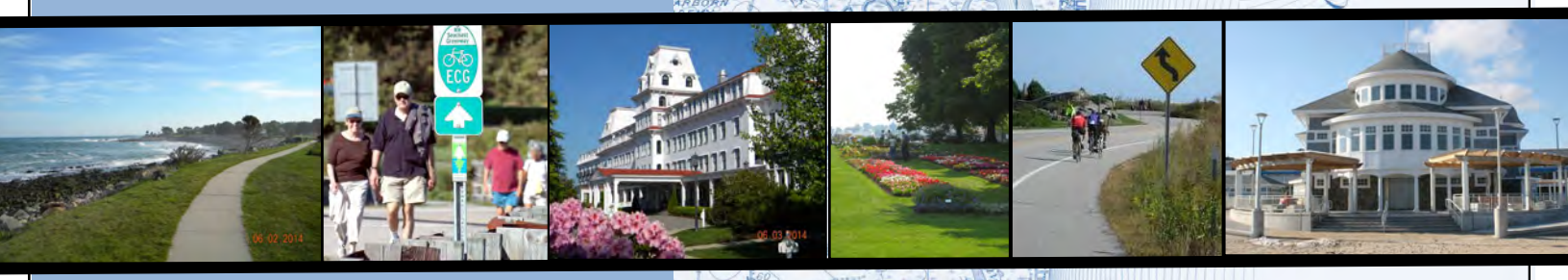
ROCKINGHAM PLANNING COMMISSION

New Hampshire Coastal Byway Corridor Management Plan

Prepared by
Rockingham Planning Commission
UNH Tourism Planning & Development Program



July 2015

New Hampshire
Coastal Byway

ACKNOWLEDGMENTS

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This plan has been prepared by the Rockingham Planning Commission and Project Partners in cooperation with the U.S. Department of Transportation – Federal Highway Administration and the New Hampshire Department of Transportation. The contents of the report reflect the views of the authors who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration or the New Hampshire Department of Transportation. This report does not constitute a standard, specification, or regulation.

NEW HAMPSHIRE COASTAL BYWAY CORRIDOR MANAGEMENT PLAN

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LIST OF ACRONYMS

AADT:	Annual Average Daily Traffic
AASHTO:	American Association of State Highway and Transportation Officials
ADA:	Americans with Disabilities Act
CAC:	Corridor Advisory Committee
CMAQ:	Congestion Mitigation/Air Quality Program
CMP:	Corridor Management Plan
COAST:	Cooperative Alliance for Seacoast Transportation
CZMA:	Coastal Zone Management Act
DRED:	Department of Resources and Economic Development
ECG:	East Coast Greenway
EPA:	Environmental Protection Agency
FEMA:	Federal Emergency Management Agency
FHWA:	Federal Highway Administration
FTA:	Federal Transit Administration
GIS:	Geographic Information System
GRANIT:	Geographically Referenced Analysis and Information Transfer
HBAC:	Hampton Beach Area Commission
MAP21:	Moving Ahead for Progress in the 21st Century (2012 Federal transportation authorization act)
MUTCD:	Manual of Uniform Traffic Control Devices
NHDES:	New Hampshire Department of Environmental Services
NHDHR:	New Hampshire Division of Historic Resources
NHDOT:	New Hampshire Department of Transportation
NHES:	New Hampshire Employment Security
NHSG:	New Hampshire Seacoast Greenway
NHTSA:	National Highway Traffic Safety Administration
NOAA:	National Oceanic and Atmospheric Administration
NBPDC:	National Bicycle/Pedestrian Documentation Project
NPDES:	National Pollution Discharge Elimination System
OEP:	New Hampshire Office of Energy and Planning
RPC:	Rockingham Planning Commission
RSA:	New Hampshire Revised Statutes Annotated
SABR:	Seacoast Area Bicycle Riders
UNH:	University of New Hampshire
USACE:	United State Army Corp of Engineers

CHAPTER 1. INTRODUCTION

A. BACKGROUND ON THE NEW HAMPSHIRE COASTAL BYWAY

As those familiar with New Hampshire know, two of the most scenic roads in the state are Routes 1A and 1B. The unique scenic qualities of the roads have been recognized for many years. The first formal recognition came in 1974 when Routes 1A and 1B from Seabrook to Portsmouth were identified as a scenic byway in the 1974 New Hampshire Department of Transportation (NHDOT) Scenic Roads Study. In 1976 the roads were designated as part of the New Hampshire Yankee Trail. They were formally designated as a State Scenic and Cultural Byway in 1994 by the New Hampshire Scenic & Cultural Byways Council.

The New Hampshire Coastal Byway, as the corridor is designated, follows the coastline 22 miles from Seabrook through Hampton, North Hampton, Rye, and New Castle to its northern terminus in Portsmouth. The Byway connects ten units of the State Park system, including beach parks, picnic areas, historic sites and the Hampton and Rye Harbor State Marinas; as well as numerous local and private parks and recreational attractions. Historic structures along the corridor trace the history not only of the region but the country as a whole; ranging from colonial villages to Gilded Era mansions to World War II coastal fortifications. These include 45 listings on the National Register of Historic Places, seven National Historic Landmarks and one of the nation's premier living history interpretive centers in Strawbery Banke Museum. The Byway overlooks the sandy beaches and rocky shores of the Gulf of Maine, as well as thousands of acres of ecologically rich salt marsh. Last but not least, it serves as a State Bicycle Route, and carries U.S. Bicycle Route 1 and the East Coast Greenway through New Hampshire.

The original Corridor Management Plan for the Byway was developed in 1995-1996 by the Rockingham Planning Commission in partnership with the NH Office of State Planning, and the University of New Hampshire Tourism Planning and Development Program. The original 1996 planning process included an extensive public participation component, including a series of community meetings, a survey of corridor community residents, and extensive surveying of visitors to the corridor as part of a Tourism Needs Assessment. A nearly identical public process has been used for this update.

Many of the recommendations from the 1996 Management Plan have been implemented over time, from construction of a shoulder bicycle route on the Pioneer Road segment of Route 1A, to reconstruction of Foye's Corner, to the redesign of the Hampton Beach Sea Shell complex. A summary of implemented recommendations is included at the beginning of each chapter of this document.

Over close to two decades, though, coastal development, growing use of the route for walking and bicycling, increased visitation and other factors have brought new challenges for the Byway. In 2010 at the request of corridor communities and the Hampton Beach Area Commission, the Rockingham Planning Commission applied for planning grant funds from the National Scenic Byways program to revisit and update the Corridor Management Plan to incorporate results of recent local and regional planning efforts, and engage community residents and a range of other stakeholders in evaluating new opportunities for and threats to the corridor and updating management priorities. Federal funds for the project were secured with assistance from the Congressional delegation, along with toll credit match from the New Hampshire Department of Transportation.

B. BACKGROUND ON THE SCENIC BYWAYS PROGRAM

A Scenic Byway is a road recognized by the State of New Hampshire and the U.S. Department of Transportation (USDOT) for its scenic, historic, recreational, natural, cultural and/or archeological qualities. The National Scenic Byways program was established by Congress in 1991 to preserve and protect the nation's scenic but often less-traveled roads, and promote tourism and economic development. In New Hampshire the program is administered by the New Hampshire Department of Transportation. By supporting the preservation of rural and urban scenic byways and the cultural, recreational and historic attributes along these byways, the program strives to reveal the unique elements of the state's beauty, culture and history.

Unfortunately the National Scenic Byways Program as a stand-alone source of Federal grant funding for state and local byway planning initiatives was eliminated with the most recent Federal transportation authorization legislation passed in 2012, known as MAP-21. Scenic Byways was one of four separate Federal funding programs consolidated into the new Transportation Alternatives Program (TAP).

Why update the Corridor Management Plan for the NH Coastal Byway when the National Scenic Byways Program has been dissolved? While there no longer exists a separate pool of Federal funding for byway improvements, most of the benefits of Byway designation are unchanged. Designation as a Scenic Byway continues to have value in assuring travelers of a high quality visitor experience, and byways in New Hampshire continue to be promoted by the New Hampshire Division of Travel and Tourism (NHDTTD). Equally important, in the face of limited state and federal transportation resources, transportation improvement projects that are considered regional priorities and have been identified through multi-town corridor-based planning efforts carry extra weight in the highly competitive statewide funding selection process. Finally, an ongoing regional Byway Council can serve as an important venue for municipalities to communicate with one another and with state agency and private sector partners about share regional issues.

C. THE STUDY PROCESS

The first step of the 20 month long process of developing the Corridor Management Plan was the establishment of a Corridor Advisory Committee (CAC) to oversee the project and provide guidance on policy issues to the staff. The 15 member CAC includes appointed representatives from each of the six corridor communities, representatives from the NH Department of Transportation and the NH Division of State Parks, the two State Senators representing the districts through which the corridor passes, the Hampton Beach Area Commission, Coastal Economic Development Commission, Greater Portsmouth Chamber of Commerce, NH Seacoast Greenway Advisory Committee and the Seacoast Science Center. A full list of CAC members is included in the Acknowledgements at the front of this document.

For inventory and mapping purposes the project has used the same study area boundaries as the original 1996 CMP, extending from one mile west of Routes 1A and 1B, eastward to the ocean. A Study Area Map is included on the following page.

In addition to the guidance of the Corridor Advisory Committee, public input in the planning process was sought in several ways, including a series of public meetings distributed along the corridor, a community resident survey, and a survey of visitors to the corridor at major coastal tourism destinations.

The community resident survey was conducted online and was designed to elicit people's views on additional development in the corridor, problems/areas needing improvement, suggested scenic pull-overs, and means for preserving and enhancing tourism. The survey repeated many of the question used for the original 1996 study survey, as well as adding new areas to get at emerging issues.

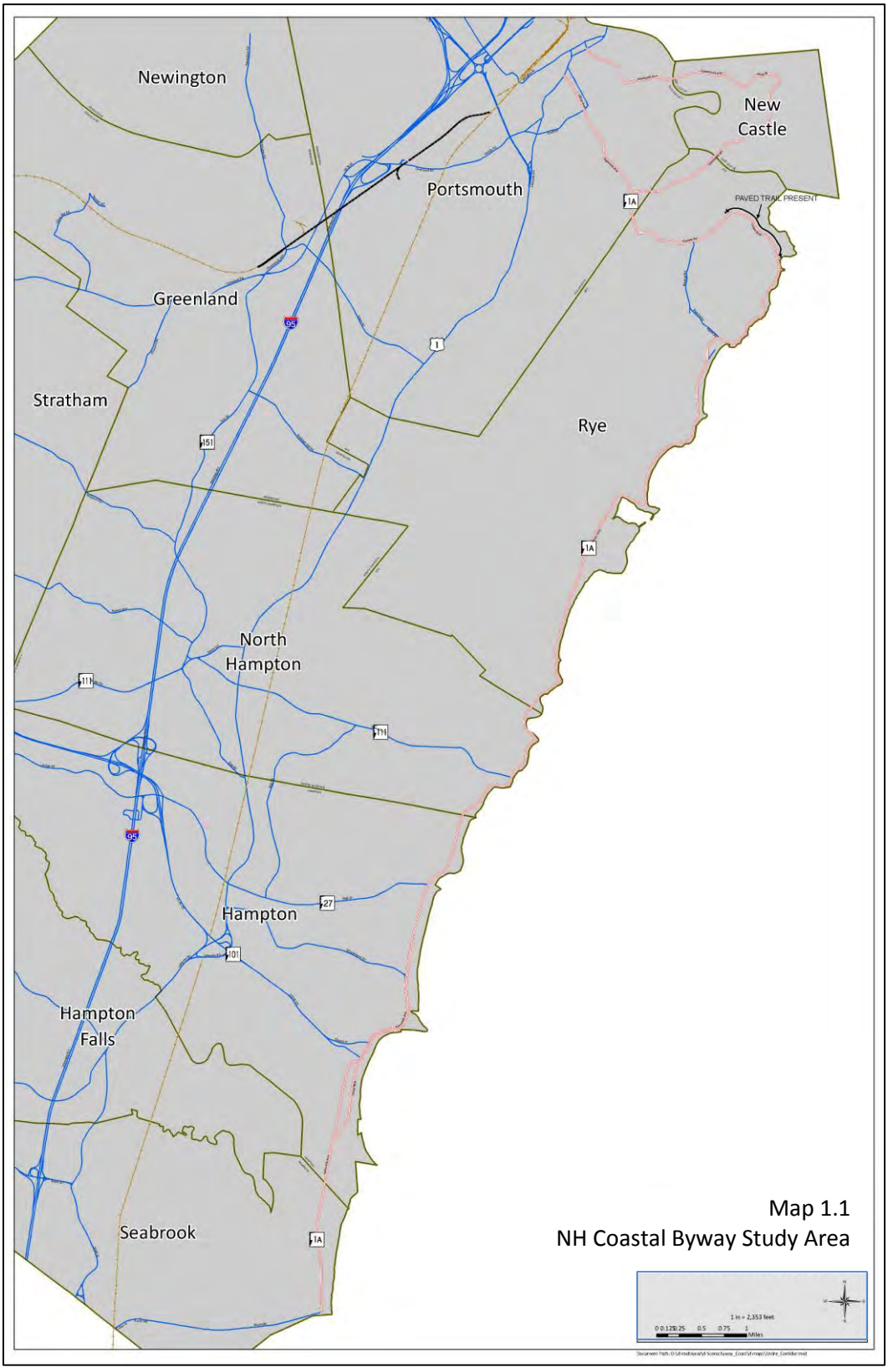
The survey was distributed to local residents via City and Town websites, notices on local public access cable television, articles in the Portsmouth Herald, Hampton Union and Newburyport Daily News; and email lists for local planning boards and community organizations. Paper copies of the survey were available on request for those preferring to respond in hard copy. A total of 525 surveys were returned and tabulated. Results of the survey were used to determine issues and concerns that needed to be addressed in the study, and to help determine preliminary recommendations. A copy of the survey results is included as Appendix B.

Three community meetings were held in May and June 2014 in Rye, Portsmouth and Hampton, attended by 37 participants. Each meeting began with an overview of the Byway and findings from the community resident survey, but focused mainly on gathering input from community residents and business owners on local concerns about the corridor and priorities for protection and/or improvements. Compiled results of the three community meetings are included as Appendix C.

For the Visitor Survey and Tourism Assessment component of the project, the RPC contracted with the University of New Hampshire's Tourism Planning and Development Program within the Department of Natural Resources. Dr. Robert Robertson organized a team of students to conduct randomly selected interviews with over 2,900 visitors at nine tourist sites within the corridor, again asking a mix of questions geared to allow comparison to 1996 results as well as thoughts on emerging issues. The UNH team also completed an inventory of visitor attractions, lodging establishments and restaurants within the project study area. The results of these interviews and questionnaires were the basis of the Visitor's Needs Assessment, which is attached as Appendix A.

Data to highlight key issues and shape recommendations in each of the CMP's resource inventories (Historic Resources, Natural Resources, Scenic Resources), the zoning and land use assessment and the transportation system assessment have been drawn mainly from secondary sources. These include local community master plans and zoning ordinances, the Conservation Plan for New Hampshire's Coastal Watersheds, the 2015 Science Panel report for the NH Coastal Risks and Hazards Commission, and historic resource inventories developed by the NH Division of Historic Resources and local heritage commissions to name a few. New field data were collected for the Scenic Resources inventory as well as automobile and bicycle/pedestrian traffic counts and roadway condition assessments.

A task for this study that was not part of the original Corridor Management Plan in 1996 has been characterizing the boundaries of State owned right of way along the corridor. The Town of Rye, NHDOT and other corridor communities have been interested to get a clearer sense for the width of the State right of way along the corridor, to allow for better planning for bicycle/pedestrian safety improvements, parking needs, and/or to allow disposal of unneeded State land.


Newington
New Castle
Portsmouth
PAVED TRAIL PRESENT
Greenland
Stratham
Rye
North Hampton
Hampton
Hampton Falls
Seabrook
Map 1.1
NH Coastal Byway Study Area

The best available right of way data for much of the corridor dates to the 1898 Dudley Survey, and subsequent refinements up to the mid-1940s. Rockingham Planning Commission took scans of these large-format 1940s paper maps, as well as plans from several more recent highway improvement projects in the corridor, and imported them into the regional Geographic Information System (GIS).

One final note on study process regards the planning horizon for the Corridor Management Plan, which has been established as twenty years; and how this relates to longer term threats and opportunities facing the corridor. Over the next 80-90 years, the best available peer reviewed research on climate change projects that rising sea levels and increasingly frequent severe storms will exacerbate problems with coastal erosion and subject significant portions of the corridor to frequent if not routine inundation. Certainly this timeline extends far beyond the planning horizon for this study. At the same time, decisions on infrastructure investments made now must begin to account for this potential future, such that potential climate change impacts that may not be seen for decades to come are discussed here. In the nearer term, the value of addressing coastal hazards in planning for Byway infrastructure is underscored by observed impacts from increasingly frequent severe storm events in recent years.

D. CORRIDOR MANAGEMENT PLANNING GOALS

The goals defined for the development of the Corridor Management Plan update are much the same as those defined for the original 1996 Plan, with additions addressing road user safety, planning for resiliency to coastal hazards, and identification of existing State right of way needed for future safety improvements. The goals provide the basis from which recommendations were developed.

1. Identify improvements to enhance the livability of the corridor.

2. Ensure that the scenic, cultural and natural resources that shape the character of the byway are protected and managed appropriately in the future.

3. Protect commercial uses and activities that are economically important to the area.

4. Ensure the safety of all byway travelers regardless of travel mode

5. Ensure existing roadway and other infrastructure including planned improvements are resilient to coastal hazards, including anticipated impacts of climate change

6. Develop recommendations that communities can implement directly to address locally and regionally identified concerns and opportunities.

7. Identify areas where existing state right of way is needed for bicycle and pedestrian safety improvements

The purpose of this Corridor Management Plan is to establish community-based goals and implementation strategies to preserve and highlight the scenic, cultural, natural, historic, recreational, and archaeological qualities that make the roads special. The following chapters and appendices document the inventory and community participation process that created the Scenic & Cultural Byway Corridor Management Plan for the New Hampshire Coastal Byway.

Figure 1.1: Salt marsh and mud flats in Rye (Kim Reed photo)

2. HISTORIC RESOURCES

A. INTRODUCTION

The Route 1A/1B Scenic Byway Corridor contains a remarkable range of historic resources, from early colonial settlements to World War II structures. A major focus of the Scenic Byway program is to preserve and enhance historic and cultural resources, as key elements of what makes a community or region a desirable destination for visitors. This chapter provides a summary of historic resources within the study area for the Route 1A/1B Scenic Byway Corridor Study (study area limited to 1 mile west of Routes 1A/1B). A complete listing of all historic districts, National Register properties, other locally designated historic properties and local heritage or historic district commissions can be found in Appendix D to this document.

Public awareness of and access to historic sites help to create the strong sense of place in the communities along the corridor. In order to maintain the historic character of the corridor as it continues to develop over time, historic resources must be recognized and strategies identified to protect and improve public awareness, as ultimately communities preserve and celebrate what they recognize and understand..

Figure 2.1: Strawbery Banke Museum & Historic District

An inventory of National Register of Historic Places properties, historic districts, state and local historic markers, and locally significant historic properties was compiled for this study. The Historic Resources Map, which is on the following page, displays the location of these resources as well as graveyards and cemeteries in the study area.

The National Register is the official list of the nation's historic resources worthy of preservation. Properties listed may be of local, state and/or national significance in terms of history, architecture, engineering, archaeology or culture. Properties may be nominated individually or as part of a group or district. National Register listing can help to foster local pride and respect for a community's resources and character. It does not, however, provide protection against changes by private property owners unless federal funding, licensing and/or assistance are involved. Where federal funding or permitting is involved, federal and state agencies must take into account the effect of any proposed undertaking on resources either listed or eligible for listing in the National Register.

Groupings of historic properties may be designated at the municipal level as a local historic district, listed as a National Register district, or both. Historic district designations of either type have the same general purpose, but they function in different ways and provide very different kinds of protection. In many cases it is most effective for significant areas to be designated as a local district and then listed on the National Register.

Local designation of a historic district is the most comprehensive mechanism for protecting historic structures and areas. A locally-designated historic district is defined in a community's zoning code, with specific requirements attached. The purpose of a locally-designated district is to preserve the significant character of the district, while accommodating change and new construction in accordance with design guidelines and/or site review requirements tailored to local consensus. Beyond historic district designation, numerous other tools exist to further the protection and awareness of local heritage.

B. STATUS OF 1996 MANAGEMENT PLAN RECOMMENDATIONS

1. Redevelopment of the Wentworth-by-the-Sea Hotel – The 1996 CMP recommended support for the efforts of the Friends of the Wentworth group to find an appropriate buyer for the historic hotel and rehabilitate the structure to again serve as a tourist hotel. A threat of demolition was averted following listing on the National Trust for Historic Preservation's Ten Most Endangered Places list, and the Wentworth reopened following significant renovation in 2003.

2. Development of a NH Coastal Byway Logo & Interpretive Map – A logo and interpretive map noting were developed in 1997-1998 using federal Scenic Byway funds. The map was actively distributed for several years, though is now in need of update.

3. Continued Inventory and Designation of Historic Resources in the Corridor – Since the 1996 CMP 10 additional properties in the six corridor communities have been individually listed on the National Register of Historic Places, as well as the Little Boar's Head National Historic District in North Hampton. Three communities, Hampton, North Hampton and Rye, have established local Heritage Commissions to aid in these efforts.

C. INVENTORY OF EXISTING CONDITIONS

The original European settlement of what is now New Hampshire was along the Seacoast, by settlers who made their fortunes through lumber, fishing, fur trading and land speculation. Many remnants of the corridor's history exist today, tracing the development of the region's economy, defense, and everyday life and culture. These historic resources help define the character of the region, and continue to contribute to quality of life for residents and the draw of the Seacoast for visitors. The impact of heritage tourism and the collective arts culture on the local economy for Portsmouth alone has been estimated at $41 million annually – characteristic of a city far larger. While Portsmouth has the largest concentration of high style historic buildings in the corridor, reflecting the economic history and development of the region, almost all of the communities along the corridor feature properties listed on the National Register of Historic Places, and all value their local history and provide opportunities for the heritage tourist.

The following sections provide a summary of each community's historic features, highlighting historic districts and major historic sites.

1. Portsmouth

The City of Portsmouth, settled in 1623 and incorporated in 1653, was the first permanent European settlement site in New Hampshire. By the 1680's, Portsmouth was the largest of the early settlements, a linear maritime community with wharves, shops and homes lining the river banks. (Candee 1992)

Figure 2.2: John Paul Jones House 2013

Over 360 years later, Portsmouth maintains much of the character of its history as a thriving port city. There are 39 properties listed individually on the National Register of Historic Places, as well as two National Register Historic Districts: the Strawbery Banke Historic District and the Atlantic Heights housing development. Individually listed properties include numerous private homes, the Public Library, Portsmouth Cottage Hospital, St. John's Church, Old North Cemetery, the Rockingham Hotel, the USS Albacore, and two bridges. Most of these are located within Portsmouth's locally-designated Historic District, and are thus afforded zoning protection from inappropriate development or character change. The City and the Strawbery Banke Museum have actively endorsed public education and awareness efforts through the City's designation and promotion of a self-guided historic "trail", and the Museum's ongoing public outreach and activities program. In 2009 the Portsmouth Historical Society opened the Discover Portsmouth Center, a museum and visitors center interpreting the history of the City, in the former Portsmouth Public Library.

Figure 2.3: John Paul Jones House Postcard ca. 1935-1940; Boston Public Library

2. New Castle

The Town of New Castle is an outstanding example of an early colonial settlement which has retained much of its original character. The Town is the second of three in the corridor that has established a locally-designated historic district and historic district commission to acknowledge and ensure the protection of much of its historically significant residential stock.

In addition to those resources, the town is the site of two historic fortifications - Fort Constitution and Fort Stark. Both are state-owned and open to the public, and provide cultural opportunities for those interested in local history. Fort Stark State Historic Site features a visitors center open seasonally. Fort Constitution State Historic Site does not feature a visitors' center, though the grounds are open to the public and are a popular spot for picnics.

Figure 2.4: Wentworth by the Sea Hotel, 2014

One of the most iconic historic properties on the Seacoast, the Wentworth-by-the-Sea Hotel, is also located in New Castle. Opened in 1874, and known for hosting the delegations to the peace talks that resulted in the Treaty of Portsmouth ending the Russo-Japanese War in 1905, the hotel is one of the few grand hotels of the Gilded Age still standing today, and the only one in the Seacoast.

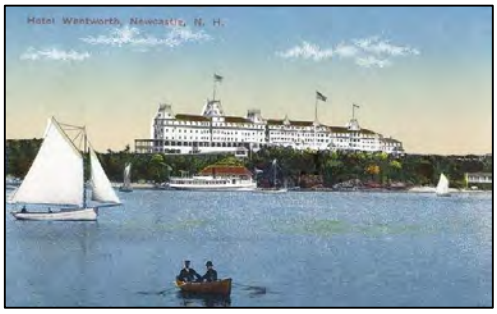


Figure 2.5: Wentworth by the Sea Hotel Postcard ca. 1920; Boston Public Library

The hotel closed in 1982 following ownership changes and a decline in business, and was threatened with demolition in the early 1990s. Local desire to see the building rehabilitated was expressed strongly through the public input process for the original 1996 Corridor Management Plan. The demolition was averted following listing on the National Trust for Historic Preservation's Ten Most Endangered list, and reopened following significant renovation in 2003. The Wentworth is a member of the National Trust's Historic Hotels of America program, though is not listed on the National Register of Historic Places

3. <u>Rye</u>

The Town of Rye is the third of the three communities in the corridor to have established a local historic district, and is the only community in the corridor to have both a Historic District Commission and a Heritage Commission.

Figure 2.6: St. Andrews by the Sea, 2011

The Town has three National Register historic properties located within the Scenic Byway study area: the Parsons Homestead, the Elijah Locke House, and St. Andrews-by-the-Sea church, which is a new listing since the original NH Coastal Byway corridor study. The Isles of Shoals, a National Register Historic District, are also within the Town boundaries of Rye. Another property, Odiorne Farm, has been determined by the State Division of Historical Resources to be eligible for National Register nomination.

Figure 2.7: St. Andrews by the Sea, ca. 1920

Odiorne Point in Rye has particular historic significance. It was first occupied in 1623 by David Thomson, and is regarded as the site of the first mainland settlement in present-day New Hampshire known as Pannaway Plantation.[i]

Map 2.1A
Coastal Byway
Historic Resources
Northern Towns

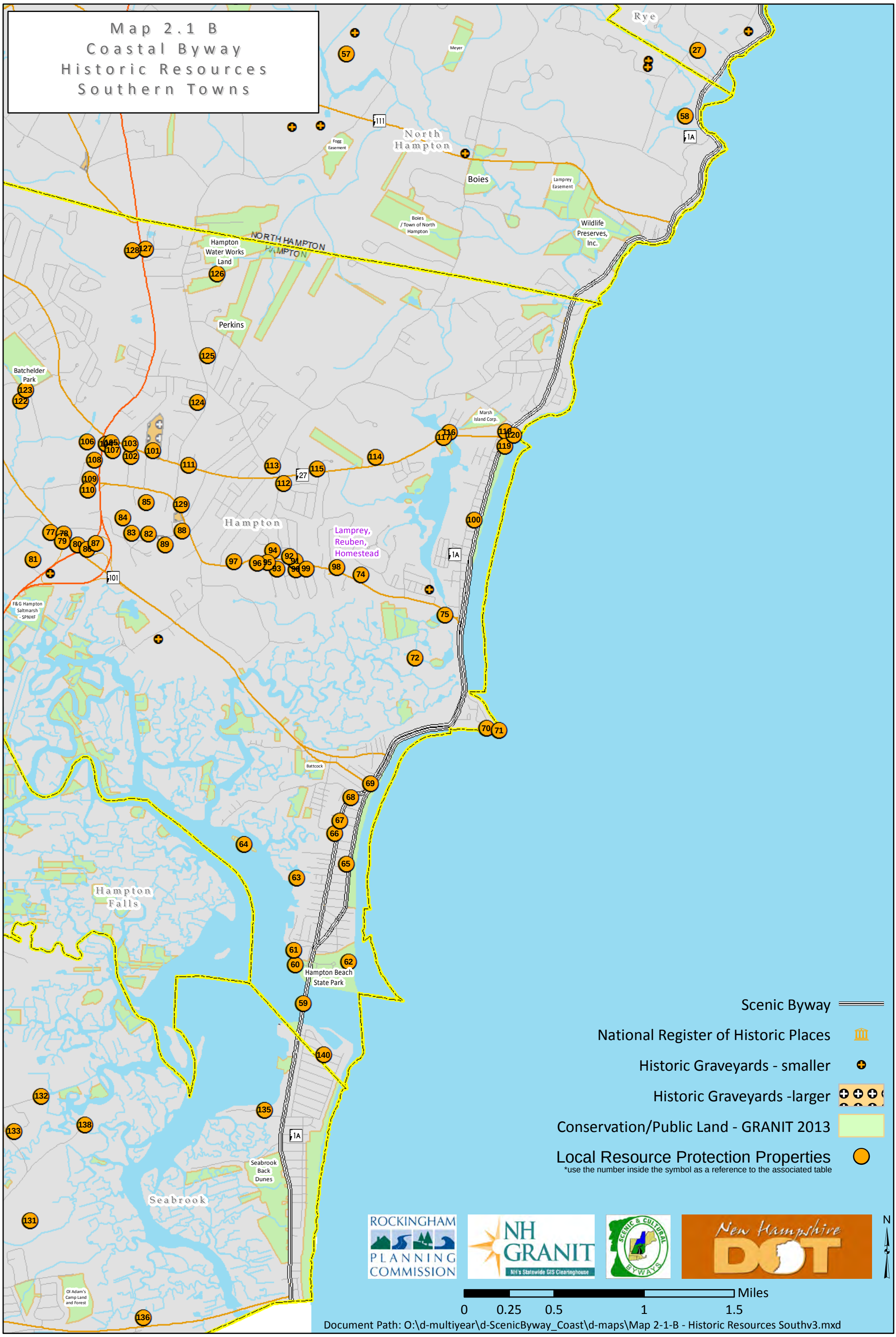
Franklin Block
Haven--White House
Wentworth--Gardner and Tobias Lear Houses
Rundlet--May House
Fort Constitution
New Castle
Great Island Common
Wentworth--Coolidge Mansion
Wentworth--Gardner House
Lot C
Griffin
Portsmouth
Sagamore Creek Land
Hett
Urban Forestry Center
Odiorne Point State Park
Brown
PORTSMOUTH
RYE
Ham
Hollett
Rye
Fairhill Manor
The Cedars
Stauber
Parsons Homestead
Lium
Varrel Woods
Awcomin Marsh
Rye Town Forest
Locke, Elijah, House
North Hampton

Local Resource Protection Properties
National Register of Historic Places
Historic Graveyards - smaller
Historic Graveyards -larger
Historic Districts
Scenic Byway
Conservation/Public Land - GRANIT 2013
*use the number inside the symbol as a reference to the associated table

Miles
0 0.25 0.5 1 1.5

Document Path: O:\d-multiyear\d-ScenicByway_Coast\d-maps\Map 2-1-A - Historic Resources Northv3.mxd

Map 2.1 B
Coastal Byway
Historic Resources
Southern Towns



Family ownership continued until 1942 when the U.S. government acquired much of the farm to expand fortification of Portsmouth Harbor. This included Fort Dearborn, which was kept through World War II as a military installment. Odiorne Point is now maintained as a State Park, with numerous World War II era structures still in place, as well as the Seacoast Science Center, which in addition to interpreting the coastal and marine ecosystems of the Gulf of Maine also features information on the history of Odiorne Point and the maritime history of the region.

4. North Hampton

The Town of North Hampton secured listing of the Little Boars Head National Historic District in 1999. Located along Ocean Boulevard, Atlantic Avenue, Chapel Road, Sea Road and Willow Avenue, the district includes a range of stately historic homes, as well as Fuller Gardens, a public botanical garden established in the 1920s on the summer estate of Alvan T. Fuller. Also of special interest are the twelve fish houses located on the east side of Route 1A, just south of NH 111/Atlantic Avenue. These structures, some of which predate 1804, were used by local fishermen for storing their fishing gear, lobster tanks, and boats. The fish houses are some of the few remaining fish houses on the New Hampshire seacoast. On the fringe of the corridor study area, North Hampton's Town Hall and Public Library have also been listed as National Register Historic Properties since the publication of the original 1996 Corridor Management Plan.

While the Little Boar's Head area is listed on the National Register, it is not a locally designated historic district; though North Hampton's Heritage Commission plays an active role in working to document, interpret and protect the historic character of the town.

5. Hampton

The Town of Hampton, settled in 1638 and incorporated in 1639, was one of the first three towns incorporated in New Hampshire. Hampton's origin was as an agricultural community, and thus lacks the type of development that is typical of port communities such as Portsmouth. There is currently just one National Register Historic Property in Hampton located within the study area boundary – the Reuben Lamprey Homestead. Two other private residential properties - the Benjamin James House and the Jonathon Moulton House - are also valued for their historic significance as examples of the colonial period. The Town of Hampton has not established a historic district, though does have a local Heritage Commission.

Figure 2.8: Hampton Beach, 2013

Figure 2.9: Hampton Beach Casino Postcard ca. 1925; Collection of Rick Russell

Oceanfront hotels had opened as early as 1819 in Hampton, particularly at Great Boar's Head. As elsewhere on the Atlantic coast in New England, many of these large wood-frame buildings burned and were quickly replaced with other hotels. Later in the 19th

century the character of Hampton Beach changed rapidly, as summer tourism grew as an economic factor for the region. More summer homes, small rental cottages and seasonal businesses developed along the coast, driven by a rise in leisure time for the working- and middle-class, and improved transportation access in the form of new electric streetcar lines. The owners of the Exeter Street Railway Company built the Hampton Beach Casino in the 1890s to encourage ridership. In addition to connecting Exeter and Hampton, the Exeter Street Railway also linked Hampton Beach to the major north-south railroads to Boston and Portland, including the Boston and Maine Railroad's Main Line running through Exeter, and the Eastern Railroad serving Hampton and the other coastal communities.

The Hampton Historical Society's Tuck Museum offers visitors a rich array of artifacts, interpretive displays and programs spanning the colonial era through the mid-20th century, including multiple historic buildings that the public can tour. Among many interesting resources, a small summer rental cottage moved from a beach location offers a glimpse of what a visitor to Hampton Beach would have experienced in the early 20th century.

6. <u>Seabrook</u>

The Town of Seabrook's early history was rooted in farming and fishing; with the development of summer homes and the tourism beginning in the early 1900s. The Town does not have a historic district, nor are there any National Register Historic Properties located within the study area. A small number of 18th and 19th century homes remain outside the study area, in the vicinity of Route 1. The Seabrook Historical Society maintains the historic 1892 Brown Library attached to the current Seabrook Public Library. Brown Library has extensive collections of historic documents and photographs, though is targeted more toward local residents than out of town visitors.

Figure 2.10: Shapley Line Historic Marker in Seabrook

C. KEY ISSUES & CHALLENGES

1. <u>Education and Awareness</u>

Ultimately, the decision of what elements of a community's history are recognized, celebrated, and preserved depends on people's understanding of local history and historic resources and why they are of value. All six of the Byway's corridor communities have Historical Societies that engage in some level of educational outreach. Three corridor communities (Hampton, North Hampton and Rye) have established Heritage Commissions, which go beyond the regulatory role of Historic District Commissions and often engage in community outreach, resource inventories and even property management.

There is a broad a range of organizations and initiatives in the region with a shared goal of raising awareness of local and regional history and cultural resources. These include local historical societies and heritage commissions and the various museums and self-guided and occasional guided walking tours and interpretive brochures they offer; Historic New England (formerly the Society for

the Preservation of New England Antiquities) and the four historic properties they maintain and interpret in the region; other private non-profit museums and interpretive centers in the region such as Strawbery Banke Museum, the Portsmouth Athenaeum and the Gundalow Company; and events like local Old Home Days. At the same time, opportunities exist to broaden these efforts in both the public and private sector.

Examples discussed in local master plans include additional outreach efforts such as specific outreach targeting planning board, conservation commission and select board members; information and interpretive programming related to historical resources on municipal websites and the local public access cable stations; and better dissemination of guides produced by the N.H. Division of Historic Resources for owners of historic properties on the benefits and implications of historic designation and tips on maintaining historic properties. Completing these projects will require resources in the form of both funding and time from volunteers, but initial low-cost outreach efforts can be undertaken to spur public interest and additional volunteer resources. (NHDHR, 2012)

2. Redevelopment, Densification, and Tear-Downs

While the economic downturn of the late 2000s temporarily reduced development pressure in many communities, and the region as a whole is not likely to see growth on the order of the 1980s again, development pressure is returning as the economy rebounds from the Great Recession. Land conservation efforts of the past 15-20 years have protected a great deal of open space in corridor communities, much of it with historic and cultural significance as agricultural landscapes. As the supply of open land diminishes, though, there is increasing emphasis on redevelopment. Particularly in these coastal communities with high land values, this may mean teardown of older low density development such as modest beach cottages or small scale tourist motels, and replacement with larger, denser, and more expensive construction. In some cases the individual buildings removed may have little historic significance, and the new development boosts the local tax base and provides new housing or community amenities that on balance are positive. Over time, though, this changes the landscape and sense of a place. Weighing such trade-offs is a central role of municipal planning. A key step toward ensuring decisions on these trade-offs are well informed is ensuring that cities and towns have up to date historic resource inventories, and through their master planning processes have discussed what aspects of local history most shape community character and are important to residents to protect.

D. HISTORIC RESOURCES RECOMMENDATIONS

Land use and zoning strategies are available to communities to help protect and preserve their historic treasures. Recommendations in the original 1996 Corridor Management Plan focused on improving public awareness of the historic resources in the corridor, while providing support for the protection and preservation of threatened properties.

HR1. Improved Integration with Local Land Use Planning - Encourage corridor communities to update municipal master plan chapters in corridor communities include chapters on historic and cultural resources that recognize community character, include provisions for updating resource

inventories, and consider the economic and community development potential of protecting local heritage.

HR2. Heritage Commissions - Establish Heritage Commissions and/or Historic District Commissions in those communities that don't yet have them, as local champions for the identification, recognition, protection, and management of historic and cultural resources.

HR3. Corridor Signage Program - Develop a concept and pursue funding for a comprehensive roadway signage program to guide visitors to cultural and historic resources in the corridor.

HR4. Interpretive Corridor Map – Update the pocket-size interpretive map of the corridor developed in 1997-1998 which highlights specific scenic, natural, cultural, historic and recreational resources along the byway. Map symbols will be coordinated with roadway signage program.

HR5. Access to Historic Markers - Identify ways to improve visibility and access to historic markers, such as: moving markers to more prominent sites, improving nearby parking, developing pedestrian access to the marker, and providing directional signage to the marker.

HR6. Context Sensitive Infrastructure Design - Assess the potential impact from any future roadway reconstruction/improvements on the historic resources in the corridor, as well as on the character of the roadway.

CHAPTER 3. NATURAL RESOURCES AND COASTAL HAZARDS

A. INTRODUCTION

The Seacoast region of New Hampshire is a unique area that contains a plentiful variety of natural resources. As Routes 1A and 1B wind their way along the coastal by-way, they travel through areas that have very different land uses, ranging from the densely developed commercial areas of Hampton and Seabrook Beaches to the extensive salt marshes along Berry's Brook in Rye. The natural resources found along the by-way corridor are an important contributor to the scenic character and economic value of the area. People that live, work and visit the coastal region are attracted by the scenic vistas, woodlands, open meadows, salt marshes, beaches and ocean views that are characteristic of our coastline. Natural resources provide habitat for an abundant variety of wildlife, support local economies, and offer recreational opportunities for all to enjoy.

An important part of this study was the process of conducting an inventory of the natural resources found within the study area. A natural resources inventory helps inform recommendations across all sections of the management plan by ensuring that protection of natural resources is considered with respect to proposed management actions.

B. INVENTORY OF EXISTING CONDITIONS

Information for the natural resources inventory was collected from a wide variety of existing sources. The primary source was the Geographic Information System (GIS) data available from GRANIT (Geographically Referenced Analysis and Information Transfer), which is the state's GIS database that is primarily maintained by the Complex Systems Research Center at the University of New Hampshire. Other GIS data was generated by the Rockingham Planning Commission. Additional sources of natural resource information included the NH Department of Environmental Services, NH Coastal Program, the NH Natural Heritage Inventory, NH Fish and Game Department, and various published reports. Although some of the information was verified in the field, this inventory did not constitute a comprehensive field study of the various natural resources in the study area. However, the inventory sheets and natural resource maps were reviewed by members of the Citizen Corridor Advisory Committee and the general public on several occasions.

1. Wetlands

Wetlands are one of the most prominent landscape features as one travels along Routes 1A and 1B. Generally defined, wetlands are lands where the water table is usually at or near the land surface or where the land is covered by shallow water. In these areas, saturation with water is the dominant factor determining soil development and the types of plant and animal communities that exist. The common terms of marshes, swamps, and bogs have only relatively recently been grouped under the single term "wetlands". Along the coast, as elsewhere in New England, wetlands historically were considered wastelands due to their limitations for development. In recent decades, a better understanding about the functions and values of wetlands has generated increasing concern about their protection. Before the importance of wetlands was recognized and various regulatory provisions enacted, large areas of wetlands were filled to build roads and accommodate new development. Today freshwater wetlands and tidal marshes are highly valued resources in the region, providing environmental benefits and services humans rely upon.

Wetlands are generally divided into two main types - freshwater and tidal. Along the study corridor, most of the wetlands are classified as tidal wetlands, meaning they are flooded and exposed twice daily by the ocean tides. New Hampshire has approximately 7,500 acres of tidal wetlands. The majority of these marshes lie in the coastal communities of Seabrook, Hampton, Hampton Falls, North Hampton and Rye.[i] Tidal wetlands were formed along the seacoast in embayments protected from the direct force of the ocean. Tidal marshes are an extremely valuable fish and wildlife habitat and are an integral part of the coastal food chain.

Map 3.1 Wetland Resources shows the distribution of freshwater and tidal wetlands in the corridor. Wetland types include: riverine, freshwater pond, freshwater emergent wetland, freshwater forest/shrub wetland, estuarine and marine deep water, and estuarine and marine wetland. The majority of wetlands in the corridor are the estuarine and marine wetland type.

Prime Wetlands

Under RSA 482-A:15 and administrative rules Env-Wt 700, municipalities may elect to designate wetlands as "prime-wetlands". Prime wetlands are characterized by wetland of exception and high quality. Typically, a wetland receives this designation because of its large size, unspoiled character and ability to sustain populations of rare or threatened plant and animal species. Field data and observations, and GIS data are used to thoroughly evaluate wetlands. Following a thorough analysis and preparation of a report, the municipality holds a public hearing and residents of the community then to vote on the designation. Once the municipality approves the wetlands for designation as prime, the municipality provides to the DES Wetlands Program a copy of the study and tax maps with the designated prime wetlands identified. Upon approval, DES applies the law and rules that are applicable to any future projects that are within the prime wetland or the 100 foot prime wetland buffer.

As of 2015, the City of Portsmouth and the Towns of Hampton and Hampton Falls have designated prime wetlands including both freshwater wetlands and tidal marshes. Refer to the following maps for the location of prime wetlands in these municipalities: Map 3.2A Portsmouth Prime Wetlands, Map 3.2B Hampton Prime Wetlands and Map 3.2C Hampton Falls Prime Wetlands. Hampton and Hampton Falls have designated all of their tidal wetlands as prime.

2. Watersheds and Surface Waters

Watersheds

The Route 1A/1B corridor is located within the greater Coastal Watershed. The coastal region is divided into several subwatersheds including the Coastal Drainage, Hampton-Seabrook Estuary and inland subwatersheds including the Great Bay Drainage, Winnicut River. The receiving waters of the Coastal Watershed are the Piscataqua River in northern-most sections and the Atlantic Ocean elsewhere.

Surface Water Drainages

The Coastal Watershed encompasses 74 square miles. The primary drainage systems in the Coastal area are the Taylor River, Brown's River, Little River, Winnicut River, Sagamore Creek and Piscataqua River. Numerous smaller tributaries are tidal for all or a portion of their extent, or are directly associated with tidal bays and salt marshes.

Map 3.1
Coastal Byway
Wetland Resources

Coastal Byway (Routes 1A and 1B)

Tidal Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland

Freshwater Wetlands

- Riverine
- Freshwater Pond
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

ROCKINGHAM PLANNING COMMISSION

NH GRANIT
NH's Statewide GIS Clearinghouse

SCENIC & CULTURAL BYWAYS

New Hampshire DOT

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Miles
0 0.5 1 2

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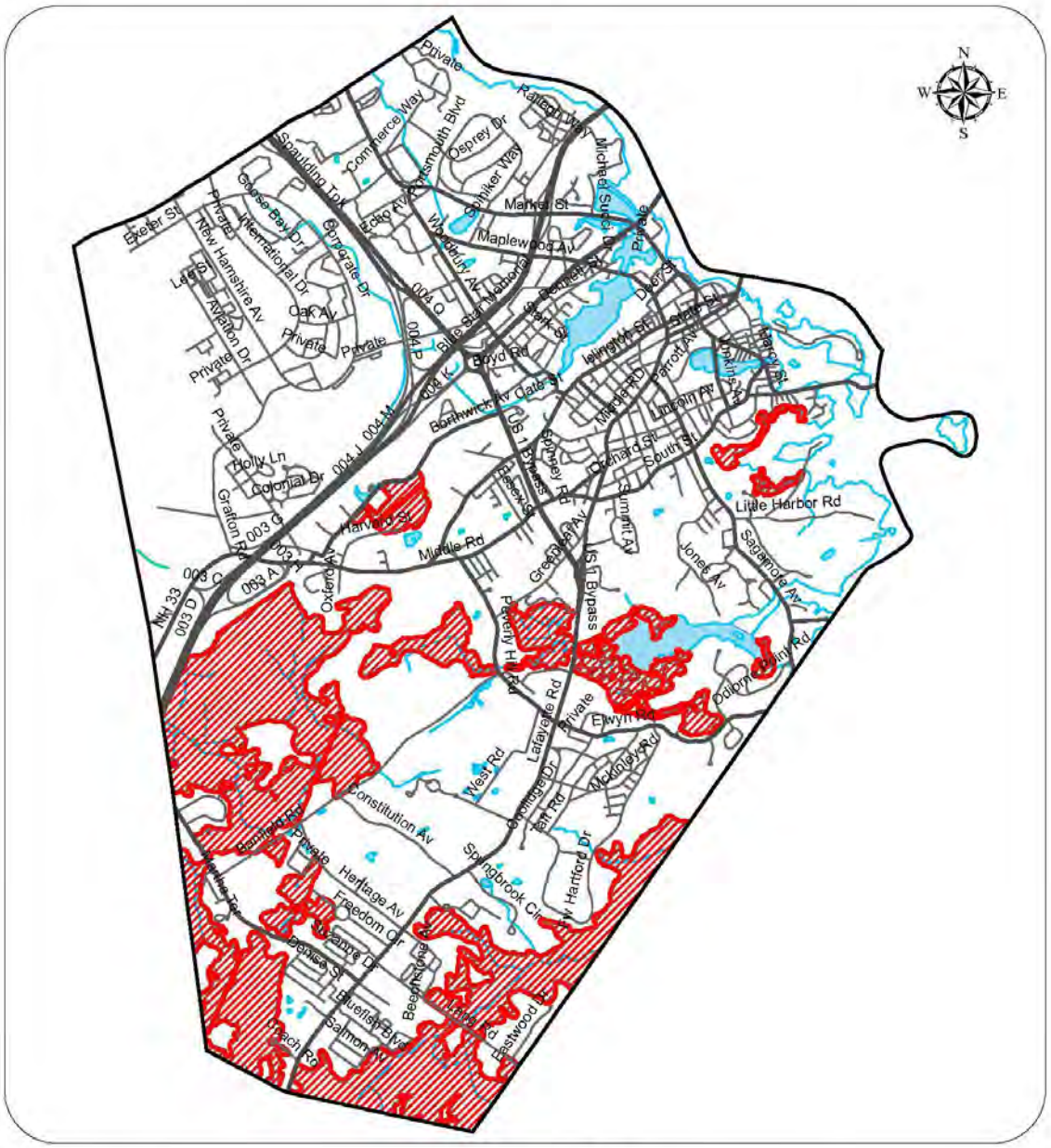
Map 3.2A - Prime Wetlands in Portsmouth



Map 3.2A – Prime Wetlands in Portsmouth

Legend
Roads
Town
State
Hydrography
Surface Water
Prime Wetland
100 Foot Buffer
NO
YES
100 Foot Buffer

New Hampshire Department of Environmental Services
Wetlands Bureau
29 Hazen Drive
P.O. Box 95
Concord, NH 03302-0095

The coverages presented are under constant revision as new sites or facilities are added, and may not contain all potential or existing sites or facilities. These maps were prepared using data supplied by the municipality and the information was digitized to the best of our ability. For prime wetland and prime wetland buffer locations for a specific site, please contact the municipal office where the project is proposed. NHDES is not responsible for the use or interpretation of this information by third parties.

New Hampshire State Plane Coordinate System
North American Datum 1983 (feet)

DATE PRODUCED
October, 2012

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Miles

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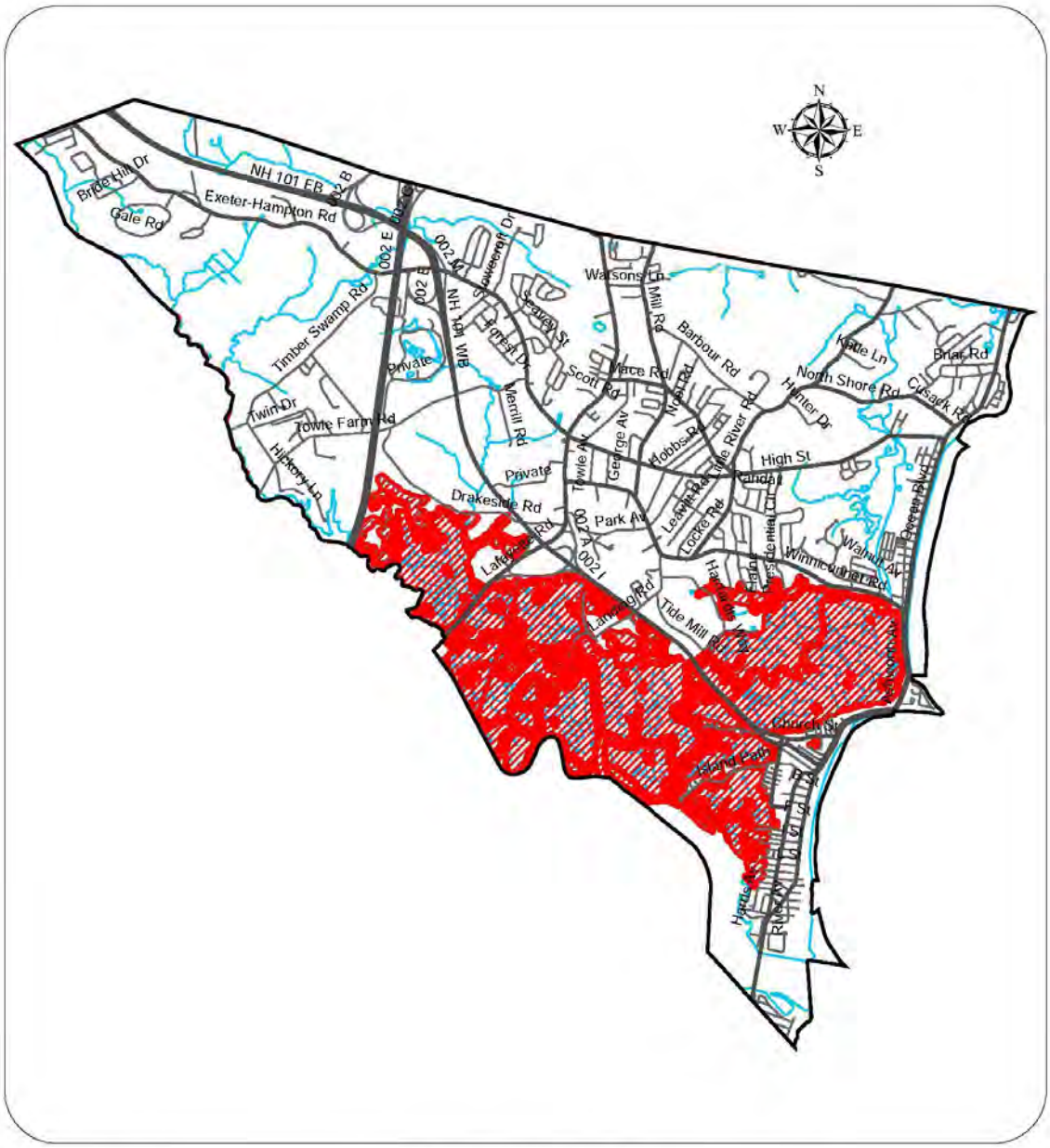
Map 3.2B - Prime Wetlands in Hampton



Map 3.2B – Prime Wetlands in Hampton

Legend
Roads
Town
State
Hydrography
Surface Water
Prime Wetland
100 Foot Buffer
NO
YES
100 Foot Buffer

New Hampshire State Plane Coordinate System
North American Datum 1983 (feet)

The coverages presented are under constant revision as new sites or facilities are added, and may not contain all potential or existing sites or facilities. These maps were prepared using data supplied by the municipality and the information was digitized to the best of our ability. For prime wetland and prime wetland buffer locations for a specific site, please contact the municipal office where the project is proposed. NHDES is not responsible for the use or interpretation of this information by third parties.

1 0.5 0 1 2
Miles

New Hampshire Department of Environmental Services
Wetlands Bureau
29 Hazen Drive
PO Box 95
Concord, NH 03302-0095

DATE PRODUCED
October, 2012

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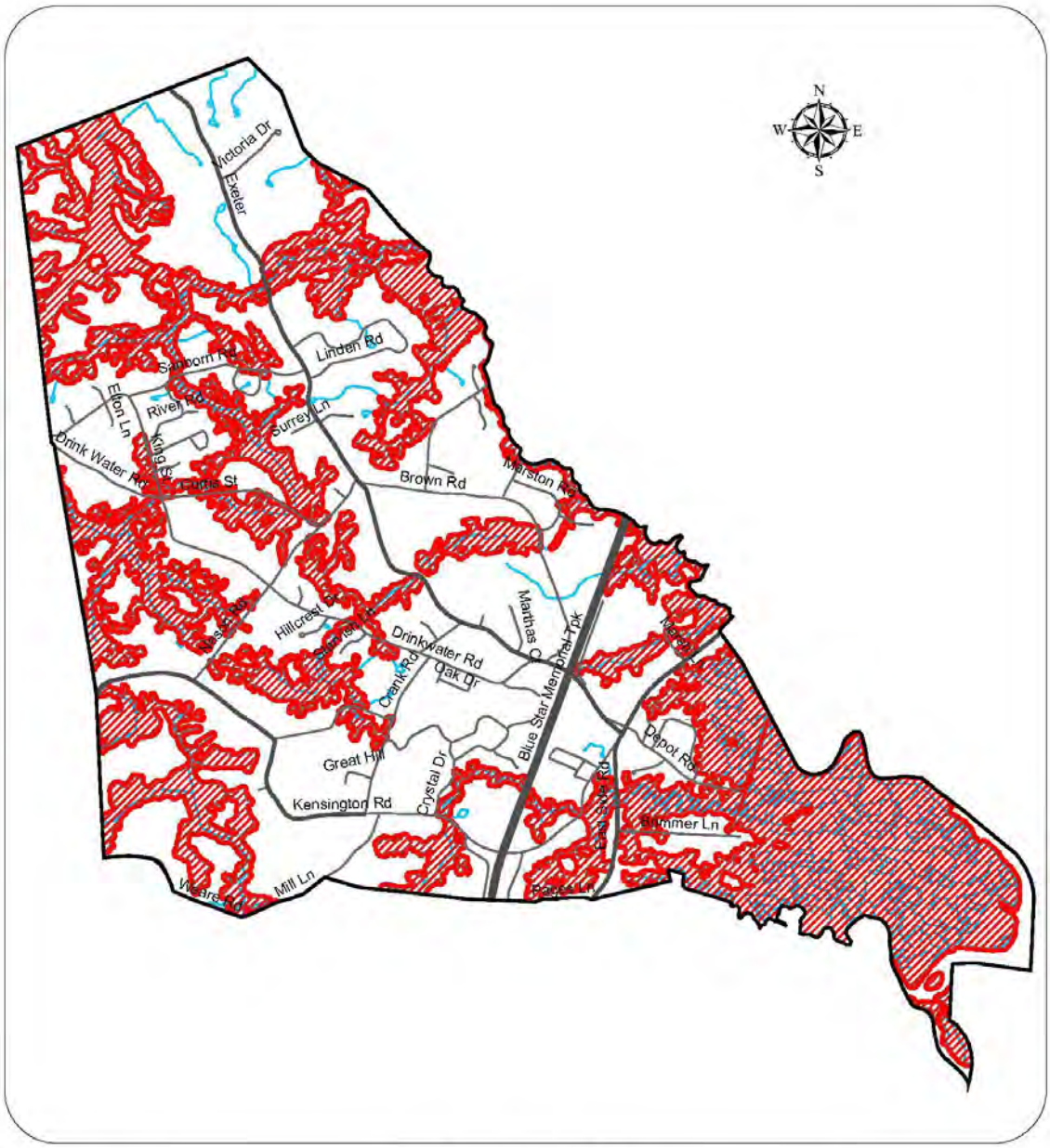
Map 3.2 C – Prime Wetlands in Hampton Falls



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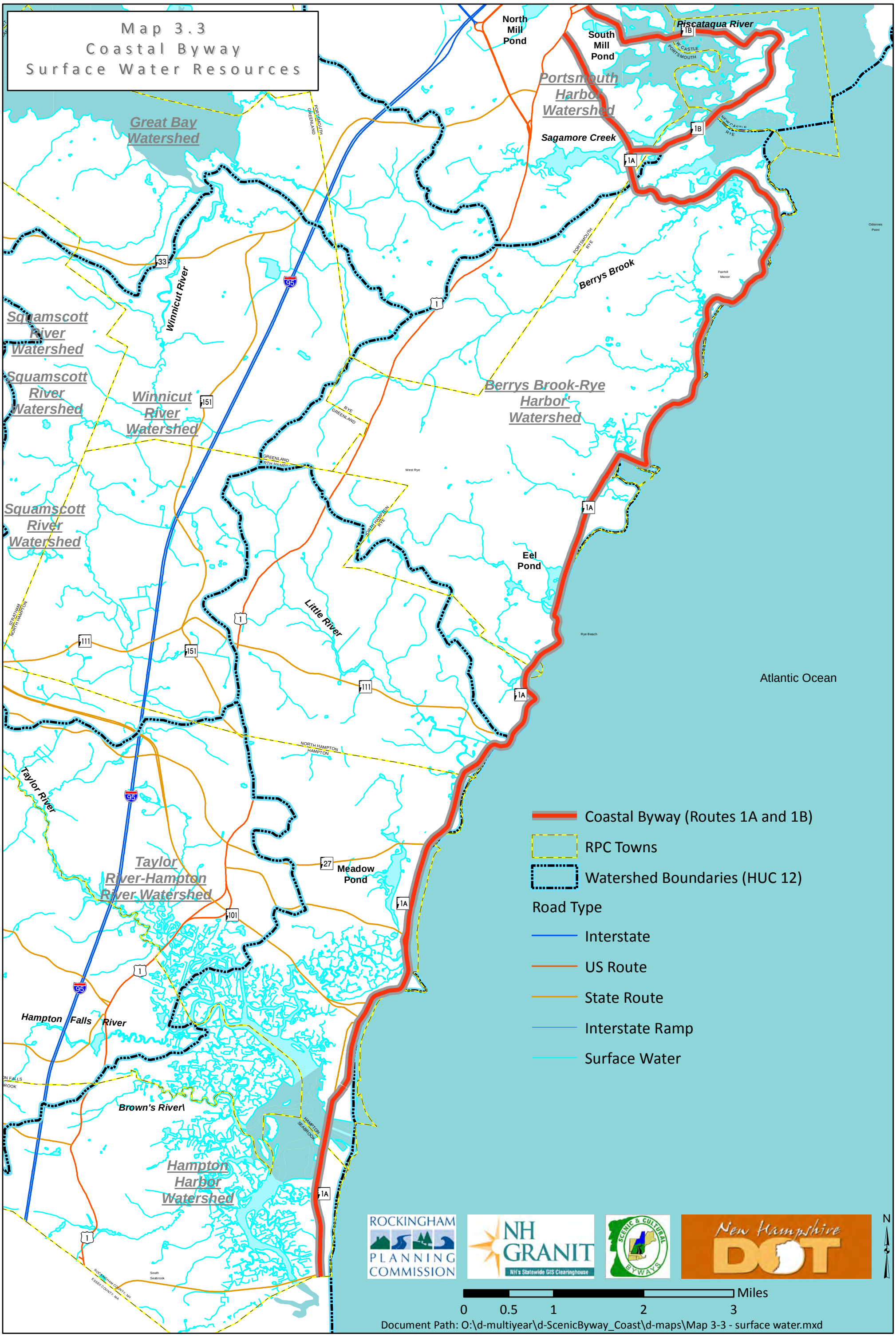
Map 3.3
Coastal Byway
Surface Water Resources



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Map 3.3 Surface Water Resources and Watersheds shows the geographic extent of the subwatersheds in the corridor which include Hampton Harbor and Coastal Drainage. Several of the major rivers and tributaries are named on the map.

Surface Waterbodies

Within the Coastal region there are few sizeable lakes and ponds. There are four Great Ponds within the Coastal area; Great Ponds are surface waterbodies of ten acres or larger as reported in the New Hampshire Official List of Public Waters (January 17, 2014, as amended) and required under as defined in RSA 271:20. The Great Ponds are North Mill Pond and South Mill Pond in Portsmouth, Eel Pond in Rye and Meadow Pond in Hampton. Information on each of these ponds is provided in Table 3.1 below.

Ponds are important as habitats for wildlife and plants. They also provide for a wide range of uses, including swimming, boating, fishing, birding and flood control. All four Great Ponds in the Coastal region are located in developed areas and have been impacted by the surrounding land uses. Meadow Pond is surrounded in most part by dense residential development. Three of the ponds are tidal waters that are influenced in varying degrees by the flushing action of the tides. In Portsmouth, North Mill Pond and South Mill Pond are in developed areas and are surrounded by a mixture of high density residential, commercial and industrial development. Eel Pond in Rye is the only freshwater pond in the Coastal region. Eel Pond is bordered mostly by residential development and Route 1A but is largely undeveloped on its western shore.

Table 3.1: Ponds in the Route 1A/1B Corridor Study Area

Pond name	Town	Area (ac.)	Maximum Depth	Water clarity
Eel Pond	Rye	27.9	3.9 feet	Good
Meadow Pond	Hampton	47.5	0.3 feet	NA
North Mill Pond	Portsmouth	58.9	NA	NA
South Mill Pond	Portsmouth	17.6	5.9 feet	Good

Source: "Quality of New Hampshire Lakes & Ponds - A Layman's Guide", NHDES 1992

3. Estuaries

New Hampshire's coastal region has two estuarine systems: the Great Bay and the Hampton-Seabrook Estuary. Estuaries are waterways, such as harbors, where fresh water drains from the surrounding watershed and mixes with salt water from the ocean. Estuaries are considered to be the "nurseries" of the ocean, comprised of biologically diverse and productive ecosystems. The blend of fresh and salt water sustains many species of finfish and shellfish, marshes, underwater grasses, and microscopic marine life. The aesthetic qualities, recreational opportunities and productivity of estuaries attract residents, visitors and commercial activities, making them a valuable economic resource for coastal New Hampshire. Map 3.3 Surface Water Resources and Watersheds shows the geographic extent of the Hampton-Seabrook Estuary and its tributaries.

The Hampton-Seabrook Estuary is one of the most valuable natural resource features within the corridor. Bordered by the Towns of Hampton, Hampton Falls and Seabrook, the estuary has a total area of open water at high tide of approximately 475 acres. Perhaps the most striking feature of the estuary is the large expanse (5,000 acres) of contiguous salt marsh that surrounds the estuary.[ii] The estuary is the most popular location in coastal New Hampshire for recreational harvesting of softshell clams. The

sandy beaches within and adjacent to the estuary are a major tourist attraction. Some of the last remaining sand dunes in the state are located adjacent to the estuary and along Seabrook Beach. Like the Great Bay to the north, some portions of the Hampton Harbor Estuary are undisturbed, natural ecosystems where the impacts of human development are minimal. Other portions of the estuary have been impacted by development and nonpoint pollution sources, resulting in the closure of shellfish beds. The Piscataqua Region Estuaries Partnership (PREP) maintains a management plan for the Hampton-Seabrook Estuary and the other estuaries in New Hampshire as part of the National Estuaries Program. Keeping this plan updated and accessible to resource managers, regulators and planners are important steps towards greater protection of the natural resources in these estuaries.

Case Study: Little River Salt Marsh, North Hampton

The Little River Salt Marsh is a back barrier marsh lying between Little Boar's Head in North Hampton and a rocky headland just south of North Shore Road in Hampton. USDA soil maps indicate that originally the marsh was approximately 193 acres in size. Over time the original marsh had been greatly reduced to only 160 acres with only an estimated 42 acres of healthy marsh. The marsh was regularly inundated by freshwater flooding drastically altering the hydrology, habitats and health of the system.

The restoration project goals were to remove the tidal restriction and allow adequate tidal flow to the marsh, reduce flooding of adjacent properties and the marsh, and allow proper drainage of the marsh. The project began in 2000 spearheaded by the Town of N. Hampton, Natural Resources Conservation Service, NH Coastal Program. Post-restoration, tidal flow has been restored to approximately 170 acres of salt marsh. Approximately 100 acres of marsh have begun to revert back to salt marsh from invasive brackish, red-maple swamp. Salinity levels have returned to "normal" throughout the marsh and systematic monitoring is being conducted to evaluate changes in the marsh over time. After nearly a decade of partnership efforts, adequate tidal flow has been restored to Little River Salt Marsh.

Case Study: Meadow Pond, Hampton

The restoration project goals were to reduce *Phragmites* and other invasive species within the marsh, remove surface sediments to correct elevations on the marsh, and create an approximately 7 acre new tidal creek system and open water habitat with pools and pannes. The project began in 2003/2004 coordinated by partners the NH Coastal Program, UNH and Town of Hampton.

The main hydrologic alterations began with removal of standing vegetation including extensive stands of Phragmites. Open marsh water management included creek construction, and removal of debris and excess surface sediments, filling of ditches to allow ponding of water on the marsh surface which enhances fish habitat. Creek construction was completed using low-pressure machines and best management practices to create large and medium creeks and a perimeter swale, and application of several combinations of Phragmites control approaches. Removal of surface sediments was conducted in twelve small experimental plots to assess treatment combinations. Nine of the 12 plots were planted with bare root seedlings of smooth cordgrass (*Spartina alterniflora*) to establish native salt marsh vegetation. The site's monitoring program began in summer 2003, with 25 permanent stations established in four experimental areas and one reference area.

Restored Salt Marsh through the New Hampshire Coastal Program Pre-1998 to 2004

Pre-1998: 200 Acres of Restored Marsh

Awcomin Marsh – Rye (12 acres/ditching and fill removal)

Drakeside Road – Hampton (22 acres)

Locke Road – Rye (37 acres/tidal restriction)

Meadow Pond – Hampton (117 acres)

New Castle Marsh - Wentworth (1 acre/creation)

Sandy Point – Stratham (5 acres/ditching)

Stuart Farm – Stratham (12 acres)

1998: 60 Acres of Restored Marsh

Fairhill Marsh- Rye (12 acres/panne work)

Hampton Landing Road/Site 1 – Hampton (23 acres/tidal restriction removal)

Hampton Landing Road/Site 2 – Hampton (5 acres/panne work)

Herods Cove – GBNWR (16 acres/panne work)

North Mill Pond – Portsmouth (1 acre/creation project)

Parson's Creek – Rye (150 acres/tidal restriction removal) Stubbs Pond – GBNWR (3 acres/panne work)

Welsh Cove – GBNWR (2 acres/panne work)

Woodman Point – GBNWR (20 acres/panne work)

1999: 66 Acres of Restored Marsh

Cains Brook – Seabrook (17 acres/tidal restriction removal) Fairhill Marsh– Rye (6.2 acres/panne work)

Hampton Landing Road – Hampton (7.9 acres/panne work)

Rye Harbor – Rye (15 acres/tidal restriction removal)

South Main Street– Seabrook (5.2 acres/panne work)

Wallis Sands – Rye (5 acres/tidal restriction removal) Wininicut Rd- Greenland/Phase II – (9.7 acres/panne work)

2000: 172 Acres of Restored Marsh

Little River – N. Hampton (172 acres/tidal restriction removal)

2002: 35 Acres of Restored Marsh

Awcomin Marsh, Rye (35 Acres)

2003: 20 Acres of Restored Marsh

Pickering Brook, Greenland (Phase I) (20 Acres)

2004: 10 Acres of Restored Marsh

Pickering Brook, Greenland (Phase II) (10 Acres)

4. Beaches

New Hampshire has 10.2 miles of beachfront along the Atlantic Ocean. All coastal lands between mean low water and mean high water (the wet beach) and Waters of the U.S. (tidal waters) are accessible to the public for recreation. The state owns and maintains 6.4 miles of sand beach as part of the state park system. Local governments control 3.7 miles of public beach along the coast. The beach locations are identified on the Recreation Sites Map (see following page) and include the following:

Town of Rye

Wallis Sands State Park (18 acres), Odiorne State Park (137 acres), Rye Harbor State Park (63 acres)

Foss Beach, Jenness Beach (2 acres), Sawyer Beach (3 acres), Rye Beach, Philbrick Beach

North Hampton

North Hampton State Park (5 acres), Bass Beach

Hampton

Hampton State Park (50 acres), Plaice Cove Beach, North Beach, Hampton Beach

Seabrook

Seabrook Beach

Map 3.4 Recreation Areas and Access Points shows the locations of recreational activities, natural areas, water access areas, federal, state and municipal recreational lands along the Byway corridor.

5. Rare Habitats, Plants and Animals

Within the State of New Hampshire, the Department of Resources and Economic Development has the responsibility of identifying and protecting rare plants and animals. RSA 217-A created the New Hampshire Native Plant Protection Act of 1987, which led to the establishment of the N.H. Natural Heritage Inventory. The inventory documents the locations of rare plants and the nesting and breeding sites or regular wintering habitats of rare species.

Within the corridor, there are 23 areas that the Natural Heritage Inventory has identified as locations of rare plants and animals. Due to the sensitive nature of some of the species, the inventory does not reveal the particular species found in each area identified. These areas have been included on the Agricultural Activities and Natural Features Map (see following page). Most of the areas where rare plants and animals are found are associated with salt marshes, ponds and beaches.

Land Conservation Plan for New Hampshire's Coastal Watershed

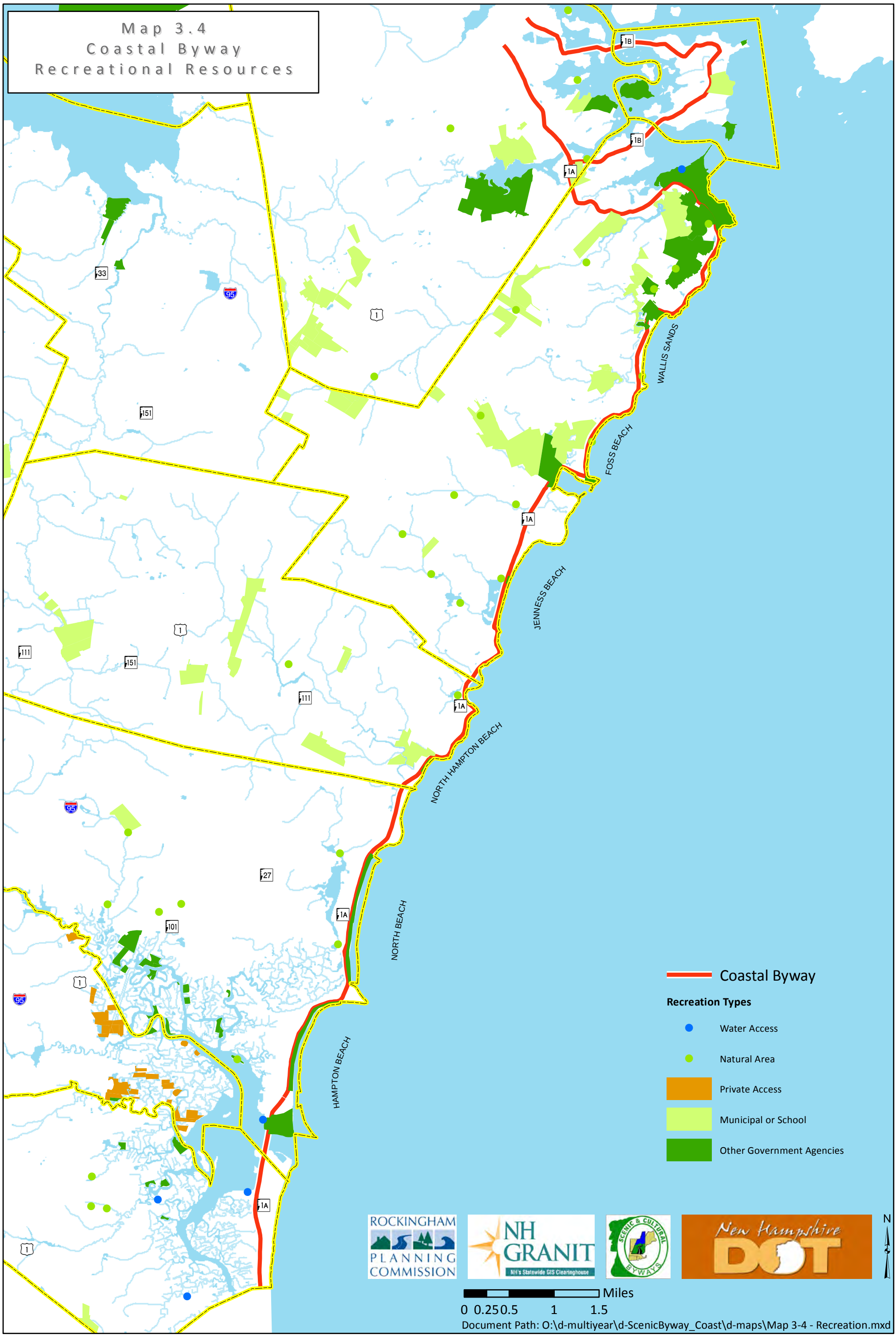
The Land Conservation Plan for New Hampshire's Coastal Watershed (2006) identifies Core Focus Areas and Supporting Landscapes containing rare and exemplary habitat types and high quality natural resources. The corridor includes the following Core Focus Areas:

Table 3.2: Core Focus Areas in Coastal Watersheds

Town	Core Focus Area
New Castle	Seavey Creek/Fairhill Swamp (portion)
Rye	Seavey Creek/Fairhill Swamp (portion), Lower Berry's Brook, Wallis Marsh, Awcomin Marsh, Bailey Brook
North Hampton	Lower Little River
Hampton	Hampton Marsh (portion)
Hampton Falls	Hampton Marsh (portion)
Seabrook	Hampton Marsh (portion)

Map 3.5 Land Conservation Plan for New Hampshire's Coastal Watershed for the location of Core Focus Areas and Supporting Landscapes in corridor. Refer to the Plan for detailed descriptions of each of the Core Focus Areas and Supporting Landscapes at http://www.rpc-nh.org/coastal-conservation.htm.

Map 3.4
Coastal Byway
Recreational Resources



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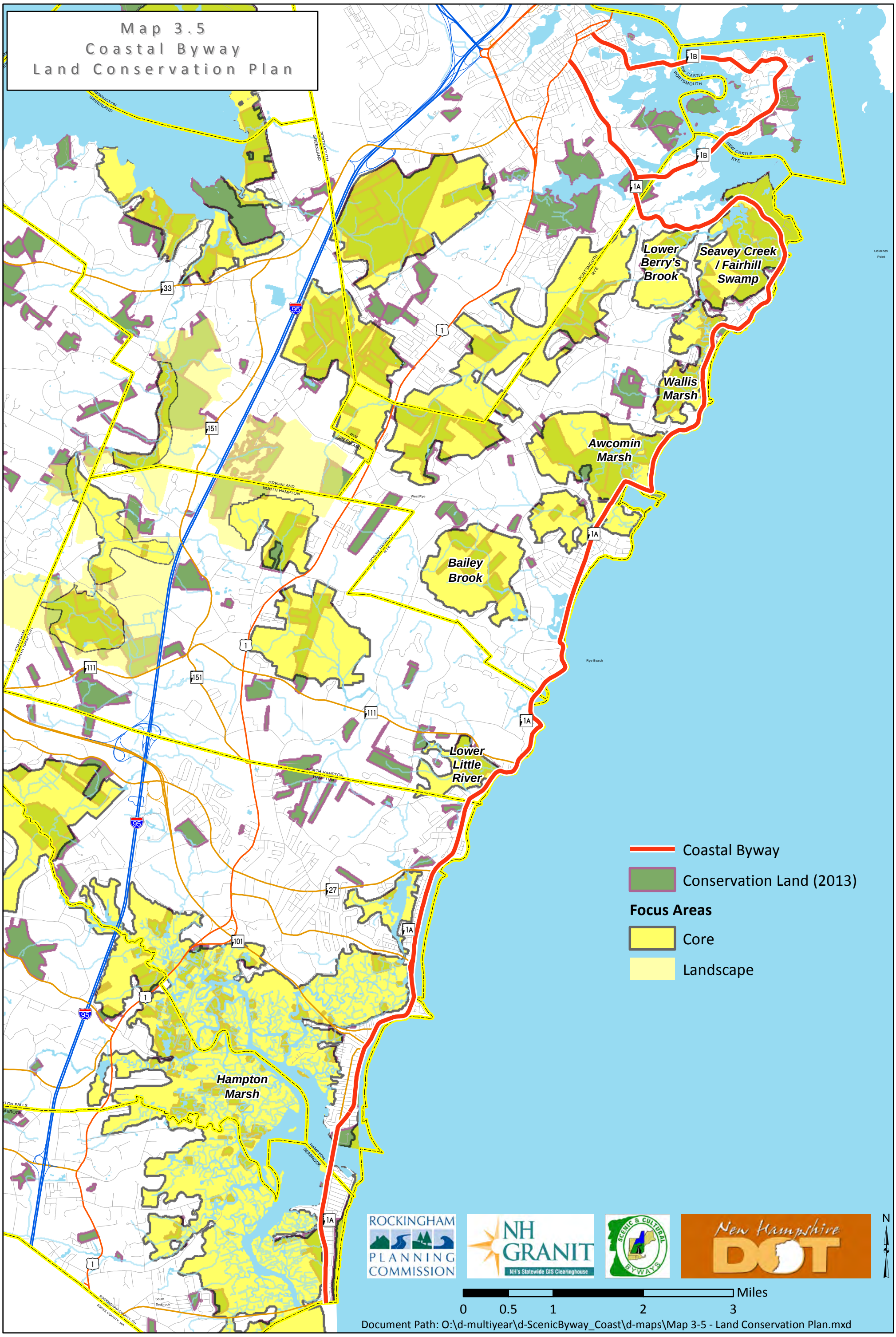
Map 3.5
Coastal Byway
Land Conservation Plan



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6. Invasive Species

Coastal Watershed Invasive Plant Partnership. The Coastal Watershed Invasive Plant Partnership's mission is to protect the ecological integrity of natural habitats and economic vitality of managed lands in New Hampshire's coastal watershed through activities that reduce the threat of invasive plants. With the signing of an official agreement, 11 state and federal agencies and nonprofit conservation groups formed a strong alliance to stop the spread of invasive plants in New Hampshire's coastal watershed.

2010 Invasive Plant Management Plan for Odiorne State Park. Odiorne Point State Park is home to a number of the state's rare ecosystems such as coastal pitch pine forests, dunes, and salt and barrier marshes. Over the years, the value and integrity of these fragile resources have become degraded by severe infestations of invasive plants. Not only have the natural ecosystems and habitats within the park become degraded, but dense stands of invasive plants have reduced opportunities for education, recreation and wildlife viewing. Supported by the Coastal Watershed Invasive Plant Partnership, the restoration initiative at Odiorne Point State Park is supported by professional consultants as well as volunteers that implement ecosystem restoration projects at the park. The restoration work is guided by the 2010 Invasive Plant Management Plan for Odiorne State Park, which was funded by the N.H. Coastal Program and the National Oceanic Atmospheric Administration.

Department of Environmental Services, Exotic Species Program. The DES Exotic Species Program coordinates activities associated with the control and management of exotic aquatic plants, as well as activities associated with the implementation of education programs and volunteer plant monitoring programs. The program, initiated in 1981, has five focus areas: 1) Prevention of new infestations, 2) Monitoring for early detection of new infestations to facilitate rapid control activities, 3) Control of new and established infestations, 4) Research towards new control methods with the goal of reducing or eliminating infested areas, and 5) Regional cooperation.

Exotic plants are introduced from outside of the state, they have no established relationships with native fauna that would keep their growth in check. When these exotic plants grow without natural controls they encroach into and replace the habitats of native plants, disrupting the food chain, stunting fish growth and degrading wildlife habitat.

Waterbodies with exotic plant infestations in N.H. are considered impaired for aquatic life support. Once in a waterbody, continuous management and control practices are the only tools to control their growth. For this reason it is important to prevent infestations, and to identify new infestations early. DES biologists conduct numerous field investigations for exotic species each summer supported by the efforts of volunteer monitoring groups that monitor waterbodies and conduct watercraft inspections at public access areas. Through materials and training sessions by DES, numerous lakes and ponds have initiated their own Volunteer Weed Watching programs. A detailed summary of invasive species plant control strategies is available on the Exotic Species Program website at http://des.nh.gov/organization/divisions/water/wmb/exoticspecies/management.htm.

Lists of invasive species in N.H. are maintained by the U.S. Department of Agriculture, National Invasive Species Information Center at http://www.invasivespeciesinfo.gov/unitedstates/nh.shtml.

7. Jurisdictions

This section summarizes federal, state and municipal regulatory frameworks and jurisdictional responsibilities, and authority to regulate, manage and maintain the environment and natural resources, infrastructure, public health and safety, and land use and development.

Federal Jurisdiction

Federal Coastal Zone Management Act. Recognizing the importance of our nation's coastal areas, Congress passed the Coastal Zone Management Act (CZMA) of 1972. The act authorizes a federal grant-in-aid program to be administered by the National Oceanic and Atmospheric Administration (NOAA) within the federal Commerce Department. The guidelines and requirements of the CZMA provide the necessary direction to states for developing their own coastal management programs. New Hampshire has developed its own coastal program under the CZMA; this is described more fully in the section below dealing with State jurisdiction. The CZMA also established the National Estuarine Research Reserve Program which allows for federal designation of estuarine research centers and protected land reserves along the nation's coastline.

Rivers and Harbor Protection Act. Established in 1899, this act protects navigation in and pollution of public waters, and acted as a precursor to the Clean Water Act of 1972. Section 10 prohibits obstructions that hinder navigable capacity of any waters without the approval of Congress. Section 13 states that it is unlawful to discharge, deposit, throw, etc, substances from shore or floating craft into a tributary or navigable waters. The Act is administered by the U.S. Army Corps of Engineers.

Water Pollution Control Act. This law has resulted in a variety of programs which could potentially impact coastal areas. These programs include: the 404 Program which is essentially the federal dredge and fill program administered by the United States Army Corps of Engineers (USACE) and the National Pollution Discharge Elimination System (NPDES) permit program. The NPDES program covers discharges from municipal wastewater treatment plants and industrial operations which produce large quantities of wastewater. The act also grants the US Coast Guard the authority to deal with oil spill prevention and clean up.

Food Security Act. Passed in 1985, this act contains a section which prohibits the draining of wetlands for the production of commodity crops. This provision is commonly known as the "swampbuster" law. The program is administered by the U.S. Department of Agriculture. Seabrook Harbor

National Flood Insurance Act. Passed in 1968, this act established the National Flood Insurance Program which allows property owners to purchase insurance protection against losses from flooding. This program is administered by the Federal Emergency Management Agency (FEMA).

Endangered Species Act. Administered by the US Department of the Interior, the act identifies rare and endangered species throughout the nation and sets forth the requirement that federal development projects and federally funded projects must not disturb critical habitat areas.

Marine Protection, Research and Sanctuaries Act. Passed in 1972, the act regulates the transportation of dredged materials. The act is administered by the USACE.

State Jurisdiction

New Hampshire Coastal Program. The New Hampshire Coastal Program is one of 34 federally approved coastal programs authorized under the Coastal Zone Management Act of 1972. The Coastal Program provides funding and staff assistance to towns and cities, and other local and regional groups who protect clean water, restore coastal habitats, and help make communities more resilient to flooding and other natural hazards. The Coastal Program supports the region's economy by helping to preserve the environmental health of the coast and Great Bay and Hampton-Seabrook estuaries for fishing and shellfishing, and assisting with the maintenance of our ports, harbors and tidal rivers for commercial and recreational uses. The program is administered by the NH Department of Environmental Services.

Section 309 of the Coastal Zone Management Act (CZMA, as amended in 1990 and 1996) establishes a voluntary coastal zone enhancement grants program to encourage State and Territory Coastal Management Programs to develop program changes in one or more of nine enhancement areas. The Strategy was revised in 1994, 1996, 2001 and 2006. Cumulative and Secondary Impacts of Development as well as Wetland Protection and Restoration remained the two priority coastal issues throughout these revisions. New Hampshire's 2011 revision of the Section 309 Assessment and Strategy identifies Wetland Protection and Restoration, Coastal Hazards, Cumulative and Secondary Impacts of Development, and Ocean/Great Lake Resources as high priority issues.

Water Supply and Pollution Control Laws. Under RSA 146-149, any coastal activity which could have an adverse impact on the State's water resources is regulated. Erosion, sedimentation, and runoff in coastal waters are managed through permits which protect water quality. Development adjacent to coastal waters is regulated through the issuance of permits for sewage disposal and water supply facilities.

Species Management. The NH Fish and Game Department is responsible for protecting threatened and endangered species in the State. The department manages fish, shellfish, lobsters and crabs and other marine species through legislative actions (RSAs 206, 207, 211 and 214) as well as administrative rules adopted by the department.

Siting of Energy Facilities. Under RSA 162-F & H, the State has direct control over the siting of energy facilities along the coastline.

Park Management. The NH Department of Resources and Economic Development (DRED) manages the State park system including coastal beaches, parks and parking areas (RSA 12-A & E).

In-Stream Uses. The State Port Authority regulates moorings, harbor masters, port captains and pilots, vessel traffic, and manages the State port terminal (RSA 271).

Dams and Reservoirs. RSAs 481 and 482 establish the NH Water Resources Council which reviews plans for new dams, reservoirs and hydroelectric facilities. The Division of Water Resources has developed administrative rules for dams and reservoirs, including their repair and maintenance.

Fill and Dredge in Wetlands. Under RSA 482-A and Env-Wt 100-900 Wetlands Rules, the mission of the Wetlands Bureau is to protect and preserve submerged lands under tidal and freshwaters and its wetlands (both salt water and fresh-water) from unregulated alteration that would adversely affect the natural ability of wetlands to absorb flood waters, treat stormwater and recharge groundwater supplies, impact fish and wildlife of significant value and depreciate or obstruct the commerce, recreation and the

aesthetic enjoyment of the public. Regulatory permitting and mitigation for wetlands is performed by the Wetlands Bureau under the NH Programmatic General Permit issued by the U.S. Army Corps of Engineers.

Shoreland Water Quality Protection Act. Enacted in 1991 and amended in 2008, the State Legislature passed the Comprehensive Shoreland Protection Act (RSA 483-B) regulates certain development activities within the shoreline of fourth order streams and rivers, coastal waters subject to tides, and Great Ponds. During the 2011 legislative session, the CSPA was renamed as the Shoreland Water Quality Protection Act and included changes to vegetation requirements within the natural woodland and waterfront buffers, the impervious surface limitations and included a new shoreland permit by notification process.

NH Safe Drinking Water Act. This act establishes the Public Water Supply Protection Program which is administered by the Water Supply and Pollution Control Division (RSA 485). Under the act, the division has developed administrative rules pertaining to the following: siting and installation of public water systems, drinking water standards, water testing standards, and pollution removal from public water supplies.

Water Pollution and Waste Disposal. Commonly known as the Water Pollution Act, RSA 485-A gives the Water Supply and Pollution Control Division the authority to develop administrative rules governing the following items: surface and groundwater withdrawals and discharges, sewage disposal systems, locating water wells, safety regulations for public swimming pools and recreation camps, terrain alteration, and soil testing standards. Also included in the act are the legislative classifications of the State's surface waters.

Wellhead Protection. In 1990, the State Legislature passed the NH Groundwater Protection Act (RSA 485-C). The act provides a framework for a local entity (defined as a municipality, local water district or any public water supplier) to protect wellhead areas and other areas of valuable groundwater through the use of an active potential contamination source management and inspection program.

Control of Marine Pollution and Aquatic Growth. RSA 487 gives the Water Supply and Pollution Control Division the power to establish administrative rules governing the use of marine toilets and disposal of sewage from boats.

Municipal Jurisdiction

Local Land Use Planning and Regulatory Powers

RSA Chapter 674, Local Land Use Planning and Regulatory Powers, describes and prescribes in some cases specific procedures, performance criteria and standards relating to the regulation of land and its use. Many if not all of these elements of RSA Chapter 674 may incorporate standards for protection and management of natural resources, in some manner or form. The statute establishes the duties of a municipal planning board including adoption of standards and procedures for the review of development proposals under Site Plan Review Regulations and Subdivision Regulations, and the purpose of a municipal master plan. The statute defines the purpose of a municipal zoning ordinance and the powers and duties of a municipal zoning board of adjustment. The statute further defines a wide range of municipal governance functions relating to: municipal historic and agricultural commissions and historic districts; provisions for floodplain and flood hazard ordinances and participation in the National Flood Insurance Program and use of Flood Insurance Rates Maps; and requirements pertaining to workforce housing, small wind energy systems, and building code.

EPA Stormwater and Wastewater Permit

EPA administers a program that regulates stormwater generated from urbanized areas (population of >1,000 people per square mile) and discharge of stormwater and wastewater to surface waters. EPA issues the MS4 (Municipal Separate Storm Sewer System) permit to a municipality which is then responsible for implementing the permit standards including submission of an annual report on compliance activities. The map below shows the areas within the Scenic Byway that regulated under the MS4 Permit program (in some cases the permit applies to only portions of or an entire municipality).

Figure 3.1: Coastal Communities showing Census Urbanized Area Boundaries

The MS4 permit requires that all stormwater or wasterwater discharged to surface waters meet the water quality criteria under the federal Clean Water Act. The permit also requires the municipality to conduct outreach and education in the community about water quality, maintain and inspect their stormwater and drainage infrastructure, and enforce zoning and land development standards that protect water quality.

Innovative Land Use Controls

Under RSA 674:21 Innovative Land Use Controls, municipalities are empowered to enact environmental characteristic zoning, such as overlay protection districts for shorelands, wetlands, floodplains and aquifers. The innovative land use control statute allows broad discretion of what constitutes an innovative land use control, as stated in section I "Innovative land use controls may include, but are not limited to…". Thus this stature may be applied to any number of environmental, natural resource or habitat protection measure adopted in a municipal zoning ordinance. The statute also requires that the innovative land use control be supported in the municipality's master plan and contain standards that guide the person or board which administers the ordinance.

Public Health and Safety

Under RSA 485-A, communities are allowed to impose septic installation standards which are more restrictive than the State standards. In addition, RSA 485-C authorizes New Hampshire communities to develop and implement local Wellhead Protection Programs. Communities have the added options of protecting water resources through the use of local health ordinances (authorized under RSA 147) and municipal by-laws (as authorized under RSA 31:39) which can be used to regulate the use of local water resources (swimming, boating, etc.).

Many zoning and regulatory measures enabled in RSA Chapter 674 can be supported by the general duty of a municipality to provide for and protect public health and safety. For example, such measures may include requirements for development in high risk areas subject to flooding or erosion.

C. KEY ISSUES & CHALLENGES

1. Public Input

Throughout the course of the public meetings held in Portsmouth, Rye and Hampton during the

preparation of the 2015 update of the management plan, many concerns and priority issues were identified about the protection of natural resources. There was a consensus that the wetlands, beaches and wildlife all contributed to attracting visitors to the area and to making the coastal area an attractive place to live and work. Many people expressed a concern that if the natural resources were not adequately protected, the quality of life in the region and the tourism business would decline. Several questions relating to natural resources were asked at the public meetings. Responses to these questions are summarized below:

What do you value most about the NH Coastal Scenic Byway?

- Broad view of ocean, marshes and Isles of Shoals
- Opportunity to park and watch the ocean
- Diversity of scenery
- Birds and wildlife in marshes and along the coast
- Fishing and whale watching at Rye Harbor
- Walking and biking along the coast, enjoyment of environments and natural resources

What one change would you most like to see related to the Byway?

- Trailhead access with signage and for educational purposes
- Integrate the Byway resources in school programming
- Need for a coherent plan for appropriate location for activities (recreational and resource based)

What opportunities do you see to make use of the Byway support the local economy while maintaining quality of life and resource protection?

- History of fishing in the area at the Museum at Rye Harbor
- Promote fishing, whale watching and trips to the Isles of Shoals
- Open Foss Farm barn for farmers markets

What threats do you see the Byway and/or adjacent resources that help define its character?

- Waivers to development setbacks impact environment and character
- Encroachment into tidal marshes and freshwater wetlands
- Decline in funding for resource management
- Climate change

2. Jurisdictions

A broad framework of public agencies, municipalities, laws and regulations are in place to regulate, manage and protect natural resources in the Route 1A/1B corridor. One issue that was discussed at the public meetings was the enforcement abilities of those responsible for implementing regulatory and management standards. Enforcement issues were specifically raised regarding wetlands, erosion and sediment control and nonpoint pollution sources. Additional resources devoted to increased enforcement of natural resource laws would produce long term benefits for the environment, which in turn will help maintain the scenic qualities of the Route 1A/1B corridor.

State enabling statutes and federal laws establish minimum requirements for resource protection however municipalities can adopt standards that are more restrictive. A summary of existing federal, state and municipal programs and jurisdictions in terms of natural resource regulation, management and protection is provided in Section B.7 of this Chapter.

3. Natural Resource Protection

Three specific issues concerning salt marshes raised at the public meetings were development impacts, decline in funding for resource management, and climate change. Other emerging issues since the prior plan was prepared include preservation of environmental services, comprehensive shoreline management and protection of public access. These key issues are discussed in greater detail below.

The coastal watershed has had a near doubling of impervious surface coverage since 1990.At around 10 percent total impervious surface coverage in a watershed water quality generally begins to decline. Stormwater runoff from impervious surfaces, lawns and agricultural lands are the main cause of this water quality decline, and specifically causes over 90 percent of the water quality problems [1]. As more development occurs the impacts associated with impervious surfaces and stormwater runoff will continue to cause water quality decline in the region unless proactive steps are taken by individuals, municipalities, and the state.

Environmental Services

Environmental services are the benefits people obtain from the natural environment. These benefits can range from food and wood to drinking water and flood storage, and can include uses such as recreation and tourism. Environmental services or ecosystem services are rarely quantified in terms of economic value or direct monetary benefit to individuals, municipalities or the state. Environmental services provide indirect benefits such as storage of flood waters by wetlands or contribute direct monetary benefits such as harvesting of resources for personal use or commercial sale. Recent efforts to determine the economic value of environmental services have concluded for example that high water quality translates to property values and preserving water quality as lands are developed saves money in remediation costs in the future. The state and local municipalities and businesses benefit directly from the revenue generated by recreation, tourism and fisheries activities. Preserving the natural resource base and their environmental services makes good economic sense as well as demonstrating responsible environmental stewardship.

4. Growth and Development Pressures

The majority of land in and surrounding the Scenic Byway corridor is zoned residential with the exception of Hampton Beach, and portions of Seabrook Beach, Rye and New Castle which allow both residential and non-residential uses.

Since the very earliest European settlement at Odiorne Point in 1623 to the present day, the story of the coastal and southeast regions of the state is one of constant change. This change was driven by waves of European settlement, resource extraction, industrialization, migration and by general economic expansion, growth and development. These changes nearly always manifested themselves in great changes in land use and landscape. Changes in population growth and physical development after World War II have had profound effects on land use in the region. The historical view of population growth observed from decennial census data shows that through much of its early history, the region's population was relatively stable, experiencing some periods of mild expansion and contraction, but overall remaining essentially level. (The region's population in 1810 was about the same as 1910 – about 35,000 people.)

[1] New Hampshire Department of Enviornmental Services. (2012). *Clean Watersheds Needs Survey.* Concord, NH: Wastewater Engineering Bureau. Retrieved from http://des.nh.gov/organization/divisions/water/wweb/index.htm

The post war boom ended that stability. From 1950 to 2010 the population more than quadrupled, with additions to population and housing units averaging more than 2200 people and 1,000 units per year. [Source: RPC Regional Master Plan, Regional Overview Chapter, 2015]

As population continues to grow, the consumption of land and resources also increases. Particularly in the coastal region, the conversion of seasonal camps and residences into year round homes has become common place. In turn, services, jobs and shopping areas expand to serve the growing population. Continued development and investment in real estate has created a situation where a majority of the local tax base originates from coastal properties. The assessed value of coastal property has continued to rise even during the recent recession.

Protection of natural resources becomes increasingly difficult given rapid growth of the last few decades. For example, land conservation competes with high property values able to yield substantial profits to land owners. The table at right reports the varying amounts of land protected in each coastal municipality.

Table 3.3: Protected Land by Town

Municipality	Protected Land
Exeter	28.9%
Greenland	16.9%
Hampton	8.7%
Hampton Falls	14.1%
Kensington	23.1%
New Castle	8.2%
North Hampton	13.4%
Portsmouth	13.2%
Rye	19.7%
Seabrook	8.1%
South Hampton	5.9%
Stratham	16.1%

The dredging and filling of salt marshes for development purposes has declined substantially in the last few decades due to an increase in environmental awareness and adoption of the N.SH. Shoreland Water Quality Protection Act (originally the Comprehensive Shoreland Protection Act). Salt marshes are increasingly under constant threat as the amount of easily developed land decreases. In addition to state laws, all of the coastal municipalities have local wetlands protection standards in their zoning ordinances. However, these local standards vary greatly among the coastal municipalities. Salt marshes that are in poor health due to the manmade restrictions that prevent adequate flushing of tidal water are being invaded by a species of highly invasive plant named *Phragmites*. The restrictions that prevent adequate tidal flushing are undersized culverts beneath roads and roads themselves in most cases. Most of these degraded salt marshes have been previously studied and restoration measures depend largely on local or state initiatives and funding.

Funding for Resource Management and Protection

Various programs and mechanisms can provide sustained funding for land conservation and resource management including:

- Land Use Change Tax (municipal)
- Land and Community Heritage Investment Program (LCHIP) (state)
- Source Water Protection Program - DES (state)
- Aquatic Resource Mitigation Fund – DES (state)
- Land Trusts and Protection organizations (Southeast Land Trust, The Nature Conservancy, Trust for Public Lands)
- Federal agencies including NOAA, EPA, U.S. Dept. of Agriculture, Fish and Wildlife, NRCS

5. Comprehensive Shoreline Management

New Hampshire does not currently have a comprehensive shoreline management plan or strategy. Aspects of coastal areas are governed by the Coastal Zone Management Act (CZMA of 1972. . The guidelines and requirements of the CZMA provide the necessary direction to states for developing their own coastal management programs. Under the CZMA, New Hampshire has developed its own Coastal

Program administered through the Department of Environmental Services. The NH Coastal Program has begun discussions with state agencies, the NH Coastal Adaptation Workgroup and the NH Coastal Risks and Hazards Commission about the need to develop a comprehensive shoreline management plan or strategy.

On December 11, 2014, The Great Bay National Estuarine research Reserve, the N.H. Coastal Program and the N.H. Department of Environmental Services, in collaboration with the N.H. Coastal Adaptation Workgroup, sponsored the first ever N.H. Shoreline Management Conference. More than 100 stakeholders gathered at the conference discuss techniques that the state's coastal communities can use to adapt to sea-level rise, storm surge and increasing flooding events. The conference focused on examples of shoreline management and climate adaptation strategies including case studies from municipalities in Massachusetts, New Hampshire and Maine. Participant learned about the advantages, disadvantages, effectiveness and cost of various option such as sea walls, sand dunes, beach nourishment, living shorelines, flood-proofing and raising structures, and coastal retreat. Participants identified what assets and resources most critical to protect near the seacoast and discussed their reasoning behind their statements. The responses ranged from home value and property rights, evacuation routes and historic sites to quality of life, local businesses, wildlife habitat and access to the waterfront.

Figure 3.2: Participants evaluate flood scenario maps during a mock decision-making exercise at the N.H. Shoreline Management Conference

Though New Hampshire has modest coastline of just shy of 18 miles its importance to the state is significant. The two coastal counties (Rockingham and Strafford) are home to more than 420,000 people and the region brings in more than $19 billion of the state's gross domestic product (as reported by Steve Couture, program manager of the N.H. Department of Environmental Services, Coastal Program). The coast and shorelines of Great Bay provide many ecosystem services — a term describing the goods and services that people receive from the environment. Ecosystem services should be factored into decision-making about regulation and management of shorelines and natural resources, and land use and development.[2]

Figure 3.3: North Hampton State Beach with limited beach area during 2014 king tide, highest tide of the year. King tide gives a sense of how sea level rise may affect coastal resources

[2] From N.H. Coastal Adaptation Workgroup January 8, 2015 blog post by Rebecca Zeiber, N.H. Sea Grant Science Writer at http://nhblog.stormsmart.org/managing-the-n-h-shoreline/

6. Climate Change

Changes in New Hampshire's climate are well documented in local records of sea level, growing seasons, range of flora and fauna, precipitation and temperature. Similar to national trends and projections of previous climate models, the state has experienced more extreme weather events including floods, drought and rising tides. Some degree of future impact will be influenced by changes to the atmosphere and warming of land, atmosphere and oceans already in progress. Longer term impacts will reflect decisions made today that influence how climate may change further into the future. Such decisions include energy choices such as fossil based versus renewable sources, land use and environmental protection, and transportation systems.

New Hampshire and its municipalities have many opportunities and time to prepare and adapt to a changing climate. This effort will require understanding of recent climate projections and assessments, applying technology and data to solve problems, and learning from other states and communities that have successfully implemented effective strategies and solutions. [Source: RPC Regional Master Plan, Climate Change Chapter, 2015] The Science and Technical Advisory Panel of the N.H. Coastal Risks and Hazards Commission issued a report in 2014 to guide recommendation of the Commission.

The Panel recommends that for coastal locations where the need to protect infrastructure, existing coastal development or ecosystems is high, sea level rise scenarios to be used for planning should range from the Intermediate High to the Highest projected estimates of impact, applied as follows:

1. **Determine** the time period over which the system is designed to serve (either in the range 2014 to 2050, or 2051 to 2100).
2. **Commit** to manage to the Intermediate High condition, but be **prepared** to manage and adapt to the highest condition if necessary.
3. **Be aware** that the projected sea level rise ranges may change and adjust if necessary. The choice of management strategies can include strategies to protect, accommodate or retreat from the threat.

In recent years, the NH Coastal Adaptation Workgroup has facilitated discussions with municipalities in the coastal region about the importance of planning for climate change. Critical steps for municipalities are to first understand what assets and resources are vulnerable to impacts, then adopt plans, policies, regulations and community awareness to minimize or prevent these impacts. Protection of natural resources such as tidal marshes, dunes, beaches and coastal habitats will become more challenging as seas rise, temperature rises and seasonal rainfall changes. Current research and analyses conducted by federal and state agencies, the Rockingham Planning Commission and researchers from academic institutions across New England hope to shed light on what future climate conditions may be and how to prepare for adapt to them. This information will be highly valuable for municipal decision makers, resources managers and regulators, and for the state to assist in managing its assets and resources into the future.

Example: A road with an anticipated lifespan beyond 2050 could be constructed now for the highest scenario of 6.6 feet (the most robust approach) OR constructed now for 2 feet of future sea level rise but designed to allow modifications sometime in the future to protect against 3.9 or 6.6 feet of sea level rise, if future conditions deem it necessary.

7. Public Access

One important issue that needs to be considered when discussing the protection of natural resources is the issue of public access. At several of the public meetings, people suggested that more wooden walkways to access the marshes and beaches were needed. Conversely others reacted to that

suggestion stating that more access to natural areas would result in harm to the natural resources that are the attraction. This dilemma is one faced by those charged with the responsibility of protecting natural resources, while at the same time educating the public about the value of preserving the resource. The natural habitats immediately adjacent to roads, buildings, development, homes and accessible to the public are more likely to be degraded by human impacts due to their location. Ironically, it is those natural features that attract the visitors to the area and contribute to the quality of life for the residents of the region. The more remote and isolated natural resource areas have escaped many of the direct impacts of human development. This isolation has contributed to the value of the resource. Despite this, providing access to a limited number of natural areas with wooden walkways and viewing areas is necessary to promote the greater public benefit of increased awareness and understanding of the resource and a greater sense of stewardship in protecting these areas.

D. NATURAL RESOURCES & COASTAL HAZARDS RECOMMENDATIONS

The management plan did not attempt to develop recommendations for new or amended laws or regulations for natural resource protection. That would have been beyond the scope of the project and the existing regulatory and management frameworks were generally felt to be adequate. The following recommendations are designed to work within these existing regulatory frameworks.

NR1. Open Space Preservation and Planning - Communities prioritize areas of open space to protect that provide multiple benefits (environmental, recreational, or cultural) and implement regulations to encourage their protection. Encourage priority be given to parcels identified in the Land Conservation Plan for NH's Coastal Watersheds.

NR2. Restore Tidal Flow - Preserve the health of salt marshes by taking corrective action to improve the flow of tidal water into the salt marshes, replace undersized culverts and remove other barriers to tidal flow.

NR3. Upgrade Drainage Infrastructure - Work with the appropriate federal and state agencies to obtain funding to upgrade drainage infrastructure and stream crossings/culverts

NR4. Planning for Resiliency of Coastal Infrastructure - Strengthen state, regional and municipal capacity to understand risks and vulnerability to potential future impacts of climate change. Actions include:

- Assist municipalities with application of assessments, data and technical guidance about climate change planning and climate adaptation strategies.
- State agencies and municipalities commit resources and capacity to plan for climate change.

NR5. Master Plans & Hazard Mitigation Plans - Encourage municipalities to incorporate a Coastal Flood and Hazards Chapter in their Master Plans. Encourage comprehensive land use planning, environmental planning and floodplain management that prevents and minimizes impacts.

NR6. Manage Coastal Infrastructure for Resiliency - Adopt standards for management of state and municipal infrastructure with safety margins that consider future risk and vulnerability due to climate change. Actions include:

- Apply science-based projections of future sea level, storm surge and precipitation into state, regional and municipal shoreline management activities and policies.
- Incorporate as appropriate recommendations of the Coastal Risks and Hazards Commission to future Scenic Byway Plan updates.

NR7. Public Education on Coastal Hazards & Climate Change - Implement outreach and engagement measures to raise regional and community-based awareness about climate change and coastal hazards as projected to impact the coastal zone.

NR8. Integrative Shoreline Management - Integrate protection of natural and constructed systems, social services, and historic and cultural resources into engineering and regulatory frameworks of shoreline management. Actions include:

- Prepare a comprehensive shoreline management plan for NH's Atlantic coastal area.
- Shoreline management should incorporate measures that minimize coastal and floodplain erosion, and loss of natural resources that protect against flooding.
- Retain and expand dunes, beaches, wetlands, forests and natural vegetation to protect against coastal and riverine flooding.
- Discourage hardening of shorelines in favor of protecting existing natural shorelines and restoring them when feasible.
- Apply hard and engineered shoreline techniques only to protect essential infrastructure and evaluate the benefit to cost of maintaining these techniques in the future.

NR9. Impervious Surfaces - Reduce the rate of growth of new impervious surfaces to minimize stormwater runoff and protect water resources

NR10. Natural Buffer Areas - Protect adequate natural buffer areas around waterways and wetlands to help remove pollution from stormwater, and provide flood storage and wildlife habitat.

NR11. Public Education on Salt Marshes - Provide Increase public education on the importance of salt marshes. This may Examples may include: installation of interpretive signage at public access areas; direct engagement with municipal officials, land use boards and staff; collaboration among natural resource managers, regulators, educators, researchers, non-profit groups and other stakeholders.

NR12. Prime Wetland Designation - Work with municipal conservation commissions to designate (all) salt marshes within the corridor as prime wetlands.

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[i] Final Environmental Impact Statement for the New Hampshire Coastal Program for Ocean, Harbor and Great Bay Areas, Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration, Department of Commerce and New Hampshire Office of State Planning, July 1988, p. 3-6.

[ii] New Hampshire Estuaries Project - Governor's Nomination to the National Estuary Program, Governor Stephen Merrill, State of New Hampshire, March 7, 1995, p.2-11.

CHAPTER 4. SCENIC RESOURCES

A. INTRODUCTION

Few people would disagree that the greatest attraction of the Routes 1A and 1B corridor is the scenery itself. Winding along the 18-mile long New Hampshire coastline, viewers are treated to panoramic views of the ocean meeting the sky, spectacular vistas of rocky coastline and sandy beaches, fabulous views of salt marshes and the wildlife they harbor, as well as scenic views of the manmade kind. The roadway travels through areas with very different settings, ranging from the densely settled towns of Portsmouth and New Castle, to the extensive salt marshes, ocean views and grand homes in Rye and North Hampton, to the commercial areas of Hampton Beach and Seabrook.

Figure 4.1: Breakers and tide pool near Seal Rock

For many people, but particularly for those who live in the corridor, these scenic resources are both a treasure and a burden. In the warmer months, the corridor's natural beauty and recreation opportunities attract a large number of visitors, many of whom simply want to drive the coastline and stop to take in the fabulous views. However, the corridor lacks a designated system of scenic pullovers, and competition for limited short-term parking space can be fierce during peak tourism periods. This situation has resulted in many problems surrounding scenic usage of the corridor. One of the goals of the Scenic Byway program is to preserve and, if possible, improve the quality of the visual experience. In light of the obvious demand for areas to view the natural sights the corridor offers, this study included a scenic value assessment for the entire corridor. The findings of such an assessment can be used to

identify areas of high scenic value that could be further enhanced, as well as those areas with lower scenic value which should be targeted for improvement.

Closely tied to an examination of scenic resources in the corridor is a review of issues surrounding the general appearance of the corridor. Numerous comments from the community resident survey and at public meetings held during the course of this study, particularly in Rye, related a desire to improve the overall aesthetics of the corridor. Ideas included adding amenities and improving landscaping at state parks and other areas along the roadway, and better controlling trash.

Figure 4.2: View southward from Fox Hill Point pedestrian path

B. STATUS OF 1996 MANAGEMENT PLAN RECOMMENDATIONS

1. Improvements to Hampton Beach Seashell Complex – A key recommendation of the 1996 Corridor Management Plan was to redesign and improve the Hampton Beach Sea Shell complex. This was similarly a recommendation of the 2001 Hampton Beach Master Plan. Construction on the new Sea Shell complex was completed in 2012 with $14 million in capital funding from the State, secured through dedicated work by the Hampton Beach Area Commission. In addition to the new Sea Shell entertainment complex, the project included improvements to bath houses at the north and south end of the promenade, shaded bench areas, and sidewalk improvements.

2. Development of a NH Coastal Byway Logo & Interpretive Map – A logo and interpretive map were developed in 1997-1998 using federal Scenic Byway funds. The map was actively distributed for several years, though is now in need of update.

C. INVENTORY OF EXISTING CONDITIONS

As part of the Scenic Byway Study, every half mile segment of Routes 1A and 1B was rated using a visual inventory system developed for New Hampshire's Scenic Byway projects. The intent of the rating system is to create a consistent, objective "measure of quality" of the segment's appearance, thus identifying prime areas for protecting or enhancing the view-shed (high-scoring segments), as well as identifying those areas needing improvement in visual quality (low-scoring segments).The rating system places value on mature and native vegetation, open spaces, picturesque farmsteads, historic bridges, stone walls, cemeteries, historic districts, traditional beach houses/cottages, water bodies, shoreline, panoramic views, farm/village/recreation activity, and a roadway which conforms to the land form and landscape. Landscape scars, prominent utility lines, large signs, structures out of context, generic strip development, and a roadway not conforming to the landscape detract from a roadway segment's visual inventory score.

Approximately 23 miles in the corridor--18.5 miles for Route 1A and 4.5 miles for Route 1B--were rated. Each half mile segment of Routes 1A and 1B was evaluated twice, once driving north and once driving south, to account for differences in viewsheds from both directions. The northbound and southbound scores were then combined, resulting in a total score for each half mile segment. Each segment was grouped according to whether it has a "Low", "Medium" or "High" concentration of scenic elements, as illustrated in the Scenic Resources Map on the following page.

The highest concentrations of scenic elements are found primarily in the northern portion of the corridor, in Portsmouth, New Castle, Rye and North Hampton. This part of the Route 1A/1B corridor offers picturesque village centers, historical structures, views of harbors, marshes, the ocean, fields and forests.

Lower concentrations of scenic elements are found along Route 1A in Hampton Beach and Seabrook. While good views westward onto the Hampton-Seabrook Marsh and eastward across Hampton Beach can be found here, this section of the corridor is also characterized by strip commercial and residential development and a roadway out of scale with the rest of the landscape, due in part to extensive on-street parking areas. (Strip residential development differs from the developed "village center" characterized by New Castle, which the methodology establishes as a positive feature). Also, along much of Hampton Beach and North Beach, views of the ocean and beach from Ocean Blvd are obstructed by the beach's sea wall.

Also shown in Scenic Resources Map are the locations of panoramic and long views available from the roadway. Panoramic views, or those unobstructed views of the ocean, are somewhat distributed along the corridor, but with concentrations on both ends of Route 1B in New Castle, north of/at Rye Harbor, north of/at Little Boar's Head in North Hampton, and from Hampton Beach south to Seabrook Harbor. Long views across saltmarshes and across rivers are also found along the entire length of the corridor.
While there are numerous locations along the Route 1A/1B corridor from which to view the scenery, none are officially designated as "scenic pullovers". As shown on Scenic Resources Map, there are eight sites in Rye which are commonly used by drivers as pullovers. These sites all fall within state-owned right of way. The lots are paved, not striped for parking, with parking capacities ranging from roughly 10 to 30 cars. The southernmost five lots have signs designating a parking limit of one hour. Amenities are

limited to trash receptacles in the warmer months. There are currently no pullovers on the west side of Route 1A from which to view saltmarshes.

In addition to these lots, visitors find numerous other vantage points from which to gain a view of the ocean or saltmarshes. Examples include sightseeing from the car while driving, stopping at the numerous state parks and beaches, pulling onto the roadway shoulders, or using business or private residence parking space.

D. KEY ISSUES & CHALLENGES

While the objective of the scenic value assessment was simply to evaluate the scenic characteristics of the Byway, issues and problems regarding scenic pullovers were raised during several public meetings, and in staff's ongoing examination of the corridor. Problems can be grouped into three general areas: scenic overlooks, visitor information/welcome centers and general beautification. Each of these is discussed in greater detail below.

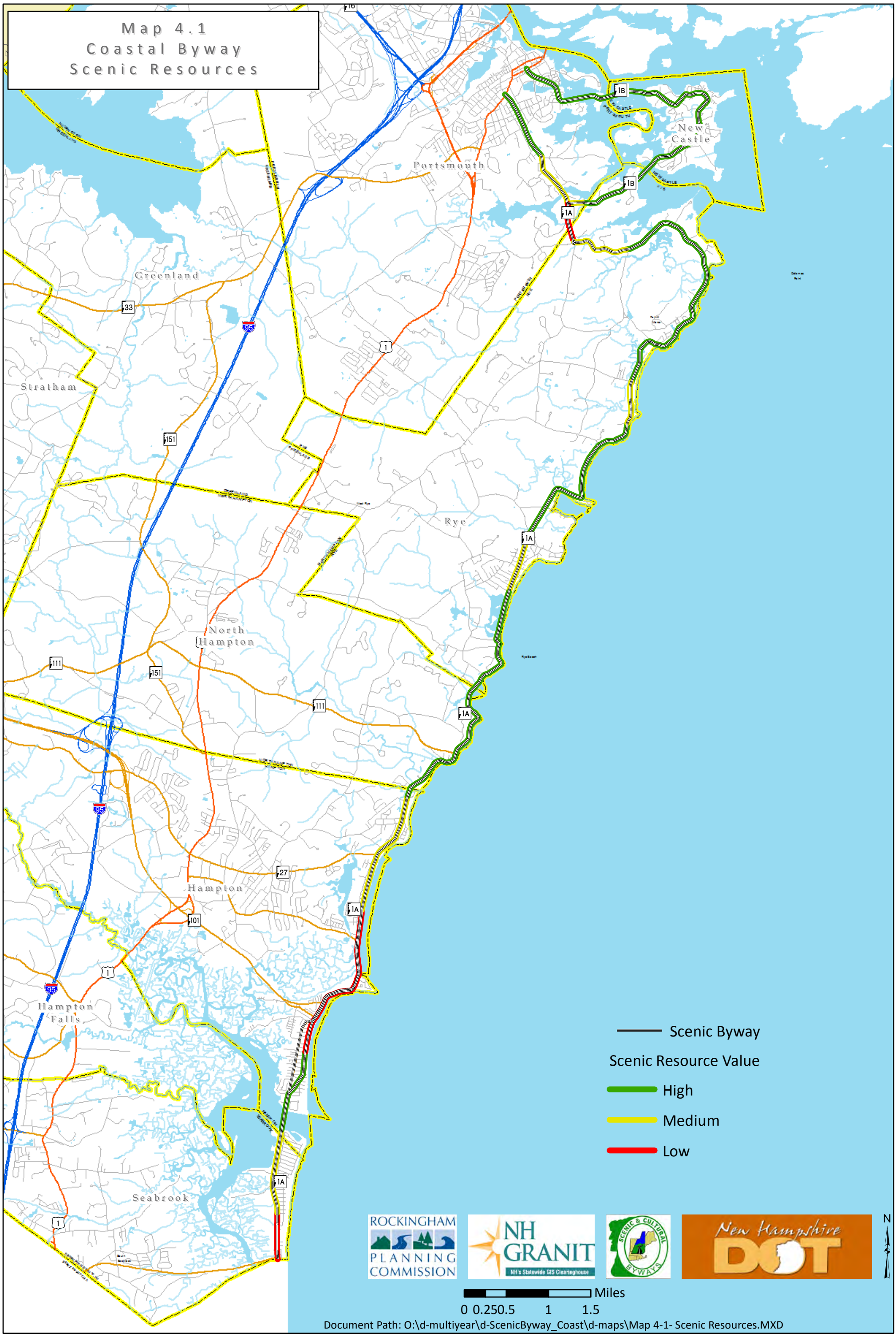
1. Scenic Vistas

Public sentiment towards scenic vistas varied widely. While some people expressed support for developing additional scenic pullovers to take advantage of the vistas, a plurality of community survey respondents felt strongly that an adequate number of pullover areas already exist. This said, numerous problems with accessibility and aesthetics are evident at the existing pullover sites. First, because none of the scenic pullovers are signed to direct travelers into the parking area, many visitors not familiar with Routes 1A and 1B find it difficult to discern locations where they can legally park and take in the view. Second, the three northernmost pullovers in Rye require the viewer to climb to the top of the berm/seawall in order to obtain a view of the ocean, but there are no steps or ramps to safely accommodate them. This makes it difficult or impossible for many elderly and physically challenged visitors to access the view. Lastly, most of the existing pullovers have few amenities beyond trash receptacles, and their appearances suffer due to lack of landscaping.

While there are several pullover areas which overlook the ocean, there are currently no pullover areas on the west side of Route 1A north of Seabrook to allow viewing of the saltmarshes and wildlife that exist in that habitat. In Seabrook recent dune restoration projects have replaced some parking that previously existed along the west side of the highway. Parking and public access remain at Harborside Park with views over Seabrook Harbor and long views out to Hampton-Seabrook marsh. A significant amount of effort and resources has been and will continue to be invested in the preservation of the saltmarshes, and it seems fitting that public awareness/education about the importance and value of saltmarshes be integrated into a system of scenic pullovers.

One candidate for such a pullover area for marsh viewing is an existing nature trail along Awcomin Marsh in Rye, across Route 1A from Rye Harbor Marina and within the bounds of Rye Harbor State Park. The trail was built in 2003 as part of a marsh restoration project by the NH Department of Environmental Services, and features a pair of viewing platform with interpretive signage. The trail is not currently well marked from the road, but land appears to exist for a small pull-out area.

Map 4.1
Coastal Byway
Scenic Resources



Scenic Byway

Scenic Resource Value

High

Medium

Low

ROCKINGHAM PLANNING COMMISSION

NH GRANIT
NH's Statewide GIS Clearinghouse

SCENIC & CULTURAL BYWAYS

New Hampshire DOT

N

Miles

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Improved signage would notify interested travelers of the opportunity to experience the trail and interpretive information. As of winter 2015, the Southeast Land Trust is working to establish a pullout area with a kiosk interpreting salt marsh ecosystems and marsh restoration efforts on a 0.8 acre parcel on the west side of Route 1A just north of Rye Harbor State Park, also looking out onto Awcomin Marsh.

An additional problem expressed at public meetings and through the public opinion survey centers around the preservation of scenic vistas and other scenic resources such as historic buildings for public benefit. The potential for encroaching development to infringe on the scenic vistas is a serious concern for residents of the area. There have been relatively few structures built along Route 1B and Route 1B since 1996 that obstruct long views to the ocean or marsh. The relocation of Route 1B behind the Wentworth by the Sea Hotel as part of its rehabilitation, and associated residential development in the Wentworth complex, is probably the area of greatest change along the corridor. This said, many older small beach cottages have been replaced by much larger structures along the route, which impacts the scenic quality. Proposals to raise building height limits in Hampton Beach have also raised concerns about visual impacts. Routes 1A and 1B traverse six communities, each with different land use requirements. Some of these do not currently allow for consistent protection of scenic resources.

2. Visitor Information Centers

Visitor information centers provide a valuable service and facilities for travelers to familiarize themselves with the area. The State currently maintains one visitor information center in the Route 1A/1B Corridor--the Hampton Beach Seashell Complex located in the heart of Hampton Beach.

Figure 4.3: Hampton Beach Sea Shell Complex – Redesigned in 2012

The Complex consists of the Hampton Beach Chamber of Commerce office which doubles as a visitor information center, an outdoor amphitheater for concerts and other activities, and the Hampton Beach State Park beach patrol. The Complex was completely redesigned in 2012, and has served as a spur for new investment along Hampton Beach. The capital improvement plan for the Divisions of Parks and Recreation also calls for visitor center and facility improvements in the South Beach area adjacent to the state park's RV parking area. While these plans have been waitlisted due to financial constraint and the need to prioritize improvements to the Sea Shell complex, improvements to this area of Hampton Beach State Park should not be abandoned. The need will only increase over time with redevelopment of the beach area and anticipated increased visitation.

Further north along the corridor, the Seacoast Science Center at Odiorne Point State Park also serves as a visitor's center, with extensive interpretation of coastal ecosystems as well as the history of Odiorne Point and some general maritime history of the area, though it is not a state park facility and does have an admission fee to see exhibits. Similarly in Portsmouth both the Discover Portsmouth Center operated by the Portsmouth Historical Society and the Visitor Information Kiosk in Market Square operated by the Greater Portsmouth Chamber of Commerce function as visitor information centers for the corridor area.

3. General Beautification

Some survey respondents and public meeting attendees voiced strong support for general improvements to the overall appearance of the corridor. Individuals have pointed to the need for landscaping at state parks, shade trees, plantings in roadway median strips, beautification of existing businesses and homes, and better trash pick-up. Portions of the corridor, particularly the heavily developed areas of Hampton Beach and Seabrook, lack greenery and benches in public rights of way. The redesigned Sea Shell complex includes many visitor amenities, though further improvements along the length of the beach are called for in the 2001 Hampton Beach Master Plan. In other areas of the corridor, the problem is overgrown vegetation, which can cause a safety hazard for people walking or on bicycles when overgrowth extends onto the roadway forcing these users into the auto travel lane. Overflowing trash containers and seagulls can also be a problem in the summer, when trash is generated more quickly than it is removed.

The NH Department of Transportation's Maintenance District 6, the DRED Division of Parks and Recreation and local communities each perform basic maintenance, including trash pick-up, at their respective state-owned and locally-owned sites. However, budget restrictions severely restrict the amount of additional work these agencies and the communities can perform. Private businesses, civic groups and individuals have an opportunity to take a lead role in improving the appearance of the corridor through the State's "Sponsor a Highway" program coordinated through NHDOT maintenance district offices, and the "Adopt a Beach" program coordinated for the NH Department of Environmental Services by the Blue Ocean Society. These programs harness the energy of local volunteers to improve the appearance of an

Figure 4.4: Sponsor a Highway Acknowledgement Sign

area, and could be better utilized in the Routes 1A/1B corridor. As of winter 2015 several beach areas are up for adoption, including the southern segment of Hampton Beach State Park, North Beach in Hampton, North Hampton State Beach, and Pirates Cove in Rye.

One prime example of the effect of beautification efforts is the area around Little Boar's Head and the Fuller Gardens in North Hampton, with its attractive landscaping, trails and benches. Improvements in that area were undertaken with assistance from Little Boar's Head residents and Fuller Gardens. The improvements enhance an already spectacular view of the ocean, and provide trails and benches for public access.

4. Byway Branding & Signage

The lack of public awareness of Route 1A and 1B's status as a Scenic Byway came up on multiple occasions in public meetings, along with input calling for better directional and interpretive signage in the corridor. While a general goal of the scenic byway program is to minimize unnecessary sign clutter, well designed and placed signage can enhance the visitor experience for all users of the byway.

A logo for the NH Coastal Byway was developed in 1997 and incorporated in a pocket map and guide to the corridor. However, this logo has never been incorporated into signage marking the Byway itself. In fact, only two signs in the corridor notify travelers they are on a scenic byway – one on Pioneer Road in Rye and one just south of Rye Harbor. Both of these signs use the New Hampshire Scenic & Cultural Byways Program logo rather than the NH Coastal Byway logo. A small number of high visibility locations, including the beginning and end of the route and the intersection of Route 1A and 1B in Rye, should be selected for placement of additional Byway marker signs including both the state byways program logo as well as the local logo.

Beyond this basic marking, there was significant visitor as well as resident input calling for improved interpretative signage along the corridor at pullout areas and park locations, to provide additional learning opportunities for byway travelers to learn about the historic and natural resources that characterize the New Hampshire Seacoast. Interpretive signage should feature the Byway logo and coordinate with corridor maps, and information developed for the web and mobile applications.

E. SCENIC RESOURCES RECOMMENDATIONS

The following recommendations, developed with input from the general public, have been designed to address the issues and problems defined above.

SR1. Byway Logo & Markers - Develop Seacoast Scenic Byway logo and signs to be placed along Route 1A and Route 1B

SR2. Unified Signage Program - Develop a unified signage program to direct visitors to cultural, historical and natural resources, public restrooms, and tourist information centers. Intent is to reduce total # of non-regulatory signs on roadway.

SR3. Zoning Updates for Scenic Views - Recommend zoning changes and other strategies, consistent along the corridor, which will protect scenic vistas.

SR4. General Landscaping - Identify key spots for landscaping and planting efforts, i.e. state parks, Seabrook rest area, Ashworth Ave and Ocean Blvd, roadway medians, private businesses, and implement improvements with state agency funds, Adopt-a-Spot/ -Highway and -Beach programs, and private funds.

SR5. Amenity & Accessibility Improvement to Existing Pullouts - Design and install landscape and facility improvements including signage, plantings, walkways, trash receptacles and benches at existing pullover sites.

SR6. Partnerships for Maintenance - Encourage landscaping, general maintenance and trash pick-up at existing pullover areas and elsewhere along the corridor by DRED and NHDOT, and through joint public/private efforts, pursuing the involvement of local groups through an extension of existing local "Adopt a Spot" and state "Sponsor a Highway" and "Adopt a Beach" programs.

SR7. Salt Marsh Viewing & Interpretation - Work with NH Division of Parks and Recreation, Southeast Land Trust, and the Town of Rye to develop pullout areas on the west side of Route 1A with interpretive information on salt marsh ecosystems. The existing nature trail at Awcomin Marsh in Rye would be a good candidate site, and would only require improvements to parking and signage to improve public awareness and access.

CHAPTER 5. TRANSPORTATION SYSTEM

I. ROADWAY SYSTEM

A. INTRODUCTION

Routes 1A and 1B are state highways which have long served the commercial and recreational needs of the communities through which they pass. Route 1A runs the length of the New Hampshire coast--nearly 18.5 miles--from Portsmouth to Seabrook. Route 1B is about 4.5 miles in length--a partial loop connecting New Castle to Portsmouth at its northern terminus and Rye at its southern terminus. The roadways developed as a means of facilitating local travel and supporting the local economy, which was based on farming, fishing, lumber and milling. Much of the coast has since evolved into a resort area, and is now forced to carry heavy volumes of traffic in the summer months.

Route 1A begins in Portsmouth as Miller Avenue, at the intersection of Middle Street. From that point Route 1A heads southward, becoming Sagamore Road. Route 1A then crosses into Rye, passes through the roundabout at the recently reconstructed Foye's Corner intersection, and turns in an easterly direction towards Odiorne Point State Park. The roadway between the Portsmouth town line and the wooden Seavey Creek Bridge in Rye is known locally as Pioneer Road. From Odiorne Point State Park, Route 1A, also called Ocean Boulevard, winds along the shoreline to Hampton. At the north end of Hampton Beach, southbound traffic on Route 1A is routed onto Ashworth Avenue, a one-way southbound road paralleling Ocean Boulevard. Traffic rejoins Route 1A near Duston Avenue, just north of the Hampton Beach State Park South Beach Area. Route 1A continues south over the Hampton River on the Neil Underwood Bridge and through Seabrook to the Massachusetts state line.

Route 1B is a partial loop connecting New Castle to Portsmouth and Rye. Route 1B begins in Portsmouth as Pleasant Street, at its intersection with State Street. It travels in a southeasterly direction and changes into Marcy Street for a short distance, before heading east as New Castle Avenue. Upon entering New Castle from Portsmouth, Route 1B is known as Portsmouth Avenue. As it passes through the heart of New Castle, Route 1B is also referred to as Main Street, and called Wentworth Avenue as it loops back westward through a corner of Rye and into Portsmouth. Route 1B terminates as it intersects with Route 1A in Portsmouth, just west of the Rye town line and just north of Foye's Corner.

This chapter identifies problem areas along Routes 1A and 1B, and presents recommendations for specific actions, as well as direction for further study, to address these problems.

B. STATUS OF 1996 MANAGEMENT PLAN RECOMMENDATIONS

1. Foye's Corner Reconstruction – Foye's Corner in Rye forms the junction of Route 1A, Sagamore Road and Elwyn Road, and up through the 1990s was a notorious traffic bottleneck identified as a problem in the 1996 Corridor Management Plan (CMP). Reconstruction of the Foye's Corner intersection as a roundabout was completed in 2008. This was one of the first modern roundabouts built in the Seacoast region, and while motorists reported some early confusion in navigating the design it has gained acceptance and substantially reduced backup at the intersection.

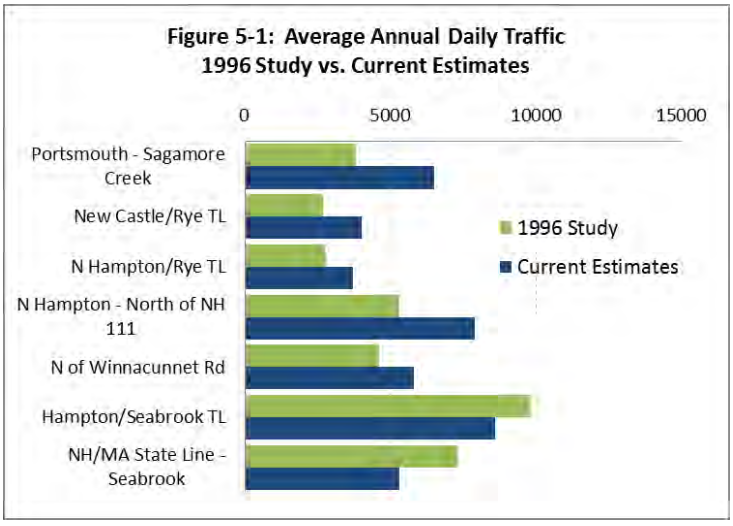
2. Shoulder Widening – In 2008 NHDOT completed a shoulder widening project on the Pioneer Road segment of Route 1A between Foye's Corner and Odiorne Point State Park using federal Scenic Byways funding. Creation of a shoulder bicycle route on Pioneer Road was identified as a top priority in the 1996 CMP. NHDOT Maintenance District 6 also worked in the late 1990s to complete spot shoulder widening on segments further south on Route 1A.

3. Pay & Display Metering at Hampton Beach – the inconvenience of feeding coin-operated parking meters was identified as a problem in the 1996 visitor survey. Most of these coin meters in the State-operated parking lots at Hampton Beach were replaced with "pay and display" parking kiosks in 2012 accepting credit card as well as cash as part of broader state park facility improvements.

4. Parking Studies in Hampton Beach and Rye – Concern over parking capacity and impacts on adjacent neighborhoods was a finding of the 1996 CMP, particularly at Hampton Beach and popular beach sites in Rye. In 2011 RPC conducted a study of parking at Hampton Beach using aerial photographs taken at several weekend and weekday time blocks during peak summer visitation periods, which found a substantial supply of parking remained available within a 5 minute walk radius of the Hampton Beach Sea Shell even at peak periods. The Town of Rye commissioned a study of parking capacity and impacts at key beach areas in the summer of 2014, which offered recommendations for reducing safety conflicts and impacts to adjacent neighborhoods. Both studies are discussed in greater detail on pages 5-9 and 5-10.

C. EXISTING CONDITIONS

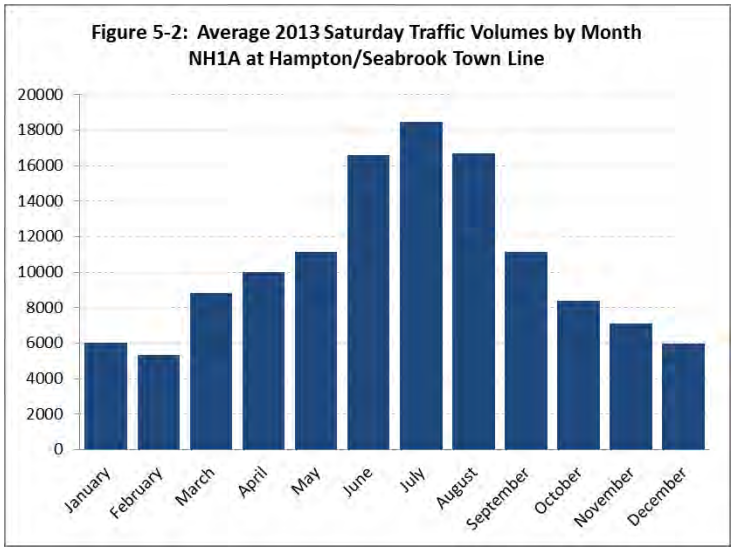
Inventories of traffic volumes and the roadway's physical characteristics were collected for the Route 1A/1B corridor. Data collected on roadway characteristics was limited to shoulder width, lane width, speed limits and state-owned right of way. These characteristics are detailed on the following pages.



1. Traffic Volumes

Traffic volume counts are conducted every year at various locations in the region by both the NHDOT and the Rockingham Planning Commission. The Roadway Characteristics Map (see following page) displays traffic counts collected by both agencies during the period 2010-2013. It should be noted that while these counts were taken during the spring, summer and early fall seasons, they have been adjusted to represent a typical daily traffic volume over an entire year (referred to as Annual Average Daily Traffic, or AADT). Thus, these numbers do not indicate peak summer traffic volumes.

Figure 5.1 presents a sampling of traffic counts at various locations in the corridor, arranged from north to south. The chart illustrates how traffic volumes on Route 1A used to peak at both the northern and southern ends of the corridor. Now, however traffic volumes are more evenly distributed along the corridor. Hampton Beach remains the area where traffic volumes are highest reflecting the generally greater level of activity in that area. What the AADTs in Figure 5.1 do not show however is the variability of traffic volumes during the year. The counter at the Hampton/Seabrook Town Line is permanently embedded in the roadway and collects data year round. Examining the monthly averages for this location (Figure 5.2) shows that summer volumes can be three times as large as those in the winter indicating greater traffic congestion concerns exist on the corridor than the annualized average data show.



2. Roadway Characteristics and Geometry

The following sections describe the characteristics of Routes 1A and 1B, in terms of roadway geometry, travel lane and shoulder widths, major intersections and speed limits.

Geometry

Route 1B is a two-lane roadway along its entire length. Route 1A is primarily a two-lane roadway, except in the Hampton Beach area, where it is two-lanes in each direction on Ocean Blvd/Ashworth Avenue couplet, and in Seabrook, where the roadway opens up to four lanes.

Despite periodic roadway upgrades over past decades, Routes 1A and 1B retain many of the features of roadways developed before the dominance of motorized vehicles. In addition, both roadways follow the contours and curves of the land. As such, the roadways are characterized by narrow, winding lanes, sharp turns, and occasional narrow rights-of-way. Particularly tight curves are present on Route 1B in the center of New Castle, on Route 1A along Pioneer Road in Rye, and at Rye Harbor, Fox Hill Point, Little Boar's Head and Great Boar's Head.

Travel lane and shoulder widths

As is commonly found with older roads, travel lane and shoulder widths on both Routes 1A and 1B are not consistent in width, and can become very narrow. Data on lane and shoulder width was obtained from NHDOT road inventory in GRANIT and analysis of high resolution aerial photography,

and is presented in two Roadway Characteristics Maps – one spanning the northern portion of the corridor from Portsmouth to the south end of Rye, and the second extending from North Hampton to Seabrook. As a point of reference, the NHDOT's typical minimum standard when constructing or reconstructing state roadways is two 11' or 12' travel lanes for motorized traffic and two 4' paved shoulders for bicycle and pedestrian traffic except in areas adjacent to curb or guardrail where the standard shoulder width is 5' or greater. Ten foot travel lanes have been allowed in areas of low speed and low traffic volume, particularly where additional shoulder width is needed for safety.

Lane and shoulder widths on Routes 1A and 1B tend to change quite frequently. Lane widths range between 10' and 13', while paved shoulders vary from no shoulders to 5' or more. Route 1B is clearly the narrower of the two roads, particularly through the heart of New Castle, where the roadway consists of two 10' travel lanes and minimal shoulders. Added to the situation is the close proximity of homes and other buildings to the roadway--often just a few feet away. Lane width widens to 12' as Route 1B heads in to Portsmouth, but still lacks a paved shoulder. Heading towards Rye, lane widths remain at 10', widening to 12' for a short stretch on the approach to the intersection with Route 1A.

Route 1A has even more variety in lane and shoulder widths. Lane widths begin at 13' in Portsmouth, narrow to 11' near Jones Avenue and remain there through the Foye's Corner and onto the Pioneer Road segment of the Byway. At Brackett Road the lanes narrow again to 10' and hold this width to just south of Odiorne Point State Park. Travel lanes on Route 1A from Odiorne Point State Park south to Hampton Beach range between 11' and 12', except for a narrowing to 10' in the vicinity of Great Boar's Head, and again over the Neil Underwood Hampton-Seabrook Harbor Bridge. Shoulder widths are generally 4' or more, except for several stretches described in greater detail on pages 5-20.

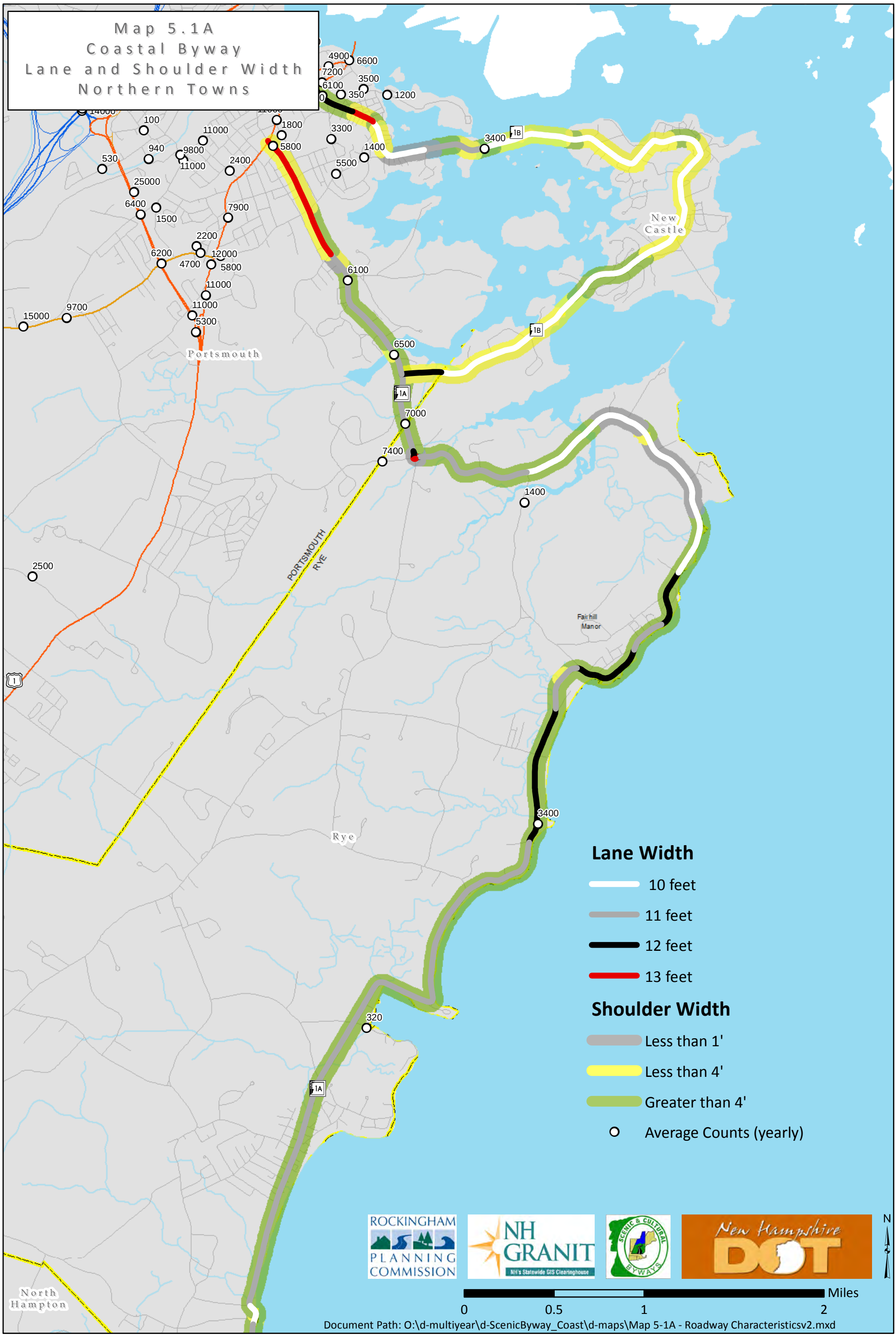
Right of Way

A task for this study that was not part of the original Corridor Management Plan in 1996 is characterizing the boundaries of State owned right of way along the corridor. This was identified as a priority for corridor communities based on a 2009 development proposal in Rye that involved potential purchase of a strip of State right of way, thought to be 100' wide at that location. The Town of Rye and other communities were interested to get a clearer sense for the width of the State right of way along the corridor, to allow for better planning for bicycle/pedestrian safety improvements, parking needs, and/or to allow disposal of unneeded State land.

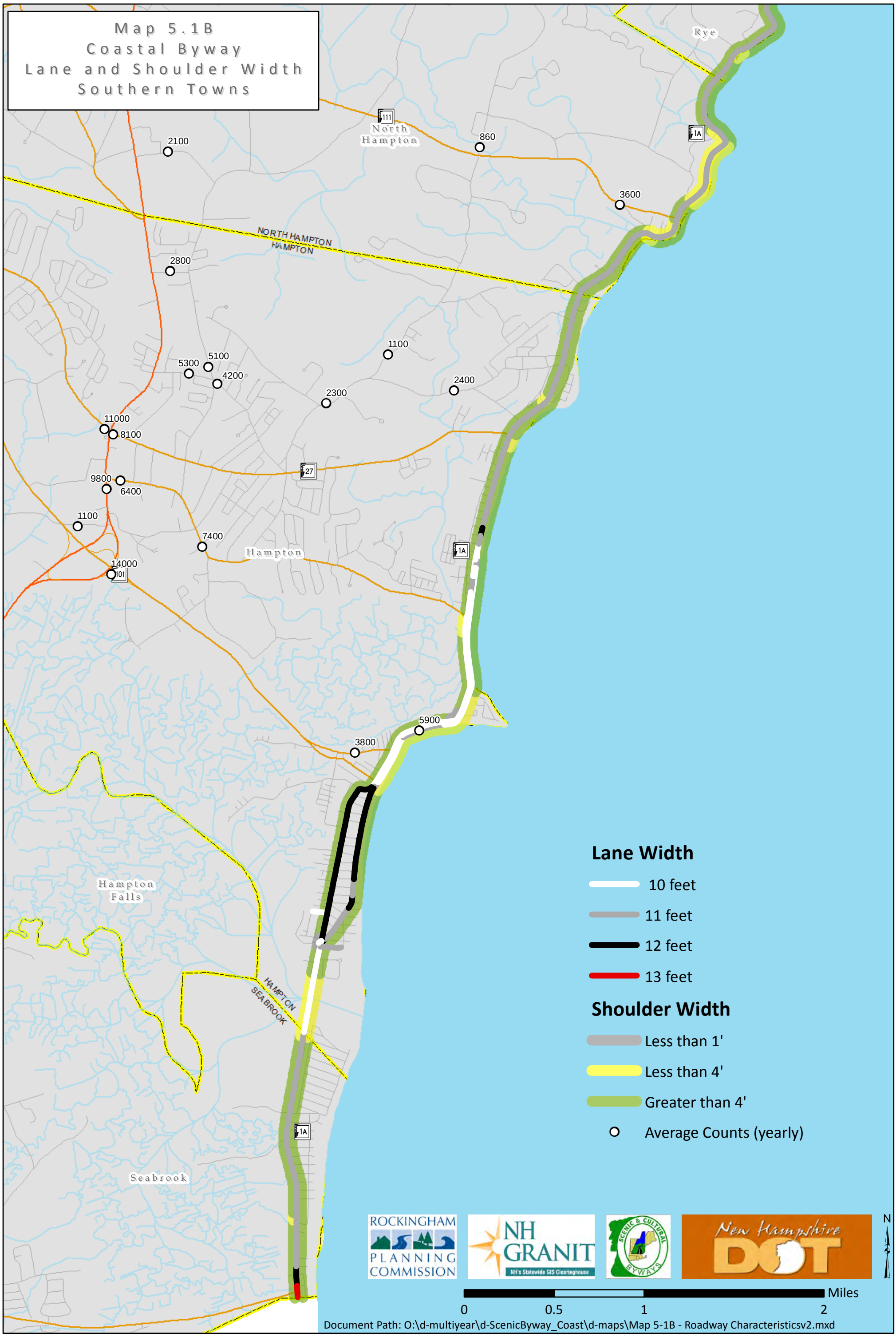
When the New Hampshire Legislature commissioned the Dudley Survey in 1898 to lay out a coastal highway running from Odiorne Point State Park south to the Massachusetts border, the charge was to design it to a right of way width of 100 feet. While the highway, now Ocean Boulevard, was constructed initially to a width of thirty feet, portions of the corridor do have a 100 foot right of way, though this varies substantially due to topography and over a century's worth of adjustments and development.

The best available right of way data for much of the corridor dates to the 1898 Dudley Survey, and subsequent refinements up to the mid-1940s. Rockingham Planning Commission took scans of these large-format 1940s paper maps and imported them into the regional Geographic Information System (GIS), lining up surveyed points and known landmarks with contemporary local lot line and parcel

Map 5.1A
Coastal Byway
Lane and Shoulder Width
Northern Towns



Map 5.1B
Coastal Byway
Lane and Shoulder Width
Southern Towns



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data. With help from NHDOT District Six staff additional survey data were identified from additional projects, such that data have been identified for approximately 60% of the corridor. From north to south, available data sources are shown in Table 5.1.

Table 5.1: Sources of Historical Right of Way Data

Project	Date	Extent
New Castle Avenue (NH1B) Causeway	1953	Marcy Street to Great Island
Wentworth Road (NH1B) Realignment	2001	Vicinity of Wentworth Hotel
Pioneer Road (NH1A)	2006	Foye's corner to Seavey Creek Bridge
Dudley Survey	1898	Odiorne Point to Little Boar's Head
Ocean Blvd & Marsh Ave Reconstruction	1956	D Street to 6th Street
Seabrook Ocean Blvd Survey	1945	NH1A Bridge to MA border

Gaps in available data exist along much of Route 1B through Portsmouth and New Castle, which is one of the oldest rights of way in the state, along Route 1A north of Foye's Corner, along Route 1A from the southern terminus of the Dudley Survey south of Little Boar's Head south to 6th Street in Hampton, and from D Street in Hampton to the northern approach of the Neil Underwood Hampton Harbor Bridge.

Fortunately, three of the areas of greatest interest from a road safety standpoint identified through the public involvement process are in Rye and covered by the Dudley Survey maps, so partial right of way data are available. These include the 0.8 mile stretch of extremely narrow shoulders along Ocean Boulevard past Odiorne Point State Park; a 0.6 mile segment south of Wallis Sands State Beach from Old Ocean Boulevard to Concord Point, referred to here as the Pirates Cove area; and a 0.7 mile segment from Locke Road south to Jenness State Beach. On the two more southerly segments there is a substantial 5-7 foot shoulder for bicycling and walking, but during peak summer periods this is blocked by on-street parking, forcing bicycles and pedestrians into the adjacent travel lane. These conflicts are discussed in greater detail on pages 5-11 and 5-21.

Major intersections

In general, roadway intersections/junctions present safety hazards because of the mingling of traffic exiting and entering roadways. While intersections with Route 1B consist primarily of lower volume local streets, major intersections with Route 1A occur at the following locations:

- South Street in Portsmouth
- Route 1B in Portsmouth
- Foye's Corner in Rye
- NH 111/Atlantic Avenue in North Hampton
- NH 27/High Street in Hampton (full signalized intersection)
- NH 101E/Winnacunnet Road in Hampton
- NH 101/Church Street (westbound) and Highland Avenue (eastbound)
- NH 286 in Seabrook (full signalized intersection)

Posted speed limits

Posted speed limits on Routes 1A and 1B vary according to roadway design, sight distance, and bordering land uses. Speed limits on Route 1B range from 25 to 35 miles per hour (25 mph in New Castle only). Posted limits on Route 1A also range from 25 to 35 mph.

3. Parking

The type and location of parking has a major impact on accessibility to the corridor and its resources, traffic flow, bicycle and pedestrian safety, and appearance of the corridor. Based on community resident survey data and public meeting input, the current parking situation in the Route 1A/1B corridor is an issue of major concern to residents and visitors alike, from a standpoint of availability, overflow into residential neighborhoods, and safety and congestion conflicts with auto and bicycle traffic from on-street parking. Parking was an issue particularly at the public meeting in Rye, and the visitor surveys also found discontent with the parking situation.

As shown in the Recreation Sites Map and Appendix F – Public Parking Lots on NH Coastal Byway Corridor, public parking lots are sprinkled throughout the corridor, and include state parks and beaches, metered areas, scenic pullovers and municipal lots. Capacities at these lots vary, ranging anywhere between 30 to several hundred cars. In addition to these lots, on-street parallel parking is allowed along portions of Route 1A.

Figure 5.3: On-street parking for Jenness Beach overflowing onto Perkins Road

Concerns over parking are particularly pronounced in three areas along the Byway: Hampton Beach, downtown Portsmouth, and public beaches in Rye. Additional detail on each of these areas is included in the following paragraphs.

In 2011 RPC conducted a study of parking at Hampton Beach. The study used aerial photographs taken of the Beach area at several weekend and weekday time blocks during peak summer visitation periods to identify usage of public and private parking lots within a ten minute walk of the State Beach Park. The study found that while the State-owned lots immediately along Ocean Blvd were essentially at full capacity by 10:00 AM on weekends, a substantial supply of parking remained available within a 5 minute walk radius of the Hampton Beach State Park Sea Shell complex at most times and that overall, the beach has an adequate supply of parking to meet current demand.

At the same time, it is clear that parking supply in Hampton Beach is perceived as being extremely limited and that this is due in part to inadequate information about where parking is available. The study recommended that the Town of Hampton, Hampton Beach Area Commission and area businesses investigate improving signage and wayfinding and provide traveler information services, particularly real-time parking availability data. Finally, the study recommended that investments be made in pedestrian facilities and the pedestrian environment connecting parking areas to the beach.

Whether or not Portsmouth needs additional downtown parking capacity, and specifically a second public parking garage in addition to the 902-space High/Hanover structure, has been an ongoing source of debate in the community and the subject of multiple parking studies. Generally these studies have pointed to growing demand and an eventual need for an additional garage. Siting such a garage has been a political as well as technical challenge. A proposal to build a garage on the Worth Lot, bounded by Congress Street, Hanover Street and Maplewood Avenue, was eventually rejected based on site constraints. A 2011 study by Nelson-Nygaard Associates noted the need for additional parking capacity as the region recovered from the economic downturn at the time and business vacancy rates declined. The study recommended short term steps such as a public leasing program to work with private companies in or adjacent to downtown to use their lot capacity outside of business hours. The study also recommended changing rate structures to encourage use of satellite lots, and using technology to allow payment and availability information through mobile applications.

Along the central part of the corridor, segments of Ocean Blvd south of Wallis Sands State Beach between Old Ocean Blvd and Concord Point (described here as the Pirates Cove area), and from Locke Road to Jenness State Beach have been identified as road user conflict areas due in part to parked cars covering shoulders during summer months. Additional safety and congestion conflicts are created by delivery trucks occupying the travel lane or shoulder if deliveries are made during regular business hours. On-shoulder parking in the areas described above represents approximately 116-122 parking spaces in the Pirates Cove area, and 196-236 spaces adjacent to Jenness State Beach, based on observation and an average of 20-24 linear feet per parked car in an unstriped parallel parking situation. Based on data available for much of this stretch there is adequate right of way available to shift much of this shoulder parking further away from the travel lane to accommodate a bicycle lane outside of the “door zone” which extends 3-4 feet out from the edge of the parking space.

In 2014 the Town of Rye commissioned Tighe & Bond engineers to study parking supply and usage characteristics along Ocean Boulevard in Rye. The consultants observed parking patterns on multiple mid-week and weekend days during peak mid-summer season in designated resident-only parking areas such as Sawyers Beach and Straw’s Point, and public on-street parking in the vicinity of Jenness State Beach, Pirates Cove and other areas. A summary of key findings included:

- Parking supply in designated resident-only parking areas appears to be adequate.
- Multiple parking control signs exist that were neither installed nor approved by the Town, which appear to create confusion regarding where parking is and is not allowed.
- There is substantial overflow of parking off Ocean Blvd and onto side streets adjacent to Jenness State Beach.
- Parked cars observed close to intersections and residential and commercial driveways create safety problems by blocking sight lines.
- Cars parked on the shoulder, particularly near Jenness State Beach and Pirates Cove, force high volumes of bicycle and pedestrian traffic into the travel lane creating safety conflicts.
- Use of a private for-fee lot owned by a local motel suggests willingness by beach-goers to pay for convenient parking.
- If the Town were to install parking kiosks along heavily used segments of Ocean Blvd. in order to recover some costs associated with summer tourism activity, a first cut financial analysis indicates this should provide net revenue for the town after accounting for capital and monitoring costs.

To address these findings the study presented a series of recommendations, including:

- Eliminating some parking near intersections and residential and commercial driveways to improve sight lines
- Striping on-street parking to clarify where it is and is not allowed
- Constructing pedestrian walkways, providing additional crosswalks and installing crosswalk marking signs
- Collaborating with NHDOT on an inventory of signs to ensure signage meets the standards of the Manual of Uniform Traffic Control Devices (MUTCD)
- Consider removing on-street parking from one or both sides of Ocean Boulevard near Jenness State Beach and Pirates Cove and instead providing shuttle service to off-site parking at Rye Elementary School and Rye Middle School
- Alternately, if some level of on-street parking is retained, consider charging a fee using a pay and display kiosk system.

There appeared to be substantial resident support for these approaches based on survey and public meeting findings. Regarding replacing on-street parking with capacity at remote parking lots served by shuttle, the visitor survey identified a willingness among some respondents to use a shuttle system connecting satellite parking areas with beach destinations if the combined cost of shuttle and parking was lower than parking immediately adjacent to the beach. Thirty percent of visitors interviewed indicated they would be Very Likely (10%) or Likely (20%) to use such a service. The success of Portsmouth's summer 2014 Free Parking Shuttle service connecting downtown to free parking at a church parking lot on Market Street Extension just off I-95 points to the potential for such a service under the right conditions, though the cost of providing such a service is significant.

Along similar lines, in 2013-2014 the RPC studied the potential for an intermodal park and ride facility at the interchange of US Route 1 and NH Route 101 in Hampton, including a beach shuttle service. Findings from this study are described in greater detail in the Public Transportation section on page 5-29, and support construction of a park and ride facility and piloting a beach shuttle system connecting the park and ride, Hampton Beach and downtown Hampton. The relatively high concentration of businesses that could benefit from such a shuttle in Hampton Beach, and potentially support it financially, likely makes this concept more viable there than in Rye.

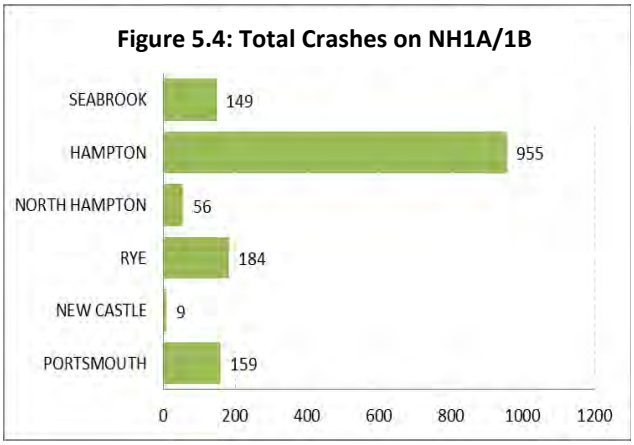
4. Crash Data

Between 2004 and 2013 just over 1500 crashes occurred along the Route 1A/1B Corridor with the majority of those occurring in Hampton (63%) [See Figure 5.4]. Most crashes involved collisions between multiple motor vehicles (69%) however collisions with fixed objects (16%), Parked vehicles (3%), Pedestrians (3%) and bicycles (2%) were also represented. The largest share of crashes occurred at locations along the roadway (44%) as opposed to being intersection related (25%), in parking lots (18%), and 13% other locations.

July and August as the months with the most traffic were also the most common months for crashes with approximately 38% of the annual totals occurring during those two months. The weekend days were the most common days for crashes to occur, with Saturday (20%) and Sunday (18%). The heaviest weekday for crashes was Friday with 14% of the total for the time period. By time of day, crashes were most likely to occur between Noon and 4:00 PM (31%) and between 4:00 PM and 8:00 PM (28%)

There were approximately 3700 vehicle occupants, pedestrians, and cyclists involved in the crashes along the corridor. Seven people, three in cars, two cyclists, and two pedestrians, were killed and other 385 people were injured. 84% of cyclists and 78% of pedestrians involved in crashes were injured in some manner while less than 9% of vehicle occupants were injured.

Figure 5.4: Total Crashes on NH1A/1B



Almost 55% (770) of the crashes on the corridor between 2004 and 2013 have a known causative factor related to the behavior of one or more of the persons involved. The most common cause was driver inattention or distraction and this accounted for 14% of the total. The second most common cause was failure to yield the right of way and that accounted for 6% of crashes. Of concern is the growth in driver inattention and distraction as a cause of traffic crashes. In 2003, this was the cause of just under 11% of all crashes while in 2013 it was the factor behind nearly 15% of all crashes. This trend has been mirrored in the larger region as well as nationally.

5. Roadway jurisdiction

The NHDOT has developed a federal functional classification system, by which highways are grouped into classes according to the nature of service they provide. These groupings may be used as a basis for determining jurisdiction, design standards, and allocation of federal transportation funds.

Table 5.2: Road Classification

Route	Classification by Community
Route 1B:	Urban Minor Arterial
Route 1A:	Portsmouth - Urban Minor Arterial
	Rye - Urban Minor Arterial until Seavey Creek, then Rural Major Collector
	North Hampton - Rural Major Collector
	Hampton - Rural Major Collector from No. Hampton town line to Route 27, Urban Minor Arterial from Route 27 to just north of Hampton River Bridge, then Rural Minor Arterial
	Seabrook - Rural Minor Arterial

While Route 1B has only one federal classification, Route 1A's classification changes several times along its length as shown in Table 5.3. Under this classification scheme, all of Routes 1A and 1B qualify for federal transportation funding.

Even though Routes 1A and 1B qualify for federal transportation funding, the responsibility for maintaining and improving the roadways does not fall entirely to the NHDOT. Both Portsmouth and Hampton are Urban Compact communities, which means that the communities assume responsibility for maintaining and improving those sections of Routes 1A and 1B that fall within their respective Urban Compact Areas.

D. KEY ISSUES & CHALLENGES

A review of public input along with data collected during this study leads to the identification of transportation problems and inadequacies in the Route 1A/1B corridor. Following is a summary of problems that relate to the roadway system.

1. Narrow travel lanes, narrow or nonexistent shoulders

While narrow lanes tend to discourage speeding, an inadequate roadway creates conflict between all users, whether they are in a car, on a bike, or on foot. According to public response obtained throughout the study, this conflict between the various motorized and non-motorized users is the greatest problem facing the corridor.

The 1996 planning process led to securing Scenic Byway funds to widen shoulders on the Pioneer Road segment of Route 1A, from Foye's Corner to Seavey Creek Bridge, which was completed in 2008. The most dangerous remaining segment of the corridor due to narrow to non-existent shoulders is immediately south of Pioneer Road, stretching from Seavey Creek Bridge to the south end of Odiorne Point State Park. Two other priority segments identified above, north of Jenness State Beach and south of Wallis Sands State Beach, appear during the non-summer months to have excellent shoulders, though these are typically blocked by on-street parking during peak summer periods. Additional stretches of the corridor with substandard shoulders that pose safety problems along the Byway are discussed in the Non-Motorized Transportation section on page 5-20.

2. Speed limits

Significant resident concern has been voiced in Rye in recent years regarding traffic speed on segments of Route 1B and 1A, suggesting that areas currently posted at 35 mph should be lowered to 30 mph or even 25 mph. Community survey results also pointed to a perceived lack of enforcement of posted speed limits. This is a critical safety issue given the number of bicyclists, pedestrians, and other roadway users. Speed is a major factor in the severity of any automobile crash, but particularly those involving bicycles or pedestrians. In a crash at 20 miles per hour between a car and a pedestrian the likelihood of pedestrian survival is 95%, while at 30mph that survival rate drops to 55%, and at 40 mph the likelihood of survival for the pedestrian is approximately 15%. (NHTSA)

In the summer of 2014 NHDOT conducted speed studies at three locations in Rye including Wentworth Road (NH1B) south of the Wentworth Bridge; Ocean Blvd (NH1A) south of Perkins Road (south of Jenness State Beach); and Ocean Blvd south of Locke Road. In each case the speed study determined current posted limits to be appropriate to the prevailing speed of travel along the segment.

Speed limits are established in large part based on the speed at which motorists actually travel a corridor – specifically the 85th percentile of motorists. This is based on traffic engineering theory that motorists will assess the safety of the roadway based on road width and geometry, visibility and surrounding activity and drive accordingly. While still the accepted approach to setting speed limits, this standard methodology is mainly focused on optimizing movement of automobile traffic rather than creating pleasant and safe conditions for people walking or riding bicycles. There is a growing view among planners of bicycle and pedestrian facilities that the standard methodology should be revised to better reflect safety needs in areas with lots of people bicycling and walking.

In the short term, potential approaches include petitioning NHDOT to reduce posted speeds from 35 mph to 25-30 mph in key areas, stepped up enforcement of current speed limits, and potentially traffic calming measures such as widening shoulders and reducing travel lane width to visually narrow the drivable area. Specific areas proposed for reducing posted speed limits from 35mph to 25-30 mph to account for heavy bicycle and pedestrian activity include in Rye from Wallis Sands State Beach south to Concord Point (referred to elsewhere here at the Pirate's Cove area), in Rye from Locke Road to East Atlantic Avenue north of Jenness State Beach, and Rye from Jenness State Beach south to Sea Road. The area immediately around Jenness State Beach already features a 30 mph limit.

3. Visual constraints

There are numerous visual constraints which increase the potential for accidents and conflict between the various roadway users. Poor roadway visibility at night and during inclement weather, sharp roadway curves and poor sight distance at intersections appear to be the primary problems.

4. Directional signage

Inadequate directional signage for Route 1A appears to be a problem in Portsmouth, and to a lesser extent in Hampton. Those unfamiliar with the streets of Portsmouth can easily get lost in attempting to follow Route 1A as it leaves the city. In Hampton Beach, signage is present to direct drivers from Route 1A to NH 101, but many visitors get confused when directed to drive down what would appear to be an alleyway. Driver confusion can result in traffic accidents as drivers brake or veer to make a sudden turn, change lanes, or stop to read a sign.

5. Parking

The type and location of parking has a major impact on accessibility to the corridor and its resources, traffic flow, bicycle and pedestrian safety, and appearance of the corridor. The current parking situation in the Route 1A/1B corridor is an issue of major concern to both residents and visitors alike. Lengthy discussions about parking took place at several public meetings, and the two surveys conducted as part of this study also found significant discontent with the parking situation. Seventy

four percent of respondents to the community resident survey identified parking availability as needing Major Improvement (34%) or Minor Improvement (40%). Fifty six percent of respondents either Strongly Agreed (20%) or Agreed (36%) with the statement that "parking is inadequate along the corridor". Specific concerns raised included the safety of parallel parking, the lack of public parking, delivery trucks parked in the travel lane in front of local businesses impeding traffic, and limited areas set aside for resident permit parking.

6. Coastal Flooding and Climate Change

Substantial portions of the corridor are within recently redrawn FEMA 100 year flood zones. These flood zone maps are based on current conditions and do not account for projections of sea level rise related to climate change, though flood scenarios involving projected sea level rise show even larger inundation areas. Eighty five percent of community resident survey respondents saw "investments in public road infrastructure to help reduce impacts of coastal flooding due to more frequent severe storms" as a Medium Priority (37%) or High Priority (48%). The Town of New Castle has worked to get funding programmed in the Ten Year Transportation Plan for a feasibility study on raising the Route 1B causeway between Portsmouth and New Castle, which is already over-washed during large storm events. See additional discussion in Chapter 3 – Natural Resources.

E. ROADWAY RECOMMENDATIONS

Routes 1A and 1B were not designed to efficiently handle the amount and type of traffic they are required to carry. Straightening or relocating the roadway were not put forward as acceptable or appropriate solutions through any of the public input gathered for the CMP, though survey and public meeting input suggest support for widening shoulders in key areas to better accommodate bicycle travel and on-street parking, adding to current walking paths, and expanding parking supply among other improvements. Cost, safety, public sentiment, historic, scenic and environmental factors all play a role in determining the types of improvements that can be made.

The following recommendations have been developed to address some of the deficiencies in the roadway and parking situation, without negatively affecting the character or flavor of the corridor. Recommendations under the Public Transportation and Non-Motorized Transportation sections will also be useful in dealing with some of the roadway system's inadequacies.

RTP1. Reduce Safety Conflicts from On-Street Parking – Assess and implement a combination of approaches to reducing on-street parking conflicts at Ocean Blvd between Locke Road and Jenness State Beach, and between Old Ocean Blvd and Wallis Road.

a. Enforce prohibition on parking within 20 feet of intersections or crosswalks
b. Remove on-street parking on one or both sides of Ocean Blvd at these locations
c. Widen pavement to shift on-street parking further from the travel lane, allowing striping of a bikeway outside of the door zone of parked cars.

RTP2. Assess Off-Site Parking Options – Pursue development of a remote parking lot and local shuttle system in Hampton to expand parking capacity near the beach. This would include assessing the

feasibility of using underutilized publicly-owned lots (i.e. public school parking lots), as well as development of the proposed intermodal transportation center at the interchange of Route 101 and Route 1 in Hampton.

RTP3. Hampton Harbor Bridge Replacement - Pursue funding to replace the Neil Underwood Hampton Harbor Bridge with a higher and wider structure to reduce traffic congestion due to frequent summer season lifts, and improve safety for vulnerable road users. In the interim, work with US Coast Guard to shift bridge to scheduled lifts during the summer season and minimize on-demand lifts in order to mitigate traffic impacts.

RTP4. Directional Signage - Review the type, amount and location of existing directional signage to ensure clear traffic routing from Route 1A onto NH 101.

RTP5. Parking Enforcement - Encourage consistent local enforcement of "No Parking" areas, and parking time limits at both metered and non-metered parking areas.

RTP6. Parking Information - Improve information on parking availability in Hampton Beach using print, web and mobile applications.

RTP7. Improve Infrastructure Resiliency - Assess the feasibility and cost of raising the Route 1B causeway in New Castle and making other infrastructure upgrades to improve the resiliency of the corridor to major storm events. Additional steps include updating culvert inventories and assessments, and considering the impacts of increased temperatures on pavement function and maintenance.

RTP8. Lower Speed Limits – Work with NHDOT to lower speed limits from 35 mph to 25-30 mph in areas of Rye with high bicycle and pedestrian activity

RTP9. Speed Enforcement - Encourage consistent local enforcement of posted speed limits.

III. NON-MOTORIZED TRANSPORTATION

A. INTRODUCTION

Bicycling, walking or running are all examples of non-motorized transportation, and are a central component of this update to the Corridor Management Plan. Since the original 1996 planning process the corridor has been designated as a State Bicycle Route, as well as a segment of U.S. Bicycle Route 1 and a segment of the East Coast Greenway. Segments of the Byway are among the most heavily traveled bicycle and pedestrian routes in New Hampshire. Input at public meetings and results of the public opinion survey indicate that the issue of bicycle and pedestrian facilities is a major concern of residents and visitors in the corridor. Improvements to bicycle safety along the corridor were identified by over 90% of community survey respondents as a priority.

Much of the walking and bicycling in the corridor is recreational, but can also be encouraged as a substitute for cars for short trips. However, the corridor lacks a consistent network of facilities to safely accommodate bicyclists and pedestrians of all age groups and skill levels. Narrow travel lanes and paved shoulders increase the conflict between cars and bicyclists and pedestrians, and discourage many people from walking or bicycling in the corridor.

The development of a more comprehensive system of facilities for bicyclists and pedestrians would enhance the Route 1A/1B corridor by improving the safety of these modes of travel, reducing traffic congestion by encouraging more people to walk or bicycle instead of driving their cars, helping to improve air quality by reducing the number of cars on the road--all without negatively impacting the character and flavor of the corridor.

The NHDOT has adopted the design guidelines of the American Association of State Highway and Transportation Officials' (AASHTO), as contained in its *Guide to the Development of Bicycle Facilities*, for all new or reconstructed roadways. The AASHTO guide recommends a minimum four foot shoulder on both sides of the roadway for bicycle travel, or a minimum of five foot shoulders when next to a curb or guardrail. The recommended minimum width for a separated sidewalk is five feet, and for a multi-use path is eight feet, though the path standard is more commonly ten to twelve feet. A separate multi-use path at this width adjacent to Routes 1A/1B is not feasible along most of the corridor due to adjacent development, drainage and other infrastructure needs, and limited public right of way. That said, work is underway to build the New Hampshire segment of the East Coast Greenway on the Hampton Branch rail corridor, which runs from Seabrook to Portsmouth paralleling the Byway between 0.5-1.0 mile inland. Improving sidewalks for pedestrian use along portions of the corridor is feasible, though will be more challenging that shoulder bicycle route improvements alone.

B. STATUS OF 1996 MANAGEMENT PLAN RECOMMENDATIONS

1. Shoulder Bicycle Route Improvements – In 2008 NHDOT completed a shoulder widening project on the Pioneer Road segment of Route 1A between Foye's Corner and Odiorne Point State Park using federal Scenic Byways funding. Creation of a shoulder bicycle route on Pioneer Road was identified as a top priority in the 1996 CMP. NHDOT Maintenance District 6 also worked in the late 1990s to complete spot shoulder widening on segments further south on Route 1A.

2. Replacement of Metal Grate Bridges – Three bridges along the route were identified as dangerous for bicycles due to their metal grate surface: Memorial Bridge connecting Portsmouth and Kittery, Sagamore Creek Bridge on Route 1A in Portsmouth, and the Wentworth Bridge on Route 1B between New Castle and Rye. The 1996 CMP recommended a design solution filling the shoulder areas of these bridges with a lightweight concrete to create a solid surface. While this approach was explored and ruled out due to the load involved, all three of these bridges have either been replaced or are programmed for replacement in the next 2-3 years. The new Memorial Bridge with a solid deck and widened bicycle and pedestrian accommodations opened in 2013. Replacement of the Sagamore Creek Bridge was completed in late 2014, and construction of the new Wentworth Bridge is scheduled to begin in 2018.

3. Seacoast Bicycle Route Map – The 1996 CMP recommended development of a Seacoast regional bicycle route map. In 2000 the NHDOT published a statewide bicycle route map identifying the NH Coastal Byway as a State bicycle route. This was followed in 2002 by a set of eight regional route maps based on the state tourism regions, with a Seacoast regional map covering the coastal communities and extending west to the center of Rockingham County and north to include much of Strafford County. These have been highly popular maps, distributed through bicycle shops in the region. An update is planned to the map set in 2016-2017.

4. Odiorne Point Bicycle Path Signage – The 1996 Plan recommendation that the beginning and end of the bicycle side path at Odiorne Point State Park be marked along Route 1A was addressed in the late 1990s. That said, the side path has not been maintained in the ensuing years and is in deteriorated condition.

C. INVENTORY OF EXISTING CONDITIONS

The Route 1A/1B corridor currently lacks a continuous, designated facility to accommodate non-motorized users. The stretch of Route 1A from the Odiorne Point State Park boat launch to the pull-out at the south end of Odiorne Point State Park is the only segment of Route 1A that offers a multi-use bicycle/pedestrian path separated from the roadway. The New Castle SafePath project paralleling Route 1B in New Castle, completed in 2012, offers a similar short segment of trail connecting New Castle Common and the New Castle Public Library with the Wentworth by the Sea Hotel and associated residential neighborhoods. This trail is narrow and functions primarily as a walking path rather than a bicycle route. At the north end of the route, much of the Byway in Portsmouth features sidewalks, and sidewalks exist in Hampton and Seabrook from North Beach all the way to the south end of the Hampton Harbor Bridge. In the central portion of the Byway, in addition to the side paths described above in New Castle and Rye, a walking path exists from the Rye Beach Club southward to North Hampton State Beach, alternating between curbed sidewalk, path atop berm, and at times unimproved shoulder.

As shown in the Roadway Characteristics Maps and discussed in the Roadway section earlier in this chapter, shoulder widths on Routes 1A and 1B vary widely. While adequate shoulders are in place along much of Route 1A, other areas lack shoulders altogether, have substandard shoulder, or lack adequate shoulder width to accommodate both on-street parking and bicycle/pedestrian travel.

In the Hampton Beach area, conflict between autos and bicyclists because of on-street auto parking and turning movements presents another safety hazard, which cannot be addressed by the addition of shoulders due to adjacent development. Crash data are described in the Roadway section on pages 5-11 and 5-12, and note that the highest concentration of crashes along the corridor is in Hampton, and particularly the beach area.

1. Bicycle/Pedestrian Travel Volumes

A challenge for bicycle and pedestrian planning nationwide is the typical lack of data on bicycle and pedestrian traffic levels analogous to automobile traffic counts. Prior to the current study, the only known bicycle and pedestrian count information for the corridor is a pair of counts on Memorial Bridge in Portsmouth undertake as part of the ME-NH Connections Study planning for the replacement of the bridge. These were conducted in July 2009 and September 2011 and found 988 bike/ped crossings between 8:00am-6:00pm on a Saturday in July, and over 1,500 crossings during a 24 hour Saturday-Sunday count in early September.

To expand on these limited data a series of bicycle and pedestrian counts were undertaken at selected locations along the Byway. These were two-hour counts conducted the week of September 8-14, 2014 to correspond with one of three annual counting windows for the National Bicycle and Pedestrian Documentation Project. Three counts were taken at each location: a weekday morning between 7:00-9:00am, a weekday evening between 5:00-7:00pm, and a weekend morning between 10:00-12:00 Noon. Table 5.4 summarizes counts from Sunday, September 14, 2014. Full count data are found in Appendix B.

The two hour count numbers are extrapolated to full day and annual estimates using a calculator developed by the National Bicycle/Pedestrian Documentation Project (NBPDC). The calculator factors in time of day, date, regional climate ("long winter/short summer", "moderate climate" or "very hot summer/mild winter"), and facility type ("Path" or "Pedestrian District").

Estimates reflect use of the "Path" facility category given the high recreational use of the corridor, and the "long winter/short summer" climate zone.

Table 5.3: Weekend Bicycle/Pedestrian Counts on Corridor

Location	Time	2 Hour Count	Daily Estimate	Annual Estimate
Memorial Bridge	10:00-Noon	420	2,205	477,273
New Castle Ave/South St	8:00-10:00am	244	1,708	369,697
New Castle Common	10:00-Noon	166	872	188,636
Odiorne Point State Park	10:00-Noon	164	861	186,364
Jenness State Beach	10:00-Noon	209	1,097	237,500
Hampton Beach State Park	10:00-Noon	622	3,266	706,818

Note: Weather during count was sunny 55-65 degrees

The corridor is widely recognized as one of the most heavily traveled bicycle and pedestrian routes in the State, and the count data underscore this. The two hour count figures show very high bicycle and pedestrian use, even outside of peak summer tourist season. As order of magnitude estimates, the figures from the calculator are roughly consistent with comparison data from the 2009 and 2011 Memorial Bridge counts. A series of all-day (12-14 hour) counts would be useful to calibrate the hourly peaks of bicycle and pedestrian activity assumed in the calculator with full-day usage patterns in the corridor. The spread of bicycle/pedestrian trips across the day used in the calculator assumes a peak between 12:00 Noon and 1:00pm. It is possible that the travel pattern along Route 1A and Route 1B is slightly different, especially in summer, with higher usage levels in the morning and late afternoon to avoid mid-day auto traffic.

2. East Coast Greenway & U.S. Bike Route 1

In 2008 much of the Byway was designated at the on-road route for the New Hampshire Seacoast Greenway (NHSG), New Hampshire's segment of the East Coast Greenway (ECG). The East Coast Greenway is envisioned to be an "urban Appalachian Trail", extending 2,900 miles from Calais, Maine to Key West, Florida and connecting major cities on the East Coast. The on-road route for the NHSG follows Route 1A from the Massachusetts border in Seabrook north to the intersection with Route 1B, with two detours in Rye to avoid conflict areas with on-street parking. It then follows Route 1B north through New Castle and Portsmouth and over Memorial Bridge to connect with the Eastern Trail, the southern Maine segment of the ECG, in Kittery. The two bypasses in Rye include use of Sea Road and Cable Road to bypass the Jenness State Beach area; and Washington Road, Brackett Road, Parsons Road and Marsh Road to bypass the conflict area south of Wallis Sands State Beach extending from Concord Point (near Petey's Summertime Seafood) north past Wallis Road to Old Ocean Blvd.

The planned alignment for the long-term off-road route for the NH Seacoast Greenway follows the abandoned Hampton Branch rail corridor from Seabrook to Portsmouth. The southernmost 4.5 miles of the corridor is already in State ownership, from the Massachusetts border to the center of Hampton. As of 2015 the State of New Hampshire is in negotiations with Pan Am Railway to purchase the northern ten miles of the corridor extending from Hampton to Portsmouth. Use of Federal Congestion Mitigation Air Quality (CMAQ) funding has been approved for the right of way purchase and limited corridor improvements including removal of ties, grading and installation of an aggregate trail surface.

Figure 5.5: East Coast Greenway route marker signs at Little Boar's Head

As part of the ECG route designation, in 2008 route marker signs for the NHSG/ECG were installed along Route 1A and 1B, as shown in Figure 5.5. In 2012 the full length of the East Coast Greenway was also designated as U.S. Bicycle Route 1 by AASHTO. U.S. Bicycle Route marker signage is planned for co-placement with current ECG/NHSG signage but is not yet installed.

D. KEY ISSUES & CHALLENGES

Problems and issues surrounding the usage and promotion of bicycling and walking are numerous, but can be grouped into two general categories - roadway deficiencies and amenities/support facilities. The following sections provide detail on specific problems that need to be addressed in order to successfully accommodate bicyclists and pedestrians.

1. Roadway deficiencies

Shoulder width

Inadequate and inconsistent shoulder widths are the single greatest impediment to safe bicycle and pedestrian travel in the corridor. Obviously, there are limits on where shoulders can be widened to the recommended 4' minimum because of right of way or physical constraints, such as in New Castle. However, shoulder improvements could be made along much of the corridor, and alternatives developed for those areas where widening is not feasible.

Particularly dangerous locations are found where narrow travel lane and shoulder widths occur together, or in areas with on-street parking, including:

- Route 1B through New Castle (New Castle)
- Route 1A from Seavey Creek Bridge to the parking pullout at the south end of Odiorne Point State Park (Rye)
- Route 1A south of Wallis Sands from Old Ocean Blvd to Concord Point, where on-street parking largely covers otherwise ample shoulders. (Rye)
- Route 1A from Locke Road to Jenness State Beach, where again on-street parking occupies available shoulder space. (Rye)
- Route 1A from Fox Hill Point to Sea Road, past Little Boar's Head and the intersection with NH 111/Atlantic Avenue (North Hampton)
- Route 1A Northbound from NH 101/Highland Avenue around Great Boar's Head (Hampton)
- Route 1A over the Neil Underwood Hampton Harbor Bridge (Hampton & Seabrook)

Figure 5.6: On-shoulder parking near Jenness State Beach, with bicyclists riding in the "door zone"

While much public interest has been expressed in traffic-separated bike paths or multi-use paths, along most of the corridor this is not feasible due to adjacent development and infrastructure constraints. The research and mapping on available of publicly-owned right of way conducted for this study suggest availability of right of way for shoulder widening and possibly sidewalk improvements in multiple areas along the corridor, but likely not a consistent multi-use path paralleling the roadway.

Crosswalk Marking & Safety

Inadequate marking of crosswalks was cited frequently in the community survey results and community meetings, as well as in the Tighe & Bond parking study for the Town of Rye. These vary in frequency based on density of adjacent development and pedestrian activity, and range from a single crosswalk each in New Castle (Trefethen Elementary School) and North Hampton (North Hampton State Beach) to one per block through most of Hampton Beach. Opportunities exist to improve safety at most of these crossing points. The Tighe and Bond study recommended prohibiting parking adjacent to sidewalks to improve visibility of and for pedestrians waiting to cross, as well as more visible marking of crosswalks. State law under RSA 265:69 prohibits parking within 20 feet of a crosswalk.

The design and visibility of painted crosswalks to approaching cars varies along the corridor. In much of the Hampton Beach area the *ladder* design is used (see Figure 5.7) at unsignalized crossings. In North Hampton and Rye the *continental* design is used, though applied with excessive space between stripes such that visibility to approaching vehicles is limited. The *standard* transverse striping marking just the edges of the crosswalk is used at several signalized intersections in Hampton. While this is less visible to approaching cars the presence of the traffic signal serves as alternative warning. At Ocean Blvd and Wallis Road in Rye the town-maintained crosswalk across Wallis Road uses the *solid* design painted bright blue with broad white lines marking the edges. Essentially the wider the painted area of the crosswalk the greater the visibility to approaching drivers. While all four marking schemes are provided for in the Manual of Uniform Traffic Control Devices (MUTCD), the continental design is recommended by the Federal Highway Administration because research indicates it is most visible to approaching drivers. Use of the continental design, though with wider striping and less space between stripes to improve visibility, is recommended throughout the corridor.

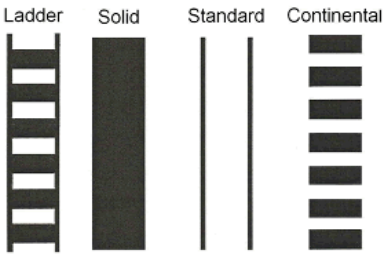


Figure 5.7: Crosswalk marking patterns – Continental design recommended

At several locations (Cable Road and Gray Court in Rye, North Hampton State Beach, and Trefethen School in New Castle) a high visibility sign noting "*State Law – Yield to Pedestrians*" (MUTCD R1-6) is placed at the center line of the road, which increases visibility. Some of the crosswalks along the corridor also employ pedestrian warning signs (MUTCD W11-2) immediately at the crosswalk and in some cases in advance of the crosswalk. This said, in multiple instances these are obscured by other signs, vegetation or parked cars; and in most cases those pedestrian warning signs that do exist are older dark yellow color rather than the higher visibility yellow green. Key crossings where warning signage is missing altogether are at Jenness State Beach between the beach parking lot and Summer Sessions surf shop, at North Hampton State Beach in front of the Beach Plum, and throughout most of the Hampton Beach area. A key problem at the Beach Plum and Summer

Figure 5.8: MUTCD R1-6 Pedestrian Crossing Sign

Sessions crossings is that crosswalks end in parking lots with uncontrolled access, offering no location to place a sign. Pedestrian landing islands are recommended at each of these locations plus at the North Hampton State Beach parking lot to provide safe pedestrian waiting areas, allow a location for warning signage, and demarcate the entrances to the parking lots. Consistent use of pedestrian crossing signs such as the MUTCD R1-6 and MUTCD W11-2, upgrading to the higher visibility yellow-green, and a review of placement to ensure visibility is recommended throughout the corridor.

A major area where limited pavement marking and signage contribute to an environment unfriendly to pedestrians is in Hampton Beach between Highland Avenue and Great Boar's Head, where parking is located between the northbound and southbound lanes of Ocean Blvd. Crosswalks are painted across the travel lanes, but not across the parking area, such that cars turning into the bays, or searching for parking, have no visual cues to watch out for pedestrians. Further north, between Dumas Avenue and 5th Street, where parallel parking exists along the median on both the northbound and southbound lanes, some crossing points at breaks in the median have no painted crosswalks at all. Extending high visibility crosswalks across the full width of the roadway - parking bay as well as the travel lanes - can improve safety here, along with proper pedestrian warning signage. Refuge islands at the end of each row of parking, as well as improved street lighting, would further enhance safety for pedestrians crossing at these locations.

Figure 5.9: Rectangular Rapid Flashing Beacon

Given the number of lanes, summer traffic volumes and pedestrian traffic, crosswalks between Great Boars Head and Highland Avenue, and between Dumas Avenue and 19th Streets, would also be good candidates for Rectangular Rapid Flashing Beacons (RRFBs). RRFBs are a standard MUTCD W11-2 pedestrian warning sign and arrow in high visibility yellow green, coupled with a pedestrian-activated LED beacon employing a rapid stutter flash pattern similar to that used on emergency vehicles. Research by FHWA has found that RRFBs significantly improve the rate of automobile drivers yielding to pedestrians in marked crosswalks.

Sidewalks & Walkways

There is not a contiguous sidewalk or pedestrian path along the length of the Byway. Good sidewalks exist in Portsmouth for much of the Byway's length, ending on Route 1B at the first bridge on New Castle Avenue, and on Route 1A/Sagamore Road at Little Harbor Road. Similarly, sidewalks extend from North Beach in Hampton at the intersection with Route 27 south into Seabrook, terminating at the south end of the Neil Underwood Hampton Harbor Bridge. As discussed earlier, a short section of side path accommodating pedestrians and bicycles runs parallel to Route 1A through Odiorne Point State Park, and the New Castle SafePath extends parallel to Route 1B from the Wentworth Hotel to New Castle Common. Finally, segments of sidewalk and walking path exist further south in Rye, North Hampton and Hampton. A walking path exists along much of the distance from the Rye Beach Club at the intersection of Sea Road and Route 1A south to North Hampton State Beach Park. This alternates between segments of sidewalk, segments of gravel or paved path along the tops of berms between beach and roadway, and a short segment along the shoulder north of Little Board's Head.

Gaps in pedestrian facilities exist on Route 1B from the beginning of the New Castle Avenue Causeway in Portsmouth to New Castle Common; and from the Wentworth Hotel to the intersection with Route 1A. On Route 1A, gaps exist from Little Harbor Road past Foye's Corner to the Odiorne Point boat launch area; from the south end of the Odiorne Point side path to Rye Beach Club; from North Hampton State Beach to North Beach in Hampton; and from the south end of the Hampton Harbor Bridge to the southern terminus of the Byway at Route 286 and the Massachusetts border.

Establishing a continuous walkway along the Byway is likely not practical given costs and available right of way. However, improving safety and accessibility on current segments of walkway is strongly recommended. A key area for improvements, traversing perhaps the most scenic segment of the Byway, is the path from Rye Beach Club to North Hampton State Beach. Segments of this stretch are on curbed sidewalk, but others are simply on the shoulder. Also, areas where the path travels up and down berms present challenges in terms of steep slope and lack of hand rail for visitors with mobility impairments. At a minimum, improvements should be made to fully separate this path from the roadway and shoulder. Accessibility and safety improvements along the berm segments are also highly recommended. If Federal funds were used to improve these pedestrian facilities, ADA universal design elements would need to be incorporated along with winter maintenance.

Another priority area for pedestrian improvements is the sidewalk network in Hampton Beach. Repeated repaving of Ocean Blvd has raised the level of roadway such that in many places there is no longer a height separation between sidewalk and road. This eliminates the protection provided by the curb, and also removes the differentiation between sidewalk and road, contributing to pedestrians stepping into the roadway at random locations. The 1991 Hampton Beach Master Plan called for reconstruction of the sidewalk along much of Ocean Blvd and Ashworth Avenue to fix this problem. Challenges include drainage, maintenance responsibility, and of course cost. An extensive update to the transportation element of the Hampton Beach Master Plan is underway as of spring 2015. The Byway Council proposed to implement the recommendations of this Corridor Management Plan (CMP) should monitor that planning process and incorporate its recommendations into the CMP as appropriate.

Metal deck bridges

As noted in the description of progress toward implementing recommendations from the 1996 CMP, three metal deck bridges along the corridor have either been replaced or are programmed for replacement in the next 2-3 years. The new Memorial Bridge with a solid deck and widened bicycle and pedestrian accommodations opened in 2013. Replacement of the Sagamore Creek Bridge was completed in late 2014, and construction of the new Wentworth Bridge is scheduled to begin in 2018 with a solid deck, wider shoulders and redesigned sidewalk.

This leaves the Neil Underwood Hampton River Bridge as the remaining bridge hazard along the corridor. The bridge features a solid deck for most of its length, though the lift span is metal grate material. While the bridge has a sidewalk along its full length it lacks shoulders such that bicycles must occupy the travel lane. The tragic death of two cyclists and severe injury of two others in 2013 when they were hit by an impaired driver on the bridge has raised public awareness of the safety hazard on

the bridge. This was not the first vulnerable user on the bridge, as two NHDOT bridge workers have also been struck and killed on the bridge over the last 15 years.

Shoulder sweeping

The accumulation of sand on roadway shoulders from winter maintenance, as well as the additional accumulation of sand and rock as a result of coastal storms and people climbing over seawalls, results in a safety hazard for bicyclists. NHDOT has reduced use of sand in favor of straight salt for most winter storms situations, which has reduced but certainly not eliminated spring clean-up needs. Chronic lack of resources in the State Highway Fund has led to reduced maintenance budgets at NHDOT over the past decade and consequent shortage of funding for this sort of routine maintenance.

Figure 5.10: Vegetation encroachment onto shoulder south of Jenness

Vegetation encroachment on shoulders

Overgrown vegetation encroaching onto the roadway can make shoulder areas unsafe and force bicycle riders and pedestrians out into travel lanes, and was noted multiple times in public comment as a hazard for bicyclists and walkers along the corridor. An example of this is seen in Figure 5.10 on the northbound side of Route 1A between Sawyer's Beach and Jenness State Beach.

2. Amenities and Support Facilities

Roadway and shoulder improvements make bicycling and walking safer, and are enough of an incentive to encourage many people to choose those modes over their own car. While recent improvements at Hampton Beach and North Hampton State Beach have included new amenities such as bike racks, benches, water fountains and improved public restrooms, such facilities are not readily available along much of the rest of the corridor.

3. Public Education & User Conflicts

Infrastructure improvements along corridor including shoulder widening, pedestrian walkway upgrades and better crosswalk marking in multiple locations will significantly improve safety for all users of the Byway, whether driving, bicycling or walking. Implementing these projects will likely be a 5-10 year process, and require significant investment. In the shorter term and on an ongoing basis, initial safety gains can be made through better public education around the rules of the road for motorists, bicycle and pedestrians. On the community survey some respondents expressed frustration over bicyclists riding in groups and not making an effort to get right to allow vehicles to pass; while others pointed to drivers cutting off bicycles and failing to understand State laws that give bicycles essentially the same rights and responsibilities as motor vehicles.

Part of the solution is better education on rules of the road for all users. Several communities along the corridor have established Safe Routes to School programs, including Seabrook, Hampton, Rye and Portsmouth. There is a need and opportunity for companion efforts targeting older children, as well as adult cyclists and drivers. All who use the road need to understand that bicycle riders have a right to occupy any portion of the roadway when their safety depends on it, and also have a responsibility to obey stop signs and traffic signals just like a motorist.

Figure 5.11: NH-PASS bicycle safety sign in Claremont NH

RSA 265:143a, passed in 2010, clarified many state traffic laws around bicycling, and included an innovative provision known as the Three Foot Law – that automobiles must allow at least 3 feet of buffer when passing a bicycle at 30 mph, and an additional foot for each 10mph above that. A public outreach program known as NH-PASS, involving signage and Public Service Announcements (PSAs) designed to raise awareness of the Three Foot Law has been piloted by the Claremont Police Department and Upper Valley Lake Sunapee Regional Planning Commission. In 2013 the Rye Police Department posted a version of the NH-PASS sign on Sagamore Road south of Foye's Corner. Currently there is no MUTCD-approved sign dealing with safe passing distance laws that have been adopted in many states. For the time being the NH-PASS sign has been approved as a public service announcement in several communities, though an alternate sign design will likely need to be developed for widespread use in the corridor.

4. Directional, Interpretive and Safety Signage

While one common objective of scenic byways initiatives is to limit sign clutter and particularly off-side advertising such as billboards, well-designed directional and interpretive signage can greatly enhance the byway visitor experience. Additional well-designed and placed wayfinding signs and interpretive information was among the top five suggestions by community survey respondents for enhancing tourism along the corridor. Suggestions included better information on parking, better marking of bicycle routes, use of a unified logo or brand for the byway to be displayed along the route, and signs or kiosks at points along the byway interpreting historic and natural resources.

Specific to non-motorized transportation, potential signage improvements include replacing missing directional arrows on several of the NH Seacoast Greenway signs along the route, adding marking for U.S. Bicycle Route 1, expanded use of the NH-PASS or other bicycle safety signage, and interpretive signs or kiosks at State Park locations.

5. Funding for Corridor Improvements

Under federal transportation legislation dating back to 1991, state departments of transportation were able to sponsor regional projects using Transportation Enhancement (TE) or Congestion Mitigation/Air Quality (CMAQ) program funding – the two primary sources of federal assistance for bicycle and pedestrian facilities. Under MAP-21, the current federal transportation legislation, new rules prevent state DOTs from managing projects under the Transportation Alternatives Program

(TAP) – the successor to the TE program. These funds can only be accessed and managed by individual towns, who must also provide match for federal funds. This makes implementing a set of improvements of regional significance in a coordinated fashion along a regional corridor a challenge, as municipal policy makers tend to see safety improvements along a state highway as a State rather than local responsibility. An alternative approach would be for infrastructure improvements proposed in this study to be put forward jointly by corridor communities as a package of projects to be funded with flexible highway dollars through the general State Ten Year Plan process, rather than competing individually against one another for inadequate TAP funding.

Other potential sources of federal funding for Byway infrastructure improvements include but are not limited to the following. These tend to be small pools of funding tailored to specific project types:

- Land and Water Conservation Program (LWCP) – These funds originate through the National Park Service, and in New Hampshire are managed by the DRED Division of Parks and Recreation. These would be well suited to park amenities and interpretive program.
- Recreational Trails Program – These funds originate from USDOT and are part of the Transportation Alternatives Program (TAP), but are separately managed by the DRED Division of Parks and Recreation. These are for off-road trails, but could be justified for improvements to the pedestrian walkway between Rye Beach Club and North Hampton State Beach.
- FEMA Pre-Disaster Mitigation Program – These funds are for pre-disaster mitigation planning and projects. A demonstration project such as elevating the Route 1B causeway in New Castle could be a good fit for this program.

E. NON-MOTORIZED TRANSPORTATION RECOMMENDATIONS

NMT1. Crosswalk Improvements – Improve safety at crosswalks throughout the corridor with consistent use of high visibility pavement marking patterns, MUTCD standard warning signs (MUTCD W11-2 and R1-6), and pedestrian islands to ensure safe landing and waiting areas. In high volume crossing areas in Hampton Beach install pedestrian-activated Rectangular Rapid Flashing Beacons (RRFBs). Work with NHDOT and community officials to adopt signage and marking standards.

NMT2. Shoulder Bicycle Route Improvements - On sections of Routes 1A and 1B with existing 4' wide paved shoulder, install signage and roadway stripes designating the shoulder as a bicycle facility. In areas with less than 4' wide paved shoulder, and where public right of way allows, widen shoulders to 4' and install signage and roadway stripes designating the shoulder as a bicycle facility. In key areas where on-street parking conflicts with safe bicycle/pedestrian accommodation, widen shoulders to shift parking further away from the travel lane and allow room for a bicycle lane outside of the door zone.

NMT3. Sidewalk & Walking Path Improvements – Implement sidewalk and walkway improvements along the corridor, including improving safety and accessibility of the pedestrian path extending from Rye Beach Club to North Hampton State Beach; reconstructing sidewalks along Ocean Blvd in Hampton Beach with raised curbs, ramps and refuge islands consistent with recommendations in the Hampton Beach Master Plan; and rehabilitating the multi-use path at Odiorne Point State Park.

NMT4. Bicycle & Pedestrian Counting - Implement an annual bicycle and pedestrian counting program for the corridor to build a multi-year dataset on bicycle and pedestrian usage of the Byway. Focus counts on weekends, and start with a series of full day (6:00am-8:00pm) counts at 2-3 key locations on dates corresponding to National Bicycle/Pedestrian Counting Program to confirm whether usage patterns vary by time of day according to a similar curve as used in the national calculator.

NMT5. Corridor-Wide Collaboration on Infrastructure Improvements - Encourage corridor communities to work together to jointly put forward a package of infrastructure projects recommended here to be funded with flexible highway dollars through the general State Ten Year Plan process, rather than competing individually against one another for extremely limited Transportation Alternatives Program (TAP) funding.

NMT6. Public Education on Safe Sharing of the Road - Install additional safety signage along the corridor, such as the NH-PASS design or subsequent design approved for the MUTCD, notifying all road users of the need to safely share the road. Identify other local media for conveying this message, including tourism marketing materials and community television.

NMT7. Shoulder Sweeping - Conduct regular sweeping of roadways and shoulders to reduce the amount of sand, rock and other debris accumulating on paved roadway shoulders.

NMT8. Vegetation Clearing – Municipalities work with NHDOT to inform roadway abutters of the hazard posed by overgrown vegetation and notify the public when brush clearing will happen along the route, to reduce abutter complaints when necessary trimming is done by NHDOT.

NMT9. Enforcement of State Traffic Laws for Bicyclists & Motorists - Work with local police departments in the corridor to better enforce state traffic laws for all road users, including recent laws addressing distracted driving and safe passing distance.

NMT10. Information on ECG & U.S. Bike Route 1 - Seek funding to install a series of kiosks along the corridor with information about the Byway, the East Coast Greenway, and U.S. Bicycle Route 1. In addition to raising awareness of these regional and multi-state corridors the kiosks can also feature information on natural and historic resources, and safe sharing of the road.

NMT11. Amenity Improvements - Support efforts by the DRED Division of Parks and Recreation efforts to continue upgrades to public restroom facilities and other amenities such as bicycle parking and benches at park facilities along the corridor. Also, include information on public restroom facilities and water fountains in the corridor on State Bicycle Route map and Byway interpretive map.

II. PUBLIC TRANSPORTATION

A. INTRODUCTION

Public transportation service along the Byway corridor has been suggested for many years, and evaluation of the potential for such service is a component of this study. Public transportation could play a role in improving accessibility, easing parking and traffic congestion, and accommodating increased tourism while minimizing negative impacts on the quality of life in the corridor. Prior attempts at trolley service along the full Byway corridor have not been successful, though local shuttles connecting beach or downtown areas with parking constraints to satellite free parking areas may have potential in several areas along the corridor.

B. STATUS OF 1996 MANAGEMENT PLAN RECOMMENDATIONS

1. Seacoast Trolley Closure – The 1996 Corridor Management Plan recommended a series of improvements to the seasonal Seacoast Trolley which at the time operated a scheduled service along the full corridor between Portsmouth and Newburyport. These included improved schedule information, benches and shelters at trolley stops, and making trolleys wheelchair accessible. Improvements in schedule availability and some transit stops were made, but the scheduled service itself proved to not be financially viable and ended by the early 2000s. Today the Seacoast Trolley still operates, but as an advance reservation private tour and charter service, largely in Portsmouth, Kittery, New Castle and Rye. It is not a scheduled service where tourists can buy tickets on-site or get on and off at designated stops.

C. INVENTORY OF EXISTING CONDITIONS

There are currently no regularly scheduled public or private transit services operating along the Route 1A/1B Corridor. However, two related services are described in detail below. These include 1) a seasonal trolley service operating in York County, Maine, known as the Shoreline Explorer; and 2) a seasonal parking shuttle in Portsmouth connecting the city's downtown with a satellite free parking lot, designed to ease downtown parking congestion.

1. The Shoreline Explorer

   The Shoreline Explorer is coordinated network of local trolley and bus routes operating seasonally in beach communities of York County that stretches from York north to Kennebunk and Sanford. It includes a total of seven color-coded routes. Three of these are privately operated, including the York Trolley Beach Shuttle operating along Route 1A between Short Sands and Long Sands Beaches; the Ogunquit Trolley in Ogunquit; and the In-Town Trolley offering a narrated sightseeing tour of the Kennebunks. Connecting these three privately operated routes are four publicly funded connector routes operated by York County Community Action Corporation (YCCAC) with partial funding from the Federal Transit Administration. Additional major private sector support comes from the Cliff House Resort in Ogunquit, and Goodall Hospital in Sanford. The system operates seasonally from late June

until Labor Day, though some services extend until Columbus Day. Routes are largely geared to serve hotel and Bed & Breakfast guests in the beach communities, though several routes provide connections to remote parking as well as the Amtrak Downeaster rail service at Wells and Sanford Regional Airport in Sanford. Each route has its own schedule and fare structure, with fares average around $1.00 per one way trip. A coordinated website and map set aids riders in making connections between routes. The system won an award in 2006 for innovation in coordination of community transportation.

Figure 5.12: Shoreline Explorer route network in York County

2. Downtown Portsmouth Parking Shuttle

In the summer of 2014 the City of Portsmouth piloted a seasonal Parking Shuttle connecting downtown to free parking at a lot on Market Street near I95 owned by Connect Community Church and leased by the City. The shuttle was conceived to operate Friday, Saturday and Sunday afternoons and evenings from May to August – corresponding to peak parking demand periods when the City's High/Hanover Street Garage often fills up. The service was expanded in August to include Thursday evenings, and extended through early November. The City contracts with a private operate to provide the service. Key elements to the success of the shuttle are likely the highly constrained nature of downtown parking in Portsmouth during peak summer periods, the cost savings over paying hourly parking rates at the City Garage or in metered on-street spaces, and the high frequency of the service. The shuttle operated on a ten minute loop, and also featured a reader board at the church lot and downtown drop-off point letting riders know how many minutes until the next shuttle arrived, and real-time vehicle tracking on the service website. The City also marketed the service extensively, using a twitter feed for service updates as well as traditional media outlets.

D. KEY ISSUES & CHALLENGES

There are multiple challenges to providing public transportation in the corridor and enticing the public to make use of the service. While community survey results showed potential interest in public transit along the byway, past efforts to provide such service have not proved sustainable even when supported with public funding.

The primary impediment to developing additional public transportation service is funding. Public transportation service is not a profitable enterprise outside of select corridors with very high trip volume and where a combination of factors make driving relative inconvenient. Typically transit providers cannot operate a frequent, convenient scheduled service at a profit solely from farebox revenues. As such, public transit operators rely on federal assistance, and/or generate revenue by selling advertising space on the trolley or bus to local businesses. Historically in New Hampshire the limiting factor for funding public transportation has not been availability of federal funding, but rather the non-federal matching funding needed to access federal dollars.

In the case of the Shoreline Explorer the matching funding issue has been solved with corporate sponsors, as well leveraging the resources of the three private trolley operations that knit together with the publicly funded routes. There is not currently a clear source of such matching funding for a New Hampshire Seacoast service. In recent years the availability of federal funding has also become a limiting factor. As more communities in the region have sought to develop their own year-round public transit services, federal funds available to COAST, the region's public transit agency, are now fully programmed.

The success of public transit services also typically depends on a combination of other factors including cost, convenience, and corresponding disincentives to drive. The success of the Downtown Portsmouth Parking Shuttle is a function of all of these factors. The cost of parking in Portsmouth, while not high relative to Hampton Beach or regional destinations like Boston, is higher than most other communities in the region, and at peak periods parking downtown can be difficult to find. This provides strong incentive to take a shuttle if it means easy access to parking and no parking fee. At the same time, the cost savings incentive is not enough to change behavior if doing so is inconvenient. The high frequency of the Portsmouth Shuttle (10 minute intervals), is competitive with an amount of time a driver could otherwise expect to spend searching for a parking spot. Similarly, the high degree of user information in the form of countdown clocks at the two ends of the route makes the wait for the next shuttle more palatable. Travelers experience less frustration with waits when they know how long they will be, as opposed to the uncertainty of not knowing when the next bus will come, or when a light will turn from red to green. This said, the cost of providing the Downtown Portsmouth Parking Shuttle is significant, estimated at approximately $2,800/week for four day per week service averaging 11.5 hours/day.

E. PUBLIC TRANSPORTATION RECOMMENDATIONS

Recognizing the funding challenges noted above and the history of past efforts to sustain scheduled public transit service operating the length of the Byway corridor, attempting to reestablish regular summer bus or trolley service between Portsmouth and Seabrook is not recommended. However, using shuttle buses to connect beach and town-center destinations to off-site parking lots has significant promise as a strategy to ease parking supply problems. As noted above, the visitor survey identified willingness to use a shuttle system connecting satellite parking areas with beach destinations if the combined cost of shuttle and parking was lower than parking immediately adjacent to the beach. Thirty percent of visitors interviewed indicated they would be Very Likely (10%) or Likely (20%) to use such a service. In the context of a shuttle service connecting Hampton Beach to a remote parking lot such as that proposed for the interchange of Route 1 and Route 101, the shuttle could also provide an alternative for employees of beach businesses who would otherwise be paying for parking and occupying spaces that should optimally be available for business patrons and beach visitors.

PT1. Hampton Beach Parking Shuttle - Engage NHDOT, the Town of Hampton, Hampton Beach Area Commission, Hampton Chamber of Commerce and other partners to develop a pilot summer parking shuttle connecting Hampton Beach and downtown Hampton with off-site parking. This service could similarly be modeled in the Portsmouth Downtown Parking Shuttle and the special event shuttles used for the Hampton Beach Seafood Festival. Eventually this shuttle could be one of several transit routes serving the intermodal transit center proposed in tandem with a reconstruction of the Route 1/Route 101 interchange.

The Hampton US1/NH101 Interchange Reconfiguration and Intermodal Transit Study, conducted by Rockingham Planning Commission and McFarland Johnson Associates in 2013-2014, estimated the cost of such a seasonal shuttle service operating 13 hours a day with two circulating buses, from July 1 to Labor Day, at approximately $83,000, with potential to recoup approximately 25% through fare revenue.

CHAPTER 6. LAND USE AND ZONING

A. INTRODUCTION

Land use along Route 1A and 1B shifts as it travels from north to south along the New Hampshire coast from Seabrook to Portsmouth and New Castle. To the south in Seabrook and Hampton, tidal marshes, ocean views, residential development and businesses connected to the beaches dominate the land use. Farther north into North Hampton and Rye, a more rural residential development exists, with various recreational uses and businesses scattered along the corridor. New Castle and Portsmouth represent the more urban portion of the corridor and are dominated by their historical features and mixed development. The varied land use is due to the region's historical maritime and agricultural uses, and to its more contemporary draw as a tourist destination and employment center. Local zoning ordinances have also played an important role in determining land use character.

Increases in population in the region, specifically from the 1970's through today have increased the demand for housing, specifically near the desirable, but limited coastline. Traditionally, buildings set along the Routes 1A/1B corridor were much closer to the road than today's land use controls require. In most cases, this is due to local zoning ordinances trying to balance the need for increased road width for vehicles, pedestrians and bicyclists, and the desire of residents to maintain the rural character of their communities.

Today, Routes 1 and Interstate 95 to the west serve as the main routes for commuting and business traffic. Routes 1A/1B primarily serves as scenic routes and for accessing coastal resources by residents and visitors. Routes 1A /1B was originally the main north to south road, i.e. the King's Highway, along the coast. Overtime Route 1, located inland of Routes 1A/1B, became the primary route from Boston prior to construction of Interstate 95. Naturally, community buildings, churches and businesses were more likely to locate near Route 1. Development along Route 1A became more residential. Route 1B in New Castle is the only state highway that serves the island community, and as such, is the only access to the town.

Development along many portions of Route 1A was originally built for summer residents only and many of the cottages have since been converted into year round homes. In some cases this has led to smaller homes on more densely developed lots that are undersized by today's standards. A combination of the density of the homes and the age and condition of the on-site septic systems, has resulted in some extending public sewer lines to service these areas at the property owners' expense. In the communities where it was available, public sewer also permitted development at higher densities and in areas where placing a septic system was difficult. This can be seen in Portsmouth and Hampton, where public sewer systems have been in place for many years.

Future development along the corridor will be shaped by the current zoning and land use regulations that each community has adopted. In New Hampshire, development decisions are primarily made at the local level. Therefore, the future appearance of the Routes 1A/1B corridor is, in large part, under the control of the municipalities. This section of the study reviews the existing land use patterns and examines local zoning and land use regulations as they relate to development along Route 1A and 1B.

B. INVENTORY OF EXISTING CONDITIONS

1. Land Use

Information for the land use inventory was obtained from a variety of sources, including local master plans and local zoning ordinances, results from the scenic resources inventory, and existing land use data. The existing land use data layer use to develop the 2010 Land Use Map was created by Rockingham Planning Commission utilizing one-foot, 2010 aerial photos supplied by the New Hampshire Department of Transportation and utilized a classification methodology used by GRANIT, New Hampshire's geographical information clearinghouse. There are 14 different land use categories that are depicted on the maps.

The following is a summary of the land uses found within the study area, which extends one mile west of Routes 1A/1B, and to the ocean along the eastern side of the byway for each of the communities along the corridor.

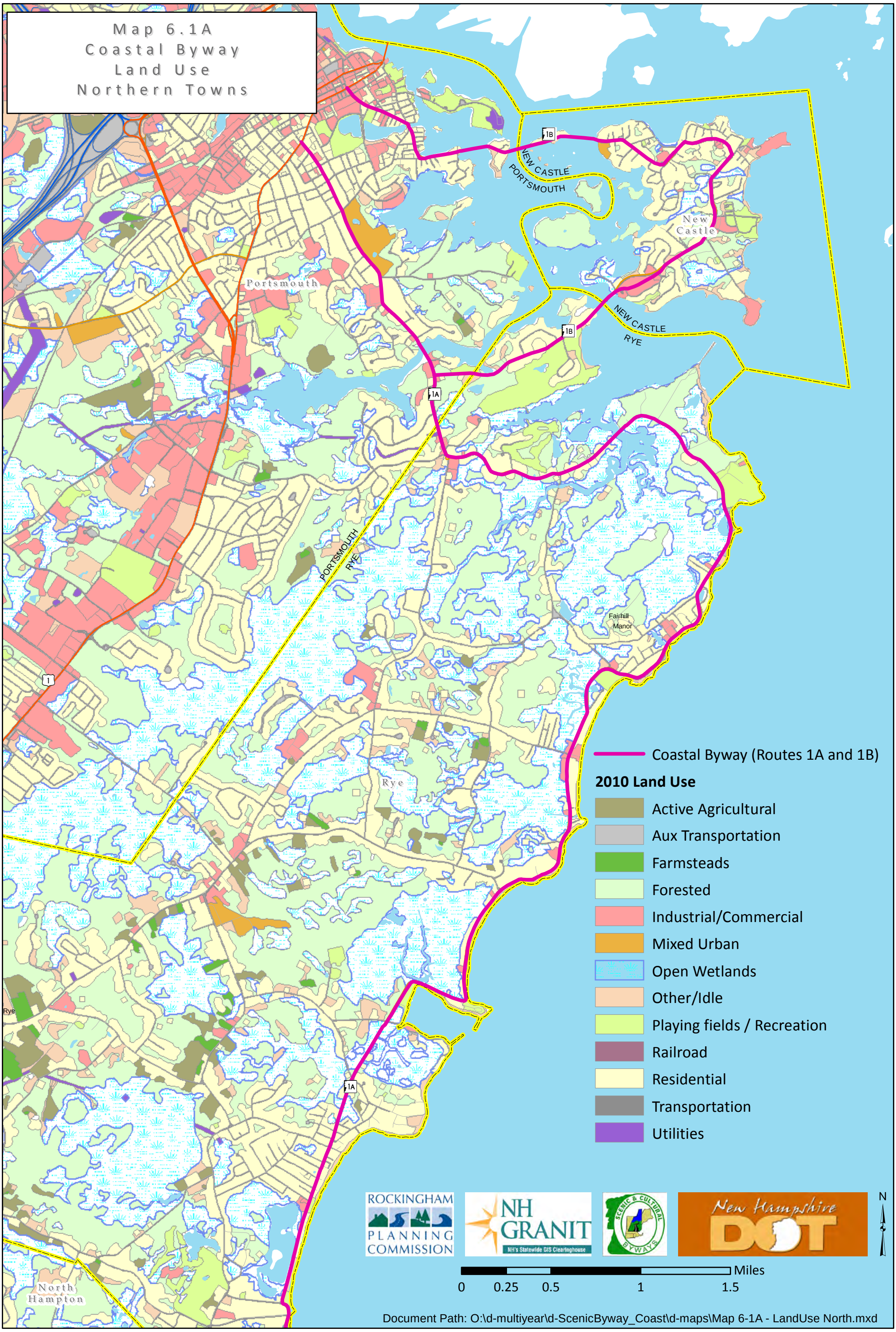
Portsmouth: Both Route 1A and Route 1B have their northern terminus in downtown Portsmouth. Route 1A is known locally as Sagamore Avenue from the Rye line to the South Street intersection, where it changes to Miller Avenue until it ends at Route 1 or Middle Street. Route 1B as it comes out of New Castle is known as New Castle Avenue. It then follows Marcy Street for a short distance and follows Pleasant Street until it ends at State Street. The land use along Route 1A in Portsmouth along the Miller Avenue portion is primarily residential except for the section nearest Route 1 where there is a mix of residents and offices. Miller Avenue is a attractive tree lined street where the historic houses are spaced close together and are close to the street. As Route 1A crosses South Street at a signalized intersection, there is a large cemetery on the east side and residential on the west side of Sagamore Avenue. Traveling south, the residential development starts to thin out as one approaches Sagamore Creek and the Route 1B intersection, where there is a restaurant and a marina.

Figure 6.1: Prescott Park

Route 1B in downtown Portsmouth is lined by a mixture of dense commercial and residential development. The entire length of Route 1B, up to the beginning of the causeway, is within the historic district. There are numerous small side streets that intersect Route 1B (Pleasant Street) in this area as the street approaches South Mill Pond. Except for a fish market and wine shop, most of Route 1B as it turns into Marcy Street is a historic residential area. Prescott Park, a popular city park with public fishing piers, outdoor shows and gardens, and the Strawberry Banke Museum, a designated National Historic Place are both located along Marcy Street. The road is narrow and congested as it winds its way towards the causeway to New Castle. Pierce Island and the Portsmouth Naval Shipyard are located north of Route 1B as it enters New Castle.

New Castle: Being an island community, New Castle is a very unique town in New Hampshire. As discussed earlier, Route 1B is the only highway access to New Castle. Route 1B is a narrow and winding road as it travels through the historic community.

Map 6.1A
Coastal Byway
Land Use
Northern Towns



Document Path: O:\d-multiyear\d-ScenicByway_Coast\d-maps\Map 6-1A - LandUse North.mxd

Map 6.1 B
Coastal Byway
Land Use
Southern Towns

Rye Beach

Rye

North Hampton

NORTH HAMPTON
HAMPTON

Hampton

Hampton Falls

HAMPTON
SEABROOK

Seabrook

111
27
101
1A

Coastal Byway (Routes 1A and 1B)

2010 Land Use

- Active Agricultural
- Aux Transportation
- Farmsteads
- Forested
- Industrial/Commercial
- Mixed Urban
- Open Wetlands
- Other/Idle
- Playing fields / Recreation
- Railroad
- Residential
- Transportation
- Utilities

ROCKINGHAM PLANNING COMMISSION

NH GRANIT
NH's Statewide GIS Clearinghouse

SCENIC & CULTURAL BYWAYS

New Hampshire DOT

N

Miles
0 0.25 0.5 1 1.5

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Lovely older homes hug the road, along with the elementary school, a church, a cemetery and town buildings. Great Island Common, a large town recreation area and beach is located on the east side of the road. At the southern end of the island there are many large new homes in newly developed subdivision streets off of Route 1B. This land was divided off the original parcel that included the historic Wentworth-By-the-Sea Hotel, re-opened in the early 2000s. The hotel is certainly the most prominent building in New Castle and has become a symbol for the community, the Seacoast and the entire state. Across the street from the hotel is the Wentworth-by-the-Sea Marina that faces Little Harbor. New Castle is also home to the U.S. Coast Guard Station and two historic forts - Fort Constitution and Fort Stark State Historic Sites.

Figure 6.2: Wentworth-by-the-Sea Hotel

Rye: Both Route 1A and Route 1B are located in Rye. The small portion of Route 1B, known as Wentworth Road, extends from the bridge in New Castle to the Portsmouth City line. This area is heavily developed residentially and has the Wentworth-By-the-Sea Golf course south of the road.

Route 1A enters Rye's northern end just before Foye's Corner, what was a congested and poorly aligned intersection. This area was reconfigured by NHDOT in 2007 with a roundabout. The area is bordered by retail and commercial businesses, with a new, large restaurant being proposed in 2014. From Foyes Corner, Route 1A travels east along the coast and is known as Pioneer Road. This stretch of road is characterized by moderately dense residential development with no road shoulders and several blind curves. As Route 1A crosses a new bridge over Seavey Creek, it passes through an undeveloped area with salt marshes to the south and Odiorne Point, a state park, to the north and east. Within the park there are nature trails, picnic grounds, a boat ramp, a bicycle path, a World War II gun placement and bunker remains at Fort Dearborn, and the Seacoast Science Center. The Center is a non-profit educational center featuring containing natural resource-related educational displays.

Traveling south, Route 1A then passes through a saltmarsh on the west and Odiorne State Park in Rye several NHDOT maintained viewing turnouts on the east. South of this area is the Fairhill area on the west, consisting of moderately high density residential housing, some lodging facilities (though many have closed in recent years and become private residences), and excellent ocean viewing turnouts near Pulpit Rock. The rocky coast then gives way to Wallis Sands Beach, with a state park at the north end, residential homes primarily on the ocean side of Route 1A and several modest sized homes and a motel across the street. This beach terminates at Parsons Creek, which provides the salt-water source for the extensive marshes west of the road. Immediately south of the creek is Concord Point, serving a small residential area jutting into the sea.

The rocky coast then resumes with moderately high density residences on the west side of Route 1A, which runs very close to the ocean edge. This area is called North Beach, although it is without a beach. There are two excellent viewing turnouts in this area. The next mile south includes Foss Beach on the east side of Route 1A and residences on the west with Awcomin Marsh further to the west. Rye Harbor State Park includes a picnic area at Ragged Neck and the Rye Harbor State fish pier and associated parking. This harbor is picturesque but small, serving both local commercial fisherman and recreational boating. There are also areas of saltmarsh.

Locke's Neck is a rocky point with about a dozen homes which overlook the north end of Jenness State Park Beach. This beach and Sawyer Beach to the south are one mile in length. Moderately high density summer homes are located on both sides of Route 1A, along with several beach access points a, a surf shop and a motel. Just south of the midpoint of this popular beach is Jenness State Beach State Park on the ocean side. Further south are several homes on the east side of Route 1A and the Eel Pond on the west. This pond, once a salt marsh, has converted to freshwater and is home to varied wildlife. Rye Beach to the south, is the home Abenaqui Country Club, a golf and tennis club, and a number of attractive homes.

Figure 6.3: Bass Beach in Rye.

To summarize, the commercial development along the coast of Rye consists of a few remaining motels, a surf shop, and a few restaurants. The residential development ranges from small seasonal homes to older, well-maintained beach homes to newer, larger homes. Over the years, the residential development has increasingly consisted of newer, larger homes and condos replacing what had been seasonal cabins and motels.

North Hampton: At under one mile, North Hampton has one of the shortest coastlines of the communities that abut the ocean. Some of the grandest and most historic mansions along the coast are found in North Hampton. Another unique characteristic is that there is almost no commercial development on Route 1A (Ocean Boulevard) in North Hampton. The only commercial activity is a restaurant (the Beach Plum) that has become very popular with residents, visitors and beach-goers. This restaurant is directly across Route 1A from the North Hampton State Beach. The road runs very close to the ocean in North Hampton and there are some nice views from the top of Little Boar's Head. Most of the homes are setback 20 to 30 feet from the road. In the southern part of the town there are 12 houses on the ocean side of Route 1A that are known as the "Fish Houses". These houses predate 1804 and were originally used by fishermen for storage and temporary living quarters. The houses are now renovated for mostly seasonal use, although they still retain their rustic charm. South of the fish houses is the North Hampton State Beach.

Figure 6.4: Fish Houses at North Hampton State Beach

There are two sites in North Hampton that are attractions for visitors and residents alike. On Willow Avenue, just off f Route 1A, a beautifully maintained flower garden known as Fuller Gardens attracts many visitors a year. During the summer months there are thousands of rose bushes in full bloom. Across the street from the Fuller Gardens is the historic Union Chapel, which was built in 1877. This lovely little chapel is often the site of wedding ceremonies.

Hampton: Land uses in Hampton are the most diverse of any town along Route 1A. Being a seasonal resort community, Hampton has many businesses that cater to the needs of tourists and hundreds of seasonal rental cottages, hotel and motel rooms, and condominiums. There are now a large number of housing units on Hampton Beach that have been converted to year round dwellings. This is the most congested area of the corridor and the only section where Route 1A is a one way, two lane road, northbound from southern Hampton along Ocean Boulevard to Ashworth Avenue.

Figure 6.5: Hampton Beach Boardwalk

Land use in the northern section of Hampton, known as the Plaice Cove, is mostly residential with a few motels, hotels, restaurants and other businesses dispersed throughout the area. The residential development is generally a mixture of seasonal and year round homes on small lots. The next section is known as the North Beach area and is characterized by a mixture of single and two family residential units on small lots with very little commercial development. On the ocean-side of the road is a large seawall that separates the road from North Beach, part of the Hampton Beach State Park.

From this point south the commercial uses begin to become the primary use on the west side of Route 1A. There are numerous hotels, motels, restaurants and multi-family dwelling units along this stretch of the road. In most cases the development is only one or two lots deep because of the extensive salt marsh and Tide Mill Creek to the rear. The most striking feature in this area is Great Boar's Head, which seems to rise out of the ocean. Great Boar's Head is densely developed with a mixture of residential uses.

Once Route 1A enters the main section of Hampton Beach, southbound traffic has to travel on Ashworth Avenue (a two lane road) through a congested area of mixed uses to the southern part of Hampton Beach before it reconnects with Route 1A. Northbound traffic uses Route 1A (Ocean Boulevard) which parallels Ashworth Avenue. This traffic pattern creates a circular traffic flow around the heavily developed business area. The businesses in this area cater to the beach visitors and includes restaurants, convenience stores, souvenir shops, clothing stores, night clubs, arcades, and outdoor recreation uses. Also located in this area is the Hampton Beach Seashell, newly renovated in 2012, which is a local landmark where outdoor entertainment is provided and people gather. The lifeguard station and Hampton Beach Chamber of Commerce office are also there. Other uses in the area include a fire station, police station, parking lots, marinas, the Hampton State Fish Pier and the Hampton Beach State Park. South of this area Route 1A crosses Hampton Harbor on the Hampton Harbor Bridge into an area of Hampton known as "Sun Valley". This is a heavily developed residential area.

Figure 6.6: Public beach access in Seabrook

Seabrook: Seabrook has the shortest coastline of the towns that directly front on the ocean. The land uses in Seabrook are primarily residential, but there is a

cluster of commercial uses at the intersection with Route 286. A long stretch of the western side of Route 1A looks out over the salt marsh associated with the Blackwater River. In the northern section of Seabrook is the fishing pier operated by the Yankee Fisherman's Cooperative. On the east side of Route 1A the land use is primarily single family homes located on small lots; Seabrook Beach lies east of these homes. Seabrook is also home to most of only existing sand dunes in New Hampshire.

2. Zoning

A detailed analysis of the zoning requirements along Route 1A and Route 1B was conducted as part of this study. Zoning ordinances for each of the communities were examined, as well as for the beach and village districts that have adopted zoning. In Rye, North Hampton and Seabrook the local village districts (specifically Rye Beach District, Little Boar's Head and Seabrook Beach District) have adopted zoning requirements in addition to the requirements of the towns in which they are situated. In most cases this means that development must comply with both the town and village or beach district zoning requirements. A list of the various zoning requirements for each of the communities and districts is included in Table 6.1 at the end of this chapter. The analysis of each communities' zoning requirements focus on the allowed type of development, development density, allowed height and location on individual lots, the percentage of a lot that may have a structure, and the types of signs allowed in the zones.

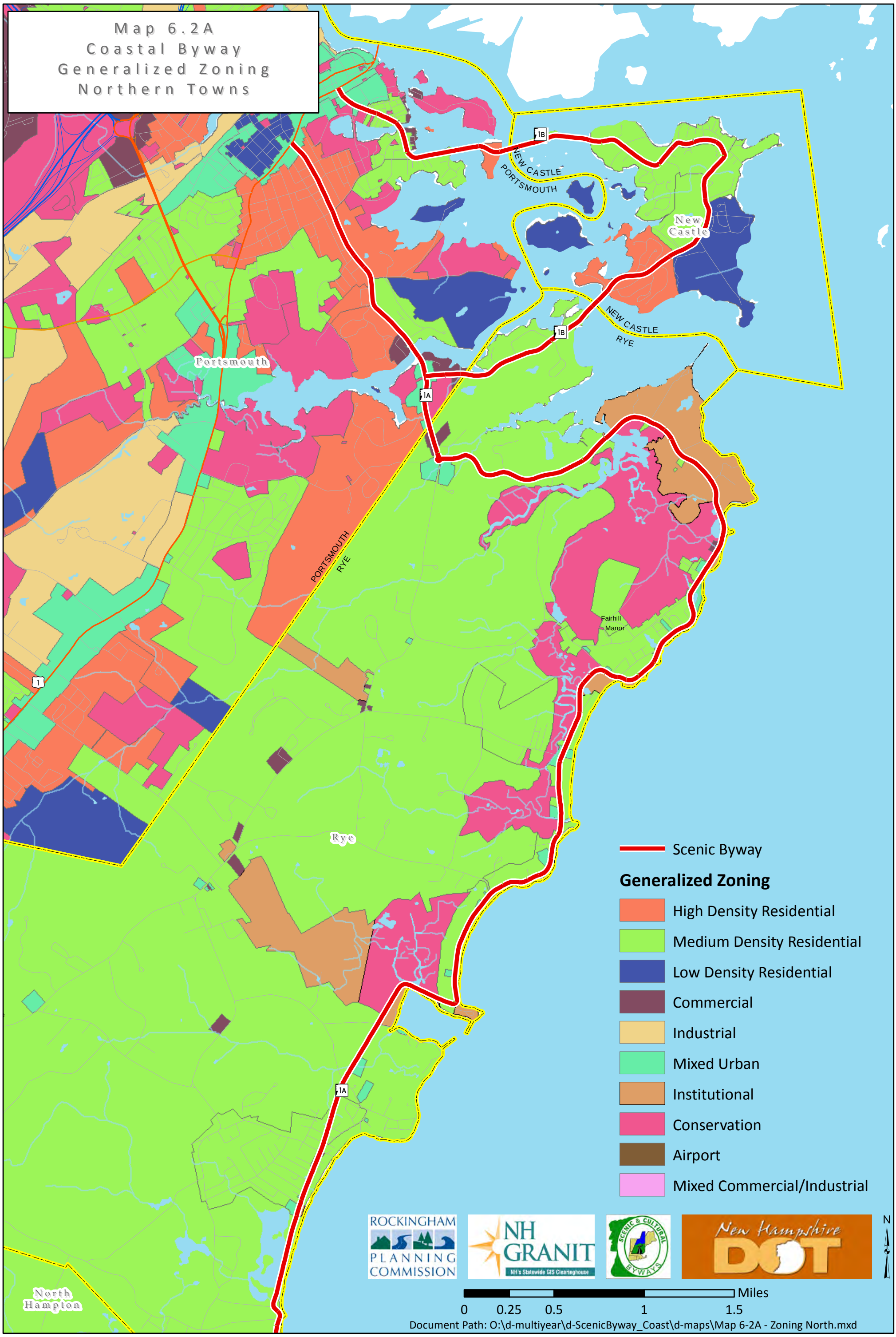
In addition to a detailed zoning analysis within each community, a regional zoning map was created to allow for comparison of types of zoning across municipal boundaries. Map 6 utilizes zoning classifications developed by the New Hampshire Office of Energy and Planning and adjusted by the Rockingham Planning Commission to better reflect zoning in southeast New Hampshire. While the intent of utilizing a regional zoning classification system is to compare similar zones between municipalities, it should be noted that noted that there are differences between zones within each zoning classification.

The zoning along the corridor is as varied as the communities within in it. In areas where municipal sewer is available, lot sizes in Portsmouth and Hampton are permitted to be smaller than a quarter acre. In communities where sewer is not available in all areas, such as North Hampton and Rye, the minimum lot sizes are one to two acres to accommodate onsite septic systems. These differences will obviously have an impact on the density of future development in the limited areas not already built upon.

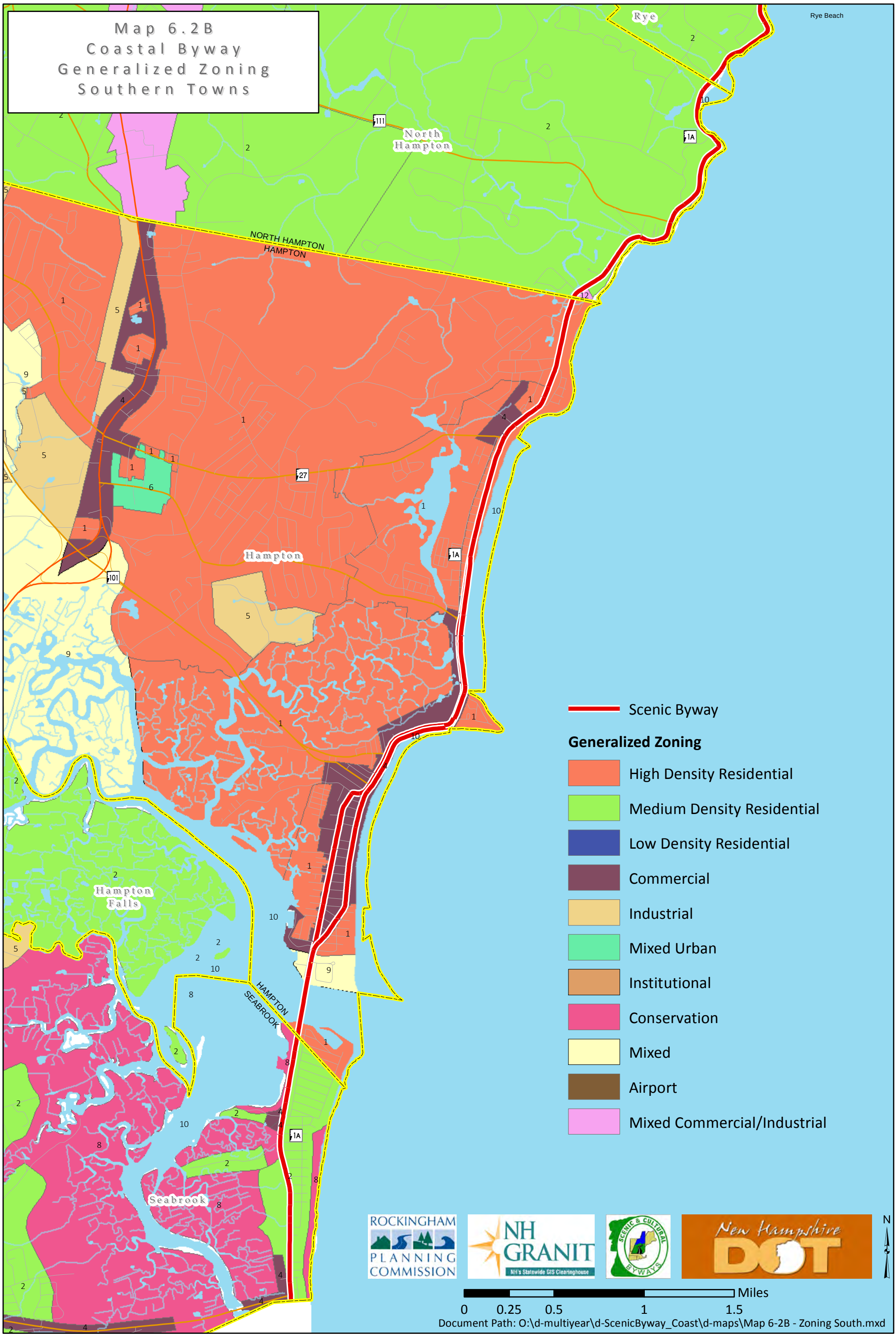
The minimum requirements for spacing of lots and how far a building must be setback from the front lot line also contribute to people's impressions of a road and community. Frontage requirements range from 20 feet in the Business Seasonal District in Hampton to 200 feet in section of Rye's residential zones. Frontage requirements dictate the spacing of building along a road and contribute to the traveling public's perception of congestion. Historically homes and businesses along the corridor were built closer to the roads. The width of the roads has also increased over time, so that the roads have moved closer to the buildings in some cases. The earlier an area was developed, the more likely the buildings are closer to the road. This is especially true in New Castle and Portsmouth.

In an effort to provide more room for wider roads and sidewalks, many communities today require setbacks that are considerably larger than in the past. In densely developed areas of Portsmouth and Hampton the front setback requirements are five feet or less. The average setback for residential in the corridor is approximately 30 feet. However, New Castle allows ten foot setbacks in recognition of its unique situation. The largest residential setback requirement is 40 feet in the SR District in Rye.

Map 6.2A
Coastal Byway
Generalized Zoning
Northern Towns



Map 6.2B
Coastal Byway
Generalized Zoning
Southern Towns



In most cases, the setback requirement for commercial development is more than it is for residential. The commercial building setback requirements along the corridor range from 10 feet to 200 feet.

Maximum building height was also reviewed because of the need to protect the existing scenic views for the public and property owners. The typical allowable building height is 35 feet within the corridor, with some exceptions in the Seabrook Beach district, New Castle and Portsmouth. Seabrook Beach district limits building height to 30 feet, while New Castle limits heights to 32 feet except in their Residential 4 district. Portsmouth is unique along the corridor by allowing building heights up to 50 feet, but these higher building heights generally are consistent with the surrounding buildings. Recently, Hampton has also considered allowing some taller buildings, and in some cases variances have been granted to allow for taller buildings. One special consideration that coastal communities have to be aware of is the potential for tall building to cast an afternoon shadow on the public beaches.

All towns, with the exception of North Hampton, regulate the maximum amount of impervious or sealed surface allowed on a lot in an effort to reduce stormwater runoff and allow for an area for landscaping or open space. The amount of building on a lot has a considerable impact on the perception of congestion. Hampton allows up to 85 percent of a lot to be impervious and Portsmouth allows between 25 to 60 percent in residential only districts and up to 95 percent in downtown. On the other end of the spectrum, Rye allows only 15-30 percent impervious surface on any lot within their residential districts.

The size and placement of signs can have a significant impact on the scenic quality of a road. Generally, the size of signs allowed in residential districts is considerably smaller than in commercial districts. The size of signs allowed varies between communities, specifically in the size signs allowed in residential districts. For example, in New Castle, Rye, and Portsmouth residential districts signs are limited to four square feet, but signs of up to 18 square feet are allowed in North Hampton's residential district. The differences in how signs are regulated clearly illustrates the need for a more uniform approach for land use control within the corridor.

Another aspect of signs that was reviewed was how the communities regulated off-premise signs, which are generally defined as signs that advertise businesses located on a different lot than the sign. Billboards are the most common form of off-premise sign. Off-premise signs are expressly prohibited by the zoning ordinances all corridor communities, with the exception of Hampton that allows off-premises signs with restrictions. New billboards are not allowed within most of the corridor communities, with the exception of Portsmouth allowing them in limited areas and Seabrook Beach District allowing signs up to 32 square feet.

While not specifically analyzed, each of the communities in the corridor have comprehensive Subdivision Regulations to control the subdivision of land and Site Plan Review Regulations to allow for a thorough review of commercial, industrial, residential development.

C. KEY ISSUES & CHALLENGES

As illustrated in the above analysis of existing land use controls, the communities along Route 1A and 1B have very different approaches to regulating development. It is evident that the regulations have developed over time in response to local concerns and that none of the communities have specifically tailored their land use controls in an effort to protect the scenic, historical and cultural values of the corridor. This study may raise the awareness of the community leaders as to the need to consider special protection measures for the roads.

During the course of the numerous public meetings, several zoning and land use issues were raised as concerns. Some of the more common issues were:

- A desire to limit the amount of additional development and control the quality of new development.
- Desire to see more restaurants and less seasonal-specific businesses along the corridor.
- Conflicts regarding the use of the corridor by vehicles and pedestrians and bicyclists, specifically in areas near beach access sites. This related to both parking issues and safety.

These discussions aided in the development of some of the recommendations.

In most areas of Route 1A and 1B available buildable land has already developed. In some areas where there is vacant land available for building, environmental constraints such as wetlands ordinances limit the ability to develop much of the land. Zoning ordinances have an important role in determining what types of land use will be allowed and where. Almost all of the vacant land that is still developable is zoned for residential use. A large part of the development that will take place along the corridor will be redevelopment of existing buildings. This includes both new uses going into existing buildings and the demolition of existing buildings to make way for new structures. This is especially true in the Hampton Beach area and the more congested residential areas in Seabrook and Rye. The developed areas in Portsmouth and New Castle are primarily within historic districts, so the existing buildings will, in most cases, be preserved.

Given the relatively limited amount of vacant developable land along the corridor, the recommendations primarily concern land use regulations that address specific land uses. It is recognized that each community is unique and that what works for one will not necessarily work another. However, there was support from the public for more consistency between communities in land use controls.

One proven method to encourage this goal is the development of model ordinances and regulations that the local officials can review and tailor to their needs. This is especially useful in addressing problems areas that are shared by many communities. Another important part of the equation is getting the communities to work together on development issues. The NH Office of Energy and Planning and the Rockingham Planning Commission have encouraged regional cooperation and assisted communities in improving communication. Areas of cooperation could include reviewing zoning along town boundaries to see that it is compatible, sharing information on development proposals near town boundaries, and including neighboring land use boards on mailing lists for public hearing notices.

D. LAND USE & ZONING RECOMMENDATIONS

Specific recommendations regarding land use and zoning are as follows:

LU1. Coordinate Planning and Land Management – Coordinate regional and local land use planning with open space, land conservation and habitat protection efforts. Actions include:

- Regional and local transportation planning integrates open space, land conservation and habitat protection efforts.

- In corridor segments allowing commercial development, encourage land use patterns that employ mixed use, compact designs to reduce the rate of land consumption for new development.
- Conserve large continuous areas of open space, farmland, river corridors and critical environmental areas, and establish connection between those areas.

LU2. Ensure Zoning Protects Community Character - Ensure local zoning encourages compatible development in the communities along the corridor. Specific features could include limiting high traffic generating uses, requiring tree planting, and reducing parking requirements in return for pedestrian or bike improvements, bus stops, and shared parking.

LU3. Assess Impacts of Increasing Year-Round Use - Assess the build-out and economic impacts of promoting more year-round uses and businesses along the corridor, specifically in Hampton and Seabrook.

Table 6.1: Municipal Zoning Specifications

Municipal Zoning Districts and Requirements within Byway Corridor

	Seabrook Beach District	Hampton	North Hampton	Little Boar's Head District	Rye	Rye Beach District	New Castle	Portsmouth
Zoning Districts	Zone 1: , Zone 2: , and Zone 3	Residence AA (RAA), Residence A (RA), Residence B (RB), Residence C-Seasonal (RCS), Professional Office/Residential (POR), and Business-Seasonal (BS)	Residential 2 (Res 2)	Business Zone (Bus), Bathhouse Zone (Bath), and Residential Zone (Res)	Single Residential (SR), Business (B), Commercial (CM), Conservation (CON), and General Residential (GR)	Low Density Residential (Low Res), Medium Density Residential (Med Res), and Recreational (Rec)	Mixed Use (MIX), Residential District (R1), Moderate Density Residential District (R2), Low Density Residential District (R#), and Planned Development District (R4)	Business (B), Central Business A (CBA), Central Business B (CBB), General Residence A (GRA), General Residence B (GRB), General Residence C (GRC), Municipal (M), Mixed Residential Business (MRB), Mixed Residential Office (MRO), Natural Resource Protection (NRP), Office Research (OR), Rural Residential (R), Single Residence B (SRB) , Waterfront Business (WB), Waterfront Industrial (WI)
Minimum Lot Frontage	100 feet	RAA: 200 feet, RA: 125 feet, RB: 75 feet, RCS: 60 feet, and BS: 20 feet	Res 2: 175 feet	175 feet for new lots, 100 feet for existing lots.	SR: 200 feet, B: 150 feet, C: 150 feet, CON: Not applicable, GR: 200 feet	Low Res: 200 feet, Med Res: 150 feet, Rec: 200 feet	MIX: Not applicable , R1: 100 feet, R2: 100 feet , R3: 100 feet , and R4: 100 feet	B: 100 feet, CBA: n/r, CBB: n/r, GRA: 100 feet, GRB: 80 feet, GRC: 70 feet, M: n/r, MRB: 100 feet, MRO: 100 feet, NRP: n/r, OR: 300 feet, R: n/a, SRB: 100 feet, WB: 100 feet, WI: 200 feet
Minimum Front Setback	20 feet (residential), 30 feet (commercial)	RAA: 20 feet ,RA: 20 feet, RB: 20 feet, RCS: 10 feet, and BS: 4 feet	Res 2: 35 feet	Res: 35 feet, Buis:30 feet, Bath: 30 feet	SR: 40 feet, B: 30 feet, C: 30 feet, CON: 40 feet, GR: 30 feet	Low Res: 40 feet, Med Res: 40 feet, Rec: 50 feet	MIX:20 feet, R1: 20 feet , R2: 20 feet, R3: 40 feet, and R4: 20 feet	B: 200 feet, CBA: n/r, CBB: n/r, GRA: 15 feet, GRB: 5 feet, GRC: 5 feet, M: n/r, MRB: 5 feet, MRO: 5 feet, NRP: 70 feet, OR: 50 feet, R: 50 feet, SRB: 30 feet, WB: 30 feet, WI: 70 feet
	Seabrook Beach District	**Hampton**	**North Hampton**	**Little Boar's Head District**	**Rye**	**Rye Beach District**	**New Castle**	**Portsmouth**
Minimum Rear- and Side-Setbacks - Rear/Side, if different	8 feet	RAA: 20 feet, RA: 10/15 feet, RB: 10 feet, RCS: 7 feet, and BS: 4 feet	Res 2: 30 feet	Res: 35, Buis:5-10 feet, Bath: 6-30 feet	SR: 30/20 feet, B: 30/20 feet, C: 24/20 feet, CON: 30/20 feet, GR: 30/20 feet	Low Res: 25 feet, Med Res: 25 feet, Rec: 30 feet	MIX: 15 feet, R1: 15 feet, R2:15 feet, R3: 20 feet, and R4: 10 feet.	B: 15 feet, CBA: n/r, CBB: n/r, GRA: 20/10 feet, GRB: 25/10 feet, GRC:20/10 feet, M: 10 feet, MRB: 15/10 feet, MRO: 15/10 feet, NRP: 70 feet, OR: 50/74 feet, R: 40/20 feet, SRB: 30/10 feet, WB: 20/30 feet, WI: 500 feet
Maximum Building Height	30 feet	35 feet	35 feet	35 feet	35 feet, 28 feet along coast.	35 feet, 28 feet along coast	MIX: 32 feet, R1:32 feet, R2: 32 feet, R3: 32 feet, and R4: 45 feet	B: 50 feet, CBA: 45 feet, CBB: 45 feet, GRA: 35 feet, GRB: 35 feet, GRC: 35 feet, M: n/r, MRB: 35 feet, MRO: 35 feet, NRP: 35 feet, OR: 60 feet, R: 35 feet, SRB: 35 feet, WB: 35 feet, WI: 70 feet
Maximum Impervious Surface Coverage Allowed	Not addresses	85%	N/A	N/A	SR: 15%, B: 40%, C: 75%, CON: Not applicable, GR: 30%	Low Res: 20%, Med Res: 25%, Rec: 20%	20-30% (based on lot size)	B: 85%, CBA: 0%, CBB: 0%, GRA: 70%, GRB: 75%, GRC: 80%, M: n/r, MRB: 75%, MRO: 75%, NRP: 95%, OR: 70%, R: 25%, SRB: 60%, WB: 80%, WI: 80%
Maximum Sign Size	Zone 1: 4-6 sq. feet , Zone 2: 100 sq. feet for multiple signs, and Zone 3: Not allowed	50 sq. feet	Res 2: 18 sq. feet	12 sq. feet	SR: 4 sq. feet, B: 16 sq. feet, CM: 25 sq. feet, CON: N/A, GR:4 sq. feet, PR 4 sq. feet	4 square feet	4 sq. feet	B: 200 sf, CBA: 40 sf, CBB: 40 sf, GRA: 4 sf, GRB: 4 sf, GRC: 4 sf, M: 4 sf, MRB: 16 sf, MRO: 16 sf, NRP: 4 sf, OR: 200 sf, R: 4 sf, SRB: 4 sf, WB: 20 sf, WI: 200 sf
Off premises signs	Not allowed	Allowed with restrictions	Not Allowed	Not Allowed	Not Allowed	Not Allowed	Not allowed	Not allowed
	Seabrook Beach District	**Hampton**	**North Hampton**	**Little Boar's Head District**	**Rye**	**Rye Beach District**	**New Castle**	**Portsmouth**
Billboards	Signs up to 32 sq. feet allowed in Zone 2.	Restricted	No new billboards	Not Allowed	Not Allowed	Not Allowed	Not allowed	Allowed - limited areas

CHAPTER 7 - IMPLEMENTATION PLAN

Each chapter of the management plan contains numerous recommendations for the NH Coastal Byway. Many public and private organizations will have to be involved to implement these recommendations. This section of the plan compiles all of the recommendations and indicates what organizations should be involved in the implementation of the recommendations. Additionally, each recommendation is categorized according to its priority for implementation. The categories are short term (1-2 years), medium term (2-5 years), or long term (more than 5 years). The recommendations are designed to achieve the goals established for the project:

PROJECT GOALS

1. Identify improvements to enhance the livability of the corridor.
2. Ensure that the scenic, cultural and natural resources that shape the character of the byway are protected and managed appropriately in the future.
3. Protect commercial uses and activities that are economically important to the area.
4. Ensure the safety of all byway travelers regardless of travel mode
5. Ensure existing roadway and other infrastructure including planned improvements are resilient to coastal hazards, including anticipated impacts of climate change
6. Develop recommendations that communities can implement directly to address locally and regionally identified concerns and opportunities.
7. Identify areas where existing State right of way is needed for bicycle and pedestrian safety improvements

ONGOING BYWAY COUNCIL

The ability to accomplish most of the recommendations here will depend on the existence of an ongoing organizational structure for the Byway. A key recommendation of the Corridor Management Plan not addressed in any of the previous chapters is to establish a Byway Council that will meet periodically to share information among communities, state agencies and private sector partners, and organize and encourage all of these partners to follow-through with implementation steps identified here.

The recommendation of the Project Advisory Committee is that this ongoing Byway Council be structured as an advisory committee to the Rockingham Planning Commission rather than establish itself as a separate non-profit entity or quasi-governmental agency. Such a Byway Council is envisioned to have a makeup very similar to the Project Advisory Committee, including appointed municipal representatives, state agencies, elected officials and various private sector partners. While staff hours for ongoing assistance from Rockingham Planning Commission will be limited, quarterly Byway Council meetings should be adequate for accomplishing Council business, with working groups formed as needed for specific initiatives. Municipalities and the other public and private agencies participating in the Project Advisory Committee should be asked to endorse the recommendations of the CMP, and appoint an ongoing representative to the Byway Council to begin implementation work.

The specific recommendations follow on the next page.

NH COASTAL SCENIC BYWAY CORRIDOR MANAGEMENT PLAN

Compiled Recommendations & Implementation Plan

Issue	Approach	Recommendation	Proposed Implementing Bodies (Lead in Bold)	Proposed Timeframe	Listed in 1996 CMP	Difficulty (High/ Med/ Low)	Impact (High/ Med/ Low)	PAC Priority (Scale of 1-5, 5=High, 1=Low)
Roadway/ Traffic/ Parking								
On-street or parallel parking presents a safety hazard to other autos and non-motorized users	Develop and implement a parking plan to most efficiently use limited space for parking	RTP1. Reduce Safety Conflicts from On-Street Parking – Assess two approaches reducing on-street parking conflicts at Ocean Blvd between Locke Road and Jenness State Beach, and between Old Ocean Blvd and Wallis Road. These could be applied individually or in tandem.	**Community**, NHDOT	Short Term/ Medium Term	New	Medium	High	**4.5**
		a. Remove on-street parking on one or both sides of Ocean Blvd at these locations	**Community,** NHDOT, Byway Council	Short Term/ Medium Term		Medium	High	
		b. Widen pavement on the West side of Ocean Blvd to shift on-street parking further from the travel lane, allowing striping of a bikeway outside of the door zone of parked cars	**Community,** NHDOT, Byway Council	Medium Term		Medium	High	
		RTP2. Assess Off-Site Parking Options - Study further the development of a remote parking lot and local shuttle system in Hampton to expand parking capacity for the beach area. This would include assessing the feasibility of using underutilized publicly-owned lots (i.e. public school parking lots), as well as development of the proposed intermodal transportation center at the interchange of Route 101 and Route 1 in Hampton.	**RPC**, Communities, DRED, HBAC	Short Term	Modified from 1996 CMP	Low to Study; Medium/ High to Implement	High	**3.2**
Traffic congestion in Hampton Beach area	Improve traffic circulation in Hampton Beach area	RTP7. Hampton Harbor Bridge Replacement - Pursue funding to replace the Neil Underwood Hampton Harbor Bridge with a higher and wider structure to reduce traffic congestion due to frequent summer season lifts, and improve safety for vulnerable road users	**NHDOT,** DRED, Community, HBAC, RPC	Long Term	New	High	High	**4.9**
		In the interim, work with US Coast Guard to shift bridge to scheduled rather than on-demand lifts similar to Memorial Bridge in Portsmouth.	**HBAC,** NHDOT, USCG, Community	Short Term		Low	Medium	**4.6**
		RTP8. Directional Signage - Review type, amount and location of directional signage to ensure clear traffic routing from Rte 1A onto NH 101	**NHDOT,** DRED, Community	Short Term	From 1996 CMP	Low/ Medium	Low/Medium	**4.3**
Motorist disregard for "No Parking" and "short-term parking only" designated areas (being used for long-term parking)	Eliminate all parking in "No Parking" areas, keep free short-term parking areas open to allow for viewing of scenic vistas only	RTP3. Parking Enforcement - Encourage consistent local enforcement of "No Parking" areas, and parking time limits at both metered and non-metered parking areas.	**Local police depts,** DRED	Short Term	From 1996 CMP	Low	Medium	**4.1**

Roadway/ Traffic/ Parking (continued)								
Parking situation in Hampton is not "user friendly", and discourages people from visiting the area	Simplify parking situation	RTP4. Parking Information - Improve information on parking availability in Hampton Beach using print, web and mobile applications.	**HBAC,** DRED, Community, Chamber of Commerce	Short Term	From 1996 CMP	Medium	Medium	**4.0**
Coastal flooding based on increased frequency of severe storms, and best available science on sea level rise, present a threat to Routes 1A and 1B and other coastal infrastructure in the coming century.	Step up local, regional and state planning for coastal zone resiliency, including planning for raising or relocating roadway infrastructure over time	RTP8. Improve Infrastructure Resiliency - Assess feasibility and cost of raising the Route 1B causeway in New Castle and making other infrastructure upgrades to improve the resiliency of the corridor to major storm events. - Implement and update culvert inventories and assessments. - Consider impacts of increased temperatures on pavement function and maintenance.	**NHDOT, C**ommunities, RPC, FEMA	Long Term	New	Medium	High	**3.0**
Vehicles not adhering to posted speed limit creates a safety hazard	Reduce speeding vehicles	RTP5. Lower Posted Speed Limits - Petition NHDOT to lower speed limits from 35 mph to 30 mph in limited areas of Rye with high bicycle and pedestrian activity	**Community,** NHDOT	Short Term	From 1996 CMP	Low	Medium	**2.5**
		RTP6. Speed Enforcement - Encourage consistent local enforcement of posted speed limits	**Local Police Depts**			Low	Medium	**2.4**
Non-Motorized Transportation								
Conflict between autos and non-motorized users along Rtes 1A/ 1B creates an unsafe environment for both types of users	Create a continuous, designated facility to safely accommodate non-motorized users	NM1. Crosswalk Improvements - Improve safety at crosswalks using high visibility pavement marking patterns, motorist warning signs stating "State Law - Yield to Pedestrians in Crosswalk" all along the corridor, and refuge islands where appropriate. Work with NHDOT and community officials to adopt signage and marking standards.	**NHDOT,** DRED, communities, Byway Council	Short Term	New	Low/ Medium	High	**5.0**

Non-Motorized Transportation (Continued)								
Conflict between autos and non-motorized users along Rtes 1A/ 1B creates an unsafe environment for both types of users	Create a continuous, designated facility to safely accommodate non-motorized users	NM2. Shoulder Bicycle Route Improvements - Implement shoulder bicycle route improvements based on three scenarios: • On sections of Routes 1A and 1B with existing 4' wide paved shoulder, install signage and roadway stripes designating the shoulder as a bicycle/ pedestrian facility. • In areas with less than 4' wide paved shoulder, and where right of way allows, widen shoulders to 4' and install signage and striping designating shoulder as a bicycle facility. • In areas where on-street parking conflicts with safe bike/ ped travel, widen shoulders to shift parking further away from the travel lane and allow room for a bicycle lane outside of the door zone.	**Communities,** NHDOT, Byway Council	Short Term/ Medium Term	New	Medium	High	**4.8**
		As a first step, pursue funding to widen shoulders on Route 1A past Odiorne Point State Park, which remains the longest stretch of the corridor (0.8 miles) lacking shoulders	**NHDOT,** Byway Council, RPC	Short Term/ Medium Term	New	Medium	Medium/ High	**4.5**
		NM3. Sidewalk & Walking Path Improvements – Implementation pedestrian improvements along the corridor. **Actions include**:	**Byway Council,** NHDOT, DRED, Communities		New	High	High	**4.1**
		• Reconstruct sidewalk facilities along Ocean Blvd in Hampton Beach with raised curbs, ramps and refuge islands consistent with recommendations in the Hampton Beach Master Plan						**5.0**
		• Improve safety and accessibility of the pedestrian path extending from Rye Beach Club to North Hampton State Beach						**3.9**
		• Rehabilitate the multi-use path running parallel to NH1A at Odiorne Point State Park						**3.7**
Lack of data on the number of people walking or bicycling on our roadways makes it difficult to build the case for improvements to bicycle and pedestrian safety	Continue a coordinated regional effort to monitor bicycle and pedestrian usage of the Byway, building on counts undertaken for the CMP	NM4. Bicycle & Pedestrian Counting - Implement an annual bicycle and pedestrian counting program for the corridor to build a multi-year dataset on bicycle and pedestrian usage of the Byway. Actions Include: • Conduct annual updates at count locations included in this CMP using NBPDP methodology • Conduct additional full-day counts to improve understanding of usage by time of day for modeling purposes	**RPC**, SABR, Communities	Short Term/ Ongoing	New	Low	Medium/ High	**4.4**

Non-Motorized Transportation (Continued)								
Traditional sources of bicycle and pedestrian funding in NH are inadequate and poorly suited to large multi-town efforts	Corridor communities work jointly and aggregate multiple bike/ ped upgrades along corridor into unified project proposal for flexible highway funding	NM5. Corridor-Wide Collaboration on Infrastructure Improvements - Encourage corridor communities to work together to jointly put forward a package of infrastructure projects recommended here to be funded with flexible highway dollars through the general State Ten Year Plan process, rather than competing individually against one another for extremely limited Transportation Alternatives Program (TAP) funding.	**Byway Council,** Communities, NHDOT, RPC	Medium Term	New	Medium/ High	High	**4.9**
Limited maintenance, traffic enforcement and public information on existing facilities creates a safety problem for all road users	Improve maintenance to highways as a whole and shoulder bicycle routes areas in particular. Improve public information and enforcement related to rules of the road for people driving, walking or bicycling.	NM6. Public Education on Safe Sharing of the Road - Install additional safety signage along the corridor, such as the NH-PASS design, notifying all road users of the need to safely share the road. Identify other local media for conveying this message, including tourism marketing materials and community television.	**NHDOT BPTAC**, Communities, RPC, SABR, BWANH	Short Term	New	Low	High	**4.7**
		NM7. Shoulder Sweeping - Conduct regular sweeping of roadways and shoulders to reduce the amount of sand, rock and other debris accumulating on paved roadway shoulders.	**NHDOT, Urban Compact communities** (Ports, Hampton)	Short Term/ Ongoing	From 1996 CMP	Low	Medium	**4.4**
		NM8. Vegetation Clearing – Municipalities work with NHDOT to inform roadway abutters of the hazard posed by overgrown vegetation and notify the public when brush clearing will happen along the route, to reduce abutter complaints when necessary trimming is done by NHDOT.	**NHDOT,** Communities	Short Term/ Ongoing	From 1996 CMP	Low	Low	**4.0**
		NM9. Enforcement of State Traffic Laws for Bicyclists & Motorists - Work with local police departments to better enforce state traffic laws for all road users, including recent laws addressing distracted driving and safe passing distance.	**Local Police Departments,** SABR, BWANH	Short Term/ Ongoing	New	Low	High	**4.3**
		NM10. Information on ECG & U.S. Bike Route 1 - Seek funding to install kiosks along corridor with information about the Byway, the East Coast Greenway, and U.S. Bicycle Route 1. Kiosks can also feature information on natural and historic resources, and safe sharing of the road.	**RPC,** SABR, ECGA, private sector partners, NHDOT, DRED,	Short Term	New	Low	Medium/Low	**3.5**
Insufficient amenities are in place to support bicyclists and pedestrians	Provide basic amenities to support and promote bicycling and walking as modes of travel, as well as pure recreation	NM11. Amenity Improvements - Support efforts by the DRED Division of Parks and Recreation to continue upgrades to public restroom facilities and other amenities such as bicycle parking and benches at park facilities along the corridor. Also, include information on public restroom facilities and water fountains in the corridor on State Bicycle Route map and Byway interpretive map.	**DRED,** NHDOT, RPC, Byway Council	Short Term/ Medium Term	From 1996 CMP	Medium	Medium	**4.0**

Public Transportation								
Real and perceived problems with parking availability and location exist at key beach destinations	Plan for and pilot beach shuttle services connecting popular beach areas with remote parking locations	PT1. Parking Shuttle for Hampton Beach - Assess viability of and pursue funding for a pilot summer parking shuttle connecting Hampton Beach and downtown Hampton with off-site parking.	**HBAC, C**hamber of Commerce, NHDOT, community,	Short Term/ Long Term	New	Medium	Medium/High	**3.0**
Scenic Resources								
Public awareness of the corridor's status as a scenic byway is limited, as is information along the Byway guiding traveler to amenities and businesses	Develop a Byway logo and signing scheme that improves wayfinding and creates a unified sense of the corridor while managing proliferation of signage	SR1. Byway Logo & Marking - Develop Seacoast Scenic Byway logo and signs to be placed along Rte 1A/ 1B and at Byway attractions	**Byway Council,** NHDOT	Short Term	From 1996 CMP	Low/ Medium	Medium	**4.0**
		SR2. Unified Signage Program - Develop a unified signage program to direct visitors to cultural, historical and natural resources, public restrooms, and tourist information centers. Intent is to reduce total # of non-regulatory signs on roadway. Identify funding to implement.	**Byway Council,** NHDOT, DRED	Short Term/ Medium Term	From 1996 CMP	Medium/High	Medium	**4.4**
Scenic vistas need to be preserved for public benefit	Preserve scenic vistas from encroaching development and overgrown vegetation	SR3. Zoning Protection for Scenic Views - Recommend zoning changes, consistent along corridor, which will protect vistas	**Communities,** RPC	Short Term	From 1996 CMP	Medium	Medium	**4.3**
General appearance of corridor could be improved	Improve general appearance of area through landscaping improvements, plantings	SR4. General Landscaping - Identify key spots for landscaping and planting efforts, i.e. state parks, Seabrook rest area, Ashworth Ave and Ocean Blvd, roadway medians, private businesses, and implement improvements with state agency funds, Adopt-a-Spot/ -Highway and -Beach programs, and private funds	**Chambers of Commerce, Private sector partners,** Communities, DRED,	Ongoing	From 1996 CMP	Low/ Medium	Medium	**4.0**
Existing scenic pullover areas are in need of improvement (i.e. access, amenities, aesthetics)	Improve and maintain existing pullover areas and protect from development	SR5. Amenity & Accessibility Improvements to Existing Pullouts - Design and install landscape and facility improvements including signage, plantings, walkways/ ramps, trash receptacles and benches at existing pullover sites.	**Private sector partners,** Communities, NHDOT	Short Term/ Medium Term	From 1996 CMP	Medium	Medium	**4.0**
		SR6. Partnerships for Maintenance - Encourage general maintenance and trash pick-up at existing pullover areas by NHDOT, and through a joint public/ private effort, pursuing the involvement of local groups through an extension of existing state “Sponsor a Highway” and “Adopt a Beach” programs.	**NHDOT, C**ommunities, Private Sector Partners	Short Term	From 1996 CMP	Low	Medium	**3.6**

Scenic Resources (Continued)								
No scenic pullover areas currently exist on the west side of NH1A overlooking salt marsh areas	Develop one or more pullout areas with interpretive information on salt marsh ecosystems.	SR7. Saltmarsh Viewing & Interpretation - Pursue funding to develop one or more pullout areas on the west side of Route 1A with interpretive information on salt marsh ecosystems.	**Southeast Land Trust,** Town of Rye, DRED,	Short Term/ Medium Term	From 1996 CMP	Low	Medium	**3.6**
Historic Resources								
What historic resources are protected depends largely on local understanding and appreciation for those resources, and local measures to protect them.	Encourage corridor communities to fully integrate historic resources into their local planning processes	HR1. Master Plan Chapters & Inventory Updates - Encourage corridor communities to update municipal master plans with chapters on historic and cultural resources that recognize community character, include provisions for updating resource inventories, and consider the economic and community development potential of protecting local heritage.	**Communities,** DHR, RPC	Short Term	New	Low	Medium/High	**3.8**
		HR2. Heritage Commissions - Establish Heritage Commissions and/ or Historic District Commissions in those communities that don't yet have them.	**Communities,** DHR, RPC	Short Term	New	Low/Medium	Medium/High	**3.6**
Public access to cultural/ historic resources may be impeded because of limited or non-existent public information on sites	Improve public access to cultural and historic resources in corridor through signage, printed material and other improvements	HR3. Corridor Signage Program - Develop concept for comprehensive signage program to visitors to cultural, historic and other resources in the corridor, and pursue funding to implement	**Byway Council,** NHDOT, DHR, Communities, Chambers	Short Term/ Medium Term	From 1996 CMP	Medium	Medium	**4.9**
		HR4. Interpretive Corridor Map - Update the pocket-size interpretive map of corridor produced in the late 1990s which highlights specific scenic, natural, cultural, historic and recreational resources along the byway. Map symbols should be coordinated with a roadway signage program.	**Byway Council,** DRED, NHDOT, DHR, Communities, Chambers of Commerce	Short Term	From 1996 CMP	Low	Medium	**4.4**
		HR5. Historic Marker Accessibility - Identify ways to improve visibility and access to historic markers, such as by moving markers, improving nearby parking, developing pedestrian access to the marker, or providing directional signage to the marker	**DHR,** NHDOT, DRED, Communities	Short Term/ Medium Term	From 1996 CMP	Low	Medium/Low	**3.5**
While historic resources receive significant protection in federally funded project, public participation is key to ensuring roadway improvements are sensitive to community character	Encourage public participation in transportation planning processes to promote sound decision making	HR6. Context Sensitivity of Road Improvements - Assess the potential impact from future roadway reconstruction/ improvements on the historic resources in the corridor, as well as on the character of the roadway, while recognizing safety needs.	**Communities,** NHDOT, DHR	Ongoing	Modified From 1996 CMP	Medium/ Low	Medium	**3.7**

Natural Resources & Coastal Hazards								
		NR1. Open Space Planning - Communities prioritize areas of open space to protect that provide multiple benefits (environmental services, recreational, or cultural) and implement regulations to encourage their protection. Encourage priority be given to parcels identified in the Land Conservation Plan for NH's Coastal Watersheds.	**Communities,** RPC, Land Trusts, PREP, DES	Short Term/ Ongoing	New	Low/Medium to Implement	Medium/High	**4.6**
Salt marshes are being invaded by Phragmites (freshwater plant) due to inadequate tidal flushing of salt water	Improve the flow of salt water into the salt marsh areas to prevent the spread of Phragmites	NR2. Restore Tidal Flow - Preserve the health of salt marshes by taking corrective action to improve the flow of tidal water into the salt marshes, replace undersized culverts and remove other barriers to tidal flow.	**Conservation commissions,** DRED, DES, RPC, Army Corps of Engineers, U.S. Fish and Wildlife Service, NH Fish & Game	Medium Term/ Long Term	From 1996 CMP	Medium/High to Implement	High	**4.1**
Infrastructure	Adaptation and Resiliency	NR3. Upgrade Drainage Infrastructure - Work with the appropriate federal and state agencies to obtain funding to upgrade drainage infrastructure and stream crossings/ culverts	**NHDOT and Communities w/ Army Corps of Engineers, FEMA;** Conservation Commissions, DRED, DES, RPC, U.S. Fish and Wildlife Service, NH Fish & Game	Medium Term/ Long Term	From 1996 CMP	Medium/High to Implement	High	**4.0**
		NR4. Planning for Resiliency of Coastal Infrastructure - Strengthen state, regional and municipal capacity to understand risks and vulnerability to potential future impacts of climate change. Actions include: · Assist municipalities with application of assessments, data and technical guidance about climate change planning and climate adaptation strategies. · State agencies and municipalities commit resources and capacity to plan for climate change.	**RPC,** FEMA, Communities, DRED, NHDOT	Short Term/ Ongoing	New	Low/Medium to Implement Low/Medium to Implement Medium/High to Implement	High High High	**3.9** **4.2** **4.2**
		NR5. Master Plans & Hazard Mitigation Plans - Encourage coastal municipalities to incorporate a Coastal Flood and Hazards Chapter in their Master Plans. Encourage comprehensive land use planning, environmental planning and floodplain management that prevents and minimizes impacts.	**Communities, RPC**, HSEM, FEMA	Short Term	New	Low to Implement	High	**3.8**
Infrastructure	Adaptation and Resiliency	NR6. Managing Coastal Infrastructure for Resiliency - Adopt standards for management of state and municipal infrastructure with safety margins that consider future risk and vulnerability due to climate change. **Actions include:**	**DES, NHDOT, Communities**, DRED, RPC	Short Term/ Ongoing	New	Medium/High to Implement	High	**3.9**

Natural Resources & Coastal Hazards (continued)								
		· Apply science-based projections of future sea level, storm surge and precipitation into state, regional and municipal shoreline management activities and policies Incoprorate as appropriate recommendations of the Coastal Risks and Hazards Commission to future Scenic Byway Plan updates.				Low to Implement Low	High High	
		NR7. Public Education on Coastal Hazards & Climate Change - Implement outreach and engagement measures to raise regional and community-based awareness about climate change and coastal hazards as projected to impact the coastal zone.	**CAW, RPC**, Communities, DRED, UNH, Community Partners	Short Term/ Ongoing	New	Low/Medium to Implement	Medium/High	**3.0**
		NR8. Integrative Shoreline Management - Integrate protection of natural and constructed systems, social services, and historic and cultural resources into engineering and regulatory frameworks of shoreline management. **Actions include:** · Prepare a comprehensive shoreline management plan for New Hampshire's Atlantic coastal area. · Shoreline management incorporates measures that minimize coastal and floodplain erosion, and loss of natural resources that protect against flooding. · Retain and expand dunes, beaches, wetlands, forests and natural vegetation to protect against coastal and riverine flooding. · Discourage hardening of shorelines in favor of protecting existing natural shorelines and restoring them when feasible. · Apply hard and engineered shoreline techniques only to protect essential infrastructure and evaluate the benefit to cost of maintaining these techniques in the future.	**DES, Communities,** Army Corps of Engineers, DRED, Fish & Wildlife, PREP	Short Term/ Ongoing	New	Medium/High to Implement Medium/High to Implement Low/Medium to Implement Low/Medium to Implement Low/Medium to Implement Medium/High to Implement	Medium/High High Medium/High Medium/High Medium/High Medium/High	**4.0**
		NR9. Impervious Surfaces - Reduce the rate of growth of new impervious surfaces to minimize stormwater runoff and protect water resources	**Communities, RPC,** DRED, DES	Ongoing	New	Low/Medium to Implement	Medium/High	**3.3**
		NR10. Natural Buffer Areas - Protect adequate natural buffer areas around waterways and wetlands to help remove pollution from stormwater, and provide flood storage and wildlife habitat.	**Communities,** RPC, DES, PREP	Short Term/ Medium Term	New	Low/Medium to Implement	High	**3.8**

Natural Resources & Coastal Hazards (continued)								
Salt marshes threatenedby development need to be protected; they are an important part of what makes route attractive	Preserve salt marshes	NR11. Public Education on Salt Marshes - Increase public education on the importance of salt marshes. Examples may include: installation of interpretive signage at public access areas; direct engagement with municipal officials, land use boards and staff; collaboration among natural resource managers, regulators, educators, researchers, non-profit groups and other stakeholders.	**Conservation Commissions,** RPC, DRED, UNH, SE Land Trust	Short Term/ Ongoing	From 1996 CMP	Medium to Implement	High	**3.8**
		NR12. Prime Wetland Designation - Work with municipal conservation commissions to designate (all) salt marshes within the corridor as prime wetlands.	**Conservation Commissions,** RPC, DRED	Short Term	From 1996 CMP	Medium to Study; Low to Implement	Medium	**3.5**
Land Use & Zoning								
Efforts to promote three-season or year-round use of beach areas in Hampton and Seabrook will have significant impact on land use	Assess implications of development associated with year round use of beach tourism areas	LU1. Coordinate Planning & Land Management - Coordinate regional and local land use planning with open space, land conservation and habitat protection efforts. Actions include: · Regional and local transportation planning integrates open space, land conservation and habitat protection efforts. · In corridor segments allowing commercial development, encourage land patterns that employ mixed use, compact design to reduce the rate of land consumption for new development. · Conserve large continuous areas of open space, farmland, river corridors and critical environmental areas, and establish connection between those areas.	**Communities,** RPC	Short Term/ Ongoing	New	Medium	High	**3.8**
Concerns raised over various land use issues, such as the number of curb cuts along the highway, the visual blight of signs, and unattractive design of buildings	Provide assistance to communities to address these land use issues	LU2. Ensure Zoning Protects Community Character - Ensure local zoning encourages compatible development in the communities along the corridor. Specific features could include limiting high traffic generating uses, requiring tree planting, and reducing parking requirements in return for pedestrian or bike improvements, bus stops, and shared parking.	**Communities,** RPC	Short Term	From 1996 CMP	Medium	High	**3.6**
Efforts to promote three-season or year-round use of beach areas in Hampton and Seabrook will have significant impact on land use	Assess implications of development associated with year round use of beach tourism areas	LU3. Assess Impacts of Increasing Year-Round Use - Assess the build-out and economic impacts of promoting more year-round uses and businesses along the corridor, specifically in Hampton and Seabrook.	**Communities,** RPC	Short Term	New	Low	Medium	**3.0**

Right of Way Assessment								
NHDOT and Towns want clarification on what right of way exists and should be maintained in public ownership to support needed multi-modal safety improvements	Use ROW assessment from CMP for these decisions where data were available, and secure additional surveyed data where needed	ROW1. Retain State Owned Right of Way - NHDOT should not dispose of any Right of Way in areas needed for future corridor widening to improve safe accommodation of Byway users. These areas include but are not necessarily limited to: - NH1A past Odiorne Point State Park from Seavey Creek Bridge to southern end of side path - NH1A past Pirates Cove area from Old Ocean Blvd to Concord Point - NH1A north of Jenness State Beach from Locke Road to Sawyer's Beach - NH1A in North Hampton from Causeway Road to North Hampton State Beach	**NHDOT**	Ongoing	New	Low to Implement	High	**4.9**
		ROW2. Survey Key Areas - In areas where historic right of way data are unavailable or unclear on boundaries, secure professional survey data to clarify limits of public ownership	**NHDOT,** Communities, RPC	Short Term/ Medium Term	New	Medium to Implement	High	**5.0**
Ongoing Byway Management								
Implementing recommendations here in the CMP will require an ongoing communication among corridor communities, resource agencies and other stakeholders	Establish ongoing management structure for the Byway	MGT1. Establish Ongoing Byway Council - Work with corridor communities, state agencies, and private sector stakeholders to establish an ongoing NH Coastal Byway Council to foster continued corridor-wide communication and cooperation on shared issues and oversee implementation of CMP recommendations. Actions include: - Present CMP to each corridor community, request endorsement of recommendations and appointment of representative to Byway Council - Establish Byway Council as an advisory committee to the Rockingham Planning Commission, including development of guidelines as needed -RPC to provide ongoing technical planning assistance to Byway Council	**RPC,** Communities, DRED, NHDOT, Private Sector Partners	Ongoing	New	Low	High	**4.8**

APPENDICES

R Y E
H A M P T O N
M P T O N
South Hampton
Little Boars Head
Fox Head Point
Rye Ledge
Rye Beach
Jenness Beach
Little River
Sch
North
Road
Marsh
Hill
Seabrook Beach
Bound Rock
Race Rock
Gills Rock
Majors Rock
Salisbury Beach
Locke Pt
Hampton River
Seabrook
Y
NEWBURYPORT LIGHT
RANGE LIGHT
Ripple Flats