

## Chapter 3

# Transportation Access and Roadway Assessment

### Transportation Access

The Essex Coastal Scenic Byway can be experienced using a combination of modes — automobile, public transit, bicycle, walking, and boat.

#### By Car

The roads that comprise the byway route connect with, and support, the principal roadway systems for the region; they serve primarily moderate-length trips. In the more urban areas of the Byway, these roads serve major population centers and carry some of the higher volume traffic for the region. Motorists use the byway route regularly to travel to and from work, to access local shops and services, and to connect to regional transportation networks. Travelers from outside the region can approach the Byway from two major highways – Interstate 95 and Route 128.

For travelers already in byway communities, they can start their byway journey by connecting from primary and secondary travel points along the byway route.

#### By Train

The Massachusetts Bay Transportation Authority (MBTA) commuter rail system, with branches to Newburyport and Rockport, has stops in all of the byway communities with the exception of Newbury and Marblehead. This train service allows users throughout the greater Boston area to access the Byway and its communities with regularly scheduled train service. Bikes are allowed on commuter rail trains all day on weekends, midday in both directions on weekdays, and in the reverse direction of peak-hour commuting. Each of the commuter rail stations provides parking for cars and bicycles. Visitors coming into the area also have the option of hiring cabs, which are frequently waiting at the stations during scheduled arrival times. A list of commuter rail stations and their proximity and accessibility to the Byway is included in the Appendix.

During the summer months (generally Memorial Day weekend through Columbus Day weekend) the MBTA runs a weekend "Bike Coach" service to both Rockport and Newburyport. The bike coach runs twice daily and is specially equipped to handle bicycles and riders.

#### By Bike and Foot

Most of the byway route has been a destination for cyclists for years and was classified as “roads useful for experienced cyclists” on the Commonwealth’s first statewide bicycle map in 1987 and more recently in part of the 2008 Massachusetts Bicycle Transportation Plan. Most of the roads of the Byway are also included on the popular maps commercially produced and updated regularly by Rubel Bike Maps.

A significant portion of the Byway is an ideal cycling route for a number of key reasons: most of the byway segments include some sort of on-street bicycle accommodation (see Map 7); the route is straightforward and easy to follow; route speed limits are generally low; traffic volumes are moderate; and services, including bicycle shops, are relatively plentiful. A number of shared-use paths (paths used by bicyclists and pedestrians) cross or parallel the Byway these are discussed further in Chapter 4.



Clipper City Rail Trail in Newburyport (photo by Geordie Vining, Essex Heritage)

Bike racks are provided in a few locations along the Byway. Ipswich downtown and Lynn on the Lynn Shore Drive have a handful of bike racks in addition to bike racks found at MBTA commuter rail stations. The Metropolitan Area Planning Council (MAPC) operates a Regional Bike Parking Program which provides funds for full reimbursement to MAPC communities of the purchase cost of bike racks. To date, nine byway communities have subscribed to the program: Lynn, Swampscott, Marblehead, Salem, Beverly, Gloucester, Rockport, Essex, and Ipswich.

Sidewalks are common in many locations along the Byway, particularly in downtowns and urban centers where people may gather, park, shop, eat, and sightsee. However, the quality and maintenance of these sidewalks vary considerably. For example, some brick sidewalks are in poor condition due to tree-root damage, and concrete sidewalks in various communities lack regular maintenance.

### **By Bus**

Another transit option available along the Byway is bus service. MBTA buses serve the southern part of the Byway (Lynn, Swampscott, Marblehead, Salem, and Beverly). The frequency and availability of service along the MBTA routes vary by time of day and day of week; some routes have service only during peak weekday rush hours and others have service at regular intervals everyday. All MBTA bus routes serving the Byway are equipped with racks for two bikes each on the front.

Cape Ann Transportation Authority (CATA) operates bus lines around Cape Ann with many of its routes following the Byway. Frequency of service varies by route, but many of the routes provide regular service throughout the day and on the weekend. CATA also provides shuttles to Danvers and Peabody Malls and in Ipswich, Essex and Beverly. CATA buses have no provisions for bicycles.

CATA also operates the Ipswich Essex Explorer, a shuttle bus service that operates between June 21<sup>st</sup> and Labor Day on weekends and holidays during the summer tourist season. The bus starts at Ipswich MBTA train station and stops at beaches, parks, and historic sites in Essex and Ipswich. The service is operated by CATA and funded by the Town of Ipswich.

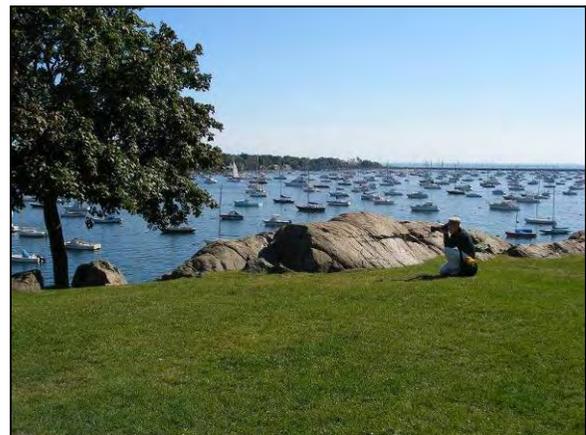
Merrimack Valley Regional Transit Authority's Route 51 (Haverhill–Newburyport) provides periodic service from the Newburyport MBTA station to State Street in Newburyport (one trip in the morning peak hours and two trips in the afternoon peak hours). MVRTA buses accommodate bicycles inside the bus, but prioritize wheelchair access.

Two private bus companies -- C&J Trailways and The Coach Company -- also provide service to the Byway. C&J Trailways offers several daily trips travelling from Durham, Dover and Portsmouth NH to Boston and stops in Newburyport at the bus terminal just off Interstate 95. The Coach Company provides a similar service traveling to and from Boston directly from Newburyport. All of these companies allow bicycles in the luggage area under the coach.

### **By Boat**

Private recreational boaters are also able to access the byway route. All byway communities have mooring and/or dock facilities in proximity to the Byway with the exception of Newbury and Rowley. Some are limited to moorings and temporary tie-ups, but most provide a range of services oriented to boaters.

During the spring, summer, and autumn months ferry service is provided by The Salem Ferry. The high-speed catamaran with a capacity of 149 passengers ferry travels to and from Boston and Salem five to nine times daily depending on the season and day, arriving at each terminus approximately every two hours. Bikes may be taken aboard.

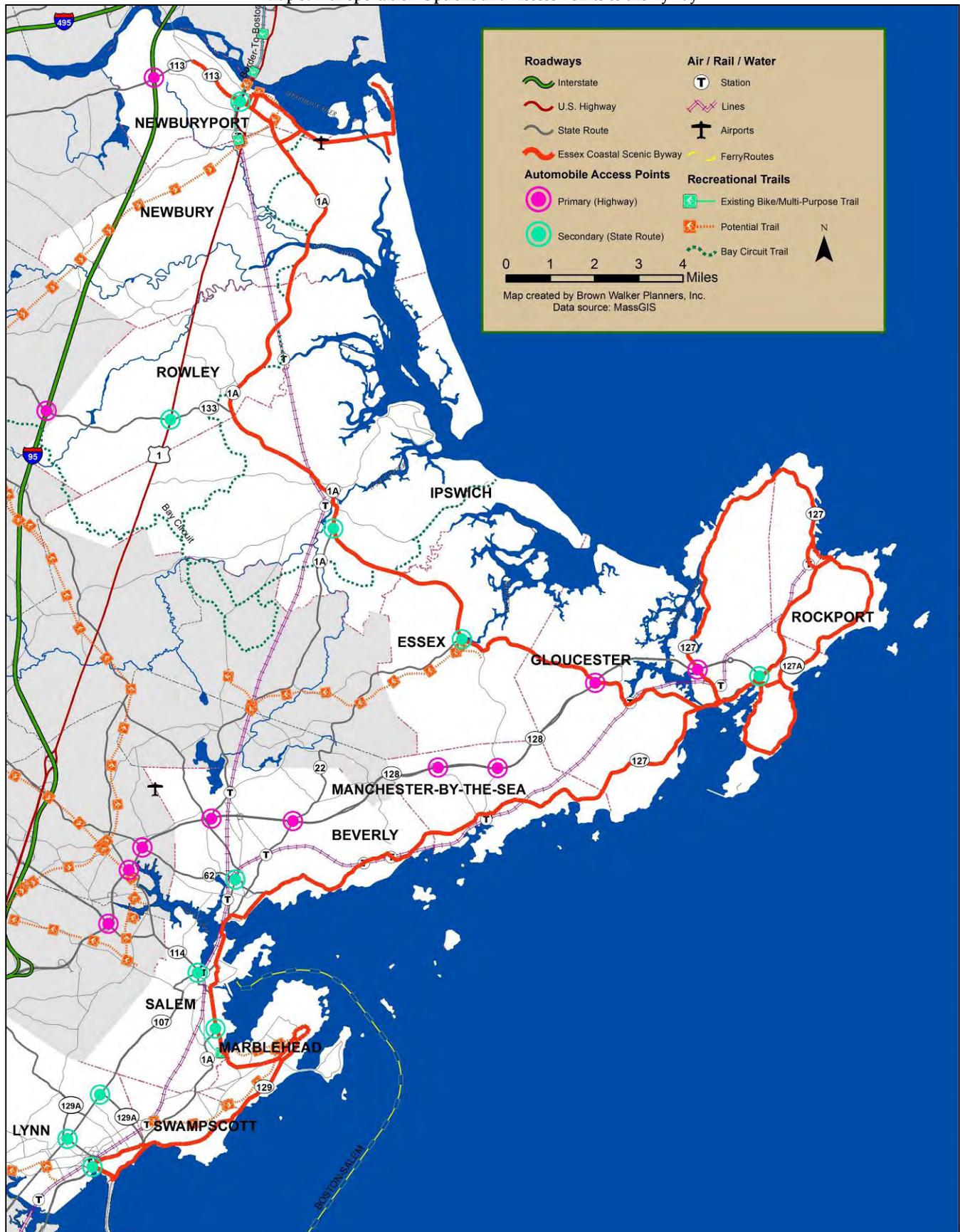


Marblehead Harbor (Essex Heritage)

### **By Plane**

The Byway passes near a public-use airport, the Plum Island Airport in Newbury/Newburyport. Limited service is available to private pilots who can park and fly out of the airport. The airport also hosts the Burgess Aviation Museum which promotes the long history of aviation at Plum Island and the region.

Map 5: Transportation Options and Access Points to the Byway



## Roadway Assessment

The Essex Coastal Scenic Byway is more than a transportation route winding its way through thirteen cities and towns. The Byway is a series of roadways that serve a larger transportation function in northern Massachusetts. This assessment of the roadway addresses the general characteristics of the Byway and its individual roads, the ability of all users to travel along the Byway, and the overall suitability of the selected roadways to serve as byway segments.

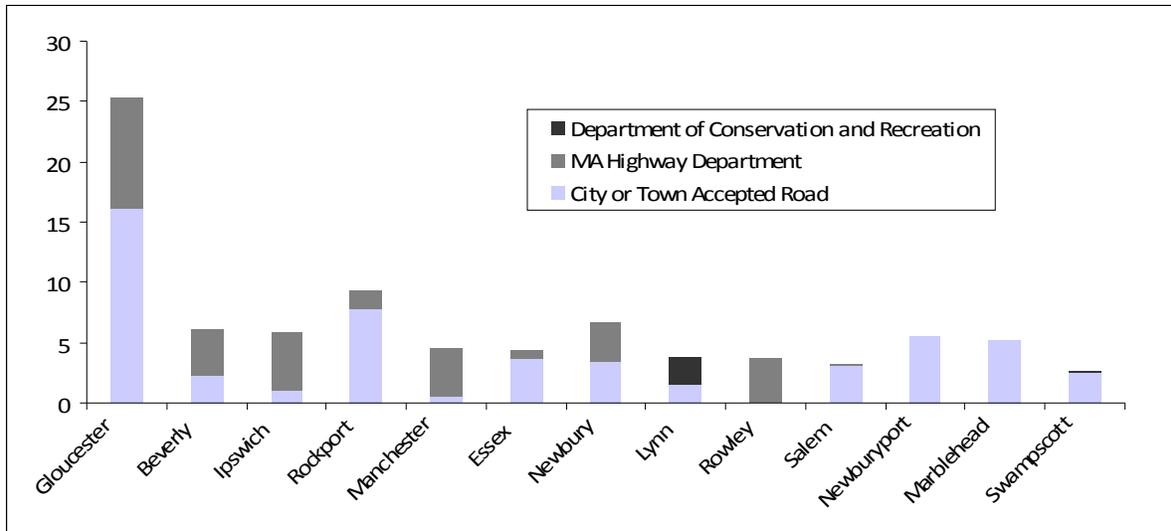
### OVERVIEW OF THE ROADWAY

For large portions of the Byway, the roadway conforms to the landscape and adapts to rugged coastal topography and human development patterns. The engineering of the roads reflects some of the country’s earliest transportation history in which early road construction methods were modest and based on natural land features. The byway traveler will not find large raw blasted rock cuts, or expansive areas of fill, but rather a series of roads with varying widths and sharp turns, winding through towns developed for water-based commerce. The road follows Native American trails and oxcart paths, which then became the earliest streets. Part of the Byway follows part of one of the oldest roadways in the country, Bay Road (1640) through Salem, Ipswich, Rowley, Newbury and Newburyport. Detailed descriptions of the byway route in each of the communities is included in the Appendix.

### General Roadway Conditions

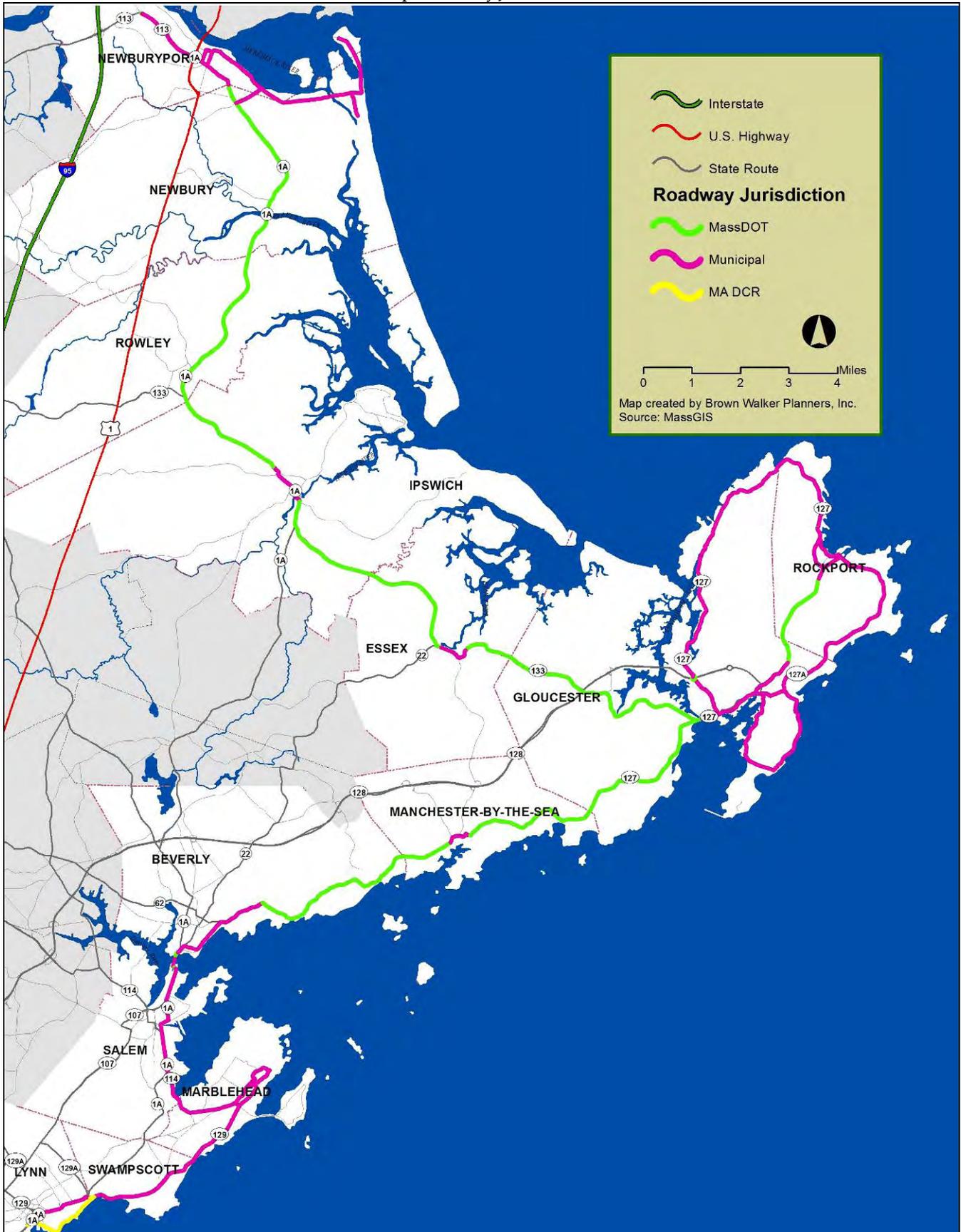
The Essex Coastal Scenic Byway is 85 miles in length. Thirty-six percent of the roadway falls under the jurisdiction of Massachusetts Department of Transportation, sixty-one percent is a City or Town accepted road, and the remaining three percent is under the jurisdiction of the Massachusetts Department of Conservation and Recreation (along Lynn Shore Drive).<sup>24</sup> Compared to the other two Massachusetts currently designated scenic byways (Jacob’s Ladder and Old King’s Highway) which are almost entirely under the jurisdiction of MassDOT (only three-fourths of a mile of the thirty four-mile Old King’s Highway Scenic Byway in Barnstable is locally controlled), the majority of the Essex Coastal Scenic Byway is under local jurisdiction. This factor could allow greater flexibility in planning and design of improvements and access.

Figure 2: Length (in miles) of the Scenic Byway in each Community and Roadway Jurisdiction



<sup>24</sup> MASSGIS, EOT Roads data layer, 2007.

Map 6: Roadway Jurisdiction



The Byway is fairly uniform in width and in function—the roadways are primarily collectors and arterials. It is primarily a two-lane roadway that provides the main, and in some cases the only, continuous road connecting byway communities. Generally, most of the byway segments are easy to understand and follow as a motorist or cyclist. However, about ten miles of the Byway present navigational challenges. Congested urban areas, such as downtown Gloucester and Salem, present challenges to travelers following the Byway due to one-way streets and turns. Although alternative roadways are available in some parts of the Byway, they are typically circuitous, residential, and generally not suitable for Byway designation. For the most part, byway roads accommodate large vehicles (buses, recreational vehicles, and trucks). Although lane widths along the Byway vary, none would be considered substandard for large vehicle use. Lynn Shore Drive, currently under the jurisdiction of the Massachusetts Department of Conservation and Recreation, is restricted to “pleasure vehicles,” prohibiting buses and vehicles with commercial license plates. The Appendix includes a summary of byway roadway characteristics.

Although substantial portions of the Byway are under MassDOT jurisdiction, all but two communities (Rowley and Newbury) retain local care and control for at least a portion of the roadway. The longest stretch of locally controlled roadway is found in the Cape Ann loop (Route 127A and Route 127 in Gloucester and Rockport). This loop is entirely under city and town jurisdiction with the exception of MassDOT-owned bridges in Gloucester. The Byway provides direct access to town centers in most of the byway communities, and all byway roads but those to Rowley and Newbury village centers are under local jurisdiction. One of Beverly’s main streets, Cabot Street, is not directly served by the Byway, but it is less than one-half mile away.

The characteristics of byway travel routes are relatively uniform. That is, most of the Byway is two lanes with lane widths generally between eleven and twelve feet. No severe grades (grades exceeding 5.5%) occur anywhere on the Byway. In general, posted speed limits along the Byway are between twenty-five mph and forty mph. Most of the Byway is posted as thirty mph and a few locations are posted as forty mph and forty-five mph. Despite the urban nature of byway segments in Gloucester, Beverly, Salem, Marblehead, Swampscott, and Lynn, only three short segments of the Byway have the look and feel of a “highway” as opposed to a byway: the rotary at Grant Circle in Gloucester near Route 128; Veterans Memorial Bridge connecting Salem and Beverly; and the Lynnway (Route 1A) in Lynn. In all three cases the roadway is considerably wider—three lanes, not two—and traffic travels at higher speeds than along the rest of the Byway.

The Byway is comprised of primarily arterial roadways with few urban collectors or local streets. Four segments of the Byway are classified by MassDOT as principal arterials (Bridge Street in Salem, Route 114 in Salem, Lynn Shore Drive, and the Lynnway in Lynn) because their function is to serve statewide traffic and traffic movements in the urban areas and from surrounding suburban areas. Parts of the Byway in Swampscott, Marblehead, Gloucester, and Ipswich are classified as urban principal arterials. They serve major centers, represent the highest traffic volume corridors, and carry a high proportion of the total urban-area traffic. The majority of the byway roads are urban minor arterials. These are streets that interconnect with and support the urban principal arterial system and serve moderate-length trips. The Byway does not follow any residential streets and only one street—Stone Street in Beverly—is an urban collector providing local access and circulation in a residential neighborhood and commercial area.

The general condition of the byway roadways is average to good. Motorists and cyclists enjoy relatively smooth pavement and minimal deterioration of the roadway surface. Pavement markings (critical for safety for all users) are generally well maintained throughout the Byway. Exceptions include a faded centerline on the Lynnway (Route 1A), Western Avenue in Gloucester (Route 127), and Central Street in Ipswich (Route 133).

Shoulders on the byway roads serve several functions. They provide safety benefits by providing space to accommodate driver error; a recovery area to regain control of a vehicle; space for disabled vehicles and mail trucks to stop or drive slowly; a separate place on the road for cyclists; and they reduce passing conflicts between motorists and cyclists and pedestrians. Shoulders are present on much of the Byway; however, on-street parking occupies some usable shoulders in Lynn, Swampscott, parts of Marblehead and Salem, and Newburyport. Further, the condition of the byway shoulders varies, creating hazards for cyclists and motorists alike. Examples of shoulder conditions include:

- On-street parking creating car door/cyclist conflicts
- Disappearing shoulders when left-turn bays are present
- Narrow shoulders (1- to 3-foot wide)
- Rough surface

- Potholes and drop-offs
- Glass and other litter
- Brush and overhanging tree limbs

Stopping opportunities along the Byway, to take in a vista or pause for a brief rest from driving, are limited. In some locations, the public boat landings (shown on the Byway Resources Maps and listed in the Appendix) can accommodate some parking. In addition to shoulders and on-street parking spaces, public places to pull off include:

- In Newburyport, the seasonal Chamber of Commerce information booth on the waterfront has off-street parking for a fee.
- The boat launch on Route 1A in Newbury at the bridge over the Parker River offers a place to pull off the road, but a permit is required to park.
- In Gloucester, parking for a fee is available at Stage Fort Park and along Gloucester Harbor at Stacey Boulevard Park.
- Beverly's Lynch Park adjacent to the Byway has a beach and picnic areas; parking fees are collected. Independence Park (beach) on Route 127 south of Lynch Park has off-street parking.
- A small pullout sized for two cars is available at the Salem/Marblehead line.
- On-street parking exists along Lynn Shore Drive and adjacent to the Ward Memorial Bathhouse at Nahant Road at the southern end of Lynn Shore Drive.
- The proposed Salem Causeway Park at the southern end of the Veterans Memorial Bridge will have a small parking lot and viewing area.
- Parking lots at several commercial establishments along the Essex Causeway provide opportunities for views of the Great Marsh off the Byway.

### **On-road bicycle accommodations**

The predominant bicycle accommodation along the Byway is shoulders, which are between two feet and six feet in width. Although shoulders are not universal and the width and quality of shoulders varies throughout the corridor, a good portion of the Byway has sufficient shoulders for experienced cyclists. The urbanized downtown areas (Lynn, Salem, Manchester-by-the-Sea, Gloucester, Ipswich, and Newburyport) generally lack usable shoulders. Parts of coastal Route 127 in Beverly, Manchester-by-the-Sea, Rockport, and Gloucester are very narrow with no shoulders. Lack of shoulder maintenance, including pavement maintenance, sweeping, and clearing brush, is an issue throughout the Byway.

Few on-road bike lanes exist along the Byway. Salem's new bike lanes on Route 114 near the Swampscott line (southbound only, 1.5 miles long) and Newburyport's High Street bike lanes (Route 1A, about 1.5 miles) are the only designated bike lanes in the corridor, and there are no signed bike routes.

Map 7: On-Road Bicycle Accommodations



## Programmed Byway Roadway and Area Transit Improvements

The two Metropolitan Planning Organizations (MPOs) in the Essex Coastal Scenic Byway study area—the Merrimack Valley MPO and the Boston MPO—prepare the Transportation Improvement Plan (TIP) that lists regional transportation projects to be completed in the next four years. Federal regulations require that the TIP be financially constrained; that is, the MPO can only include projects for which funds are expected to be available. The TIP guides expenditure of state and federal-aid funds for roadway projects and federal-aid funds for transit projects. Both MPOs adopted the 2010–2013 TIP in October 2009, and a summary of programmed projects on scenic byway roadways is shown below:

- Merrimack Valley MPO 2010–2013 TIP Projects in byway communities (includes Newburyport and Newbury): No listed projects.
- Boston MPO 2010–2013 TIP Projects in byway communities (includes Rowley, Ipswich, Essex, Gloucester, Rockport, Manchester-by-the-Sea, Beverly, Salem, Marblehead, Swampscott, and Lynn)
  - Ipswich: Reconstruction of North Main Street, from Central Street to High Street & Meetinghouse Green.
  - Salem and Beverly: MBTA parking garages for approximately 1,000 total spaces.

Other projects listed on the MassDOT Project Database in various stages of design include:

- Newburyport (and other communities outside the Byway): Multi-use Border to Boston Trail; the Clipper City Rail Trail (completed) in Newburyport is a leg of the Border to Boston Trail. Intermodal center in downtown Newburyport for local and intercity bus, bicycle, taxi, and three hundred fifty parking spaces (under design).
- Beverly: Reconstruction of Cabot Street (Route 1A) from limits of Veterans Memorial Bridge to Roosevelt Avenue and walkway on Beverly Harborfront.
- Gloucester: Resurfacing and related work on Route 127 (Washington Street); reconstruction of Washington Street and Railroad Avenue; and bridge replacement Route 127A (Thatcher Road) over Marsh Creek.
- Ipswich: Bridge rehabilitation, County Road over the Ipswich River and bridge replacement, Route 1A (High Street) over the MBTA & B&M railroad.
- Marblehead: Intersection and signal improvements at Pleasant Street (Route 114) at Lafayette Street (Route 114) at Humphrey Street.
- Salem: Reconstruction of Route 1A (Bridge Street) from Flint Street to Washington Street; reconstruction of Route 1A from the Veterans Memorial Bridge to Washington Street (advertised for construction); and Salem Causeway Park at Bridge Street.
- Essex: Reconstruction of 133 about one mile from Water Street to John Wise Avenue start, involves new concrete sidewalks, curbing, and pavement markings. Shoulders for parking will be provided in part of the project and narrow shoulders (3 feet) elsewhere in the project. The project is 53% complete and is expected to be completed in fall 2011.

Local projects in various stages of design include:

- Ipswich: Route 133/1A reconstruction: new sidewalks, stormwater management, and roadway reconstruction including narrower travel lanes to provide bicycle accommodation. Possible American Recovery and Reinvestment Act-funded project.

## SAFETY CONDITIONS

A review of MassDOT crash data does not show significantly high numbers of crashes at byway intersections, yet design issues exist that should be investigated further in consultation with local public works and engineering officials.

Crash data for byway roadways were taken from the Massachusetts Registry of Motor Vehicles and the State Police Department, as compiled by MassDOT, for 2006 and 2007.<sup>25</sup> Details of this analysis are provided in the Appendix. For scenic byway planning purposes, this safety analysis focused on collisions such as angle, head-on, sideswipe and bike/pedestrian collisions. No fatalities occurred within the study area during the two-year period. Motor vehicle collisions are most frequently the result of geometric design or intersection operation problems at intersections and consequently are more likely to be addressed through engineering, signage, or maintenance solutions. Follows is a summary of the roadway design issues for the byway route in each community

<sup>25</sup> 2008 data was not available at the time of this analysis.

### *Lynn*

Lynn is the most urban community along the Byway. The intersections and streets studied in Lynn have on-street parking, high pedestrian volumes, and stores with driveways and curb cuts. Lynn's motor vehicle collisions along the byway route are due primarily to sight line issues.

- On Lynn Shore Drive, the absence of turning bays exacerbates turning conflicts with through movements.
- Broad Street is one lane in each direction, but it is wide enough that it can be used as a two-lane roadway which may cause sideswipe crashes.
- The lack of protected turns at the Broad/Washington signalized intersection may contribute to the angle collisions there.

### *Swampscott*

The Byway in Swampscott (Route 129) is a residential arterial comprised of wide travel lanes with on-street parking and sidewalks. Swampscott is considerably less dense than Lynn and other city segments along the Byway and is primarily residential, likely a contributing factor to fewer crashes.

- Higher frequency of collisions at the intersections of Humphrey Street at Shelton Road and Humphrey Street at Reddington Street may result from inadequate intersection capacity or sight distances.

### *Marblehead*

Marblehead is served by Routes 114 and 129. Route 129 has wide travel lanes with turning bays, five-foot-wide shoulders, and sidewalks. Route 114 leads to Marblehead's downtown and is more commercial than Route 129. Overall, few crashes were reported in Marblehead.

- There are potential inadequate sight line distances along Atlantic Avenue.
- On-street parking and relatively narrow travel lanes make the downtown loop a compact experience, which helps reduce traffic speeds but also decreases sight lines and distances.
- Sidewalks are found on both sides of the streets and vary in quality and condition.
- This intersection at Pleasant / School Street is controlled by a flashing signal and has limited sight distance due to the proximity of the buildings.
- High-turnover on-street parking serving the commercial node contributes to sideswipe crashes.

### *Salem*

Salem's section of the Byway travels through the populated and tourist-friendly downtown. The total number of crashes in Salem is representative of the higher traffic volumes as well as higher concentration of pedestrians and bicyclists.

- The intersections of Lafayette Street at Harbor Street and Bridge Street at North Street recorded the most crashes over the two year period.
- The byway route follows a winding and congested path through downtown Salem.
- Drivers unfamiliar with traffic patterns, traffic and parking restrictions, and high pedestrian activity could be contributing to the moderate level of crashes.
- Traffic directional sign locations and instructions are inadequate or confusing at most intersections along the Byway in Salem.

### *Beverly*

The Byway traveling through Beverly (Route 127) has two twelve-foot lanes with a periodic five-foot shoulder.

- There is no shoulder on southern parts of Route 127 as it winds its way past institutions, beaches, estates, and through commercial centers.
- There is limited visibility caused by overgrown trees and poor signage placement on Route 127 at Oak Street.

### *Manchester-by-the-Sea*

Route 127 in Manchester-by-the-Sea is a five-mile section of the Byway with two twelve-foot lanes with a varying shoulder of zero to two feet.

- Many driveways and a small number of cross streets present limited sight line issues.
- Due to the rolling, winding, and narrow section of Route 127 in Manchester-by-the-Sea, speeds are moderate on this section of the Byway and may help reduce the number of crashes.

### *Gloucester*

Route 127 along Gloucester's waterfront has two twelve-foot lanes with a varying shoulder width from one foot to five feet. The East Gloucester loop uses residential streets with ocean views for a scenic spur. Loop streets are two-lane roadways with intermittent sidewalks. Rubel Bike Maps identifies this loop as the preferred bike route in this area.

- It could be inferred that limited on-street parking, low speeds in the downtown area, wide shoulders, and several pullout areas for tourists or distracted drivers contribute to low accident rates along most byway roads in Gloucester.
- It could be inferred that this section of the Byway has relatively few crashes reported due to the absence of on-street parking, low speeds through the residential areas, and the low traffic volume.

### *Rockport*

Route 127 and Route 127A both lead to Rockport's downtown and harbor. Route 127 has two twelve-foot lanes with a 1-foot shoulder, and sidewalks on the east side. Conditions are similar along the northern reach of Route 127 north of Rockport Harbor. Route 127A, the coastal route, has a similar cross-section (twelve-foot lanes, a 1-foot shoulder, sidewalk on one side) to Route 127. Rubel Bike Maps identifies Route 127A as the preferred bike route in this area.

- Cyclists along the byway route are squeezed somewhat, but the lower travel speeds mitigate the narrow lanes to some degree.
- Frequent turns and narrow roadways may limit visibility.

### *Essex*

Route 133 traveling through Essex is a rural two-way road with wide shoulders and a posted speed of forty-five mph, the highest along the Byway. Surrounded by salt marshes, there are relatively few intersections and a limited number of places for vehicles to slow down or stop. It is not surprising that there were only four reported crashes in the past two years.

- Angle collisions at the intersections of Main Street at Town Landing and Main Street at Eastern Avenue could indicate turning conflicts with through movements.

### *Ipswich*

Route 133/1A entering downtown Ipswich is a rural two-way road with wide lanes and wide shoulders. The nature of the roadway changes significantly as it enters downtown Ipswich where it becomes town-owned for 5 miles. On-street parking is available in many locations.

- Closely spaced buildings with very little setback combined with steady pedestrian and vehicular traffic create a sense of congestion and poorly defined spaces along the corridor for all users.
- In particular, the intersection of Central Street (Route 133) at Market Street was observed to have limited/faded pavement markings for turn lane separation and poor geometric design.

### *Rowley*

Route 1A serving the Byway in Rowley is a six-mile stretch of road with two twelve-foot lanes with a varying shoulder width of two feet to six feet.

- Intersections indicating poor operating conditions in Rowley are Route 133 W at Route 1A S.

### *Newbury*

No crashes were reported for this section of the Byway.

### *Newburyport*

The Byway in Newburyport consists of Route 1A and a downtown loop that travels Green, Water and State Streets. Route 1A consists of two 18-foot travel lanes with on-street parking, a designated bike lane for part of the route, brick sidewalks, and continuous driveways and curbcuts. Green Street is a two-lane, one-way local street with parking and sidewalks on both sides. Water Street is a busy two-way street that provides access to the waterfront, several parking lots and the downtown. State Street, Newburyport's primary downtown street is a two-lane, one way street with parking and sidewalks on both sides and access or input from a number of one way streets. Water and State Street see high pedestrian use.

- Intersections demonstrating turning conflicts with through movements or failure to yield include High Street at Carter Street; High Street at State Street; and Merrimack Street at Green Street.
- Crashes caused by poor operating conditions could be the result of limited sight lines at driveways, on-street parking, and confusing and/or poorly placed signs.