CHAPTER 6 - TRANSPORTATION

6.1 Introduction

Although the growth of the region and increased use of the Seacoast is attracting traffic, the local and state roadway network is adequate to serve the future growth of vehicular traffic in the community without significant improvement. The town has undertaken past and ongoing improvements to local and state roads to accommodate more pedestrian and bicycle traffic. Rye's roadway network is an important feature of the Town's semi-rural character. Ocean Boulevard (NH 1A) and a portion of Wentworth Road (NH 1B), which are state owned, are important parts of Rye's scenic coastal character.

Recognizing the changes in our environment, the following are assumptions for Rye's future transportation systems and infrastructure.

- Whenever possible we will provide multiple safe and efficient transportation alternatives for residents and visitors.
- Our children should have increased opportunities to walk or ride their bikes safely to school.
- Adult residents will increasingly take advantage of environmentally sound travel options such as cycling, ridesharing and using public transportation when available.
- Senior and disabled residents will be served through continued transportation options.
- Increased knowledge of the environmental consequences of how we use energy is pushing us to re-think and support other options for transportation.
- Our municipal services are mainly concentrated in the center of Town while our population is largely de-centralized.
- A Complete Street transportation policy in the Land Development Regulations should be adopted.
- Significant tourist and second-home traffic will remain a seasonal challenge for residents.

6.2 VISION

Rye's vision for its future transportation systems and infrastructure is:

- All transportation projects will be undertaken with an eye to increasing safety, protecting our natural resources and preserving or enhancing the town's semi-rural character.
- Transportation networks will maximize safe, efficient and effective movement of people and goods into, around and through the town and connect with the wider transportation networks.
- Roadways will be maintained for efficiency, capacity and improved access management.
- Transportation improvements and plans will integrate land use and environmental planning.
- Growth strategies will be implemented to improve and further develop transportation systems and infrastructure.

6.3 ROADWAY NETWORK INVENTORY

Rye's roadway network is comprised of approximately 64 miles of local streets, roads and state highways. Most of Rye's main roads were laid out during colonial times along the ridges surrounding and between large wetland complexes. Figure 6-1 summarizes existing roadway miles by road type and ownership.

Figure 6-1

Road Miles by Type and Ownership			
Road Type	Miles		
State	12.4		
Local	44.2		
Private	7.2		
Not Maintained	0.2		
Total	64.0		
[Source: 2017 NHDOT]			

Figure 6-2 shows maintenance responsibilities for Rye's local and state roads.

Figure 6-2

Responsible for Maintenance	Road Segment		
State-maintained primary highways	Ocean Boulevard (1A) along the coast		
	Lafayette Road (NH 1) A portion of Wentworth Road (NH 1B)		
~	Brackett Road, from Pioneer to IA		
State-maintained secondary roads	Marsh Road		
	A small portion of Breakfast Hill Road		
	Most other in-town roads.		
Town-owned	New residential subdivision streets that are turned		
and maintained roads	over to the Town become Class V roads once they		
	are accepted by the Town.		

Nearly all bridges in Rye are owned and maintained by the State, except Harbor Road Bridge which is owned and maintained by the Town. The most recent bridge replacement was the Seavey's Creek Bridge on Route 1A which was completed in 2010. The culvert at the end of Wallis Road near Route 1A was replaced in 2015.

Figure 6-3 presents the NHDOT road system classification types and road miles. **Figure 6-3**

New Hampshire Department of Transportation Road System Classification					
Class	Description Classification				
Class I	Trunk Line Highways consist of all existing or proposed highways on the primary				
	state highway system, excepting all portions of such highways within the compact				
	section of cities and towns. The state assumes full control and pays costs of				
	construction, reconstruction and maintenance of its sections; the portions in compact				
	areas are controlled by the cities and towns under Class IV Highways.				
Class II	State Aid Highways consist of all existing or proposed highways on the secondary				
	state highway system, excepting portions of such highways within the compact section				
	of cities and towns, which are classified as Class IV Highways.				
Class III	Recreational Roads consist of all such roads leading to, and within, state reservations				
	designated by the Legislature. The state highway department assumes full control of				
	reconstruction and maintenance of such roads.				
Class IV	Town and City Streets consist of all highways within the compact sections of cities				
	and towns. Extensions of Class I and Class II highways through these areas are				
	included in this classification.				
Class V	Rural Highways consist of all other traveled highways which the city or town has the				
	duty to maintain regularly.				
Class VI	Unmaintained Highways consist of all other existing public ways, including highways				
	discontinued as open highways and made subject to gates and bars and highways not				
	maintained and repaired in suitable condition for travel for five consecutive years or				
	more.				
Note: Scenic ro	ads are special city and town designations of Class IV, V and VI highways where cutting or removal of trees				
or disturbance to stone walls must have written approval of local officials.					

Scenic Roads

For many, the roads of Rye are part of the semi-rural character worthy of preservation as evidenced by the town's enactment of the scenic roads provision of RSA 231: 57 and 231:58. Those roads which were existent at the time the warrant article was passed in 1973 are scenic roads. In Rye, Routes 1A and 1B together comprise one of New Hampshire's 14 Scenic and Cultural Byways. Under New Hampshire Law RSA 231:157. Municipalities can designate selected Class IV, V or VI highways as "scenic roads" by town vote. The law restricts the removal of stone walls and trees within the right of way during repair, maintenance and reconstruction of the road and such removal associated with development of adjacent land. The town benefits in designating scenic roads by preservation of the scenic and historic qualities of a road and of the semi-rural character of the town.

The portion of Route 1A in Rye and Pioneer Road are part of a designated a Scenic Byway. The New Hampshire Scenic and Cultural Byways Program was established in 1992 under RSA 238:19, "... to provide the opportunity for residents and visitors to travel a system of byways which feature the scenic and cultural qualities of the state within the existing highway system, to promote retention of rural and urban scenic byways, to support the cultural, recreational and historic attributes along these byways, and to expose the unique elements of the state's beauty,

3100

3000

culture and history." The legislation established the program and the Scenic and Cultural Byways Council to serve as an advisory body for the Scenic and Cultural Byway System. The administration of the program is through the New Hampshire Department of Transportation, Bureau of Planning and Community Assistance.¹

Traffic Volume, Travel Patterns, and Road Function 6.4

Traffic Volume

Sagamore Road south of Clark Road

The Town, the Rockingham Planning Commission (RPC), the New Hampshire Department of Transportation (NH DOT) and other agencies have monitored traffic volumes over the years at many locations throughout Rye. Traffic count data and information is reported in Figure 6-4 and available at www.nhdot.gov. Note traffic counts are conducted over a 3-day period during the week and thus do not capture weekend or seasonal peak traffic volumes.

Historic Average Daily Traffic Volumes 2009 Location FC 2008 2010 2011 2012 2013 2014 2015 2016 NH Route 1A (Ocean Blvd. at North 17 5200 3700 3752 Hampton town line) NH Route 1A (Ocean Blvd. north of * * * * 17 3200 Wallis Road) NH Route 1A (Pioneer Road west of 17 6100 4000 4027 Brackett Road) Elwyn Road at Portsmouth town line 17 7800 7400 NH 1A (Sagamore Ave. at * * * * * 16 7000 7000 Portsmouth town line) NH 1A (Ocean Blvd. south of Wallis * 17 3800 3400 2402 Road) NH 1B (Wentworth Road at * 5200 4900 16 5767 Portsmouth town line) NH 1A (Ocean Blvd. Rye Harbor) * * 17 3900 3700 3316 Clark Road west of Brackett Road * * 17 * * * * 450 Harbor Road east of NH 1A * 19 * 708 640 320 Brackett Road south of NH 1A * * * 17 2100 1400 1804 Sagamore Road south of Berry Brook * * * * * 19 4400 4700 4394 NH 1A (Ocean Blvd, north of * * * 17 2100 Pollock Drive Washington Road east of NH 1 * * * * * 17 * 3600 Wallis Road north of Acorn Acres * * * * *

Figure 6-4

FC = Urban Functional Roadway Classifications: 16-Minor Arterial, 17-Collector, 19-Local/Public

17

17

Note: Count discrepancies: If a traffic volume count occurred during a week where travel was higher or lower due to a non-recurring event or some other external factor or if a counter malfunction occurred, counts would be significantly affected.

^{*} Data Not Collected [Source: NH Department of Transportation]

¹ New Hampshire Department of Transportation website https://www.nh.gov/dot/programs/scbp/

Rye's roadway network operates, for the most part, well within its functional capacity per the Road Management Plan, which was conducted by StreetScan Inc. in 2015. Occasional congestion does occur, primarily during the summer months on routes to and from the beaches specifically at Foye's Corner and Pioneer Road (NH 1A). [The Foye's Corner intersection was a safety and traffic volume capacity concern. Previously it was a three-way-stop controlled intersection with odd approach angles. In 2007, the NH Department of Transportation redesigned the intersection at Foye's Corner and constructed a new roundabout which allows traffic to flow freely at low speeds without stopping.] The town also reconfigured the intersection of Central Road and Cable Road by adding turn lanes and landscaped islands.

Pioneer Road (NH 1A) a designated Scenic Byway controlled by the State. Its shoulders have been upgraded to better and more safely serve the significant bicycle traffic that frequents the Seacoast area.

Infrequent and inconsistent traffic count data makes it difficult to determine the root causes of traffic volume increases; they may be attributed to several different general possibilities:

- Diversion to alternative routes due to congestion either within Rye or on roads outside of Rye: For instance, congestion in Seabrook or Hampton may cause fewer people to travel the length of Ocean Boulevard, using alternate routes such as I-95 to Ocean Road to enter Rye via Lang Road or I 95 to NH 1 to enter Rye via Elwyn Road. Dow Lane is often used as a cut-through to access Lafayette Road/NH Route 1.
- Changes in the adjacent geographic areas: Within the time period of reported traffic counts, Pease Tradeport had significant changes in employment levels as did the City of Portsmouth and robust development occurred along the Route 1 corridor.
- Shifting travel destinations for tourists: Changes in gas prices, for example, can impact traffic volume during the warm season months.
- Count discrepancies: If a traffic volume count occurred during a week where travel was higher or lower due to a non-recurring event or some other external factor or if a counter malfunction occurred, counts would be significantly affected.

Traffic Circulation

Most trips in or out of Rye are coming from or going to Portsmouth to the north, west to NH 1, and south along Route 1A. Such trips include work, shopping and entertainment trips of mostly Town residents, as well as the bulk of seasonal traffic headed to and from the beaches or merely passing through on Ocean Boulevard. The orientation of Rye's principal traffic artery (i.e., Washington Road to Wallis Road to Sagamore Road) is south-to-north.

Lang Road is already carrying increasing traffic volumes as it becomes more of a primary access point between Rye and Portsmouth. Mill Road/West Road may also show increased volumes if it is used as an alternative to traveling on NH Route 1. Truck traffic on local roads create impacts as they service businesses in Rye and surrounding communities.

To limit through truck traffic, the Town can place limits on some roadways under certain conditions as long as reasonable alternative routes exist. To assure that commercial transport

trucks use the proper roads, the town should enforce RSA 47:17, Section VIII "Traffic Devices and Signals".

The interrelationships between population growth, employment patterns and land use ultimately affect transportation patterns and frequency. Dispersed housing contributes to low density road networks and sprawl development in the Seacoast Region. Vehicle miles traveled and total vehicle trips have increased at rates that are two or three times faster than either population or housing growth, partly due to cut-through traffic as an alternative to NH Route 1. The projected growth in the region, and the likelihood of a continued pattern of dispersed land use, foreshadows a continued rise in motorized travel for the foreseeable future.

Parking Along Route 1A/Ocean Boulevard Corridor

In 2015, the town hired a consultant to prepare a Parking Assessment Study for the Ocean Boulevard Corridor. Following is an excerpt from the Executive Summary of this report.

The seacoast is a popular summer destination, with the Ocean Boulevard (Route 1A) corridor in the Town of Rye an attractive destination for residents and visitors. This corridor is heavily traveled by vehicles and bicycles visiting the beaches and coast. The limited width of the corridor, with no sidewalks or bicycle paths compounded with the multiple residential and commercial driveways, creates potential safety conflicts. The seasonal popularity of the beaches results in a parking demand that exceeds the available supply. While the seasonal impact to residents can be disruptive, there is an adequate "resident only" parking supply along the corridor. The study recommends, observes, and/or comments on the following:

- There appear to be signage and striping inconsistencies that have evolved over the years in response to parking demands. Also, a number of signs have been added to the corridor that were neither installed nor approved by the Town of Rye.
- The town should conduct a comprehensive assessment of all signage and striping along the corridor to ensure signage and striping are in accordance with the latest standards and approved by the town and New Hampshire Department of Transportation (NHDOT).
- Provides observations for the town's consideration regarding adjusting parking along the corridor to provide proper sight distances by eliminating parking adjacent to roadway intersections and near intersections with residential and commercial driveways. In the congested areas along the Jenness State Beach and Wallis Sands Beach (also known as Pirates Cove) area, the study suggests that designated parking spaces could be striped to eliminate confusion on where parking is allowed in proximity to the roadway and driveway intersections. Other options include removal of parking along the more congested sections of Ocean Boulevard.

The complete parking assessment and recommendations are available on the town's website at http://town.rye.nh.us/pages/RyeNH_BComm/FOV1-0004558C/traffic_assessment.pdf.

6.5 PUBLIC SAFETY AND ROADWAY ACCIDENTS

The NHDOT website at http://www.nh.gov/dot/nhbikeped/safety.htm publishes helpful safety information for motorists and bicyclists as well as their bicycle safety brochure the "Don't Be A Road Warrior".

Accident Data

A record of total motor vehicle accidents for the past 12 years is shown in Figure 6-5.

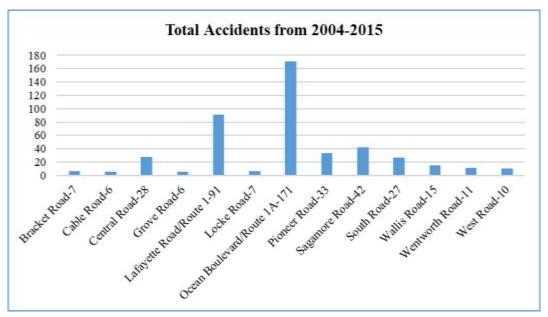
Figure 6-5

Motor Vehicle Accidents From 2004 To 2015				
Year	# Vehicle Accidents	Year	# Vehicle Accidents	
2004	98	2010	9	
2005	97	2011	25	
2006	77	2012	24	
2007	67	2013	29	
2008	67	2014	32	
2009	27	2015	54	

[NHDOT Vehicle Accident Database, 2015]

The roadways reported in Figure 6-6 have the highest incidence of traffic accidents. Many of these locations are characterized by high traffic volumes and multiple curb cuts.

Figure 6-6



Emergency Vehicle Access

Two characteristics of the town's transportation system have the potential to negatively impact public safety and particularly emergency vehicle access. First is the high degree of peak hour traffic congestion on Route 1A during the summer months. At these peak periods, it becomes difficult for fire and police vehicles to travel this route when responding to emergencies. Second, older cul-de-sac roads which lack connections to one another could prevent emergency vehicle access should the road become temporarily obstructed.

6.6 Transportation Options

Driving alone is expensive and contributes to increased traffic congestion and air pollution. Public transportation is defined as any transportation service available to the public, whether it is publicly or privately funded. Public transportation makes efficient use of the existing road network, carrying passengers that otherwise might be driving their own vehicles. It also offers social benefits by providing a reliable means of travel for those who are unable or otherwise choose not to drive themselves.

Bicycle Travel

Bicycle travel in Rye is primarily recreational and seldom used for commuting to work, school or other destinations. Rye has one paved, off-road bicycle path which runs adjacent to NH 1A from the bridge at Berry Brook estuary south through Odiorne State Park. It rejoins the roadway just north of Wallis Sands Beach.

There is significant bicycle transportation planning going on at the state and regional levels. One of the primary goals of New Hampshire's Statewide Bicycle and Pedestrian Plan is to recognize, support and encourage bicycling and walking as alternatives to motorized forms of transportation. The State's transportation plan includes a "Statewide Bicycle Route System" which was adopted as the most suitable network of existing roads to serve the needs of interregional bicycle trips. NH 1A is part of that state bicycle network.

In addition, there is a regional bike network, Seacoast Area Bicycle Routes (SABRE), which complements the state system with local roads that are considered bicycle-friendly within communities. It identifies loop routes as well as connections with other towns. Rye's Washington, Mill/West, Grove, Central, Cable, Wallis and Sagamore Roads provide connections between State-identified routes NH 1A and NH 33 and established routes with lower vehicular volumes in other seacoast towns.

Rye Highway Pavement Width Policy – adopted in 2005 to provide safer navigation for pedestrians and bikers. It shall be the policy of the Town of Rye to widen the shoulders of Class IV highways whenever possible. This is to be accomplished in the following manners.

<u>Reclamation or Reconstruction</u>: When a Class IV highway is reclaimed or reconstructed, the pavement width will be increased from 24 feet to 26 feet whenever feasible. In areas where no increase or partial increase in pavement width is possible, efforts will be made to create a 3-foot shoulder on one side of the highway, with appropriate crosswalks or signage. The painted lines delineating the travel lanes shall be reduced to 11 feet, 6 inches.

Overlay: When a highway is being overlaid, it is not possible to increase the pavement width, without adequate substructure. When the lines are being repainted, however, the travel lanes shall be reduced to 11 feet, 6 inches.

Alternative Transportation Options

To help commuters cut costs and to reduce traffic congestion and air pollution, the NH DOT has constructed 25 park and ride lots throughout the State. The Portsmouth Transportation Center -Park and Ride on NH 33 at I 95, Exit 3 is the State's largest facility of this type. It has a 1,210car capacity and bike racks. Part of the reason for success of this well-used facility is its relationship to the C&J Trailways and COAST bus systems. The convenience of these services allows users to link bus travel with Logan Airport, the metropolitan Boston public transportation system, and the Downeaster Train, serving Exeter, Durham and Dover. This park and ride is well situated to serve Rye residents who commute via I-95.

NH Rideshare is a free commuter matching service provided by the NH DOT. It facilitates commuters finding alternative ways to travel to and from work. By using Geographical Computer Matching, it provides commuters with information and assistance about carpools, vanpools, buses, and trains. Residents register with the NH Rideshare Program at http://www.nhrideshare.com.

Rye currently has two demand-response transportation options for its elderly residents. Users may call Lamprey Health Care for transportation assistance or the local volunteer organization Rye Senior SERVE (Serving Elder Residents through Volunteer Efforts).

Additional transportation options can be found on the following State of New Hampshire web

sites: http://www.NHDOT.gov

http://www.NH.GOV.../Rye.pdf

http://www.NH.GOV/DOT/ORG/OPERATIONS

6.7 Climate Change and Adaptation

Tides to Storms Vulnerability Assessment Report (2015) – As described in Chapter 3

The Tides to Storms Vulnerability Assessment report (2015, Rockingham Planning Commission) details impacts from sea-level rise and storm surge flooding to Rye's land and natural resources, transportation infrastructure and critical facilities. Local and state roadways and upland areas serviced by those roads are highly impacted by coastal flooding. The maps and sea-level rise projections from this report should be consulted as part of Planning Board review of development applications and Zoning Board of Adjustment review of variance and Special Exception applications. The report is available at http://www.rpc-nh.org/regional-communityplanning/climate-change/resources.

The Tides to Storms Vulnerability Assessment report for Rye identifies several issues of concern with respect to the vulnerability of transportation networks and infrastructure to flooding from sea-level rise, storm surge and future adaptation needs:

- Improvements to the state roadway network (elevating, enlarging culverts and bridges) may affect local connector roads, driveway access points and connecting infrastructure and utilities.
- Although roadways, buildings and infrastructure can be protected by raising them above projected sea-level elevations, supporting land and land based uses may be impacted by daily tidal flooding Figure 6-7. Debris covers Route 1A from projected sea-level rise.



following the Nor'Easter 3-3-2018.

- Ownership of transportation infrastructure and assets by multiple state agencies (roadways, culverts, state parks, parking areas) and town responsibility for management of assets (sidewalks, culverts) creates complexity in comprehensively managing these systems and implementing climate adaptation strategies.
- Flooding from sea-level rise and coastal storm surge impacting the state and local roadway network adjacent to the Route 1A disrupt the designated evacuation network in Rye and connections to evacuation routes in adjacent towns.
- Long term infrastructure management, incorporating a staged and iterative approach, would benefit from an analysis of the costs necessary to improve roads and drainage infrastructure to withstand projected sea-level rise elevations in 2050 and 2100.
- Severe storms have damaged the coastal New Hampshire in the past and will likely occur in the future, possibly exacerbated by sea-level rise.

Recommendations for Climate Adaptation Actions (from the Tides to Storms report, 2015, and NH Coastal Risk and Hazards Report, 2016)

- T1. Prepare a road maintenance and improvement plan to coordinate town and state roadway plans and improvements. The plan should include timeframes, responsible parties, budgets and strategies/actions.
 - 1a. Continue ongoing coordination between the state and town, particularly with respect to repeated restoration to repair storm damage and continual maintenance of the shale piles on Route 1A.
 - 1b. Open discussion with the NH Department of Transportation about long-term management of sections of coastline protected by shale piles.
 - Comprehensively manage transportation infrastructure and assets owned by multiple state agencies (roadways, culverts, state parks, parking areas) and assets owned or managed by the town (sidewalks, culverts). Formalize a process to

- facilitate asset management (e.g. agreement or Memorandum of Understanding with NHDOT).
- 1d. Develop a long-range municipal roadway network management plan that incorporates climate change adaptation strategies.
- 1e. Analyze the costs necessary to protect and adapt roads and drainage infrastructure to withstand projected sea-level rise elevations by 2050 and 2100, as depicted on the Tides to Storms maps (RPC, 2014). Information about the costs and benefits of replacing the shale piles with another protective option would be very valuable.
- 1f. Utilize Tides to Storms maps (RPC, 2014) to identify and prioritize roadway improvements.
- T2 Evaluate designated evacuation networks in Rye and their connections to evacuation routes in adjacent towns and the region.
 - 2a. Consider flood impacts from sea-level rise and storm surge on designated evacuation routes and adjust emergency management plans accordingly including evacuation plans.
- T3 Improve general maintenance and clearing of existing culverts to retain flow and function.

6.8 NEXT STEPS

- T4 Conduct a comprehensive and systematic transportation needs assessment that addresses:
 - traffic safety and speed on local and state roadways,
 - feasibility of traffic calming measures,
 - transportation needs for senior and disabled residents,
 - identification of pedestrian and bicyclist needs,
 - identification, inventory and protection of existing scenic vistas,
 - effects of cut-through and truck traffic, and
 - demand for fixed-route public transportation stops.
- T5 Continue to encourage and support volunteer and public transportation alternatives for senior citizens and disabled residents.
- T6 Ensure that new housing developments address plans for residents' access to services.
- T7 Pursue funding options for sidewalks that will connect the new safety building, the library, the elementary and junior high schools (e.g. availability of Federal Transportation Enhancement Funds).
- T8 Pursue funding options for shoulders along route NH 1A and Pioneer Road to improve bicycle safety.
- To the extent possible, implement the town's 2005 road policy to accommodate shoulder widening by reducing lane widths when a Class IV road is repayed or reconstructed.

- T10 Promote the implementation of context-sensitive solutions to any roadway improvements, including the use of access management, traffic calming and other techniques.
- T11 Consider options for limiting through truck traffic, including time-of-day, seasonal or tonnage limits.
- T12 Prioritize the sections of older roads requiring rebuilding due to drainage needs or inadequate initial construction standards and continue participating in US-1 Corridor planning efforts. Continue to look at all access roads into and out of Rye.
- T13 Support and promote both fixed-route and demand-responsive public transportation services, as well as support and promote the usage of both the Portsmouth Park and Ride facility and the NH Rideshare Program.
- T14 Seek improved route connections to our wider regional transit networks.
- T15 Explore implementation of recommendations from the Safe Routes to School Travel Plan.
- T16 Prioritize the most timely and relevant of the transportation recommendations from the regional Route 1A/1B Scenic Byway Corridor Management Plan, and act accordingly. This will require considering the following:
 - 16a. Identify areas with severe safety problems and/or demonstrated parking shortages and develop a plan for expanding or relocating parking while minimizing impact on surrounding area characteristics.
 - 16b. Designate roads for 3-foot wide paved shoulders within the existing paved right-of-way with appropriate signage and roadway strips identifying the shoulder as a bike/pedestrian facility. Areas identified as heavy in pedestrian traffic should have crosswalk improvements. Provisions shall be implemented to protect the character of scenic roads. Refer to the text box on page 6-8.
 - 16c. Work with the State to conduct a feasibility study to identify strategies for developing bike/pedestrian ways along stretches of Route 1A/1B where 4-foot shoulders are not feasible.
 - 16d. Install bike racks and benches at key points in corridor, i.e., state parks, beaches, scenic overlooks, etc.
 - 16e. Explore the possibility of developing and printing a Seacoast bicycle map to tie into any future statewide bicycle map and show walking trails.
 - 16f. Install signs, sheltered waiting areas and benches at key stops along existing transit routes (Pursue private and/or federal transportation funds).
 - 16g. Utilize existing publicly-owned parking areas (i.e., schools, municipal lots) and pursue the cooperation of private sector in allowing a portion of their parking lot to be used for seasonal Park & Ride or other transportation services.