cod Rail Trail Press Release." June 19, 2006. Available at www.mass.gov/envir/press/pressreleases/.

⁵ Massachusetts Department of Conservation and Recreation. "Trail Map for Nickerson State Park." 2006. Available at www.mass.gov/dcr/parks/trails/nickerson600.gif.

⁶ Allen, John S. "Route 28 Bike Path, Hyannis." www.bikexpert.com/massfacil/capecod/rte28.htm.

⁷ Mink, Doug. "A History of the Boston Area Bicycle Coalition." Available at http://massbike.org/about/babc_history.htm.

⁸ Massachusetts Executive Office of Transportation. Document prepared by Vanasse Hangen Brustlin, Inc (VHB). "Massachusetts Statewide Bicycle Transportation Plan." 1998. Page 24. Available at www.massbikeplan.org.

⁹ MassBike. "MassBike: the Massachusetts Bicycle Coalition" *Cape Cod and Islands Bike Paths and Trails*. <http://massbike.org/bikeways/capecod.htm>.

¹⁰ Data available from MassGIS at www.mass.gov/mgis/.

¹¹ "Sidewalk – Wikipedia, the Free Encyclopedia." en.wikipedia.org/wiki/Sidewalk.

¹² "MassBike: The Massachusetts Bicycle Coalition." *Massachusetts Laws Pertaining to Bicyclists*. www.massbike.org/bikelaw/

¹³ Data available from MassGIS at www.mass.gov/mgis/.

¹⁴ Massachusetts Executive Office of Transportation. Document prepared by Vanasse Hangen Brustlin, Inc (VHB). "Massachusetts Statewide Bicycle Transportation Plan." 1998. Pages 11-12. Available at www.massbikeplan.org.

¹⁵ Example: "Cape Air Contract of Carriage." May 19, 2005. Page 5. Available at www.flycapeair.com/carriage/carriage_05.pdf.

